CHAPTER-V
METHODOLOGY

It is clear from the previous chapters that there are two aspects of the present investigation. The first concerns with the development of spirituality as related to age, sex, and religion. The second aspect is directed at exploring if needs (motives) intervene in some way in the individual's spiritual orientation.

Since there is no existing literature in psychology directly pertaining to an empirical study of "humanistic spirituality", only broad (general) hypotheses have been formulated. The hypotheses are as follows:

1. Individuals falling in the higher age groups differ from those in the lower age groups in terms of their spiritual orientation.

2. Men and women differ in terms of their spiritual orientation.

3. Hindus and Muslims differ in terms of their spiritual orientation.

4. Individuals with high spiritual orientation differ in their need configuration from those with low spiritual orientation.
5. Certain needs contribute significantly to spiritual orientation.

6. The needs contributing significantly to religiosity will differ from the needs contributing to spirituality.

The data was collected from the teachers of Aligarh Muslim University. The sample and the tools used for the collection of the data are described below:

SAMPLE

The sample consisted of two hundred and twenty teachers (Lecturers, Readers and Professors) of the various faculties of the Aligarh Muslim University. The total number of teachers in A.M.U., according to a recent list of teaching staff is eleven hundred and fifty. Originally three hundred teachers were randomly selected from the list and were requested to participate in the research work. Out of three hundred only two hundred and thirty subjects responded to the tests and inventories which were given to them. In the final selection only two hundred twenty samples filled up the spiritual orientation inventory, one subject did not fill up the Need test, and eleven subjects did not responded to religiosity scale.

The subject belonged to both Muslims and Hindu communities. Both male and female subjects were included in
The age of the subjects varied from 24-60 years. The sample is expected to be matched with respect to education and in somewhere to socio-economic status. The sample break is as follows:

### Sex-wise breakup of the sample

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>132</td>
</tr>
<tr>
<td>Female</td>
<td>88</td>
</tr>
</tbody>
</table>

### Religion-wise breakup of the sample

<table>
<thead>
<tr>
<th>Religion</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim</td>
<td>163</td>
</tr>
<tr>
<td>Hindu</td>
<td>57</td>
</tr>
</tbody>
</table>

### Age-wise breakup of the sample

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-29 years</td>
<td>49</td>
</tr>
<tr>
<td>30-39 years</td>
<td>84</td>
</tr>
<tr>
<td>40-49 years</td>
<td>49</td>
</tr>
<tr>
<td>50-60 years</td>
<td>38</td>
</tr>
</tbody>
</table>

On the whole the sample is representative of the teaching staff population of A.M.U.
MEASURE OF SPIRITUALITY

Spiritual Orientation Inventory (Elkins et al.)

This inventory was constructed by Elkins et al. (1988). It is a measure based on humanistic model to measure spirituality more comprehensively without equating it with narrow religious beliefs, ritual, and practices. In fact Elkins et al. has made the pioneer towards operationally defining spirituality and constructing a test to measure it.

The first step in the actual construction of the inventory was the generation of an item pool covering our nine components of spirituality. Drawing on the information from review of the literature, and interviews with the highly spiritual persons, and our examination of other published measures. The authors initially wrote 200 items for the inventory. The second step was a preliminary item delimitation and content validity study. The 200 items were presented to five experts in psychology and spirituality for evaluation. The experts were instructed to consider their total reaction to an item, including, but not limited to, such criteria as clarity, readability, goodness of "fit" with the factor of spirituality under consideration, and their own agreement or disagreement with the content of the item as being relevant to spirituality. These expert evaluations were used to eliminate all items that failed to achieve an average rating of about 4. This procedure paved the inventory down to
157 items. These 157 items were used in the construction of the preliminary form of the inventory. Thus the initial "research form" of the inventory consisted of 157 statements reflective of nine dimensions of spirituality. Through statistical studies, the inventory was further delimited to 85 items. Subjects were instructed to indicate degree of agreement or disagreement with each item using the following guide: 1. Intensely disagree, 2. Strongly disagree, 3. Disagree, 4. Uncertain, 5. Agree, 6. Strongly agree, 7. Intensely agree. Below are the nine subscales of the spiritual orientation Inventory which are based on nine components of spirituality discussed in Chapter I.

