Chapter 4

Analysis and Interpretation

4.1.-Nature of distribution of predictive variables under study

4.2- Analysis on the basis of correlation

4.3- Analysis on the basis of Multiple regression.

4.4- Establishing Regression Equation.

4.5- Analysis on the basis of ‘t’-Ratio.
IV- ANALYSIS AND INTERPRETATION

After the data has been collected, it is essential to put the unorganised information in a systematic manner in order to obtain the desired results and their interpretations scientifically. Therefore it is indispensable that the data should be presented in a well arranged manner so that the purpose of the study can be introduced by it. Hence, the statistics plays a unique and important role in every research work. That is why, now a day’s statistics is being inevitably used for getting definite results in a research work, because the results are understandable on the basis of statistical calculations and they can be given a specific meaning also. In the present research work, the data is analysed on the basis of statistics: for studying the relationship between criterion variable (i.e. academic achievement) and various predictor variables, correlations are used. To study the contributory role of various predictor variables on criterion variable, multiple regression analysis is used. For calculating significant difference between two groups t-test is used by using mean and standard deviation, because for rejecting or accepting any hypothesis based on variables these tests are very important.

The analysis and interpretation of the data are two aspects but they cannot be separated because if we separate them, the remaining one has no meaning. In fact, the process of analysis and interpretation has been used from the starting point of the research work. Moreover the analysis and interpretation of the data is a true mirror of the work. Therefore, analysis explains the results given by data and interpretation explains the meaning of results as per objectives of the study. In the problem of the present research work, different hypotheses are being tested by using various statistical methods. In this chapter, the analysis and interpretation of data is being done hypotheses wise which are as under.
4.1. NATURE OF DISTRIBUTION OF PREDICTIVE VARIABLES UNDER STUDY:

The nature of the distribution of each predictive variable was studied both for male and female samples of science and arts stream, and for the total sample, with the help of frequency distributions, statistical values (Mean, Median, S.D., Q.D., Skewness and Kurtosis & frequency polygons). The nature of the distribution of each predictive variable is discussed separately as under.

4.1.1 NATURE OF DISTRIBUTION OF FAMILY CLIMATE SCORES

SAMPLE OF ARTS STUDENTS:

In order to scrutinize the nature of Family climate scores in the selected sample of male and female students of arts stream and of the total arts students of senior secondary stage, the scores procured on the Family Environment Scale were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table below.
Table 4.1.1.1

Frequency distribution of the Family Climate Scores of boys and girls of arts stream and of the total sample of arts students.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Arts)</th>
<th>Girls (Arts)</th>
<th>Total Arts Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>6</td>
<td>3.3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>10</td>
<td>5.6</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>27</td>
<td>15.0</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>51</td>
<td>28.3</td>
<td>28</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>83</td>
<td>46.1</td>
<td>34</td>
</tr>
<tr>
<td>7</td>
<td>37</td>
<td>120</td>
<td>66.7</td>
<td>37</td>
</tr>
<tr>
<td>8</td>
<td>31</td>
<td>151</td>
<td>83.9</td>
<td>23</td>
</tr>
<tr>
<td>9</td>
<td>20</td>
<td>171</td>
<td>95.0</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>177</td>
<td>98.3</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>180</td>
<td>100.0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>180</td>
<td></td>
<td>165</td>
</tr>
</tbody>
</table>

A perusal of the above table indicates that most of the frequencies are within the range of 214 to 279. This shows that majority of the subjects are concentrated in the middle of the distributions i.e. there is normal tendency in the scores of Family Climate. This trend is also visible from the given figures 4.1.1.1.1, 4.1.1.1.2. & 4.1.1.1.3.
Fig. 4.1.1.1.1

Frequency polygon showing Family Climate scores of boys of arts stream.

(N=180)
Fig. 4.1.1.1.2

Frequency polygons showing Family Climate scores of girls of arts stream

(N=165)
Fig. 4.1.1.1.3

Frequency polygons showing Family Climate scores of total arts students (boys + girls) (N=345)

In order to further understand variation existing between two groups and dispersion within the arts group of boys, girls and the total arts sample the Mean, Median, S.D., Q.D. Skewness and Kurtosis were also computed and are given in the table below.
Table 4.1.1.2

Statistical measures of the Family Climate scores of boys, girls and total sample of Arts stream.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys (180)</td>
<td>247.58</td>
<td>249.00</td>
<td>21.43</td>
<td>25</td>
<td>-.162</td>
<td>-.188</td>
</tr>
<tr>
<td>Girls (165)</td>
<td>248.26</td>
<td>247.00</td>
<td>21.84</td>
<td>25</td>
<td>.424</td>
<td>.016</td>
</tr>
<tr>
<td>Total (345)</td>
<td>247.90</td>
<td>248.08</td>
<td>21.60</td>
<td>25</td>
<td>.117</td>
<td>-.086</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.1.2 reveals the skewness and kurtosis values. The negative value of skewness (-.086) suggests that data is skewed to the left, and is approximately symmetric. The excess kurtosis (.117) is slightly greater than zero implies that distribution is slightly leptokurtic.

The observations lead to the conclusion that Family climate scores of arts students are normally distributed.

**SAMPLE OF SCIENCE STUDENTS:**

In order to scrutinize the nature of Family climate scores in the selected population of male and female students of science stream and of the total science students, the scores procured on the Family Environment Scale were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.1.3.
Table- 4.1.1.3

Frequency distribution of the Family Climate Scores of boys and girls of science stream and of the total sample of science students.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Science)</th>
<th>Girls (Science)</th>
<th>Total Science Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>131 – 150</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>2</td>
<td>151 – 170</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>171 – 190</td>
<td>3</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>4</td>
<td>191 – 210</td>
<td>4</td>
<td>8</td>
<td>2.9</td>
</tr>
<tr>
<td>5</td>
<td>211 – 230</td>
<td>37</td>
<td>45</td>
<td>16.3</td>
</tr>
<tr>
<td>6</td>
<td>231 – 250</td>
<td>71</td>
<td>116</td>
<td>42.0</td>
</tr>
<tr>
<td>7</td>
<td>251 – 270</td>
<td>89</td>
<td>205</td>
<td>74.3</td>
</tr>
<tr>
<td>8</td>
<td>271 – 290</td>
<td>59</td>
<td>264</td>
<td>95.7</td>
</tr>
<tr>
<td>9</td>
<td>291 – 310</td>
<td>11</td>
<td>275</td>
<td>99.6</td>
</tr>
<tr>
<td>10</td>
<td>311 – 330</td>
<td>1</td>
<td>276</td>
<td>100</td>
</tr>
</tbody>
</table>

From the table 4.1.1.3 it may be discernible that the Family climate scores of science students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of boys, girls as well as of the total students, thereby indicating a normal distribution of the Family climate scores in the population. This also shows that the trend of Family climate of the population under study is towards moderate Family environment. The pictorial representation (vide Fig. 4.1.1.3) of the nature of distribution of Family climate scores also confirms the above observation.
Fig. 4.1.1.3.1

Frequency polygon showing Family climate scores of boys of science stream

(N=276)
Fig. 4.1.1.3.2

Frequency polygon showing Family climate scores of girls of science stream.

(N=244)
Fig. 4.1.1.3.3

Frequency polygon showing Family climate scores of total science stream students (Boys + Girls) (N=520)

The calculated statistical values like Mean, Median, S.D., Q.D., Skewness, and Kurtosis of Family climate scores of male, females of science and of the total science sample are presented in table 4.1.1.4 in order to understand the variation existing between two groups and dispersion between the groups.
Table- 4.1.1.4

Statistical measures of the Family Climate scores of boys, girls and total science sample.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(276)</td>
<td>250.87</td>
<td>251.00</td>
<td>24.17</td>
<td>25</td>
<td>1.825</td>
<td>-.602</td>
</tr>
<tr>
<td>Girls(244)</td>
<td>263.66</td>
<td>266.00</td>
<td>23.26</td>
<td>25</td>
<td>.937</td>
<td>-.636</td>
</tr>
<tr>
<td>Total- 520</td>
<td>263.02</td>
<td>265.00</td>
<td>23.07</td>
<td>25</td>
<td>0.809</td>
<td>-.584</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.1.4 reveals that the negative value of skewness (-.584) suggests that data is skewed to the left, which implies that the distribution is moderately skewed. The excess kurtosis (0.809) is slightly greater than zero implies that distribution is slightly leptokurtic.

The observations lead to the conclusion that Family climate scores of the science students are normally distributed.

4.1.2 NATURE OF DISTRIBUTION OF MENTAL HEALTH SCORES

The scores obtained on the Mental Health Battery were organised in a frequency distribution for the total sample of arts and science as well as for the sub-samples of boys and girls of science and arts stream and are detailed below.

SAMPLE OF ARTS STUDENTS:

In order to scrutinize the nature of Mental health scores in the selected population of male and female students of arts stream and of the total arts students of senior secondary stage, the scores procured on the Mental Health Battery were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.2.1.
Table 4.1.2.1

Frequency distribution of the Mental Health Scores of boys and girls of arts stream and the total arts sample.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Arts Boys</th>
<th>Arts Girls</th>
<th>Total Arts Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>51 – 55</td>
<td>5</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>2</td>
<td>56 – 60</td>
<td>5</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>3</td>
<td>61 – 65</td>
<td>6</td>
<td>16</td>
<td>8.9</td>
</tr>
<tr>
<td>4</td>
<td>66 – 70</td>
<td>17</td>
<td>33</td>
<td>18.3</td>
</tr>
<tr>
<td>5</td>
<td>71 – 75</td>
<td>35</td>
<td>68</td>
<td>37.8</td>
</tr>
<tr>
<td>6</td>
<td>76 – 80</td>
<td>36</td>
<td>104</td>
<td>57.8</td>
</tr>
<tr>
<td>7</td>
<td>81 – 85</td>
<td>47</td>
<td>151</td>
<td>83.9</td>
</tr>
<tr>
<td>8</td>
<td>86 – 90</td>
<td>24</td>
<td>175</td>
<td>97.2</td>
</tr>
<tr>
<td>9</td>
<td>91 - 95</td>
<td>5</td>
<td>180</td>
<td>100</td>
</tr>
</tbody>
</table>

N     | 180            | 165     | 345     |

A perusal of the above table indicates that most of the frequencies are within the range of 66 to 90. This shows that majority of the subjects are concentrated in the middle of the distributions i.e. there is normal tendency in the scores of Mental Health. This trend is also visible from the figures 4.1.2.1.1, 4.1.2.1.2, & 4.1.2.1.
Fig. 4.1.2.1.1

Frequency polygon showing Mental health scores of boys of arts stream. (N=180)
Fig. 4.1.2.1.2

Frequency polygon showing Mental health scores of girls of arts stream. (N=165)
Fig. 4.1.2.1.3

Frequency polygon showing Mental health scores of total arts sample (boys + girls) (N=345)

In order to further understand variation existing between two groups and dispersion within the science group of boys, girls and the total sample the Mean, Median, S.D., Q.D. Skewness and Kurtosis were also computed and are given in the table below.
Table 4.1.2.2

Statistical measures of the Mental Health scores of boys, girls and total sample of arts stream.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(180)</td>
<td>82.36</td>
<td>83.00</td>
<td>9.067</td>
<td>75</td>
<td>.494</td>
<td>-.700</td>
</tr>
<tr>
<td>Girls(165)</td>
<td>81.11</td>
<td>81.00</td>
<td>10.02</td>
<td>25</td>
<td>.992</td>
<td>.201</td>
</tr>
<tr>
<td>Total- 345</td>
<td>81.76</td>
<td>82.00</td>
<td>9.539</td>
<td>50</td>
<td>.673</td>
<td>-.221</td>
</tr>
</tbody>
</table>

The perusal of the above Table 4.1.2.2 reveals that the negative value of skewness (-.221) suggests that data is skewed to the left. The excess kurtosis (.673) is slightly greater than zero implies that distribution is slightly leptokurtic.

