CHAPTER IV

METHODODOLOGY

4.1: Purpose of the Study

Today in the field of medicine the trend is that of a holistic nature; especially in the case of chronic illnesses (Bluglass, 1991). More so because a chronic illness, epilepsy being one, affects the individual patient as well as impacts the whole family. Also this impact is not only physical but emotional, psychological and financial in nature.

There is abundant research to suggest that epilepsy as a disease can be disabling due to the unexpectedness of the occurrence of a seizure (Betts, 1981; Nashef et al, 1995). The restrictions imposed by it cause the individual with epilepsy and their family to re-evaluate their lives therefore the intervention for not only the afflicted member but for the whole family becomes even more important.

Epilepsy although neurological in nature affects the individually emotionally thereby causing psycho-social impairment.
The problems associated with epilepsy such as behaviour disturbances, overprotective and fearful attitudes of the family, non supportive attitude of school authorities affect the individual and the family in a tremendous manner. Regardless of the severity of the condition and the age, people with epilepsy need special attention to ensure that they have a positive outlook in life and that their self esteem remains intact (Shah, 2000; Devinsky, 2002).

The study proposed here describes in detail the comprehensive psychotherapeutic intervention module implemented for individuals with epilepsy in the city of Mumbai. The module takes into consideration the specific needs of the individual with epilepsy based on the various psychological implications of the illness. The study presented here therefore is an attempt to evaluate the effectiveness of this module using different psychotherapeutic interventions; namely Family Therapy, Cognitive Behaviour Therapy and Yoga, in light of the psychological variables (namely depression, self esteem, parental attitudes and family relationships) affecting people living with epilepsy.
4.2: Main Objectives

a) To study the impact of epilepsy in relation to the individual’s self esteem.

b) To study the occurrence of depression among epilepsy patients.

c) To study parental attitudes towards people with epilepsy.

d) To study family relationships of people with epilepsy.

e) To study the effectiveness of family therapy on epilepsy patients and their families.

f) To study the effectiveness of cognitive behavioural therapeutic (CBT) techniques in epilepsy patients.

g) To study the effectiveness of yoga on epilepsy patients.

h) To study the differential impact of Family Therapy, CBT and Yoga techniques in epilepsy patients.

i) To develop a comprehensive epilepsy management program that will benefit not only the person the epilepsy but also their family.
4.3: Operational Definitions of Basic Concepts

4.3a Epilepsy: The word 'epilepsy' specifies convulsions (seizures or fits) due to diseases in the brain. While the causes of epilepsy are unknown in many cases (up to 60-70%), it is known that epilepsy can occur due to birth injuries, severe head injuries, brain infections like meningitis and encephalitis, impaired circulation of blood to the brain, haemorrhage in the brain and brain tumours.

4.3b Seizure: Sudden uncontrolled episode of excessive activity in the brain. The occurrence of a seizure can lead to alteration of behaviour, consciousness, movement, perception and / or sensation.

4.3c Depression: It is defined as a mood state characterised by a sense of inadequacy, a feeling of despondency, a decrease in activity or reactivity, pessimism and sadness (Reber, 1995).
4.3d Self Esteem: It is the degree to which one values oneself. Although the word esteem carries the connotation of high worth or value, the combined term self-esteem refers to the full dimension and the degree of self-evaluation high or low (Reber, 1995). It is based on evaluative judgements of one’s self.

4.3e Family Relationships: In its strictest sense family refers to a fundamental kinship unit. In its minimal or nuclear form, the family consists of mother, father and offsprings. In broader usage it may refer to the extended family which may include grandparents, cousins, adopted children, etc. all operating as a recognised social unit interacting with each other thereby forming relationships (Haley, 1987). These relationships are founded upon strong emotional ties and a sense of commitment to the other person.

4.3f Parental Attitudes: Attitudes that parents have towards their child. This includes parents, mother and fathers’ attitudes which can be viewed as affective and evaluative orientations that explain the actions of the specific child (Hudson, 1982).
4.4: Design of the Study: CLASSICAL DESIGN (PRETEST POST TEST DESIGN)

The classical experimental group-control group design using experimental and control groups provided for the comparisons required to be studied in this study in an efficient manner, namely those between the groups receiving different psychotherapeutic interventions. The experimental group-control group design and its variants i.e. with more than two groups are probably the most suitable designs for many experimental purposes in education and psychotherapy (Kerlinger, 1983).

