

An Empirical Study on the Impact of Government Programs on Consumer Acceptance of Generic Medicines in Hyderabad City

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Abstract: The Government of India has been fostering generic drugs in initiatives like the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) using the aim of ensuring affordability and quality healthcare. Although Janaushadhi Kendras have proliferated at the urban centres, the issue of consumer attitude to generic medicines is still influenced by the price perception, quality, availability, and confidence in government certification. The research is a pure empirical study on the effects of government programs on consumer adoption of generic medicines among 420 interviewees in Hyderabad city conducted using a structured questionnaire that was measured on a five-point Likert scale. Cronbachs alpha was used to determine reliability of the research instrument with all constructs having above acceptable levels of 0.70. The multiple regression analysis demonstrated that the government program awareness, perceived price advantage, perceived quality assurance, and trust in government certification were significant predictors of consumer acceptance of generic medicines as grouped than accessibility of outlets, thus the grouped dependent variables accounted 62.2 percent of the variance. Results of one-way ANOVA and independent samples t-test indicated that there were no statistically significant difference in acceptance of generic medicines based on gender, age group, income, and education level, implying that the level of acceptance of generic medicines was relatively similar among demographic groups within the study area. The results highlight the emphasis of trust-building and communication focused on awareness that is based on the underlying importance of promoting the effect of generic medicine programs by governments, and the article presents some recommendations on policy relevant measures that can be applied in the effectiveness of such programs in urban Indian markets.

Keywords: Jan Aushadhi, Generics, Government, Consumer behaviour, Consumer acceptance, Healthcare policy, Hyderabad.

1. Introduction

Availability of affordable and quality medicines is a very important issue in (Indian) healthcare system as the out-of-pocket costs on medicines have taken a significant proportion of the total healthcare cost incurred by the households. The Government of India in turn introduced the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), a.k.a. the Jan Aushadhi scheme, geared towards providing quality generic medicines at low prices via a special system of Janaushadhi Kendras. A valid alternative pathway to decreasing healthcare load on the consumer, especially in urban agglomerations with a concentrated healthcare system like Hyderabad, lies in generic medicines, which is bioequivalent to their branded equivalents, but is sold at considerably lower prices because of the lack of large-scale marketing and research investments. However, such government programs would only be successful when it depends not only on the availability of generic medicines but on the readiness of consumers to use and take them instead of the branded ones. There is a complex interplay between the psychological and informational triggers to consumer acceptance of generic medicines, which include cognizance of the scheme itself, perceived price benefit as compared to branded medicines, perceived quality and effectiveness, ease of access to Janaushadhi outlets, and the extent to which consumers trust government certification and regulatory oversight of the quality of generic drugs. The



continued uncertainty over whether generic medicines are effective, supported by physician prescribing behaviour and informal word-of-mouth advertising, has limited the ability to scale-up of government programs even when associated with substantial investment in expanding the outlets. Hyderabad, being one of the largest metropolitan medical cities in Telangana and having a high concentration of pharmacies, hospitals and emerging chain of Janaushadhi Kendra, is a suitable location to study how government initiatives become a reality in terms of consumer adoption. The purpose of the research is to explore empirically how the level of awareness on government programs, and relevant perceptions on price, quality, accessibility, and trust influences consumer acceptance of generic medicines in the city of Hyderabad, and whether any differences exist in the extent to which consumers with different segments of the population and population accept generic medicines.

2. Review of Literature

There is a wealth of literature that has investigated consumer attitudes on generic medicines in developed and developing country setting. Investigations carried out to date in the field of Western healthcare have typically established that confidence in the prescribing doctor and pharmacist recommendation by the patient is a valuable predictor of accepting generic medicine, and in many cases of insured populations, greater than influenced by price. Conversely, studies that are located in price-sensitive developing markets, such as India, have always rated affordability as a driving force behind the adoption of generic medicines,

