CHAPTER – III

Plan and Procedure
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PLAN AND PROCEDURE  

3.0.0 Introduction

Fate of any activity and its outcome depends essentially upon its design. Fred N. Kerlinger (1974) described, "Research design as the plan, structure and strategy of investigation conceived so as to obtain, answers to research questions and control variance". In any research project design provides the investigator a blue print of research, dictates the boundaries of project and helps in controlling the experimental, extraneous and errors variances of the problem under investigation.

This chapter seeks to outline the procedure followed, design employed, sample selected, tools used, sequence of events that occurred, procedure adopted for data collection and statistical analysis conducted to realise the objectives of the study.

3.1.0. Research Design

There are many methods involved in modern research. The study is distinguished on the basis of its different purposes
and approaches. The Normative Survey Research Method was employed for conducting this study.

3.2.0 Sample

Sample of the study consisted of 400 male and female University Sports person selected randomly from the three universities of Haryana i.e. Maharshi Dayanand University Rohtak, Kurukshetra University Kurukshetra and Ch. Charan Singh Haryana Agriculture University Hisar.

3.2.0 Tools Used

To achieve the objectives of the study the following tools were used:

1. The Bisht Battery of Stress Scales (B.B.S.S.) by Dr. (Km.) Abha Rani Bisht
2. The Depression Scale by Dr. Shamim Karim and Dr. Rama Tiwari
3. The Socio-Economic Status Scale Questionnaire (SESSQ) Urban by Dr. S.D. Kapoor and Dr. H.C. Kochar.

3.3.1 Stress

In order to measure the stress of the sports person, a large
number of scales have been used by the investigators. The most common used scale for measuring the stress of sports person scale of physical stress is of Bisht Battery of Stress Scales (for adolescent and adults) developed and standardized by Dr. (Km.) Abha Rani Bisht.

This Battery has the following scales:

(i) Scale of existential stress (SES)
(ii) Scale of achievement stress (SAchS)
(iii) Scale of academic stress (SAS)
(iv) Scale of self-concept stress (SSCS)
(v) Scale of self-actualization stress (SSAS)
(vi) Scale of physical stress (SPS)
(vii) Scale of social stress (SSS)
(viii) Scale of role stress (SRS)
(ix) Scale of institutional stress (SIS)
(x) Scale of family stress (SFS)
(xi) Financial stress scale (FSS)
(xii) Scale of vocational stress (SVS)
(xiii) Scale of superstition stress (SSuS)

The researcher selected the Scale of Physical Stress (SPS) in order to measure the stress of the sports person.
Development and Standardization of the Battery

All the thirteen scales of the battery were developed and standardized simultaneously. Six approaches were adopted for the standardization purpose, viz.,

(i) Methodological Approach,
(ii) Theoretical Approach,
(iii) Static Approach,
(iv) Rational Approach,
(v) Empirical Approach, and
(vi) Normative Approach.

Methodological Approach

Under this approach a search of method for measuring stress was done. One method of measuring stress is idiographic advocated by Vinokur and Selzer (1975), Theorell (1974), Paykel and Uhlenhuth (1972), Ander et al, (1974). Proclaiming its accuracy, they say ‘It may also reflect the subject’s perception as well as his way of coping with life change events.’ This widely used method of measuring stress measures stress through subjective feelings of distress or interpretive perceptual responses. For developing the battery of stress scales this idiographic method was taken.
Theoretical Approach

Five-point scale was thought appropriate because it takes into account the average category into account too. So far continua are concerned, two continua are taken. One is of frequency along which items are located in terms of frequency (i.e., always, often, sometimes, rarely, and never). The other is of quantity along which items are located in terms of quantity (i.e., very much, much, so so, little, and not at all).

Static Approach

Stress is conceptualized as having following components:

(a) Frustration
(b) Conflict
(c) Pressure
(d) Anxiety

Rational Approach

Inventories of items in Hindi of different types of stresses were prepared. Inventory items are distributed over the four components of the different types of stresses. Frustration items are based on delays, lack of resources, losses, and failures. Conflict items show three types of conflict—approach-
avoidant, double-approach, and double-avoidant conflicts. Pressure items are on competitive achievement, sustained concentration of efforts, and rapid changes. The worry items of anxiety are on conscious concern about consequences, negative expectation and negative self evaluation. The emotionality items of anxiety are on uneasiness and nervousness. Furthermore,

(i) The items of scale of self-concept stress (SSCS) are distributed over potency and activity dimensions of self concept. The different types of self concepts under these two dimensions are Potency Good-bad, beautiful-ugly, clean-dirty, polite-rude, disciplined-undisciplined, gullible-nongullible, attentive-lost, introvert-extrovert, tough minded-weak minded, Liberal-anarchic, selfish-generous, competent uncompetent, strong-weak, heavy-light, pleasant-unpleasant, delicate-rugged, hesitating - non-hesitating, punctual-sabby, cautious-carefree, responsible - irresponsible, leader-follower, honest-dishonest, successful failure, intelligent-idiot.