The purpose of this study has been to evaluate the influence of the psychotherapeutic intervention programs, consisting of Family Therapy, Cognitive-Behavioural and Yoga. In this study the classical experimental group-control group design helped evaluate the differential impact of the three intervention programs. The experimental groups and the control group were pre-tested prior to the interventions. The control group received no intervention and was post tested after the same time frame as the other three experimental groups.
The time gap between the pre-tests, intervention / no intervention and post-tests was kept constant for all the groups.

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<tr>
<th>Group I</th>
<th>Pre Test</th>
<th>X1 (FT)</th>
<th>Post Test</th>
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<tr>
<td>Group II</td>
<td>Pre Test</td>
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<tr>
<td>Group III</td>
<td>Pre Test</td>
<td>X3 (Yoga)</td>
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<td>Group IV</td>
<td>Pre Test</td>
<td>~X (No Intervention)</td>
<td>Post Test</td>
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Please note X denotes the intervention and the kinds of intervention are mentioned above (in brackets) and explained in detail in the section on procedure.

The three experimental groups were as follows:

**Psychotherapeutic Intervention I:** Family Therapy (FT)

**Psychotherapeutic Intervention II:** Cognitive Behaviour Therapy (CBT)

**Therapeutic Intervention III:** Yoga

The Control group received no intervention. The Y measures i.e. the variables that the participants were pre and post tested were Self Esteem, Family Relations, Depression and Parental Attitudes.
4.5 Variables under Study:

4.5a Independent Variables

1) Family Therapy: The problem solving approach based on Haley's model (1987) was used as intervention for epilepsy patients and their families. Emphasis was laid on the initial interview which helped identify and understand problems from the families' perspective. The identified patient (i.e. the person with epilepsy) was also a part of this interview. Parenting skills training was an integral part of the therapy program.

2) CBT techniques: The coping skills intervention using CBT techniques based on Donald Meichenbaum's cognitive behaviour modification model (1977) was used. Research studies have been indicative of its benefits and its association with successful decrease in the frequency of seizures, especially when seizures are stress and anxiety precipitated.
3) **Yoga**: The age-old traditional Indian psycho-philosophical-cultural method of leading one's life i.e. Yoga was used as a therapeutic intervention as well. Yoga techniques have been known to alleviate stress, induce relaxation and provide multiple health benefits to the person following its system. It is a method of controlling the mind through the union of an individual's dormant energy with the universal energy. Commonly practiced yoga methods were 'Pranayama' (controlled deep breathing), 'Asanas' (physical postures) and 'Dhyana' (meditation) admixed in varying proportions with differing philosophic ideas. It is known that yoga in relation to epilepsy encompasses not only seizure control but also many factors dealing with overall quality-of-life issues (Yardi, 2001).

4) **Demographic Variables**: Age, Gender and Education were demographic variables included in the study
5) **Epilepsy related variables** used for analyses were:
   a. Age of onset
   b. Number of years of epilepsy
   c. Number of years of medication
   d. Mono therapy vs. Poly therapy
   e. Type of seizure i.e. major fits, minor fits or both

4.5b **Dependent Variables:**

1) Participant’s responses to the various Psycho Metric Tests.
   a) Depression as a variable was measured using a standardized scale in pre test and post test conditions.
   b) Self Esteem as a variable was measured using a standardized scale in pre test and post test conditions.
   c) Family Relationships as a variable was measured using a standardized scale in pre test and post test conditions.
   d) Parental Attitudes as a variable was measured using a standardized scale in pre test and post test conditions.
2) Participants’ response to the Psychotherapeutic Interventions.

4.6 Sample Description:

The study currently in discussion is an experimental study consisting of three experimental groups which received three different forms of psychotherapeutic interventions and one control group which received no intervention. The criterion for inclusion in the study was the clinical diagnosis of epilepsy and that the participant was on anticonvulsant treatment for at least six months prior to the start of the study. Individuals who were either diagnosed or treated for attention deficit hyperactivity disorder or were diagnosis with mental retardation were excluded from the study.

