CHAPTER - III

METHODOLOGY

3.1 INTRODUCTION

This chapter consists of necessary description on 1) selection of subjects 2) design of the study 3) selection of variables 4) reliability of data 5) administration of the questionnaires 6) collection of data and the statistical procedure used for analyzing the data collected. This chapter also includes the scoring aspects of all the variables studies along with the categorization of responses given by the subjects. The chapter concludes with a brief note on statistical procedures used for the current investigation. Finally all the references cited in text have been listed in the last part of this chapter.

3.2 SELECTION OF SUBJECTS

The current study was conducted on three hundred (300) men football players which were selected through simple random sampling (SRS) method. The data was categorized into three main groups: inter collegiate (n=100), west zone intervarsity (n=100), and all India intervarsity (n=100) men football players. The sample representing
the intercollegiate men football players who participated in intercollegiate football championship during the academic year 2014-2015 held at football ground of All India Shri Shivaji Memorial Society’s (AISSMS) educational complex, Pune between 23/09/2014 to 30/09/2014. The sample representing the west zone Inter-University football players who participated in the west zone Inter-University football championship, 2014-2015 held at Lakshmibai National Institute of Physical Education, Gwalior, M.P. between 22/12/2014 to 27/12/2014 and all India Inter-University football championship, 2014-2015 held at Lakshmibai National Institute of Physical Education, Gwalior, M.P. between 29/12/2014 to 05/01/2015.

3.3 DESIGN OF THE STUDY

This study includes statistical comparison of several psychological parameters across three study groups viz. All India intervarsity (n=100), West zone intervarsity (n=100), and Intercollegiate (n=100). The selection of players in each group was done using simple random sampling procedure (SRS) with the help of lottery method. Thus, the design of the present study is randomized cross sectional comparative study. The study is cross sectional since the responses have been collected at a single time interval. Since, the
study is comparative we performed multiple pair-wise comparisons using Least Square Difference (LSD) technique of analysis of variance.

3.4 SELECTION OF VARIABLES

In the present study, three main psychological variables such as 1) Sports aggression 2) Sports competition anxiety and 3) Mental toughness of the participants are assessed through structured questionnaires. These variables measured through various tests and inventories are more relevant for the study population since they have been standardized by considering their relevance for the present study. In the present study proper care was taken to selection of the above mentioned psychological aspects of sports for investigation, which may not be relevant to the athletic samples but are closely related to the purpose of the study. It is understood that the cultural milieu in which a player is born and brought up is a great influencing force, which moulds his/her psyche towards the game. In the sports literature, the various psychological variables have influenced the critical athletic performance through several research studies, and the choice of variables was guided by the aims and objectives of the respective research study
3.5 RELIABILITY OF DATA

The reliability of the data collected through this study was calculated through the reliability of the instrument (Questionnaire), and its internal consistency in data collection.

3.6 INSTRUMENT RELIABILITY

The instruments used in data collection were selected because they were found to be more appropriate for the study objectives and have been very extensively used in research in the field of sports and physical education throughout the world. The reliability quotients as given in the manual of respective battery of tests are as under:

3.7 MEASUREMENT OF PSYCHOLOGICAL VARIABLES

It was decided to use the validated and structured questionnaire in order to quantify the Psychological variables. The investigator measured these psychological variables from the physical education perspective. The validity of data received greatly depended upon the integrity of the respondents and their responses. However it is important to note that, in this study the anonymous responses ensured the greater validity of the responses.
3.8 ADMINISTRATION OF THE QUESTIONNAIRE

In order to assess the psychological variables as mentioned in the section 3.2 the football players were randomly selected using simple random sampling (SRS) method. In total 300 football players were approached and they were asked to fill-up the questionnaires. The research Scholar has personally visited to all the players for collection of data, 300 players completed the questionnaire. The above mentioned exercise has been executed with the consultation of the research guide and with the requisition letter of the head of the concerned Institution.

3.9 TESTS USED AND THEIR DESCRIPTION

Selections of the most appropriate tests/tools will not be an easy decision for the investigator. Therefore, proper care was ensured in this regard and sincere efforts were made by the researcher to select the tests/tools for the collection of data. Finally, the following tests/tools were considered appropriate and selected for the study.