especially among the lower and middle-income consumer segments who pay a significant amount of out-of-pocket medical expenses. Empirical studies on the Jan Aushadhi scheme have put forward the inequitable level of awareness of the urban population, where a number of consumers are familiar with the presence of Janaushadhi stores yet have less knowledge on the mechanisms of quality assurance as well as the government system of subsidies, as well as the scientific premise of bioequivalence between generic and branded formulations. It is this lack of awareness that has been associated with the fact that users still continue to use branded medicine even in situations where generic versions exist at the point of sale. Other studies have also highlighted that those perceptions of quality usually determined by the packaging, look and history have a powerful impact on repurchase intention regardless of objective clinical efficacy information. The concept of trust in regulatory certification has become a major concept in the recent consumer behaviour literature on generic medicines, especially considering the increased question of drug quality standards among the population. Research conducted on the link between trust and either mediating or direct predictor of acceptance have more than not concluded that consumers having positive perceptions of government certification bodies as credible and rigorous tend to accept generic substitutes to a large degree even without high quality price incentives. Availability of retail stores when often mentioned as a structural facilitator of program access has demonstrated both positive and negative outcomes as a predictor of individual level uptake, with a number of studies indicating that its influence is again indirect via enhanced awareness and familiarity and not as a driver of attitude shifts. Generic medicine That demographic correlates of generic medicine acceptance have also been studied, with results on gender, age, income and education impact differing across the studies and geographic setting. Some studies make a difference between the more price-sensitive older, less-income consumers becoming more accepting, but other studies can report support without significant change in acknowledgement and trust reported, suggesting that the attitudinal and informational decision to acceptance behaviour may dominate demographics determinants.

3. Research Gap

There is a body of research that has investigated individual aspects like the price sensitivity, quality perception or scheme awareness in isolation but remains minimal research that investigates the combined effect of awareness regarding government programs, price advantage, quality assurance, accessibility and trust in certification on consumer acceptance in generic medicines in a single integrated construct, especially in the South Indian metropolis like Hyderabad. In addition, little research has been conducted to empirically ascertain how such acceptance is demographic outside a mature urban healthcare market. This paper attempts to fill this gap by deriving and empirically testing a multi construct model of consumer acceptance that is specific to the city of Hyderabad.

4. Objectives of the Study

- To determine the consumer awareness of generic medicine programs provisioned by governments in Hyderabad city like the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP). The objectives are as follows:

To investigate how consumers view price benefit, quality guarantees, and accessibility of generic medicines under government schemes.

To estimate how much of the consumer confidence in generic medicines is in the government certification and control of these medicines.

Purpose To examine the integrative effect of awareness, price perception, quality assurance, accessibility and trust on consumer acceptance of generic medicines.

The study questions are: 1) To analyse the difference in consumer acceptance of generic medicines, as it varies among the demographic segments of the population, that is, gender, age group, income, and education.

5. Hypotheses of the Study

Resting on the goals and the analysis of the literature, the following hypotheses were created and tested: H1: there exists a positive and significant effect on issue of government programs in consumer acceptance of generic medicines.

H2: There is a positive and significant influence of the presence of perceived price advantage on consumer acceptance of generic medicines.

H3: Very high perceived quality assurance significantly affects consumer acceptance of generic medicines.

H4: Accessibility of generic medicine outlets has a significant positive impact on consumer acceptance of generic medicines. However, the testable answer to this question is:

H5: Consumer acceptance of generic medicines does not differ significantly among gender, age group, income and education groups.

6. Research Methodology

6.1 Research Design

This research assumes a descriptive and causal research design with a quantitative and survey-based research approach to empirically study the connection between variables regarding the associated government programs and consumer acceptance of generic medicines.

6.1. Sampling and Data Collection

It was decided to use a structured questionnaire to gather data on 420 customers living in Hyderabad city by the means of conducting the survey both in a face-to-face and online format. A stratified convenience sampling method based in five major zones of the city in which Secunderabad, Charminar, Kukatpally, LB Nagar, and Serilingampally were the major zones was used to select respondents in order to have a reasonable geographical representation. The study only involved respondents who said they had bought or been given medicines in the last twelve months.