Individuals diagnosed with epilepsy were identified through out patient neurology clinics at general hospitals in the city of Mumbai. Hospitals like KEM hospital, Wadia hospital and Bombay hospital that are well known for their outpatient epilepsy clinics were approached.
Neurologists in private practice were also approached as time again a need has been expressed for psychological intervention for patients with chronic epilepsy. This has been reiterated very often at neurology conferences and now medical practitioners acknowledge the importance of psychotherapy in the successful management of epilepsy. Therefore to get a participant group which would be representative of the target population of people with epilepsy different sources such as private hospitals, municipal hospitals and references through private practitioners were used.

A little over 5% of the population of India has been estimated to be suffering from epilepsy (Sridharan & Murthy, 1999) which makes this group extremely large and therefore it hypothetically appears easy to find participants for a study of this kind. In spite of this epidemiological fact it was an uphill battle for the researcher to find participants for the study who would commit three months (which was the time frame of the interventions including pre-test and post test period).
Repeated visits were made to hospitals during the outpatient clinic times to directly contact people with epilepsy and convince them and more so their parents to participate in the study. The self help group for epilepsy called ‘Samman’ which is a part of the Bombay Psychological Association was also approached. Therefore the participant group of the study had people with epilepsy who visited private practitioners and who visited general hospitals thereby making the group representative of different socio-economic strata.

Fifty six people who fulfilled the inclusion criteria were pre tested but only 44 completed the entire program and were post tested. There were eleven participants in each of the experimental groups and eleven in the control group. Therefore the total sample size of the study was 44 and the data reported here is based on those 44 participants. Also the participants were randomly allocated to the different experimental/ control groups.

The male female ratio was that of 28:16 respectively. The age group ranged from 18 yr. to 40 yr. with the mean age being 25.7 yrs.
4.7 Description of Tools

1) Socio demographic Questionnaire: The socio demographic questionnaire was developed by the researcher to gather explicit information for the study. The basic information requested was age, gender, education and marital status. Epilepsy related information was also requested for e.g. age of onset of epilepsy, years of epilepsy, years of medication and type of medication i.e. mono therapy or poly therapy and type of fits. These epilepsy related variables were considered important by the researcher and therefore included in the socio demographic questionnaire.

2) Index of Self Esteem (ISE): The ISE is one of the nine measurement scales developed by Hudson (1982) collectively known as the Clinical Measurement Package (CMP). They were designed for use in assessing the severity of a variety of personal and social problems. Each of the CMP scales is a paper pencil, self report questionnaire designed to measure the degree or magnitude of a distinct and separate problem in personal and social functioning.
Each scale has the same format and structure and has 25 items. Only one scoring formula is needed for all nine scales, and the scores can range from 0 to 100 where in a low score indicates the relative absence of the problem being measured and higher scores indicate the presence of a more severe problem. Another positive characteristic of the CMP scales is that each one has a clinical cutting score of 30. This is interpreted as people scoring above 30 as having a clinically significant problem in the specific area being measured, while those who score below 30 are generally free of those specific problems.

Each of the CMP scales has a reliability of .90 or better and they have been reported to have good content, concurrent, factorial, and discriminant and construct validity. The CMP scales also meets most of the psychometric requirements such as the scale should be short, easy to administer, easy to score and that it must be easy to understand and interpret and that it must not suffer response decay when used repeatedly over many occasions.
The Index of Self Esteem (ISE) in particular was designed to measure the degree, severity or magnitude of a problem the client has with self esteem. Therefore, a high score on the ISE is indicative of the fact that the client has a self esteem problem, a low self esteem. When one uses the ISE scale it is important to make a distinction between ones self concept and self esteem. Self esteem as conceptualised and measured with respect to the ISE is the evaluative component of self concept. It has been pointed out that the client may have a very accurate self concept and at the same time a severe problem with self esteem.

3) **Index of Family relations (IFR):** The IFR is one of the nine CMP scales that were designed to measure the degree, severity or magnitude of a problem that family members have in their relationships with one another as felt or perceived by the client. This scale characterises the severity of family relationship problems which can be regarded as a measurement of intrafamilial stress. The IFR can be used as a measure of the familial environment of the client (a rough index of the quality of family life for and as perceived by the client) and it can be used in helping the client
to deal with problems in relating to the family as whole.

4) **Index of Parental Attitudes (IPA):** The IPA is one of the nine CMP scales and is completed by a parent with respect to the parent’s relationship with a specific child. It measures the degree, severity or magnitude of a problem that the parent has in the relationship with a child regardless of the age of the child.

