RESULTS AND DISCUSSIONS

The purpose of this study is to find out and differentiate the Personality traits among Sportsmen of Badminton, Kho-Kho and Athletics between the age group of 16 to 19 using Cattell's Sixteen Personality Factors Questionnaire.

To achieve this purpose, three groups, namely, Badminton players, Kho Kho players and Athletes numbering 30 each were selected, whose name, age and category are tabulated in Appendix I.

Cattell's 16 Personality Factors Questions Form B was administered among the subjects and data collected from the subjects were converted into raw scores as described in the Chapter III. The obtained data are presented in Appendix I.

The raw scores were then converted into sten scores for easy statistical treatment, which are presented in Appendix II.

RESULTS

The raw scores together with the converted sten scores were subjected to statistical analysis under 16 different heads to determine, compare, and interpret the Personality traits among Sportsmen of Badminton, Kho-Kho and Athletics as detailed below:
1. Factor A : Reserved Versus Outgoing
2. Factor B : Less Intelligent Versus More Intelligent
3. Factor C : Affected by feelings Versus Emotionally stable
4. Factor E : Humble Versus Assertive
5. Factor F : Sober Versus Happy-go-lucky
6. Factor G : Expedient Versus Conscientious
7. Factor H : Shy Versus Venturesome
8. Factor I : Tough minded Versus Tender minded
9. Factor L : Trusting Versus Suspicious
10. Factor M : Practical Versus Imaginative
11. Factor N : Forthright Versus Shrewed
12. Factor O : Placid Versus Apprehensive
13. Factor Q1 : Conservative Versus Experimenting
14. Factor Q2 : Group dependent Versus self sufficient
15. Factor Q3 : Undisciplined Versus Controlled
16. Factor Q4 : Relaxed Versus Tense

The one-way analysis of variance for sixteen personality factors among the sportsmen of Kho Kho, Athletics and Badminton are presented in Table I.
### TABLE 1
ONE WAY ANALYSIS OF VARIANCE FOR 16 PERSONALITY FACTORS AMONG THE SPORTSMEN OF KIIO KIIO ATHLETICS AND BADMINTON

<table>
<thead>
<tr>
<th>Personality factors</th>
<th>Source of variance</th>
<th>SS</th>
<th>df</th>
<th>Ms</th>
<th>obtained F</th>
<th>Table value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SSB</td>
<td>87.09</td>
<td>2</td>
<td>43.545</td>
<td>45.36*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>83.90</td>
<td>87</td>
<td>0.960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>SSB</td>
<td>54.60</td>
<td>2</td>
<td>27.300</td>
<td>20.84*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>114.00</td>
<td>87</td>
<td>1.310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>SSB</td>
<td>50.07</td>
<td>2</td>
<td>25.040</td>
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<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>138.43</td>
<td>87</td>
<td>1.590</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>SSB</td>
<td>53.56</td>
<td>2</td>
<td>26.680</td>
<td>11.12*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>208.47</td>
<td>87</td>
<td>1.240</td>
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<td></td>
</tr>
<tr>
<td>E</td>
<td>SSB</td>
<td>4.83</td>
<td>2</td>
<td>2.420</td>
<td>3.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>171.63</td>
<td>87</td>
<td>1.970</td>
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</tr>
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<td>F</td>
<td>SSB</td>
<td>5.76</td>
<td>2</td>
<td>2.880</td>
<td>1.30</td>
<td>3.10</td>
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<td></td>
<td>SSW</td>
<td>192.73</td>
<td>87</td>
<td>2.220</td>
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</tr>
<tr>
<td>G</td>
<td>SSB</td>
<td>9.23</td>
<td>2</td>
<td>4.620</td>
<td>3.10</td>
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<tr>
<td></td>
<td>SSW</td>
<td>118.37</td>
<td>87</td>
<td>1.360</td>
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<tr>
<td>H</td>
<td>SSB</td>
<td>12.29</td>
<td>2</td>
<td>6.150</td>
<td>2.52</td>
<td>3.10</td>
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<td></td>
<td>SSW</td>
<td>212.17</td>
<td>87</td>
<td>2.440</td>
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<td></td>
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<tr>
<td>I</td>
<td>SSB</td>
<td>22.82</td>
<td>2</td>
<td>11.410</td>
<td>4.23*</td>
<td>3.10</td>
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<tr>
<td></td>
<td>SSW</td>
<td>234.97</td>
<td>87</td>
<td>2.700</td>
<td></td>
<td></td>
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<tr>
<td>J</td>
<td>SSB</td>
<td>9.60</td>
<td>2</td>
<td>4.800</td>
<td>1.44</td>
<td>3.10</td>
</tr>
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<td></td>
<td>SSW</td>
<td>290.80</td>
<td>87</td>
<td>3.340</td>
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<td></td>
</tr>
<tr>
<td>K</td>
<td>SSB</td>
<td>0.07</td>
<td>2</td>
<td>0.035</td>
<td>0.01</td>
<td>3.10</td>
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<tr>
<td></td>
<td>SSW</td>
<td>301.93</td>
<td>87</td>
<td>3.470</td>
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<tr>
<td>L</td>
<td>SSB</td>
<td>56.25</td>
<td>2</td>
<td>28.130</td>
<td>14.88*</td>
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<tr>
<td></td>
<td>SSW</td>
<td>164.14</td>
<td>87</td>
<td>1.890</td>
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</tr>
<tr>
<td>M</td>
<td>SSB</td>
<td>10.56</td>
<td>2</td>
<td>5.278</td>
<td>3.19*</td>
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</tr>
<tr>
<td></td>
<td>SSW</td>
<td>144.07</td>
<td>87</td>
<td>1.656</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>SSB</td>
<td>24.43</td>
<td>2</td>
<td>12.215</td>
<td>8.13*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>130.69</td>
<td>87</td>
<td>1.502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>SSB</td>
<td>32.30</td>
<td>2</td>
<td>16.150</td>
<td>8.87*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>158.43</td>
<td>87</td>
<td>1.820</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>SSB</td>
<td>10.40</td>
<td>2</td>
<td>5.200</td>
<td>4.11*</td>
<td>3.10</td>
</tr>
<tr>
<td></td>
<td>SSW</td>
<td>110.00</td>
<td>87</td>
<td>1.264</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

