

# Assessment of Knowledge and Attitude towards Generic Medicines Versus Branded Medicine in Second MBBS Students: A Questionnaires Based Study

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**Abstract**— This is a cross-sectional observational study conducted in MGIMS Sewagram. Second MBBS Second term students (65) enrolled for this study. After ethical approval, the study was carried out using questionnaires which was designed to assess the knowledge and attitude of generic medicines and branded medicines. Before study, written informed consent were taken from the students. Pre-test questionnaires were given to the students to check their knowledge and attitude. After that lecture was taken on generic medicine to sensitize the students about the topic. After one week again post-test form was given to assess the knowledge and attitude they retain during this period. Both pre-test and post-test assessment were done using Likerts scale. Data collected by Pre-test and Post Test Scores then compiled and analyzed. P-values of <0.01 were considered to indicate statistical significance. It was found that there is a lack an extensive understanding of the concept of bioequivalence and safety and quality of generic medicines which was improved after sensitizing programme.

**Keywords**— Generic medicines; branded medicines; Second MBBS students.

## I. INTRODUCTION

An increase in medical expenditures has led health care providers and authorities to implement measures to minimize costs and maximize cost savings. Brand-name medications are typically 30%–60% more expensive than their generic counterparts<sup>1</sup>. A generic drug is a medication created to the same as an already marketed brand name drug in dosage form.<sup>2</sup>

The requirement and necessities for healthcare services are towards upward shifts because of ageing population, increased life expectancy and new developments in treatment modalities. A worldwide increase in healthcare costs poses a burden of affordability of medicines<sup>3</sup>.

As reported by the WHO, in many developing countries out - of pocket expenses may go up to as high as 80% of total health care expenditures. Physicians may favor branded medicines on various accounts. The unethical practices being adopted by the companies make the essential medicines unaffordable to common man. Promotion of generic medicines is very important for India as well as other developing countries for their health care policy.<sup>4</sup>

The debate surrounding generic prescriptions has centered on issues relating to bioequivalence, quality and safety. According to the FDA, the determination of the bioequivalence of a generic drugs involves an assessment of pharmacokinetic parameters such as area under curve (AUC) and peak concentration (Cmax).<sup>5</sup>

It is well known fact that generic drugs are the drugs that are usually intended to be interchangeable with an innovator product that is manufactured without a license from the innovator company and marketed after the expiry date of the patent or other exclusive rights<sup>6</sup>.

In many countries generic drugs are subjected to the government regulations. However, it has been already introduced in our country yet its uses and value is still not known by many people. The significance of these drugs is not known by the common man, it is the responsibility of all the aware. In other countries like United State of America, community pharmacist plays an important role in dispensing medicines and hence their cost awareness becomes crucial. But in India, the concept of community pharmacist doesn't exist and hence cost of drug selection lies with the doctors.<sup>7</sup> Previous studies on general practitioners have shown that existing prescribing behaviors is difficult.<sup>8</sup>

In order to encourage the use of generic medicines, it is necessary to sensitize medical students from Second year as they oriented to different clinical posting and subject Pharmacology. Hence, the primary objective of this study is to explore the knowledge, attitude of Second MBBS students towards generic medicines versus branded medicine.

## II. MATERIAL AND METHODS<sup>3,9</sup>

**Research Design:**

It was a cross sectional, prospective, questionnaires-based observational study. The study was conducted at Mahatma Gandhi Institute of Medical Science Sewagram.

The study was started after approved in institutional ethical committee. Consent of all the participating students were taken. The Sample:

All the Second MBBS students on the day of study (65) were included. While students who were not willing to participate in the study and student who were absent on the day of study were excluded.