Activity Active-passive, sharp-dull, fast-slow, dynamic-
avoidant, double-approach, and double-avoidant conflicts. Pressure items are on competitive achievement, sustained concentration of efforts, and rapid changes. The worry items of anxiety are on conscious concern about consequences, negative expectation and negative self evaluation. The emotionality items of anxiety are on uneasiness and nervousness. Furthermore,

(i) The items of scale of self-concept stress (SSCS) are distributed over potency and activity dimensions of self concept. The different types of self concepts under these two dimensions are Potency Good-bad, beautiful-ugly, clean脏, polite-rude, disciplined-undisciplined, gullible-nongullible, attentive-lost, introvert-extrovert, tough minded-weak minded, Liberal-anarchic, selfish-generous, competent uncompetent, strong-weak, heavy-light, pleasant-unpleasant, delicate-rugged, hesitating-non-hesitating, punctual-sabby, cautious-carefree, responsible - irresponsible, leader-follower, honest-dishonest, successful failure, intelligent-idiot.

Activity Active-passive, sharp-dull, fast-slow, dynamic-
non-dynamic. Some items are to measure self-concept stress when self concept was incongruent with interjected values (A) and some item measure self-concept stress when self concept is incongruent with interjected values, not with interjected values (B).

(ii) Items of Scale of Self-actualization stress (SSAS) were centred on the ten main characteristics of a self-actualizing person. They measured self-actualizing stress when it was due to:
   (a) Prevention by society
   (b) Dominance by lower needs

(iii) Items for Scale of Role Stress (SRS) inventory are distributed over the four types of role stress, viz.,
   (a) Sex-role stress
   (b) Status-role stress,
   (c) Variety of roles stress, and
   (d) Role-confusion stress.

(iv) Scale of Existential-stress (SES) items is for measuring these types of existential stresses

   (a) Aesthetic,
(b) Religious,
(c) Ethical,
(d) Human finitude,
(e) Guilt,
(f) Meaninglessness, and
(g) Loveliness.

In order to counteract social desirability, some unfavourable items are also kept in each scale.

**Empirical Approach**

(a) *Selection of Items* — It was done in a three-fold manner —
(i) by content analyzing the items,
(ii) by knowing the predictive validity of items, and
(iii) by knowing the discriminatory power of items.

(b) *Descriptive Statistics*— To know the nature of scores by Scales SK and KU were calculated. Reliability of mean, median and SD of scores scored by scales was also chalked out.

(c) *Determining Psychological Properties of Scales* — Four
psychological properties of the scales were determined, viz.

(i) **Reliability**—Reliability of the scales of the battery was calculated in three ways for knowing (i) dependability i.e., short-term test-retest correlations, (ii) stability, i.e., retest after a longer interval, and (iii) internal consistency, i.e., split-half correlations (Table 1) and correlation between total scores and scores on each of the component (Table 2).
**TABLE - 1**

Dependability, Stability and Internal Consistency

(Split half) Coefficients of Various Scale.

N=243

<table>
<thead>
<tr>
<th>Scales</th>
<th>Dependability</th>
<th>Stability</th>
<th>Internal Consistency</th>
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</thead>
<tbody>
<tr>
<td>SIS</td>
<td>.78</td>
<td>.73</td>
<td>.80</td>
</tr>
<tr>
<td>SAS</td>
<td>.87</td>
<td>.82</td>
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<td>SSS</td>
<td>.77</td>
<td>.70</td>
<td>.88</td>
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<td>SSuS</td>
<td>.82</td>
<td>.78</td>
<td>.82</td>
</tr>
<tr>
<td>SVS</td>
<td>.90</td>
<td>.84</td>
<td>.61</td>
</tr>
<tr>
<td>SPS</td>
<td>.91</td>
<td>.83</td>
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</tr>
<tr>
<td>SSAS</td>
<td>.89</td>
<td>.78</td>
<td>.90</td>
</tr>
<tr>
<td>SRS</td>
<td>.78</td>
<td>.76</td>
<td>.84</td>
</tr>
<tr>
<td>SES</td>
<td>.79</td>
<td>.72</td>
<td>.74</td>
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<tr>
<td>SAchS</td>
<td>.70</td>
<td>.66</td>
<td>.88</td>
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### TABLE 2

