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A STUDY ON KNOWLEDGE, PRACTICE AND EXPERIENCE ON THE USE OF GENERIC MEDICINES AMONG PATIENTS, HEALTHCARE PROFESSIONALS & COMMON PEOPLE

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ABSTRACT: Generic medicines have the same efficacy, route of administration, strength, indication and side effects as branded medicines. In spite of the lower price, generic medicines are not popular among healthcare professionals. The study's objective was to explore knowledge, practice and experience in using generic medicines among patients, common people, & healthcare professionals (nurses, pharmacists and doctors). It was a descriptive cross-sectional study. Data analysis *i.e.* statistical testing for significance was carried out using SAS® 9.4 software. Considering data of N=605 participants, several data analyses were performed. Among all participants, 97% were heard about generic medicines. 50% of participants not agree with that "Generic medicines are trusted by BA/BE study". Among participating doctors, 58% were not aware about BA/BE study on generic medicines. 27% of participants did not agree with that "performances of generic medicines are same as branded medicines". 23% were not agreeing with that "Generic medicines are safe as branded medicines". 89% of participants agreed, "Price of generics lower than the branded medicines". 66.8% of participants not get all medicines at PM Jan Aushadhi Pariyojana Kendra's. 37% of participants do not believe that "Generics having the same adverse effect as like branded medicines". Among participants, a variation observed in knowledge, practice and experience on generic medicines. Therefore, the need for more awareness programs on generic medicine arises. The need for building trust among participating groups on generic medicines is essential.

INTRODUCTION: A big amount of the health budget of the developing countries is utilized in purchasing medicines ⁵. However, many medicines are not reachable to common people due to their high cost ⁶.

To enhance the accessibility and affordability of medicines, most countries like the USA, including India, have introduced Generic Medicines. The Jan Aushadhi Pariyojana Kendra's one of the initiatives in the country to reduce out-of-pocket health expenditure ⁷.

The use of generic medicines is not a preferred thought among healthcare professionals as there is an apprehension over quality and safety compared to their branded counterparts ^{8, 9}. Studies in other countries indicate that it is challenging to modify the knowledge, practice, and experience of

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healthcare providers on generics¹⁰. Therefore, the need arises to find the gap in current knowledge, practice and experience of healthcare professionals, common people and patients, which will impact their future prescribing pattern of generics and in proportion to savings on health care expenditure. To address the issues, this study has been carried out.

MATERIALS AND METHODS: After a review of various research articles, a validated questionnaire after modification as per local need was used to collect data from participants in this study¹¹. The questionnaire was divided into three sections. The first section was for the profession of the participant. The second section consisted of questions to assess knowledge and experience on using generic medicines among participants. The third part of the questionnaire looked at participants' demographics such as age, sex, and qualification. Paper-pen, as well as online format, was used for questionnaire administration.

It was a descriptive cross-sectional study. The questionnaires were self-administered in either language *i.e.* English or Hindi (based upon participant's preference). The links in compressed form were shared with the interested participants with a request to participate in any one of desired languages, and hard copies were circulated to the desired participants. Data were collected from December 2019 to September 2021. The inclusion criterion was: All the participants were willing to participate in the study (*i.e.*, voluntary). The exclusion criterion was: Age should not be less

than 18 years, & who does not feel willing to participate. Participants' feedback was analyzed using statistical tools, preferably five-point Likert scale responses. Data analysis *i.e.* statistical testing for significance, was carried out using SAS® 9.4 software.

Besides that, plots & frequency tables are prepared in MS-Excel® software. Considering data of N=605 participants, several data analyses were performed. Applicable tables & plots prepared (with statistical significance as p-values using the Chi-Square test). Descriptive statistics for overall Demography data and Age group-wise frequency distribution for male/female responders were prepared. Since the non-interventional study, thus intimated to Institutional Ethics Committee of IMS BHU and Post facto approval taken for the study.

RESULT: The average age of the participants was 32 years. The age range was 18 years to 76 years. The qualifications of the participating groups were ranging between intermediate & below up to doctorates. The annual income of participants varies from unemployed to 60, 00,000 Rs per annum.