**Sampling Process:**

The project included quantitative data. Quantitative data was in the form of pre-test and post-test marks. It was used to compare them. Pre-validated questionnaires which were also used by different authors was used to collect the data from responders. The questionnaires were designed to assess the knowledge and attitude about generic and branded medicines. Questions were framed in a five-point Likert scale format (5 = 'strongly agree'; 4 = 'agree'; 3= 'neutral'; 2= 'disagree' and 1 = 'strongly disagree'). This type of scale was chosen because its construction is relatively simple and the interpretation of results is straightforward. This five-point Likert scale was reconstructed on three-point scale considering as Neutral, Strongly agree and Agree as Yes and Disagree and Strongly disagree as No. The questionnaire contained total 35 questioned designed, out of that 23 questions related to knowledge and 12 questions attitude related about generic and branded medicines.

The pre-test questionnaires were given to Second MBBS student to test their knowledge and attitude about the generic medicines and branded medicines. After collection of pre-test data, the lecture was taken to sensitize regarding generic drugs and its use. After one week again post-test was taken to know how much they sensitize about branded drugs and generic drug. Data collection tools:

Pre-test and Post Test Scores.

### III. OBSERVATION AND RESULT

Statistical Analysis Data gathered by the questionnaire were analysed. Data was compiled and analyzed. P-values of <0.01 were considered to indicate statistical significance.

Result:

TABLE 1. Knowledge related questions and frequency (%) of responses.

S. No	Questions		Yes	No	Neutral	p-value
			No. (%)	No. (%)	No. (%)	
1	Do you know what Generic medicines are?	Pre-test	35 (54)	15 (23)	15(23)	P< 0.01
		Post-test	60(93)	-	5(8)	
2	Do you know what Branded medicines are?	Pre-test	40(62)	5(8)	20(31)	P<0.05
		Post-test	52(80)	5(8)	8(12)	
3.	Do you use generic medicines?	Pre-test	15(23)	25(38)	25(38)	P< 0.01
		Post-test	37(57)	19 (29)	9 (14)	
4	Do you use branded medicines?	Pre-test	35(54)	10 (15)	20(31)	P<0.05
		Post-test	48(74)	10 (15)	7(11)	
5	Generic medicines are as effective as Branded medicines	Pre-test	26(40)	30(46)	9(14)	P< 0.01
		Post-test	55(85)	5(8)	5(8)	
6	Generic medicines are as safe (i.e. has similar side effects) as Branded medicines.	Pre-test	25(38)	20(31)	20(31)	P< 0.01
		Post-test	54(83)	6(9)	5(8)	
7	Generic medicines are approved by FDA	Pre-test	5(8)	-	60(92)	P< 0.01
		Post-test	45(70)	10(15)	10(15)	
8	Do you think that Branded Medicines are more expensive than Generic medicine?	Pre-test	25(38)	20(31)	20(31)	P< 0.01
		Post-test	55(85)	5(8)	5(8)	
9	Do you think that expensive medicine (Branded) are more effective than cheaper medicines (Generic)?	Pre-test	37(57)	18(28)*	10(15)	P< 0.01
		Post-test	13(20)	37(57)*	15(23)	
10	The quality of Generic medicines is better than those of Branded medicine?	Pre-test	30(46)	20(31)*	15(23)	P>0.05
		Post-test	22(34)	23(35)*	20(31)	
11	Generic medicines are copy of brand medicines.	Pre-test	10(15)	40(62)	15(23)	P< 0.01
		Post-test	52(80)	3(5)	10(15)	
12	Generic medicines are interchangeable with brand medicines.	Pre-test	13(20)	12(18)	40(62)	P< 0.01
		Post-test	30(46)	26(40)	9(14)	
13	Generic medicines must be in same dosage-form (tablet or capsules) that of brand medicines.	Pre-test	30(46)	10(15)	25(39)	P< 0.01
		Post-test	54(83)	6(9)	5(8)	
14	Generic medicines are less safer than brand medicines	Pre-test	20(31)	15(23)*	30(46)	P< 0.01
		Post-test	10(15)	40(62)*	15(23)	
15	Only those generic medicines are safer which are made by reputed manufacturer.	Pre-test	35(54)	20(31)	10(15)	P<0.05
		Post-test	42(65)	13(20)	10(15)	
16	Generic medicines are manufactured after the patent expiry of originatoe/Innovator.	Pre-test	12(19)	23(35)	30(46)	P< 0.01
		Post-test	52(80)	8(12)	5(8)	
17	Brand name medicines are of good qualities than generic medicines.	Pre-test	31(48)*	10(15)	24(37)	p>0.05
		Post-test	33(51)*	10(15)	22(34)	
18	Brand name medicines required higher safety standards than generic medicines.	Pre-test	40(62)	15(23)	10(15)	p>0.05
		Post-test	44(68)	11(17)	10(15)	
19	Brand name medicines produce less side effects than generic medicines	Pre-test	28(43)	17(26)	20(31)*	P< 0.01
		Post-test	8(12)	42(65)	15(23)*	
20	Low price medicines are equally effective as high price medicines.	Pre-test	12(18)	43(66)	10(15)	P< 0.01
		Post-test	32(49)	26(40)	7(11)	
21	Generic medicines manufacturer needs to conduct bioequivalence studies.	Pre-test	21(32)	19(29)	25(39)	P< 0.01
		Post-test	50(77)	5(8)	10(15)	
22	Are you aware of scheme of govt.of India "Jan-aushadhi Yojna" whose purpose is to set up generic stores around the country.	Pre-test	35(54)	20(31)	10(15)	P< 0.01
		Post-test	52(80)	1(2)	12(18)	
23	Are you aware that generic stores also available in our hospital?	Pre-test	50(76)	1(2)	14(22)	p>0.05
		Post-test	53(82)	2(3)	10(15)	

