CHAPTER-4

METHODOLOGY

4.1 Research Methodology

The previous chapter deals with review of literature, statement of problem and formulation of hypotheses while this chapter deals with structuring the Research design which is an important process of scientific investigation of the problem. Research Design comprises a strategy and structure that give right direction to the investigator for obtaining and exploring of data. Hence, it is the blueprint for a study. It is a way to find out solution of any problem on scientific base.

4.2 Research Design

In order to verify the effect of Preksha Meditation (PM) a multi group (experimental and control group) and multi-level (0 month – 2 months – 4 months) pre-post testing research design has been adopted. In this investigation, independent variable viz. Preksha Meditation has been given to each of the subjects of experimental group. The subjects of the remaining group (control group) undergone for normal activity for equal period of time have been kept aloof from PM practice.

Table-4.1: Details of the Research Design

<table>
<thead>
<tr>
<th>Group</th>
<th>Dependent Variables</th>
<th>Experimental Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Basal ( 0 day)</td>
</tr>
<tr>
<td>Experimental group practicing Preksha Meditation (N= 30)</td>
<td>Pre Phase Psychological Parameters</td>
<td>Aggression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heart rate, Blood pressure, Breathing rate, and Body mass index</td>
</tr>
<tr>
<td>Control Group (Normal activity) (N= 30)</td>
<td>Physiological parameter</td>
<td>-do-</td>
</tr>
</tbody>
</table>
4.3 Control of Variance
Adequate attempts were made to control relevant variables. The following attempts were made to get control over relevant variables

4.3.1 Subject-relevant Variance
All subjects were from B.Ed. and from middle class family between the ages of 19 to 25 years old. Control of subject-relevant variables have been achieved by keeping the subjects same during all the experimental stages. An extra group (control group) of subjects practicing normal routine college activity had also been planned.

4.3.2 Situation Variance
This variable was controlled by holding the situation of the experiment constant therefore; all the environmental conditions operating in the experimental situation were kept similar. The environmental variables includes all the physical aspects of experimental situation e.g. temperature, humidity, noise and lighting level and time.

4.4 Sample
In present study, the participants were 156 girls. A total of 160 participants took part in the study; however, data from 4 were discarded due to failure to meet study criteria or complete all measures. Thus at the close of study, (n=77) subjects in experimental group and (n=79) in control group were available for the analysis. To participate in this study, individuals must have met two inclusionary criteria:

- Be between the ages of 19 to 25 years old,
- All the participants must be voluntarily participated

All the subjects were chosen by randomized sampling. Experimental paradigm was explained fully and written consent was obtained from each of them (see Appendix-V). They were informed that they have to fill all psychological forms and data of their physiological parameters, will be recorded by multi parameter monitors.

4.5 Assignment of Intervention
Subjects of the experimental group were given the training of Preksha Meditation as an intervention by the investigator herself. The subjects practiced PM regularly for 30 minutes daily for the period of four months. It was directed 5 days per week under the direct supervision of the investigator. The subjects of the control group were not given
any specific task rather they were doing their daily routine activities as usual. In both experimental and control group, first observation was conducted at beginning and subsequently at two months and at four months of pre-test respectively.

4.6 Preksha Meditation Module

The module of Preksha Meditation (PM) was instructed by the investigator herself as the subjects were beginners for the meditation. It was a group meditation. All subjects in experimental group were explained the process of meditation and following Preksha Meditation module was administered:

Components of Preksha Meditation Module

1. *Mahāprāṇa Dhavanī* (Buzzing Sound) 5 min
2. *Dīrgha Swāsa Prekṣā* (Long Breathing) 5 min
3. *Kāyotsarga* (Relaxation) 5 min
4. *Maitrī Anupreksā* (Contemplation of Amity) 15 min

4.6.1 *Mahāprāṇa Dhavanī* (Buzzing Sound)

*Mahāprāṇa Dhavanī* is subtle type of sound. To produce this sound, subject was instructed to sit comfortably with erect posture and crossed leg. They were then instructed to inhale long and then exhale and while exhaling one has to produce a sound like buzzing bee. While producing sound, subjects were instructed to concentrate in their brain and try to feel vibrations there. This sound was repeated almost for nine to eleven time.

