



## A CROSS-SECTIONAL SURVEY ON THE AVERAGE PUBLIC'S KNOWLEDGE TOWARDS ALLOPATHIC GENERIC DRUGS AND THEIR SIDE EFFECTS.

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### Abstract:

**Background:** Most people in India were not aware of generic drugs. Limited studies were conducted in the country regarding the usage and ADR of allopathy medicine.

**Objectives:** The study's objective is to find out the knowledge about allopathic medicine and its generic counterpart among participants. We also assess the awareness about the ADR of allopathic medicine.

**Methods:** The cross-sectional study was conducted through an online web survey over six months. We Distributed the questionnaire via the online platform.

**Results:** A total of n=273 responses were obtained, which was concentrated to n=201. Of 201 participants, around 30% hadn't heard the phrase generic medicine. Around n=121(60.25%) of the population needed to ensure medicine availability in generic stores. Over n= 48, (23.88%) of participants were not aware of ADR.

**Conclusions:** We concluded that the people had enough knowledge about generic drugs but lacked awareness of the locations and availability of generic medicines in their local area; the Government taking necessary actions to promote generic drugs would help reduce the economic burden on branded ones. Individuals who take medications should be educated about potential side effects and how to address them.

**Keywords:** Generic and branded medicine, ADR.

### 1. INTRODUCTION:

The allopathy system of medicine is also called Modern medicine, Mainstream medicine, Conventional medicine, and Western medicine; in India, it is popularly called English medicine. Indian health system after the post-independence was a monopoly. It is based on Western bio-medicine. About 88% of tertiary care hospitals in India practice allopathic medicine<sup>[1]</sup>; Allopathy has become the preferable remedy for even the most remote people in India. Nearly maximum patients use allopathic medicine, but fewer than part of the patients stick with other forms of curing, such as Ayurveda, homeopathy, meditation, and yoga<sup>[2]</sup>. Patients who take regular medicines for long-term diseases like diabetes would struggle to buy the drugs. Certain medicines were more expensive, such as a specific brand favoured by doctors that might only be available from a particular pharmacy; specific chemotherapy and hormonal therapy drugs were more expensive. Only a limited number of the population owned their health policies; around 70% of the Indian people were to spend money on

primary healthcare services from their own pockets<sup>[3]</sup>. Out-of-pocket (OOP) payments on healthcare among households in India have become a major source of expenditure for outpatient services and hospitalization duties. Medical expenditure in private units by low-income families without holding health policies would influence their economic burden. The extent of OOP costs on medicines was accountable for pushing the rural and urban poor into the mortgage. Countries planning to curtail the medical expenditure from resident's pockets adopts various policies like practicing generic medicine, enclosing reasonably priced health policies, and providing less cost or cost-free medical services to the people in which generic medicines play a crucial role in reducing expenses on medicines for patients with acute and chronic conditions.

Generic medicines are usually cheaper than branded medicines and help reduce drug expenditure. Patients with regular medication will benefit more from generic medical practice<sup>[4]</sup>. "A generic drug is defined as a medication that is produced freely after the expiry of the patent protecting the branded product, necessarily being similar to the reference drug in bioequivalence to attain the equivalent therapeutic effect." Only off-patent drugs, generally 17 years after the discovery of the novel drug, can the manufacturers sell the generic form of the drug. In several countries like Brazil, USA, and Germany, the introduction of generic drugs was promulgated in the 20th century itself. Whereas in India, generic drugs were introduced in the name of the Jan Aushadhi Scheme in 2008, using generic medicines declines the patient's OOP costs. However, many of these stores are currently non-functional for various reasons like poor support from state governments, poor stock chain management, non-prescription of generic medicines by doctors, lack of mindfulness, etc. To overcome such flaws in the scheme's implementation, the government plans to re-launch its pharmacy chain, Jan Aushadhi stores, to sell generic medicines.

Although some risk factors that play a role in generic adoption in India are:

- ◆ Branded medicines in India are manufactured and encouraged by MNCs or by reputed manufacturers.
- ◆ While generics, conversely, are less or not promoted or advertised by the manufacturer.
- ◆ Quality and safety issues are always a matter of concern with substituting branded medicines with generic ones.
- ◆ People believe cheaper drugs may not give satisfactory action.
- ◆ Lack of awareness about generic medicine and medical store<sup>[4, 5]</sup>.