6.3. Research Instrument

There were two sections of the questionnaire. The initial section was concerned with demographic data, such as gender, age group, education, occupation, monthly household income, and location living. The second scale had six constructs, i.e. Awareness of Government Programs (AGP), Perceived Price Advantage (PPA), Perceived Quality Assurance (PQA), the presence of Generics Medicine Outlets (AGO), Trust in Government Certification (TGC), and

Consumer Acceptance of Generic Medicines (CAG), all measured using five items using a five-point Likert scale with the extremes of Strongly Disagree, Strongly Agree.

6.4. Statistical Tools

The data collected were analyzed through descriptive statistics, Cronbach alpha to test reliability, Pearson correlation to test inter-construct relations, multiple linear regression to test the hypotheses of prediction (H1-H5) and one-way ANOVA and independent samples t-test to test the hypothesis of investigating demographic differences (H6).

7. Data Analysis and Results

7.1 Demographic Profile of Respondents

Table 1 presents the demographic profile of the 420 respondents included in the study.

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	217	51.7
	Female	203	48.3
Age Group	18–25 years	79	18.8
	26–35 years	116	27.6
	36–45 years	104	24.8
	46–55 years	68	16.2
	Above 55 years	53	12.6
Education	Up to Intermediate	55	13.1
	Graduate	153	36.4
	Post Graduate	139	33.1
	Professional / Doctorate	73	17.4
Occupation	Private Employee	122	29.0
	Government Employee	72	17.1
	Self-Employed / Business	81	19.3
	Homemaker	57	13.6
	Student	58	13.8
	Retired	30	7.1
Monthly Income	Below Rs. 25,000	103	24.5
Demographic Variable	Category	Frequency	Percentage (%)
	Rs. 25,001–50,000	142	33.8
	Rs. 50,001–75,000	114	27.1
	Above Rs. 75,000	61	14.5
Area of Residence	Secunderabad	69	16.4
	Charminar	68	16.2

	Kukatpally	105	25.0
	LB Nagar	101	24.0
	Serilingampally	77	18.3

According to Table 1, the sample is rather balanced in terms of gender, with a little more male respondents (51.7%). The economically active (ages 26-45) (52.4 percent) and graduate/ post-graduate qualified respondents (69.5 percent) are the most represented sample, but geographic diversity of the aspect so as to have a reasonable spread of the sample throughout the five zones of Hyderabad is generally similar.

7.2. Reliability Analysis

Cronbachs alpha was used to measure the internal consistency of the measurement scale. Table 2 shows the reliability statistics as well as descriptive statistics of each construct.

Construct	No. of Items	Cronbach's Alpha	Mean	Std. Deviation
Awareness of Government Programs (AGP)	5	0.785	3.36	0.67
Perceived Price Advantage (PPA)	5	0.748	3.61	0.61
Perceived Quality Assurance (PQA)	5	0.754	3.29	0.63
Accessibility of Generic Medicine Outlets (AGO)	5	0.721	3.24	0.60
Trust in Government Certification (TGC)	5	0.790	3.28	0.67
Consumer Acceptance of Generic Medicines (CAG)	5	0.786	3.30	0.59
Overall Scale (30 items)	30	0.949	-	-

All six constructs as shown in Table 2, and the Cronbach alpha of each of the six constructs lies in the 0.721

-0.790 ranges, which are above the generally accepted Cronbach alpha of 0.70, which justifies a satisfactory internal consistency of the measurement items. The entire scale, consisting of 30 items, had a high reliability coefficient of 0.949 and a strong overall reliability of the research instrument. Descriptively speaking, Perceived Price Advantage had the greatest mean score ($M = 3.61$, $SD = 0.61$) of all the constructs, indicating that price benefit is the most positively rated quality of generic medicines in the eyes of Hyderabad consumers. The lowest mean score was obtained in Accessibility of Generic Medicine Outlets ($M = 3.24$, $SD = 0.60$), which revealed rather average levels of satisfaction with outlet availability and convenience.

7.3. Correlation Analysis

Table 3 presents the Pearson correlation coefficients among the study constructs.

