Patients 'Perception Regarding Generic and Branded medicines in the Pharma Space in emerging countries: an Empirical Study using Exploratory Factor Analysis (EFA) Approach

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Abstract
Selection from Generic and branded medicines is a debatable matter now a days. Use of low-priced generic alternative as compared to branded drugs is being promoting everywhere. Generic drugs can be compared to branded drugs in terms of ability to treat illness and their bioavailability or concentration of drug that reaches its action site has increased. According to expert review, generic and branded drugs are bioequivalent & possess equal feasible options for successful treatment. Same active ingredients are present in both generic and branded drugs but usually differ in peripheral characteristics and do not affect their bioavailability. Discussion on branded and generic drugs is found as significant on international level as well and related to affordability & accessibility of

pharmaceuticals among worldwide consumers. A sample of 309 people was surveyed to know the Patients' Perception regarding Generic and Branded medicines in the Pharma Space. It is found that the factors that determines Patients' Perception regarding Generic and Branded medicines in the Pharma Space are Affordability, Awareness and Knowledge, Effectiveness, Safety and Quality and Availability of the medicines.

Introduction

Efficacy, safety and quality of generic medicine are same as of their counterpart branded medicines. Generic medicine offer same healing outcomes but at low cost, hence these are promoted in many of countries to sustain health care and pharmaceutical expenditure. Therefore medicine consumers and patients perspective as end user of these medicines is a significant factor to boost utilization and use of generic medicines. Strength, active substance, pharmaceutical form and administration route of generic medicines can be same as of branded medicines but these can differ in some features like shape, color and inactive ingredients. To get register, just like all medicines including branded medicines, generic medicine has to pass process of registration and severe requirements to make sure its efficacy, safety and quality and to fulfill all standards needed. Furthermore, bioequivalence concept is an important requisite for generic medicine approval. Bioequivalence is examined to express equivalence clinically of generic medicine as compare to original branded medicines. Therefore replication of preclinical & clinical testing on original brand is not needed to be performed (Suryawanshi, Totlani, Sahasrabudhe, 2017).

Generic medicines are not much costly than their corresponding branded medicines & are also available as typical treatment for many chronic and acute diseases. Therefore, generic medicine usage decrease medical expenditure as well as sustain health care system. Hence, currently to tackle the general expenditure of health care and pharmaceutical expenditures, many private & government payers encourages generic medicine usage as an important part of health care system by initiating and implementing various strategies, initiatives and policies. Among all, generic medicine acceptance by patients is a significant challenge and important factor provided that patients are final consumer of these pharmaceutical medicines. In reality, accurate knowledge, understanding and positive opinion are required to accept generic medicines among patients. Hence the objective of this research study was to examine patients'Perception regarding Generic and Branded medicines in the Pharma Space (Nikam, Vakhariya and Magdum, 2019).

Patients with negative point of view regarding hypertension are more likely to select branded medicines whereas patients with positive point of view select mostly generic medicines. In nutshell, medical condition seriousness is an important influencing factor in selecting medicine type. The more risky or serious the condition of patients considers then chances of selection of generic medicines will be less, and branded medicines used more.

Price or cost of generic and branded medicines is also found as an important factor that influences patient's preferences in selecting them. If difference of price between generic medicine and branded medicine is less or the amount patient pays for original branded medicine is less then patients prefer to select original branded product. Hence, it is significant to provide adequate information and

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awareness among patients regarding benefits of generic and branded medicines. Government and health authorities must endorse generic medicines through educational involvement & educational campaigns in shopping malls, community pharmacies, clinics and hospitals along with mass media such as television programs. These initiatives help in raising awareness level among patients regarding value of generic medicines and its availability (Joshi and Gandhi, 2020).

Literature Review

Aivalli, Elias, Pati, et al. (2018) examined the branded and generic medicines quality & give details on negative observation of patients towards generic medicines. Finding of research study shows that generic and branded medicines alternatives tested were of comparable on quality factor. Result of quality test shows that perception of patients' & health workers' on quality were mostly in favor of branded medicines as compare to generic medicines. Negative point of view on quality of medicine in company with other factors leads towards selection of more costly medicines in pvt. sector.

Tripathi & Bhattacharya (2018) found that generic prescription concept is broadly established in various parts of the world. However, it failed to gain recognition because of factors like distrust on quality of product and its non-availability. Finding of the study shows that attitude and knowledge for generic medicines among respondents were not good. Many of them posses' incorrect information, that reflects not good sign for sustainability and implementation of "Jan Aushadhi scheme" in government hospitals.

Das, Choudhury, Maity, Hazra, Pradhan, Pal, et al. (2017) evaluated the attitude and experience of patients who purchases and consume generic drugs from fair price medicine shop. Finding of the study shows that there are various factors that influence the patients perceptions towards generic medicines such as non availability of medicines and distrust on these medicines usually leads to professed inferior quality and fakeness in these drugs. Attitude and experience for generic medicines are found non uniformity among physicians across the world.