The observations lead to the conclusion that Mental health scores of arts students are normally distributed.

**SAMPLE OF SCIENCE STUDENTS:**

In order to scrutinize the nature of Mental health scores in the selected population of male and female students of science stream and of the total science students of senior secondary stage, the scores procured on the Mental health battery were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.2.3.
Table- 4.1.2.3

Frequency distribution of Mental health scores of science students

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Science)</th>
<th>Girls (Science)</th>
<th>Total Science Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>51 - 60</td>
<td>1</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>2</td>
<td>61 – 70</td>
<td>18</td>
<td>19</td>
<td>6.9</td>
</tr>
<tr>
<td>3</td>
<td>71 – 80</td>
<td>64</td>
<td>83</td>
<td>30.1</td>
</tr>
<tr>
<td>4</td>
<td>81 – 90</td>
<td>105</td>
<td>188</td>
<td>68.1</td>
</tr>
<tr>
<td>5</td>
<td>91 – 100</td>
<td>83</td>
<td>271</td>
<td>98.2</td>
</tr>
<tr>
<td>6</td>
<td>101 - 110</td>
<td>5</td>
<td>276</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>276</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the above observation of the table 4.1.2.3 it may be discernible that the Mental health scores of science students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of science boys, girls as well as of the total science students, thereby indicating a normal distribution of the Mental health scores in the population. This also shows that the trend of Mental health of the population under study is towards moderate Mental health. The pictorial representation (vide Fig. 4.1.2.3) of the nature of distribution of Mental health scores also confirms the above observation.
Fig. 4.1.2.3.1

Frequency polygon showing Mental health scores of boys of science stream

(N=276)
Fig. 4.1.2.3.2

Frequency polygon showing Mental health scores of girls of science stream.

(N=244)
Fig. 4.1.2.3.3

Frequency polygon showing Mental health scores of total science sample (boys + girls) (N=520)

The calculated statistical values like Mean, Median, S.D., Q.D., Skewness, and Kurtosis of Mental health scores of male, females of science and of the total science sample are presented in table 4.1.2.4 in order to understand the variation existing between two groups and dispersion between the groups.
### Table- 4.1.2.4

Statistical measures of the Mental health scores of the boys, girls and total sample of science stream

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(276)</td>
<td>85.29</td>
<td>86.00</td>
<td>8.99</td>
<td>25</td>
<td>-.348</td>
<td>.361</td>
</tr>
<tr>
<td>Girls(244)</td>
<td>88.04</td>
<td>88.00</td>
<td>7.983</td>
<td>25</td>
<td>.728</td>
<td>-.666</td>
</tr>
<tr>
<td>Total- 520</td>
<td>86.58</td>
<td>88.00</td>
<td>8.639</td>
<td>25</td>
<td>.020</td>
<td>-.515</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.2.4 reveals the negative value of skewness (-.515) suggests that data is skewed to the left. The excess kurtosis (.020) is slightly greater than zero implies that distribution is slightly leptokurtic.

The observations leads to the conclusion that Mental health scores of science students are normally distributed.

### 4.1.3 NATURE OF DISTRIBUTION OF STUDY HABITS SCORES

The scores obtained on the Study habits inventory were organised in a frequency distribution for the total sample as well as for the sub-samples of boys and girls of arts & science stream and are detailed in the tables below.

#### SAMPLE OF ARTS STUDENTS:

In order to scrutinize the nature of Study habits scores in the selected population of male and female students of arts stream and total sample of arts students, the scores procured on the Study habits inventory were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.3.1.
### Table 4.1.3.1

Frequency distribution of Study habits scores of arts boys, girls and of the total arts sample

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Arts)</th>
<th>Girls (Arts)</th>
<th>Total Arts Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>36 – 47</td>
<td>10</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>2</td>
<td>48 – 59</td>
<td>67</td>
<td>77</td>
<td>42.8</td>
</tr>
<tr>
<td>3</td>
<td>60 – 71</td>
<td>94</td>
<td>171</td>
<td>95.0</td>
</tr>
<tr>
<td>4</td>
<td>72 – 83</td>
<td>09</td>
<td>180</td>
<td>100</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the above observation of the table 4.1.3.1 it may be discernible that the Study habits scores of arts students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of boys, girls as well as of the total students, thereby indicating a normal distribution of the Study habits scores in the population. This also shows that the trend of Study habits of the population under study is towards moderate Study habits. The pictorial representation (vide Figs. 4.1.3.1.1, 4.1.3.1.2 & 4.1.3.1.3) of the nature of distribution of Study habits scores also confirms the above observation.
Fig. 4.1.3.1.1

Frequency polygon showing Study habits scores of boys of arts stream. (N=180)
Fig. 4.1.3.1.2

Frequency polygon showing Study habits scores of girls of arts stream. (N=165)
Fig. 4.1.3.1.3

**Frequency polygon showing Study habits scores of total arts sample (boys + girls) (N=345)**

In order to further understand variation existing between two groups and dispersion within the group of boys, girls of arts and the total arts sample the Mean, Median, S.D., Q.D. Skewness and Kurtosis were also computed and are given in the table below.
Table- 4.1.3.2

Statistical measures of the Study habits scores of the arts boys, girls and total arts sample

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(180)</td>
<td>59.89</td>
<td>61.00</td>
<td>7.440</td>
<td>25</td>
<td>-.178</td>
<td>-.416</td>
</tr>
<tr>
<td>Girls(165)</td>
<td>60.84</td>
<td>62.00</td>
<td>7.369</td>
<td>25</td>
<td>.550</td>
<td>-.781</td>
</tr>
<tr>
<td>Total- 345</td>
<td>60.35</td>
<td>61.50</td>
<td>7.410</td>
<td>25</td>
<td>.097</td>
<td>-.584</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.3.2 reveals that the negative value of skewness (-.584) suggests that data is skewed to the left, and the distribution is moderately skewed. The excess kurtosis (.097) is slightly greater than zero implies that distribution is slightly leptokurtic.

The observations leads to the conclusion that Study habits scores of arts students are normally distributed.

**SAMPLE OF SCIENCE STUDENTS:**

In order to scrutinize the nature of Study habits scores in the selected population of male and female students of science stream and total science students, the scores procured on the Study habits were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.3.3.
Table 4.1.3.3

Frequency distribution of Study habits scores of science boys, girls and of the total science sample

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Science)</th>
<th>Girls (Science)</th>
<th>Total Science Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>36 – 40</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>41 – 45</td>
<td>3</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>3</td>
<td>46 – 50</td>
<td>15</td>
<td>18</td>
<td>6.5</td>
</tr>
<tr>
<td>4</td>
<td>51 – 55</td>
<td>36</td>
<td>54</td>
<td>19.6</td>
</tr>
<tr>
<td>5</td>
<td>56 – 60</td>
<td>48</td>
<td>102</td>
<td>37.0</td>
</tr>
<tr>
<td>6</td>
<td>61 – 65</td>
<td>75</td>
<td>177</td>
<td>64.1</td>
</tr>
<tr>
<td>7</td>
<td>66 – 70</td>
<td>73</td>
<td>250</td>
<td>90.6</td>
</tr>
<tr>
<td>8</td>
<td>71 – 75</td>
<td>22</td>
<td>272</td>
<td>98.6</td>
</tr>
<tr>
<td>9</td>
<td>76 – 80</td>
<td>4</td>
<td>276</td>
<td>100</td>
</tr>
</tbody>
</table>

| N    | 276            | 244            | 520            |

From the above observation of the table 4.1.3.3 it may be discernible that the Study habits scores of science students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of boys, girls as well as of the total students, thereby indicating a normal distribution of the Study habits scores in the population. This also shows that the trend of Study habits of the population under study is towards moderate Study habits. The pictorial representation (vide Figs. 4.1.3.3.1, 4.1.3.3.2 & 4.1.3.3.3) of the nature of distribution of Study habits scores also confirms the above observation.
Fig. 4.1.3.3.1

Frequency polygon showing Study habits scores of boys of science stream.

(N=276)
Fig. 4.1.3.3.2

Frequency polygon showing Study habits scores of girls of science stream.

(N=244)
Fig. 4.1.3.3.3

Frequency polygon showing Study habits scores of total students of science stream (boys + girls) (N=520)

The calculated statistical values like Mean, Median, S.D., Q.D., Skewness, and Kurtosis of Study habits scores of male, females of science and of the total science sample are presented in table 4.1.3.4 in order to understand the variation existing between two groups and dispersion between the groups.
Table- 4.1.3.4

Statistical measures of the Study habits scores of the science boys, girls and total science students

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls(244)</td>
<td>64.13</td>
<td>64.00</td>
<td>6.76</td>
<td>25</td>
<td>1.232</td>
<td>-.702</td>
</tr>
<tr>
<td>Boys(276)</td>
<td>62.18</td>
<td>63.00</td>
<td>7.093</td>
<td>25</td>
<td>-.113</td>
<td>-.400</td>
</tr>
<tr>
<td>Total</td>
<td>63.094</td>
<td>64.00</td>
<td>7.00</td>
<td>25</td>
<td>.368</td>
<td>-.534</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.3.4 reveals that the negative value of skewness (-.534) suggests that data is skewed to the left, and the distribution is moderately skewed. The excess kurtosis (.368) is greater than zero implies that distribution is leptokurtic.

The observations leads to the conclusion that Study habits scores of science students are normally distributed.

4.1.4 NATURE OF DISTRIBUTION OF SELF CONFIDENCE SCORES

The scores obtained on the Self confidence inventory were organised in a frequency distribution for the total sample as well as for the sub-samples of boys and girls of arts & science stream which is detailed below.