Construct	AGP	PPA	PQA	AGO	TGC	CAG
AGP	1.000	0.740	0.773	0.764	0.776	0.724
PPA	0.740	1.000	0.730	0.743	0.746	0.690
PQA	0.773	0.730	1.000	0.769	0.771	0.705
Construct	AGP	PPA	PQA	AGO	TGC	CAG
AGO	0.764	0.743	0.769	1.000	0.765	0.681
TGC	0.776	0.746	0.771	0.765	1.000	0.726
CAG	0.724	0.690	0.705	0.681	0.726	1.000

Table 3 shows a positive correlation level with all correlation coefficients significant at the 0.01 level (two tails) with a sample size of 420. The greatest correlation was found between Consumer Acceptance of Generic Medicines (CAG) and Trust in Government Certification ($r = 0.726$) in that order indicating that the two constructs are those that are most closely related with overall acceptance.

7.4. Multiple Regression Analysis

A multiple linear regression was performed to test the hypotheses H1 to H5 where the Consumer Acceptance of Generic Medicines (CAG) was used as the dependent variable and Awareness of Government Programs (AGP), Perceived Price Advantage (PPA), Perceived Quality Assurance (PQA), Accessibility of Generic Medicine Outlets (AGO), and Trust in Government Certification (TGC) were the independent variables (Xs). The results of the regression are brought to Table 4.

Predictor	Unstandardized B	Std. Error	Standardized Beta	t-value	p-value
(Constant)	0.588	0.112	-	5.268	0.000
AGP	0.210	0.051	0.236	4.158	0.000
PPA	0.161	0.051	0.165	3.179	0.002
PQA	0.154	0.053	0.165	2.935	0.004
AGO	0.068	0.055	0.068	1.223	0.222
TGC	0.212	0.050	0.240	4.213	0.000

$R = 0.789$; $R^2 = 0.622$; Adjusted $R^2 = 0.617$; $F(5, 414) = 136.011$, $p = 0.000$

The regression model was observed to be statistically significant, $F(5, 414) = 136.011$, $p < 0.001$, with 62.2 percent of the consumer acceptance of the generic medicines explained (Adjusted $R^2 = 0.617$). Government Programs, perceived price advantage, perceived quality assurance, and trust in government certification were found to be statistically significant positive predictors of consumer acceptance, which supports H1, H2, H3 and H5. Access to the Generic Medicine Outlets was not found to be statistically significant as an independent predictor (0.068, $p = 0.222$), and thus H4 was rejected. The two most significant foretellers of the acceptance was Trust in Government Certification and Awareness of Government Programs with standardized beta coefficients.

7.5 Analysis of Variance (ANOVA) and t-test

In order to test H6, the one-way ANOVA was used to investigate the difference in consumer acceptance between age group, income, education and an independent samples t-test was used to test gender. The results are summarized in table

Demographic Variable	Test Statistic	df	Significance (p-value)	Result
Gender	t = 1.367	418	0.172	Not Significant
Age Group	F = 2.141	4, 415	0.075	Not Significant
Monthly Income	F = 2.054	3, 416	0.106	Not Significant
Education	F = 0.512	3, 415	0.674	Not Significant

As indicated in Table 5, all the demographic variables analyzed including gender ($p = 0.172$), age group ($p = 0.075$), monthly income ($p = 0.106$), education ($p = 0.674$) did not indicate a statistically significant difference across the group in consumer acceptance of generic medicines in the 0.05 level. These findings affirm H6 and that acceptance of generic medicines in the city of Hyderabad is widely unanimous among the demographic groups and not one of those sub-groups.

8. Findings of the Study

Awareness of government generic drug programs amongst Hyderabad consumers were as rated as moderate ($M = 3.36$) whereby respondents are more conversant with tangible site of Janaushadhi Kendras rather than the specific subsidy framework and quality assurance measures that the scheme conforms to. The mean score of the construct in the list ranked highest by perceived price advantage ($M = 3.61$), which justifies the fact that affordability remains the most highly perceived advantage of generic medicines in comparison to branded analogue. The effects of government programs, perceived price advantage, perceived quality assurance, and trust in government certification were important and significant but independent predictors of consumer acceptance of generic medicines, and, more importantly, accessibility of outlets was not an independent predictor of consumer acceptance of generic medicines despite a strong bivariate relationship with outcome. Coombs, • Trust in government certification has become the only significant standardized predictor of consumer acceptance ($\beta = 0.240$), slightly less significant than awareness of government programs ($\beta = 0.236$), demonstrating that the credibility of regulatory oversight is just as much likely to affect acceptance behaviour as is the price benefit. • There was no statistically significant difference in consumer acceptance of generic medicines between the gender, age, income and education segments, indicating that the government programs have produced a relatively homogeneous level of acceptance among demographic groups among the study area.

