Factors influencing for the marketing of branded generic drugs - A study on possible strategies in the Indian pharmaceutical market

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INTRODUCTION

Pharmaceutical companies depend on Research and Development (R&D) for new drug/medicine and obtain the patent for an invention. The pharmaceutical companies need to focus on generic drugs and not depend only on patented drugs for the revenue. The opportunities are increasing for selling generic drugs, especially for the smaller companies, which cannot afford the cost of R&D and also not willing to take risks. These types of companies use existing generic drugs to produce and market; as they don’t have patent protection and still the market is lucrative. These companies will obtain their separate brand name through the statutory process for the generic drug and market it with these brand names. As the drug is similar, the brand differentiation in terms of performances of the drug will have less scope. Hence, the companies will try to differentiate the products by using other attributes and position in the minds of doctors to generate the prescription.

Indian Pharmaceutical industry

Among other sectors of the Indian economy, the healthcare segment is one of the rapidly developing segments and is anticipated to reach 372 billion USD by 2022. In terms of volume, the Indian pharmaceutical sector stands third largest in the world and in terms of value, it is positioned the thirteenth-largest in the global market (Chandra and Sridharan, 2020).
It is currently contributing around 1.72 percent of the country’s Gross Domestic Product (GDP) with the current growth rate of 7-8 percent in the industry (Annual Report 2019-2020, 2020). India continues to play a material role in manufacturing various critical, high quality and low-cost medicines for Indian and global markets (Trends & Opportunities for Indian Pharma, 2018). In the year 2019, the domestic pharmaceutical market in India reached a turnover of 20.03 billion USD and year-on-year growth of 9.8 percent from 18.12 billion USD in the year 2018. Year-on-year sales grew by 12.1 percent by February 2020 in India (India Pharma, 2020).

Indian pharmaceutical sector projected to upsurge in the near future at a Compound annual growth rate (CAGR) of 22.4 percent.3 The spending on medicine is expected to rise 9-12 percent in the upcoming five years. It leads India to advance as one of the top ten countries in the world, in terms of medical expenses. Based on moving annual total (MAT) basis, a 9.8 percent year-on-year growth indicated in Industry by December 2019. Whereas the price growth is observed at 5.3 percent and original product development was seen at 2.7 percent on a year-on-year basis. The growth of the size indicated at two percent on a year-on-year basis in the same period.

Based on moving annual turnover, the largest market share in the Indian pharmaceutical market was contributed by Anti-Infective (2.58 billion USD) drugs, followed by Cardiac (2.13 billion USD) drugs and Gastro Intestinal (2.17 billion USD) in 2018. Whereas, hormones, anti-diabetics, and respiratory drugs indicated the highest growth rate with 14.2 percent, 12.9 percent and 12 percent respectively in the same year (IBEF, 2020). The sector exported about 13.69 billion USD (up to January 2020) in FY20. It is the largest supplier of generic medicine with a 20 percent contribution (in terms of volume) to global export in generics drugs. In terms of volume, it is the major exporter of the formulations with a market share of 14 percent and in terms of value, it stands at 12th position (Annual Report 2019-2020, 2020).

In terms of revenue, the generic drugs formulate the leading division in the Indian pharmaceutical segment with 70 percent of market share. There will be an increasing trend in the share of generic drugs in the domestic market in 2020 and is expected to reach 27.9 billion USD. Great opportunities exist for Indian firms in the generic drug due to their competencies. Whereas, the over-the-counter drugs constitute 21 percent and patented drugs constitute only 9 percent in terms of revenue in the Indian pharmaceutical sector (Singh and Renganathan, 2016). India is one of the favorite destinations for medical tourism, specially, among underdeveloped countries because of expertise doctors, sophisticated hospitals and low cost of treatments (Chandra, 2015).

MATERIALS AND METHODS

This research is part of a larger study to understand the product positioning strategies of Indian pharmaceutical companies in India. For the study, data were collected from 107 doctors with different specializations at Bangalore, Karnataka. The data was collected over 6 months period using a structured questionnaire as a data collection tool. The Cronbach’s alpha method is used to test the reliability and validity of the questionnaires and the alpha value was found to be 0.813, which is within the accepted range. The researcher used the statistical testing software SPSS version 20.0.0.

Limitations of the study

- The convenience sampling methods are used which may not represent the true sample.
- The results are a representation of metropolitan respondents.
- The study is focused on pharmaceutical companies operating in India.
- The study was conducted only on branded generic drugs.

