PART IV

RESEARCH METHODOLOGY

The objectives of this research can be summarized as under:

1. To study the factors that motivate prescriptions from physicians and assign them weights for enabling proper resource utilization by pharmaceutical marketer.
2. To assess whether the resource utilization presently prevalent in the pharmaceutical industry is justifiable in terms of its intended purpose, i.e. prescription generation.
3. To explore what alternatives can be thought of to render the promotional and marketing efforts more cost effective.

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

4.1 RESEARCH DESIGN AND TOOLS

4.1.1 Data sources

The prime source of information, logically, is physicians. They are the major targets of the pharmaceutical promotional activity. Measured scientifically, their attitudes can guide our way through the maze of the complicated prescription process. Unfortunately, data collection from the physicians could be very difficult, as they are

busy professionals and tend to avoid such advances Nevertheless, with due diligence and with the help of scientifically designed questionnaire, necessary data can be extracted from them.

The next source is the Medical Representatives, who interact with the physicians on day-to-day basis. They are well placed to measure the attitudes of the physicians towards the promotional activity of the pharmaceutical industry. They have a first hand knowledge of the favourable or unfavourable outcome of various promotional activities undertaken by the pharmaceutical industry. They are the medium through which all the promotional strategies of the pharmaceutical marketers are implemented. In fact they are strategically placed at the interface of the pharmaceutical industry and its consumers. They possess valuable information about the factors that motivate prescriptions from medical doctors.

The marketing managers are the next potential source of information. They devise the promotional strategies, which are intended to generate prescriptions. They are the ones who design tactical plans for the implementation of the marketing strategies. Their perception about the factors that motivate prescriptions from physicians can provide valuable clues as to whether their budget allocations are In line with the expectations of the physicians or not. If their perceptions differ from those of the physicians, we can conclude that they do not see through the same eye and corrections are needed in the marketing spend to make it more cost effective.
Last but not the least, the attendants to the physicians are also informed as to what motivates the prescriptions from their masters. They decide which Medical Representative will be let into the chamber of the physician. They are the exponents

of the prescribing behaviour of the physicians. They follow their masters' wishes in terms of choice of drugs/brands and during emergency situations, in absence of their masters, arrange administration of drugs to the hospitalized patients.

4.1.2 Data types

The nature of the data relevant to the research is demographic and behavioural. We need to know the demographics of the various data sources and their behavioural aspects with regard to the objectives of our study.

The functions of the data with regard to its ultimate interpretation and analysis in the research study are, 1. Opinions 2. Intentions, and 3. Motives. The opinions and attitudes of the prescribers, medical representatives and the marketing managers will give us a clue to the intentions and motives of the prescribers in respect of their prescription behaviour. The opinions of the medical representatives and marketing managers will allow us to evaluate the differences thereof and will provide us with a clue so as to how the gap can be bridged for better utilization of marketing resources.

The opinions of the physicians on the new tools of pharmaceutical promotion can help us decide which new promotional methods would meet the physicians' expectations and approval. They will also provide us with the insight into the intentions and motives of the prescribers.

4.1.3 Communication approach

The questionnaire method was adopted for data collection. As the physicians are busy professionals, self-administered questionnaire was designed for them. However these were to be personally hand-delivered to them for maximizing response rate.

Similarly, separate questionnaires were planned for the medical representatives, marketing managers and physicians' attendants. In-depth personal interviews were also considered useful with all the data sources, using structured, open-ended questionnaires.

It was anticipated that the response rate from the physicians would be low, if they were not diligently pursued. Reaching over to five thousand physicians was a formidable task. It was therefore decided to avail the services of a pharmaceutical company whose field force enjoyed such reach. It is a well-known fact that the medical representatives of pharmaceutical companies make regular cyclical calls on physicians; and that during each cycle they call on 200-250 physicians. Each cycle spans over one to one and a half month.

For this purpose, a Baroda based pharmaceutical house was approached with a request to offer the services of their field force for data collection. The company readily agreed.

