Chapter-IV

RESULTS

The present study aims at improving some impairment and reducing some problem Behaviour of the children with autism with the help of music. Two types of music are taken:

- Hindustani classical - an 11 minute flute recital in misra pilu by Pandit Raghunath Seth.
- Western music - K448 of Mozart of 4.5 minutes played twice back to back.

These interventions are provided to all the children. The experimental group is divided into 2 groups. One group received Mozart at first and then Misra Pilu and the other group received Misra Pilu at first and then Mozart to avoid 'order effect', if any. Assessment of the children were done thrice. Once, before the study starts, again after one week of the first kind of intervention and then again after another week of the final intervention is provided.

Table of counterbalancing sessions to eliminate order effect (ABBA)

<table>
<thead>
<tr>
<th>Sessions</th>
<th>N=23</th>
<th>N=22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; session</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; session</td>
</tr>
<tr>
<td>Western</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; session</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; session</td>
</tr>
</tbody>
</table>

The data obtained are treated statistically.
The probability level for significance have been taken upto 0.05 i.e. 95% cases.

Table 1: Shows the Means and SDs of three sessions (Pre, Eastern & Western) of two groups (Control & Experimental) for three dependent measures

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th></th>
<th>Eastern</th>
<th></th>
<th>Western</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
</tr>
<tr>
<td>Com.</td>
<td>29.33 9.22</td>
<td>36.62 6.40</td>
<td>32.38 8.81</td>
<td>53.22 8.01</td>
<td>34.64 8.94</td>
<td>56.62 8.14</td>
</tr>
<tr>
<td>Soc.</td>
<td>29.27 9.19</td>
<td>36.96 7.26</td>
<td>31.89 6.22</td>
<td>53.91 8.35</td>
<td>33.24 8.02</td>
<td>61.84 7.17</td>
</tr>
<tr>
<td>Prob. Beh.</td>
<td>105.33 44.94</td>
<td>142.42 50.76</td>
<td>93.13 26.66</td>
<td>94.18 44.09</td>
<td>95.84 36.61</td>
<td>90.02 41.81</td>
</tr>
</tbody>
</table>

Graph A: Shows the differences in communication in the post eastern and western sessions of the experimental and control group:
Graph B shows the differences in socialization in the post eastern and western sessions of the experimental and control group:

![Graph B: Differences in socialization across the sessions in the two groups](image)

Graph C: Shows the differences in problem behavior in the post eastern and western sessions of the experimental and control group:

![Graph C: Differences in problem behavior across the sessions in the two groups](image)
Table 2: Shows the F-ratios for groups (ANOVA for Independent sample) and sessions (Repeated measures, Wilk’s Lambda) and their Significant value for above data-communication

<table>
<thead>
<tr>
<th>Variables Sources</th>
<th>Communication</th>
<th>Socialization</th>
<th>Problem Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-ratio</td>
<td>Sig.</td>
<td>F-ratio</td>
</tr>
<tr>
<td>Group</td>
<td>351.02</td>
<td>.000</td>
<td>494.8</td>
</tr>
<tr>
<td>Sessions</td>
<td>258.36</td>
<td>.000</td>
<td>83.09</td>
</tr>
</tbody>
</table>

Table 3: Shows the F-ratios and their Significant values over three sessions for Control Group for all three variables.