The results are further presented through the following tables on each Factor of the above sixteen Personality Factors
4.1.1 FACTOR A: RESERVED VERSUS OUTGOING

The set of questions administered under this head is Factor A of the Cattell's 16 Personality Test is aimed to determine whether the individual sportsman is Reserved or Outgoing. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table II.

TABLE II
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO-KHO, ATHLETICS AND BADMINTON FOR FACTOR A (RESERVED VERSUS OUTGOING)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>F</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>Kho Kho</td>
<td>Badminton</td>
<td>7.07</td>
</tr>
<tr>
<td>7.07</td>
<td>6.73</td>
<td>4.83</td>
<td>2.24*</td>
</tr>
<tr>
<td>6.73</td>
<td>4.83</td>
<td>1.9*</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05 level.

As can be seen from Table II the ordered trait means (sten scores) of Kho Kho players was 7.07; Athletes was 6.73 and Badminton players was 4.83. This revealed the fact that as for this personality trait is concerned the Athletes score most followed by Kho Kho players and lastly by Badminton players.
FIGURE - 1

BAR DIAGRAM SHOWING THE OBTAINED AND REQUIRED "F" VALUES FOR ALL 16 PERSONALITY FACTORS
The mean difference between Kho Kho players and Athletes was 0.34, Kho Kho players and Badminton players was 2.24 and Athletes and Badminton players was 1.9.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 45.36. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe’s Test of confidence interval and the obtained value was 0.63. The comparison of the mean differences with that of Scheffe’s Confidence Interval value obtained (0.63) showed that significant difference existed among the groups of Kho Kho and Badminton (2.24) and Athletes and Badminton (1.9) which were more than 0.63. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.34 which is less than the value of 0.63.

As explained in Chapter III, the continuum of this Personality trait extends from reserved (detached, critical and cool) at the lower end of the sten to outgoing (warm hearted, easy going and participating) at the upper end.

The values in Table II further show that the sportsmen of Badminton with the mean score of 4.83 (or 5) has average tendency as far as this personality factor is concerned, that they are not too reserved type or too much of warmhearted / outgoing.
But the obtained values of Kho Kho group and the Athletes scoring the mean of 7.07 and 6.73 show that they are slightly deviate towards the high score direction which show that they are outgoing, warm hearted and easy going.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.2 FACTOR B: LESS INTELLIGENT VERSUS MORE INTELLIGENT

The set of questions administered under this head is Factor B of the Cattell’s 16 Personality Test aimed to determine whether the individual sportsman is Less Intelligent (Lower scholastic mental capacity) or more intelligent (Higher scholastic mental capacity). The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table III.

<table>
<thead>
<tr>
<th></th>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>Kho Kho</td>
<td>Badminton</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>3.9</td>
<td>2.3</td>
<td>1.7*</td>
<td>20.8</td>
</tr>
<tr>
<td>3.9</td>
<td>2.3</td>
<td>1.6*</td>
<td></td>
<td>0.74</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level.
As can be seen from Table III the ordered trait means (sten scores) of Kho Kho players was 3.9; Athletes was 4.0 and Badminton players was 2.3. This revealed the fact that as for this personality trait is concerned the Athletes scored more (4.0) followed by Kho Kho players (3.9) and by Badminton players 2.3.

The mean difference between Kho Kho players and Athletes was 0.1, Kho Kho players and Badminton players was 1.6 and Athletes and Badminton players was 1.7.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 20.8. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.74. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.74) showed that significant difference existed among the groups of Kho Kho and Badminton (1.6) and Athletes and Badminton (1.7) which were more than 0.74. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.1 which is less than the value of 0.74.

As explained in Chapter III, the continuum of this Personality trait extends from Less Intelligent (Lower scholastic mental capacity) at the lower end of the sten to more intelligent (Higher scholastic mental capacity) at the upper end.
The values in Table III further show that the sportsmen of Badminton with the mean sten of 2.3 have clear deviation towards less average tendency as far as this personality factor is concerned and that they are less intelligent.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 3.9 and 4.0 show that they are more or less average in the sten scores which was to conclude that they are neither less intelligent nor more intelligent.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.3 FACTOR C: AFFECTED BY FEELINGS VS EMOTIONALLY STABLE

The set of questions administered under this head is Factor C of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is affected by feelings or he is emotionally stable. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table IV.
TABLE IV
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR C : AFFECTED BY FEELINGS VERSUS EMOTIONALLY STABLE

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kho Kho</td>
<td>5.2</td>
<td>4.83</td>
<td>0.37</td>
</tr>
<tr>
<td>Badminton</td>
<td>3.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.73*</td>
<td>15.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.36*</td>
<td>0.81</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level.