**Internal Consistency Coefficients**

(Correlation Between Total and Component Scores)

<table>
<thead>
<tr>
<th>Scales</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Pressure</th>
<th>Anxiety</th>
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<td>SIS</td>
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<td>.32</td>
<td>.50</td>
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<td>SAS</td>
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<td>SSS</td>
<td>.55</td>
<td>.38</td>
<td>.51</td>
<td>.41</td>
</tr>
<tr>
<td>SSuS</td>
<td>.43</td>
<td>.34</td>
<td>.53</td>
<td>.46</td>
</tr>
<tr>
<td>SVS</td>
<td>.48</td>
<td>.54</td>
<td>.47</td>
<td>.39</td>
</tr>
<tr>
<td>SPS</td>
<td>.51</td>
<td>.42</td>
<td>.46</td>
<td>.52</td>
</tr>
<tr>
<td>SSCS</td>
<td>.39</td>
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<td>.45</td>
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<td>SSAS</td>
<td>.33</td>
<td>.48</td>
<td>.33</td>
<td>.60</td>
</tr>
<tr>
<td>SRS</td>
<td>.42</td>
<td>.51</td>
<td>.29</td>
<td>.23</td>
</tr>
<tr>
<td>SES</td>
<td>.44</td>
<td>.28</td>
<td>.22</td>
<td>.38</td>
</tr>
<tr>
<td>S AchS</td>
<td>.44</td>
<td>.37</td>
<td>.40</td>
<td>.36</td>
</tr>
</tbody>
</table>

N 243
Note: All correlations were significant at .05 level. The types of components are according to the types of stresses measured by the scale in question.

(ii) Validity — All the scales appear to be having content validity and item validity. The method of selecting items supports this supposition. In addition, construct validity (discriminability) was estimated for all scales in a two-fold fashion. The first type tested if the construct measured differentiated students on some related construct. For this memory was taken. The second type tested if the construct measured by the scales was not related to construct predicted by theory. For this internal evaluation was taken. In both the construct validity was affirmed.

(iii) Homogeneity — All the scales were correlated with each other. Obtained correlations were moderate in magnitude indicating that the scales were measuring one main construct, i.e., stress in general and different type of stresses in particular.

(iv) Transferability — For this one sample 100 was drawn from the students of Almora district and one of 100 from
Lucknow district. The means of various scale scores of these sample students were tested for difference by \( t \) analysis. The non-significant to fairly indicated that items of scales were not concentrating on one kind of situation and they can be used across different populations.

**Normative Approach**

Percentile-norms were established for scales of the battery. Normative data were collected from a sample of 300 students of classes IX and X. The age group was 13+ to 17. Results are presented in Table 3. The corresponding grouping of high, average and low stress in terms of percentiles for interpretation is

- **High stress** — P70 or above
- **Average stress** — P69, to P31
- **Low stress** — P30 or below.

Thus, all the six approaches indicate that the battery of 13 stress scales is well standardized.
Scoring

The scoring is as follows for positive statements.

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Total Grand</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Too much</th>
<th>Much</th>
<th>Average</th>
<th>Less</th>
<th>Not at all</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3 2 1 0</td>
<td>4 3 2 1 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For negative statements, it is just vice-versa. The total will be separate for frequency and quantity. The grand total will be the sum of frequency score and quantity score. Thus each scale will yield

(a) Frequency of stress score

(b) Quantity of stress score

(c) Total stress score

The items measuring various dimensions of a particular-stress in various scales are presented in Tables 4 to 16. The numbers of negative items have been in antique (black) figure. Rest of the items are positive.
Table 3
Percentiles on the Scales of the Stress Battery