Among participants, 78% were male & 22% were female. 45.3% were public, 4% were patient & remaining 50.8 percent were healthcare professionals (Pharmacist 26.8%, Doctor 13.4 %, & Nurse 10.6%). Highest participation, 34.2% was from age group 18-25. 49 % participants were graduate, 29% were postgraduate & 7 % were doctorates **Table 1, Fig. 1 & 2.**

TABLE 1: PARTICIPANTS' DEMOGRAPHICS, (N=605)

Variables	Frequency	Percentage	Variables	Frequency	Percentage
Participants Group			Age group (In Years)		
Public	274	45.3	18-25	207	34.2
Pharmacist	162	26.8	26-30	90	14.9
Doctor	81	13.4	31-35	91	15.0
Nurse	64	10.6	36-40	96	15.9
Patient	24	4.0	41-45	46	7.6
Gender			46-50	25	4.1
Male	469	78.0	51-55	19	3.1
Female	136	22.0	56-60	17	2.8
Qualification			61-65	5	0.8
Intermediate and below	30	5.0	66-70	6	1.0
Graduate	296	49.0	71-75	0	0.0
Post-Graduation	178	29.0	≥76	3	0.5
Doctorates	40	7.0			
Qualification not mentioned	61	10.0			

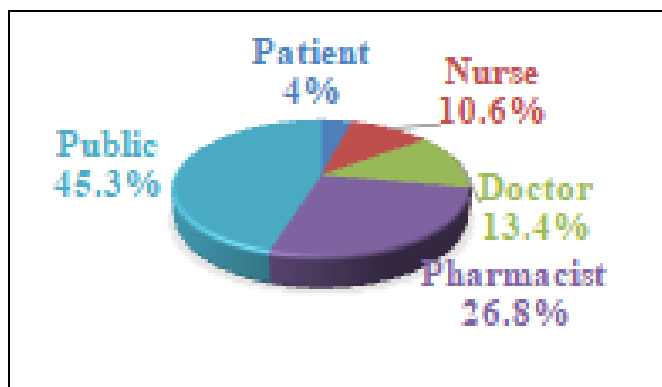


FIG. 1:

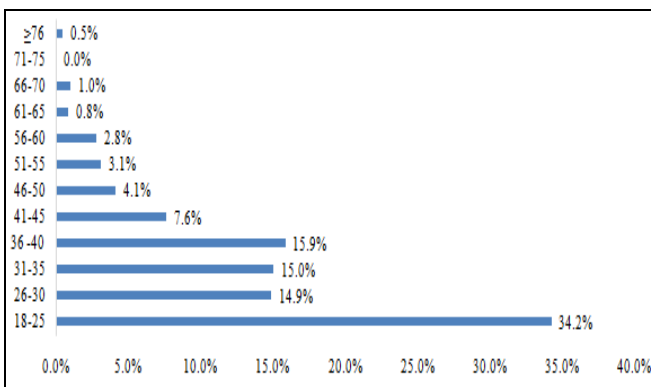


FIG. 2:

Among all participants, 97 % “heard about generic medicines”. While within participating groups, 2.5 % of participating doctors and 4% of participating public did not heard about generic medicines, while none of the participating patients and pharmacists,

have shown negative reply for this. Using the Chi-Square test, a statistically insignificant difference observed among the opinion of occupations. **Fig. 3, Table 2.**

TABLE 2: HAVE YOU HEARD ABOUT GENERIC MEDICINES?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Can't say	0	0	1	0.2	1	0.2	1	0.2	2	0.3	5	0.1293
No	2	0.3	1	0.2	0	0.0	0	0.0	11	1.8	14	
Yes	79	13.1	62	10.2	23	3.8	161	26.6	261	43.1	586	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

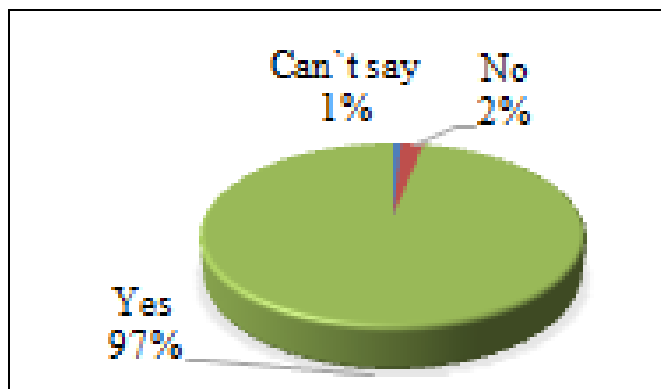


FIG. 3:

Among all participants, 27 percent did not agree that “performance of generic medicines are same as branded medicines”. While within participating groups, 29.6% doctors, 56.2% nurse, 33.3 % patients, 16.6% pharmacist & 25.5% public were not agree with that “generic medicines perform same as branded medicines”. Using the Chi-Square test, a statistically significant (p value < 0.05) difference has been observed among the opinion of occupations. **Fig. 4, Table 3.**