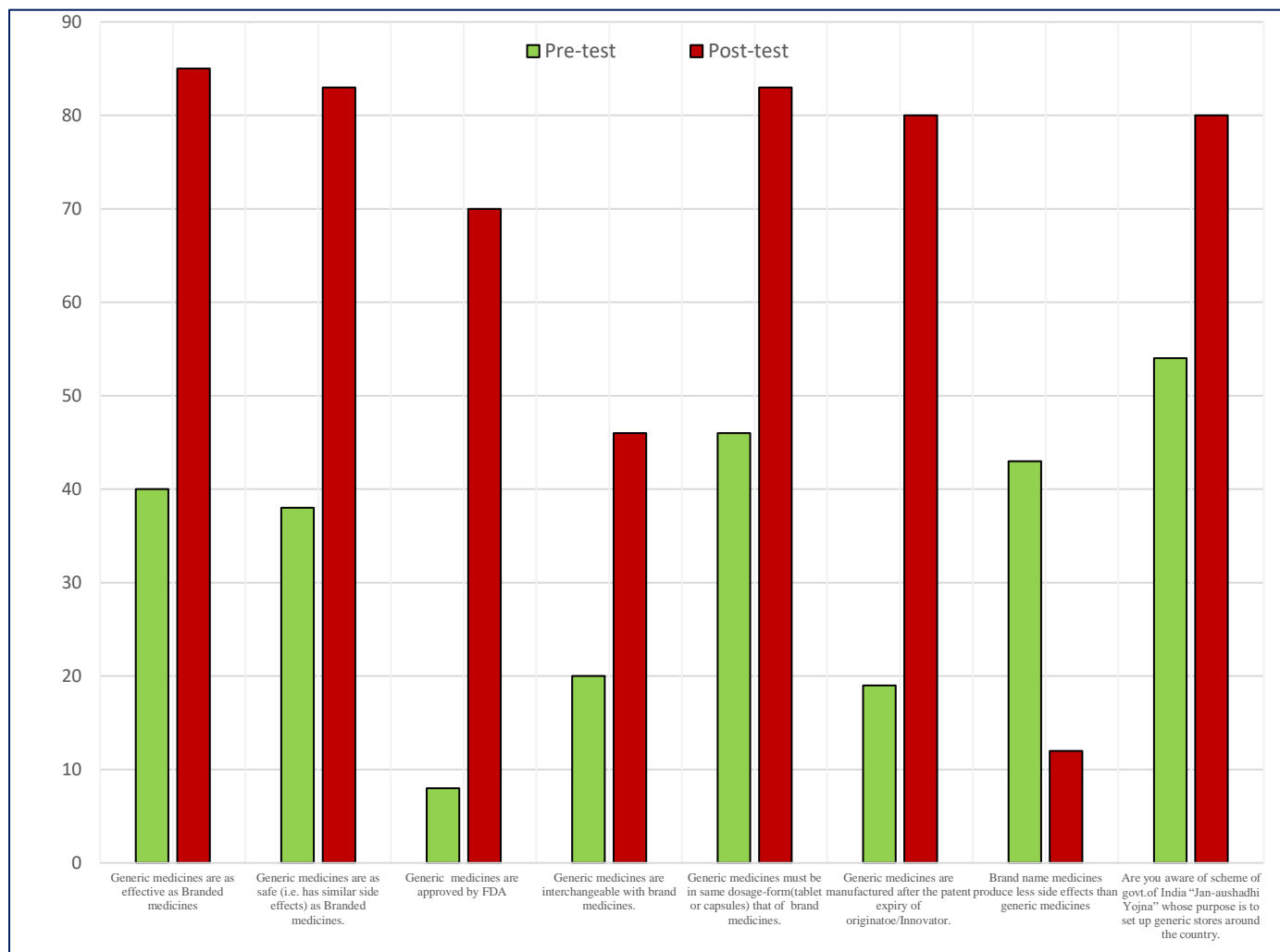


Fig. 1. Assessment of Knowledge

**Knowledge about generic medicines:**

The knowledge related questions and frequency of response of the participants is shown in Table 1. It is evident from the table that 54% (P value <0.01) students have idea about generic medicines while 62% had idea about branded medicines. Only 23% participants given response for using generic medicines while 35% participants said that they used mostly branded drugs. According to 38% - 40% students' generic medicines were effective and safe as branded medicines. 38% students mentioned that branded drugs were more effective and expensive than generic and cheaper drugs. Only 20% students agreed that generic medicines were interchangeable with branded medicine before sensitization lecture but after one week positive response was received for same question, it becomes 46%. About 46% students had knowledge that composition, dose of generic medicines was same as the branded counterparts in pre-test and in post-test 83% students gave positive response for the same question.

**Attitude:**

Attitude related questionnaires and their responses have been summarized in table 2. It is found that 54% students agreed that they don't received generic prescription from doctors after sensitization programme on generic medicine which was during pretest only 38% while 85% students shown response that only branded medicines prescribed by doctors. Very few students asked doctors (3%) and pharmacist (15%) regarding generic alternative for a branded medicines. 62% students agreed after sensitization of generic drugs that they will switch to generic alternative whenever available.

So according to present analysis, there were gap identified in the knowledge of generic medicines. Misunderstanding were identified about safety, efficacy and quality of generic medicines Nearly same type findings were observed by studies done in Australia by Hassali and his team, Sharrad AK and Rohini Gupta<sup>4,5</sup>. This study also supported the findings of Pritul Bhattacharji.

TABLE 2. Attitude-related questions and frequency of (%) of responses.