The medical representatives could also administer the questionnaire designed for the medical representatives to their colleagues. Thus the following plan for communication was finalized.

1 The medical representatives would administer the questionnaire to the physicians
2. They would also administer the questionnaire designed for the medical representatives to their colleagues.
3. The first line managers would conduct the in-depth interviews of the physicians and also of senior medical representatives.
4. The senior managers would administer the questionnaire to senior marketing personnel and would also conduct in-depth interviews of top-level marketing personnel.
5. The medical representatives would administer the questionnaire designed for the physicians' attendants.

4.1.4 Data analysis

It was necessary and expedient to decide, beforehand, the statistical tools to be employed for drawing inferences, which would be in line with the objectives of the study.

Majority of the data would be in the form of attitudinal scales and ranking scales. This would be tested against the hypotheses derived through the secondary data. The analysis would comprise, broadly, of:

1. **Data validation: Internal consistency measure: Cronbach's alpha**

2. **Micro-analysis: Hypothesis testing for each micro-hypothesis derived from the secondary data, ranking scale analysis and comparisons,**

summary statistics for various respondent groups, correlation analysis, etc.

3. **Macro-analysis: Data reduction through Factor analysis and development and testing of Regression model for prescription motivating factors.**

4.2 SAMPLING AND SAMPLE SIZE DETERMINATION

4.2.1 Defining population

The physicians' population can be defined as the number of doctors possessing recognized medical qualifications, as approved under the Indian Medical Council Act and practicing in India. As on 31st December, 02, the population of the physicians was 545, 412 Out of this 137,637 doctors practiced in the western zone of the country, i.e. in the states of Gujarat, Maharashtra, Rajasthan and Madhya Pradesh [1]

The medical representatives are generally headquartered at district places and large cities. ORG-MARG retail audit lists about 250 pharmaceutical companies who promote their products in the market through their field force. The sales turnover of these companies accounts for over 95% of the total retail pharmaceuticals sales in our country. The average field force of these companies is around 200. Considering their reach in the market and the scale of their marketing operations, it can be assumed that the population of the medical representatives should be around 50,000. This assumption is further corroborated by the fact that the Federation of Medical Representatives' Association of India (FMRAI) claims a membership of

around 40,000 medical representatives. FMRAI claims to be the only national organization for the field workers in the country having functioning centers in 300 cities and towns of the country.[2] It can be expected that around 25% of them may not be the members of this federation. Thus the population of medical representatives can be conveniently placed at around 50,000 in India.

4.2.2 The sampling frame

The sampling frame for the physicians would be the list provided by the local branch of the Indian Medical Association in the place where the medical representative is headquartered. This list can also be availed from other voluntary organizations like Lions' club Doctors' directory or Rotary club Doctors' directory, etc. However the sampling frame relied upon by the medical representative would be the doctors call list he has prepared from this larger frame of the physicians. This list would comprise the survey population for the purpose of this study

The local Medical Representatives Association can provide the list of their members, which would act as the frame for the sampling of medical representatives.

4.2.3 Sampling method

In order to obtain the representative cross-section of the physicians, purposive sampling method was chosen. The interviewers were instructed to choose physicians from amongst their doctors' call list in such a manner that it would be a true cross section of the population of physicians. The following instructions were given to the interviewers for selecting the sample of physicians.

1. Select physicians from different practice segments, like General Practitioners, Physicians, Surgeons, and Dentists etc.
2. Select physicians of varied practice length, practice volume and age group.
3. Select physicians practicing both in urban and rural areas.
4. Select physicians practicing in both the private and institutional settings.

The interviewers were instructed to select the physicians from among the above demographic variables so as to represent their true proportion in the population. This would ensure a truly representative sample.

The same criteria were applied to the selection of medical representatives for questionnaire administration The interviewers were instructed to select a representative sample according to the following guidelines:

1. Select medical representatives working with small, medium and large pharmaceutical organizations.
2. Select the sample, which comprises both male and female medical representatives.
3. Select the sample, which includes the medical representatives with varied length of work experience.

