CHAPTER IV

METHODOLOGY

Method means an orderly procedure of processes or a set form of procedure adopted in an investigation where as methodology is defined as the science of method of arrangement. Some refers to it as the logic of procedure (Best and Kahn, 1993). This chapter deals with detailed description of the design, tools and techniques, sample selection, data collection, procedure and statistical considerations.

4.1 DESIGN

A research design is a plan according to which observations are made and data assembled. It provides the empirical and logical basis for drawing conclusions and gaining knowledge. According to Ravichandra (1983), research design is a plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance.

According to Best (1981), an experimental design is the blueprint of the procedures that enable the researcher to test hypotheses by reaching valid conclusions about relations between independent and dependent variables.

The present study is experimental in nature. A pretest post test control group design was used. The experimental group was exposed to the influence of play therapy whereas the control group was not.

One case was studied using single subject research design of ABAB type. This design examines the effects of an intervention by alternating the baseline condition (A phase) when no intervention is in effect, with the intervention condition (B phase). The A and B phases are repeated to complete the four phases. The effects of the
intervention are clear if performance improves during the first intervention phase, reverts to or approaches original baseline levels of performance when treatment is withdrawn, and improves when treatment is reinstated in the second intervention phase.

The dependent variables in this study are depression among children, their classroom behavior and academic achievement. Play therapy was the independent variable. A pretest was administered before the onset of experiment and post test at the end of treatment period. One more set of observations was made which was called delayed post test, one month after the post test.

4.2 TOOLS AND TECHNIQUES

4.2.1 Tools

Reliability of any findings of research is based on worthiness of the tools/tests/scales and techniques used to collect data in it. If the tools are not dependable the findings of research also can't be relied upon. The following tools were employed in the present study.

4.2.1.1 Coloured Progressive Matrices (CPM)

This tool (Raven et al, 1977) was used for measuring intelligence. The coloured progressive matrices are designed for use with young children and people for anthropological studies, and for clinical work. It can be used satisfactorily with people who for any reason cannot understand or speak in the english language, aphasiacs, children with cerebral palsy or deafness, as well as with people who are intellectually subnormal. The colored progressive matrices is well known for assessing the degree to which people can think clearly, or the level to which their intellectual functions have deteriorated. It has reliability varying with age from 50 to 80. It correlates ($r = 50$) with both the Crichton Vocabulary Scale and Terman Merril Scale. Over the entire
Methodology

range of operational utility, the test retest reliability of the CPM was close to 90.

4.2.1.2 The Children's Depression Inventory (CDI)

This is a formal test prepared by Kovacs (1981) to assess children with depression. Self-rated depression symptom inventories have long played a role in clinical research on adults. These tools are economical, easy to administer, and readily analyzable. Because they quantify the severity of the depressive syndrome, they have been used for descriptive purposes, to assess treatment outcome, test research hypotheses, and select research subjects.

However, in contrast to the availability of self-rated symptom scales for adults, there were no corresponding instruments for youngsters. The Children's Depression Inventory (CDI) was developed in response to this need.

The CDI is a 27 items, self report, symptom-oriented scale that was designed for school-aged children and adolescents. The instrument quantifies a range of depressive symptoms including disturbed mood, hedonic capacity, vegetative functions, self evaluation, and interpersonal behaviors. Several items concern the consequences of depression in contexts that are specifically relevant to children (e.g., school). Each CDI item consists of three choices, keyed from 0 to 2 in the direction of increasing severity. Thus, the total score can range from 0 to 54. About 50% of the items start with the choice that reflects the greatest symptom severity; for the rest, the sequence of choices is reversed. The CDI questionnaire is presented in appendix IV. A scoring template is available. The respondent is instructed to select the one sentence from each item that best describes him or her for past two weeks. Next to each item, there is space for the child to mark his or her response. An administrator reads aloud the CDI, while the subject reads along silently and marks the answers on his or her own copy and
this helps to assist the subject with the reading or attention problem. The CDI was found to be sensitive to the severity of depressive symptoms. Scores of 16 or higher reflect unusual levels of sadness, limited energy, and low self-esteem.

