# Chapter 4

# Research Methodology

## 4.1 Scope of the study

The competitive and technological changes in the pharmaceutical industry from powerful new drug discoveries to innovative R&D partnerships and marketing plans are reshaping the business strategies of many pharmaceutical companies. As number of drugs are gradually going off patent and also a blend to push more of generic drugs to have better margins, resulting in the erosion of brand positioning of ethical drugs and hence creating a competitive market with the entry of generic versions of the same formulation of ethical drugs. Hence this study was designed to provide a framework to sustain brand image of ethical drugs while linking it with the prescription process and thus exploring the essence of brand image associated with the ethical drugs.

This study emphasized on the role of generic drugs on the societal consumption pattern. Thus, providing a linkage between the brand image of the ethical drugs and the benefits offered by generic and ethical drugs to the society. This research was an attempt to match the theoretical concepts of brand positioning with the actual prescription behaviour of medical practitioners.

This study was limited to Western India. Five cities from the two states i.e. Gujarat and Maharastra, were selected based on their business potential. Samples drawn from these cities for each category were considered as representative of the population of that category. The findings based on the study cannot be generalized throughout the India.

However, the study may have bearing on the cities having similar socio-economic conditions.

## 4.2 Objectives of the Study

Major objectives of the study were:

1. To assess the impact of brand image of ethical drugs compared to generic drugs on the prescription behaviour of medical practitioners.
2. To study the impact of brand image of ethical drugs on the social consumption pattern i.e. the societal benefits offered by ethical drugs compared to generic drugs.
3. To study the impact of ethical drug promotions to the medical practitioners on the prescription process and the distribution channels.

## 4.3 Hypothesises drawn for the Study

Major hypothesis drawn for the study were:

H1: Relative influence of brand image of ethical drugs is more than the generic drugs on the prescription behaviour of GPs.

H0: Relative influence of brand image of ethical drugs is not more than the generic drugs on the prescription behaviour of GPs.

H2: Relative impact of brand image of ethical drugs is more than the generic drugs on the social benefits offered to the customers.

H0: Relative impact of brand image of ethical drugs is not more than the generic drugs on the social benefits offered to the customers.

H3: Relative impact of ethical drug promotions to the GPs is more than the generic drugs on the prescription process.

H0: Relative impact of ethical drug promotions to the GPs is not more than the generic drugs on the prescription process.

H4: Relative impact of ethical drug promotions is more than the generic drugs on the pharmacist's preferences.

H0: Relative impact of ethical drug promotions is not more than the generic drugs on the pharmacist's preferences.

The research plan was designed to generate primary data that could be tabulated and analyzed to draw inferences, which would throw light on the above objectives.

## 4.4 Research Design and Tools

### 4.4.1 Data Sources

Data had been collected from four sources i.e. Doctors, Pharmacists, Patients and Medical Representatives for understanding the impact of generic drugs on the buying behaviour pattern and brand sustainability of ethical drugs. The literature reviewed regarding the role of each stakeholder in the pharmaceutical market provided the base for generating hypothesis for this study.

Data was collected from *Patients* to gather their opinion whether a particular ethical brand has given desired relief and their cost of treatment versus generic drugs. *Doctors* were the second source for data collection as they are the ones who prescribe a brand to the patients, who in turn purchase the prescribed brand from the nearby pharmacist. As

each pharmaceutical manufacturer tries to get the attention of the doctors mind share/ prescription share for their respective brands, thus their opinion and preferences were essential for this study.

The third source of data collection was the *Pharmacist*. Pharmacist plays a key role in influencing the patients, as many times they substitute the brand prescribed by doctors. Thus their opinion is also important for this study.

The fourth source of data collection was the *Medical Representatives*. As they many times influence the prescription behaviour of the doctors, thus their response was also important for my study.

As the information on the study was collected from several sources, therefore it is cross checked for the fulfillment of the study.

### 4.4.2 Data Types

The nature of the data relevant to the research was demographic and behavioural. The demographic profile of the respondents and their behavioural aspects were gathered for the fulfillment of the objectives of study.

The opinion and attitudes of the medical practitioners and medical representatives were captured to know their preference variables which influence the prescription behaviour. The opinion of pharmacists was also gathered to get insight about their role in the prescription and pharmaceutical promotions.

### 4.4.3 Communication Approach

The questionnaire method was adopted for data collection. A self-administered questionnaire was designed for doctors due to time constraints during visits but was personally executed for maximizing the response rate.

Similarly, separate questionnaire were prepared for pharmacists, medical representatives and patients. The responses were taken from them personally.

## 4.5 Sample Design

### 4.5.1 Sample Population determination

Out of the total population of approximately 25,000 doctors around the selected cities in Gujarat and Maharastra, 1 per cent of the doctors (i.e. 250) were selected as the sample for the study. Similar process was carried out for sampling patients, pharmacists and medical representatives.

### 4.5.2 Sample frame

The sample frame for the physicians was taken from the list provided by the local brand of the Indian Medical Association. The local Medical Representative Association provided the list of their members, which was used as a frame for the sampling of medical representatives. Similar process was carried out for pharmacists to frame their samples. Patients were selected based on some personal references.

### 4.5.3 Sample Size

In order to select the representatives among the four category of respondents i.e. doctors, pharmacists, medical representatives and the patients, convenience sampling method was chosen followed by judgment sampling method.

Considering the large population of the respondents, in all four categories, 1 per cent sample was selected under each category. Therefore, 250 respondents each were chosen from doctors, pharmacists, medical representatives and patients.