1. Transcendent Dimension subscale: This consists of thirteen items.

2. Meaning and purpose subscale: This consists of ten items.

3. Mission in life subscale: This consists of nine items.

4. Sacredness of life subscale: This consists of fifteen items.

5. Material values subscale: This consists of six items.

6. Altruism subscale: This consists of seven items.

7. Idealism subscale: This consists of ten items.

8. Awareness of the tragic subscale: This consists of five items.
9. Fruits of spirituality subscale: This consists of ten items.

The scoring involves simply summing the number’s circle. There are some negatively scored items, and on these, the scoring is simply reversed e.g., a7 becomes a1; a6 becomes a2 etc.

Elkins (1987) conducted a thorough alpha reliability study, using data from 96 administration of the inventory. In this study, Alpha ranged from .81 to .98 for the nine scales.

Laure and Elkins (1988) conducted a construct validity study of the inventory by comparing the scores of 24 adults nominated by a panel as “highly spiritual” persons with the scores of 96 graduate students in psychology. The research hypothesis was that the “high spirituals” would score significantly higher on the spiritual orientation inventory than the graduate students. Data analysis by means of a one-tailed t-test indicated that the total inventory and eight of the nine subscales significantly differentiated between the two groups in the direction specified. The number of items in the inventory were delimited by statistical analysis. A Mann Whitney U was used to identify those individual items that significantly differentiated between the “high spirituals” and the others in the study noted in the preceding paragraph. Using this approach, the number of inventory items was
reduced to 85. Thus an 85-item "research form" of the inventory is now available. On this shorter form, alpha- ranged from .75 to .95 on the nine scales.

An enlarged, humanistic approach to spirituality, offers an opportunity to study the spirituality of such persons in a more sensitive manner who are in a quest for a life of depth and meaning. According to Elkins et al. the spiritual development of those people deserves to be treated with respect and sensitivity by those studying spirituality. But if psychology uses definitions, models, and assessment approaches to spirituality that confuse it with religious beliefs and practices, it will only discount and misunderstand the spirituality of these people.

In the clinical arena a humanistic spirituality can provide psychology with a legitimate, non-religious approach to the therapeutic treatment of clients suffering from spiritual distress.

For the present study the reliability and validity of the test was also determined on a small sample in the following manner.

Fifty subjects were randomly picked up for the determination of the reliability. The reliability was determined by Kuder Richardson Method for the 9 dimensions of
the spirituality. This method gives us a coefficient of internal consistency by including both item specificity and item heterogeneity under error variance. We obtain the following reliability coefficients for each of the 9 dimensions of spirituality.

Reliability coefficients

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transcendental</td>
<td>.91</td>
</tr>
<tr>
<td>Meaning and purposes</td>
<td>.76</td>
</tr>
<tr>
<td>Mission in Life</td>
<td>.90</td>
</tr>
<tr>
<td>Sacredness</td>
<td>.65</td>
</tr>
<tr>
<td>Material values</td>
<td>.88</td>
</tr>
<tr>
<td>Altruism</td>
<td>.80</td>
</tr>
<tr>
<td>Idealism</td>
<td>.75</td>
</tr>
<tr>
<td>Awareness of the tragic</td>
<td>.78</td>
</tr>
<tr>
<td>Fruits of spirituality</td>
<td>.91</td>
</tr>
</tbody>
</table>

Validity was determined by selecting external criteria.