The Reliability of the CDI

Two samples were used to establish the reliability of the instrument. One group consisted of 75 youths consecutively referred to a child guidance center who were recruited into a descriptive clinical research project. Samples had to be 8 to 13 years old; without evidence of mental retardation or major systematic illness; and had to be living with parents/guardians. The medical pediatric sample consisted of 80 children with recently diagnosed insulin dependent diabetes mellitus (IDDM) who were consecutive admissions to a pediatric metabolic unit; were also recruited into a descriptive research study; and met the same criteria as the psychiatric group. For both samples, the results of the first CDI administration were analyzed; for the psychiatric group, this was several weeks after the clinic referral; for the IDDM group, this was 2 to 3 weeks after the medical illness was diagnosed.

The Internal consistency of the CDI was analyzed by means of coefficient alpha. In the diagnostically heterogeneous, psychiatric sample, the coefficient was .86. The scale's internal consistency in the pediatric-medical outpatient group was .70. The latter group's CDIs were re-examined to assess if time-of-testing was salient. Using data gathered 1 year after the IDDM was diagnosed (n = 61), the internal consistency of the CDI was indeed higher with alpha = .82.

Item total-score correlations were the most acceptable in the psychiatrically referred sample. With the exception of items 5, 15, and 18, which barely contributed to the total score (rs = .13 to .25), the coefficients for the rest of the items ranged from .29 to .62. On the other hand, in the IDDM sample the item-total-score correlations at initial
testing were not impressive, with a low of \( r = 0.10 \) and a high of \( r = 0.47 \). However, analysis of the diabetic children’s scores 1-year postdiagnosis yielded improved item-total-score-correlation coefficients, with a range from 0.08 to 0.63.

Thus, the construct which is quantified by the CDI does not have the same “reality” to different respondent groups. The diabetic subjects’ initial test response pattern was clearly unusual. And yet, with the passage of time, their endorsement pattern began to approximate the clustering of symptoms that characterizes this syndrome in children.

One month test-retest data were available for 29 recently diagnosed juvenile diabetics. The resultant coefficient of \( r = 0.43 \) \((p<.01)\) revealed acceptable stability. When two obvious outliers were removed \((n = 27)\), the test-retest correlation coefficient was found to be higher, namely, 0.82 \((p < 0.0001)\).

Reliability was also established by present researcher by taking a sample of children with depression. It was calculated by split half method \((n=70)\). It was found to be 0.64 \((p<.01)\)

**The Validity of the CDI**

The concurrent validity of the CDI was determined against two self-rated scales which quantify related constructs, namely, the Revised Children’s Manifest Anxiety scale and the Coppersmith self-esteem inventory. In the psychiatrically referred sample, the results of these concurrently administered scales were correlated. The association between the depression and the anxiety scales was highly significant \((r = 0.65, p<.0001, n = 55)\); self rated depressive symptomatology and low self esteem were also correlated \((r = -0.59 p<.0001, n = 51)\). CDI scores were examined for sex and age effects. Among the psychiatric outpatients \((n = 75)\), age and CDI scores were not significantly correlated \((r = -0.10); neither did the scores of boys and girls differ \((t = -0.34)\). Date from the Toronto public schools sample \((n = 860)\) and from
the diabetic cohort yielded similar results; no significant age - CDI associations ($r = -.02$; $r = -.08$, respectively) and no significant sex effects ($t = 1.73$; $t = 1.40$, respectively).

Besides this scores of 3 sets of scores of academic achievement were obtained from schools of children before and after play therapy.

4.2.1.3 Tool on Classroom Behavior: Refer chapter II.

4.2.2 Techniques

4.2.2.1 Observation: This technique was used to examine the behavior and body language of the children, in the classroom to frame classroom behavior tool items. And for this observation, time sampling was used.

4.2.2.2 Questioning: To obtain any pending information about the child to ensure his selection in or exclusion from sample, questions were put to teachers and friends of those children.

4.2.2.3 Play therapy as a Remedial Technique: Play therapy refers to a wide variety of treatment methods, all of which incorporate the play. Play therapy is based on the belief that play is an essential part of people's lives and critical to healthy development. Play is the language of children. Play is the language of consciousness. For children, play is a natural method of learning, development and expression of feelings, thoughts and concerns.