Alrasheedy et al (2021) found that patients and medicine consumers usually prefer original branded medicines as compare to generic drugs. Furthermore, most of literature reviewed negative perceptions and misconceptions towards generic medicines among medicine consumers and patients. This research study focuses on particular population such as epilepsy or renal transplant patients. These patients reported resistance and negative perception towards generic medicine usage. Medical condition of the patient, their severity or seriousness, health care professionals recommendations, difference in prices, earlier experience with generic medicines and information or awareness for generic medicines are found as significant factors that influences decisions of patients to use branded or generic medicine.

Arcaro, da Veiga, da Silva, Pereira da Veiga (2021) explored that according to "Food and Drug Administration (FDA)", a generic medicine is indistinguishable or equivalent to the branded name medicines in terms of dosages, safety, concentration, administration route, quality, performance distinctiveness, & intention to use. Patients and Physicians consider that there is risk in use of generic medicines as they perceive them not effective or safe just like its alternative branded medicines.

Kohli and Buller (2013) explored that even though monetary factors play significant part in manipulating patients to select generic medicines, various other factors such as severity of sickness,

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advertisements, safety of the OTC, duration of the OTC effectiveness, relief of multiple symptoms, preferred company and preferable form of OTC medication influence others to pay more for branded medicines. Eventually, improved consciousness & usage of generic medicines may lead to considerable savings among patients. Approximately 90% of respondents from survey show that they consider OTC generic medicines & branded medicines to be safe and effective equally & experience the same process for FDA approval, however only 1/2 of the respondents selected generic over branded OTC's. Finding of the study reveals the difference among beliefs of consumers & showcase buying behavior of OTC medicines.

Chawla, Tofighi, Agarwal, Thomas and Mondal (2014) explored that growth of branded medicines is found to be considerably more costly as compare to development of generic medicines. This leads to considerable disparity in costs between the two types of drug. Branded medicines were found as major benefits throughout their period of patent but also carry on reaping important monetary reimbursement subsequent this period. This mostly based on the fact that patients usually buy branded drugs regardless of their alertness of the existence of generic medicines in the market. Moreover, policy making was explored to have a noteworthy impact on generic medicines accessibility, as is obvious clearly can be shown as compare with the degree of generic medicines usage between US, Canada and a variety of European nations.

Hasan, Shimu, Akther, Jahan, Hamiduzzaman and Nazmul Hasan (2021) explored that Generic medicines are more cost effective as compare to their related branded products. Pharmaceutical companies make an effort to prepare and grow generic medicines that are therapeutically equal to trendsetter product. Although making of generic medicines does not need much cost and time just like innovator company or product, but it is quite hard to make a product that contains the same therapeutic efficacy just like innovator & meet all regulatory or legal requirements as well. Makers of generic medication must reveal that their product is bioequivalent to branded products in terms of performance and quality. When innovator formulates new branded medicine then they have to go through few restrictions during experiments, manufacturing process and performance quality.

Pichholiya, Basu, Yadav, Kothari and Tahashildar (2015) explored the comparison between costs of various generic and branded medicines & to determine the prudence of highlighted branded versus generic prescription. Finding of the study shows that most of the available drugs in the market consist of brand names irrespective of generic or branded medicines. Therefore, physician must prescribe low price known brand having generic salt in band so that if that brand is not available then the patient can purchase another brand.

Patel, Yasobant, Charan, Chaudhari, Gaidhane and Saxena (2020) explored that Generic medicines are basically pain relief solution to deal with excessive expenditure of costly medicines. Therefore, to identify the barriers and facilitators, aim of this study was to collect proof on the perception of the generic medicines acceptability among "physicians, pharmacists and patients." Patients mostly aware of cheaper medicines available in market but they perceive that these medicines are for poor patients. Pharmacists found that benefits and profits from sale of branded medicines are more than generics.

Dunne, S.S., Dunne, C.P. (2015) explored that many patients do not consider generic medicines equivalent to the branded product & they also believe that branded medications are more potent or effective & have few side effects. Additionally, patients found to use more of generics medicines for minor sickness treatment but mostly prefer brand name medicines for more severe health issues.

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Studies show that patients usually have inadequate information & knowledge regarding generics and pharmacists & physicians plays an important part in the endorsement of generic drugs to patients.

Gupta, Malhotra, A. and Malhotra, P. (2018) found that assessment of doctors' perceptions & recognizing generic medicines may support in understanding the important areas that may proceed as obstacle to collective use of "generics." The main purpose of this research study was to investigate the "Knowledge, Attitude, and Practice (KAP)" of physician for generic medicines. This research study revealed that a good fraction of physician were well aware of use of "generic medicines." Some participants expressed their concerns therefore, further future study work is required on how interference from "medical professionals & public" can causes boost in the knowledge & acceptability of generic drugs.