For ensuring the true cross-section representative sample, the interviewers were instructed to use their judgment and assign quota for each demographic variable under consideration. Their doctor call lists by and large represent a true cross-section of the population of physicians. They were instructed to employ judgment

sampling and quota sampling methods to select a truly representative sample of the physician population.

The prescription habits of the clinicians can be assumed to be identical across the country. This is because, medical colleges all over the country have similar syllabi approved by the Medical Council of India; and they have to undergo similar training prior to their registration with the Council. Therefore, by and large they follow identical diagnosis and treatment methods while treating their patients. Accordingly a cluster of physicians practicing in the western zone of the country was selected as a sampling frame. This would reduce the data collection costs, without compromising the quality of the data. The western zone, comprising Gujarat, Maharashtra, Madhya Pradesh and Rajasthan, has a physician population of 137,637 physicians. It can be safely assumed that the prescription behaviour of the physicians in this cluster would closely resemble to the whole of the population.

4.2.4 Sample size determination

Considering the large size of the population of the physicians, 1% sampling was thought to be the ideal sample size for the study. Therefore it was decided to select a sample of 5000 physicians for the study. Keeping in mind the population of medical representatives (approximately 50,000), a sample of 500 medical representatives was considered to be appropriate.

The final plan for primary data collection, which was adopted for this study is laid out hereunder:

1 Self-administer a structured close-ended questionnaire to physicians and obtain responses from around 5,000 physicians.

2. Conduct in-depth interviews with leading physicians with the help of a structured, open-ended questionnaire and obtain responses from around 100 leading physicians
3. Self-administer a structured close-ended questionnaire to medical representatives and obtain responses from around 500 medical representatives
4. Conduct in-depth interviews with senior medical representatives with the help of a structured, open-ended questionnaire and obtain such 25 responses.
5. Self-administer a structured close-ended questionnaire to senior marketing personnel and obtain responses from around 15 senior marketing personnel.
6. Conduct in-depth interviews with top-level marketing executives with the help of a structured, close-ended questionnaire and obtain responses from 5 top-level marketing executives.
7. Self-administer a structured, close-ended questionnaire to physicians' attendants and obtain responses from 50 attendants.

4.3 DESIGN OF QUESTIONNAIRES

4.3.1 Data collection objectives

The data to be collected for the purpose of the study should fulfill the following objectives.

1. Obtain demographic information about the physicians, the medical representatives, the marketing executives and the physicians' attendants.
2. Obtain opinions of the physicians about the factors that motivate them to prescribe a particular brand of a particular medicine
3. Explore the prescribing process of the physicians.
4. Obtain the opinions of the physicians as to what new methods of promotion would be liked and accepted by them.
5. Obtain impressions of the medical representatives, marketing executives and physicians' attendants about the factors that motivate the physicians to prescribe a particular brand of a particular medicine.

4.3.2 Questionnaire design

With the above objectives in mind, first a questionnaire for the physicians was developed. The following guidelines were adhered to while designing the questionnaire.

1. An introductory letter addressed to the physicians was designed which briefly introduced the purpose of the study and motivated them to participate in the study. It was emphasized that their participation in the study would help design a better marketing communication, which would save their time and energy.
2. The questions were phrased in such a manner that they were unambiguous, clearly comprehensible and used simple language.
3. Care was taken to ensure that the language of the questions did not offend the physicians.

4. The question content was kept just adequate and number of questions was also restricted to minimum possible
5. The initial questions did not have much significance in the context of the research topic, but they served the purpose of fine-tuning the interest of the physicians to proceed further and respond to the core questions.
6. Leading questions and questions, which would intimidate the physicians, were avoided.