4.6.2 *Dīrgha Swāsa Prekṣā* (Long Breathing)

In long breathing, subjects were instructed to inhale and exhale deeply for 5 minutes. The concentration was completely on breathing. While inhaling they had to concentrate on the expansion of their stomach and while exhaling they had to concentrate on the contraction of their stomach.

4.6.3 *Kāyotsarga* (Relaxation)

All the subjects doing PM were then instructed to practice relaxation for five minutes. During *kāyotsarga*, they were instructed to relax each part of their body one by one from toe to the upper part of their head and then suggested to experience the whole body got relaxed.
4.6.4 Maitrī Anupreksā (Contemplation of Amity)

Contemplation is a procedure of auto suggestion. In this practice, the practitioner resorts to the technique of auto-suggestion. In other words, practitioner concentrate full attention on the entire forehead region and recite nine times loudly – “My forgiveness is increasing. Everybody is my friend. I practice amity with everybody”. Then one repeats same sentence mentally nine times.

Conclusion of Session

The session of meditation was concluded with the recitation of three times mahāprāṇa sound and subjects were instructed to leave the room quietly.

4.7 Test and Tools

The following standardized psychological tests were used in this investigation:

1. Forgiveness Scale (FS-SA) (2015) is standardized test, which measures levels of dispositional forgiveness, developed in English and Hindi both versions by Dr. Samani Shreyas Pragya and Samani Amal Pragya. It is a unique contribution of present research (See Appendix-I).

2. Aggression Questionnaire, which measures aggression in four dimensions, is also well standardized test. It was developed by Buss & Perry, 1992 (See Appendix-II).

3. PGI General Well-Being Scale, which measures the psychological well-being. It was developed by Verma and Verma, 1989. This is a 20 item scale (See Appendix-III).

4. Ego Scale (ES-PSS), which measures ego. It was developed in English and Hindi both versions by Dr. Samani Shreyas Pragya, 2014. This questioner consists of 50 items related to the feeling of ego is seen in various areas (See Appendix-IV).

4.8 Method of Data Recording Psychological Scales

Following steps were taken for the data recording:

At first, respondent were told to seat comfortably. Before distributing the booklets to the students, they were clearly told not to write anything in the booklet until they were told to do so. Then they were instructed to read the instructions, written on front page of the each scale and to ask anything if not clear. All doubts were cleared beforehand. When the
instructions got over the respondent were suggested to tick the response in the appropriate columns. Respondent were instructed to response each item honestly. At last the scale administrator checked whether the all items had been answered or not. When found unanswered told to the respondent to complete. At the end the investigator collected and counted the number of booklets before the students left the class.

4.8.1 Physiological Tests

1. **BMI (Body mass Index)**
   
   Data of height & weight were taken of each member with standardized weight machine.

2. **Heart Rate, Breathing Rate and Blood Pressure**
   
   These components were estimated with the help of Iris-50 Colour Multi Parameter Monitor manufactured by Maestros Mediline System Limited Navi Mumbai, India.

3. **Blood Pressure Recording**
   
   The BP is measured on the principle of oscillometry. The oscillations are the direct results of the occlusive cuff to the artery. A single cuff is applied to the patients arm (usually left), and the system inflates it to a level assumed to be greater than systolic pressure. The cuff is deflected gradually. A sensor then measures the tiny oscillations in the pressure of the cuff caused by the pulse.

   - Systolic was taken when the pulsation started.
   - Mean pressure was taken when they are rest.
   - Diastolic is when they disappears. Pulse oximeter based on the principle of different absorption of Red (R) (600-7—nm) and Infrared (IR) (850-1000nm) lights by two forms of Hemoglobin i.e. oxy-hemoglobin and deoxy-hemoglobin in the blood.