<table>
<thead>
<tr>
<th>Scales</th>
<th>$P_{10}$</th>
<th>$P_{20}$</th>
<th>$P_{30}$</th>
<th>$P_{40}$</th>
<th>$P_{50}$</th>
<th>$P_{60}$</th>
<th>$P_{70}$</th>
<th>$P_{80}$</th>
<th>$P_{90}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIS</td>
<td>30.12</td>
<td>40.00</td>
<td>54.34</td>
<td>69.00</td>
<td>73.80</td>
<td>81.01</td>
<td>89.54</td>
<td>112.00</td>
<td>121.30</td>
</tr>
<tr>
<td>SAS</td>
<td>58.34</td>
<td>63.00</td>
<td>79.82</td>
<td>91.01</td>
<td>99.33</td>
<td>129.00</td>
<td>134.32</td>
<td>175.00</td>
<td>210.22</td>
</tr>
<tr>
<td>SFS</td>
<td>68.02</td>
<td>76.47</td>
<td>88.02</td>
<td>101.45</td>
<td>112.30</td>
<td>140.40</td>
<td>172.02</td>
<td>190.00</td>
<td>206.31</td>
</tr>
<tr>
<td>FSS</td>
<td>40.02</td>
<td>58.31</td>
<td>66.60</td>
<td>80.81</td>
<td>110.10</td>
<td>118.04</td>
<td>123.00</td>
<td>146.31</td>
<td>161.07</td>
</tr>
<tr>
<td>SSS</td>
<td>90.42</td>
<td>117.08</td>
<td>129.89</td>
<td>140.00</td>
<td>145.00</td>
<td>160.09</td>
<td>189.02</td>
<td>201.00</td>
<td>222.47</td>
</tr>
<tr>
<td>SsuS</td>
<td>60.00</td>
<td>68.31</td>
<td>74.51</td>
<td>84.00</td>
<td>100.02</td>
<td>119.08</td>
<td>121.31</td>
<td>140.03</td>
<td>168.09</td>
</tr>
<tr>
<td>SVS</td>
<td>50.42</td>
<td>70.00</td>
<td>78.31</td>
<td>80.87</td>
<td>88.81</td>
<td>102.01</td>
<td>114.31</td>
<td>123.42</td>
<td>140.00</td>
</tr>
<tr>
<td>SPS</td>
<td>70.05</td>
<td>98.58</td>
<td>100.02</td>
<td>123.30</td>
<td>130.00</td>
<td>133.41</td>
<td>142.00</td>
<td>147.31</td>
<td>153.20</td>
</tr>
<tr>
<td>SSAS</td>
<td>30.38</td>
<td>43.00</td>
<td>58.34</td>
<td>62.12</td>
<td>71.80</td>
<td>80.31</td>
<td>84.56</td>
<td>101.00</td>
<td>113.32</td>
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<tr>
<td>SRS</td>
<td>65.50</td>
<td>69.01</td>
<td>78.31</td>
<td>90.00</td>
<td>98.32</td>
<td>111.42</td>
<td>115.56</td>
<td>128.00</td>
<td>131.34</td>
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<td>SES</td>
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<td>78.14</td>
<td>88.00</td>
<td>92.61</td>
<td>101.23</td>
<td>115.64</td>
<td>125.23</td>
<td>126.01</td>
<td>130.00</td>
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<tr>
<td>SachS</td>
<td>82.01</td>
<td>96.59</td>
<td>104.70</td>
<td>122.30</td>
<td>128.90</td>
<td>126.40</td>
<td>132.90</td>
<td>140.00</td>
<td>154.60</td>
</tr>
</tbody>
</table>

Distribution of Items of SPS

<table>
<thead>
<tr>
<th>Components</th>
<th>Item Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Frustration</td>
<td>1, 6, 9, 20, 30, 32, 33, 36, 39, 40, 42, 45, 48, 59, 50, 52, 53, 55, 56, 58, 59, 60=22</td>
</tr>
<tr>
<td>Physical Conflict</td>
<td>7, 17, 41, 46, 57=5</td>
</tr>
<tr>
<td>Physical Pressure</td>
<td>2, 4, 11, 15, 18, 19, 22, 25, 29, 31, 35, 38, 44, 47, 54=16</td>
</tr>
<tr>
<td>Physical Anxiety</td>
<td>3, 5, 8, 10, 12, 13, 16, 21, 23, 24, 26, 27, 28, 34, 37, 43, 51=17</td>
</tr>
</tbody>
</table>
Interpretation

The stress scores in each scale can be interpreted as:

1. Total frequency of stress
2. Total quantity of stress
3. Total amount of stress
   (It will be the sum total of frequency scores and quantity scores)
4. Component-wise stress

The total will show the sum of frustration, conflict, pressure, and anxiety scores frequency and quantity-wise. The grand total will be the sum of both frequency and quantity scores and will show the total amount of stress.

