CHAPTER III

METHODOLOGY

In this chapter, the characteristics of the sample population and the methods adopted in carrying the present investigation are discussed.

3.1 DISCIPLINE SELECTION

More than 56 specialisations are available in medical field which may be classified into clinical and non-clinical. The present study is confined only to medical specialists who belong to clinical areas. Medical specialists belonging to non-clinical areas such as Anatomy, Biochemistry, Pathology, Radiology, Microbiology etc., are no doubt important and more essential to medical specialists to perform their day-to-day work i.e. diagnosis, treatment and patient care. Due to the constraints of time and the absence of direct interaction between non-clinical doctor and patients, the investigator has chosen only medical specialists belonging to clinical areas for the study.

Among clinical disciplines, specialists belonging to ten disciplines viz., Cardiology, Dermatology, ENT, General Medicine, Gynaecology, Neurology, Ophthalmology, Orthopedics, Paediatrics and Surgery are covered. The reason for selecting these specializations is their familiarity and popularity among people, besides the availability of more specialists in these areas when compared to other specializations of the clinical areas.

Moreover, it is observed that most of the non-clinical
3.1 Map showing location of hospitals in Madras City
specialists are associated with established medical institutes and they have free access to conventional information systems. The study of the information seeking-behaviour of these specialists may be one kind of evaluation of formal information system.

3.2 SAMPLE SELECTION AND DESCRIPTION

The population sample selected for this study consists of medical specialists who have registered with the Indian Medical Association (IMA), Madras city branch and residing in Madras city only. Only those medical specialists among doctors practising in the city possessing postgraduate or Diploma in their concerned specialisation are counted for the study. Doctors with just the basic degree MBBS are excluded.

For the purpose of this study, prominent hospitals in Madras city are identified basing on the information available in the records with the office of the Director of Health Services, Government of Tamil Nadu. Map 3.1 shows the location of these prominent hospitals in the map of Madras city. The list of hospitals is given at Annexure-I. The medical specialists are distributed in the following places in the city:

(a) Hospitals owned by Central Government: Like the State Government, Central Government also runs some hospitals in the city. Specialists are also available in these hospitals. Their main responsibility rests with treatment and diagnosis.

(b) Hospitals run by the State Government: More than 10 hospitals of this type are found in the city with having one or two specialists.
Their prime responsibility is treatment and diagnosis.

(c) Medical Research Institutes: These institutes are established for specific purposes. Intensive research in particular specialisation is carried out in these institutes. For application purpose, they also run clinics in specific diseases only. Specialists in large number are available in these institutes. There are four research institutes available in Madras city. They have conventional information systems with special information sources for diagnosis and research.

(d) Hospitals run by Medical Colleges: These hospitals have important medical specialisations. In each specialisation a team of doctors is available and they are responsible for teaching, research, diagnosis, treatment and patient care. They depend on conventional information systems for medical information.

(e) Private medical establishments (Polyclinics): There are more than 20 important polyclinics. These clinics are recognised by the Government of Tamil Nadu. They are well established having all modern infrastructure facilities. The specialists are available in all clinical disciplines in these clinics and they are mainly pre-occupied with treatment and patient care. The sad feature is that those polyclinics are not well equipped with libraries to meet the information needs of the specialists.

(f) Specialist practitioners: A number of specialists are doing their private practice in their specialisation through out the city. Most of the specialists have their own clinics.
The sampling covers more than fifty per cent specialists distributed in various types of hospitals and clinics in Madras city. It however excludes doctors who are on the temporary register of the IMA - Madras branch residing in the city as well as Dentists.

There are many reasons for selecting only medical specialists for the study. They are as follows:

Information seeking-behaviour consciousness among medical specialists is more when compared to the doctors with basic qualifications. A variety of subject disciplines with interconnecting conceptual bases is represented in medicine and medical practices. The possibility of encountering experimental or innovative problems is thought to be the greatest among specialist doctors. For example, if a specialist during practice comes across a strange disease of which he knows nothing he either calls on a senior colleague; or runs to the library for more information about the disease.

- Specialists diagnose diseases and prescribe drugs. They are the main personnel in the patient care units in hospitals. They decide whether a case is surgical or medical. Their decision on the patients they treat is final.

- Specialist doctors guide and give instructions to the junior doctors in performing their duties. For these and several other reasons, it is observed that specialists are the most frequent users of information from the medical information centres.
By using the records available in hospitals and yellow pages of the Madras City Telephone directory the investigator has first identified the specialists in all ten disciplines chosen for the study. Later, the questionnaires were prepared and distributed to the specialists in person. Where the meeting in person was not possible, the investigator mailed the questionnaires to the specialists for obtaining necessary information. For their proper understanding, a letter containing the details of the study and the reasons for undertaking the study was also enclosed. The investigator also selected prominent specialists for interview for ascertaining correct information on various problems. Necessary interview schedule were prepared and distributed to them. The investigator with prior appointment conducted the interview in person and recorded.

The data for the study was collected between July 1988 and October 1988.

The usual practice in the hospitals of the kind investigated is that the same specialist may work in two or more hospitals as specialist/consultant besides his own private practice, so it reduces the number of actual specialists in specialization chosen for the study.