SAMPLE OF ARTS STUDENTS:

In order to scrutinize the nature of Self confidence scores in the selected population of male and female students of arts stream and of the total sample of arts students, the scores procured on Self confidence inventory were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.4.1.
Table 4.1.4.1

Frequency distribution of the Self confidence scores of boys and girls of arts and of the total arts sample.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Arts)</th>
<th>Girls (Arts)</th>
<th>Total Arts Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>f</td>
<td>c.f</td>
<td>%c.f</td>
</tr>
<tr>
<td>1</td>
<td>1 – 6</td>
<td>1</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>2</td>
<td>7 – 12</td>
<td>10</td>
<td>11</td>
<td>6.1</td>
</tr>
<tr>
<td>3</td>
<td>13 – 18</td>
<td>22</td>
<td>33</td>
<td>18.3</td>
</tr>
<tr>
<td>4</td>
<td>19 – 24</td>
<td>34</td>
<td>67</td>
<td>37.2</td>
</tr>
<tr>
<td>5</td>
<td>25 – 30</td>
<td>39</td>
<td>106</td>
<td>58.9</td>
</tr>
<tr>
<td>6</td>
<td>31 – 36</td>
<td>50</td>
<td>156</td>
<td>86.7</td>
</tr>
<tr>
<td>7</td>
<td>37 – 42</td>
<td>18</td>
<td>174</td>
<td>96.7</td>
</tr>
<tr>
<td>8</td>
<td>43 – 48</td>
<td>6</td>
<td>180</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>49 – 54</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N 180 165 345

From the table 4.1.4.1 it may be discernible that the Self confidence scores of arts students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of boys, girls as well as of the total students, thereby indicating a normal distribution of the Self confidence scores in the population. This also shows that the trend of Self confidence of the population under study is towards moderate Self confidence.

The pictorial representation (vide Figs. 4.1.4.1.1, 4.1.4.1.2 & 4.1.4.1.3) of the nature of distribution of Self confidence scores also confirms the above observation.
Fig. 4.1.4.1.1

Frequency polygon showing Self confidence scores of boys of arts stream.

(N=180)
Fig. 4.1.4.1.2

Frequency polygon showing Self confidence scores of girls of arts stream.

(N=165)
Fig. 4.1.4.1.3

Frequency polygon showing Self confidence scores of the total students of arts stream (boys + girls) (N=345)

In order to further understand variation existing between two groups and dispersion within the arts group of boys, girls and the total sample the Mean, Median, S.D., Q.D. Skewness and Kurtosis were also computed and are given in the table below.
Table- 4.1.4.2

Statistical measures of Self confidence scores of arts boys, girls and total sample of arts students

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(180)</td>
<td>27.44</td>
<td>28.50</td>
<td>9.024</td>
<td>25</td>
<td>-.205</td>
<td>-.091</td>
</tr>
<tr>
<td>Girls(165)</td>
<td>30.81</td>
<td>30.00</td>
<td>8.321</td>
<td>25</td>
<td>.512</td>
<td>-.249</td>
</tr>
<tr>
<td>Total-345</td>
<td>29.05</td>
<td>29.00</td>
<td>8.843</td>
<td>25</td>
<td>.031</td>
<td>-.193</td>
</tr>
</tbody>
</table>

The perusal of the above Table 4.1.4.2 reveals that the negative value of skewness (-.193) suggests that data is skewed to the left, and the distribution is approximately symmetric. The excess kurtosis (.031) is slightly less than zero implies that distribution is leptokurtic. The probability of extreme values is less than for a normal distribution and the values are wider spread around the mean.

The observations leads to the conclusion that Self confidence scores of arts students are normally distributed.

**SAMPLE OF SCIENCE STUDENTS:**

In order to scrutinize the nature of Self confidence scores in the selected population of male and female students of science stream and of the total sample of science, the scores procured on Self confidence inventory were assorted in a tabular form. A frequency distribution of the scores was prepared, which is given in the table 4.1.4.3.
Table- 4.1.4.3

Frequency distribution of the Self confidence scores of boys and girls of science and of the total science sample.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Class Interval</th>
<th>Boys (Science)</th>
<th>Girls (Science)</th>
<th>Total Science Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F  c.f  %c.f</td>
<td>f  c.f  %c.f</td>
<td>f  c.f  %c.f</td>
</tr>
<tr>
<td>1</td>
<td>1 – 10</td>
<td>19  19  6.9</td>
<td>22  22  9.0</td>
<td>41  41  7.9</td>
</tr>
<tr>
<td>2</td>
<td>11 – 20</td>
<td>77  96  34.8</td>
<td>76  98  40.2</td>
<td>153 194 37.3</td>
</tr>
<tr>
<td>3</td>
<td>21 – 30</td>
<td>106 202 73.2</td>
<td>98 196 80.3</td>
<td>204 398 76.5</td>
</tr>
<tr>
<td>4</td>
<td>31 – 40</td>
<td>66 268 97.1</td>
<td>35 231 94.7</td>
<td>101 499 96.0</td>
</tr>
<tr>
<td>5</td>
<td>41 – 50</td>
<td>8  276 100</td>
<td>13 244 100</td>
<td>21  520 100</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>276</td>
<td>244</td>
<td>520</td>
</tr>
</tbody>
</table>

From the above observation of the table 4.1.4.3 it may be discernible that the Self confidence scores of science students are concentrated in the middle of the distribution and show gradual decrease towards the ends amongst the scores of boys, girls as well as of the total students, thereby indicating a normal distribution of the Self confidence scores in the population. This also shows that the trend of Self confidence of the population under study is towards moderate Self confidence. The pictorial representation (vide Fig. 4.1.4.3.1, 4.1.4.3.2 & 4.1.4.3.3) of the nature of distribution of Self confidence scores also confirms the above observation.
Fig. 4.1.4.3.1

Frequency polygon showing Self confidence scores of boys of science stream.

(N=276)
Fig. 4.1.4.3.2

Frequency polygon showing Self confidence scores of girls of science stream.  
(N=244)
The calculated statistical values like Mean, Median, S.D., Q.D., Skewness, and Kurtosis of Self confidence scores of male, females of science and of the total science sample are presented in table 4.1.4.4 in order to understand the variation existing between two groups and dispersion between the groups.
Table- 4.1.4.4

Statistical measures of the Self confidence scores of science boys, girls and total science sample

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>Q.D.</th>
<th>Ku</th>
<th>Sk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys(276)</td>
<td>24.39</td>
<td>25.00</td>
<td>9.440</td>
<td>25</td>
<td>-.354</td>
<td>-.046</td>
</tr>
<tr>
<td>Girls(244)</td>
<td>23.03</td>
<td>23.00</td>
<td>9.215</td>
<td>25</td>
<td>-.083</td>
<td>.173</td>
</tr>
<tr>
<td>Total- 520</td>
<td>23.75</td>
<td>24.00</td>
<td>9.351</td>
<td>25</td>
<td>-.270</td>
<td>.057</td>
</tr>
</tbody>
</table>

A careful glance of the Table 4.1.4.4 reveals that the positive value of skewness (.057) suggests that data is skewed to the right, and the distribution is approximately symmetric. The excess kurtosis (-.270) is slightly less than zero implies that distribution is platikurtic. The observations leads to the conclusion that Self confidence scores of science students are normally distributed.

4.2- ANALYSIS ON THE BASIS OF CORRELATION-

Objective.1-To study the relationship between criterion variable (i.e. academic achievement) and various predictor variables that is (family climate, mental health, study habits and self confidence).

Hypothesis.1- There is significant relationship between criterion variable (i.e. academic achievement) and various predictor variables (i.e. family climate, mental health, study habits and self confidence).

To verify hypothesis no.1 Product Moment Correlation was applied and the relationship was calculated between criterion variable (i.e. academic achievement) and various predictor variables (i.e. family climate, mental health, study habits and self confidence).

The correlation values of various predictor variables and criterion variable is given in table-4.2.1.
4.2.1. Correlation of Family climate and Academic achievement

Objective.1(a)- To study the relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. family climate).

Hypothesis.1(a)- There is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. family climate).

To verify hypothesis no.1(a) Product Moment Correlation was applied and the relationship was calculated between criterion variable (i.e. academic achievement) and predictor variable (i.e. family climate).

The correlation value of Family climate and Academic achievement is given in table-4.2.2

<table>
<thead>
<tr>
<th>Dimensions of Family Climate (FC)</th>
<th>Academic Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesion (F1)</td>
<td>.1974**</td>
</tr>
<tr>
<td>Expressiveness (F2)</td>
<td>.0197NS</td>
</tr>
<tr>
<td>Conflict (F3)</td>
<td>.1917**</td>
</tr>
<tr>
<td>Acceptance &amp; Caring (F4)</td>
<td>.2101**</td>
</tr>
<tr>
<td>Independence (F5)</td>
<td>.2101**</td>
</tr>
<tr>
<td>Active Recreational Orientation (F6)</td>
<td>.2198**</td>
</tr>
<tr>
<td>Organization (F7)</td>
<td>.0982**</td>
</tr>
<tr>
<td>Control (F8)</td>
<td>.2024**</td>
</tr>
<tr>
<td>Family Climate</td>
<td>.2424**</td>
</tr>
</tbody>
</table>

** = Significant at .01 level

NS = Not significant at any level.

- It is evident from the table 4.2.2 that there is significant and positive relationship between Cohesion and academic achievement (r=.1974), conflict and academic achievement (r=.1917), acceptance & caring and academic achievement (r=.2101), independence and academic
achievement \((r=0.2101)\), active recreational orientation and academic achievement \((r=0.2198)\), organization and academic achievement \((r=0.0982)\), & control and academic achievement \((r=0.2024)\). On the other hand a positive and not significant relationship was found between expressiveness and academic achievement \((r=0.0197)\).

Thus, it is evident from the table 4.2.2 that there exists significant and positive relationship between Family climate and Academic achievement \((r=0.2424)\). Therefore, a part of the first hypothesis i.e. 1(a) “there is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. family climate)” is accepted.

4.2.2. Correlation of Mental health and Academic achievement.

Objective.1(b)-To study the relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. mental health).

Hypothesis.1(b)- There is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. mental health).

To verify hypothesis no.1(b) Product Moment Correlation was applied and the relationship was calculated between criterion variable (i.e. academic achievement) and predictor variable i.e. Mental health.

The correlation value of Mental health and Academic achievement is given in table-4.2.3
Table-4.2.3

Showing relationship between Academic achievement and various dimensions of Mental Health.

<table>
<thead>
<tr>
<th>Dimensions of Mental Health (MH)</th>
<th>Academic Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Stability (M1)</td>
<td>.0230^{NS}</td>
</tr>
<tr>
<td>Adjustment (M2)</td>
<td>.1178^{**}</td>
</tr>
<tr>
<td>Autonomy (M3)</td>
<td>.0756^{*}</td>
</tr>
<tr>
<td>Security Insecurity (M4)</td>
<td>.0652^{*}</td>
</tr>
<tr>
<td>Self Concept (M5)</td>
<td>.1798^{**}</td>
</tr>
<tr>
<td>Intelligence (M6)</td>
<td>.3612^{**}</td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td><strong>.2587^{</strong>}**</td>
</tr>
</tbody>
</table>

** = Significant at .01 level
* = Significant at .05 level
NS = Not significant at any level.

- It is evident from the table 4.2.3 that there is significant and positive relationship between adjustment and academic achievement (r=.1178), autonomy and academic achievement (r=.0756), security- insecurity and academic achievement (r=.0652). Also, a significant and positive relationship is found between self concept and academic achievement (r=.1798), intelligence and academic achievement (r=.3612). Contradictory to these, a positive and no significant relationship was found between emotional stability and academic achievement (0230).