3.3.2. Depression

For measuring the depression of the University Sports person, depression scale by Dr. Shamim Karim & Dr. Rama Tiwari was used. It has 96 statements and in answer sheet every statement has five types of responses – Not at all, A Little bit, Moderately, Quite a bit, and Extremely etc. The students are required to tick mark only one response which describe you the best and how much the statement is applicable
on you. Try to response all the statements. There is no time limit to complete the test but try your best to finish it at the earliest.

**Scoring Procedure**

For scoring the test; 0 mark should be given to "Not at all" response: 1 mark to 'A little bit' response, 2 marks to 'Moderately' response, 3 mark to 'Quite a bit' response and 4 marks to 'Extremely' response. For getting the total score, each response mark of a given statement should be added together to form total raw score of an individual depression obtained through the test.

**Reliability of the Test**

Since reliability is the most essential and significant feature of a test, the Split-half and Test-retest reliabilities have been calculated for this test. For calculating the Split-half reliability, Guttman and Spearman-Brown's Prophecy formula have been used which yielded the coefficient of correlation as +.862 and +.916 respectively, when this test was administered on a sample of 100 subjects. From the reliability coefficients, it is clear that the present test is highly reliable.
For calculating the test-retest reliability, the present test was wisely administered on a sample of 100 subjects with a time lapse of two weeks and the coefficient of correlation was found to be +.891.

**Validity of Depression Scale:**

For establishing the validity of this scale, the construct validity has been calculated through the method of Factors Analysis, i.e., examining the factor structure of the twelve scales. For factor analysis, initially a principal factor solution was used on 248 subjects (Age range 17 to 39 yrs). By doing this, a factor pattern emerged where the first, second and third factor had an eigenvalue of 19.50, 8.60, and 4.82 which accounted for 29.13%, 14.82% and 7.19% variances respectively. As the different factors of the present depression scale can be expected to correlated with each other, the twelve scales were rotated obliquely. The factors were stable after oblique rotations; all items of the present depressions scale, which on the varimax solution had loading over, 30 retained in the oblique factor pattern. The following table shows the inter-correlation between the twelve factors.
In summary, all the twelve factors are exclusive to single factors which throw light on this fact that the present Depression Scales assesses only general dimension of depression. In practical terms, it can be said that the users of this scale in its present forms should concentrate on the Depression Scores, using it to assess general depression in subjects, and not give much weight to its sub-scales.
Interpretation of Scores and Norms

Although it is one of the well established facts that for the further statistical calculation of scores obtained through the administration of any test, raw score should be converted into the standard scores because it provides different types of extraneous errors as well as differences and provides the maximum of true score. However, on the basis of administration of this test on the sample of 1274 (undergraduate, post graduate and adults, both males and females belonging to rural as well as urban strata of the society), the percentile norms have been prepared and on the basis of percentile norms, the scores of depression can also be interpreted which are given in the following table.
Table Showing percentile norms and their interpretations separately for Males and Females

<table>
<thead>
<tr>
<th>Percentile (P)</th>
<th>SEX</th>
<th>Interpretation</th>
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</tr>
<tr>
<td>10</td>
<td>44</td>
<td>73</td>
</tr>
<tr>
<td>5</td>
<td>38</td>
<td>54</td>
</tr>
<tr>
<td>1</td>
<td>32</td>
<td>41</td>
</tr>
</tbody>
</table>

A- Very High Depression
B- High Depression
C- Moderate Depression
D- Low Depression
E- Very Low Depression
3.3.3. **Socio-Economic Status Scale Questionnaire (SESSQ) (Urban)**

For measuring the socio-economic status of the parents of the University Sports person, the Socio-Economic Status Scale Questionnaire (Urban) by Dr. S.D. Kapoor and Dr. H.C. Kochar was used. These are new aids for investigators to serve as more comprehensive, reliable and valid tool for recording the information about the socio-economic status of urban people. The scale has been prepared for urban people to measure their social economic status. The main use of the scale is to collect the actual information about socio-economic status of the parents of the sports person in the society. Social status is the position of the individual within the social sphere. The status in group may be inherited, but in modern society, the status are achieved. They are achieved on the basis of occupation, membership of certain associations and organizations, type of house, where it is situated, the ownership of various house materials e.g. Radio, T.V., machines, car etc. education, type of school in which studied, type of newspapers subscribing, caste and prestige acquired by the individual. The economic
factors play an important part in determining social status, which includes the total income of the family, savings, capacity to collect money in emergency etc. therefore, it is better to call this factor as socio-economic factor, rather than social or economic factor status.