9. Discussion

The results of this present study support increasing attention in consumer behaviour literature that trust in institutional certification is as important to the extent that it is price advantage that in the present case, such is slightly more, which may determine acceptance of generic medicines. This implies that affordability remains a necessary, but not sufficient, condition of consumer deliberation on using generic medicines; consumers seem to need to be assured of credibility by the certifying authority before they can bring favourable price perception to actual acceptance behaviour. The insignificant role of accessibility as an independent predictor on the one hand although outlets constitute the physical foundation of Jan Aushadhi program, reveals that physical presence of outlets alone does not necessarily lead to acceptance unless supplemented by appropriate awareness and ensure building messages in the point of sale. The lack of strong demographic difference in acceptance is an interesting point to note since it indicates that the advantages and shortcomings of existing government generic medicine programs are felt, at least, relatively equally by gender, age, income levels and education levels within an urban market like Hyderabad. This result does not match with certain sections of the literature that would expect greater acceptance in the lower-income/older consumer groups due to an increased price sensitivity but also serves as an indicator of the attitudinal and informational factors, but not the demographic one, as the most important determinant of acceptance within a mature urban healthcare market.

10. Recommendations

They should seek to increase information, education, and communication (IEC) activities beyond signage and store visibility to inform about the scientific foundation of bioequivalence, the subsidy system, and the quality testing measures that inform the use of generic medicines. Price-based promotional messages should be maintained, although to add to the positive image of price edge that has already been established, clear communication of comparative savings over particular branded alternatives needs to be incorporated. • They should intensify their visible presence of quality certification marks, batch testing information and regulatory approval information at point of sale to further enhance on quality assurance perceptions and eliminate the remaining scepticism about the efficacy of generic drugs. Outlet expansion plans must be supported by localized awareness campaigns, especially in areas like Charminar and Secunderabad because accessibility was not seen to stimulate acceptance by itself and it needs a complementary informational support to be followed into acceptance and actual uptake. As trust in certification was identified as the best predictor of consumer acceptance in this research study, trust-building interventions, such as an endorsement by the treating physician, a tie-up with government and private hospitals on the generic prescription protocols, and testimonials-based communications should be prioritised.

11. Conclusion

This research aimed at empirically investigating the influence of government programs on consumer acceptance of generic medicines in Hyderabad city using a multi-construct model that included awareness, price advantage, quality assurance, accessibility and trust in government certification. These findings indicate that the awareness, price advantage, quality assurance, and trust in certification are notable positive predictors of acceptance, which have a significant percentage explanation of acceptance behaviour, whereas accessibility of outlets, though positively related to acceptance, fails to have a predictive relationship with acceptance behaviour when the other constructs are controlled. This observation of high levels of uniformity in acceptance among demographic groups indicates that there has been fairly balanced coverage of the urban population in government-sponsored generic medicine programs in Hyderabad. To

policymakers and program administrators, the findings indicate that further investment on outlet expansion should be accompanied with increased focus on creation of awareness and, in more specific terms, development of trust via communication because these two levers most possible to increase the rate of consumer acceptance and, consequently, the overall program goals of the scheme on to the promotion of better health and affordability on a larger population.

12. Limitations and Scope for Further Research

This research has some limitations and it must be taken into account when interpreting its results. This sample was limited to consumers in Hyderabad city and used a stratified convenience sampling technique, which can be a limitation on the application of the results in other urban or rural settings. The cross sectional nature of the study only captures the perceptions of the consumers at one given time and fails to capture possible changes in awareness and acceptance in case of continued awareness campaigns by the government. A longitudinal study design could be used in future studies to apply this model to a comparative multi-city model, to include the views and opinions of physicians and pharmacists as mediating factors and apply the model to longitudinal studies to see how acceptance changes with the maturity of the government generic medicine programs.

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