- Thus it is evident from the table 4.2.3 that there is significant and positive relationship between Mental health and Academic achievement (r=.2587). Therefore, a part of the first hypothesis i.e., 1(b) “there is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. mental health)” is accepted.
4.2.3. **Correlation of Study habits and Academic achievement.**

**Objective.1(c)-To study the relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. study habits).**

**Hypothesis.1(c)- There is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. study habits).**

To verify hypothesis no.1(c) Product Moment Correlation was applied and the relationship was calculated between criterion variable (i.e. academic achievement) and predictor variable i.e. study habits.

The correlation value of Study habits and Academic achievement is given in table-4.2.4.

**Table-4.2.4**

*Showing relationship between Academic achievement and various dimensions of Study Habits.*

<table>
<thead>
<tr>
<th>Dimensions of Study Habits (SH)</th>
<th>Academic Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting Time (P1)</td>
<td>.0927**</td>
</tr>
<tr>
<td>Physical conditions for study (P2)</td>
<td>.1732**</td>
</tr>
<tr>
<td>Reading Ability (P3)</td>
<td>.0528NS</td>
</tr>
<tr>
<td>Note Taking (P4)</td>
<td>.0048NS</td>
</tr>
<tr>
<td>Factors in Learning Motivation (P5)</td>
<td>.1197**</td>
</tr>
<tr>
<td>Memory (P6)</td>
<td>.1546**</td>
</tr>
<tr>
<td>Taking Examinations (P7)</td>
<td>.0409NS</td>
</tr>
<tr>
<td>Health (P8)</td>
<td>.1260**</td>
</tr>
<tr>
<td><strong>Study Habits</strong></td>
<td><strong>.1553</strong></td>
</tr>
</tbody>
</table>

** = Significant at .01 level  
NS = Not significant at any level.

- It is evident from the table 4.2.4 that there is significant and positive relationship between budgeting time and academic achievement 
  \((r=.0927)\), physical conditions for study and academic achievement 
  \((r=.1732)\), factors in learning motivation and academic achievement
(r=.1197), memory and academic achievement (r=.1546), & health and academic achievement (r=.1260). On the other hand, a positive and no significant relationship was found between reading ability and academic achievement (r=.0528), note taking and academic achievement (r=.0048), & taking examinations and academic achievement (r=.0409).

Thus it is evident from the table 4.2.4 that there is significant and positive relationship between Study habits and Academic achievement (r=.1553). Therefore, a part of the first hypothesis i.e. 1(c) “there is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. study habits)” is accepted.

4.2.4. Correlation of Self confidence and Academic achievement.

**Objective.1(d)**-To study the relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. self confidence).

**Hypothesis.1(d)**- There is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. self confidence).

To verify hypothesis no.1(d) Product moment Correlation was applied and the relationship was calculated between criterion variable (i.e. academic achievement) and predictor variable i.e. self confidence.

The correlation value of Self confidence and academic achievement is given in table-4.2.5.

<table>
<thead>
<tr>
<th>Table-4.2.5</th>
<th>Showing relationship between Self Confidence and Academic achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
<td>Academic Achievement</td>
</tr>
<tr>
<td>Self-confidence</td>
<td>.1424**</td>
</tr>
</tbody>
</table>

** = Significant at .01 level

It is evident from the above table 4.2.5 that there is significant and positive relationship between Self confidence and Academic achievement (r=.1424). Therefore, a part of the first hypothesis i.e., 1(d)
there is significant relationship between criterion variable (i.e. academic achievement) and predictor variable (i.e. self confidence)" is accepted.

Thus, it is clear from the above tables viz., 4.2.2, 4.2.3, 4.2.4 & 4.2.5, that there exists a significant and positive relationship between criterion variable i.e. Academic achievement and various predictor variables (i.e. family climate, mental health, study habits and self confidence). Therefore, the first hypothesis “there is significant relationship between criterion variable (i.e. academic achievement) and various predictor variables (i.e. family climate, mental health, study habits and self confidence)” is accepted.

4.3- ANALYSIS ON THE BASIS OF MULTIPLE REGRESSION-

Objective.2- To study the contributory role of various predictor variables (i.e. family climate, mental health, study habits and self confidence) on criterion variable (i.e. academic achievement).

Hypothesis.2- Each predictor variables (i.e. family climate, mental health, study habits, and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement).

To verify second hypothesis Multiple Regression was applied and the contributory role of predictor variables (i.e. family climate, mental health, study habits, and self confidence) on criterion variable (i.e. academic achievement) of the total sample (N=865) has been observed.

The Beta value, R², Simple r and t-value of five dimensions (out of 22 dimensions) of three independent variables (out of 4 independent variables) i.e. M6 (dimension of mental health), F6 (dimension of family climate), P6 (dimension of study habits), M1 (dimension of mental health) & F5 (dimension of family climate) were computed and are presented in the table given below.
Table 4.3.1 Determinants of Academic achievement of the total sample.

N=865

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent variable i.e. Academic Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>Intelligence (M6)</td>
<td>.32122**</td>
</tr>
<tr>
<td>Active-recreational orientation (F6)</td>
<td>.10738**</td>
</tr>
<tr>
<td>Memory (P6)</td>
<td>.09653**</td>
</tr>
<tr>
<td>Emotional stability (M1)</td>
<td>-.09257**</td>
</tr>
<tr>
<td>Independence (F5)</td>
<td>.08521**</td>
</tr>
</tbody>
</table>

Multiple R = .41269
Total R Square = .17031

** = significant at .01 level.

- Table 4.3.1 depicts the influence of only five dimensions of three predictor variables (out of 22 dimensions and 4 predictor variables) on students’ Academic achievement. Table 4.3.1 clearly depicts that the t-value is found to be highly significant at .01 level of confidence. This clearly indicates that five dimensions of three independent variables i.e. M6 (dimension of mental health), F6 (dimension of family climate), P6 (dimension of study habits), M1 (dimension of mental health) & F5 (dimension of family climate), contributes significantly in determining the Academic achievement of total sample (both science and arts stream students).

- Again the value of $R^2$, (coefficient of multiple determination) being .17031 is indicative of the fact that 17% of the variance in academic achievement of the total students is accounted by these five dimensions.
(out of 22 dimensions of 3 independent variables) i.e.:-(M6, F6, P6, M1 & F5) and the remaining percentage of the variance is still to be accounted for by the other variables which are not included in the study. It can be inferred from the above discussion that the variance accounted for by the independent variables under this study is low. This low percentage in the total sample is may be due to the non-significant effects of the determining variables on the criterion variable in the case of total sample.

- The beta value from the table clearly depicts that it is positively significant in case of factors M6, F6, P6, & F5, which enables us to conclude that an increase in per unit in these four factors of three independent variables i.e. M6, F6, P6, & F5, Academic achievement of the respondents’ increases only by .32122, .10738, .09653, & .08521 units respectively.

- But, beta value is negative in case of factor M1, which depicts that increase in per unit in factor M1 of the subjects, Academic achievement of the subjects decreases by .09257 units.

Thus, in the light of the results mentioned above, the second hypothesis “Each predictor variables (i.e. family climate, mental health, study habits, and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement)” is partially accepted.

Objective.3- To study the contributory role of various predictor variables (i.e. family climate, mental health, study habits and self confidence) on criterion variable (i.e. academic achievement) for the students of science stream.

Hypothesis.3- Each predictor variable (i.e. family climate, mental health, study habits and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement) for the students of science stream.
To verify third hypothesis Multiple Regression was applied and the contributory role of predictor variables (i.e. family climate, mental health, study habits, and self confidence) on criterion variable (i.e. academic achievement) of the science respondents (N=520) has been observed.

The Beta value, R-square, Simple r and t-value of five dimensions (out of 22 dimensions) of three independent variables (out of 4 independent variables) i.e. M6 (dimension of mental health), F6 (dimension of family climate), P4 (dimension of study habits), M1 (dimension of mental health) & P6 (dimension of study habits) were computed and are presented in the table given below.

**Table- 4.3.2 Determinants of Academic Achievement of Science Respondents.**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent variable = Academic Achievement</th>
<th>Beta</th>
<th>R-square</th>
<th>Simple r</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence (M6)</td>
<td></td>
<td>.30753**</td>
<td>10.83</td>
<td>.3292**</td>
<td>7.296</td>
</tr>
<tr>
<td>Active recreational orientation (F6)</td>
<td></td>
<td>.14950**</td>
<td>01.65</td>
<td>.2020**</td>
<td>3.466</td>
</tr>
<tr>
<td>Note taking (P4)</td>
<td></td>
<td>-.10606**</td>
<td>01.03</td>
<td>-.0630NS</td>
<td>2.573</td>
</tr>
<tr>
<td>Emotional stability (M1)</td>
<td></td>
<td>-.10048**</td>
<td>00.69</td>
<td>-.0132NS</td>
<td>2.364</td>
</tr>
<tr>
<td>Memory (P6)</td>
<td></td>
<td>.08372*</td>
<td>00.65</td>
<td>.1097**</td>
<td>1.981</td>
</tr>
</tbody>
</table>

* Multiple R = .38552
* Total R Square = .14863

** = significant at .01 level.
* = significant at .05 level.

- Table- 4.3.2 depicts the influence of only five dimensions (out of 22 dimensions) of three predictor variables (out of 4 independent variables) on students’ Academic achievement. Table- 4.3.2 clearly shows that the t-value is found to be highly significant at .01 level of confidence. This
clearly indicates that dimensions M6 (dimension of mental health), F6 (dimension of family climate), P4 (dimension of study habits), M1 (dimension of mental health) & P6 (dimension of study habits), contributes significantly in determining the Academic achievement of science stream students.

- Again the value of $R^2$, (coefficient of multiple determination) being .14863 is indicative of the fact that 14% of the variance in academic achievement of the science students is accounted by these five dimensions i.e.:- (M6, F6, P4, M1 & P6) and the remaining percentage of the variance is still to be accounted for by the other variables which are not included in the study. It can be inferred from the above discussion that the variance accounted for by the independent variables under this study is low. This low percentage in the total sample is may be due to the non-significant effects of the determining variables on the criterion variable in the case of science stream respondents.

- The beta value from the table clearly depicts that it is positively significant in case of factors M6, F6 & P6, which enables us to conclude that an increase in per unit in the factors (M6, F6 & P6) Academic achievement of the respondents’ increases only by .30753, .14950, & .08372 units respectively.

- But, beta value is negative in case of factors P4 & M1, which depicts that increase in per unit in variables P4 & M1 of the subjects, academic achievement of the subjects decreases by .10606 & .10048 units respectively.

These results, thus, partially confirm the third hypothesis that “Each predictor variable (i.e. family climate, mental health, study habits and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement) for the students of science stream.”
Objective 4- To study the contributory role of various predictor variables (i.e. family climate, mental health, study habits and self confidence) on criterion variable (i.e. academic achievement) for the students of arts stream.

Hypothesis 4- Each predictor variable (i.e. family climate, mental health, study habits and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement) for the students of arts stream.