In India, attempts to develop S.E.S. Scales started nearly four decade ago. Lewis & Dhillon (4), Rahudkar (7), Pareek and Trivedi (6), Kuppuswami (2), Verma (10), Pandey (5) and Kulshreshtha and De (3) have developed their S.E.S. Scales. The present SESSQ is the extension work of Pandey’s SESSQ (5), which apart from objective components, gives weights to psychological indicators also. The SESSQ seeks information about the following component variables :-

1. Parental Occupation
2. Father or Guardian’s Education
3. Parent’s or Guardian’s Monthly Income
4. House Type
5. Household Material Possession
6. Books and Magazines
7. A Cultural Sub-Factor in SES
The present scale contains 12 items to study the socio-economic status of the parents of the students. Each statement has 3 to 8 alterations.

**Development of SESSQ**

Earlier Pandey (5) had originally developed a S.E.S. Scale for urban families in 1966 for his Ph.D. research work in Hindi language. The scale sampled more objective component variables than has been done in earlier scales. Apart from objective components, it also gives weightage to psychological indicators as well as cultural level of the family. In this scale the cultural level of the family was judged by expenditures on newspapers, magazines and material possessions and psychological indicators included such factors as level of aspiration, concept of social prestige and belief in caste determining the tendency toward conservatism or progressivism. The economic position of a person was judged
not merely by monthly income but informations have also been sought about the expenditure which is considered more important than the mere knowledge of the amount of income. Here the indirect questions were used. They were found more promising in bringing a comprehensive picture of the economic conditions. Singh (9) further modified this SESSQ in 1968 and the latest revised and improvised version was done by Kapoor and Prajapati during 1997-98.

**Weightage of the Items**

Pandey (5) had originally assigned weights to items according to the relative importance of Factors that go to constitute social class as judged by leading sociologists and social psychologists. He had also taken help from Torgerson’s method of ‘measurement of faith’ while assigning weights to items of the questionnaire. In order to ascertain the level of functional unity of various factors, the product-moment coefficients of correlation (inter-item correlations) were also computed. Subsequently, Singh (9) modified this questionnaire and after eliminating six items of Pandey’s original scale, the maximum obtainable total scores came to 78. Finally, the
weightage given to item 9 of Pandey's Scale was reduced by three scores, thereby bringing the maximum total scores on the parent SESSQ to 75. Lastly, the reliability and validity were worked out and the norms were adopted.

**Scoring of SESSQ**

1) SESSQ is scored according to the weights assigned to each item. As the items are descriptive, for every item specific scoring scheme has been prepared. In the first item there are five categories ranging from highest occupations to the lowest ones. Scores allotted to each category from a to e are 10, 8, 6, 4, and 2, respectively. The maximum score of 10 is given to first category and two points have consecutively been reduced to each successive category, the last being credited only with two points.

2) In the same way maximum score assigned to the second item is 8. It is subdivided into 8 categories. The first category has been accredited with the maximum scores of 8. Thus, each successive category is accredited with one point less than the one immediately preceding it. The last category has been given no credit. Scores allotted to each category from a to h are 8, 6, 5, 4, 3, 2, 1 and 0 respectively.
3) The maximum score assigned to the 3rd item is 12. Thus each succeeding category is accredited with a decreasing point of two. Thus the last category showing income below Rs. 500.00 is accredited only with two points. There are six income groups carrying 12, 10, 8, 6, 4, and 2 scores from top to bottom.

4) The fourth item ‘House type’ has been divided into five categories. The top category carries five marks. Then the marks are diminished as 4, 3, 2 and 1 with the diminishing house categories.

5) Items No. five concerns with the house hold material possessions. This item seeks information about materials providing an economic index. Various articles have been arranged in six groups. Maximum marks assigned to this item are 18. This total score has been subdivided as 4, 3, 2, 3, 3, 3 to each respective category. The first element in each category carried the maximum marks allotted to that category. Other elements in the category acquire marks in the diminishing order of 1 mark. Each category is scored first for its first article. If the first article is absent then for second one and so
on. For example, the first category contains four articles car, motor cycle, rikshaw and cycle. One having car (or any of the rest articles along with the car) will get 4 marks. One having no car but motor cycle (or rikshaw and/or cycle along with the motor cycle) will get 3 marks. One having neither car nor motor cycle but only cycle will get 1 mark. Similar scoring is done for other categories also. In this way, each category is marked and the marks thus obtained on each category are added to give the total score on this item.