As can be seen from Table IV the ordered trait means (sten scores) of Kho Kho players was 4.83; Athletes was 5.2 and Badminton players was 3.47. This revealed the fact that as for this personality trait is concerned the Athletes scored high (5.2) followed by Kho Kho players 4.83 and then by Badminton players 3.47.

The mean difference between Kho Kho players and Athletes was 0.37, Kho Kho players and Badminton players was 1.36 and Athletes and Badminton players was 1.73.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 15.76. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.
As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.81. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.81) showed that significant difference existed among the groups of Kho Kho and Badminton (1.36) and Athletes and Badminton (1.73) which were more than 0.81. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.37 which is less than the value of 0.81.

As explained in Chapter III, the continuum of this Personality trait extends from affected by feelings (Emotionally less stable, easily upset) at the lower end of the scale to Emotionally Stable (Faces Reality, Calm, Mature) at the upper end.

The values in Table IV further show that the sportsmen of Badminton with the mean score of 3.47 have deviated towards lower tendency as far as this personality factor is concerned, that they are emotionally less stable.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 5.2 and 4.83 show that they are average in this personality trait and thereby it is concluded that they are average in their emotional stability.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.4 FACTOR E: HUMBLE VERSUS ASSERTIVE

The set of questions administered under this head is Factor E of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Humble or Assertive. The obtained data were given statistical treatment and the
The mean difference between Kho Kho players and Athletes was 0.53, Kho Kho players and Badminton players was 1.3 and Athletes and Badminton players was 1.83.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 11.12. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.99. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.99) showed that significant difference existed among the groups of Kho Kho and Badminton (1.3) and Athletes and Badminton (1.83) which were more than 0.99. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.53 which is less than the value of 0.99.

As explained in Chapter III, the continuum of this Personality trait extends from Humble, Mild, Accommodating, Conforming (Submissiveness) at the lower end of the sten to Assertive, Independent, Aggressive, Stubborn (Dominance) at the upper end.

The values in Table V further show that the sportsmen of Badminton with the mean sten of 5 have average tendency as far as this personality factor is concerned, that they are neither assertive nor humble.
But the obtained values of Kho Kho group and the Athletes scoring the mean of 6.3 and 6.83 show that they are slightly more than the average which was to conclude that they are slightly more assertive than Badminton players.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.5 FACTOR F: SOBER VERSUS HAPPY-GO-LUCKY

The set of questions administered under this head is Factor F of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Sober, Prudent, Serious, Taciturn (Desurgency) or Happy-go-Lucky, Impulsively lively, Gay, Enthusiastic (Surgency). The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table VI.
TABLE VI
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO-KHO, ATHLETICS AND BADMINTON FOR FACTOR F: SOBER VERSUS HAPPY-GO-LUCKY

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>^F</th>
<th>Required value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kho Kho</td>
<td>4.8</td>
<td>4.53</td>
<td>0.27</td>
</tr>
<tr>
<td>Badminton</td>
<td>4.23</td>
<td>0.27</td>
<td>1.23*</td>
</tr>
<tr>
<td>Athletes</td>
<td>4.23</td>
<td>0.27</td>
<td></td>
</tr>
</tbody>
</table>

* Not Significant at 0.05 level.

As can be seen from Table VI the ordered trait means (sten scores) of Kho Kho players was 4.8; Athletes was 4.23 and Badminton players was 4.53. This revealed the fact that as for this personality trait is concerned the Kho Kho players scored high 4.8 followed by Badminton players 4.53 and then by Athletes 4.23.

The mean difference between Kho Kho players and Athletes was 0.57, Kho Kho players and Badminton players was 0.27 and Athletes and Badminton players was 0.3.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 1.23. The required table value to be significant at 0.05 level is
3.10 and the obtained value is less than the required value, hence it is not significant at 0.05 level of confidence.

As explained in Chapter III, the continuum of this Personality trait extends from Sober, Prudent, Serious, Taciturn (Desurgency) at the lower end of the sten to Happy-go-lucky, Impulsive lively, Gay, Enthusaistic (Surgency) at the upper end.

The values in Table VI further show that the sportsmen of Badminton with the mean sten of 4.53 has more or less average tendency as far as this personality factor is concerned. Likewise the obtained values of Kho Kho group and the Athletes scoring the mean of 4.8 and 4.53 show that they are average tendency.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got no significant difference in this Personality Factor.

4.1.6 FACTOR G: EXPEDIENT VERSUS CONSCIOUSNESS

The set of questions administered under this head is Factor G of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Expedient, Evades Rules, Feels Few Obligation (Weaker superego strength) or Conscientious, Perserving, Staid, Rule bound (Stronger Superego strength). The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table VII.
TABLE VII
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO-KHO, ATHLETICS AND BADMINTON FOR FACTOR G: (EXPEDIENT VERSUS CONSCIENTIOUS)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Required Table Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>4.97</td>
<td>4.8</td>
<td>0.17</td>
</tr>
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<td>4.97</td>
<td>4.37</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>4.8</td>
<td>4.37</td>
<td>0.43</td>
</tr>
</tbody>
</table>

* Not significant.

As can be seen from Table VII the ordered trait means (sten scores) of Kho Kho players was 4.37; Athletes was 4.97 and Badminton players was 4.8. This revealed the fact that as for this personality trait is concerned the Athletes scored high 4.97 followed by Badminton players 4.8 and then by Kho Kho players 4.37.

The mean difference between Kho Kho players and Athletes was 0.60, Kho Kho players and Badminton players was 0.43 and Athletes and Badminton players was 0.17.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 1.30. The required table value to be significant at 0.05 level is
3.10 and the obtained value is less than the required value, hence it is not significant at 0.05 level of confidence.

