CHAPTER—III
METHODOLOGY

Research methodology indicates the general pattern of organizing the procedure for gathering valid and reliable data for an investigation. This chapter deals with a brief description of methodology adopted for the study. The contents included in this are research approach, Research setting, Target population, sample population and sampling technique, Selection of tools, Development of data collection tools, Description of tools, pilot study, procedure for data collection and summary.

Research methodology is the systematic way to solve the research problem (Kothari 1990). It consists of all general and specific activities from identification of the problem to final interpretation and conclusion. The role of methodology is to carry out the research work in a scientific and valid manner. This section deals with the description of the methodology and different steps undertaken for gathering and organizing data for investigation.

The study aimed to assess effectiveness of rehabilitation therapy of traumatic paraplegic patients.

3.1 SELECTION OF RESEARCH APPROACH AND RATIONALE:--

The survey is a method for collecting information or data as reported by individuals. Surveys are questionnaires (or a series of questions) that are administered to research participants who answer the questions themselves. In medical and nursing sciences, Survey methodology is used since a long time. Correlational survey is a study of the relationship between two or more variables in a natural setting without manipulation and control. Investigator had correlated rehabilitation therapy and effectiveness of the rehabilitation therapy.

Survey data collected by observation or by the personal interview method. The investigator has selected Survey approach to assess effectiveness of rehabilitation therapy.
RESEARCH VARIABLE

Independent Variable: Rehabilitation therapy received by the traumatic paraplegic patients. (Physical, Social, Psychological, Vocational and Occupational Rehabilitation Therapy)

Dependent variable: Rehabilitation Status of the traumatic paraplegic patient. (Physical, Social, Psychological, Vocational and Occupational Rehabilitation Status)

3.2 RESEARCH SETTING:

“Setting is the physical location and condition in which data collection takes place in a study.” (Polit and Hungler, 1995).94

Research can be conducted in a wide variety of locales—in health care facilities, in people’s homes, in classrooms, and so on. Settings are the more specific places where data collection occurs. Polit, F. Denise (2010).

The present study was conducted at Government Spine Institute, Ahmedabad, India where not only from the Gujarat state but from all over the country paraplegic patients get treatment.
In the hospital data collection took place mainly in paraplegia OPD where rehabilitation team provides follow up services to the paraplegic clients. The team included Orthopedic Surgeon, Medical Officer, Occupational therapist, Social Worker, Clinical Psychologist and Staff nurses. Apart from OPD data also have been collected from Male and Female Paraplegia ward and also from the patient’s home and paraplegia camp (Safari).

**Physiotherapy Services**

An orthopedic surgeon immediately attends a spinal cord injury patient admitted in the hospital. After getting immediate orthopedic and medical treatment physiotherapy is started to paraplegic patients.

After admission in ward, a patient is assessed for his muscles strength (the abilities and disabilities). Paralised limbs are well positioned with support: exercise for upper limbs and breathing exercises, passive range of motion exercises for paralytic limbs and regular two hourly turning is given.

After initial period of bed rest, gradual tilt table activity is started. Majority of patients have no control over bladder and bowel. In some cases interferential therapy treatment is given for bladder control. If patient has a bedsore, Laser treatment is given for healing.\(^\text{80}\)
After completion of tilt table, mat & wheel chair activities are started.
Balancing exercise is also given. Strengthening exercise for upper limb and back muscles are given. At regular interval, patients are assessed for their muscles strength and their potential accordingly exercise programme is planned. Posterior knee guards and toe raising splints are given where required for gait training in parallel bars initially and progressed to walking with various walking aids e.g. walker, rollaters, tripods, or sticks. Some patients regain good muscles strength and they go home walking independently.

**Occupational and vocational therapy services:**

Paraplegia hospital has advanced and well equipped occupational therapy department. Here the occupational therapist are treating the spinal cord injury patients through different therapeutic activities, work, play etc. in scientific way to achieve a goal of maximum independence so that patient can live a nearly normal life.

Occupational therapy treatment starts in the ward. It includes assessment of patient’s neurological status, functional assessment, giving patient upper limb strengthening exercises, breathing exercises, recreational activities and self-care training.
Once the patient’s immobilization period in the ward is completed, tilt table activity from 45 degree to 90 degree is started in occupational therapy department. When the patient completes tilt-table activities up to 90 degree without any complication, the patient is advised to sit in wheelchair.