Singal, Nanda and Kotwani (2011) explored that difference in price in generic and branded medicines for patient was not as important as it was expected but margins among retailers were more for branded and generics medicines. Branded generics quality is same as of their branded edition. This research highlighted that there is a need to adjust the medicines price policies, control the markups in supply chain of generic, carry out extensively broadcast the generics quality testing for all stakeholders awareness.

Ghanwat, Atakale, Shinde, Yedge & Nerkar (2020) found that generic drugs are the copy of branded whose patent has expired branded drug are the innovative product that has been made up by pharmaceutical industry. They have same active ingredients dosage form quality ling etc. people generally confused because of different in packaging and price. All around the world people have many myths about generics due to lack of knowledge and awareness. Doctors generally not prescribed the generics drug because of they are more doubtful about quality and safety.

Galani (2017) explored that in presently, Generic medicines are found as best option hence, continuously changes is needed to bring change in mentality of people to accept this truth. Moreover, it is important to have harmonized regulations on drugs globally for overall pharmaceutical sector growth. Major objective of care among patients care must be availability and accessibility of qualitative health care service & infrastructure. Along with this, regulation of physician is mandatory as patient switch to generic medicines from branded medicines with thin healing index.

Objective
- To know the factors that determines Patients' Perception regarding Generic and Branded medicines in the Pharma Space.

Research methodology
A sample of 309 people was surveyed virtually around many countries of the world with the help set of well-prepared questions especially designed to conduct this study to know the Patients' Perception regarding Generic and Branded medicines in the Pharma Space. The study is empirical in nature and the primary data was collected through random sampling. The data was analyzed with the help of statistical tool factor analysis to reach to end results.

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Findings

Table 1 is showing the "general details of the respondents" where 60.5% are males and 39.5% are females in total 309 people that were surveyed to conduct the study. 27.8% of them are from the age group 34-38 years, 34.6% belongs to age group 38-42 years and rest 37.5% is above 42 years of age. 36.6% of the respondents are Graduates and below, 41.1% are Post Graduates and above and 22.3% are having some other educational qualification. 35.3% of them are in service, 38.5 in business sector and 26.2 are working in some other occupational sector.

Table 1 "General details of the respondents"

Variables	No. of Respondents	%age
Gender		
Males	187	60.5
Females	122	39.5
Total	**309**	**100**
Age profile		
34-38 years	86	27.8
38-42 years	107	34.6
Above 42 years	116	37.5
Total	**309**	**100**
Educational Profile		
Graduate & Below	113	36.6
Post Graduate & Above	127	41.1
Others	69	22.3
Total	**309**	**100**
Occupational Profile		
Service	109	35.3
Business	119	38.5
Others	81	26.2
Total	**309**	**100**

"Exploratory Factor analysis"
Table 2 "KMO and Bartlett's Test"

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.873
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	3693.371
	"df"	105
	"Sig."	.000

The table 2 is showing the "KMO and Bartlett's Test"in which the KMO value is 0.873 and considered fit for further factor analysis.

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Table 3 "Total Variance Explained"

"Component"	"Initial Eigen values"			"Rotation Sums of Squared Loadings"		
	"Total"	"% of Variance"	"Cumulative %"	"Total"	"% of Variance"	"Cumulative %"
1	5.815	38.767	38.767	3.504	**23.359**	23.359
2	2.764	18.424	57.191	3.485	**23.231**	46.590
3	1.761	11.738	68.929	2.967	**19.779**	66.369
4	1.596	10.639	79.568	1.980	**13.199**	**79.568**
5	.605	4.035	83.603			
6	.523	3.486	87.089			
7	.449	2.996	90.085			
8	.325	2.167	92.252			
9	.255	1.700	93.952			
10	.207	1.381	95.333			
11	.185	1.235	96.568			
12	.168	1.118	97.686			
13	.141	.942	98.628			
14	.124	.825	99.453			
15	.082	.547	100.000			

Table 3 is showing the total variance of the factors in which 4 factors explain total 79% of the variance. The 1st Factor is explaining 23.359% of the variance followed by the 2nd Factor explaining 23.231% of variance, 3rd Factor explaining 19.779% of variance, and the last 4th factor had explained 13.199% of variance.
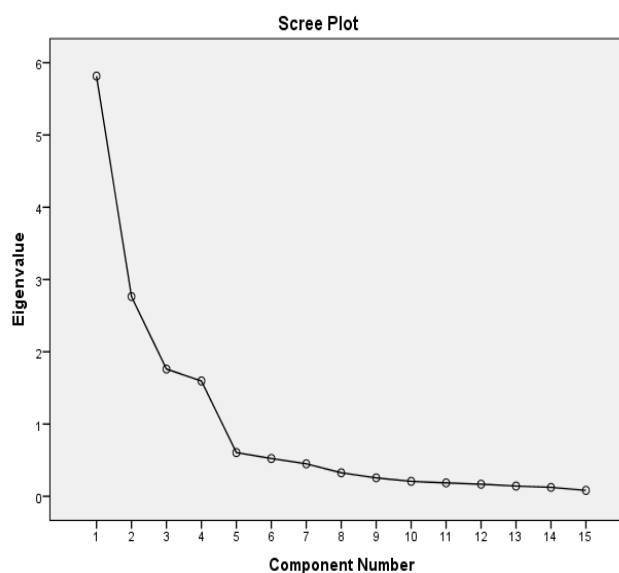