As explained in Chapter III, the continuum of this Personality trait extends from Expedient, Evades Rules, Feels Few Obligations (Weaker Superego strength) at the lower end of the sten to conscientious, Perservering, staid, Kulebound (Stronger super-ego strength) at the upper end.

The values in Table VII further show that the sportsmen of Badminton with the mean sten of 4.8 has average tendency as far as this personality factor is concerned. The obtained values of Kho Kho group and the Athletes scoring the mean of 4.37 and 4.97 show that they are also more or less average.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got no significant difference in this Personality Factor.

4.1.7 FACTOR H: SHY VERSUS VENTURESOME

The set of questions administered under this head is Factor H of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is shy, restrained, different, timid (Threctia) or Venturesome, socially-bold, Spontaneous (Parmia). The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table VIII.
TABLE VIII
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR H (SHY VERSUS VENTURESOME)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kho Kho</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badminton</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.43</td>
<td>0.33</td>
<td>3.39*</td>
<td>0.75</td>
</tr>
<tr>
<td>5.43</td>
<td>0.76*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>0.43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table VIII the ordered trait means (sten scores) of Kho Kho players was 5.1; Athletes was 5.43 and Badminton players was 4.67. This revealed the fact that as for this personality trait is concerned the Athletes scored high (5.43) followed by Kho Kho players 5.1 and lastly Badminton players.

The mean difference between Kho Kho players and Athletes was 0.33, Kho Kho players and Badminton players was 0.43 and Athletes and Badminton players was 0.76.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 3.39. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was
0.75. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.75) showed that significant difference existed among the group Athletes and Badminton (0.76) which was more than 0.75. However there was no significant difference among the groups of Kho Kho and Athletes and Kho kho players and Badminton players as the difference between them is only 0.33 and 0.45 respectively which are less than the value of 0.75.

As explained in Chapter III, the continuum of this Personality trait extends from shy, restrained, diffident, timid (Threctia) at the lower end of the sten to venturesome, socially-bold spontaneous (Parmia) at the upper end.

The values in Table VIII further show that the sportsmen of Badminton with the mean sten of 4.67 has slightly less average tendency as far as this personality factor is concerned. The Kho Kho players' sten scores 5.1 was average and sten scores of Athletes was 5.43 which were slightly more than average tendency.

Thus, these groups, except the slight deviation by Athletes, show that they are neither shy nor venturesome.

Thus, the obtained and analysed data show that among the sportsmen of differnt groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.8 FACTOR I: TOUGH-MINDED VERSUS TENDER MINDED

The set of questions administered under this head is Factor I of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is tender minded or tough minded. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table IX.
TABLE IX
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR I (TENDER MINDED VERSUS TOUGH MINDED)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F' Value</th>
<th>Required Table Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>7.5</td>
<td>7.13</td>
<td>0.37</td>
</tr>
<tr>
<td>Badminton</td>
<td>6.6</td>
<td>0.9</td>
<td>2.53*</td>
</tr>
<tr>
<td>Kho Kho</td>
<td>6.6</td>
<td>0.53</td>
<td>3.10</td>
</tr>
</tbody>
</table>

*Not Significant.

As can be seen from Table IX the ordered trait means (sten scores) of Kho Kho players was 6.6; Athletes was 7.5 and Badminton players was 7.13. This revealed the fact that as for this personality trait is concerned the Athletes scored high 7.5 followed by Badminton players scoring 7.13 and by Kho Kho players.

The mean difference between Kho Kho players and Athletes was 0.9, Kho Kho players and Badminton players was 0.53 and Athletes and Badminton players was 0.37.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 2.53. The required table value to be significant at 0.05 level is 3.10 and the obtained value is less than the required value, hence it is not significant at 0.05 level of confidence.
As explained in Chapter III, the continuum of this Personality trait extends from tough minded at the lower end of the sten to tender-minded at the upper end.

The values in Table IX further show that the sportsmen of Badminton with the mean sten of 7.13 has higher than average tendency as far as this personality factor is concerned and that they are more tender minded.

The obtained values of Kho Kho group and the Athletes scoring the mean of 6.6 and 7.5 show that they are also higher than the average tender minded.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got no significant difference in this Personality Factor.

4.1.9 FACTOR L: TRUSTING VERSUS SUSPICIOUS

The set of questions administered under this head is Factor L of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is trusting or suspicious. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table X.
TABLE X
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO-KHO, ATHLETICS AND BADMINTON FOR FACTOR L (TRUSTING VERSUS SUSPICIOUS)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badminton</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.03</td>
<td>5.4</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>6.03</td>
<td>4.8</td>
<td>1.23*</td>
<td>4.23*</td>
</tr>
<tr>
<td>5.4</td>
<td>4.8</td>
<td>0.6</td>
<td>1.05</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table X the ordered trait means (sten scores) of Kho Kho players was 5.4; Athletes was 4.8 and Badminton players was 6.03. This revealed the fact that as for this personality trait is concerned the badminton players scored high 6.03 followed by Kho Kho players and athletes 4.8.

The mean difference between Kho Kho players and Athletes was 0.6, Kho Kho players and Badminton players was 0.68 and Athletes and Badminton players was 1.23.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 4.23. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.
As the results of the statistical analysis showed significance, the means were further subjected to Scheffe’s Test of confidence interval and the obtained value was 1.05. The comparison of the mean differences with that of Scheffe’s Confidence Interval value obtained (1.23) showed that significant difference existed among the groups of Athletes and Badminton. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.68 and Kho Kho players and Badminton players which is less than the value of 1.05.

