Chapter- 4

METHODOLOGY

The chapter gives a detailed account of the methodology adopted for the study. The methodology includes a systematic presentation of the steps undertaken to conduct the research.

4.1 Purpose of the study
4.2 Main objectives
4.3 Operational definitions of the basic concepts
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4.1 Purpose of the Study

Test anxiety evokes physiological, behavioral and psychological symptoms. These symptoms interfere with examination and create a specific kind of trauma which gets strengthened by repeated testing situations. One of the strategies to deal with trauma is the psychotherapeutic intervention method, EMDR (Shapiro 1989).
The aim of this study was to introduce EMDR as a psychotherapeutic intervention in high test anxious students appearing for the 12th standard board examination. The study also aimed at investigating the beneficial effects of EMDR across students from different streams (arts, students preparing for management course, science and commerce).

4.2 Main Objectives

- To study the effect of individual and group EMDR as a therapeutic strategy to reduce test anxiety among high test anxious students.
- To investigate the effect of individual and group EMDR intervention on the test anxiety of arts, students preparing for management, science, and commerce students.
- To study the difference between test anxieties among adolescents who have working & non working parents.
- To investigate gender differences and the level test anxiety experienced among boys & girls appearing for 12th standard examination.
- To study the difference between birth order & level of test anxiety.
- To study the socio-economic status of the parent & its relationship with the adolescent's test anxiety.
4.3 Operational Definitions of the Basic Concepts

- **EMDR (Shapiro, 1989)**

EMDR is a psychotherapeutic method that enables people to quickly process and heal from emotional distress. Eye Movement Desensitization and Reprocessing (EMDR) is a psychotherapeutic technique (Shapiro, 1989) acclaimed as a major breakthrough for a range of anxiety related symptoms. EMDR entails an information-processing mechanism rather than a simple desensitization treatment effect. The integrative Adaptive Information Processing model (AIP) underscores a methodology that stimulates the presumed self-healing mode of inherent information processing system. The three pronged approach (past, present and future) is used to target the etiological event. The information-processing model that governs EMDR practice, views the overall client picture to identify the past events that contribute to the dysfunction, the present events that trigger disturbance, and the skills and internal resources that need to be incorporated for healthy and adaptive living in the future.

- **Individual EMDR**

High test anxious students in Individual EMDR group received one-to-one psychotherapeutic intervention. Each session was of 90 minutes and one session was conducted per week. The therapy continued till SUD (subjective unit of disturbance) level dropped down from 10 to 0-1.
• **Group EMDR**

Subjects from group EMDR received therapy in groups of four. Each session was of 90 minutes and one session was conducted per week.

• **Test Anxiety**

Test anxiety is a kind of performance anxiety that is psychological in nature, where a person feels nervous before, during and after the examination. Test anxiety is composed of three major components: cognitive, affective, and behavioural.

• **Trait Anxiety**

Trait anxiety denotes relatively stable individual differences in anxiety proneness and refers to a general tendency to respond with anxiety to perceived threats in the environment.

• **Gender**

High test anxious male and female subjects were taken for the study.

• **Birth order**

Birth order is defined as a person's rank by age among his or her siblings.

• **Working and non working parents**

Employed parents stay at work so are out of the house. Unemployed parents are at home and generally available to the adolescent.
- **Economic status**

   Economic status implies the family's economic standing and social position. Economic status depends upon the total earning of the family.

4.4 Variables under Study

**a. Independent variables**

1. **Intervention used**

   EMDR was used as a psychotherapeutic intervention to reduce high test anxiety among students appearing for 12th standard examinations. The intervention was used at three levels.

   - **Individual EMDR**

     In individual intervention one to one therapy was given to high test anxious students. Each session lasted for 90 minutes, once a week.

   - **Group EMDR**

     EMDR technique was used in group setting. A group comprised of 4 students belonging to different streams (arts, students preparing for management course, science and commerce). Each session was of 90 minutes. The group used to meet once every week.