When the scoring was completed for all the subjects, 15 subjects were picked up from the high, average and low spirituals determined on the basis of P25 and P75. In all these 45 subjects were then given a small questionnaire regarding the incidents of peak experience which was devised by Wuthnow (1978).
This questionnaire served as an external criteria for the determination of validity of the spiritual orientation inventory. The subjects were asked questions about 3 kinds of peak experiences i.e. contact with the sacred, beauty of nature and harmony with the universe. The questions were as follow:

(1) If you ever had the feeling that you were in close contact with something holy or sacred.
(2) Have you ever experienced the beauty and nature in a deeply moving way?
(3) Have you ever had the feeling that you were in harmony with the universe?

The subject's responses were tabulated in form of 'Yes' and 'No'. After this the frequency of subjects giving 'Yes' and the frequency of subjects giving 'No' responses were tabulated in each of the 3 spiritual groups pertaining to each of the 3 kinds of peak experience.

In each of the 3 spiritual groups, the frequency of the subjects giving 'Yes' and the frequency of the subjects giving 'No' responses to any one type of peak experience was tabulated.

This way we compare the frequency of the responses from among the 3 spiritual groups to the 3 types of peak
experiences. Then the chi-square was computed to test the hypothesis as to whether the groups differed significantly from each other. The tables showing the frequency of subjects giving either type of responses pertaining to high, medium and low spirituality and their chi-square values are shown below.

**Contact with the sacred**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High spirituals</strong></td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td><strong>Medium spirituals</strong></td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td><strong>Low spirituals</strong></td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>18</td>
</tr>
</tbody>
</table>

\[ X^2 = 20, \text{Significant level} = >0.01 \]

**Beauty of Nature**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High spirituals</strong></td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td><strong>Medium spirituals</strong></td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td><strong>Low spirituals</strong></td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19</td>
<td>26</td>
</tr>
</tbody>
</table>

\[ X^2 = 9.04, \text{Significant level} = >0.05 <0.01 \]
Harmony with the Universe

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>High spirituals</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Medium spirituals</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Low spirituals</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

$x^2 = 19.39$, Significant level = >.01

NEED MEASURE: Meenakshi Personality Inventory

Among the personality theories that have stimulated test development, one of the most prolific has been the manifest need system proposed by Murray and his associates at the Harvard Psychological clinic (Murray et al., 1938). To most comprehensive inventory designed to assess the strength of such needs is the Edwards Personal Preference Schedule (EPPS). Beginning with 15 needs drawn from Murray's test, Edwards prepared sets of items whose content appeared to fit each of these needs.

The inventory consists of 210 pairs of statements, in which items from each of the 15 scale are paired with items from the other 14. Within each pair, the examine must choose one statement as more characteristic of himself. The EPPS utilizes several in geneous internal checks. To provide
an index of respondent consistency, 15 pairs of statement are repeated in identical form.

The EPPS measuring the 15 needs was adopted in Hindi by Bhatnagar, Meenakshi Personality inventory is a modified version of EPPS in Hindi based on only ten needs.

The ten needs and their definitions are given below:

**Abasement** - To submit passively to external force. To accept injury, blame, criticism, punishment. To surrender. To become resigned to fate. To admit inferiority, error, wrongdoing or defeat. To confess and atone. To blame, belittle, or mutilate the self. To seek and enjoy pain, punishment, illness, and misfortune.

**Achievement** - To accomplish something difficult. To master, manipulate, or organise physical objects, human beings, or ideas. To do this as rapidly and as independently as possible. To overcome obstacles and attain a high standard. To excel oneself. To rival and surpass others. To increase self regard by the successful exercise of talent.

**Affiliation** - To draw near and enjoyable cooperate or reciprocate with an allied other (an other who resembles the subject or who likes the subject). To please and with affection of a collected object. To adhere and remain loyal to a friend.
Aggression - To overcome opposition forcefully. To fight. To revenge an injury. To attack, injure, or kill another. To oppose forcefully or punish another.

Autonomy - To get free, shake off restraint, breakout of confinement. To resist coercion and restriction. To avoid or quit activities prescribed by domineering authorities. To be independent and free to act according to impulse. To be unattached, irresponsible. To defy convention.

