Method and Procedure of the study

Chapter III

In making a plan of research, the most suitable method for particular problem was selected by the researcher. In this chapter the investigator has dealt with a detailed description of the method used in the research work, which provides information of scientific steps taken in conducting the present research.

Present chapter gives an outline of the method used in the study i.e. the design of the study, sample selection, the tools and various measures used to assess the variables, procedure for scoring and the statistical technique used. The function of the research method is also to inform the reader as to what is done to solve the problem. Meticulous care is exercised to report it in such a manner that the criterion of replicability is satisfied. It should be possible for another investigator to reproduce the research, to reanalyze the data, or to arrive at unambiguous results.

The present chapter is organized keeping in mind the basic objectives of the study and it gives the judicious look at the operational planning and processing of the population, sample, the tools and the statistical techniques.

Figure 3.1: Exhibiting the steps of the Plan and Procedure of the Study
HYPOTHESES

1. There would be a significant effect of prayer along with meditation on Alpha EEG.
2. There would be a significant effect of prayer along with meditation on GSR.
3. There would be a significant effect of prayer along with meditation on attention regulation.
4. There would be a significant effect of prayer along with meditation on emotional intelligence.
5. There would be a significant effect of prayer along with meditation on psychological wellbeing.
6. There would be a significant effect of meditation on Alpha EEG.
7. There would be a significant effect of meditation on GSR.
8. There would be a significant effect of meditation on attention regulation.
9. There would be a significant effect of meditation on emotional intelligence.
10. There would be a significant effect of meditation on psychological well-being.

VARIABLES: The variables for the study have been categorized as follow:

Independent Variables: 1. Prayer along with Meditation (verbal chanting of ‘OM’)
   2. Only Meditation (verbal chanting of ‘OM’)

Dependent Variables: Alpha Electroencephalogram (EEG), Galvanic Skin Response (GSR),
Attention regulation, Emotional intelligence, Psychological well-being.

Relevant Variables:

Age: 18 to 24 years of age

Sex: Only female students

Marital Status: Unmarried students

Education: Graduate and Post Graduate students from universities
DESCRIPTION OF THE TOOLS:

To study the variables in the study Test of Attention Regulation, Emotional Intelligence Scale and Psychological Well-being Scale were used. EEG and GSR were measured by a 8 Channel computerized polygraph Test (Physiopac PP 4), manufactured by Medicaid Systems, Chandigarh, India.

1 (A). Measurement of Alpha EEG

Recordings of Alpha EEG were made on a computerized polygraph (Model Physiopac, PP 4, Medicaid Systems, Chandigarh, India) test. Alpha EEG was measured by placing electrodes on forehead of each subject. Values of Alpha EEG were measured in Hz. The range of the Alpha waves were from 8-12 cy/sec.

1 (B). Measurement of GSR

Recordings of GSR were made on a computerized polygraph (Model Physiopac, PP 4, Medicaid Systems, Chandigarh, India) test. GSR was measured by placing electrodes on tips of the alternative fingers of each subject. Values of GSR were measured in kilo-ohms.

Graph 3.1: Showing the data of GSR measured on a single subject
2. Test of Attention Regulation

Test of Attention Regulation by Das (1994) was selected to measure attention regulation. This test has three subtests. These are:

a) Digit Span Test
b) Syllable Counting Test
c) Digit Counting Test

a) Digit Span Test: This Test is taken from Wechsler’s Adult Intelligence Scale (1986). The Digit Span Test (forward and backward combined) load on freedom from distract ability factor. The digits are presented before each of the student with one second inter-digit interval. The forward and backward digit spans were added to make a total score.

b) Syllable Counting Test: The Syllable Counting Test includes a working memory task which requires the simultaneous storage and processing of the information. Pair of words were presented orally before the subject. After the presentation of one pair of words the number of syllables of the first and the second word collectively have to be counted and the subject has to note the resulting score on an answer sheet. For each pair of word the number of syllables should be correctly determined by the subject in order to pass the item. The pairs of words are presented in blocks of 6 and there are six such blocks. So, the test contains a total of 36 pairs. This test has a maximum score of 36. Study of Baddeley and Hitich (1980) suggests that working memory is critically involved in attention regulation.

c) Digit Counting Test: Digit Counting Test is a test for testing the flexibility of attention. This test requires the alteration of forward and backward counting. Each item consists of pattern of numbers with plus and minus signs in between, which indicate the counting direction. Subjects were asked to write the final digit after completing the counting for each
item. This test has 20 items. Subjects were not allowed doing any rough work on paper. They have to do the counting in mind. A score of 0 for wrong item and a score of 1 for correct item was given, max. score = 20, min. score = 0.

