CHAPTER III

METHODOLOGY
Chapter 3

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DESIGN

To fulfil the objectives, the study was conducted in two phases. In the first phase, a survey was conducted on a large sample (i.e. N = 800) drawn from general population. A measure of belief in heredity/environment for human characteristics and heredity/environment awareness checklist were administered to all the subjects. Information about age, sex, educational qualification, occupation, area of residence and social class was also gathered.

In the second phase of the study a sample of 270 subjects was selected on the basis of scores on heredity/environment belief and awareness of heredity/environment mechanisms following a single step double criteria procedure. Heredity/environment belief and awareness of heredity/environment mechanisms were taken as independent variables, both having three levels. Three belief groups i.e. heredity believers, balanced believers and environmental believers were formed taking subjects scoring more than mean + 1 S.D. in the environment believers group, below mean – 1 S.D. in the heredity believer group and scoring in
between mean ± 1 S.D. in the balanced believers group. Heredity/environment awareness variable also had three levels – high, moderate and low. Three groups were formed taking subjects mean + 1 S.D. in high awareness, mean - 1 S.D. in the low awareness and subjects falling in between Mean ± 1 S.D. in moderate awareness group. Thus, in the second phase of the study a 3×3 factorial design was used (as shown in table 3.1). There are nine cells and equal numbers of subjects (n=30) were taken in each cells and the total number of the subjects was 270.

Table 3.1 Design of the Study

<table>
<thead>
<tr>
<th>Awareness of heredity/environment mechanisms</th>
<th>Heredity believers (H)</th>
<th>Balanced believers (H/E)</th>
<th>Environment believers (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>n=30</td>
<td>n=30</td>
<td>n=30</td>
</tr>
<tr>
<td>Moderate</td>
<td>n=30</td>
<td>n=30</td>
<td>n=30</td>
</tr>
<tr>
<td>Low</td>
<td>n=30</td>
<td>n=30</td>
<td>n=30</td>
</tr>
</tbody>
</table>

N=270

SAMPLE

For the first phase of the study a sample of 800 subjects was drawn from general population following nonrandom incidental sampling basis. The subjects from 18-81 years of age (Mean = 28.02, S.D. = 11.11 years) were drawn from Rohtak and Bhiwani districts of
Haryana state and Jhunjhunu district of Rajasthan state. Literate and illiterate subjects of both sexes were selected. The subjects were from rural as well as urban areas. For the second phase of the study 270 subjects were selected following a double criteria single step procedure (as described above) basis. Age of the subjects range from 18 years to 81 years with a mean age of was 29.72 years (S.D. =11.45 years). There were 134 males and 136 females. Majority of subjects (n = 200) were educated having 70 illiterate subjects also. There were 87 students, 32 employees and 151 housewives / workers. 84 subjects were from urban and 186 from rural areas. There were 174 subjects from general category, 44 from the castes listed in the list of other backward category and 52 from the scheduled caste category. Thus the subjects were from all sections of the society.

**TOOLS USED:**

1. **Measure of the belief in heredity/environment for human characteristics:**

A measure of belief in heredity/ environment for human characteristics (Singh and Shyam, 2002) was used for measuring belief in heredity/ environment for human characteristics. The checklist consists of 20 human characteristics of different types such as –
performing arts, orderliness, emotional instability, egocentrism, linguistic ability, cleverness, sociability, altruism, activity/energy, entrepreneurship, general intelligence, creativity, numerical ability, leadership, humour, body weight and bravery. The scale consists of connotative descriptions (in Hindi) of all the characteristics and arranged in the form of checklist subscribed with a three point-scale. Items finally selected (i.e. 20 human characteristics) had an endorsement rate of around 0.5 (i.e. 50%) and discriminated well between heredity and environment believers. The Kuder-Richardson reliability (KR-21) coefficient of the measure is 0.68. The checklist was standardized on a sample of 3001 subjects drawn from heterogeneous population: The respondents were required to check each characteristic as determined by heredity (1), both heredity and environment (2) and environment (3). Scores on the scale may be range from 20 to 60, high score indicating belief in environment. Heredity/environment scale is given in appendix-I.

2. Checklist for the Awareness of heredity/environment mechanisms:

A checklist prepared by (Singh, Shyam and Kumar (2004) was used to assess the awareness of the respondents about the mechanisms of heredity and environment influencing human characteristics. In it, there
are 20 items which were prepared by taking the help from the literature and discussion with subjects experts as well as keeping the common man in mind. Items were simple, clear and in easy language. The checklist is given in Appendix-II. Some items were of multiple choice type, while others were of ‘Yes-No’ type, still others were open ended requiring the subject to give brief description. A correct answer to a question was given a score of 1 and a wrong answer was scored as zero. Thus, the score ranged from 0-20, high score indicating high awareness. The key is also appended along with the scale. (Appendix – II)

3. **Causal ascriptions for events of success and failure:**

For measuring causal ascriptions to events of success and failure of the subjects a questionnaire containing seven events of success and seven events for failure was prepared. The subjects were required to read each event carefully and ascribe causes for events of the success and failure. They were also required to ascribe (7-point scales, 7 being, internal, stable and global and 1 being external, unstable and specific) the causes to either internal, stable and global or external, unstable and specific dimension of attribution style. They were also required to rate the importance of the events on a 7 point scale (1 less important and 7 highly important). The events were described in Hindi. The re-test
reliability (30 days gap) of the scale was very high ranging from 0.95 to 0.99 for internality ($r=0.96$), stability ($r=0.96$), globality ($r=0.98$) dimensions for the events of success. It was also high for composite ($r=0.99$) score as well as importance ($r=0.98$) attached the events. The re-test reliability for the events of failure was also very high and the co-efficient of correlations ranged from .95 to .98 (Table 3.2).