Table 1: Table showing sample adequacy and statistical significance.

| Sample Adequacy | Statistical Significance |
|-----------------|-------------------------|
| Kaiser Meyer Olkin measure of sampling adequacy | Bartlett’s test of Sphericity Sig. 0.000 |

Factor analysis

The aim of the factor analysis was to have a smaller set of ‘artificial’ variables (called principal components) by reducing a larger set of variables. These smaller sets account for the majority of the variance in the original variables. The analysis was conducted through the principal component analysis method to identify the smaller groups among the factors which influence the doctors. It was run to recognize the influence of the diverse factors on doctors while prescribing the branded generic drug to patients. Through the rigorous literature survey, a
Total of 13 factors, which influence the doctors, were identified. These are the variables that are important while prescribing a branded generic drug by doctors hence considered for the analysis. The factor analysis was run on a question in the used questionnaire which had the same 13 factors in the form of questions. This question measured desired branded generic drugs prescribing characteristics among 107 doctors. The variables used for factor analysis are as listed below:

1. Generic name of the drug
2. Brand name of the drug
3. The company name which manufactures the drug
4. Other products of the company
5. Origin of the company which manufactures the drug
6. The condition of patients/diseases
7. Affordability of patients
8. Easy availability
9. Price of the drug
10. Feedback from other patients who used the drug
11. Feedback from colleagues/peers
12. Company promotion and
13. Dosage form

All the variables were measured on the ordinal scale. The assessment was carried out with prior analysis to know the suitability of factor analysis. There were four assumptions fulfilled for the purpose of factor analysis. They included:

- The research consisted of multiple variables that were measured at the continuous or ordinal variables.
- There was no outliers in the questionnaire.
- There was an existence of a linear relationship between all variables.
- Large sample sizes for a principal component analysis to produce a reliable result.

These above two assumptions were fulfilled by preliminary analysis of the questionnaire. Whereas, the other two assumptions were

- Using SPSS statistics, the third and fourth assumptions were tested:
(a) Linearity among all variables, which was assessed using a correlation matrix.
(b) The Kaiser Meyer Olkin (KMO) measure of sampling adequacy was used to detect the sampling adequacy for the total data set, the KMO measure for each individual variable and Bartlett’s test of sphericity also made to identify the adequacy of the sampling the level of correlation considered worthy of a variable’s inclusion was \( r \geq 0.3 \). It was scanned in the correlation matrix, for any variable that does

### Table 2: Table showing variance caused by the components

| Component                                      | Initial Eigenvalues | % of Variance | Cumulative % |
|------------------------------------------------|---------------------|---------------|--------------|
| 1                                              | 7.617               | 59.005        | 59.005       |
| 2                                              | 1.733               | 13.332        | 72.337       |
| 3                                              | 1.012               | 7.787         | 80.124       |
| 4                                              | 0.766               | 5.894         | 86.018       |
| 5                                              | 0.433               | 3.411         | 89.429       |
| 6                                              | 0.351               | 2.700         | 92.128       |
| 7                                              | 0.314               | 2.417         | 94.546       |
| 8                                              | 0.256               | 1.966         | 96.512       |
| 9                                              | 0.171               | 1.317         | 97.829       |
| 10                                             | 0.112               | 0.859         | 98.688       |
| 11                                             | 0.082               | 0.629         | 99.318       |
| 12                                             | 0.061               | 0.472         | 99.789       |
| 13                                             | 0.027               | 0.211         | 100.00       |

Extraction method: Principal component analysis using SPSS software.
not have at least one correlation with another variable where \( r \geq 0.3 \) and it was found that all the questions were had a correlation larger than 0.3. Hence, the assumption of linearity was met.

**RESULTS AND DISCUSSION**

Table 1 illuminates the KMO and Bartlett’s test output. The KMO measure is 0.856, which is “Meritorious” on Kaiser’s (1974) classification of measure values. Bartlett’s test of sphericity was statistically significant (\( p < .05 \)), indicated that the data was factorizable. The KMO measure for each distinct variable was scanned in the Anti-Image Correlation. In the Anti-Image correlation, the researcher scanned for the KMO measures as much as possible close to 1, with values above 0.5 an absolute minimum and larger than 0.8 was considered good. The KMO measure less than 0.5 was considered as low and any particular variable, which had a low the KMO measure was considered removing it from the analysis. It was found that all the questions were had a KMO measure greater than 0.5. Hence, sampling adequacy was met. By this, all assumptions were met to conduct factor analysis. A measure of the variance that is accounted for by a component is an eigen value.