Patient sitting in wheel chair undergoes following treatment programme in occupational therapy department:

**Outdoor sports Morning:**

It includes upper and lower limb strengthening exercise, to improve sitting balance and sitting tolerance, pushups, group activities etc. 80
Co-ordination Exercise:

Exercise to improve hand function for quadriplegia patients.
Transfer activity: Transfer from wheelchair to Bed, to floor level and from ground to wheelchair.

A.D.L. Training:

Brushing teeth, eating, drinking, and dressing understanding, toilet activity etc. and kitchen activity training for female patients.

Functional Aid Training:

Propelling wheelchair, driving tricycles and use of other mobility aids.
**Indoor Games:**

Carom, Chess, playing cards, Table tennis and other indoor games for recreation and creating interest, zeal and enjoyment in life.

**Pre-vocational Training** is given for achieving self-sufficiency in future, which is essential to live respectfully its life.

In this way patient’s physical, social, psychological, emotional and economic aspects are taken care of during treatment in occupational therapy department. After getting discharge from the hospital, patients come for follow up in out-patient department where the occupational therapist evaluates patient’s neurological status, ADL status and necessary treatment is advised. (Paraplegia in-house magazine)
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<tr>
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<th>Information of patients attended at the Institute of Spine, Ahmedabad &amp; various treatments given</th>
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<td>Patients treated as indoor Patients from 1978 to December 2004</td>
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<td>2</td>
<td>Patients attended for outdoor Treatment (from 1985 to Dec 2004) (O.P.D. two days in a week)</td>
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<td>3</td>
<td>Earth quake affected patients treated as indoor patients</td>
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<td>During treatment aids given for vocational &amp; daily activities (wheelchair-609, tricycle-727, others-411) by various N.G.O.S.</td>
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<td>ALTSOA SAFARI PROGRAMME</td>
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PMR DEPARTMENT

Physical, mental, vocational and social rehabilitation of a disabled person has been an important aspect of health care since ages, but in the modern era it has gained extra importance. As medicine is developing, more and more attention is being paid towards providing better quality of life to the people either suffering from disabling diseases or who have already become disabled.

Government Spine Institute, Ahmedabad has also developed PMR department as per MCI guideline.

Physical medicine and rehabilitation is a unique medical specialty which is concerned with the restoration of function, so that persons can perform to the fullest of their physical, emotional, social, and vocational potential.

Physical medicine deals with the diagnosis and treatment of physical disorders. Emphasis is placed on treating the individual patient in a holistic manner, with the adjunctive use of physical modalities, and electrodiagnostics. Rehabilitation medicine is based on a patient-centered plan which addresses the cause and secondary effects of illness. Many different patient care strategies and interventions are used in conjunction to benefit the patient. Patient goals are derived through an interdisciplinary process, and are aimed towards improving a patient’s personal potential, as well as produce outcomes that demonstrate reduction in impairments, disabilities, and handicaps.

3.3 TARGET POPULATION OF THE STUDY:--

“Population refers to the entire aggregation of cases that meets a designated set of criteria” (Best and Khan, 1995).

“Population is any group of individuals that have one or more characteristics in common area and of interest to the researcher.” “The target population refers to the population that the researcher wishes to study the population about which the researcher wishes to make a generalization.” A population is the entire aggregation of cases in which a researcher is interested. In this study target population consisted of the all traumatic paraplegic patients admitted and got discharge from Government Spine institute, Ahmedabad.
3.4 SAMPLE POPULATION AND SAMPLING TECHNIQUE:--

According to Kerlinger (1983), “choice of the sampling technique depends on the nature of the problem, the kind of variable included in the study, the type of research and the number of sampling units.”

For the present study, Sample population comprised:

(A) paraplegic patients, who met the following criteria:

→ Patient with traumatic paraplegia.
→ Patient admitted and got discharge from the paraplegia hospital.
→ Age of patient 18-65 years

The Investigator had drawn the sample by consecutive sampling technique as the study was aimed to assess effectiveness of rehabilitation therapy of paraplegic patient, accessible traumatic paraplegic who were present in the hospital for follow up services during data collection were selected as sample population for the study. Total 200 samples were selected on the base of inclusion criteria from the Government spine institute.