The core of the questionnaire dealt with the measurement of the attitudes, preferences and opinions of the physicians. Likert Scale with six rating positions was used. Although the original Likert Scale had five rating positions, a six-point scale offered an advantage of avoiding neutral rating. It has been pointed out that a rating scale with odd number of rating positions like five or seven offers a mid-point which would be preferred by those respondents who do not have a firm opinion or attitude. As against this, a rating scale with even rating positions would compel the respondents to take a stand and offer opinion of exhibit attitude.[3]

An application of the above concept has been aptly demonstrated by Syed Saad Andaleeb and Tallman Robert F. in their study titled "Physician attitudes toward pharmaceutical sales representatives", published in the Health care magazine during 1995.[4]

Accordingly a Likert scale with six rating positions was used for the measurement of psychological constructs.

The questionnaire was approved by the research guide Dr Jayraj Jadeja. Dr R G.Kothari, Dean, Centre for Advance Studies in Education, The M.S. University of Baroda also reviewed the questionnaire format and accorded his approval.

The questionnaire was pre-tested by administering it to thirty physicians. The physicians found the questionnaire agreeable in terms of its length, question content, language and comprehension. Therefore no revision was warranted. A format of the questionnaire appears at **Appendix 14**. It comprised of the following parts.

1. An introductory appeal letter addressed to the physician.
2. A demographic information form to be filled in by the interviewer
3 The questionnaire response form to be filled in by the physician

Next, a similar questionnaire was designed, which was evolved on similar line but had open-ended questions format, to be used for conducting in-depth interviews of the senior physicians. A format of this questionnaire appears at **Appendix 15**

The questionnaire for the medical representatives was designed using the same psychological constructs, as used in the questionnaire for the physicians. The purpose behind this idea was to measure the impressions of the medical representatives on the attitudes of the physicians for specific psychological constructs. This would allow comparison between the opinions of the physicians and what the medical representatives thought about the opinions of the physicians. The belief constructs pertaining to new methods of promotion to physicians were avoided

as the medical representatives are not qualified to opine on such methods, which are not in vogue so far. A format of this questionnaire appears at **Appendix 16**

The marketing executives are required to be involved in strategic marketing planning and they are expected to be knowledgeable in the area of new cost-effective methods of pharmaceutical promotion. Therefore, their questionnaire was designed on the same lines that were adopted for the questionnaire of the physicians. A format of this questionnaire appears at **Appendix 17.**

The questionnaire for seeking responses from top-level marketing executives had all the above questions, but they were open-ended to encourage detailed responses from these experts. A format of this questionnaire appears at **Appendix 18.**

The questionnaire for the physicians' attendants contained only those relevant questions for which they can be expected to have some information. This questionnaire was designed in the vernacular language. A format of this questionnaire appears at **Appendix 19**

4.4 ADMINISTRATION OF QUESTIONNAIRES

The data collection was planned in a sequential order. In the first phase the physicians were approached and were self-administered the questionnaire. For the purpose of data collection, the field formations were organized in the states of Gujarat, Maharashtra, Madhya Pradesh and Rajasthan.

Each state has the following line hierarchy of field personnel.

1. ZSM (Zonal Sales Manager): The Zonal Sales Manager is in charge of the state and heads the marketing operations of the state. He is assisted by requisite number of ASMs (Area Sales Managers).
2. ASM (Area Sales Manager): The Area Sales Manager has 4-6 medical representatives under him and he controls their field activities
3. MR (Medical Representative): A medical representative is the interface between the pharmaceutical organization and its customers, i.e. the physicians. He meets them regularly and details his products in order to generate prescriptions of his products from the physicians.

There operated about 70 medical representatives in the four states under consideration. Each one of them was given a target of 100 physicians to whom the questionnaires were to be administered. The Zonal Sales Managers of all the states were explained the importance of the survey and they were given detailed briefings about the administration of the questionnaire to the physicians The following instructions were given to them.