6) This item seeks information about the monthly expenditure on magazines and books. The highest category is given 4 marks. Marks for other categories are diminished by 1 point.

7) A cultural sub-factor in SES: In this item information has been sought about the purchase of newspaper. 2 marks are given for ‘Yes’ answer and 0 (zero) to ‘No’ answer, 1 mark is given to ‘Seldom’ answer.

8&9) Education of child’s brothers and sisters: This item seeks information about the educational level of brothers and sisters of the testee. Item 8 carries maximum score of 4 for the highest
level, while item 9 carries 3 marks for the highest level. Scores are diminished by 1 mark for the descending levels.

10) In item No. 10 the maximum mark allotted to first category is 3, 2 marks to second and 1 mark to third category.

11) Item No. 11 concerns with the concepts of social prestige. Maximum marks and procedure for allotment are the same as in Item No. 10.

12) Here, 3 marks are assigned to one who replies as 'No', 2 marks for Undecided response, and 1 mark for the response 'Yes'.

**Psychometric Properties of the SESSQ**

**Sample for Standardization**

The SESSQ was administered to 1250 students of grades fifth to eight of U.P. only.

**Reliability of the SESSQ**

The coefficient of stability was calculated by Test-Retest Method. The correlation of the scores of 150 subjects taken at two different times with an interval of one month was found to be .89.
Validity of the SESSQ

For determining the validity, Pandey’s original scale was applied to 350 students. The correlation of scores on this scale with those on Pandey’s scale was found to be .92. The concurrent validity of this scale was also established by testing identifiable groups. When the scale was administered to students studying in La Martiniere College Lucknow, where generally children from upper class go to study, it was noted that their mean scores was for beyond the mean score for the whole sample as shown below:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Sample</td>
<td>36.86</td>
<td>15.90</td>
</tr>
<tr>
<td>La Martiniere Students</td>
<td>66.31</td>
<td>3.12</td>
</tr>
</tbody>
</table>

Norms

The norms have been calculated for 1250 urban students of grades fifth to eight. This sample distribution ranges from $-2.5\sigma$ to $+2.5\sigma$. It was divided in sten units taking $.5\sigma$ as the unit. Further, the S.E. variable was divided in five categories taking two units together. The two middle stens were taken to represent the average class which represents lower-middle group in Indian population. Thus, the sample was categoriesed as follow:
Above + 1.50σ Upper S.E.S.
+ .51 σ to + 1.50σ Upper-middle S.E.S.
- .50σ to + .50σ Lower-middle S.E.S.
- .51 σ to - 1.50σ Upper-lower S.E.S.
Below - 1.50σ Lower-lower S.E.S.

The total possible score on the SESSQ is 75 and following the above method, when standard score norms are converted (with the obtained M=37 and S.D.=16) into raw score the following categories are obtained within which a testee can be classified.

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>63 and above</td>
<td>Upper stratum</td>
</tr>
<tr>
<td>46 to 62</td>
<td>Upper middle stratum</td>
</tr>
<tr>
<td>29 to 45</td>
<td>Lower middle stratum</td>
</tr>
<tr>
<td>12 to 28</td>
<td>Upper lower stratum</td>
</tr>
<tr>
<td>11 and below</td>
<td>Lower-lower stratum</td>
</tr>
</tbody>
</table>

3.4.0 Procedure for Data Collection

For starting the process of data collection few procedural arrangements were made. The three scales were administered
on the sports person of the three Universities of Haryana i.e. Maharshi Dayanand University Rohtak, Kurukshetra University Kurukshetra and Ch. Charan Singh Haryana Agricultural University, Hisar. The researcher made rapport with the coaches of different games of the three universities and told them the purpose of visit. With the help of coaches of different games the subjects were made to sit in the classroom(s). The investigator made rapport with the male and female sports person and told them the purpose of the visit. After giving some necessary instructions to the sports person the investigator gave the Bisht Battery of Stress Scales. The sports person were told to fill up the columns of the answer sheet.

The subjects were told that this Battery contains 13 scales but you have to fill up the Scale of Physical Stress (SPS). The students were told that the scale has 60 type of items i.e. frustration, conflict, pressure and anxiety.