   - **No EMDR (control group)**

     No EMDR (Control group) was included to compare & explore the effect of psychological intervention.
2 Academic courses

Students belonging to arts, preparing for management course, science and commerce were taken for the study.

b. Dependent variables

Test anxiety scores of the students.

c. Additional variables studied

To get more insight on factors associated with test anxiety the researcher investigated various socio-demographic variables such as

- Gender.
- Birth order.
- Socio-economic status of the family.
- Age of the parent and
- Employment status of the parent.

4.5 Design of the Study

The main study attempts to evaluate the effectiveness of EMDR on test anxiety of the students appearing for 12th standard board examination. The researcher investigated the effect of EMDR in reducing test anxiety scores of the students.

The study resulted in a factorial design of 3x4, planned in order to study the effect of EMDR on high test anxious students belonging to arts,
management, science and commerce. The researcher used a pre test- post test control group comparison design with two independent variables.

In the pretest condition all the students from various academic courses (arts, students preparing for management course, science and commerce) from experimental and control group were pretested on Test Anxiety Inventory and A-Trait anxiety scale. This was followed by the individual EMDR intervention and group EMDR for different groups of students belonging to experimental condition. The students belonging to control group were not exposed to any EMDR intervention.

In the post test condition all the students from the experimental (individual and group EMDR) and control group were again tested for TAI and A-Trait scale.

The time gap between the pretests, intervention/ no intervention and post tests was kept constant for all the groups.
Design of the study

<table>
<thead>
<tr>
<th>Group</th>
<th>Experimental group</th>
<th>control group</th>
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<tbody>
<tr>
<td></td>
<td>Individual EMDR</td>
<td>No intervention</td>
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<td></td>
<td>B1</td>
<td>B3</td>
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<td></td>
<td>Group EMDR</td>
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<td>intervention</td>
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<td>B2</td>
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<tr>
<td>Academic course</td>
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<tr>
<td>SCIENCE A-1</td>
<td>(A-1, B-1)</td>
<td>(A-1, B-3)</td>
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<tr>
<td>COMMERCE A-2</td>
<td>(A-2, B-1)</td>
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<td>ARTS A-3</td>
<td>(A-3, B-1)</td>
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<td>MANAGEMENT A-4</td>
<td>(A-4, B-1)</td>
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Factor A represented academic course which had four levels.

- Group A-1 - students from 12th std Science.
- Group A-2 - students from 12th std. Commerce.
- Group A-3 - students from 12th std. Arts.
- Group A-4 - students from 12th std. preparing for management course.

Factor B represented experimental condition EMDR which had three levels.

- Group B-1:- Individual EMDR intervention condition subjects
- Group B-2:- Group EMDR Intervention condition subjects.
- Group B-3:- No intervention condition subjects.
4.6 Sample

The study comprises of students from five different colleges, from Dadar to Kandivali (western suburbs of Mumbai) having arts, science, and commerce stream. Students, preparing for the management stream were also taken from the coaching classes.

A total of 902 students across colleges were pretested on Test Anxiety Inventory (Spielberger, 1980). Out of this, 120 high test anxious students were selected for the study. In this sample of 120 students, 61 were females & 59 were male subjects. The mean age for the whole group was 18 years and the male female ratio was approximately 50% respectively.

After selecting 120 high test anxious students for the study, the students were assigned to three groups:

1. Individual EMDR intervention
2. Group EMDR intervention
3. Control group.

Equal representation of the students from individual EMDR intervention, group EMDR intervention and control group were taken from arts, science, commerce and students preparing for management course. Individual EMDR intervention had 30 subjects (arts=8, students preparing for management=7, science=7 and commerce=8). Group EMDR intervention had 31 subjects (arts=7, students preparing for management=8, science=8 and commerce=8) and control group had 59 subjects (arts=15, students preparing for management=13, science=14 and commerce=17).
The students were assigned to individual and group EMDR intervention (N=61) on basis of their choice. Those who did not opt for intervention were put in control group (N=59).