Dominance - To control one's human environment. To influence or direct the behaviour of others by suggestion, reduction, persuasion, or command. To dissuade, restrain, or prohibit.

Exhibition - To make an impression. To be seen and heard. To excite, amaze, fascinate, entertain, sheek, intrigue, amuse, or entice others.

Nurturance - To give sympathy and gratify the needs of a helpless object: an infant or any object that is weak, disabled, tired, inexperienced, infirm, defeated, humiliated, lonely, dejected, sick, mentally confused. To assist an object in danger. To feed, help, support, console, protect, comfort, nurse, heal.
Succorance - To have one's needs gratified by the sympathetic aid of an allied object. To be nursed, supported, sustained, surrounded, protected, loved, advised, guided, indulged, forgiven, consoled. To remain close to a devoted protector. To always have a supporter.

Endurance - To persist in any task undertaken. The subject high on endurance is typically self-controlled and responsible, but also idealistic and concerned about truth and justice. By nature conventional, he may nonetheless (because of his sense of rectitude) find himself championing unconventional ideas and unpopular causes. The low-scorer on endurance, on the other hand, is erratic and impatient, intolerant of prolonged effort or attention, and apt to change in an abrupt and quixotic manner.

The above written needs are measured by scale which has twenty statements. Each statement is based on "What a person likes and what he loves" i.e. each statement denotes which type of psychological needs are predominant in a person. Since, the inventory measures ten different needs of a person. It has ten sub-scales.

Each subscales measures a particular need. Effort has been made to match the "social desirability" of the two statements making up a pair (the subject has to choose one of the statements).
In other words the "social desirability". Of each item consisting of two statements is almost same.

Like EPPS the inventory (Meenakshi Personality Inventory) the strength of each need is expressed, not in absolute terms, but in relation to the strength of the individual's other needs. The frame of reference in ipsative scoring is the individual rather than the normative sample whenever an individual responds by expressing a preference for one item against another, the resulting score is ipsative. Under these conditions, two individuals with identical scores on the EPPS may differ markedly in the absolute strength of their needs.

Similarly like the EPPS inventory provides an ingenious internal check. To provide an index of respondent consistency, ten pairs of statements are repeated in an identical form. If the subject gave a different response to more than three pairs of statements the answer sheet of the subject was rejected.

Reliability: The split-half reliability of Meenakshi personality inventory for the ten subscales (based on ten different needs) are reported as follows:

- n-achievement (.70), n-exhibition (.62),
- n-autonomy (.74), n-affiliation (.76),
- n-succorance (.72), n-dominance (.85),
n-abasement (.80), n-nurturance (.70),
n-endurance (.85), and n-aggression (.76)

Validity: Using the hindi version of Edward personal preference schedule by Bhatnagar is used as external criteria for determining the validity of the present scale. The scores on the ten sub scales are compared with the scores on the same needs in the EPPS. The following correlation represent the validity scores of the present test.

n-achievement (.62), n-exhibition (.56),
n-autonomy (.50), n-affiliation (.42),
n-succorance (.40), n-dominance (.55),
n-abasement (.46), n-nurturance (.50),
n-endurance (.48), and n-aggression (.45)

The inventory can be used in different situations for example, in understanding a personality, in terms of needs, in the guidance of students, in understanding the desirable and undesirable behaviour relating to discipline and administration and consequently offering in such a situation. The inventory can also be used for research purposes e.g. in the explanation of personality characteristics as related to educational, and business facts and problems figures.
RELIGIOSITY SCALE (Deka & Broota, 1985).

The religiosity scale measures the extent of an individual's dependency on the supernatural being and adherence to the doctrines of one's faith.

The final scale consisted of 44 items out of which 25 were positive and 19 were negative. The presence of both negatively and positively worded items is essential, for it avoids the tendency of the respondent to develop a response set, that might occur, were the items only positive or only negative.