In order to test the forth hypothesis Multiple Regression was applied and the contributory role of predictor variables (i.e. family climate, mental health, study habits, and self confidence) on criterion variable (i.e. academic achievement) of the arts respondents (N=345) has been observed.

The Beta value, R-square, Simple r and t-value of five dimensions (out of 22 dimensions) of three independent variables (out of 4 independent variables) i.e. F8 (dimension of family climate), P1 (dimension of study habits), M6 (dimension of mental health), F2 (dimension of family climate) & M3 (dimension of mental health) were computed and are presented in the table given below.

Table 4.3.3 Determinants of Academic achievement of Arts Respondents N=345

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent variable = Academic Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td>Control (F8)</td>
<td>.16761**</td>
</tr>
<tr>
<td>Budgeting Time (P1)</td>
<td>.19865**</td>
</tr>
<tr>
<td>Intelligence (M6)</td>
<td>.14180**</td>
</tr>
<tr>
<td>Expressiveness (F2)</td>
<td>-.13805**</td>
</tr>
<tr>
<td>Autonomy (M3)</td>
<td>.13093**</td>
</tr>
</tbody>
</table>

Multiple R = .38125
Total R Square = .14535

** = significant at .01 level.
* = significant at .05 level.
Table 4.3.3 depicts the influence of only five dimensions (out of 22 dimensions) of three predictor variables (out of 4 predictor variables) on students’ Academic achievement. Table 4.3.3 clearly shows that the t-value is found to be highly significant at .01 level of confidence. This clearly indicates that dimensions F8 (dimension of family climate), P1 (dimension of study habits), M6 (dimension of mental health), F2 (dimension of family climate) & M3 (dimension of mental health), contributes significantly in determining the Academic achievement of arts stream students.

Again the value of $R^2$, (coefficient of multiple determination) being .14535 is indicative of the fact that 14% of the variance in academic achievement of the arts students is accounted by these dimensions i.e.:-(F8, P1, M6, F2 & M3) and the remaining percentage of the variance is still to be accounted for by the other variables which are not included in the study. It can be inferred from the above discussion that the variance accounted for by the independent variables under this study is low. This low percentage in the total sample is may be due to the non-significant effects of the determining variables on the criterion variable in the case of arts stream respondents.

The beta value from the table clearly depicts that it is positively significant in case of factors F8, P1, M6 & M3, which enables us to conclude that an increase in per unit in the factors (F8, P1, M6 & M3) Academic achievement of the respondents’ increases only by .16761, .19865, .14180, & .13093 units respectively.

But, beta value is negative in case of factor F2, which depicts that increase in per unit in factor F2 of the subjects, Academic achievement of the subjects’ decreases by .13805 units.
Thus, the above discussed results partially confirm the forth hypothesis that “Each predictor variable (i.e. family climate, mental health, study habits and self confidence) will significantly contribute in determining the criterion variable (i.e. academic achievement) for the students of arts stream.”

4.4- ESTABLISHING REGRESSION EQUATION-

Formula of Multiple Regression-

\[ \bar{X}_1 = b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + K \]  
(Garrett, 1981, P: 412)

Where ,

\( \bar{X}_1 \) = Value of the Dependent variable (\( X_1 \)), what is being predicted or explained.

\( B_2 \) = Slope (Beta coefficient) for \( X_2 \).

\( X_2 \) = First independent variable that is explaining the variance in \( X_1 \).

\( B_3 \) = Slope (Beta coefficient) for \( X_3 \).

\( X_3 \) = Second independent variable that is explaining the variance in \( X_1 \).

\( B_4 \) = Slope (Beta coefficient) for \( X_4 \).

\( X_4 \) = Third independent variable that is explaining the variance in \( X_1 \).

\( B_5 \) = Slope (Beta coefficient) for \( X_5 \).

\( X_5 \) = Fourth independent variable that is explaining the variance in \( X_1 \).

\( K \) = is the Constant or intercept.
Objective- 5: To establish regression equation for the prediction of the criterion variable in relation to science stream group.

4.4.1. Prediction of the criterion variable on the basis of predictive variables in relation to science stream group.

For the prediction of the criterion variable in relation to science stream group the following regression equation can be established-

\[
\bar{X}_1 = b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + K
\]

Where,

\(\bar{X}_1\) = Dependent Variable (Academic Achievement).

\(b_2\) = Slope (Beta coefficient) for Family climate (F6).

\(X_2\) = First independent variable that is explaining the variance in \(\bar{X}_1\).

\(b_3\) = Slope (Beta coefficient) for Mental health (M6 and M1).

\(X_3\) = Second independent variable that is explaining the variance in \(\bar{X}_1\).

\(b_4\) = Slope (Beta coefficient) for Study habits (P4 and P6).

\(X_4\) = Third independent variable that is explaining the variance in \(\bar{X}_1\).

\(b_5\) = Slope (Beta coefficient) for Self confidence.

\(X_5\) = Forth independent variable that is explaining the variance in \(\bar{X}_1\).

\(K\) = is the Constant or intercept i.e. 139. 66.

i.e. Academic achievement = \(b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + K\)
The available results led to set up the following regression equation:

Academic achievement = .14950(X_2) + .20705(X_3) - .02234(X_4) + .0000(X_5) + 139.66

So the achievement of science stream students can be predicted by inserting the value of 5 dimensions of 3 independent variables i.e., Family climate (F6), Mental health (M1 & M6), Study habits (P4 & P6) in the above equation.

Objective- 6: To establish regression equation for the prediction of the criterion variable in relation to arts stream group.

4.4.2. Prediction of the criterion variable on the basis of predictive variables in relation to arts stream group.

For the prediction of the criterion variable in relation to arts stream group the following regression equation can be established-

\[ \bar{X}_1 = b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + K \]

Where,

\[ \bar{X}_1 \] = Dependent Variable (Academic Achievement).

\[ b_2 \] = Slope (Beta coefficient) for Family climate (F8 and F2).

\[ X_2 \] = First independent variable that is explaining the variance in \( \bar{X}_1 \).

\[ b_3 \] = Slope (Beta coefficient) for Mental health (M3 And M6).

\[ X_3 \] = Second independent variable that is explaining the variance in \( \bar{X}_1 \).

\[ b_4 \] = Slope (Beta coefficient) for Study habits (P1).

\[ X_4 \] = Third independent variable that is explaining the variance in \( \bar{X}_1 \).

\[ b_5 \] = Slope (Beta coefficient) for Self confidence.
X₅ is Fourth independent variable that is explaining the variance in X₁.

K = is the Constant or intercept i.e. 140.64.

i.e. Academic achievement = b₂X₂ + b₃X₃ + b₄X₄ + b₅X₅ + K

The available results led to set up the following regression equation:

Academic achievement = .02956(X₂) + .27273(X₃) + 19865(X₄) + .0000(X₅) + 140.64

So the achievement of arts stream students can be predicted by inserting the value of 5 dimensions of 3 independent variables i.e., Family climate (F8 & F2), Mental health (M3 and M6), Study habits (P1) in the above equation.

4.5- ANALYSIS ON THE BASIS OF ‘t’-RATIO-

Subsidiary Objective-1. To compare the academic achievement of students of two faculties that is science and arts.

Subsidiary Hypothesis-1. There will be no statistically significant difference in the mean of the Academic achievement of students of two faculties i.e. science and arts.

4.5.1. Comparison of Academic achievement of students of two faculties i.e. science and arts stream.

In order to compare the academic achievement of students of two faculties i.e., science and arts, ‘t’-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of academic achievement of science and arts respondents are given in table-4.5.1.
### Table-4.5.1

Showing significance of difference between the mean scores of science and arts stream students on the variable of Academic achievement.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Students of Science N=520</th>
<th>Students of Arts N=345</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>Mean 263.68 S.D 57.53</td>
<td>Mean 233.57 S.D 43.06</td>
<td>863</td>
<td>8.30**</td>
</tr>
</tbody>
</table>

** = significant at .01 level.

![Fig. 4.5.1- Mean scores of Science and Arts stream respondents on the variable of Academic achievement.](chart.png)

The table-4.5.1 indicates that there exists a significant difference between the respondents of Science and Arts Stream of U.P. Board on the measure of Academic achievement. The mean value of two groups’ science and arts differs as 263.68 and 233.57 respectively. It clearly shows that students of science perform better as compared to arts stream group. Thus, it can be said with assurance that there exists a marked difference between the respondents of science and arts stream on the variable of Academic achievement, because the calculated t-value (8.30) is found significant at 0.01 level. Therefore, the first subsidiary hypothesis i.e., “There will be no statistically significant difference
in the mean of the Academic achievement of students of two faculties i.e. science and arts” is rejected.

Subsidiary Objective-2- To compare the criterion variable (i.e. academic achievement) and predictor variables (i.e. family climate, mental health, study habits and self confidence) of male and female students of Science stream.

Subsidiary Hypothesis-2- There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their criterion variable i.e. academic achievement and predictor variables (i.e. family climate, mental health, study habits and self confidence).

8.5.2. Comparison between the mean of male and female respondents of Science stream on the variable of Family Climate.

Subsidiary Objective-2(a)- To compare the predictor variable i.e. family climate of male and female students of Science stream.

Subsidiary Hypothesis-2(a)- There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable i.e. family climate.

In order to compare the Family climate of male and female respondents of science stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Family climate of male and female respondents of science stream are given in table-4.5.2.
### Table 4.5.2
Showing significance of difference between the mean scores of male and female respondents of Science stream on the variable of Family climate

<table>
<thead>
<tr>
<th>Dimensions of Family Climate</th>
<th>Males (Science Stream) N=276</th>
<th>Females (Science Stream) N=244</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
<td>S.D</td>
</tr>
<tr>
<td>Cohesion (F1)</td>
<td>53.38</td>
<td>6.17</td>
<td>55.26</td>
<td>5.21</td>
</tr>
<tr>
<td>Expressiveness (F2)</td>
<td>30.57</td>
<td>4.09</td>
<td>31.82</td>
<td>3.94</td>
</tr>
<tr>
<td>Conflict (F3)</td>
<td>43.94</td>
<td>5.77</td>
<td>44.41</td>
<td>5.62</td>
</tr>
<tr>
<td>Acceptance &amp; Caring (F4)</td>
<td>43.91</td>
<td>4.55</td>
<td>45.18</td>
<td>4.51</td>
</tr>
<tr>
<td>Independence (F5)</td>
<td>30.56</td>
<td>4.26</td>
<td>32.70</td>
<td>4.77</td>
</tr>
<tr>
<td>Active-Recreational Orientation (F6)</td>
<td>24.74</td>
<td>4.44</td>
<td>29.39</td>
<td>4.26</td>
</tr>
<tr>
<td>Organization (F7)</td>
<td>7.94</td>
<td>1.77</td>
<td>8.25</td>
<td>1.73</td>
</tr>
<tr>
<td>Control (F8)</td>
<td>15.83</td>
<td>2.96</td>
<td>16.64</td>
<td>2.52</td>
</tr>
<tr>
<td>Family Climate Total</td>
<td>250.87</td>
<td>24.17</td>
<td>263.66</td>
<td>23.26</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
* = significant at .05 level.
N.S = Not Significant.

