Design

The present study was conducted to investigate some psycho-social factors i.e. adjustment, anxiety and depression among spinal cord injured patients. In order to undertake the study and to test the hypothesis proposed in the previous chapter, the following design and methodology was used.

It was an ex-post-facto study with a multi-group design. An ex-post-facto research is recommended for behavioral problems in which the independent variables have already occurred. These are inherently not manipulable and inferences about relations among variables are made without direct intervention from concomitant variation of independent and dependent variables. Despite its shortcomings ex-post-facto research is more important than experimental research because the nature of behavioral research is such that it does not always lend itself to experimentation. (Kerlinger, 1978; Elms, Kantowitz, Roediger, 1985).

The study was conducted on SCI patients. The sample after study comprised those subjects who were already afflicted with injury. Therefore, the two experimental groups were formed on the basis of duration of SCI and the other groups i.e. control groups, were determined by the structure of experimental groups. For each of two experimental groups there were the respective control groups. It is needs to be pointed out that
in such studies the control groups are actually designated as comparable groups, however for purposes of convenience of expression they are referred as control group in the text of the dissertation.

The present study was conducted on a sample of 80 subjects who were further divided in four groups of 20 subjects each. In group I, the criteria for inclusion was injury of less than two weeks. This group was designated as acute patient group. Likewise, group II, comprised of patients with injury of more than or 12 weeks. This group was designated as chronic patient group. Group III and IV were formed by the key attendents of the acute and chronic patients respectively. These formed the control group of the study. Table I shows the design of the study.

Table - I

Design of the study

Patient Group

Acute patient group (Group I)  Chronic patient group (Group II)

Adjustment  Anxiety  Depression
The effect of spinal cord injury was studied on the psychological variables of depression, anxiety and adjustment.

The social aspect of the study was two fold. The sociodemographic background in term of age, sex, education, family type etc. was studied. Further, patient’s family members were also included in the study in the form of control group. Individual personal interview was conducted for each of the subject. All the questionnaires were individually administered.

Sample:

The sample consisted of the SCI patients and their attendents. They were also drawn from attending the outdoor department as well as those admitted in District Rehabilitation centre at Medical College and Hospital, Rohtak. Criteria for inclusion of cases was as under.

1. The first criterion for inclusion of cases in the study was the duration of illness i.e. group I consisted of patients of less than two weeks duration of injury and group II comprised of patients with injury history of or more than 12 weeks. The patient who were in between these two periods i.e. between 2 and 12 weeks were not included in the sample.

2. Only patients with paraplegia and quadriplegia following
spinal cord injury were included in the present study.

3. Both the males and females between the age of 18-45 years were included in the sample. Although this type of injury can be seen in any age group but it is observed among hospital population that injury is more common in patients who were actively involved in outdoor activities and manual labour.

4. The patients with chronic medical illness like cushing syndrome, hyper or hypothyroidism, multiple-sclerosis, chronic infective states and malignancies were excluded from the study. Similarly patients with history of schizophrenia, chronic alcoholism and other psychiatric disorders were also not included in the study.

The sample of the study consisted of 80 subjects divided equally into four groups, group-I comprised the patients less than two weeks duration of illness and group-II consisted of patients with injury of or more than 12 weeks. There were two control groups in the study, one each for both the patient groups (brothers and sisters, spouse and close-friends) of acute patient group. Likewise a similar group, or group IV was formed by the attendents of chronic patient gorup. The distribution of the sample was as under as shown Table II.
Table -II

Distribution of the sample

<table>
<thead>
<tr>
<th>Patient group (N=40)</th>
<th>Control group (N=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Patient group (N=20)</td>
<td>Chronic Patient group (N=20)</td>
</tr>
<tr>
<td>Acute Control group (N=20)</td>
<td>Chronic Control group (N=20)</td>
</tr>
</tbody>
</table>

Material Used.

Following tools were used in the present study.