Reliability

The reliability of the final scale was established using the split-half technique. The reliability co-efficient of the half tests was .91 (using Pearsons product moment). The obtained value was corrected for length using Spearman Brown formula and was 0.96.

Validity of the religiosity scale

Scales which are measures of attitudes and values are extremely difficult to validate against external criteria or overt behaviour.
Attitude scores need not correlate with over behaviour, eg. an individual who accepts the churches, temples and mosques as being centres of corruption, may still continue to visit them because of social reasons. Most attitude scales can only claim face validity (Freeman, 1965).

The present religiosity scale being an attitude scale, also claims to have face validity, since the items that make up the scale are self evident, the items refer to belief in and dependency on God or some supernatural being. The items also attempt to tap the extent of a subject's adherence to the doctrines of his religious faith. Furthermore, the validity of each item has been determined by procedure of item analysis by setting up two criteria groups using the upper 27% and lower 27% of the cases from the try-out sample (Guilford, 1954).

The 44 items were scored using Likert's techniques of weighted score (Likert, 1932). The positive statements were given the following weights:

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Negative statement were scored vice-versa.
DESIGN:

Spiritual orientation constituted the dependent variable in the study, and the ten needs (measured by Meenakshi personality Inventory) together with age, sex, and religion constituted the independent variables. Religious was also another dependent variable of the study with the needs being the independent variables.

Information with regard to age, sex, and religion was obtained from the subjects on the title of each questionnaire since it was not necessary that each subject would fill up all the questionnaire.

One of the objectives of the study was to probe if the groups based on age, sex, and religion differed in terms of spirituality configurations as well as specific spirituality dimensions. For this end, the coefficient of profile similarity (rp) developed by Cattell was calculated.

Another objective of the study was to explore if the individuals having degrees of spiritual orientation (high, average and low) differed from each other in terms of need- configurations as well as specific individual needs. Therefore, on step of the investigation was to compare the "high spirituals" with "low spirituals" in terms of need configuration P75 and P25 of the distribution of scores on
spirituality were selected as cut out points to demarcate the high spirituals from the low spirituals.

In order to answer the question if the groups differed in need patterns, the coefficient of profile similarity (rp), developed by Cattell was calculated.

The index of profile similarity (rp) Developed by Cattell (1949) is helpful in comparing similarity of two profiles with respect to shape, level and accentuation (steepness). According to Cattell (1966), the rp has certain advantages over other measures of profile similarity such as 'd' suggested Osgaad and Suci (1958). Cattell's rp takes account of the 'matrix' and number of dimensions and provides convenient functioning which is similar to r in distribution and varies from +1 for complete agreement of profiles through zero for no relation, and to-1 for complete inverse relation.

The configurational comparison among the groups required that scores on all the variables are transformed into standard scores by finding the distance of mean of the group on one variable from the mean of all subjects and representing the distance into units of standard deviation, i.e., Z-scores. Another important aspect of group to group comparison is the fact that Cattell (1970) pointed out that members of specified groups such as those belonging to some
occupation or suffering from some psychosomatic illness are not to considered as the matters of a sample obtained by using the method of random sampling. Due to the fact that unlike members of random sample, the members of specific groups formed on the basis of similarity among them are more homogenous, there is no justification for using the standard deviation of the population. Realising the aforesaid difficulty and the fact that standard deviation of means of family of groups is yet to be empirically determined. Cattell suggested that as a first approximation there is no alternative but to fall back on the sigma of random groups. Accordingly, he proposed that standard deviation of group means can be approximated by considering the group S.Ds. as determined for random groups of 100 subjects. This estimation led to the estimate $g = 1/10$. To compare two groups, therefore, the difference between means of two groups, i.e. $d'$ was to be multiplied by 10 or resulting $Ed^2$ by 100.