1. Sports Aggression
2. Sports Competition Anxiety.
3. Mental Toughness
3.10 AGGRESSION TEST

PURPOSE

The aggression questionnaire prepared by Anand Kumar and P.S. Shukla was used for the current study. This inventory consisted to 25 items in which 13 items were keyed “Yes” and rest of 12 were “No”. The statement which was keyed “Yes” were 1, 4, 5, 6, 9, 12, 14, 16, 18, 21, 22, 24 and 25 and the statement which were keyed “No” were 2, 3, 7, 8, 10, 11, 13, 15, 17, 19, 20 and 23.

SCORING

For each item score was “1”. The maximum possible score might be 25 and score the least possible score might be zero.

Finally, score obtained by each subject on each statement was added up which represented one’s total score on Aggression.

3.11 SPORT COMPETITION ANXIETY TEST (SCAT)

PURPOSE

The sports Competition Anxiety Test is the most popular advanced sport-specific anxiety test whose purpose is to assess individual differences in sports competitive trait anxiety or the
tendency to pursue competition situations, as threatening, and/or to respond to these situations with elevated state anxiety.

Sports competition anxiety test questionnaire (SCAT) prepared by Rainer Martens (1986), was originally constructed for children (aged between 10-15), its adult version was developed later on by suitably modifying the instructions and items. A reliability quotient of 0.85 had been reported for the adult version of SCAT.

PROCEDURE

The SCAT questionnaire (Appendix-A) contains fifteen items. The subjects were asked to indicate how they generally felt in competitive sports situations, and responded to each item using a three point ordinal scale (hardly ever, sometimes, or often). Out of fifteen items, only ten items assess sports competitive trait anxiety proneness (e.g., “Before I compete I feel uneasy”) and used for scoring purpose. These ten items were: 2, 3, 5, 6, 8, 9, 11, 12, 14, and 15. The remaining five test items were the spurious items, which were added to the questionnaire to diminish response bias towards the actual test items (e.g., “Competing against others is socially enjoyable”). These five spurious items were not scored. These spurious were: 1, 4, 7, 10 and 13. Every statement had three possible responses i.e.: -
1. Hardly ever
2. Sometimes
3. Often

While the subjects were responding to the questionnaire, the scholar went around verifying that they were recording answers sequentially and explained the meaning of the words in case of doubts.

SCORING

The scholar scrutinized the completed questionnaire in order to ensure that the subject responds to every item and there was no question left unanswered. The items 2, 3, 5, 8, 9, 12, 14 and 15 were worded in such a manner that they were scored according to the following key.

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hardly ever</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Often</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
In the case of items 6 and 11 scoring was carried out according to the following key:-

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Often</td>
</tr>
<tr>
<td>2</td>
<td>Sometime</td>
</tr>
<tr>
<td>3</td>
<td>Hardly ever</td>
</tr>
</tbody>
</table>

However spurious questions i.e. 1, 4, 7, 10, and 13 were not be scored as suggested by Rainer Martens.

If a subject deleted one of the test items, his/her prorated full scale score was obtained by computing the mean score for the nine items answered, multiplying this value by ten, and rounding the product to the next whole number. When two or more items were omitted, the respondent’s questionnaire was invalidated and was not considered in the final study group.

Total scores of SCAT ranged from 10 (low competitive anxiety) to 30 (high competitive anxiety). The subjects were assigned to the following category according to the score obtained by them:
<table>
<thead>
<tr>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 17</td>
<td>Low Anxieties</td>
</tr>
<tr>
<td>17 – 24</td>
<td>Moderate Anxiety</td>
</tr>
<tr>
<td>More than 24</td>
<td>High Anxiety</td>
</tr>
</tbody>
</table>

Responses obtained from the subjects on each statements of sports competition anxiety questionnaires were subjected to statistical treatment keeping in view the purpose of study.