As explained in Chapter III, the continuum of this Personality trait extends from Trusting, Adaptable, Free of Jealousy, Easy go to get on with (Aluxia) at the lower end of the sten to suspicious, self-opinionated, hard to fool (Protension) at the upper end.

The values in Table X further show that the sportsmen of Badminton with the mean sten of 6.03 has slightly suspicious tendency as far as this personality factor is concerned and that they are more suspicious than Kho kho players and athletes.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 5.4 and 4.8 show that they are in average and they tend to be neither trusting nor suspicious.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Athletes, and Badminton players, have got significant difference in this Personality Factor. However the Kho Kho players have no significant difference with Athletes and Badminton players.
4.1.10 FACTOR M: PRACTICAL VERSUS IMAGINATIVE

The set of questions administered under this head is Factor M of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Practical or imaginative. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XI.

TABLE XI

ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR M (PRACTICAL VERSUS IMAGINATIVE)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>F</th>
<th>Required Table Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>6.2</td>
<td>0.4</td>
<td>1.44*</td>
</tr>
<tr>
<td>Badminton</td>
<td>5.8</td>
<td>0.8</td>
<td>3.10</td>
</tr>
<tr>
<td>Kho Kho</td>
<td>5.4</td>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

* Not significant at 0.05 level.

As can be seen from Table XI the ordered trait means (sten scores) of Kho Kho players was 5.4; Athletes was 6.2 and Badminton players was 5.8. This revealed the fact that as for this personality trait is concerned the Athletes scored more 6.2, followed by Badminton players 5.8 and Kho Kho players 5.4.

The mean difference between Kho Kho players and Athletes was 0.8, Kho Kho players and Badminton players was 0.4 and Athletes and Badminton players was 0.4.
The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 1.44. The required table value to be significant at 0.05 level is 3.10 and the obtained value is less than the required value, hence it is not significant at 0.05 level of confidence.

As explained in Chapter III, the continuum of this Personality trait extends from Practical, Careful, Conventional, Regulated by External Realities, Proper (Praxernia) at the lower end of the sten to Imaginative, Wrapped up in Inner Urgencies, Careless of Practical Matters, Bohemian (Autia) at the upper end.

The values in Table XI further show that the sportsmen of Badminton with the mean sten of 5.8 has slightly upper than the average tendency as far as this personality factor is concerned and that they are slightly more practical.

The obtained values of Kho Kho group and the Athletes group also scoring the mean of 5.4 and 6.2 show that they are practical than the average.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got no significant difference in this Personality Factor.

4.1.11 FACTOR N: FORTHRIGHT VERSUS SHREWDED

The set of questions administered under this head is Factor N of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is forthright or shrewd. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XII.
As can be seen from Table XII the ordered trait means (sten scores) of Kho Kho players was 5.7; Athletes was 5.67 and Badminton players was 5.63. This revealed the fact that as for this personality trait is concerned the Kho Kho players scored more 5.7 followed by Athletes 5.67 and Badminton players of 5.63.

The mean difference between Kho Kho players and Athletes was 0.03, Kho Kho players and Badminton players was 0.07 and Athletes and Badminton players was 0.04.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 0.01. The required table value to be significant at 0.05 level is 3.10 and the obtained value is less than the required value, hence it is significant at 0.05 level of confidence.
As explained in Chapter III, the continuum of this Personality trait extends from Forthright at the lower end of the sten to sherewd at the upper end.

The values in Table XII further show that the sportsmen of Badminton, Athletes and Kho Kho ranges from 5.7 to 5.63 which clearly show that the subjects, (all the three groups) are slightly shrewd.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got no significant difference in this Personality Factor.

4.1.12 FACTOR O: PLACID VERSUS APPREHENSIVE

The set of questions administered under this head is Factor O of the Cattell's 16 Perasonality Test aimed to determine whether the individual sportsman is placid, self-assured, confident, serene or apprehensive, worrying, depressive, troubled. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XIII.

TABLE XIII
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR O (PLACID VERSUS APPREHENSIVE)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>F</th>
<th>Scheffe’s Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics 6.8</td>
<td>5.73</td>
<td>1.07*</td>
<td></td>
</tr>
<tr>
<td>Kho Kho 6.8</td>
<td>4.87</td>
<td>1.93*</td>
<td>14.88</td>
</tr>
<tr>
<td>Badminton 5.73</td>
<td>4.87</td>
<td>0.86</td>
<td>0.88</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.
As can be seen from Table XIII the ordered trait means (sten scores) of Kho Kho players was 4.87; Athletes was 5.73 and Badminton players was 6.8. This revealed the fact that as for this personality trait is concerned the Badminton players scored high followed by Athletes 5.73 and then by Kho Kho players with 4.87.

The mean difference between Kho Kho players and Athletes was 0.86, Kho Kho players and Badminton players was 1.93 and Athletes and Badminton players was 1.07.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 14.88. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.88. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.88) showed that significant difference existed among the groups of Kho Kho and Badminton (1.93) and Athletes and Badminton (1.07) which were more than 0.88. However there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.86 which is less than the value of 0.88.

As explained in Chapter III, the continuum of this Personality trait extends from Placid, Self-assured, Confident, Serene (untroubled adequacy) at the lower end of the sten to apprehensive, worrying, depressive, troubled (Guild proneness) at the upper end.
The values in Table XIII further show that the sportsmen of Badminton with the mean sten of 6.8 have more than the average as far as this personality factor is concerned and that they are above average placid tendency.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 4.87 and 5.73 show that they are more or less average in this personality factor is concerned.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, Athletes, and Badminton players, have got significant difference in this Personality Factor.