The coefficient of pattern similarity for the data of the present study could not be calculated by accepting Cattell’s proposal as such. While Cattell assumed that the mean is based on 100 observations, means calculated in the present study, were based on smaller number of subjects. Thus it was considered more appropriate to consider Cattell’s
proposal with the modification that resulting $Ed^2$ was to be multiplied by the actual number of subjects.

The $rp$ between any two groups was calculated through the following formula -

$$rp = \frac{2K - d^2}{2K + d^2}$$

(where $K$ is the median of chi-square distribution with degrees of freedom equal to the number of elements (dimensions of spirituality) used, $d$ denotes the difference of the two groups on each dimension mean $Z$-score).

The coefficient of profile similarity was computed for the following groups:

**Spirituality profile:**
1. The Hindu and Muslim groups
2. The Male and Female groups
3. The six comparison groups based on four age groups i.e. 24-29 years (group I); 30-39 years (group II); 40-49 years (group III); 50-60 years (group IV).

   a) Group I and group II
   b) Group I and Group III
   c) Group I and Group IV
   d) Group II and Group III
e) Group II and Group IV
f) Group III and Group IV

Need Profile:

4. "High Spirituals" and the "Low spiritual" groups
5. The "High Spiritual" and "Average Spiritual's" groups
6. The "Low Spiritual" and the "Average Spiritual" groups.

The pattern of similarity between the spirituality profiles (and the need profile) of any two groups provides a broad conclusion with regard to a similarity or dissimilarity in the general pattern. In order to obtain information about the particular spirituality dimensions as to how they are influenced by the variables of age, sex and religion, as well as, to what extent particular need contributes in a significant manner to spirituality, other statistical procedures that would permit more in depth, meaningful informations were applied.

Critical ratios (CR's) were computed in order to find out whether the difference in the means of any two groups in terms of total spirituality as well as in terms of nine dimensions of spirituality were significant. Similarly CR's were also calculated to find out whether the means, need scores (10 needs, of high, average and low spirituality groups, differed significantly or not.
In view of the large number of variables the technique of multivariate analysis was employed in order to reach at the desired conclusions.

Multiple regression analysis was conducted to obtain the relationship of the independent variables (10 needs) with the dependent variable of religiosity and spirituality in the various comparison groups.

Canonical correlation was used to determine the relationship between the independent variables (10 needs) and nine dimensions of spirituality as dependent variables. As Dillon and Goldstein (1984) have pointed out that canonical correlation analysis should be used in analyzing several predictor variables and several criterion variables simultaneously. It is particularly appropriate when the criterion variables are themselves correlated.

When only one criterion variable in available, canonical correlation analysis reduces to multiple regression analysis. This raises the question, why not perform separate multiple regression analysis, one for each of the criterion variables. This approach is not recommended. Separate regression analysis defeat the purpose of having multiple criterion measures, since the information provided by the interrelationship among the criterion variables is not taken into account.
In multiple regression the approach is to find a linear combination of the original predictor variables that best explained the variation in the criterion measure. In canonical analysis the idea is much the same, except that now we seek two linear combinations. One for the predictor set and one for the criterion set, such that their ordinary product moment correlation is as large as possible.

In a canonical analysis varieties are computed from both sets of variables. A variate is analogous to a dimension or factor in a principal components analysis. The difference is that a variate consists of a maximally correlated predictor and a criterion part. A maximum of M varieties can be extracted, where M is the number of variables in the smallest set. As in principal components analysis, the M variates are extracted so that they are independent of each other.

To use canonical correlation analysis safely for descriptive purposes requires no distributional assumptions. In such cases the predictor and criterion variables can be measured at the nominal or ordinal level. To test the significance of the relationships between canonical variates, however, the data should meet the requirements of multivariate normality and homogeneity of variance.
Prediction was also made about the higher needs on the basis of lower needs. This was done in order to have some understanding about Maslow's hierarchy of needs. Since we do not have an exact measure of need satisfaction, only an approximate understanding could be arrived at.