It is estimated that 300 specialist doctors are available in all hospitals situated in the city. Stratified random sampling was adopted in identifying the specialists in each discipline and questionnaires were issued personally by the investigator. A total of 112 specialists doctors responded to the questionnaire. This works out to be 41½ of the sample taken. The number of respondents could have been greater but for the fact that some of the doctors were pleading paucity of time.
Hospitals and medical research institutes and specialists in the sample can be considered as representative of all health institutions and specialists in Madras city. The number of specialists who participated in this study were sufficient statistically for generating results. Therefore, the conclusions and implications drawn from this study are valid to the whole population of Madras-based medical specialists belonging to the various types of medical specialities.

3.3 DATA-GATHERING TECHNIQUES

The purpose of this study is to examine the information seeking-behaviour/patterns and use of information systems by medical specialists in Madras city. Investigation of information seeking-behaviour of medical specialists is not possible without applying the traditional methods of empirical social research. The most commonly used empirical methods are the questioning and interview methods. The investigator has taken maximum efforts for acquisition of reliable data from doctors by employing the combination of the following methods of investigation:

- Questionnaire method
- Interview method
- Verification of the records of the health institutions.

3.3.1 Questionnaire method

The questionnaire is a major instrument for data gathering and is used to secure information from varied and widely scattered sources. By means of questioning procedure individual data will be collected and subjective facts and objective facts can also be known. Facts and
opinions of past, present and future and hypothetical behaviour motives, norms of behaviour etc., can be found more or less dependably and with validity by means of questioning procedures. If the behaviour of a very large number of bearers of a particular characteristic is to be investigated, questioning is sensible though the facts concerned cannot be observed.

In the present study the questionnaire method is employed to collect relevant data. Structured questionnaire is designed and executed. The questions are factual and intended to obtain the correct information about conditions of which respondents are presumed to have knowledge. Questionnaire method has its usual limitations such as respondents' negligence to answer questions and giving irrelevant answers, thus lowering the response rate to the questions. The limitations have been minimized by supplementing the questionnaire method with interviews. Most of the respondents were interviewed in order to elicit their personal opinions.

The questionnaire was divided into five parts so as to give wider scope for the respondents to spell out their views, problems and opinions.

The first part of the questionnaire investigates the general background of the medical specialists. It is designed to know whether personal growth and advancement such as highest degrees earned in India and abroad and membership in professional organisations, visiting foreign countries, and attending professional conferences has any relation or any impact on their information seeking behaviour. Information with regard to specialisation, practice in relation to specialisation, nature of employment and length of their medical practice will be useful
in testing hypothesis of information seeking behaviour of doctors at various stages within their varied environment.

The second part of the questionnaire is devoted to find out doctors awareness of medical information sources. This part also reveals the information about the generation of medical information by National Medical Research Centres and how doctors have access to such information. Finally it examines to what extent the existing information sources are sufficient to meet their requirements.

The third part of the questionnaire deals with the use of medical information systems and other type of information systems available for specialists.

The fourth part of the questionnaire is designed to know about the doctors information seeking patterns through formal and informal channels. Data relating to the value of information and cost factors of medical information and their viability are also tested with the doctors.

The fifth part of the questionnaire is to collect the data from doctors with regard to the need for computerized medical information retrieval and its viability in practice.

The data obtained are used to test the hypotheses which are formulated for the study.

3.4 COLLECTION OF DATA

A pilot study was conducted in order to rectify any defects of the questionnaire. After pilot study and revision of data-gathering-instruments were completed, the investigator personally visited all the 23 hospitals in Madras city and with the help of hospital administration
records, identified the specialists and later questionnaires were distributed to them personally. Wherever it was not possible the questionnaires were posted to them. Each specialist was given sufficient time for filling up the questionnaire.

The investigator also interviewed the specialists to ascertain actual information. The interview schedule was prepared basing on the questionnaire. The investigator sought prior permission from the specialists and interviewed them. Their opinions were recorded. To make the data authentic the information recorded was checked for accuracy and completeness. A brief explanation of the study and how the data would be used was provided. This was done in order to convince the specialist that the information would be used purely for research purposes.

The investigator also visited medical libraries attached to hospitals, to find out how doctors were using the medical information resources. This was done with the cooperation of medical libraries. The investigator recorded various available information supply facilities to the doctors in the hospitals. The data that was further collected with regard to other background information such as infrastructure available in the hospital with the help of hospital records later became immensely useful for the study in greater depth and understanding.

3.5 DATA ANALYSIS

The primary data collected through structured questionnaire was analysed by using statistical techniques. The tests and techniques so employed are as follows:

(a) Wilcoxon Matched-Pairs Signed - Rank test

(b) Chi-square test
(c) Karl Pearson's co-efficient of correlation test

\[ t = \left| r \right| \frac{(n-2)}{\sqrt{(n-1)}} \]

(d) Friedman Two-way analysis of variance test

\[ X^2 = \frac{12}{NK(K+1)} \sum_{j=1}^{K} (R_j)^2 - 3N(K+1) \]

(e) test for homogeneity i.e.,

\[ X^2 = \frac{N^2}{9} \sum_{i=1}^{a_1} \left( \frac{R_{1i}^2}{R_{1i}^2} \right) - \frac{R_1^2}{N} \]

Apart from these tools, percentage, Bar diagrams, Charts Pie diagrams were also used to represent the facts.