3. Emotional Intelligence Scale

Emotional Intelligence Scale constructed by Hyde, Pethe and Dhar (2001) was use for measuring Emotional Intelligence. Following were the criteria for the selection of this scale: (1) The scale is mainly designed to measure the different dimensions of emotional intelligence, suitable in the Indian Conditions. (2) This test is standardized mainly on the students.

**Description of the Scale:** The final form of the scale consists of 34 items. This scale measures Self-awareness, Empathy, Self-motivation, Emotional Stability, Managing Relations, Integrity, Self-development, Value Orientation, Commitment, Altruistic Behavioral factors of emotional intelligence.

**Instructions:** Following instruction were given to the testee by the researcher: “Here some statements are given and for every statement you have to express your views by tick marking (✔) on any cell of the five alternatives. 1. Strongly Agree 2. Agree 3. Uncertain 4. Disagree 5. Strongly Disagree. There is no right and wrong answer. So, please give your response on all the items”.

**Reliability of the Scale:** The reliability coefficient was found to be 0.88. **Validity of the Scale:** High content validity was found. The manual indicates high validity index of 0.93.
4. Psychological Well-being Scale

Psychological Well-being was measured by combining two measures (a) P.G.I. Well-being Scale (b) Life Satisfaction Scale

(a) P.G.I. Well-being Scale: P.G.I. Well-being Scale by Moudgil, Verma, Kaur and Pal (1986) was selected to measure the well-being among students.

Description of the Scale: The original P.G.I. Well-Being Scale has 20 items in simple English constructed on the lines of scale by Fazio (1974) and Dubey (1970). The present modified scale by Moudgil, Verma, Kaur and Pal (1986) in hindi also consisted of 20 items.

Instruction and Scoring: Instructions were given scoring has been done according to the manual.

Reliability of the Scale: The indices of reliability are as follows:

Table 3.1: Reliability of the P.G.I. Well-being Scale

<table>
<thead>
<tr>
<th>Inter-rater Reliability</th>
<th>Inter-scorer Reliability</th>
<th>Test Retest Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.86</td>
<td>1.0</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Validity of the Scale: Criterion related validity coefficient of life satisfaction scale was found to be $r = 0.75$ when calculated against the criterion of neuroticism. This shows that as the life satisfaction or well-being increases neuroticism decreases. This shows high criterion related validity.

(b) Diener’s Life Satisfaction Scale: To improve the validity of the scale five more items taken from the life satisfaction test (Diener, Emmonas, Larsen & Griffin, 1985) were added along with the P.G.I. Well-being Scale by the researcher.
Validity: Construct validity of the psychological well-being scale was established by a research by Das and Das (2008) on 35 women. When respondents were asked a question ‘what they would like to become if they had to take birth again’, the majority of the respondents with high life satisfaction (Extreme group) replied that they would like to be what they are today i.e. ‘my own self’. This indicates high validity of the scale.

Reliability:

✓ In a pilot study done by the investigator herself, on 40 female university students, high test-retest reliability (with a time gap of one month) came out to be 0.77.

✓ The reliability of the scale was tested in a study by Das and Satsangi (2008). The chronbach alpha was found to be 0.85. It shows the high reliability of the scale.

SAMPLE

The study was conducted on a purposive sample of female university students (N= 130) in the age range of 18-24 years taken from Dayalbagh Educational Institute and Dev Sanskriti Vishwavidyalaya. Groups were matched in terms of Age, Education, Marital Status and Socio Economic Status. Prayer along with Meditation Group was categorized as Group I (N= 65) and Only Meditation Group was categorized as Group II (N= 65). For experimentally studying effect on Alpha EEG and GSR, 25 out of 65 students in both the groups were selected.