4.7 Tools and Materials Used for Data Collection

- Test Anxiety Inventory (TAI) for pre test and post test condition (Spielberger, 1980).
- A-Trait Inventory for pre test and post test condition (Spielberger, Gorsuch & Lushene, 1970).
- Dissociation scale (DES) to measure dissociation level of the students for pre test condition only (Carlson & Putnam, 1993).
- Protocol for individual EMDR and group EMDR intervention used during the sessions (Shapiro, 2001).
- EMDR screening and data checklist used before the individual and group intervention.
- A self constructed socio demographic scale to gather details regarding birth order, socio economic and employment status of the family, age and education of the parent. The information was collected during pre testing.

4.8 Description of Tools

- **Test Anxiety Inventory** (Spielberger 1980)

  TAI is a 20- item self report psychometric scale developed by Spielberger (1980). The Test Anxiety Inventory (TAI) is designed to measure
test anxiety as a situation-specific personality trait. The TAI provides a measure of total test anxiety (TAI-T) as well as measures of two test anxiety components-worry (W) and emotionality (E). Eight of the items measure the W component and eight items measure the E component. Four items that load on both subscales contribute to the TAI-T score but are not scored on either the W or E subscales. Percentile ranks are calculated from the raw scores. The alpha coefficients for TAI-T range from .92 to .96; for the subscales, alpha ranged from .83 to .91 for TAI-W, and from .85 to .91 for TAI-E.

The relationship between the TAI and its subscales with other anxiety measures (e.g., Sarason's Test Anxiety Scale (TAS), Liebert & Morris' Worry and Emotionality Questionnaire (WEQ), the STAI State and Trait Anxiety scales, and the STAI State Anxiety scale administered under examination stress conditions) all provide evidence of convergent validity. The correlation between the TAI-T score and the TAS was sufficiently high (.82 to .83) to suggest that the two scales measure essentially the same construct (Appendix A).

- **A-Trait Inventory** (Spielberger, Gorsuch and Lushene, 1970)

Trait anxiety is a 20-item self-report psychometric scale. Trait anxiety measures general tendency in a person to respond with anxiety to perceived threats in environment. For the Trait-anxiety scale the coefficients ranged from .65 to .86. The validity between STAI and other measures such as Taylor Manifest Anxiety Scale, the IPAT Anxiety Scale, and the Multiple Affect Adjective Check List the correlations are .80, 75, and .52 (Appendix B).
• **Dissociation Experiences scale (Carlson & Putnam, 1993)**

  The Dissociative Experiences Scale (DES) has been developed to offer a means of reliably measuring dissociation in normal and clinical populations. The scale is a 28-item self-report questionnaire. The mean of all item scores ranges from 0 to 100 and is called the DES score. The DES has very good validity and reliability, and good overall psychometric properties. It has an excellent construct validity, which means it is internally consistent and hangs well together, as reflected in the highly significant Spearman correlations of all items with the overall DES score. The higher the DES score, the more likely it is that the person has DID. (Appendix D).

• **Individual EMDR and group EMDR protocol (Shapiro, 2001)**

  An eight step standardized protocol (Appendix-E) was used with the subjects in individual and group EMDR setting.

  **Steps of an EMDR therapy session:** (Appendix I & J).

  EMDR Phase #1: History Taking
  EMDR Phase #2: Preparation
  EMDR Phase #3: Assessment
  EMDR Phase #4: Desensitization
  EMDR Phase #5: Installation
  EMDR Phase #6: Body Scan
  EMDR Phase #7: Closures
  EMDR Phase #8: Re-evaluation

  90
After the researcher established a rapport, the subjects were given screening and data checklist form (Appendix F) where the subjects wrote details about self. They were also administered on the DES scale (Appendix D).