S. No	Questions		Yes	No	Neutral	P-value
			No (%)	No (%)	No (%)	
1	Do you get generic prescription from your doctor?	Pre-test	25(39)	25(38)*	15(23)	p>0.05
		Post-test	10(15)	35(54)*	20(31)	
2	Do you get branded prescription from your doctor?	Pre-test	31(48)	9(14)	25(38)-C	P< 0.01
		Post-test	55(85)	0	10(15)	
3	Have you ever asked your doctor if there was Generic alternative for a Branded medicine that he or she had prescribed for you?	Pre-test	2(3)	13(20)*	50(77)	P< 0.01
		Post-test	7(11)	35(54)*	23(35)	
4	Have you ever asked your pharmacist if there was a Generic alternative for a Branded medicine that you were taking?	Pre-test	10(15)	25(38)*	30(46)	P< 0.01
		Post-test	12(18)	42(65)*	11(17)	
5	If Generic alternative for your Branded medicines were available, would you switch to the Generic alternative?	Pre-test	25(38)	22(34)	18(28)	P< 0.01
		Post-test	40(62)	10(15)	15(23)	
6	Has a doctor or pharmacist ever recommended that you switch from a Branded medicine to a Generic alternative?	Pre-test	10(15)	35(54)	20(31)*	P< 0.01
		Post-test	5(8)	25(38)	35(54)*	
7	Generic medicines fails to treat serious condition.	Pre-test	40(62)	5(8)	20(31)	P< 0.01
		Post-test	12(17)	40(62)	13(20)	
8	Low cost brand should be given to only poor patient.	Pre-test	43(66)	2(3)	20(31)	P< 0.01
		Post-test	10(15)	35(54)	20(31)	
9	Do you think socioeconomic condition influence the doctors prescription?	Pre-test	45(70)	12(18)	8(12)	P< 0.01
		Post-test	27(41)	35(54)	3(5)	
10	Do you think patients demand influence doctors prescription?	Pre-test	22(34)	28(43)	15(23)	p>0.05
		Post-test	35(54)	20(31)	10(15)	
11	Do you think medical representative is a good source to help to decide in drug prescription?	Pre-test	35(54)	20(31)	10(15)	p>0.05
		Post-test	38(58)	14(22)	13(20)	
12.	Pharmaceutical company offer gift, so it affect doctors prescription?	Pre-test	37(57)	13(20)	15(23)	P<0.05
		Post-test	25(38)	20(31)	20(31)	