Figure 3.2: Exhibiting Sample Distribution
### Table 3.2: Age Wise Distribution of the Sample

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Prayer along with Meditation Group</th>
<th>Only Meditation Group</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>24-26</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>21-23</td>
<td>19</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>18-20</td>
<td>43</td>
<td>53</td>
<td>96</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>65</td>
<td>130</td>
</tr>
</tbody>
</table>

### Table 3.3: Parental Income wise distribution of the Sample

<table>
<thead>
<tr>
<th>Socio-Economic Status (Rs. Per month)</th>
<th>Prayer along with Meditation Group</th>
<th>Only Meditation Group</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>35000-45000</td>
<td>31</td>
<td>24</td>
<td>55</td>
</tr>
<tr>
<td>25000-34000</td>
<td>34</td>
<td>41</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>65</td>
<td>130</td>
</tr>
</tbody>
</table>

### Table 3.4: Educational Wise Distribution of the Sample

<table>
<thead>
<tr>
<th>Educational Qualification</th>
<th>Prayer along with Meditation Group</th>
<th>Only Meditation Group</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Post Graduates</td>
<td>27</td>
<td>25</td>
<td>52</td>
</tr>
<tr>
<td>Graduates</td>
<td>38</td>
<td>40</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>65</td>
<td>130</td>
</tr>
</tbody>
</table>
Inclusion Criteria

- Only those who are willing to participate in prayer and meditation were included in the sample.
- Only those who have faith in ‘OM’ chanting meditation were included in the sample.
- Subjects, who have never participated regularly in prayer and meditation before, were included in the sample.

Exclusion Criteria

- Subjects having any other chronic somatic and/or chronic psychological disorders were excluded from the sample.

DESIGN:

Single Group, Pre and Post research design was used to study the effect of Independent Variables (Prayer along with Meditation, Only Meditation) on Dependent Variables (Alpha EEG, GSR, Attention regulation, Emotional Intelligence and Psychological well-being).

PROCEDURE OF THE STUDY

Phase 1: Pre-test Measures: Testing Phase

Initially permission was taken from the concerned Head of Departments of Universities. Then tools were administered on all 130 students (age range 18-24 years). The students were requested to answer truly and mark the appropriate option among those given in the scales for each question. They were requested not to leave any of the items unanswered. Instructions regarding the test were given properly and they were assured that the information given by them will be kept confidential. Administration and scoring of the test was done as per the
instructions given the test manual. When the questionnaires were filled, scoring was done and tabulated data was subjected to statistical analysis.

**Phase 2: Pre-test Measures: Experimental Phase**

Alpha EEG and GSR were measured before intervention session starts. Subjects were individually measured. GSR was measured with the help of two silver electrodes provided with Velcro straps. The silver electrodes were placed on the volar surface of two alternative fingers and strapped tightly. Similarly for Alpha EEG electrodes were placed on forehead and strapped tightly. Each subject was allowed to settle down and stabilize for a few minutes and was asked to remain still and avoid any physical movement of the body as this would have interrupted the readings. After placing the electrodes play button was pressed and after 5 minutes recording of readings was started, to see the change in GSR value (K-ohms) and Alpha EEG (Hz). After 10 minutes stop button was pressed again for stop. Readings of Alpha EEG and GSR were noted. Alpha EEG and GSR were measured on 25 subjects out of 65 subjects from each group. After 3 days of baseline recordings intervention was started.
**Intervention I: Prayer along with Meditation** - The researcher conducted Prayer along with Meditation session for 30 minutes (15 min. for prayer and 15-20 min. for meditation), every morning for 1 month, excluding Sunday and holidays.