TABLE 3: DOES A GENERIC MEDICINE PERFORM THE SAME AS BRANDED MEDICINES?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	41	6.8	18	3.0	8	1.3	88	14.5	136	22.5	291	<.0001
Can't say	8	1.3	14	2.3	5	0.8	9	1.5	45	7.4	81	
Disagree	12	2.0	20	3.3	3	0.5	12	2.0	23	3.8	70	
Strongly agree	16	2.6	10	1.7	8	1.3	47	7.8	68	11.2	149	
Str. disagree	4	0.7	2	0.3	0	0.0	6	1.0	2	0.3	14	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

Among all participants, 23% were not agreeing with that “Generic medicines are safe as like

branded medicines”. While within participating groups, doctors (34.5%), nurse (29.7%), patient

(20.8%), pharmacist (13.6%), & public (23.7%) were not agree with that “generic medicines are safe as like branded medicines”. Using Chi-Square

test, statistically significant (p value < 0.05) difference has been observed among the opinion of occupations. **Fig. 5, Table 4**

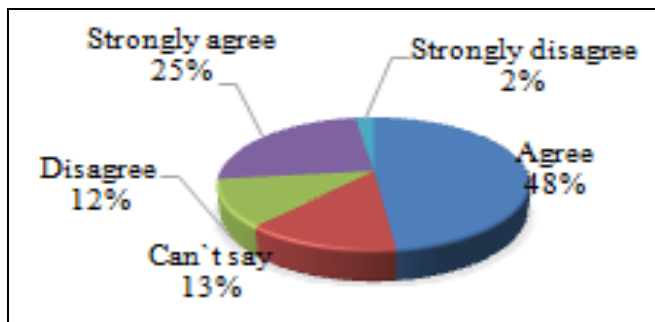


FIG. 4:

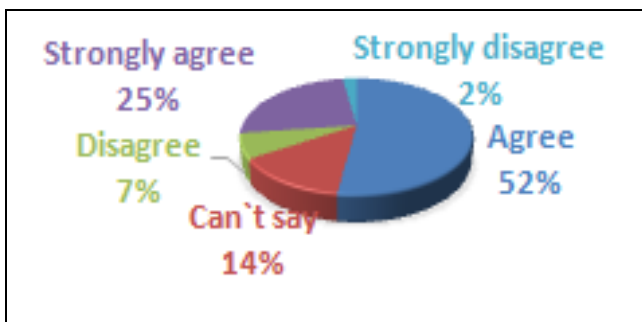


FIG. 5:

TABLE 4: DOES GENERIC MEDICINES ARE SAFE AS LIKE BRANDED MEDICINES?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	38	6.3	28	4.6	10	1.7	93	15.4	147	24.3	316	0.0245
Can't say	19	3.1	12	2.0	4	0.7	9	1.5	39	6.4	83	
Disagree	5	0.8	6	1.0	1	0.2	8	1.3	22	3.6	42	
Str. agree	15	2.5	17	2.8	9	1.5	47	7.8	62	10.2	150	
Str. disagree	4	0.7	1	0.2	0	0.0	5	0.8	4	0.7	14	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

89 percent of participants agreed, "Price of generic medicine lower than branded medicines". While within groups of participants, doctors (9.9%), nurse (28.1%), patient (12.5%), pharmacist (8.6%), & public (9.5%) were not agree with that “price of generic medicines are lower than the branded medicines”. Using the Chi-Square test, a statistically significant (p-value < 0.05) difference has been observed among the opinion of occupations **Fig. 6, Table 5.**

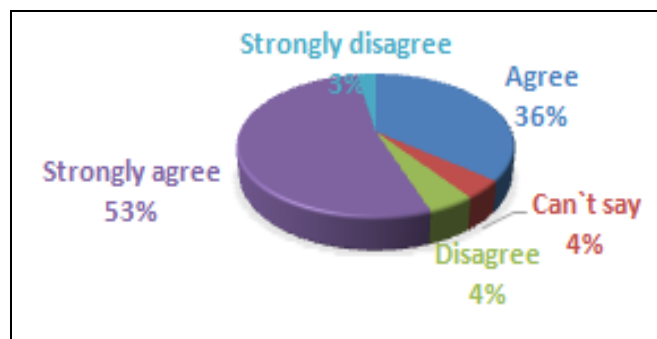


FIG. 6:

TABLE 5: DOES THE PRICE OF GENERIC MEDICINE LOWER THAN THE BRANDED MEDICINES?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	37	6.1	19	3.1	7	1.2	56	9.3	98	16.2	217	<.0001
Can't say	2	0.3	3	0.5	3	0.5	6	1.0	11	1.8	25	
Disagree	5	0.8	6	1.0	0	0.0	5	0.8	12	2.0	28	
Strongly agree	36	6.0	27	4.5	14	2.3	92	15.2	150	24.8	319	
Strongly disagree	1	0.2	9	1.5	0	0.0	3	0.5	3	0.5	16	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

66.8 percent of participants not getting all medicines at PM Jan Aushadhi Pariyojana Kendras. While within group of participating doctors (25.9%), nurse (37.5%), patient (37.5%), pharmacist (31.5%), & public (35%) only agreed

that “they are getting all medicines at PM Jan Aushadhi Pariyojana Kendra”. Using the Chi-Square test, a statistically insignificant (p-value > 0.05) difference has been observed among the opinion of occupations **Fig. 7, Table 6.**

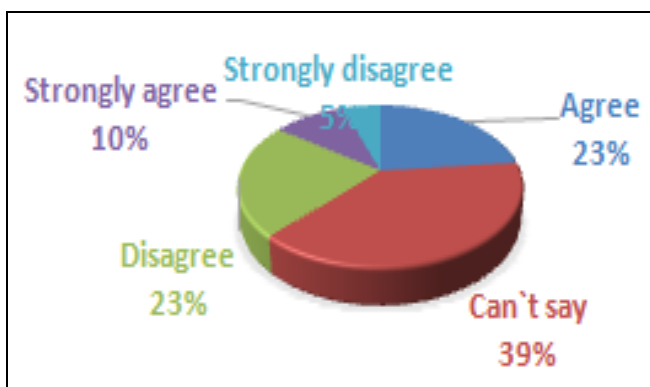


FIG. 7:

TABLE 6: ARE YOU GETTING ALL MEDICINES AT PM JAN AUSHADHI PARIYOJANA KENDRA?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	16	2.6	19	3.1	5	0.8	36	6.0	65	10.7	141	0.4348
Can't say	33	5.5	27	4.5	7	1.2	62	10.2	105	17.4	234	
Disagree	25	4.1	7	1.2	7	1.2	40	6.6	60	9.9	139	
Str. agree	5	0.8	5	0.8	4	0.7	15	2.5	31	5.1	60	
Str. disagree	2	0.3	6	1.0	1	0.2	9	1.5	13	2.1	31	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

37 percent of participants do not believe that “Generic medicine has the same adverse effect as branded medicines”. While within the group of participants, only doctors (74%), nurses (65.6%), patient (50%), pharmacists (66%), & public (58.1%) agreed with that “the generic medicine has same adverse effect as like branded medicines”.

Using Chi-Square test, a statistically significant (p value < 0.05) difference has been observed among the opinion of occupations. **Fig. 8, Table 7.**

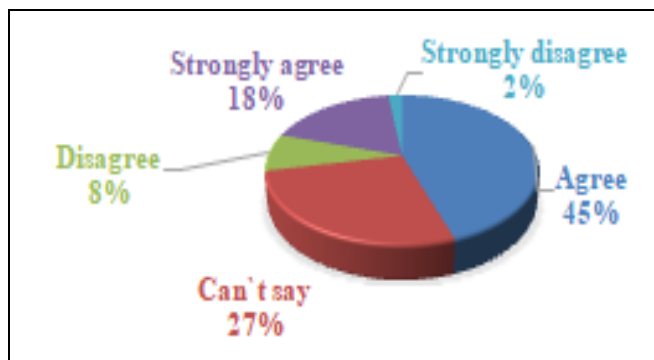


FIG. 8:

TABLE 7: DOES A GENERIC MEDICINE HAVE SAME ADVERSE EFFECT AS LIKE BRANDED MEDICINES?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	44	7.3	17	2.8	6	1.0	84	13.9	120	19.8	271	0.0001
Can't say	16	2.6	15	2.5	9	1.5	35	5.8	88	14.5	163	
Disagree	5	0.8	4	0.7	2	0.3	18	3.0	20	3.3	49	
Strongly agree	16	2.6	25	4.1	6	1.0	23	3.8	40	6.6	110	
Strongly disagree	0	0.0	3	0.5	1	0.2	2	0.3	6	1.0	12	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

50 percent of participants disagree that “Generic medicines are trusted by BA/BE study”.