4.1.13 FACTOR Q1: CONSERVATIVE VERSUS EXPERIMENTING

The set of questions administered under this head is Factor Q1 of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Conservative or Experimenting. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XIV.
TABLE XIV
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF 
SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR
FACTOR Q1: (CONSERVATIVE VERSUS EXPERIMENTING)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>Kho Kho</td>
<td>Badminton</td>
<td></td>
</tr>
<tr>
<td>7.8</td>
<td>7.3</td>
<td>6.97</td>
<td></td>
</tr>
<tr>
<td>7.8</td>
<td>6.97</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>7.3</td>
<td>6.97</td>
<td>0.38</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table XIV the ordered trait means (sten scores) of Kho Kho players was 7.3; Athletes was 7.8 and Badminton players was 6.97. This revealed the fact that as for this personality trait is concerned the Athletes scored high 7.8 followed by Kho Kho players and Badminton players 7.3 and 6.97 respectively.

The mean difference between Kho Kho players and Athletes was 0.5, Kho Kho players and Badminton players was 0.33 and Athletes and Badminton players was 0.83.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 3.19. The required table value to be significant at 0.05 level is 3.10 and the obtained value is higher than the required value, hence it is significant at 0.05 level of confidence.
As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.83. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.83) showed that significant difference existed among the groups of Athletes and Badminton (0.83) which were more than 0.83. However there was no significant difference among the groups of Kho Kho and Athletes and Kho Kho and Badminton players as the difference between them is only 0.5 and 0.33 which is less than the value of 0.83.

As explained in Chapter III, the continuum of this Personality trait extends from Conservative, Respecting Established ideas, Tolerant of Traditional Difficulties (Conservatism) at the lower end of the sten to Experimenting, Critical, Liberal, Analytical, Free-thinking (Radicalism) at the upper end.

The values in Table XIV further show that the sportsmen of Badminton with the mean sten of 6.97 has above average tendency as far as this personality factor is concerned and that they are conservative.

The obtained values of Kho Kho group and the Athletes scoring the mean of 7.3 and 7.8 show that they are also conservative and the scores are higher than that of Badminton players show that these sportsmen are more conservative than Badminton players.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Athletes, and Badminton players, have got significant difference in this Personality Factor. However Kho Kho players have no significant difference with Athletes and Badminton players.
4.1.14 FACTOR Q2: GROUP DEPENDENT VS SELF SUFFICIENT

The set of questions administered under this head is Factor Q2 of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is Group dependent or self sufficient. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XV.

**TABLE XV**

ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO - KHO, ATHLETICS AND BADMINTON FOR FACTOR Q2 (GROUP DEPENDENT VS SELF SUFFICIENT)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kho Kho</td>
<td>7.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athletes</td>
<td>7.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badminton</td>
<td>6.43</td>
<td>0.34</td>
<td>8.13*</td>
</tr>
<tr>
<td></td>
<td>7.67</td>
<td></td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>7.33</td>
<td>1.24*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.43</td>
<td></td>
<td>0.9*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table XV the ordered trait means (sten scores) of Kho Kho players was 7.67; Athletes was 7.33 and Badminton players was 6.43. This revealed the fact that as for this personality trait is concerned the Kho Kho players scored high 7.67 followed by athletes 7.33 and then Badminton players of 6.43.

The mean difference between Kho Kho players and Athletes was 0.34, Kho Kho players and Badminton players was 1.24 and Athletes and Badminton players was 0.9.
The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 8.13. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.79. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.79) showed that significant difference existed among the groups of Kho Kho and Badminton (1.24) and Athletes and Badminton (0.9) which were more than 0.79. However, there was no significant difference among the groups of Kho Kho and Athletes as the difference between them is only 0.34 which is less than the value of 0.79.

As explained in Chapter III, the continuum of this Personality trait extends from group dependent, a joiner and sound follower (Group adherence) at the lower end of the sten to self-sufficient, preferring own decisions, resourceful (self-sufficient) at the upper end.

The values in Table XV further show that the sportsmen of Badminton with the mean sten of 6.43 have slight upward deviation than average tendency as far as this personality factor is concerned and that they are group dependent.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 7.67 and 7.33 show that they are well group dependent than Badminton players.
Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players and Badminton players, have got significant difference in this Personality Factor. But athletes do not have significant difference with Kho Kho players and Badminton players.

4.1.15 FACTOR Q3: UNDISCIPLINED SELF-CONFLICT VERSUS CONTROLLED

The set of questions administered under this head is Factor Q3 of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is undisciplined self conflict, Careless of protocol, follows own urge (Low integration) or controlled, Socially-precise, following self-image (High self concept control). The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XVI.

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kho Kho</td>
<td>4.67</td>
<td>4.67</td>
<td>3.97</td>
</tr>
<tr>
<td>Athletes</td>
<td>3.97</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Badminton</td>
<td>3.2</td>
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<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table XVI the ordered trait means (sten scores) of Kho Kho players was 4.67; Athletes was 3.97 and Badminton players was 3.2. This
revealed the fact that as for this personality trait is concerned the Kho Kho players scored high (4.67) followed by Athletes (3.97) and lastly by Badminton players of 3.2.

The mean difference between Kho Kho players and Athletes was 0.7, Kho Kho players and Badminton players was 1.47 and Athletes and Badminton players was 0.77.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 8.87. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was 0.87. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.87) showed that significant difference existed among the groups of Kho Kho and Badminton (1.47) which was more than 0.87. However there were no significant difference among the groups of Kho Kho and Athletes and Athletes and Badminton players as the difference between them were only 0.7 and 0.77 which were less than the value of 0.87.