In this study, the researcher used play therapy as a remedial technique which is akin to developmental approach. This study comprised of 25 sessions of play therapy. Activities conducted in play therapy are listed below:

(i) Finger painting (material required: Water, water colors, color tray & drawing sheet)
(ii) Vegetable Painting (material required: Water, water colors, color tray, drawing sheet, some pieces of lady finger and potatoes)
Methodology

(iii) Making Collages (material required: Drawing sheet, scissor, glue stick, magazines, and newspapers)
(iv) Bouncing Balls (material required: Balls)
(v) Mutual Storytelling (materials: stories)
(vi) Games of Imitative nature
(vii) Dress up with newspapers (material required: Scissor, Glue stick, Cello tape, newspapers)
(viii) Lemon race (material required: Lemons, spoons)
(ix) Balloon Blowing (material required: Balloons)
(x) Catching with closed eyes (material required: piece of cloth)
(xi) Dumbcherades
(xii) Clay Modeling (material required: clay)

Each session was of ½ hour duration and each child participates in two activities during the session. All children from eleven schools (up to three) and from twelfth school (up to two) were taken together.

4.3 SAMPLE OF THE STUDY

A sample is a subset of population to generalize the test results. The sample should be representative of large population of which results would apply.

4.3.1 Size and Nature

The sample size depends upon the subject's availability, economic selection both in terms of time and money and complexity of data analysis involved. Above all, the ideal sample should be large enough to serve as an adequate representation of the population (Best and Kahn, 1993).

The total sample of the study comprised of 70 children with depression selected from regular school going children of 4th and 5th standard, having average or above average intelligence, having no other disability and having no history of death in family since last 6 months.
Twelve schools were selected from the list of 60 schools situated in Patiala City. Every 5th school was picked for selection of sample. In this study, the initial sample drawn was 565 from selected 12 schools. 102 children (with depression) were retained here, who were identified with help of CDI from there 565 children belonged to IV and V standard of age group 8-11 years. Out of these 102 identified children, 30 children were dropped because their I.Q. level was less than 90. Two children were dropped due to medical reasons.

Table 4.1 Presents school wise, gender wise & group wise distribution of subjects

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of School</th>
<th>Experimental Group</th>
<th>Control Group</th>
<th>Total (a+b+c+d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Girls (a)</td>
<td>Boys (b)</td>
<td>Girls (c)</td>
</tr>
<tr>
<td>1</td>
<td>This school requested anonymity</td>
<td>-</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>This school requested anonymity</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Adarsh Public School</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Rainbow Public School</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Blue Heavens Public School</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Guru Harkrishan Sr. Sec. School</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>This school requested anonymity</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Paradise Public School</td>
<td>-</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Tiny Tots Public School</td>
<td>-</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Guru Teg Bahadur Model School</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Auro Mirra Centre of Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Name of School</td>
<td>Experimental Group</td>
<td>Control Group</td>
<td>Total (a+b+c+d)</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------</td>
<td>--------------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girls (a)</td>
<td>Boys (b)</td>
<td>Girls (c)</td>
</tr>
<tr>
<td>12</td>
<td>Ramanand Memorial Public School</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

### 4.3.2 Criteria for sample selection

The study required a sample of depressed children. The following criterion was used for the identification of sample from regular school:

(i) Children with I.Q. of more than 90 only included. (Tested by CPM)

(ii) Any type of major physical ailment was ruled out before inclusion of the child in the sample.

(iii) Children who had major negative events like death within last six months were not taken.

(iv) Children having no medical record of ADD, hallucinations and schizophrenia.

(v) A score of 16 or above on Children's Depression Inventory.

(vi) Children with age range of 8-11 were only included.

### 4.3.3 Technique of sample selection and allotment

Schools were selected using sequential random sampling. Children were selected using purposive sampling. Selected children were allotted to two groups randomly in each school.

### 4.3.4 Procedure of sample selection

The sample was selected using the following procedure:

(i) Twelve schools were selected from the list of 60 schools situated in Patiala City. Every 5th school was picked for selection of
school. All the selected schools were co-ed; therefore in sample both boys and girls were taken.

(ii) Total no. of children in selected 12 schools of Patiala was 565. These children were of IV and V standard with age range of 8-11 years old. For this entire sections were taken. All these 565 children were administered CDI. On the basis of performance, on of CDI, those children who scored 16 or above were selected. 102 children were retained here.

(iii) Intelligence Test: The selected 102 were administered Raven's Coloured Progressive Matrices (CPM) to exclude children with I.Q below 90. 30 children were excluded here. 72 Children were retained here.

Out of 72 selected children, two were dropped due to medical reasons. Two the final sample comprised of 70 subjects. None of these children, it was checked has had negative event in last 6 months. They had, no other ailments, physical or mental it was examined.

4.4 PROCEDURE FOR DATA COLLECTION

The present study was conducted in five phases: (a) pre test, (b) classification of sample subjects into two groups randomly, one of whom would get play therapy, (c) administration of play therapy, (d) post test and (e) delayed post test.