![Fig. 4.5.2- Mean scores of male and female respondents of science stream on the variable of Family climate.](image-url)
- Above table 4.5.2 depicts that there is a significant difference between male and female respondents of Science stream as the obtained t-value (3.732) is significant at 0.01 level of confidence. The mean value of females (55.26) is higher than the mean value of males (53.38) on the factor Cohesion of Family climate.

- Table 4.5.2 shows that there is a significant difference between male and female respondents of Science stream as the obtained t-value (3.562) is significant at 0.01 level of confidence. The mean value of females (31.82) is higher than the mean value of males (30.57) on the factor Expressiveness of Family climate.

- Table 4.5.2 shows that there is no significant difference between the male and female respondents of Science stream as the obtained t-value (.942) is not significant even at 0.05 level of confidence. The mean value of females is 44.41 on the factor Conflict of Family climate and the mean value of males is 43.94.

- Above table 4.5.2 shows that there is a significant difference between male and female respondents of Science stream as the obtained t-value (3.212) is significant at 0.01 level of confidence. The mean value of females (45.18) is higher than the mean value of males (43.91) on the factor Acceptance and Caring of Family climate.

- Table 4.5.2 depicts that there is a significant difference between male and female respondents of Science stream as the obtained t-value (5.403) is significant at 0.01 level of confidence. The mean value of females (32.70) is higher than the mean value of males (30.56) on the factor Independence of Family climate.

- Table 4.5.2 shows that there is a significant difference between male and female respondents of Science stream as the obtained t-value (3.518) is significant at 0.01 level of confidence. The mean value of females
(29.39) is higher than the mean value of males (24.74) on the factor Active recreational orientation of Family climate.

- Above table 4.5.2 shows that there is a significant difference between male and female respondents of Science stream as the obtained t-value (2.004) is significant at 0.05 level of confidence. The mean value of females (8.25) is higher than the mean value of males (7.94) on the factor Organization of Family climate.

- Table 4.5.2 depicts that there is a significant difference between male and female respondents of Science stream as the obtained t-value (3.339) is significant at 0.01 level of confidence. The mean value of females (16.64) on the factor Control of Family climate is higher than the mean value of males (15.83).

Thus, we can say that there exists a significant difference between male and female respondents of Science stream on the variable of Family climate as the obtained t-value (6.129) is found significant at 0.01 level of confidence. The mean value of males of science stream is 250.87 which is lower than the mean value of females of science stream (263.66). Thus, a part of the second subsidiary hypothesis i.e., 2(a) “There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable (i.e. family climate)” is rejected.

8.5.3. **Comparison between Male and Female respondents of science stream on the variable of Mental health.**

**Subsidiary Objective-2(b)-** To compare the predictor variable i.e. mental health of male and female students of Science stream.

**Subsidiary Hypothesis-2(b)-** There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable i.e. mental health.
In order to compare the Mental health of male and female students of science stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Mental health of male and female respondents of science stream are given in table-4.5.3.

**Table-4.5.3**

Showing significance of difference between the mean scores of male and female respondents of science stream on the variable of Mental health.

<table>
<thead>
<tr>
<th>Dimensions of Mental Health</th>
<th>Males (Science Stream) N=276</th>
<th>Females (Science Stream) N=244</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean (M1) S.D</td>
<td>Mean (M2) S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>10.21 (2.19)</td>
<td>9.96 (2.11)</td>
<td>518</td>
<td>1.309 NS</td>
</tr>
<tr>
<td>Adjustment</td>
<td>27.13 (4.09)</td>
<td>27.86 (3.42)</td>
<td></td>
<td>2.181*</td>
</tr>
<tr>
<td>Autonomy</td>
<td>10.70 (1.69)</td>
<td>11.29 (1.47)</td>
<td></td>
<td>4.234**</td>
</tr>
<tr>
<td>Security Insecurity</td>
<td>8.78 (2.14)</td>
<td>10.06 (2.17)</td>
<td>518</td>
<td>6.749**</td>
</tr>
<tr>
<td>Self Concept</td>
<td>9.35 (1.96)</td>
<td>9.67 (2.07)</td>
<td></td>
<td>1.815 NS</td>
</tr>
<tr>
<td>Intelligence</td>
<td>19.13 (3.88)</td>
<td>19.20 (3.71)</td>
<td></td>
<td>.234 NS</td>
</tr>
<tr>
<td>Mental Health Total</td>
<td>85.29 (8.99)</td>
<td>88.04 (7.98)</td>
<td></td>
<td>3.662**</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
N.S = Not Significant.
Table 4.5.3 reveals that there is no significant difference between male and female respondents of Science stream on the factor Emotional stability. The obtained t-value (1.309) is found not significant even at 0.05 level of confidence. The mean value of the factor Emotional stability for males is 10.21 and that of females is 9.96.

Table 4.5.3 depicts that there is a significant difference between male and female respondents of Science stream on the factor Adjustment. The obtained t-value (2.181) is found significant at 0.05 level of confidence. The mean value of females (27.86) on factor Adjustment is higher than the mean value of males (27.13).

Above table 4.5.3 shows that there is a significant difference between male and female respondents of Science stream on the factor Autonomy. The obtained t-value (4.234) is found significant even at 0.05 level of confidence.
The mean value of females (11.29) on factor Autonomy is higher than the mean value of males (10.70).

- Table 4.5.3 depicts that there exists a significant difference between male and female respondents of Science stream on the factor Security-insecurity. The obtained t-value (6.749) is significant even at 0.05 level of confidence. The mean value of females (10.06) on factor Security-insecurity is higher than the mean value of males (8.78).

- Table 4.5.3 shows that there is no significant difference between male and female respondents of Science stream on the factor Self concept. The obtained t-value (1.815) is not significant even at 0.05 level of confidence. The mean value of the factor Self-concept for males is 9.35 and that of females is 9.67.

- Table 4.5.3 depicts that there is no significant difference between male and female respondents of Science stream on the factor Intelligence. The obtained t-value (.234) is not significant even at 0.05 level of confidence. The mean value of the factor Intelligence for males is 19.13 and that of females is 19.20.

Thus, it is clear from the above table 4.5.3 that there exists a significant difference between the male and female respondents of Science stream in respect to their Mental health. The obtained t-value (3.662) is found significant at 0.01 level of confidence. The mean value of females of science stream (88.04) is higher than the mean value of males (85.29) of science stream on the variable of Mental health. Hence, a part of the second subsidiary hypothesis i.e., 2(b) “There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable (i.e. mental health)” is rejected.
8.5.4. **Comparison between Male and Female respondents of science stream on the variable of Study Habits.**

**Subsidiary Objective-2(c)-** To compare the predictor variable i.e. study habits of male and female students of Science stream.

**Subsidiary Hypothesis-2(c)-** There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable i.e. study habits.

In order to compare the study habits of male and female students of science stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Study habits of male and female respondents of science stream are given in table-4.5.4.

*Table-4.5.4*

**Showing significance of difference between the mean scores of male and female respondents of science stream on the variable of Study habits**

<table>
<thead>
<tr>
<th>Dimensions of Study Habits</th>
<th>Males (Science Stream) N=276</th>
<th>Females (Science Stream) N=244</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
<td>S.D</td>
</tr>
<tr>
<td><strong>Budgeting Time</strong> (P1)</td>
<td>7.92</td>
<td>1.53</td>
<td>8.17</td>
<td>1.35</td>
</tr>
<tr>
<td><strong>Physical conditions for study</strong> (P2)</td>
<td>8.39</td>
<td>1.35</td>
<td>8.62</td>
<td>1.43</td>
</tr>
<tr>
<td><strong>Reading Ability</strong> (P3)</td>
<td>10.30</td>
<td>2.00</td>
<td>10.98</td>
<td>1.73</td>
</tr>
<tr>
<td><strong>Note Taking</strong> (P4)</td>
<td>4.13</td>
<td>1.55</td>
<td>3.68</td>
<td>1.72</td>
</tr>
<tr>
<td><strong>Factors in Learning Motivation</strong> (P5)</td>
<td>9.37</td>
<td>1.49</td>
<td>9.77</td>
<td>1.38</td>
</tr>
<tr>
<td><strong>Memory</strong> (P6)</td>
<td>4.89</td>
<td>1.28</td>
<td>5.16</td>
<td>1.27</td>
</tr>
<tr>
<td><strong>Taking Examinations</strong> (P7)</td>
<td>13.26</td>
<td>2.15</td>
<td>13.41</td>
<td>2.26</td>
</tr>
<tr>
<td><strong>Health</strong> (P8)</td>
<td>3.93</td>
<td>1.14</td>
<td>4.34</td>
<td>.944</td>
</tr>
<tr>
<td><strong>Study Habits Total</strong></td>
<td>62.18</td>
<td>7.09</td>
<td>64.13</td>
<td>6.76</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
* = significant at .05 level.
N.S = Not Significant.
Fig. 4.5.4- Mean scores of male and female respondents of science stream on the variable of Study habits.

- Table 4.5.4 depicts that there is a significant difference between male and female respondents of Science stream on the factor Budgeting time. The obtained t-value (1.976) is found significant even at 0.05 level of confidence. The mean value of females (8.17) on factor Budgeting time is higher than the mean value of males (7.92).

- Table 4.5.4 reveals that there is a significant difference between male and female respondents of Science stream on the factor Physical conditions for study. The obtained t-value (1.892) is found significant at 0.05 level of confidence. The mean value of females (8.62) is higher than the mean value of males (8.39) on the factor Physical conditions for study.

- Table 4.5.4 shows that there exists a significant difference between male and female respondents of Science stream on the factor Reading ability. The obtained t-value (4.164) is found significant even at 0.05 level of confidence.
confidence. The mean value of females (10.98) on factor Reading ability is higher than the mean value of males (10.30).

- Table 4.5.4 depicts that there is a significant difference between male and female respondents of Science stream on the factor Note taking. The obtained t-value (3.161) is found significant even at 0.05 level of confidence. The mean value of males (4.13) on factor Note taking is higher than the mean value of females (3.68).

- Table 4.5.4 shows that there is a significant difference between male and female respondents of Science stream on the factor ‘Factors in learning motivation’. The obtained t-value (3.235) is found significant even at 0.05 level of confidence. The mean value of females (9.77) on factor ‘Factors in learning motivation’ is higher than the mean value of males (9.37).

- Table 4.5.4 depicts that there exists a significant difference between male and female respondents of Science stream on the factor Memory. The obtained t-value (2.432) is found significant even at 0.05 level of confidence. The mean value of females (5.16) is higher than the mean value of males (4.89) on the factor Memory.

- Table 4.5.4 indicates that there exists no significant difference in the mean value of male and female respondents of Science stream on the factor Taking examinations. The obtained t-value (.730) is not found significant even at 0.05 level of confidence. The mean value of females is 13.41 on factor taking examinations and the mean value of males is 13.26.