1. Unstructured Interview

2. Dysfunction Analysis Questionnaire (Parsad, Verma, Malhotra and Malhotra, 1985)


4. Depression Scale (JMPI, Joshi and Malik, 1983)

1 Unstructured Interview

Each subject in the experimental as well as in control group was interviewed personally by the interviewer. Initially informal interview was taken before formal testing was undertaken in order to establish rapport with the subjects. It consisted of questions regarding their personal and illness history. During informal interview, information about their socio-demographic background could also be explored. Besides the Unstructured interview the following standardized tools were administered.
2. Dysfunction Analysis questionnaire (Parsad, Verma, Malhotra and Malhotra, 1985)

Dysfunction Analysis questionnaire prepared by Parsad, Verma, Malhotra and Malhotra in, 1985 was considered as the most suitable questionnaire and was selected for the present study.

Dysfunction analysis questionnaire (D.A.Q.) which measure dysfunction in simple spoken language and such that not the patient, but anyone living with the patient could assess day-today functioning of the subject and fill up the questionnaire. It consists of 50 items which belonged to five areas of functional states. These are social, vocational, personal, family and cognitive. Each area contains 10 items. Each item has five alternate answers representing degree of adjustment in comparison to the premorbid status. The scoring of each area was done on a five point scale from 1 to 5. Score 1 indicates better than premorbid level of functioning, score 2 means just as premorbid level of functioning, score 3 means slightly improvised functioning, score 4 means moderate dysfunction and score 5 indicates deterioration in functioning. Percentage score of 40 in each sub scale would demonstrate no dysfunction compared to premorbid level. A score higher than this would indicative of dysfunction while the score lower than this would mean better functioning than premorbid level. The possible range of percentage score thus would be 20 to 100.

Standardized data revealed highly satisfactory test-retest reliability which ranged from 0.77 to 0.97. The test also showed high validity. Thus the conclusion is that it is a valid measure of adjustment.

Hindi translation of State-Trait Anxiety Inventory has been developed by Spielberger, Sharma and Singh, 1973. The inventory measures both trait and state anxiety of the individual. A-State is measured by 20 short descriptive statements. The statements included in this inventory are the direct or indirect measure of anxiety of the individual who answers the statement in reference to how he or she feels at a particular moment e.g. "I feel satisfied at this moment" or "I feel calm now" etc. The answers are recorded by indicating the intensity of the feeling (Not at all, some what, moderately and very much so) and while instructing it is to be made very clear to the subject that the present experience or mood state has to be kept in view while answering the questions.

According to State-Trait theory of Anxiety, A-State scores increase as a function of stress and decline in response to relaxation training. In state anxiety scale the scores obtained by an individual may range from 20 to 80. Higher the score more the A-state.

Separate instructions have been suggested by the authors for the administration of A-State and A-Trait inventories. In the present work only A-State measure was used. The constructors of the inventory have claimed the comparability between the Hindi and English version of the inventory. For both scales, the correlation co-efficient between the Hindi and English state trait anxiety scale was 0.88.
Also for each individual item in both the Hindi and English STAI, A-State and A-trait scales, the item remainder correlations were statistically significant at 0.05 level providing evidence of internal consistency of these scales.

The test-retest reliability of A-trait scale varied from 0.73 to 0.83 over periods ranging from 30 to 90 days where as the test-retest reliability co-efficients declined from 0.66 to 0.37 after 30 days of retest interval. The construct and concurrent validity of this inventory has also been tested. So, it is a valid tool for measurement of both the A-state and A-trait of individuals.

4. Depression Scale (JMPI, Joshi and Malik, 1983):

Minnesota Multiphasic Personality Inventory by Hathway and Mckinley, 1967 has been the most popularly used personality test in clinical settings. Indian adaptation of the same has been published in recent years by Joshi and Malik (1983) known as Jodhpur Multiphasic Personality Inventory. It consists of three parts dealing with scales for assessment of psycho-neurotic (Part-I), psychotic(Part II) and psychosomatic scales (Part III) which further comprise of many sub-scales. There are in all 18 diagnostic scales. The authors of the test recommended the use of subscales separately for research or any other assessment purposes (Joshi and Malik, 1983, Manual page 69).