## 4.6 Data Collection

### 4.6.1 Data Collection Objectives

The data was collected for the purpose of the study to fulfill the following objectives:

1. To obtain the demographic profile of all four categories of respondents.
2. To obtain the opinion of medical practitioners, pharmacists and the medical representatives to arrive at the factors that drives the prescription behaviour and pharmaceutical promotions for a particular brand of a particular molecule.
3. To explore the prescription process of the medical practitioners.
4. To obtain patients view regarding the effect of generic drugs on ethical drugs and their cost of treatment.

### 4.6.2 Questionnaire Design

An introductory letter was attached alongwith the questionnaire so as to make the respondent aware about the purpose of the study. The flow of the questionnaire, for all the sample elements, was divided into two components:

1. Demographic profile
2. Attitudinal information.

The following guidelines were adhered to while designing the questionnaire:

1. The questions were phrased in such a manner that they were unambiguous, clearly comprehensible and used simple language.
2. Care was taken to ensure that the language of the questions did communicate the purpose of the study.
3. The question content was consciously kept adequate and the numbers of questions were also restricted to minimum possible.

### 4.6.3 Administration of Questionnaires

The data collection was planned in a sequential manner. In the first phase, the physicians were approached and were self-administered the questionnaire. For the purpose of data collection, the cities selected from the state of Gujarat and Maharastra were Ahmedabad, Baroda, Surat, Pune and Mumbai. These cities were selected based on their business potential in their respective states. In the second phase pharmacists, medical representatives and patients were surveyed and their responses were gathered.

### 4.6.4 Data Compilation

Appropriate tabular formats and various other statistical tools were used to compile the research findings. The interpretation and conclusions were drawn based on the statistical analysis.

### 4.6.5 Validation of Data

Validation of data was carried out by checking whether accurate samples were drawn as per the guidelines. The internal consistency of the data was measured using Cronbach's Alpha. Cronbach's alpha or Coefficient alpha was developed by Cronbach (1951), as a generalized measure of the internal consistency of a multi-item scale. Coefficient alpha is calculated by using the following formula:

$$\alpha = \frac{N \times \bar{r}}{1 + (N - 1) \times \bar{r}}$$

Here, N is the number of items in the scale and $\bar{r}$ is the average inter-item correlation among the items (Peterson, 1994). The formula suggests that when number of items increases, the Cronbach's alpha increases. Similarly, as the average inter-item correlation increases, Cronbach's alpha also increases. This corroborates the intuition that when inter-item correlations are high, the items are measuring the same underlying construct. This evidences high or good reliability and relates to how well these items measure a single unidimentional latent construct. For this study the Cronbach's alpha for the doctor's was 0.709. The Cronbach's alpha for the patient's beliefs was 0.676. For the

pharmacists the value of Cronbach's alpha was 0.777 and the Cronbach's alpha for the medical representative's beliefs was 0.781.

The questionnaire was pre-tested among few respondents and based on the initial response and matching it with the research objectives, necessary modifications were carried out in the questionnaires. The content of the responses were scrutinized for apparent inconsistencies, which were found to be minimal. The interviewing instructions were followed in word and spirit in all the cases.

## 4.7 Data Interpretation and Analysis

The next chapter deals with the analysis of the data collected. Various tools such as Mean, Standard Deviation, Analysis of Variance (ANOVA), and Factor Analysis were used for analysis.

### 4.7.1 Qualitative Analysis of Open ended questions

For the open ended questions in the questionnaire, the responses were grouped for each of the questions and fed into the conclusion as they show similar attitudinal trend.

### 4.7.2 Quantitative Analysis

#### 4.7.2.1 Descriptive Analysis

Mean and Standard Deviation were used to calculate the overall variance among the samples.

#### 4.7.2.2 Bivariate Analysis

Analysis of Variance (ANOVA) was used to capture the variance among the group of respondents.

Analysis of Variance (ANOVA) is used as a test of means for two or more populations (Malhotra, 2005). The null hypothesis, typically, is that all means are equal. It must have a dependent variable (metric data using an interval or ratio scale) and there must also be one or more independent variables (categorical or non metric). Categorical independent variables are called ***factors***.

In ANOVA, for testing whether the null hypothesis that the category means are equal in the population, *F statistic* is calculated.

Hypothesis drawn is as follows:

$$H_0 : \mu_1 = \mu_2 = \mu_3 = \ldots = \mu_c$$

The null hypothesis may be tested by the *F statistic* by using the following formula:

$$F = \frac{SS_x / (c-1)}{SS_{error} / (N-c)} = \frac{MS_x}{MS_{error}}$$

Here, *MS* is the Mean square, $SS_x$ is the variation in dependent variable related to the variation in the means of the categories of independent variable. $SS_{error}$ is the variation in dependent variable due to the variation within each of the categories of independent variable or factor, *(c-1)* and *(N-c)* are the degrees of freedom (*df*).

#### 4.7.2.3 Multivariate Analysis

Factor analysis is an interdependence technique to examine the interdependence relationship among a set of variables. It is also denoted as data reduction technique as relationships among set of many interrelated variables are examined and represented in terms of a few underlying factors. In this study, Factor Analysis was used to identify the major factors that contribute to the overall buying behaviour and brand sustainability of ethical drugs.

Finally, the inferences drawn from both the analysis were discussed with the few physicians, known to the researcher, to cross check the results from the study.

## References:


1. Peterson, Robert A., A Meta-analysis of Cronbach's Coefficient Alpha, Journal of Consumer Research, Vol. 21, September 1994, pg. 381-391.
2. Malhotra, Naresh K., Marketing Research: An applied orientation, 4e, Pearson education, 2005.