Table 2 shows the variance caused by the components. An eigenvalue of one represented the variance of one variable, hence, for 13 variables there were a total of 13 eigenvalues of the variance observed. The scanning of the variance led to identifying two components that had high variance. By examining the first component, we found that it explained 7.671 eigen values of variance (the “Total” column), which was 7.671/13 x 100 = 59.005% of the total variance, as reported in the ”% of Variance” column. The second component explained 1.733 eigenvalues of variance (the “Total” column), which was 13.332% of the total variance. Hence, the two components explained 72.337% of the total variance Table 2. A scree plot was generated. It was a plot of the total variance explained by each component (its “eigenvalue”) against its respective component. There are 13 variables, hence 13 components observed in the scree plot. The inflection point was intended to denote the point where the graph begins to level out and the following components add little to the total variance. Hence, the components which are before the (last) inflection point of the graph were retained. Therefore, component 1 and component 2 were retained.

The rotated component matrix explains how the retained the rotated components load on each variable. According to the rotated component matrix of the variables as shown in Table 3, Component 1 was represented by Brand name, Company name, Other products of the company, Origin of the company, Dosage form, Company promotion, Price of the drugs, Generic name. These variables were related to the company, hence termed as company related factors. Component 2 was represented by the condition of the patients, affordability of the patients, feedback from the patients about the drug, feedback from the colleagues/peers and availability. These variables were related to the environment of the doctor; hence, termed as environmental related factors.
The summary and findings of the factor analysis

The factor analysis was run on a 13 question questionnaire that measured desired branded generic drug prescribing characteristics, on 107 doctors. The assessment was carried out before analysis for the identification of the suitability of the factor analysis. After inspecting the correlation matrix, it was found that all variables have a correlation coefficient greater than 0.3. Hence, the entire variables were considered in the analysis. The overall KMO measure was 0.856 with individual KMO measures all greater than 0.7, which indicated ‘meritorious’ to ‘marvelous’. Bartlett’s test of sphericity was statistically significant (p < .05), indicating that the data was likely factorizable. The factor analysis has shown that dual components, component 1 and component 2, that had eigenvalues greater than one. The component 1 explained 59.00% of the total variance, whereas component 2 explained 13.33% of the total variance.

The visual examination of the scree plot shown that these two components should be retained, as they explained the majority of the variance. Hence, two components were considered. The 2 component solution explained 72.33% of the total variance. The first component was company related factors and the second component was the environmental-related factor. The set of variables, the component 1, termed as company related factors comprise of the attributes like the brand name of the drug, company name which manufactures the drug, generic name of the drug, origin of the company, company’s promotion, the price of the drug. Other products of the company which manufactures the drug and dosage form of the drug manufactured by the company.

The other set of variables, the component 2, termed as the environmental related factors, consists of the factors like the condition of the patients, affordability of the patients, feedback from the patients about the drug, feedback from the colleagues/peers about the drug, and availability of the drug. The two sets of variables, namely, the company-related factors and the environmental-related factors will constitute about 72 percent of the variance on the decision making of the doctors about the drug to be prescribed to the patients and about 28 percentage of the variance caused by other than these factors. Among the 72 percent of the variance caused by these two sets of factors, the set of the company related factor causing maximum variance which is about 59 percent of the variance and environment-related factors causing about 13 percent of the variance for making the decision about prescribing the drugs to the patients.

CONCLUSIONS

The company related factors and the environmental related factors play a vital role while prescribing a drug to patients by doctors. Together, these two sets of factors majorly influence the generation of prescription for the branded generic drugs segment i.e. 72%. The company-related factors, involve about eight attributes. They are the Brand name, Company name, Other products of the company, Origin of the company, Dosage form, Company promotion, Price of the drugs, and Generic name of the drug. All these attributes are under the control of a company. The company-related factors will influence about 59 percent for prescription generation by doctors. Hence, the brand managers of the pharmaceutical companies can focus on these attributes for the brand differentiation and position in the minds of doctors for the prescription generation of the branded generic drugs.

In the hectic competition among the Indian pharmaceutical companies for space in the generic drugs market, these attributes can be handy for the brand managers of the pharmaceutical companies in India for the prescription generation. Further, research can be conducted on the influence of each attribute on the prescription generation of the branded generic drugs. The second set of the factors which influence the prescription generating is the environmental-related factors. It consists of five attributes, namely, the availability of the drug, the patient’s feedback, feedback of peers, the condition of the patients, and the affordability of the patients. The environmental-related set of attributes collectively influences about 13 percentages on prescribing a particular drug to a patient and which is very significant. These attributes are not under the control of a company; however, the companies can influence these attributes indirectly and show their presence.

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Conflict of Interest

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