4.4.1 Pre test stage

Researcher applied classroom behavior tool on selected sample. Average of the results of three annual exams/unit tests/class tests conducted by schools was found out to check the academic achievement of the students. CDI scores used for identification were also used as pre test.
4.4.2 Classification into groups

70 children, who were included in the sample, were further subdivided into two groups. To achieve randomization, further, after selection, subjects were randomly allotted into control and experimental group of 35 each.

From 11 schools there were 3 children each in experimental and control group. From twelfth school two children were in each group.

4.4.3 Administration of Play Therapy

Experimental treatment started at the starting of the session of school on April 25. Sessions of ½ hour duration each of play therapy were given. Each child participates in two activities during the session.

Before treatment commenced, subjects were requested to abstain from absenting themselves, otherwise they will miss some new and interesting activities. Treatment was given everyday except sundays and holidays.

For each child, before giving play therapy, the researcher entered into an informal conversation about their interests, home work, games they play, routine work etc. just to establish rapport. After this, researcher administered play therapy on the children of experimental group. The sessions of play therapy comprised of following:

(i) **Finger Paining**: Children used water color in this. In color tray they dipped their finger and on a drawing sheet they press their dipped finger for 30 seconds without movement and make an expression like a flower balloon, cloud, tree etc. Sample is shown in appendix V.

(ii) **Vegetable Painting**: In this activity, children cut and shaped vegetable like potato and lady finger into small pieces which could be held in hand easily and then dip these shaped pieces into
Methodology

different colors and after this press them for a while on a sheet, remove it by casting an impression like border of drawing sheet, photo frames, necklace etc. Sample is shown is appendix VI.

(iii) **Making Collages:** Children used pictures from newspapers and magazines to create a scene or make an image. Sample is shown in appendix VII.

(iv) **Bouncing Balls:** Balls were provided to children for their recreation. They bounced the ball and enjoyed.

(v) **Mutual Storytelling:** A group of 3 children participated. One child narrated the story in a beautiful manner the other two listened to it and enjoyed it. Role reversal took place also. (e.g. The king and his clever minister, A true friend, Old woman and pitcher, A Birthday present, The Cruel boys and the Frog, Wooden Horse, Kabuliwala)

(vi) **Games of Imitative nature:** In this children imitated certain characters like postman, milkman, doctor, policeman, teacher, nurse and shopkeeper.

(vii) **Dress up with newspaper:** By cutting the newspapers into different shops like triangular cap, skirt and coat. They dressed up themselves with these cuttings. The children dressed up like nurse, joker and politician.

(viii) **Lemon race:** Children put small lemon in a spoon and put it in there mouth and ran while maintaining the balance and not letting lemon fall.

(ix) **Balloon Blowing:** Balloon were given to children and asked them to blow it to the maximum.

(x) **Catching others with closed eyes:** Children were given to run and one from among them who is blindfolded was supposed to catch them.
(xi) **Dumbcherades:** A child was asked to enact on a given title like rainy day, playing football, climbing hill and the rest among the group were supposed to make out.

(xii) **Clay Modeling:** Children moulded the clay of different colors in various shapes and sizes to make out articles like utensils, birds, animals, trees and hut.

### 4.4.4 Post Test

After the treatment, a test on classroom behavior was conducted on both the groups. CDI was repeated on experimental and control groups. A set of three observations on academic achievement was again taken for all 70 children to serve as post test.

### 4.4.5 Delayed Post Test

Delayed post test after a gap of one month was given to subjects of both the groups. Tool of classroom behavior and CDI was repeated. A set of three observations on academic achievement was again taken for all 70 children to serve as delayed post test.

### 4.5 STATISTICAL TECHNIQUES

In the present study, different statistical techniques were employed to analyze the data keeping in view the objectives and hypotheses.

Reliability in CRB tool was established by split half method. To establish discriminant validity of the tool, difference was calculated between children with depression and children without depression. For establishing concurrent validity of the test; product moment method of correlation was used. Reliability of Children Depression Inventory was also established by split half method.

Descriptive statistics like measures of central tendency (mean & median), dispersion (Standard deviation and Quartile), skewness, kurtosis, were computed for norms of the classroom behavior tool.
Methodology

The data have been presented using descriptive statistics like mean (M), standard deviation (SD), tests of comparisons and group wise and stage wise graphical analysis.

In this study, t-test for independent means for comparison of groups is used and t-test for correlated means is used for comparisons of pre test and post test means.