- Table 4.5.4 depicts that there is a significant difference between male and female respondents of Science stream on the factor Health. The obtained t-value (4.428) is found significant even at 0.05 level of confidence. The mean value of females (4.34) on factor Health is higher than the mean value of males (3.93).
Thus, it is clear from the above table 4.5.4 that there is a significant difference between male and female respondents of Science stream on the variable of Study habits. The obtained t-value (3.191) is found significant even at 0.05 level of confidence. The mean value of females (64.13) on factor Study habits is higher than the mean value of males (62.18). Hence, a part of the second subsidiary hypothesis i.e., 2(c) “There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable (i.e. study habits)” is rejected.

8.5.5. **Comparison between Male and Female respondents of science stream on the variable of Self confidence.**

*Subsidiary Objective-2(d)- To compare the predictor variable i.e. self confidence of male and female students of Science stream.*

*Subsidiary Hypothesis-2(d)- There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their self confidence.*

In order to compare the self confidence of male and female students of science stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of self confidence of male and female respondents of science stream are given in table-4.5.5
Table 4.5.5

Showing significance of difference between the mean scores of male and female respondents of science stream on the variable of Self-confidence.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Males (Science Stream)</th>
<th>Females (Science Stream)</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=276</td>
<td>N=244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.48</td>
<td>23.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D</td>
<td>9.514</td>
<td>9.211</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = Significant at .05 level.

Fig. 4.5.5- Mean scores of male and female respondents of science stream on the variable of Self-confidence.

Table 4.5.5 depicts that there exists a significant difference between male and female respondents of Science stream on the variable of Self confidence. The obtained t-value (1.725) is found significant at 0.05 level of confidence. The mean value of males is 24.48 and that of females is 23.06. Thus, we can say that males possess higher Self confidence as compared to girls. Hence, a part of the second subsidiary
hypothesis i.e., 2(d) “There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their predictor variable (i.e. self confidence)” is rejected.

4.5.6. Comparison between Male and Female respondents of Science stream on the variable of Academic achievement.

Subsidiary Objective-2(e)- To compare the criterion variable i.e. Academic achievement of male and female students of Science stream.

Subsidiary Hypothesis-2(e)- There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their Academic achievement.

In order to compare the Academic achievement of male and female students of science stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of academic achievement of male and female respondents of science stream are given in table-4.5.6.

Table-4.5.6

Showing significance of difference between the mean scores of male and female respondents of Science stream on the variable of Academic Achievement

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Males (Science Stream) N=276</th>
<th>Females (Science Stream) N=244</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
<td>S.D</td>
<td></td>
</tr>
<tr>
<td>Academic Achievement</td>
<td>250.25</td>
<td>63.177</td>
<td>278.87</td>
<td>45.994</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
Table 4.5.6 shows that there is a significant difference between the male and female respondents of Science stream on the variable of Academic achievement. The obtained t-value (5.84) is found significant even at 0.05 level of confidence. The mean value of females (278.87) on the variable of Academic achievement is higher than the mean value of males (250.25). Hence, a part of the second subsidiary hypothesis i.e., 2(e) “There will be no statistically significant difference between the mean of male and female respondents of science stream in relation to their criterion variable i.e. academic achievement” is rejected.

Thus, it is clear from the above tables viz., 4.5.2, 4.5.3, 4.5.4, 4.5.5 and 4.5.6 that there exists a significant difference between males and female respondents on criterion variable i.e., Academic achievement and on various predictor variables i.e., Family climate, Mental health, Study habits, and Self confidence. Thus, the second subsidiary hypothesis “There will be no significant difference between the male and female respondents of
science stream in relation to their criterion variable i.e. academic achievement and predictor variables (i.e. family climate, mental health, study habits and self confidence)” is rejected.

Subsidiary Objective-3 To compare the criterion variable (i.e. academic achievement) and predictor variables (i.e. family climate, mental health, study habits and self confidence) of male and female students of arts stream.

Hypothesis-3- There will be no significant difference between the male and female respondents of arts stream in relation to their criterion variable i.e. academic achievement and predictor variables (i.e. family climate, mental health, study habits and self confidence).

4.5.7. Comparison between Male and Female respondents of arts stream on the variable of Family Climate.

Subsidiary Objective-3(a)- To compare the predictor variable i.e. Family climate of male and female students of Arts stream.

Subsidiary Hypothesis-3(a)- There will be no statistically significant difference between the mean of male and female respondents of arts stream in relation to their Family climate.

In order to compare the Family climate of male and female students of arts stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Family climate of male and female respondents of arts stream are given in table-4.5.7.
Table 4.5.7

Showing significance of difference between the mean scores of Male and Female respondents of Arts stream on the variable of Family climate

<table>
<thead>
<tr>
<th>Dimensions of Family Climate (FC)</th>
<th>Males (Arts Stream) N=180</th>
<th>Females (Arts Stream) N=165</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesion (F1)</td>
<td>Mean: 52.37 S.D: 6.19</td>
<td>Mean: 53.34 S.D: 5.10</td>
<td></td>
<td>1.585&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Expressiveness (F2)</td>
<td>Mean: 30.60 S.D: 4.31</td>
<td>Mean: 30.92 S.D: 3.99</td>
<td>343</td>
<td>.716&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Conflict (F3)</td>
<td>Mean: 42.04 S.D: 5.65</td>
<td>Mean: 41.65 S.D: 5.30</td>
<td></td>
<td>.650&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Acceptance &amp; Caring (F4)</td>
<td>Mean: 42.97 S.D: 4.69</td>
<td>Mean: 42.24 S.D: 4.97</td>
<td></td>
<td>1.403&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Independence (F5)</td>
<td>Mean: 29.62 S.D: 4.44</td>
<td>Mean: 30.07 S.D: 4.61</td>
<td></td>
<td>.936&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Active-Recreational Orientation (F6)</td>
<td>Mean: 27.29 S.D: 3.86</td>
<td>Mean: 27.56 S.D: 3.83</td>
<td></td>
<td>.649&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
<tr>
<td>Organization (F7)</td>
<td>Mean: 7.58 S.D: 1.82</td>
<td>Mean: 7.20 S.D: 1.84</td>
<td></td>
<td>1.941&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Control (F8)</td>
<td>Mean: 15.12 S.D: 3.09</td>
<td>Mean: 15.28 S.D: 2.98</td>
<td></td>
<td>.495&lt;sup&gt;NS&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

* = significant at .05 level.

N.S = Not Significant.

---

Fig. 4.5.7- Mean scores of male and female respondents of arts stream on the variable of Family climate.
The table 4.5.7 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Cohesion. The t-value came out to be 1.585 and the mean values are 52.37 and 53.34 for males and females respectively. So it can be said very safely that both male and female respondents of Arts stream are having same or equal level of Cohesion.

The table 4.5.7 depicts that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Expressiveness. The t-value came out to be 0.716 and the mean values are 30.60 and 30.92 for males and females respectively. So it can be said very safely that both male and female respondents of Arts stream are having same or equal level of Expressiveness.

According to table 4.5.7 no significant difference is found between male and female respondents of Arts stream on the measure of the factor Conflict. The t-value came out to be 0.650 and the mean values are 42.04 and 41.65 for males and females respectively. So it can be said very safely that both male and female respondents of Arts stream are having same or equal level of Conflict.

The table 4.5.7 shows that there exists no significant difference between male and female respondents of Arts stream on the measure of the factor Acceptance & caring. The t-value came out to be 1.403 and the mean values are 42.97 and 42.24 for males and females respectively. So it can be said that Male and Female respondents of Arts stream experience same or equal level of Acceptance and caring.

It is clear from table 4.5.7 that there exists no significant difference between male and female respondents of Arts stream on the measure of the factor Independence. The t-value came out to be .936 and the mean values for males and females are 29.62 and 30.07 respectively. So it can be said that both male and female respondents of Arts stream are having same or equal Independence.
- It is clear from table-4.5.7 that there exists no significant difference between male and female respondents of Arts stream on the measure of the factor Active recreational orientation. The t-value came out to be .649 and the mean values for males and females are 27.29 and 27.56 respectively. So it can be said that both male and female respondents of Arts stream are having same or equal Active recreational orientation.

- The table-4.5.7 depicts that there exists a significant difference between Male and Female respondents of Arts stream on the measure of the factor Organization. The t-value came out to be 1.941 and the mean values 7.58 and 7.20 for males and females respectively. So it can be said that male respondents of arts stream are better than female respondents of Arts stream on the factor Organization.

- The table-4.5.7 shows that there is no significant difference between Male and Female respondents of Arts stream on the measure of the factor Control. The calculated t-value is 0.495 and the mean values are 15.12 and 15.28 for males and females respectively. So it can be said that both male and female respondents of Arts stream are having same or equal control.

Thus, the above table- 4.5.7 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the variable of Family climate. The t-value came out to be 0.296 and the mean values 247.58 and 248.26 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream are having same or equal type of Family climate. Thus, a part of the third subsidiary hypothesis i.e., 3(a) “there will be no significant difference between the male and female respondents of arts stream in relation to their predictor variable (i.e. family climate)” is accepted.
4.5.8. Comparison between Male and Female respondents of arts stream of the variable of Mental Health.

Subsidiary Objective-3(b)- To compare the predictor variable i.e. Mental health of male and female students of Arts stream.

Subsidiary Hypothesis-3(b)- There will be no statistically significant difference between the mean of male and female respondents of arts stream in relation to their Mental health.

In order to compare the Mental health of male and female students of arts stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Mental health of male and female respondents of arts stream are given in table-4.5.8.

Table-4.5.8
Showing significance of difference between the mean scores of Male and Female respondents of Arts stream on the variable of Mental health

<table>
<thead>
<tr>
<th>Dimensions of Mental Health (MH)</th>
<th>Males (Arts Stream) N=180</th>
<th>Females (Arts Stream) N=165</th>
<th>Df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Stability (M1)</td>
<td>10.04 2.14</td>
<td>9.25 2.09</td>
<td></td>
<td>3.487**</td>
</tr>
<tr>
<td>Adjustment (M2)</td>
<td>27.26 3.99</td>
<td>26.09 4.20</td>
<td>343</td>
<td>2.652**</td>
</tr>
<tr>
<td>Autonomy (M3)</td>
<td>10.56 1.70</td>
<td>11.13 1.72</td>
<td></td>
<td>3.107**</td>
</tr>
<tr>
<td>Security Insecurity (M4)</td>
<td>9.22 2.16</td>
<td>10.08 2.27</td>
<td></td>
<td>3.586**</td>
</tr>
<tr>
<td>Self Concept (M5)</td>
<td>9.41 1.86</td>
<td>9.23 2.30</td>
<td></td>
<td>.782NS</td>
</tr>
<tr>
<td>Intelligence (M6)</td>
<td>15.87 4.17</td>
<td>15.33 4.17</td>
<td></td>
<td>1.200NS</td>
</tr>
<tr>
<td>Mental Health</td>
<td>82.36 9.07</td>
<td>81.11 10.02</td>
<td></td>
<td>1.219NS</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
N.S = Not Significant.
Fig. 4.5.8- Mean scores of male and female respondents of arts stream on the variable of Mental health.