- The introductory letter forming the first page of the questionnaire was to be read out to the physician.
- The demographic form was to be filled by the medical representative.
- The questionnaire was to be handed over to the physician only in the presence of his/her Area Manager.
- The doctor was to be requested to kindly give a convenient date when the response form could be collected back.

- In case the physician complained that he had lost the response form, a new form was to be provided to him for participating in the survey

The Area Sales Managers were instructed to monitor the progress of the work on fortnightly basis and forward the collected response forms to the researcher.

The ZSMs were instructed to select about 25 leading physicians on judgment and quota basis for conducting in-depth interviews with the help of the structured open-ended questionnaire, designed for the purpose. They were interviewed by the ASMs.

When the requisite response forms were received, the medical representatives were asked to short-list medical representatives of other pharmaceutical organizations for administering the questionnaire designed for them. They had to use their judgment for selecting a representative sample, which was to be approved by their ASMs, on the basis of the guidelines discussed earlier. Similarly, in-depth interviews of senior medical representatives were conducted by the interviewers under the supervision of their ASMs. The detailed list of the field formations appears at **APPENDIX 20**.

The senior marketing managers and top-level executives were interviewed by the researcher himself and the responses were recorded.

The response rate in case of the physicians and the medical representatives was close to 95% and hence response analysis was not considered necessary.

4.5 DATA COMPILATION

In each category of the survey instruments, the following responses were obtained.

Sr.No.	Survey instrument	Responses
1.	Physicians' self-administered questionnaire	4966
2.	Physicians' in-depth interviews	98
3.	Medical Representatives' self-administered questionnaire	536
4.	Medical Representatives' in-depth interviews	24
5.	Marketing Managers' self-administered questionnaire	16
6.	Top-level Marketing executives' in-depth interviews	5
7.	Physicians' attendants' self-administered questionnaire	95

4.5.1 Validation of data

Validation of data was carried out by checking whether accurate sample was drawn as per the guidelines issued to the interviewers. For this purpose, the ASMs were instructed to check at least 20% of the sample and ascertain that the sample in each category was taken as per the guidelines. The results were satisfactory.

Validity of the instruments was checked beforehand by test-administration and thorough scrutiny by the experts.

The contents 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.

4.5.2 Data editing

The data was edited by the researcher himself. All the responses were scrutinized in terms of the following aspects.

1. *Fictitious interviews*: As the questionnaires were administered by the interviewers in the presence of their senior officers, chances of fictitious interviews were minimal. In case of in-depth interviews, the senior officers later on called on the physicians/medical representatives and subtly confirmed whether or not the interview took place.
2. *Inadequate answers*: In respect of some of the questions in the questionnaire, the respondents did not respond to specific queries, either by omission or by choice. They were re-approached and requested for correcting/incorporating the response. In case where this was not feasible, the response was accepted without the specific answer.
3. *Inconsistencies*: The apparent inconsistencies were pointed out to the respondents and they were requested to rectify them. In case where this was not feasible, the response was accepted without taking into consideration these conflicting entries.
4. *Irrelevant answers*: Especially in case of ranking questions, at times the respondents misunderstood and assigned only 'first' rank. They were re-approached and requested to rectify the response forms. In case where this was not feasible, the response was accepted without the omitted entries.

Thus after suitable editing as mentioned above, the responses were taken as valid and fed to the computer for tabulation and analysis.

4.5.3 Data computerization

Data was coded for each of the questions in the respective questionnaire and was fed to the computer in Microsoft Excel worksheets so that it could be analyzed using

statistical tools provided by the software: SPSS. Frequencies were calculated for each category of questions in each questionnaire using the computerized analytical software.

For the open-ended questions used for the in-depth interviews, the responses were grouped for each of the questions and fed to the computer. Such grouped responses with similar attitudinal trends were treated as frequencies for the purpose of analysis.

References:

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2 Federation of Medical Representatives' Associations of India, official website www.fmrai.org
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4. Andaleeb Syed Saad & Tallman Robert F., Healthcare Magazine, (1995), 20(3), p. 68-76