While within the participants group only doctors (41.9%), nurse (53%), patient (50%), pharmacists (60.5%), & public (45.9%) agreed with that “the

generic medicines are trusted by BA/BE study”. Using the Chi-Square test, a statistically significant (p-value < 0.05) difference has been observed among the opinion of occupations. **Fig. 9, Table 8.**

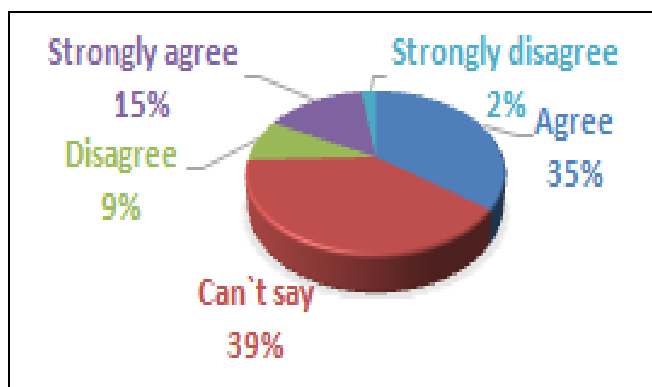


FIG. 9:

TABLE 8: DOES GENERIC MEDICINES ARE TRUSTED BY BA/BE STUDY?

Category	Doctor	%	Nurse	%	Patient	%	Pharmacist	%	Public	%	Grand Total	P-Value
Agree	25	4.1	25	4.1	5	0.8	74	12.2	84	13.9	213	0.0041
Can't say	44	7.3	23	3.8	9	1.5	42	6.9	119	19.7	237	
Disagree	2	0.3	4	0.7	3	0.5	18	3.0	24	4.0	51	
Str. agree	9	1.5	9	1.5	7	1.2	24	4.0	42	6.9	91	
Str. disagree	1	0.2	3	0.5	0	0.0	4	0.7	5	0.8	13	
Grand Total	81	13.4	64	10.6	24	4.0	162	26.8	274	45.3	605	

A variation was observed in respect of knowledge and experience with generic medicines among participants. Among participating doctors, 58 percent were not aware of BA/BE study on generic medicines.

DISCUSSION: With more use of generics, more people can be treated because the generic medicines not only lower the per capita expenditure on the health of common people, but also increase the affordability and reach up to the majority¹²⁻¹⁴.

India is exporting world-class generic medicines to around 200 countries & a major player in the pharma industry⁷. India stood among the first four countries of the World, producing quality generic medicines and exporting, while significant population strata lacking with medicines^{15, 16}. To overcome the non-availability/non-affordability of medicines, the Government of India has initiated Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP). Under PMBJP, Jan Aushadhi Kendra`s were opened parallel to Medical stores/retail sale points. These stores are exclusively opened for generic medicine sale points. Around 8675 kendra`s are functional across the country as on 31/01/2022. In the financial year 2019-2020, PMBJP has sales of rupee 433.61 crores (at MRP) which led to savings of approx. 2500 crores of the

common citizens of the country because these are cheaper by 50% to 90% of the average market price¹⁷. As per National Medical Commission, every registered medical practitioner is expected to prescribe drugs using generic names written legibly in accordance with generic drugs and prescription guidelines^{18, 19}. This may promote usage of drugs from the National List of Essential Medicines (NLEM) and recommends non-NLEM drugs if NLEM choice is not available.

Contrary to government efforts, 66.8 percent of participants opined that they are not getting all medicines at PM Jan Aushadhi Kendra`s. Despite government policy to promote generic medicine in private and public through the Pradhan Mantri Jan Aushadhi Pariyojana Kendra`s, as well as 'India being the largest producer of generic medicines', the participants did not show an inclination towards prescribing generic medicine. The public is not getting the benefit of low-price, quality generic medicines as needed.

CONCLUSION: Statistically significant variations were observed in the opinion of different groups. The acceptance of generics among participants was only 73% concerning branded performance. The observed value for non-acceptance of generics for the parameter of safety is 23% in comparison to

branded; within participating groups of doctors, 34.5% of doctors did not agree that generics are safe as branded medicine. However, 89% of participants agreed that the price of generics is lower than the branded. Availability of medicines at Jan Aushadhi Kendra's is also a major challenge for the government because 66.8% of participants were not getting all medicines at these Kendra's and only 37.5% of patients within participating group opined that they were getting all medicines. Statistically, a significant difference was observed in the participant's group for the adverse effect of generics. Within participating doctors, only 41.9% agreed that the generics are trusted by BA/BE study. A variation observed in knowledge, practice, and experience on generic medicines among participants²⁰. Lack of trust is limiting the prescribing of generic medicines. The benefit of low-price generics is not utilized in society. Hence affordability is also reduced. Thus, it is necessary to build trust among healthcare professionals, common people and patients on generic medicines by way of more training/awareness programs. If needed, some incentives can be provided.

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