In the first step student’s history was taken. Participants were asked to identify first time, worst time, present time and future time anxiety associated with test anxiety. Float back technique (Appendix G) was used to identify the earliest memory. In the next step subjects were guided to visualize a "safe place" (Appendix H). The subject was then asked to recall the picture representing the worst aspect of the memory. The subject was then asked what negative belief about them went along with that image. Next, the subject was asked what he/she would prefer to believe about him/herself, and to rate how true that positive statement felt on the Validity of Cognition Scale (VOC), ranging from 1, completely false, to 7, completely true. Then, holding the picture in mind and the negative belief, the subject was asked to identify the associated feeling and body sensations and to rate the intensity of the memory on the SUDs (from 0, no disturbance, to 10, the worst disturbance). The subject was then instructed to hold these aspects of the disturbing memory while following the movement of the therapist’s fingers. After each set of eye movements, the subject was asked, "what are you noticing now?," and eye movements were continued. The researcher occasionally asked questions or made comments that would facilitate the processing. This continued until the VOC had risen to 6-7 and the SUDs had dropped to 0 -1. At the end of each session, subject was led through a relaxation exercise if they were still distressed.
The group EMDR protocol was developed with a variation of Eye Movement Desensitization and Reprocessing called the butterfly hug. After the researcher established rapport, which was done separately for each student, they were guided to visualize a “safe place”. These subjects were put in groups and were asked to recall an upsetting memory and the picture representing the worst aspect of the memory. The subjects were told to write their responses on a sheet of paper. They were then asked what negative belief about them went along with that image. Next, each subject was asked what he/she would prefer to believe about him/herself, and to rate how true that positive statement felt on the Validity of Cognition Scale (VOC), ranging from 1, completely false, to 7, completely true. For the convenience of the group the VOC scale was drawn on the board( See Appendix-J) Then, holding the picture in mind and the negative belief, the subject was asked to identify the associated feeling and body sensations and to rate the intensity of the memory on the SUDs (from 0, no disturbance, to 10, the worst disturbance). The SUD scale was also drawn on the board. The subjects were then instructed to hold these aspects of the disturbing memory while following the butterfly hug taps. After each set of tapping, the subjects were asked, "what are you noticing now?," they were told to write their response and tapping was continued. This continued until the VOC had risen to 6 - 7 and the SUDs had dropped to 0- 1. At the end of each session, subject was lead through a relaxation exercise if they were still distressed.

Successive sessions of this same process were repeated until the presenting symptoms that had led the subject to seek treatment were
sufficiently alleviated. The time period between sessions was typically one week, and sessions was of 90 minutes.

- **The socio demographic scale**

  The socio demographic questionnaire was developed by the researcher to gather explicit information for the study. The basic information requested was birth order, living in joint or nuclear family, income of the family, working/non-working parents, socio economic status, parental age & qualification and number of siblings (refer appendix C).

4.9 Hypotheses

Taking into consideration the aims and objectives of the study, the following sets of hypotheses were formulated:

1. There will be no significant difference in the pre test scores on Test Anxiety Inventory (TAI) between experimental group (EMDR intervention) and control group (no EMDR intervention)

Test anxiety is a major factor contributing to a variety of negative outcomes including psychological distress, academic underachievement, academic failure, and insecurity. Research studies on test anxiety indicate that highly test-anxious individuals perform poorly when a task is hard or when performance is to be evaluated (Hembree, 1988). They perceive such situations as personally threatening and respond to them with intense physiological and cognitive symptoms.
In the present hypothesis it was assumed that there will be no difference in the pretest scores on Test Anxiety Inventory (TAI) among high test anxious students belonging to experimental and control group prior to EMDR intervention.

2. There will be no significant difference in the pre test scores on Test Anxiety Inventory (TAI) in the individual EMDR and group EMDR intervention subjects.

Test anxiety is a specific case of situation specific anxiety. Test anxiety is a common problem among students primarily due to the importance of academic achievement and the consequences of failure.

The present study was conducted to investigate the effect of individual EMDR intervention and group EMDR on high test anxious students. It was assumed that there will be no significant difference in the pre test scores on TAI among high test anxious subjects belonging to individual EMDR intervention and group EMDR intervention.