As explained in Chapter III, the continuum of this Personality trait extends from undisciplined self conflict, Careless of Protocol, Follows own urges (Low integration) at the lower end of the sten to controlled, socially precise, following self-image (High self-concept control) at the upper end.
The values in Table XVI further show that the sportsmen of Badminton with the mean score of 3.2 have less average tendency as far as this personality factor is concerned and that they are yet to have more disciplined personality.

But the obtained values of Kho Kho group mean of 4.67 show an average tendency and 3.97 mean of Athletes show that they are also yet to have more disciplined personality as the obtained scores were less than average.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players and Badminton players, have got significant difference in this Personality Factor. But athletes do not have significant difference with Kho Kho players and Badminton players.

4.1.16 FACTOR Q4: RELAXED VERSUS TENSE

The set of questions administered under this head is Factor Q4 of the Cattell's 16 Personality Test aimed to determine whether the individual sportsman is relaxed or tense. The obtained data were given statistical treatment and the ordered trait mean values of the three groups of subjects, the mean difference and the obtained F ratio and Scheffe's confidence interval to be significant at 0.05 level are presented in Table XVII.
TABLE XVII
ORDERED TRAIT MEANS AND DIFFERENCES BETWEEN MEANS OF SPORTSMEN OF KHO-KHO, ATHLETICS AND BADMINTON FOR FACTOR Q4 (RELAXED VERSUS TENSE)

<table>
<thead>
<tr>
<th>Means of Sportsmen</th>
<th>MD</th>
<th>'F'</th>
<th>Scheffe's Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badminton</td>
<td>5.87</td>
<td>5.67</td>
<td>0.2</td>
</tr>
<tr>
<td>Athletes</td>
<td>5.87</td>
<td>5.07</td>
<td>0.8*</td>
</tr>
<tr>
<td>Kho Kho</td>
<td>5.67</td>
<td>5.07</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

As can be seen from Table XVII the ordered trait means (sten scores) of Kho Kho players was 5.07; Athletes was 5.67 and Badminton players was 5.87. This revealed the fact that as for this personality trait is concerned the Badminton players scored high 5.87, followed by Athletes 5.67 and then by Kho Kho players 5.07.

The mean difference between Kho Kho players and Athletes was 0.6, Kho Kho players and Badminton players was 0.8 and Athletes and Badminton players was 0.2.

The statistical analysis given to find out the significance level of the differences of means between the groups through Analysis of Variance (ANOVA) revealed the value of 4.11. The required table value to be significant at 0.05 level is 3.10 and the obtained value is more than the required value, hence it is significant at 0.05 level of confidence.

As the results of the statistical analysis showed significance, the means were further subjected to Scheffe's Test of confidence interval and the obtained value was
FIGURE-2

Bar diagram showing obtained and required F values for personality traits which have no significant difference.

<table>
<thead>
<tr>
<th>Personality Traits</th>
<th>Obtained F Values</th>
<th>Required F Values to be Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>3.1</td>
<td>2.5</td>
</tr>
<tr>
<td>G</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

OBTAINED F VALUES

REQUIRED F VALUES TO BE SIGNIFICANT
0.72. The comparison of the mean differences with that of Scheffe's Confidence Interval value obtained (0.72) showed that significant difference existed among the groups of Kho Kho and Badminton (0.8) which was more than 0.72. However there was no significant difference among the groups of Kho Kho and Athletes and Athletes and Badminton players as the difference between them is only 0.6 and 0.2 respectively which were less than the value of 0.72.

As explained in Chapter III, the continuum of this Personality trait extends from relaxed, Tranquil, Torpid, Unfrustrated (Low ergic tension) at the lower end of the sten to Tense, Frustrated, Driven, Over-wrought (High ergic tension) at the upper end.

The values in Table XVII further show that the sportsmen of Badminton with the mean sten of 5.87 have slightly higher than the average tendency as far as this personality factor is concerned and that they are a little bit tensed.

But the obtained values of Kho Kho group and the Athletes scoring the mean of 5.07 and 5.67 show that they are comparatively less tensed than Badminton players.

Thus, the obtained and analysed data show that among the sportsmen of different groups under study, namely, Kho Kho players, and Badminton players, have got significant difference in this Personality Factor. However there was no significant difference when comparing Athletes and with Kho players and Badminton players.

DISCUSSIONS

From the results presented in Tables I to XVII along with Figures the following facts are drawn:
FIGURE- 3
BAR DIAGRAM SHOWING OBTAINED AND REQUIRED F VALUES FOR PERSONALITY TRAITS WHICH HAVE NO SIGNIFICANT DIFFERENCE

OBTAINED & REQUIRED F VALUES

PERSONALITY TRAITS

F: Obtained F Values   □ Required F values to be significant
4.2.1 THE MEAN DIFFERENCE WITHIN THE GROUPS OF THE SPORTSMEN OF KHO KHO, ATHLETICS AND BADMINTON IN THE FOLLOWING PERSONALITY TRAITS HAVE NO SIGNIFICANCE.

a) Factor F: Sober Versus Happy go lucky (F: 1.23)
b) Factor G: Expedient Versus Conscientious (F: 1.30)
c) Factor I: Tough Versus Tender minded (F: 2.53)
d) Factor M: Practical Versus imaginative (F: 1.44)
e) Factor N: Forthright Versus Shrewd (F: 0.01)

The obtained F values and the required F value to be significant at 0.5 level are presented through Bar Diagram for clear understanding in Figure II.