   Oxy-hemoglobin absorbs the infrared light and allow the red light to pass through. Deoxy-hemoglobin absorbs the red light and allow the infrared light to pass through. IRIS-50 works in the transmission method for the measurement, wherein the oximeter probe act as both receiver and transmitter i.e. there is an emitter on one side and a receiver on the other with the measuring site in between. After the transmitted red and infrared signals pass through the measuring site and are received at the photo detector, the R/IR ratio is calculated.
4.8.2 Technical Specifications of Multi Para Monitor

<table>
<thead>
<tr>
<th>Technique</th>
<th>Oscillometric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Mode</td>
<td>Auto start/Manual</td>
</tr>
<tr>
<td>Cuff pressure display</td>
<td>0-300 mmHg</td>
</tr>
<tr>
<td>Systolic BP range</td>
<td>Adults 30-245 mmHg, Neonate 40-140 mmHg</td>
</tr>
<tr>
<td>Diastolic BP range</td>
<td>Adults 10-195 mmHg, Neonate 20-100 mmHg</td>
</tr>
<tr>
<td>Mean BP range</td>
<td>Adults 15-215 mmHg, Neonate 30-115 mmHg</td>
</tr>
<tr>
<td>NIBP accuracy</td>
<td>±3mmHg</td>
</tr>
<tr>
<td>Interval</td>
<td>2-120 minutes</td>
</tr>
<tr>
<td>Initial cuff inflation</td>
<td>Factory default</td>
</tr>
<tr>
<td>Measurement time</td>
<td>30-150 seconds</td>
</tr>
<tr>
<td>Spo2 range</td>
<td>0 to 100%</td>
</tr>
<tr>
<td>Pulse rate range</td>
<td>20 to 250 bpm</td>
</tr>
<tr>
<td>SPO2 accuracy</td>
<td>±2 for 70-100% and ±3 for 40-70%</td>
</tr>
<tr>
<td>Pulse rate accuracy</td>
<td>±2 bpm or ±2%</td>
</tr>
</tbody>
</table>

4.8.3 Procedure of Data Recording

To obtain authentic results the present investigator followed the following procedure:

a) **Measurement at Pre-experimental Stage**

Before giving any intervention, subjects of both groups were administered with the aforesaid psychological and physiological tests to see the homogeneity, on said variables of the subjects of both the group. This stage of testing is called as pre-experimental stage.

b) **Measurement at Experimental Post Phase-I**

After basal (0- day) recording, subjects of the experimental group were assigned the intervention of PM practice. The subjects practiced the technique for two months regularly half an hour 5 days per week. Subjects of control group were kept aloof from PM and were doing their daily activities as before. Once again after two months, both of the groups were administered with PM. This was called the post phase I of experiment.

(54)
c) Measurement at Experimental Post Phase-II
Subjects of both the groups were re-administered the above mentioned test at four months. During this period, subjects of experimental group continued with supervised practice of Preksha Meditation and control group was not given any practices like PM. This stage of testing was called the post phase II of experiment. All scores of psychological scales and physiological parameters were taken after 0, 2 and 4 months.

Post-Processing of Data
On completing the collection of data as per procedure laid down in the research design as presented in preceding section, they (data) arranged and analysed in different data matrices. The results, obtained by a process of systematic analysis have presented in results chapter.

4.9 Statistical Analysis
Research design represents a method of data collection while the statistical design represents a method of scientific data analysis through which inference drawing and hypothesis test become possible. It has an important role in representing the collected data in systematic form. Hence the present investigation adopts an appropriate statistical design to interpret the numerical data in appropriate form. The following statistical design was undertaken.

4.9.1 Intra-Group Comparison
In present investigation, intra group comparison was undertaken to evaluate the efficacy of independent variable on dependent variable distinctly. Independent variable Preksha Meditation was applied on experimental group at 2 and 4 months respectively. The comparison was done within group at three different levels on the subjects of both of the groups:

- Pre and post experimental stage-I
- Post stage-I and Post experimental stage-II
- Pre and Post experimental stage-II

It is expected that the influence of independent variable i.e. Preksha Meditation will enhance forgiveness and reduce anger & ego in experimental group. To find out the real conclusion and difference between different periods (pre and post period) separately in both of the groups, paired sample t test was applied and graded significance level was denoted as (p < 0.05) and (p<0.01).
4.9.2 Inter-Group Comparison
To evaluate the significant difference of experimental treatment on dependent variables especially of Preksha Meditation on forgiveness, the comparison was done in between experimental and control group as given below:

- Pre-experimental stage
- Post - experimental stage-I
- Post- experimental stage-II.

4.10 Concluding Remarks
In this chapter research design has been presented. Use of questionnaire and physiological parameters has been extensively used for this exploratory research. The details of research methodology, questionnaire design, its validation and administration are discussed. The method of data recording and statistical analysis is also highlighted.