**Table: 3.2**

Retest-Reliability (with 30 days gap) of protocols for ascriptions of causes to events of success and failure

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>1st Testing Mean (S.D.s)</th>
<th>2nd Testing Mean (S.D.s)</th>
<th>Co-efficient of correlations($r$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Success events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internality</td>
<td>43.90 (4.80)</td>
<td>44.04 (4.78)</td>
<td>0.96**</td>
</tr>
<tr>
<td>Stability</td>
<td>43.44 (5.03)</td>
<td>43.10 (5.31)</td>
<td>0.96**</td>
</tr>
<tr>
<td>Globality</td>
<td>41.70 (6.50)</td>
<td>41.60 (6.37)</td>
<td>0.98**</td>
</tr>
<tr>
<td>Composite scores</td>
<td>129.00 (14.50)</td>
<td>128.70 (14.89)</td>
<td>0.99**</td>
</tr>
<tr>
<td>Importance</td>
<td>42.44 (5.39)</td>
<td>42.18 (5.26)</td>
<td>0.98**</td>
</tr>
<tr>
<td><strong>Failure events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internality</td>
<td>34.90 (7.06)</td>
<td>34.18 (6.77)</td>
<td>0.98**</td>
</tr>
<tr>
<td>Stability</td>
<td>33.12 (8.17)</td>
<td>32.80 (7.19)</td>
<td>0.95**</td>
</tr>
<tr>
<td>Globality</td>
<td>32.08 (8.23)</td>
<td>31.86 (7.69)</td>
<td>0.97**</td>
</tr>
<tr>
<td>Composite scores</td>
<td>100.30 (20.48)</td>
<td>98.44 (18.98)</td>
<td>0.98**</td>
</tr>
<tr>
<td>Importance</td>
<td>34.96 (5.89)</td>
<td>34.44 (5.89)</td>
<td>0.95**</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level
The scores on various dimensions of attributions on protocols for causal ascription to events of success and failure were correlated with scores on various dimensions of attribution of BASQ (Feather and Tiggermann, 1984). The coefficients of correlation are given in (Table 3.3) along with mean and S.Ds.

**Table 3.3**

Means and S.D.'s of scores on various dimensions of BASQ and protocols for causal ascriptions to events of success and failure used in present study and correlations

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Means and S.D.'s Protocols used in the study</th>
<th>Means and S.D's on Feather BASQ.</th>
<th>Coefficients of correlation(r)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Success events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internality</td>
<td>43.90 (4.80)</td>
<td>48.74 (7.03)</td>
<td>0.83**</td>
</tr>
<tr>
<td>Stability</td>
<td>43.44 (5.03)</td>
<td>49.04 (7.06)</td>
<td>0.77**</td>
</tr>
<tr>
<td>Globality</td>
<td>41.70 (6.50)</td>
<td>44.84 (9.04)</td>
<td>0.72**</td>
</tr>
<tr>
<td>Composite Scores</td>
<td>129.00 (14.50)</td>
<td>142.62 (18.14)</td>
<td>0.86**</td>
</tr>
<tr>
<td>Importance</td>
<td>42.44 (5.39)</td>
<td>48.02 (7.23)</td>
<td>0.71**</td>
</tr>
<tr>
<td><strong>Failure events</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internality</td>
<td>34.90 (7.06)</td>
<td>37.28 (8.23)</td>
<td>0.67*</td>
</tr>
<tr>
<td>Stability</td>
<td>33.12 (8.17)</td>
<td>31.72 (10.48)</td>
<td>0.56*</td>
</tr>
<tr>
<td>Globality</td>
<td>32.08 (8.23)</td>
<td>32.66 (9.48)</td>
<td>0.59*</td>
</tr>
<tr>
<td>Composite scores</td>
<td>100.30 (20.48)</td>
<td>101.66 (22.43)</td>
<td>0.60*</td>
</tr>
<tr>
<td>Importance</td>
<td>34.96 (5.89)</td>
<td>37.18 (9.45)</td>
<td>0.62*</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level; ** Significant at 0.01 level
The coefficients of correlation ranged from 0.56 to 0.86 indicating that the validity of the questionnaire ranged from moderate to high for various dimensions.

There were 14 protocols: seven describing events of success and the other seven describing failure. Each protocol had to be rated on 7-point scale for internality, stability, globality, and importance of the events. The sum of ratings on internality, stability and globality can be taken as composite scores. Thus, the score ranged from 7 to 49 each for events for success and failure. The protocols describing the events are given in Appendix-III.

PROCEDURE:

The study was conducted in two phases. In the first phase heredity/environment belief score and heredity/environment awareness checklist were administered to all the 800 subjects (as described above). Scoring of the heredity/environment belief scale and heredity/environment awareness checklist was done as per prescribed procedure described above. Means and s.d.'s of heredity/environment belief scores and heredity/environment awareness checklist were calculated and groups of heredity believers, balanced and environment believers were formed (as described in the first section of this chapter)
Similarly, groups of high, low and moderate awareness were also formed (as described above). In the second phase of the study the 270 subjects (30 each cell) were administered protocols for causal ascriptions to events of success and failure, individually to all the subjects under uniform testing conditions following the prescribed procedure.

**STATISTICAL ANALYSIS**

Scoring of all the measure was done as per prescribed procedure. The obtained data were tabulated, Pearson coefficient of correlation was calculated between awareness of heredity/environment mechanisms and heredity/environment belief scores, measure of central tendency and variability were calculated; $\chi^2$, analysis of variance (Simple and 3×3 factorial) was done. Post-hoc comparisons wherever necessary were done by Duncan's test (Broota, 1989).