- The table-4.5.8 reveals that there exists a significant difference between Male and Female respondents of Arts stream on the measure of variable Emotional stability. The calculated t-value is 3.487. The mean values for males and females also differ as 10.04 and 9.25 respectively. It clearly shows that males are better than females on the factor Emotional stability. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream on the variable emotional stability because the calculated ‘t’value is significant even at 0.05 level of confidence.

- The table-4.5.8 indicates that there exists a significant difference between Male and Female respondents of Arts stream on the measure of factor Adjustment. The calculated t-value is 2.652. The mean values for males and females also differ as 27.26 and 26.09 respectively. This clearly shows that males are better than females on the factor Adjustment. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream.
on the variable adjustment because the calculated value is significant at 0.01 level of confidence.

- The table-4.5.8 indicates that there exists a significant difference between Male and Female respondents of Arts stream on the measure of factor Autonomy. The calculated t-value is 3.107. The mean values for males and females also differ as 10.56 and 11.13 respectively. This clearly shows that females are better than males on the autonomy factor. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream on the variable autonomy because the calculated value is significant at 0.01 level of confidence.

- The table-4.5.8 indicates that there exists a significant difference between Male and Female respondents of Arts stream on the measure of factor security-insecurity. The calculated t-value is 3.586. The mean values for males and females also differ as 9.22 and 10.08 respectively. This clearly shows that females are better than males on the factor security-insecurity. Thus, it can be said with assurance that there exists a marked difference between Male and Female respondents of Arts stream on the variable security-insecurity because the calculated value is significant even at 0.05 level of confidence.

- The table-4.5.8 indicates that there exists no significant difference between male and female respondents of Arts stream on the measure of factor self-concept. The t-value came out to be .782 and the mean values are 9.41 and 9.23 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream are having same or equal type of self-concept.
The table-4.5.8 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of factor Intelligence. The t-value came out to be 1.200 and the mean values as 15.87 and 15.33 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream are having same or equal level of Intelligence.

Thus, table-4.5.8 reveals that there exists no significant difference between male and female respondents of Arts stream on the measure of Mental health variable. The t-value came out to be 1.219 and the mean values are 82.36 and 81.11 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream are having same or equal level of Mental health. Thus, a part of the third subsidiary hypothesis i.e., 3(b) “there will be no significant difference between the male and female respondents of arts stream in relation to their predictor variable (i.e. mental health)” is accepted.

4.5.9. Comparison between Male and Female respondents of arts stream on the variable of Study habits.

Subsidiary Objective-3(c)- To compare the predictor variable i.e. Study habits of male and female students of Arts stream.

Subsidiary Hypothesis-3(c)- There will be no statistically significant difference between the mean of male and female respondents of arts stream in relation to their Study Habits.

In order to compare the Study habits of male and female students of arts stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of various dimensions of Study habits of male and female respondents of arts stream are given in table-4.5.9.
Table 4.5.9

Showing significance of difference between the mean scores of Male and Female respondents of Arts stream on the variable of Study habits.

<table>
<thead>
<tr>
<th>Dimensions of Study Habits (SH)</th>
<th>Males (Arts Stream) N=180</th>
<th>Females (Arts Stream) N=165</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeting Time (P1)</td>
<td>Mean 7.58 S.D 1.66</td>
<td>Mean 8.12 S.D 1.45</td>
<td>343</td>
<td>3.198**</td>
</tr>
<tr>
<td>Physical conditions for study (P2)</td>
<td>Mean 7.91 S.D 1.58</td>
<td>Mean 7.90 S.D 1.55</td>
<td></td>
<td>.084NS</td>
</tr>
<tr>
<td>Reading Ability (P3)</td>
<td>Mean 10.26 S.D 2.22</td>
<td>Mean 10.53 S.D 2.09</td>
<td></td>
<td>1.170NS</td>
</tr>
<tr>
<td>Note Taking (P4)</td>
<td>Mean 3.56 S.D 1.59</td>
<td>Mean 3.70 S.D 1.88</td>
<td></td>
<td>.728NS</td>
</tr>
<tr>
<td>Factors in Learning Motivation (P5)</td>
<td>Mean 9.17 S.D 1.54</td>
<td>Mean 9.35 S.D 1.58</td>
<td></td>
<td>1.097NS</td>
</tr>
<tr>
<td>Memory (P6)</td>
<td>Mean 4.60 S.D 1.27</td>
<td>Mean 4.67 S.D 1.16</td>
<td></td>
<td>.507NS</td>
</tr>
<tr>
<td>Taking Examinations (P7)</td>
<td>Mean 13.04 S.D 2.24</td>
<td>Mean 12.77 S.D 2.03</td>
<td></td>
<td>1.167NS</td>
</tr>
<tr>
<td>Health (P8)</td>
<td>Mean 3.77 S.D 1.17</td>
<td>Mean 3.81 S.D 1.01</td>
<td></td>
<td>.334NS</td>
</tr>
<tr>
<td>Study Habits</td>
<td>Mean 59.89 S.D 7.440</td>
<td>Mean 60.84 S.D 7.369</td>
<td></td>
<td>1.195NS</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
N.S = Not Significant.

Fig. 4.5.9- Mean scores of male and female respondents of arts stream on the variable of Study habits.
The table-4.5.9 indicates that there exists a significant difference between Male and Female respondents of Arts stream on the measure of the factor Budgeting time. The calculated t-value is 3.198. The mean values also differ between the two groups as 7.58 and 8.12 respectively. It clearly shows that females are better than males on the factor budgeting time. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream on the factor budgeting time because the calculated ‘t’ value is significant at 0.01 level of confidence.

The table-4.5.9 depicts that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Physical conditions for study. The t-value came out to be 0.084 and the mean values 7.91 and 7.90 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream have same Physical conditions for study.

The table-4.5.9 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Reading ability. The t-value came out to be 1.170 and the mean values 10.26 and 10.53 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream do not differ in their Reading ability.

The table 4.5.9 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of factor Note taking. The t-value came out to be 0.728 and the mean values 3.56 and 3.70 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream are having same Note taking habit.
- It is clear from the above table 4.5.9 that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the dimension ‘factors in learning motivation’. The t-value came out to be 1.097 and the mean values 9.17 and 9.35 for males and females respectively. Thus, it can be said very safely that both male and female respondents of Arts stream do not differ in their factors in learning motivation.

- The table-4.5.9 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor memory. The t-value came out to be 0.507 and the mean values 4.60 and 4.67 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream do not differ in their memory level.

- The table-4.5.9 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Taking examination. The t-value came out to be 1.167 and the mean values are 13.04 and 12.77 for males and females respectively. So, it can be said very safely that both male and female respondents of Arts stream takes examinations equally serious.

- The table-4.5.9 indicates that there exists no significant difference between Male and Female respondents of Arts stream on the measure of the factor Health. The t-value came out to be 0.334 and the mean values are 3.77 and 3.81 respectively. So, it can be said very safely that both male and female respondents of Arts stream do not differ in their Health.

Thus, it is clear from the table-4.5.9 that there exists no significant difference between Male and Female respondents of Arts stream on the measure of variable Study habits. The t-value came out to be 1.195, which is not significant even at .05 level of confidence. The calculated mean values for males and females are 59.89 and 60.84 respectively. So, it can be said very
safely that both male and female respondents of Arts stream are having same or equal type of Study habits. Thus, a part of the third subsidiary hypothesis i.e., 3(c) “there will be no significant difference between the male and female respondents of arts stream in relation to their predictor variable (i.e. study habits)” is accepted.

4.5.10 Comparison between Male and Female respondents of arts stream on the variable of Self confidence.

Subsidiary Objective-3(d)- To compare the predictor variable i.e. Self confidence of male and female students of Arts stream.

Subsidiary Hypothesis-3(d)- There will be no statistically significant difference between the mean of male and female respondents of arts stream in relation to their Self confidence.

In order to compare the self confidence of male and female students of arts stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of Self confidence of male and female respondents of arts stream are given in table-4.5.10.

Table-4.5.10
Showing significance of difference between the mean scores of Male and Female respondents of Arts stream on the variable of Self confidence

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Males (Arts Stream) N=180</th>
<th>Females (Arts Stream) N=165</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean S.D</td>
<td>Mean S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self confidence</td>
<td>27.44 8.320</td>
<td>30.81 9.024</td>
<td>343</td>
<td>3.587**</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
Fig. 4.5.10- Mean scores of male and female respondents of arts stream on the variable of Self confidence.

Above table 4.5.10 indicates that there exists a significant difference between male and female respondents of Arts stream on the measure of variable Self-confidence. The calculated t-value is 3.587. The mean values also differ between the two groups as 27.44 and 30.81 respectively. It clearly shows that females are better than males on the variable of Self-confidence. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream on the variable of Self-confidence because the calculated value is significant even at 0.05 level of confidence. Thus, a part of the third subsidiary hypothesis i.e., 3(d) “there will be no significant difference between the male and female respondents of arts stream in relation to their predictor variable (i.e., self confidence)” is rejected.
4.5.11. **Comparison between Male and Female respondents of arts stream on the variable of Academic Achievement.**

*Subsidiary Objective-3(e)- To compare the criterion variable i.e. Academic achievement of male and female students of Arts stream.*

*Subsidiary Hypothesis-3(e)- There will be no statistically significant difference between the mean of male and female respondents of arts stream in relation to their Academic achievement.*

In order to compare the Academic achievement of male and female students of arts stream, t-test was applied. The mean scores and S.D. was found out and t-value was calculated. The mean scores, S.D. and t-value of Academic achievement of male and female respondents of arts are given in table-4.5.11.

![Table-4.5.11](image)

*Showing significance of difference between the mean scores of Male and Female respondents of Arts stream on the variable of Academic achievement*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Males (Arts Stream) N=180</th>
<th>Females (Arts Stream) N=165</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean S.D</td>
<td>Mean S.D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Achievement</td>
<td>224.81 45.92</td>
<td>243.12 37.568</td>
<td>343</td>
<td>4.032**</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
Above table 4.5.11 indicates that there exists a significant difference between male and female respondents of Arts stream on the measure of variable Academic achievement. The calculated t-value is 4.03. The mean value also differs between males and females as 224.81 and 243.12 respectively. It clearly shows that females of arts stream are better than males of arts stream on the variable of Academic achievement. Thus, it can be said with assurance that there exists a marked difference between male and female respondents of Arts stream on the variable Academic achievement because the calculated ‘t’ value is significant at 0.01 level of confidence. Thus, a part of the third subsidiary hypothesis i.e., 3(e) “there will be no significant difference between the male and female respondents of arts stream in relation to their criterion variable i.e. academic achievement” is rejected.

Thus, it is clear from the above tables viz., 4.5.7, 4.5.8, and 4.5.9 that there exists no significant difference between male and female respondents on the variables of Family climate, Mental health and Study habits. But a significant difference is found between male and female respondents on the
variables of Self confidence and Academic achievement (Tables 4.5.10, 4.5.11). Thus, the third subsidiary hypothesis “There will be no significant difference between the male and female respondents of arts stream in relation to their criterion variable i.e. academic achievement and predictor variables (i.e. family climate, mental health, study habits and self confidence)” is partially accepted.