3. There will be significant difference in test anxiety scores on post TAI in the Experimental group (EMDR intervention) and Control group (No EMDR intervention).

Variety of intervention techniques for the treatment of test anxiety have been used to deal with high test anxious students. EMDR has been developed to treat most areas of psychological and emotional disturbance. These include symptoms of anxiety and depression, panic attacks, stress, phobias, sleep problems. Past results indicate benefit of EMDR on people

The present research was conducted to study the efficacy of EMDR intervention on high test anxious students. It was assumed that there will be significant difference in the posttest scores on TAI among high test anxious students belonging to experimental and control group after EMDR intervention.

4. There will be significant difference in post TAI scores in students who were administered individual EMDR as compared to group EMDR intervention.

The study explores the efficacy of EMDR in the treatment of test anxiety. Studies have been done where individual EMDR is used for reducing high test anxiety (Enright, 1995; Gosselin, 1994; Maxfield & Melnyk, 2000). These studies have indicated that EMDR has been widely effective anxiety reducing treatment method.

Group EMDR as a therapeutic model is used with children and adolescents to deal with anxiety related symptoms. Jaarero, Artigas, & Hartung (2006) found that group EMDR treatment may produce more effective outcome than expected from traditional group therapy.

In the present study it was assumed that individual therapy will work better in reducing test anxiety as compared to group intervention. The present study is an attempt to investigate whether individual EMDR is more effective than group EMDR.
5. There will be significant difference in A-Trait scores in students who were administered individual EMDR as compared to group EMDR intervention.

Generally it is expected that those who are high in A-trait will exhibit A-State elevations more frequently than low A-Trait individuals because they tend to react to wider range of situations as threatening. High test anxious students respond to examinations with greater elevations in state anxiety to the evaluative threat that is inherent in most test situations. In the present study it was assumed that there will be significant difference in the post test scores on A-Trait scores among students administered individual EMDR intervention than students administered group EMDR intervention.

6. The type of experimental conditions (individual EMDR, group EMDR and no intervention) will have independent effect on post test anxiety scores and will not be having interaction effect with different academic streams (arts, students preparing for management, science, and commerce) selected by the students.

The hypothesis was formulated to investigate the main effect and interaction effect of EMDR and academic course taken by the student. It was assumed that the test anxiety among students belonging to different streams that is, arts, commerce science and those preparing for management will be independent of the type of EMDR intervention used.

7. There will be no significant difference between demographic variables and high test anxiety in students appearing for 12th standard board examination.
Demographic variables influence adolescents in different ways. Since there is a great emphasis given to academic achievement in the society, students experience more pressure to meet the expectations. However, demographic variables like gender seem to have direct influence on test anxiety whereas other variables like birth order, employment status, socio-economic status of the family and age of the parent have not been extensively studied. The present study is an attempt to investigate the association between demographic variable and test anxiety of the student.

7.1 There will be significant difference between gender and high test anxiety among 12th standard students.

Studies on role of gender in the manifestation of anxiety have often revealed that girls show heightened level of fear or anxiety and often for longer period of time than boys (King, Ollendick & Gullone, 1991). Epidemiological studies on test anxiety in males and females have shown that females experience more test anxiety (worry and emotionality) than their male counterparts (Everson and Millsap, 1991). It was therefore assumed that there will be significant difference in boys and girls in experiencing test anxiety.

7.2 There will be no significant difference between birth order and test anxiety scores among 12th standard students.

Being born in a certain birth position may predispose a person into having higher anxiety levels. There are studies (Gould, 1997) showing the place of individual within the family which has been suggested as a contributing factor in shaping human personality. Research suggests that when the second child is born, the first born may feel that his or her status is
threatened and may react with anxiety and fear (Morales, 1994). But this anxiety and fear necessarily may not develop into test anxiety so it was assumed that there will be no significant relationship between birth order and TAI scores.