Even if they were aware of generic medicine, people were not assured of the location of the drug store and the convenience of medicines in it<sup>[6]</sup>. "Majority of people count on branded medicines as more effective than generic medicines." Most of them are not aware of the government guidelines about prescribing generic medicines<sup>[7]</sup>. Most patients are supposed to take branded drugs, a higher percentage of dispensers held this belief, and prescribers were not proficient. They lack the required knowledge of the generic name. However, improvements were needed in the areas of polypharmacy and generic drug prescription<sup>[8]</sup>. According to World Health Organization (WHO), an ADR can be defined as any response of a drug that is noxious and unintended, that occurs at doses used in humans for the prophylaxis, diagnosis, or therapy of disease, or for the modification of physiologic function purposely excludes therapeutic failures, overdose, drug abuse, noncompliance, and medication error<sup>[9]</sup>. Adverse drug reactions (ADR) are significant reasons for increased mortality, morbidity, and costs. Around 5% of admissions are due to ADR, and as many as 35% of hospitalized patients experience an ADR during their hospitalization<sup>[10]</sup>. People may not have enough awareness of ADR, and the source of evidence regarding ADR is also minimal, which increases the incidence of adverse reactions. Suitable guidance on rational drug use prevents patients from being susceptible to adverse reactions.

## 2. MATERIAL AND METHODS

The study was a cross-sectional study conducted in and around Komarapalayam. The study was conducted through an online web survey. The entire study was carried out for six months.

## 2.1. General procedure

It includes three phases. The first phase comprises preparing study material and questionnaires and getting approval from the institutional ethical committee. The second phase includes collecting data and analysing the data from the participants. The evaluation process and interpretation were carried out in the third phase. The Sample size of our study was 273. It was concentrated to n=201. The data collection form was a self-structured questionnaire framed, validated, and distributed through online platforms. The questionnaire was divided into four sections. Section 1: Demographic details of participants. Section 2: General Perception and Preference of branded medicine & generic medicines. Section 3: Belief about ADR. Section 4: Consent form.

### 2.1.1. Inclusion criteria

- i) Participants, who showed their willingness to participate voluntarily in the online overview, were included.
- ii) Members who took allopathic meds for common illnesses and ongoing conditions and those who took allopathic drugs only once in their lives were included.

### 2.1.2. Exclusion criteria

- i) Participants who were not willing to participate in the study.
- ii) Participants who do not use allopathic medicine are excluded from the study.
- iii) Participants were not allowed to participate if they were under 18.
- iv) Samples without the necessary information and repetitive responses were concentrated.

## 2.2 ETHICAL CLEARANCE:

This study was approved by the J.K.K. Nattraja ethics committee (J.K.K Nattraja College of Pharmacy). Ethical Reference Number: JKKNC/ETHICS\_PRACTICE/020PDS06.

## 3. RESULTS AND DISCUSSION:

### Table 1: Distribution of demographics of participants

Out of 201 responses, 140 (69.70%) were male, and 61 (30.30%) were female. The majority of the participants were in the age group of 18-28, 178 (88.70%), followed by 29-38yrs, 10(4.70%), 39-48yrs 12 (6.10%), 59-68yrs, 1 (0.50%), there are no participants involved above the age of 69. The education level of participants was shown as 121(63.18%) participants were undergraduate, 60(29.80%) participants were post-graduate, 5(2.63%) participants were doctorate, and 3 (1.49%) participants were illiterate (Table 1).