5) **Hamilton Depression Rating Scale (HDI):** The HDI was developed by Hamilton (1960) and is designed to assess the severity of depression in adults and provides clinicians with useful information to make decisions about their mental health as well as provides researchers with an effective measure to enhance their understanding of depression. The measurement of depression represents an important component in the overall evaluation and understanding of an individual’s mental health and well-being.
The HDI measures a range of symptomatology associated with depression, including cognitive, motor, somatic and interpersonal problems. It is important to note that the HDI is designed to empirically assess the severity of symptoms associated with depression and does not provide for a diagnosis of a specific and definitive depressive disorder. It is only the qualitative description of an individual’s clinical level of depression that is obtained by the HDI which can range from mild, moderate to severe levels of depression.

The full scale HDI consists of 23 items and is a brief, easily administered, self report measure for the evaluation of depressive symptomatology in adults. Some of these 23 items have multiple questions to obtain a score. The HDI is designed as a measure of the severity of depressive symptoms and provides a determination of the clinical level of depression in adults. It can be used to identify people who manifest a clinical level of depressive symptomatology in clinical and mental health settings as well as for research purposes. The HDI can be administered individually or in a group format.
It requires approximately 10 to 15 minutes to complete although elderly persons, individuals with severe psychomotor retardation or persons who are slow readers can take longer.

The HDI also has a cut off score of 19 to indicate a level of symptom severity consistent with what can be referred to as clinical depression. It is advised that individuals who obtain a HDI raw score of 19 or above should be referred to further evaluation and treatment. Reliability of the HDI has been evaluated using test retest as well as Cronbach's coefficient alpha, an index of internal consistency reliability. The internal consistency reliability coefficient has been reported as .93 for the full scale HDI. The HDI also demonstrated very high levels of test retest reliability i.e. .95. The HDI has been reported to have good content, criterion related concurrent validity, construct, convergent and discriminant validity.
4.8 Hypotheses

Taking into consideration the aim and objectives of the study the following sets of hypotheses were formulated.

1. There will not be any significant difference for scores on variables of self esteem, family relations, depression and parental attitudes amongst the experimental and control groups at the pre-test level.

2. There will be a significant difference for scores on variables of self esteem, depression, family relations and parental attitudes amongst the experimental and control groups at the post-test level.

3. There will be a significant difference in the pre test and post test scores for the variable of self esteem in the study group I (group receiving the CBT intervention) and study group II (group receiving the FT intervention) and study group III (group receiving Yoga intervention) as compared to the control group receiving no intervention.

4. There will be a significant difference in the pre test and post test scores for the variable of family relations in the study group I (group receiving the CBT intervention) and study group II (group
receiving the FT intervention) and study group III (group receiving Yoga intervention) as compared to the control group receiving no intervention.

5. There will be a significant difference in the pre test and post test scores for the variable of depression in the study group I (group receiving the CBT intervention) and study group II (group receiving the FT intervention) and study group III (group receiving Yoga intervention) as compared to the control group receiving no intervention.

6. There will be a significant difference in the pre test and post test scores for the variable of parental attitudes in the study group I (group receiving the CBT intervention) and study group II (group receiving the FT intervention) and study group III (group receiving Yoga intervention) as compared to the control group receiving no intervention.

7. There will be a differential impact of CBT, FT and Yoga intervention techniques.

   a) Family relations will be healthier in the study groups (greater in group I receiving Family Therapy) as compared to the control group.
b) Parental Attitudes towards children will be more positive in the study groups (greater in group I receiving Family Therapy) as compared to the control group.

c) Symptoms of depression will be comparatively lower in the study group receiving CBT

d) Self esteem would also be comparatively higher in the study group receiving CBT

e) Yoga will have an overall beneficial impact

4.9 Procedure followed for the Study

As mentioned earlier participants for the study were people diagnosed with epilepsy and were identified through out patient neurology clinics. They were randomly assigned to the four groups. i.e. three experimental groups and one control group. The first experimental group received Family therapy as a form of intervention, the second Cognitive Behaviour therapy and the third group received training in Yoga as a form of psychotherapeutic intervention.
The interventions consisted of a two-one hour session each week for a period of twelve weeks for each of the three groups. The control group received no intervention.