3.5 SELECTION AND RATIONAL OF TOOLS FOR DATA COLLECTION

DESCRIPTION OF TOOL:

Interview is a method of data collection in which one person (interviewer) asks the questions from another person (respondent). This is conducted either face to face or telephonically.

An Interview is a conversation between two or more people (interviewer and interviewee) where questions are asked by interviewer to obtain the information from the interviewee.

The interview is a process of communication or interaction in which the subjects or interviewee gives the needed information verbally in a face to face situation. Although the interview is generally associated with counseling or psychotherapy, it used effectively to collect the useful information about individual in many research situations.
Interviewing is the popular way of gathering information in qualitative research. Interview provides a wide range of data. It provides information about person’s feelings, perceptions and opinions. Interview requires high level questioning skills and active participation.

Here in this study, investigator had selected **semi structured – in depth interview technique** for data collection. Semi structured is a flexible method that allows new questions to be brought up during the interview, depending upon the situation during the interview. In depth interview is an intensive and investigative interview conducted and aimed at studying the respondent’s opinion and emotions on the basis of interview guide. This requires more training and interpersonal skills than structured interviewing. This deliberately aims to elicit unconscious as well as extremely personal feelings and emotions. This is designed to encourage free expressions of affectively charged information.

### 3.6 DEVELOPMENT OF DATA COLLECTION TOOLS:

**Treece and Treece (1986)** stated that the instrument selected in a research should as far as possible be the vehicle that would best obtaining data for drawing conclusions, pertinent to study and add to the body of knowledge in a discipline. 121

For the study, the Investigator had developed the Semi Structured Tool to Assess Effectiveness of Rehabilitation Therapy.

The tool was divided into seven sections. Section one and two were for Patient’s information and about Injury Information respectively. Section three four five six and seven were to assess Physical, Social, Psychological, Vocational and Occupational and Sexual Rehabilitation respectively. Theses sections were again divided into 3 subsections. First subsection was to identify rehabilitation therapy received by the paraplegic patients; second sub section was to assess effectiveness of the rehabilitation therapy and third section was for patient’s suggestions for particular rehabilitation therapy. By this way investigator has tried to assess comprehensive aspects of each research variables.
3.7 RELIABILITY:

The reliability is a criterion for measuring adequacy, consistency and accuracy of the tool. The reliability of the tool was checked before the pilot study. A try out was done on the 5 traumatic paraplegic patients. Reliability was tested by test retest method. The reliability was 0.99

3.8 VALIDITY:

The content validity was done by the experts. The experts were selected on basis of their experience and interest. The experts were Orthopedic surgeon, Spine Surgeon, Neuro Surgeon, Occupational therapist, Psychologist, sociologist, and social worker. Investigator requested them to judge the relevancy, objectivity and appropriateness of the content areas and for the expert opinion and suggestions for the item of the tool. Investigator developed the tool under the guidance of research guide, to make more clarity of items from the respondents. Out of all items, most of the items were accepted where as investigator modified some of items under expert guidance.

3.9 PILOT STUDY:

The objectives for the pilot study were to validate the consistency of the data collection instrument, adequacy of the contents, feasibility of the study and time duration required for responding the data collection instruments.

In order to measure the content validity, tools were developed under expert guides’ direction and were tried out for in the Government Spine Institute, Ahmedabad. Total five cases were selected for pilot study. Through pilot study it was experienced that it requires 2 to 3 sittings to get complete and true information. Almost all the questionnaire found suitable and reliable for analysis and interpretation of the research question. Some items from Section 3 and Section 4 were reframed.

After pilot study it was found that the tool was feasible for the study. Findings of the pilot study revealed that it was feasible to conduct the study. Therefore, the plan for data collection was finalized as the Investigator did not face any problem during the pilot study.
3.10 PROCEDURE FOR DATA COLLECTION:--

Before starting data collection, formal permission was obtained from concerned authority. According to the time requirement for each case data collection was planned for one year 2012-2015. Investigator has collected data accordingly.

3.11 PLAN FOR DATA ANALYSIS

Data analysis was planned to include both descriptive statistics. Frequency, percentage and Cross Tabulation to check the association between the selected variables through interpretation of findings was planned.

3.12 SUMMARY:--

This chapter dealt with the research approach, setting, Target population, sample and sampling technique, selection and development of tools, description of tools, pilot study, and procedure for data collection and plan for data analysis.

Next chapter presents the analysis, interpretation and discussion on the findings.