S.NO	DEMOGRAPHIC DETAILS	NO OF PARTICIPANTS	PERCENTAGE (%)
1.	Gender	Male	140
		Female	61
2.	Age	18-28	178
		29-38	10
		39-48	12
		49-58	0
		59-68	1
		69-78	0
		79 and above	0
3.	Education level	Undergraduate	127
		Postgraduate	60
		School	6
		Doctorate	5

		Illiterate	3	1.49%
4.	Location	Rural	127	63.20%
		Urban	74	36.80%

**Table 2: Preference for allopathic medicine**

S.NO	QUESTIONNAIRE	NO OF RESPONSES	PERCENTAGE (%)	
1.	When will you prefer allopathy medicine	Minor ailments	82	41.78 %
		Major disease condition	15	7.35%
		Emergency	60	29.40%
		Minor ailments and Emergency condition	13	6.37%
		Major disease conditions and Emergency conditions	5	2.45%
		Minor ailments and Major disease conditions	7	3.43%
		All the three conditions	9	9.31%
2.	How often do you visit your doctor?	When there is a need	129	63.21%
		occasionally/ rarely	51	24.99%
		Periodically	21	11.80%
3.	How would you treat your sick	After consulting doctor	152	75.54%
		Previously visited prescription medicine	12	5.96%
		Self-medication (Buy medicine from pharmacy myself)	37	18.50%
4.	Where did you buy the medicine	Any nearby pharmacies	101	50.19%
		Pharmacy within hospitals	86	42.86%
		Generic drug store (Jun-aushadhi, makkal marundhagam)	14	6.95%

Our study shows that out of 201 responses, 21(63.21%) visit the doctor periodically, 51 (24.99%) individuals visit hospitals rarely or occasionally, 129(11.80%) respondents visit hospitals only when there is a need where the preference for allopathy medicine to the applicable conditions 82 (41.78 %) participants prefer allopathy medicine only for minor ailments. 60 (29.40%) preferred allopathy only in an emergency condition. 15 (7.35%) participants preferred allopathy medicine only in major conditions. 13 (6.37%) participants preferred allopathy in minor and emergency conditions. 5 (2.45%) choose allopathy medicine for both major disease conditions and emergency conditions. 9 (9.31%) participants prefer allopathy medicine for all three conditions.

**Table 3: knowledge about generic medicine**

S.NO	QUESTIONNAIRE	NO OF RESPONSES	PERCENTAGE (%)	
1.	Have you heard about generic medicine	Yes	141	70.18%
		No	60	29.82%
2.	What do you think about generic medicine	Low cost	37	18.38%
		Both low-cost and health effective	87	43.23%
		Not aware	60	29.82%
		Not effective as branded medicine	17	8.57%
3.		Pharmacist	43	21.39%

	From whom are you aware of generic medicine	Television ads and Social Media	32	15.91%
		Friends	39	19.38%
		Doctor	27	13.41%
		None	60	29.82%
4.	How far is the generic medicine store located?	Nearby	26	12.92%
		Between 2-5Kms	40	19.88%
		Between 5-10Kms	41	20.49%
		So far	24	11.92%
		Not aware	70	34.79%
5.	Do you think all types of medication are available in generic store	Yes	25	12.42%
		No	55	27.33%
		May be	121	60.25%

Table 3 data demonstrate that, among n = 201 respondents, knowledge about generic medications was considerable, i.e., 70%, whereas 29.82% of persons are unaware of generic medications, comparing a similar study conducted by Babar ZU, Stewart J, Alzahr W, et al. in 2010 at Auckland, New Zealand, only 51% of the respondents had heard of the phrase “generic drug” [11]. 43.23% of respondents believe that generic medicines are as economically effective as their branded counterparts, 29.82% are unaware of the effectiveness of generic drugs, 18.38% believe it is only cost-effective, and 8.57% believe generic drugs are not as effective as branded drugs, comparable findings of De lira et al., in 2014 from Brazil population shows information was 40 (14.4%) believe that low-cost medicines are not effective as brand preparations [12]. Pharmacists hold an essential role in creating awareness among 21.39% of participants, about 15.91% of whom are aware of television ads and social media, and 19.38% from friends, as the comparisons were similar to the findings of De lira et al., shows data acquired through the following means: pharmacies from counter clerks or pharmacists (39.5%), television (49.3%), medical practitioners (18%), the internet and newsprint articles (7.2%), colleagues or neighbours (3.6%), radio (2.9%), street promotion (1.8%); other healthcare experts and at universities (0.7%) [12]. Our finding shows that the location of generic drug stores is not easily accessible to all people. Cumulatively, 40.25 percent of generic stores were accessible between 2 and 10 km, and 34.79% were unaware of the location. Collectively, 87.58 percent of participants disagree with the availability of medicines in generic drug stores; the rest, 12.42%, agree with the availability of medications.