All the participants were pre-tested to gather baseline data on parameters relevant to the study. All the four groups were then post tested following a period of one month after the intervention was complete. Because of language limitations and to ensure appropriate comprehension of the battery of tests, the pre and post tests were conducted individually for each of the participants. It is important to note that the control group received no intervention during this time frame.

The intervention packages are briefly described below. A detailed discussion on the therapeutic techniques used for each of the interventions packages is described in Annexure 2.
Experimental Group I: Family Therapy

The problem solving approach based on Haley's model (1987) was used as intervention for epilepsy patients and their families. Emphasis was laid on the initial interview which helped identify and understand problems from the families' perspective. The identified patient (i.e. the person with epilepsy) was also a part of this interview and for the majority of the sessions planned.

24 sessions were conducted and each session lasted for an hour and two sessions were conducted per week per individual. The intervention program was divided into three parts i.e. initial interview, problem identification and problem solution and parental skills training. The 24 sessions proposed were divided on the basis of these three parts accordingly. The participants were instructed to use the techniques taught to them during the intervention at home on a daily basis for the entire period of intervention.


Experimental Group II: Cognitive Behavioural Therapy

The psychotherapeutic intervention using CBT techniques proposed here was based on Donald Meichenbaum’s cognitive behaviour modification model (1977). The self-instructional therapy which is essentially a form of cognitive restructuring, focuses on changing the clients' self-verbalisations. Meichenbaum’s self-instructional therapy focuses more on helping clients to become aware of their self-talk. Self-instructional therapy is grounded on the assumption that what people say to themselves directly influences the things they do. The role of inner speech is given importance and the emphasis is on acquiring practical coping skills for problematic situations. With reference to this proposed research the emphasis was on problematic situations as identified by patients with epilepsy, and epilepsy related issues.

Therefore the therapeutic process consisted of training in modifying the instructions that clients gave to themselves so that they can cope more effectively with problems they encounter.
24 sessions were conducted and each session lasted approximately for an hour and two sessions were conducted per week per individual. The intervention program again was divided into three parts i.e. self observation, starting a new internal dialogue and learning new skills. The 24 sessions conducted were divided on the basis of these three parts accordingly.

The participants were instructed to use the techniques taught to them during the intervention at home on a daily basis for the entire period of intervention.
**Experimental Group III: Yoga Therapy**

The age-old traditional method of Yoga was used as a therapeutic intervention for the third experimental group. Yoga techniques have been known to alleviate stress, induce relaxation and provide multiple health benefits to the person following its system. Commonly practiced yoga methods such as 'Pranayama' (controlled deep breathing) and 'Asanas' (physical postures) were taught to participants. The details of these yoga 'asanas' has been described as an annexure.

Similar to the previous experimental groups, 24 sessions were conducted and each session lasted approximately for an hour and two sessions were conducted per week per individual. The participants were instructed to perform these yoga exercises on a daily basis at home for the entire period of intervention.

It is important to mention that for the intervention module for Yoga, the pranayam techniques and asanas were conducted by a qualified yoga instructor from 'Kailvalyadham' (a renowned centre for Yoga in the city of Mumbai).
4.10 Controls and Precautions in the study

For all participants the criterion for inclusion in the study was diagnosis of epilepsy and that the participant was on anticonvulsant treatment for at least six months prior to the start of the study. Individuals who were either diagnosed or treated for attention deficit hyperactivity disorder or were diagnosed with mental retardation were excluded from the study.

Experimenter conditions of duration of intervention, the experimenter, and types of material prepared for the independent variables were kept constant throughout the experimentation. As mentioned before the control group was also included to bring precision in comparison and exploring the effects of psychological intervention. Also uniform instructions were given in all the conditions.

This chapter on research methodology explored several avenues of research with reference to the evaluation of the effectiveness of psychotherapeutic interventions in the holistic management of epilepsy. It also proposes a methodology to investigate how these therapeutic
interventions can influence variables such as self esteem, depression and contribute to positively affect the present research is an attempt to investigate these propositions. As discussed earlier the classical experimental group – control group design was chosen for the study. The variables under investigation and the objectives have been outlined. The chapter also describes the tools for data collection and the procedure that was followed.

Consequently the scoring was done and appropriate statistical measures were used to analyse the data obtained from the various psychometric scales and to analyse the effects of the psychotherapeutic interventions. The hypotheses were tested using the SPSS package and both descriptive and inferential statistics were used. The results have been illustrated and discussed in the following chapters.