JMPI has a advantage of not only assessing the intensity of problems but also the nature of the problem. Standardization of JMPI was done on the large sample consisting of 5005 Ss. The validity of JMPI scales was calculated by three methods i.e.
criterion related, construct and content. It could be administered in group as well as in an individual form. It could be administered to persons of 16 years or above age belonging to both sexes.

For the present study Depression scale (D) included in part-I was selected. The scale consists of 36 items. The items primarily deals with low stress tolerance, rigid conscience development and proneness to guilt feelings, feelings of serious depression, fantasies etc.

Scoring of JMPI done with the help of scoring keys of stencile type provided by the authors of the test. For an affirmative response (where ~always~ indicates the presence of problems) score weightage of 4,3,2,1,0 was given for always, Most of the time, generally, seldom and never, respectively. The score weightage were in reverse direction for the items where responses were in the category 'never' indicating the presence of a problem (such items are marked on scoring keys). For the items, always, most of the time, generally, seldom and never carry score weightage of 0,1,2,3,4 respectively. The total score for a particular scale is the arithmetic sum of weightage given to each. The total is recorded at the appropriate space provided in the qualitative answer sheet. For a general interpretation raw scores can also be used.

Procedure

The present research was conducted during 1992-1993, in association with Medical College and Hospital, Rohtak. The patients and subjects included were SCI patients admitted in
paraplegia unit at Medical College, Rohtak or those visiting District Rehabilitation centre for follow up. The patient and their attendents under study were interviewed at Medical College, Rohtak after taking due permission from the concerned authorities.

Before, actually approaching a patient the record files of the patient were studied in order to find out which patient under study would be included in the sample or not and categorised in-to suitable group accordingly. While doing this exercise the criteria for inclusion and exclusion were taken care of. It was only after carefully ascertaining the inclusion of subject that he/she was contacted personally.

The method used for administration of questionnaires was of individual administration. All the questionnaires were standardized and could be self administered. The contact with the patient was started with the unstructured interview. The informal interview was conducted with the purpose of establishing rapport with them and to seek their maximum co-operation. After some efforts they could be brought to a reasonable level of communication. They were assured of confidentiality of their responses or any thing that went between interviewer and the subject. The conversation was started with general information about their personal problems and injury history i.e. how they got injured, what were their problems, what facilities the medical staff provided to them etc.

The actual administration of the questionnaire was followed by the testing of the psychological variables. First of
all, DAQ was administered with the necessary information about the test. In most of the instances, the test had to be administered to the patient by reading out the test items and noting down the responses of the subject. It took on average about 40-45 minutes in the completion of the first test. The second scale, i.e., STAI-X-I was administered to the subject after first test. It was a relatively simple test and could be completed with in approximately 20 minutes. Depression scale was administered and for this too about 20 minutes was usually taken. Therefore, overall interview of one patient took almost 2 hours. Similar procedure was followed for the collection of data from all the patients.

Data from the respective control groups were also collected along with the data from patients. The key-attendents of the patients were also contacted individually and the same procedure and directions were followed as with the patients group and all the questionnaires were administered to them one by one. Establishing the rapport with the control group was not as difficult as it was with the other group. The socio-demographic data was obtained from every subject. The subjects were requested to complete the questionnaires in one setting. Unlike the patient group, most of the Ss in the control group could self-administer the questionnaire.

Number of problems were faced in the process of data-collection owing to the nature of subjects. Some of them are described ahead. As most of the patients were illiterate, special care had to be taken to make sure that each question was
understood properly by them. Besides, being illiterate they were also in distress, it was necessary to always have a compassionate attitude during any meeting with them. The completion of the data collection required numerous visits as during one visit maximum two subjects could be interviewed. Therefore data collection required quite a long time. Non-availability of attendents was another reason for delay. Since the nature of the injury required long period of hospitalisation, the stress experienced due to injury was aided by hospitalization. Patients as well as their attendents nurtured many complaints about the nursing care and this led to an increased need for giving patient hearing to their complaints. Many times the interviewer's time was taxed by such catharsis on their part. To sum up, it added to the number of visits to the hospital.

The data thus collected were scored according to the procedure described by the respective authors of the tests and was statistically analysed the finding are presented in the followed chapter.