(A) **Prayer:** In the present study researcher used two prayers which are mainly focused on pleading and thanksgiving. These prayers are:

**Prayer 1: (Mode of Presentation: Auditory)**

इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर हो ना ना हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल हो ना इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर हो ना दूर अज्ञान के हो अधेरे, तू हमें जान की रोशनी दे हर बुराई से बचते रहे हम, जितनी भी हे भली जिन्दगी दे बैर हो ना किसी का किसी से, भावना मन में बदले की हो ना ना हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल हो ना इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर हो ना ना हम ना सोचे हमे क्या मिला हैं, हम यह सोचे किया क्या हैं अपन फूल खुशियों के बोटे सभी को, सब का जीवन ही बन जाये मधुबन अपनी करुणा का जल तू बहा के, कर दे पावन हर एक मन का कोना ना हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल हो ना इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर हो ना
Prayer 2: (Mode of Presentation: Auditory)

हम को मन की शक्ति देना, मन विजय करे
दूसरों की जय से पहले, खुद को जय करे
हम को मन की शक्ति देना………
भेदभाव अपने दिल से साफ़ कर सके
दोस्तों से भूल हो तो माफ़ कर सके
झूठ से बचे रहे, सच का दम भरे
दूसरों की जय से पहले, खुद को जय करे
हम को मन की शक्ति देना………
मुश्किलें पड़े तो हम पे इतना करूँ कर
साथ दे तो धर्म का, चले तो धर्म कर
खुद पे हौसला रहे, बदी से ना डरे
दूसरों की जय से पहले, खुद को जय करे
हम को मन की शक्ति देना………

Prayer 3: (Active participation by the testee: Verbally)

After this researcher said to the participants, “Now repeat with me, God/ Malik…. I am really thankful from the bottom of my heart. I say thanks for this beautiful life and for everything, given by you. God please forgive me for my mistakes. Intentionally and unintentionally I have hurt many people, I am saying sorry to all of them. God give me strength to strive for my goal and give me patience that I can forgive those who are bad to me.”
(B) **Meditation:** In the meditation researcher gave instructions, “First, enter your meditative state by securing a quiet and comfortable sitting position. Close your eyes. Breathe comfortably and slowly through your nose, into your belly and then into your chest. Imagine the sound of ‘OM’ Mantra internally, in the mind only, making no external sound. Allow the mantra to flow with the breath. Repeat like this:

Inhale: ‘Silence...’
Exhale: ‘OMmmmmmmmm...’
Inhale: ‘Silence...’
Exhale: ‘OMmmmmmmmm...’
Inhale: ‘Silence...’
Exhale: ‘OMmmmmmmmm...’

Simply allow the ‘OM’ Mantra to come and go with each inhalation and exhalation. Feel that positive energy is running into all over body and each part of your body is pure and holy. Now feel the positive energy and enjoy in this positive environment”.

**Intervention II: Meditation**- Researcher conducted Meditation session for 15-20 minutes every morning for 1 month, excluding Sunday and holidays. Instructions and techniques for meditation were same as mention in intervention I (Prayer along with Meditation) for meditation.

**Phase 3: Post-test Measures**

After the experimental phase, post-test was administered on the students again. This posttest was parallel to the pretest. Alpha EEG, GSR, Attention regulation, Emotional Intelligence and Psychological Well-being were measured again.
Precaution taken in Data Collection

- Researcher ensured that environment was peaceful and light was proper.
- Rapport was established and all subjects were made comfortable.
- Researcher checked that the instrument is working properly.
- Each subject was allowed to settle down for a few minutes.
- After 5 minutes, recording of readings was started

Introspective Report of the testee

Subjects are personally interviewed and they report changes in themselves which are given below:

1. Improvement in concentration
2. Improvement in way of thinking specially positive thinking
3. Improvement in confidence level
4. Feels more kindness and generous
5. Positive thinking towards daily life situations

Statistical Techniques

After administrating the tool, the next step was the analysis and interpretation of the collected data, statistical techniques were applied to manage the large corpus of data and present finding in an understandable and intelligent manner. In the present study the following statistics techniques were used:
Descriptive Statistics: Mean and Standard Deviation were computed for each variables in both groups.

Inferential Statistics: To test the various hypotheses as well as to draw certain conclusions, Wilcoxon Signed Rank Test was used.

Graphical Representation: Graphical representation was done to show the obtained results. Bar diagram was used to highlight the obtained results:

Bar Diagram: Bar Diagram was used to represent the difference in the means of Pre and Post measures.