3.12 MENTAL TOUGHNESS QUESTIONNAIRE

PURPOSE

The mental toughness questionnaire (Appendix-C) was used to assessed the level of mental toughness of the players. The test retest reliability of the questionnaire was reported to be 0.79.

PROCEDURE

The questionnaire on mental toughness (Appendix-C) prepared by Alan Goldberg (1995) has sixty items, which has four categories namely: handling pressure (20 questions), concentration (17 questions), mental rebounding (14 questions), and winning attitude (9 questions). A sample statement under handling pressure category read
“I think about my opponent’s size, previous performance or reputation before I play a match”.

The subjects were instructed to respond to each item according to how they generally felt in competitive sport situations. Every statement has two possible responses i.e. True or False.

There was no time limit for the completion of the questionnaire but the subjects were instructed not to ponder too long over any statement and respond to all the statements in the questionnaire independently.

**SCORING**

Responses obtained from the subjects on each statement of mental toughness questionnaire were recorded for analysis of data.

A total score of 60 was possible on this questionnaire. The classification criterion given by Alan Goldberg is as follows.

<table>
<thead>
<tr>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 – 60</td>
<td>Mentally – Tough</td>
</tr>
<tr>
<td>48 – 54</td>
<td>Pretty Solid Mentally</td>
</tr>
<tr>
<td>40 – 47</td>
<td>Average Mental Toughness</td>
</tr>
<tr>
<td>Below 40</td>
<td>Need Mental Toughness Exercise</td>
</tr>
</tbody>
</table>
The responses of the players in each of the four categories i.e. handling pressure, concentration, mental rebound and winning attitude were recorded for statistical treatment.

3.13 COLLECTION OF DATA

Mean and standard deviation of scores of all three groups viz. All India intervarsity (n=100), West zone intervarsity (n=100), and Intercollegiate (n=100) were calculated for all the four variables studied i.e. aggression, sports competition anxiety, mental toughness (consisting of four categories handling pressure, concentration, mental rebound and winning attitude) and attitude.

One-way analysis of variance (ANOVA) is applied to find out the significance of mean difference of all four variables across three study groups. This is followed by Least Significance Difference Test (L.S.D.) of Post-hoc comparison to determine the significance of difference between ordered paired means at 0.05 level of significance. P-values less than 0.05 are considered statistically significant. The entire statistical analysis is processed using Statistical Package For Social Sciences (SPSS, Version 11.5) for MS Windows.
3.14 ADOPTED STATISTICAL PROCEDURE

The study was conducted on three hundred (n=300) men football players which were selected through simple random sampling without replacement (SRSWOR) method. The data were categorized into three main groups of participation viz: Group 1: Inter collegiate (n=100), Group 2: West zone and Group 3: Inter-university (n=100), and all India inter-university (n=100) men football players. The sample representing the intercollegiate men football players who participated in inter collegiate football championship, 2014-2015 held at All India Shri Shivaji Memorial Societ’s (AISSMS) Ground, Pune between 23/09/2014 to 30/09/2014. The sample representing the west zone inter-university football players who participated in the west zone inter-university football championship, 2014-2015 held at Lakshmibai National Institute of Physical Education, Gwalior, M.P. between 22/12/2014 to 27/12/2014 and all India inter-university football championship, 2014-2015 held at Lakshmibai National Institute of Physical Education, Gwalior, M.P. between 29/12/2014 to 05/01/2015.

Mean score and standard deviation of all India inter-university (n=100), west zone inter-university (n=100), and intercollegiate
(n=100) were calculated for all the four study variables i.e. aggression, sports competition anxiety, mental toughness (consisting of four categories handling pressure, concentration, mental rebound and winning attitude) and attitude.

One-way analysis of variance (ANOVA) test is applied to find out the significance of mean difference among all three study groups for each variable studied. This will be followed by Least Significance Difference Test (L.S.D.) of Tukey’s Post-hoc multiple comparisons to determine the significance of pair-wise difference of means at 0.05 level. Overall, there are three levels at which data are presented, categorized and analyzed statistically in this study. At each level, the data pertaining to various study groups is described. Finally, the study variables from all three groups have been compared and analyzed statistically.