**Table 4: Awareness of ADR**

S.NO	QUESTIONNAIRE	NO OF RESPONSES	PERCENTAGE (%)	
1.	Awareness about ADR	Yes	153	76.12%
		No	48	23.88%
2.	By whom are you aware of side/adverse effects	Pharmacist	50	24.94%
		Doctors	44	21.86%
		Other sources	59	29.32%
		None	48	23.88%
3.	Receiving counseling on ADR	Yes	104	51.80%
		No	97	48.20%
4.	Have you experienced any side/adverse effects	Yes	58	29.10%
		No	97	47.90%
		Maybe	46	23.00%

5.	Experienced any adverse effects	Meet the concerned doctors and explain the condition	134	66.70%
		I will stop taking the medicine	67	33.30%

Data from Table 4 shows that 76.12% of respondents are aware of ADR; 23.88% are unaware of ADR. Comparing this with another study by Abubaker Ibrahim Elbur et al. from Saudi Arabia reveals that highly educated people are more likely to obtain significant information about medication use and safety [13]. The pharmacist plays a central role in source awareness of ADR, about 50 (24.94%), followed by doctors 44 (21.86%), and 59 (29.32%) participants heard from other sources. But 48 (23.88%) participants were not aware of the ADR, on comparing with a study conducted in New Zealand by Fredrik Brounéus et al., in 2012 shows the public chose the physician and pharmacists as leading sources of information about medicines and the internet were ranked as lower reliable sources like material along with the medicine package, nurse, and the internet, Magazines, Newspapers, TV, and radio [14]. Out of 201 responses, 51.80% received counselling about ADR from a physician or pharmacist; the rest, 48.20%, did not receive counselling about ADR for a drug. Totally, 47.9% were not experienced, 29.1% were experienced, and 23% were not sure about experiencing the ADR, compared with the study conducted by Rasaq Adisa in Nigeria in 2019 shows nearly 38% of the patients had experienced one form of ADR [15]. The response indicates that nearly half of the population had the knowledge to resolve ADR after experiencing it. 66.7% by consulting a doctor and explaining the condition, and 33.3% stop the medication alone.

#### 4. CONCLUSIONS

We concluded that the people had enough knowledge about generic drugs but lacked awareness of the locations and availability of generic medicines in their local area; the Government taking necessary actions to promote generic drugs would help reduce the economic burden on branded ones. Individuals who take medications should be educated about potential side effects and how to address them.

#### LIMITATIONS

Our study limitations were that our study was an online survey, and our sample size was slightly under recommended sample size. Due to the online survey, most people were young adults and responses from the illiterate and unprivileged population could not be obtained. The study duration was short and performed online. We could only reach a few of the unprivileged population. The strengths include that whoever participated in the study was made aware of generic drugs by emailing pamphlets with generic drug details.

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#### Conflict of interest:

The authors of this research article declare no potential conflicts of interest.

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## APPENDIX

Sample comparison of generic and branded drugs

A Sample comparison of prices					Brand Drugs vs Generic Drugs	
Name of salt	Dosage with pack of 10 tabs	Price of branded drugs	Jan-Aushadhi price	Difference	Brand Drugs	Generic Drugs
Anti biotic: Ciprofloxacin	250mg	54.79	12.89	4 times higher	Protected by patent	No patent protection Low cost version of Branded Drugs
Pain killer: Diclofenac	100mg	60.40	04.20	14 times higher	Supplied by single company	Produced by Generic companies
Common cold: Cetirizine	10mg	18.10	02.75	6 times higher	Marketed under Brand Name	Marketed with composition names and are safe and effective as Branded Drugs
Fever: Paracetamol	500mg	09.40	03.03	3 times higher	Drug price is decided by particular pharma company	Drug price is decided by pharmaceutical companies