"Figure 1 Scree Plot"

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Figure 1 is the graphical presentation of the Eigen values obtained from the Table 3 "Total Variance Explained." The figure shows an elbow at 4 components. Hence portrays that total 4 Factors have been extracted.

Table 4 "Rotated Component Matrix^a"

SI. No.	Patients' Perception regarding Generic and Branded medicines	Factor Loading	Factor Reliability
	Affordability		**.950**
1.	I think that generic medicines are affordable to deal with excessive expenditure of costly branded medicines	.931	
2.	I can get Generic medicines at low cost	.920	
3.	I found Branded medicines very expensive	.912	
4.	I use generic medicines due to its affordability	.896	
	Awareness and Knowledge		**.954**
1.	I think generic drugs are the copy of branded whose patent has expired branded drug	.912	
2.	I think that generics medicines are used for minor sickness treatment	.906	
3.	Most of us buy branded drugs regardless of their alertness of the existence of generic medicines in the market	.884	
4.	There is "negative perceptions and misconceptions towards generic medicines among medicine consumers and patients"	.856	
	Effectiveness, Safety and Quality		**.881**
1.	I think generic medicines are not effective or safe just like its alternative branded medicines	.876	
2.	Generic medicines has inferior quality	.834	
3.	I think that generic medicine offer same healing outcomes	.819	
4.	I think that branded medicines have few side effects as compared to generic medicines	.796	
	Availability		**.723**
1.	The availability of generic medicines is very low	.812	
2.	Most of the available drugs in the market consist of brand names irrespective of generic or branded medicines	.783	
3.	I use branded medicines due to unavailability of generic medicines	.783	

The 1st factor "Affordability" is constituted by 4 variables namely I think that generic medicines are affordable to deal with excessive expenditure of costly branded medicines, I can get Generic medicines at low cost, I found Branded medicines very expensive, and I use generic medicines due to its affordability. 2nd Factor is constituted by 4 variables namely I think generic drugs are the copy of branded whose patent has expired branded drug, I think that generics medicines are used for minor sickness treatment, most of us buy branded drugs regardless of their alertness of the existence of

generic medicines in the market and There is "negative perceptions and misconceptions towards generic medicines among medicine consumers and patients." The factor has been named as "Awareness and Knowledge.'' 3rd Factor is constituted by 4 variables namely I think generic medicines are not effective or safe just like its alternative branded medicines,
Generic medicines have inferior quality, I think that generic medicine offer same healing outcomes and I think that branded medicines have few side effects as compared to generic medicines. The factor has been named as "Effectiveness, Safety and Quality'' and the 4th Factor is named as "Availability" which is constituted by 3 variables such as The availability of generic medicines is very low, Most of the available drugs in the market consist of brand names irrespective of generic or branded medicines and I use branded medicines due to unavailability of generic medicines.

"Construct wise Reliability"
The values of reliability for 4 constructs were found 0.950, 0.954, 0.881, and 0.723 from construct 1 to 4 respectively."

Table 5 "Reliability Statistics"

"Cronbach"s Alpha"	"No. of Items"
.871	15

The value of reliability for 4 constructs that includes total 15 numbers of items is 0.871. The criteria minimum value of "Cronbach"s" Alpha (>0.7) was fulfilled.

Conclusion
Globally, pricing of medicines is a big problem. There are only few people prefer to have health insurance and approximately 70 percent of the population pay for expenses of healthcare by themselves from their own pocket. As the costs of healthcare is increasing, generic drugs are becoming popular almost all over the world irrespective of poor or rich country. A huge difference is found between branded and generic drugs. Around 200 countries across the world exchange a low-cost, low-quality generic drug. Countries are facing issue of equal accessibility & qualitative drugs availability for its own citizens. Government in many countries is establishing the shops which are authorized to sell they generic medicines only. They supply quality generic drugs at low prices as compared to their counterpart brand name available in the market. The study concludes that the factors that determines Patients' Perception regarding Generic and Branded medicines in the Pharma Space are Affordability, Awareness and Knowledge, Effectiveness, Safety and Quality and Availability of the medicines.

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