These may be due to the fact the nature of training preparation and sports participation that are different from the other sportsmen namely Athletes and Kho Kho players. Thus the null hypothesis is accepted for the above five personality factors.

4.2.2 COMPARING THE STEN VALUES OF THE BADMINTON PLAYERS WITH THAT OF THE STEN VALUES OF SPORTSMEN OF KHO KHO PLAYERS, THE KHO KHO PLAYERS HAVE GOT SIGNIFICANT MEAN DIFFERENCES IN RESPECT OF THE FOLLOWING PERSONALITY FACTORS:

a) Factor A: Reserved versus Outgoing (MD: 2.24)
b) Factor B: Less intelligent Versus More Intelligent (MD: 1.6)
c) Factor C: Affected by feelings Versus Emotionally stable (MD: 1.36)
d) Factor E: Humble Versus Assertive (MD: 1.3)
e) Factor O: Placid Versus Apprehensive (MD: 1.93)
f) Factor Q2: Group Dependent Versus Self Sufficient (MD: 1.24)
g) Factor Q3: Undiciplined Self Conflict Versus Controlled (MD: 1.47)
h) Factor Q4: Relaxed Versus Tense (MD: 0.8)
Thus, the Sportsmen of Kho Kho players are proved to be more outgoing, intelligent, emotionally stable, assertive, self sufficient and controlled than Badminton players. This significant difference may be due to the nature of game situations which warrants specialised training to improve their personality, that is, Kho Kho players are trained only for team games while Badminton players are trained both for individual as well as team games.

The obtained Mean Difference of the Kho Kho players and Scheffie's Confidence Interval required for the same are presented in Figure III for clear understanding.

Thus, the null hypothesis set is rejected with regard to these eight factors are concerned to the extent of Kho Kho players compared to Badminton players.

4.2.3 THE STEM VALUES OF ATHLETES ALSO COMPARED WITH THE BADMINTON PLAYERS AND THE ATHLETES HAVE GOT SIGNIFICANT DIFFERENCES IN RESPECT OF THE FOLLOWING PERSONALITY FACTORS:

a) Factor A: Reserved Versus Outgoing (MD:1.9)  
b) Factor B: Less Intelligent Versus More Intelligent (MD: 1.7)  
c) Factor C: Affected by feelings Versus Emotionally stable (MD: 1.73)  
d) Factor H: Shy versus Venturesome (MD: 0.75)  
e) Factor L: Trusting Versus Suspicious (MD: 1.23)  
f) Factor Q1: Conservative Versus Experimenting (MD: 0.83)

Thus, the sportmen of the Athletics also proved to be more outgoing, intelligent, emotionally stable, venturesome, trusting and experimenting than the Badminton players. This significant differences may be due to the fact that these sportmen are participating in competitions under different circumstances, that is, athletes are trained for individual competitions while Badminton players are trained for individual as well as team sports.
The mean difference obtained between Athletes and Badminton players and the Scheffe's confidence interval required to be significant at 0.05 level are illustrated in Figure IV for clear understanding.

Thus, the null hypothesis set for this study is rejected as far as these six factors concerned to the extent of Athletes and Balbadminton players.

4.2.4 EVENTHOUGH THERE IS MEAN DIFFERENCES IN THE STEN SCORES BETWEEN SPORTSMEN OF ATHLETICS AND KHO KHO, THESE MEAN DIFFERENCES WERE NOT FOUND TO BE SIGNIFICANT AT ANY LEVEL.

4.2.5 IT IS INTERESTING TO NOTE IN THREE FACTORS THAT IS FACTORS, A, B AND C THE KHO KHO PLAYERS AND ATHLETES HAVE SIGNIFICANT DIFFERENCE OVER BADMINTON PLAYERS. BUT THE KHO KHO PLAYERS IS HAVING SIGNIFICANT DIFFERENCE OVER THE BADMINTON PLAYERS IN FACTORS E, O, Q2, Q3 AND Q4. THE ATHLETES ARE HAVING SIGNIFICANT DIFFERENCE OVER THE BADMINTON PLAYERS IN FACTORS II, L AND Q1.

The obtained Mean Differences of Kho Kho players, Athletes and the values of Scheffe's confidence interval calculated are presented in Figure V for clear understanding.
FIGURE-4

OBTAINED MEAN DIFFERENCES AND SCHEFFEE'S CONFIDENCE INTERVAL BETWEEN KHO KHO PLAYER AND BADMINTON PLAYERS

VALUES
A  B  C  E  O  Q1  Q2  Q3

PERSONALITY FACTORS

\[
\begin{align*}
A: & & 0.63 & & 4.74 & & 0.81 & & 0.99 & & 0.88 & & 0.79 & & 0.87 & & 0.8 & & 0.72 \\
B: & & 1.6 & & 1.36 & & 1.3 & & 1.93 & & 1.24 & & 1.47 & & 2.24 & & 2.24 & & 2.24 \\
C: & & 1 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 \\
E: & & 0.63 & & 4.74 & & 0.81 & & 0.99 & & 0.88 & & 0.79 & & 0.87 & & 0.8 & & 0.72 \\
O: & & 1.6 & & 1.36 & & 1.3 & & 1.93 & & 1.24 & & 1.47 & & 2.24 & & 2.24 & & 2.24 \\
Q1: & & 1 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 & & 0 \\
Q2: & & 0.63 & & 4.74 & & 0.81 & & 0.99 & & 0.88 & & 0.79 & & 0.87 & & 0.8 & & 0.72 \\
\end{align*}
\]