7.3 There will be no significant difference between test anxiety in students and the employment status of the parents.

Working parents spend more time outside home. Unsupervised children could engage in other behaviours than academic activities. Most studies on the impact of parents’ work on children’s well being have focused on employed mothers. The more satisfied a mother is with her employment status, the more effective she is likely to be as a parent (Parke & Burial, 1998). Most studies have been done on relationship of mother’s employment and academic performance of the child with school going children. Adolescents may not feel the same way so it was assumed that employment status of the parents will not be significantly associated with high test anxiety among students.

7.4 There will be no significant relationship between examination anxiety and economic status of the family.

Socioeconomic status can be powerful factor in educational achievement. Families under economic stress are less likely to monitor their children’s activity. Yet at the same time there could be additional factors like home influence (Fehrmann et al, 1987; Blooms, 1984), which can become more important for adolescents academic life. In the present study it was
assumed that there will be no significant relationship between examination anxiety and economic status of the family.

4.10 Procedure for Data Collection

Data was collected from five different colleges situated between Dadar and Kandivali. The principals, vice principals and Head of the departments were approached to seek permission for the data collection.

Test Anxiety Inventory (TAI) along with socio demographic scale was administered to the intact classes for pretesting to gather baseline data for the purpose of the study. The scales were administered in arts, science and commerce division. The strength of each division was between 45-50 students. Since there was a specific request made to the concerned lecturer, colleges agreed to allocate one period from the regular time schedule for the purpose of pretesting. High test anxious students preparing for management group were selected from the coaching classes.

After a week second visit was made to the colleges, to announce the scores of the test anxiety inventory. The names of high test anxious students were announced and these students were given an option to come for intervention. According to the choice of the student, they were assigned either individual EMDR intervention or group EMDR intervention or remain in control group (no intervention group). Those students who opted for individual EMDR intervention were assigned a particular time and day of the week for intervention. For group intervention students were given a choice to make
their own groups and were assigned a specific day & time in the week for the same.

High test anxious students belonging to individual EMDR intervention experimental group were taken from four streams (arts, science, commerce and students preparing for management course). One session was spent on initial interview which helped to identify and understand the test anxiety issue from the student’s perspective. Each session was of 90 minutes. The first session was a history taking session, where each student’s detailed history was taken and the student was administered A-Trait scale and DES scale. Following this standard protocol procedure was followed. (Appendix-I)

In group EMDR intervention, group of 4 students were made from different streams (arts, science, commerce & students preparing for management course). Individual session was spent on initial interview which helped the student to identify and understand the test anxiety issue from their perspective. This was followed by group sessions. Each session was of 90 minutes. The group used to meet once every week. The group members were administered A-Trait scale and DES scale. Following this group protocol procedure was followed. (Appendix-J)

Control group was included to compare & explore the effect of psychological intervention. Students from the control group were given no attention. The goal was to see whether there was any difference in test anxiety in students who don’t go through any kind of treatment.
All the three groups were then post tested after the intervention was complete. During the post testing Test Anxiety Inventory (TAI) and A-Trait Anxiety Inventory were administered.

4.11 Controls and Precautions Used in the Study

Extraneous factors always pose a threat to any research findings. Care was taken to identify these intervening variables. Following precautions were taken during the study:

- Gender ratio (male and female) was kept equal.
- Subjects were equated on age & medium of instruction.
- Experimental condition such as type of EMDR intervention, protocol, duration of the session was kept constant throughout the experimentation.
- A control group was included in the study to bring precision in comparison & explore the intervention effect.
- Uniform instructions were given to all the groups.

This chapter consisted of methodology applied for the present investigation. A need was felt to investigate an academically & educationally relevant area which has application in examination situation. Research objectives were formulated to explore the possibility of incorporating intervention technique of EMDR to reduce distress experienced by the student during examinations. Keeping this in mind a factorial design was formulated where in two types of EMDR experimental exposures was included for this study.