The subjects were also told that there are two groups of terms of frequency (i.e. always, often, sometimes, rarely and never) and the other is regarding quantity (i.e. too much, much, average, less, not at all. You have to put tick (✓) mark in the
square and also to put a tick (✓) mark in the brackets. The subjects were also told that your answer will be kept confidential and will only be used for the research purposes. They were also told that, however, there is no time limit for completing the questionnaire but you try to furnish it at the earliest. The subjects were also told that they are at liberty to ask any question if they feel any difficulty in furnishing the questionnaire.

After making sure that they have understood the instructions the investigator asked the subject to start. The investigator provided all types of help during the whole process of the test and took regular visits in the room for any kind of help. They completed the questionnaire within 30 to 40 minutes. The investigator thanked the subject and collected the questionnaire and allowed them to take some rest.

After the sports person were given the questionnaire relating to depression. They were told that the scale contains 96 statements. In front of every statement 5 types of responses ‘Not at all’, ‘A little bit’, ‘Moderately’, ‘Quite a bit’ and ‘extremely’ are printed. If the given statement is not at all
applicable on you then please put a tick mark (✓) in the space provided below the column 'Not at all', if it is not applicable only a little, then tick mark (✓) below the column 'Not at all', if it is moderately applicable then (✓) mark below the column 'A little bit', if it is quite applicable, then please put tick mark (✓) below the column 'quite a bit' and if totally applicable tick (✓) below the column 'extremely' only on the answer sheet.

The subjects were again told and assured that your answers will be kept confidential and will be used for research purposes only. There was no time limit but they completed the questionnaire within 30-40 minutes.

Again after taking some rest the subjects were given the Socio-Economic Status Scale Questionnaire (SESSQ) Urban. They were told that through this questionnaire you have to give your socio-economic status of your family. In the questionnaire you have to put mark (✓) against one choice which contains 12 items. The statements contain 3 to 8 alternatives. The subjects were ensured that the answer will be kept confidential and will be used for research purposes only. They completed the questionnaire within 30 minutes. The
investigator collected the questionnaires and thanked the subjects for their cooperation.

4.5.0 Statistical Techniques Used

Keeping in view the objectives of the study, the data so collected was statistically analysed by using Mean, Standard Deviation and 't' test techniques.

(A) Mean: Mean (M): It is commonly taken as arithmetic average. It is computed by dividing the sum of all scores by the number of scores.

$$M = \frac{\sum X}{N}$$

Where 

$M =$ Mean

$\Sigma =$ Sum of

$X =$ Scores in a distribution

$N =$ Number of Scores.

(B) Standard Deviation (SD): It is used as a measure of the spread or dispersion of scores in a distribution. Standard Deviation ($\sigma$):

$$S.D. = \sqrt{\frac{N \Sigma X^2 - (\Sigma X)^2}{N^2}}$$
The Standard Deviation is a very useful device for comparing characteristics that may be quite different or that may be expressed in different units of measurements. The S.D. is independent of the magnitude of the mean and provides a common unit of measurement.

(c) ‘t’ test: Since a mean is probably the most satisfactory measure for characterising a group, the researcher found it important to determine whether the difference between the means of sample is significant. As the means of the two groups randomly drawn from the same population were not necessarily identical, any difference that appeared at the end of the experimental cycle could possibly be attributed to sampling error or chance. To be statistically significant, the difference must be greater than that reasonably attributed to sampling error. To test the significance of the difference between two means is known as a ‘t’ test. It comprises the computation of the ratio between experimental variance (observed difference between two sample means) and error variance (the sampling error factor).

\[
t = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}
\]

Where \(M_1\) = Mean of one group

\(M_2\) = Mean of Second Group
N_1 = Number of cases in first sample
N_2 = Number of cases in second sample
\sigma_1^2 = Variance of first sample
\sigma_2^2 = Variance of second sample

The hypotheses framed for the present study were Null Hypotheses. A null hypothesis states that there is no significant difference between the two parameters used. It concerns a judgement as to whether apparent differences are true differences or whether this study formulated null hypothesis, a no-difference hypothesis.

Some level of significance has been used or the rejection or retention (acceptance) of a null hypothesis. This rejection or retention is seen at two levels, 0.05 and .01 levels – with ‘t’ value of 1.96 and 2.58 respectively. If the ‘t’ value equals or exceeds 1.96 we may conclude that the difference between the means is significant at .05 level. Thus, we can reject the null hypothesis at .05 level of significance.