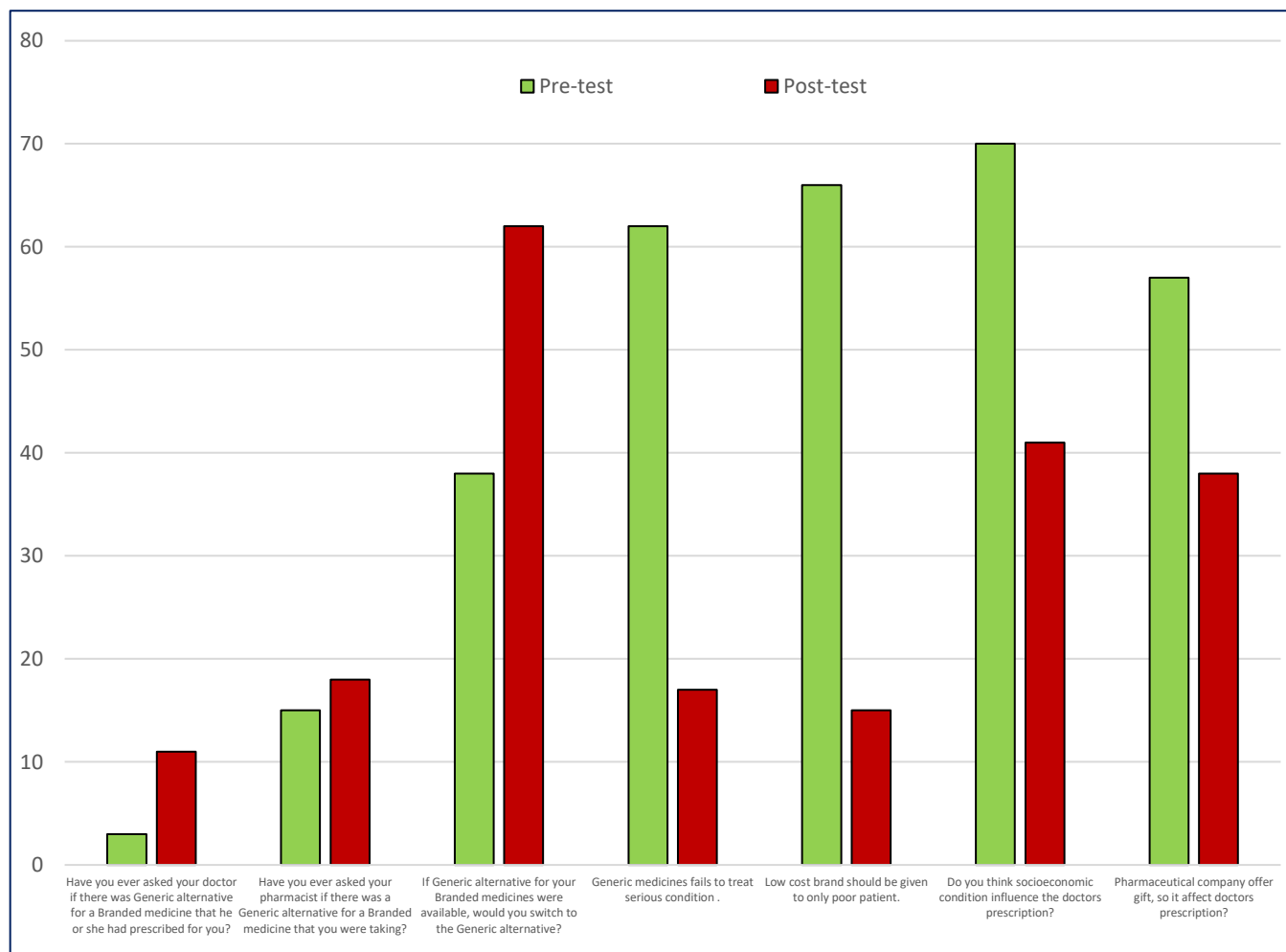


Fig. 2. Assessment of Attitude

#### IV. DISCUSSION

In spite of encouragement from policy-makers, generic drug use in India is yet to gain widespread popularity, and the practice so far has remained confined mostly to institutional setting in small pockets of the country. In this study we observed that the participants thought that generics are less potent than branded medicines. However, poor people are forced to settle due to low therapeutic cost. According to Manisha Das and her team 46% of branded users and 40% of generic drug users faced problem while purchasing due to unavailability of the medicines concerned. This is an issue of concern and might lead to ineffectiveness of the policy in future.<sup>10</sup> Palagyi and Lissanova (2008) reported that 17% of the study populations considered generics inferior to brand-name drugs in terms of quality among patients from Slovakia.<sup>11</sup> But after sensitization programme on generic medicines significantly high numbers of students agreed that generic drugs are an important tool for reducing overall health expenditure. In Indian context, the cost of generic drugs has been found to be up to 91% less than that of innovator medicine<sup>4</sup>.

According to questions which explored the medical students knowledge of a dosage forms and doses when comparing generic medicines with branded medicines according to FDA's requirement near about 50% students did not know the definition of generic medicine. Under the FDA regulations, a generic drug must contain identical amount of the same active ingredients in the same dosage form as a branded medicine.<sup>12</sup>

Questions that evaluated the medical students' knowledge when compared to brand medicines 48%-50% students believed that branded medicines are of good qualities than generics and 43% students said that branded drugs have less side effects than generic drugs. Same type of opinion found by Sharrad AK who carried out the study on final year students. Similarly, in a previous study conducted among interns in Australia, 80% of the medical interns believed that their consultants would influence their prescribing practices.<sup>13</sup>

According to S. Jain such type of study provided new information on the consequent effects of price, efficacy, counselling, brand and other product characteristics by patients between generic and branded medicines.<sup>14</sup>

#### V. LIMITATION OF STUDY

This study has limitation. As far as the sample size of the main study is concerned, an adequate proportion of the population was examined allowing for generalization of the results.

#### VI. CONCLUSION

This study clearly shows that there is lack an extensive understanding of the concept of bioequivalence and safety and quality of generic medicines. In order to encourage, medical students need to be receiving a better education on the issues relating to generic medicines and generic prescribing. This could be achieved by including the relevant topics in the current medical education curriculum. It is possible that more the educated people more they would be opened to try new ideas and willing to try out generic medicines.

Conflict of interest: No

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