<table>
<thead>
<tr>
<th>Variables Sources</th>
<th>Communication</th>
<th>Socialization</th>
<th>Problem Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-ratio</td>
<td>Sig.</td>
<td>F-ratio</td>
</tr>
<tr>
<td>Control</td>
<td>5.08</td>
<td>.01</td>
<td>2.31</td>
</tr>
<tr>
<td>Experimental</td>
<td>258.36</td>
<td>.00</td>
<td>125.28</td>
</tr>
</tbody>
</table>
Table 4: Shows the corresponding pair significance of sessions (3 levels) of above table by t-ratio (paired sample) for experimental group and control group.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>Sig</td>
<td>t</td>
<td>Sig</td>
<td>t</td>
<td>Sig</td>
</tr>
<tr>
<td>Communication</td>
<td>17.91</td>
<td>0.00</td>
<td>1.87</td>
<td>NS</td>
<td>22.99</td>
<td>0.00</td>
</tr>
<tr>
<td>Socialization</td>
<td>10.98</td>
<td>0.00</td>
<td>1.6</td>
<td>NS</td>
<td>15.89</td>
<td>0.00</td>
</tr>
<tr>
<td>Problem Behavior</td>
<td>8.38</td>
<td>0.00</td>
<td>1.5</td>
<td>NS</td>
<td>9.12</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Table 5: Shows the Means & SDs of three age group (A, B, C) for 3 sessions (Pre, Eastern & Western) of two groups (Control & Experimental) for Communication.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pre</th>
<th>Eastern</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>B</td>
<td>33.67</td>
<td>4.19</td>
<td>32.60</td>
</tr>
<tr>
<td>C</td>
<td>22.73</td>
<td>10.4</td>
<td>39.80</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>B</td>
<td>33.67</td>
<td>4.19</td>
<td>32.60</td>
</tr>
<tr>
<td>C</td>
<td>22.73</td>
<td>10.4</td>
<td>39.80</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>B</td>
<td>33.67</td>
<td>4.19</td>
<td>32.60</td>
</tr>
<tr>
<td>C</td>
<td>22.73</td>
<td>10.4</td>
<td>39.80</td>
</tr>
</tbody>
</table>
Graph D shows the differences in communication in the post eastern and western sessions of the experimental and control group for sub group-A:

Graph E shows the differences in communication in the post eastern and western sessions of the experimental and control group for sub group-B:
Graph F shows the differences in communication in the post eastern and western sessions of the experimental and control group for sub group-C:

Differences in communication in the experimental and control group across the two sessions for sub group C

![Graph showing communication differences](image-url)
Table 6: Shows the F ratios (Repeated measures, Wilk’s Lambda) over sessions for three age groups of both Control and Experimental separately and corresponding pair significance of age (3 levels) of above table by paired t-ratio (communication)

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Pre-Eastern</th>
<th>Pre-Western</th>
<th>Eastern &amp; Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Slg.</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>A</td>
<td>Ctrl.</td>
<td>2.53</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt.</td>
<td>50.87</td>
<td>.000</td>
<td>8.86</td>
</tr>
<tr>
<td>B</td>
<td>Ctrl.</td>
<td>1.19</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt.</td>
<td>78.18</td>
<td>.000</td>
<td>8.82</td>
</tr>
<tr>
<td>C</td>
<td>Ctrl.</td>
<td>4.54</td>
<td>.030</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt.</td>
<td>214.06</td>
<td>.000</td>
<td>5.07</td>
</tr>
</tbody>
</table>

Table 7: Shows the Means & SDs of three age group (A, B and C) for 3 sessions (Pre, Post I & Post II) of two groups (Ctrl. & Expt) for Socialization

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mean: 33.47</td>
<td>33.00</td>
<td>Mean: 37.33</td>
<td>8.52</td>
<td>Mean: 54.53</td>
<td>4.36</td>
</tr>
<tr>
<td></td>
<td>SD: 3.16</td>
<td>3.09</td>
<td>SD: 8.52</td>
<td>6.46</td>
<td>SD: 4.36</td>
<td>2.88</td>
</tr>
<tr>
<td>B</td>
<td>Mean: 22.87</td>
<td>41.53</td>
<td>Mean: 26.2</td>
<td>6.89</td>
<td>Mean: 52.93</td>
<td>6.46</td>
</tr>
<tr>
<td></td>
<td>SD: 10.40</td>
<td>5.34</td>
<td>SD: 6.89</td>
<td>6.46</td>
<td>SD: 6.46</td>
<td>2.88</td>
</tr>
<tr>
<td>C</td>
<td>Mean: 31.47</td>
<td>36.33</td>
<td>Mean: 32.13</td>
<td>5.71</td>
<td>Mean: 54.27</td>
<td>7.69</td>
</tr>
<tr>
<td></td>
<td>SD: 10.02</td>
<td>9.38</td>
<td>SD: 5.71</td>
<td>6.46</td>
<td>SD: 7.69</td>
<td>2.88</td>
</tr>
</tbody>
</table>

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Graph G- Shows the differences in socialization in the post eastern and western sessions of the experimental and control group for sub group-A:

Graph H- Shows the differences in socialization in the post eastern and western sessions of the experimental and control group for sub group-B:
Graph I: Shows the differences in socialization in the post eastern and western sessions of the experimental and control group for sub group C:

Differences in socialization in the experimental and control group across the two sessions for sub group C
Table 8: Shows the F ratios (Repeated measures, Wilk’s Lambda) over sessions for three age groups of both Ctrl and Expt separately and corresponding pair significance of age (3 levels) of above table by paired t-ratio (socialization)

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Post- hoc</th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre &amp; Eastern</td>
<td>Pre &amp; Western</td>
<td>Eastern &amp; Western</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
</tr>
<tr>
<td>A</td>
<td>Ctrl</td>
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<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
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<td>.000</td>
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<td>.000</td>
</tr>
<tr>
<td>B</td>
<td>Ctrl</td>
<td>1.09</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>87.57</td>
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<td>5.64</td>
<td>.000</td>
<td>8.96</td>
<td>.000</td>
</tr>
<tr>
<td>C</td>
<td>Ctrl</td>
<td>1.59</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>24.49</td>
<td>.000</td>
<td>5.04</td>
<td>.000</td>
<td>6.65</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 9: Shows the Means & SDs of three age group (A, B, C) for 3 sessions (Pre, Eastern & Western) of two groups (Ctrl. & Expt.) for Problem Behavior

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pre Ctrl Mean</th>
<th>SD</th>
<th>Expt Mean</th>
<th>SD</th>
<th>Eastern Ctrl Mean</th>
<th>SD</th>
<th>Expt Mean</th>
<th>SD</th>
<th>Western Ctrl Mean</th>
<th>SD</th>
<th>Expt Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>103.07</td>
<td>32.47</td>
<td>131.53</td>
<td>62.16</td>
<td>102.73</td>
<td>30.77</td>
<td>79.00</td>
<td>52.48</td>
<td>117.4</td>
<td>50.98</td>
<td>76.47</td>
<td>52.59</td>
</tr>
<tr>
<td>B</td>
<td>99.87</td>
<td>50.29</td>
<td>149.4</td>
<td>42.87</td>
<td>81.4</td>
<td>39.88</td>
<td>110.8</td>
<td>28.48</td>
<td>79.67</td>
<td>23.05</td>
<td>107.4</td>
<td>35.79</td>
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<tr>
<td>C</td>
<td>113.07</td>
<td>51.6</td>
<td>146.33</td>
<td>46.97</td>
<td>95.27</td>
<td>34.92</td>
<td>92.73</td>
<td>14.99</td>
<td>90.47</td>
<td>16.5</td>
<td>88.20</td>
<td>30.25</td>
</tr>
</tbody>
</table>
Graph J shows the differences in problem behaviour in the post eastern and western sessions of the experimental and control group for sub group-A:

Graph K shows the differences in problem behaviour in the post eastern and western sessions of the experimental and control group for sub group-B:
Graph L shows the differences in problem behaviour in the post eastern and western sessions of the experimental and control group for sub group-C:
Table 10: Shows the F ratios (Repeated measures, Wilk's Lambda) over sessions for three age groups of both Control and Experimental Group separately and corresponding pair significance of age (3 levels) of above table by paired t-ratio (Problem Behavior).

<table>
<thead>
<tr>
<th>Age Group</th>
<th>ANOVA</th>
<th>Post-hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre &amp; Eastern</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>A</td>
<td>Ctrl</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>11.63</td>
</tr>
<tr>
<td>B</td>
<td>Ctrl</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>11.70</td>
</tr>
<tr>
<td>C</td>
<td>Ctrl</td>
<td>1.59</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>17.25</td>
</tr>
</tbody>
</table>

Table 11: Shows the F ratios over age groups for each sessions and Control and Experimental group separately and corresponding pair significance of age (3 levels) by post-hoc Tukey Test for communication.

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Post- hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>Pre</td>
<td>Ctrl</td>
<td>7.78</td>
</tr>
<tr>
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<td>6.08</td>
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<tr>
<td>Eastern</td>
<td>Ctrl</td>
<td>17.86</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>2.79</td>
</tr>
<tr>
<td>Western</td>
<td>Ctrl</td>
<td>6.109</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>4.438</td>
</tr>
</tbody>
</table>
Table 12: Shows the F ratios over age groups for each sessions and Control & Experimental Group separately and corresponding pair significance of age (3 levels) by post-hoc Tukey Test for socialization.

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Post-hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>Pre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
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<td>.002</td>
</tr>
<tr>
<td>Expt</td>
<td>6.60</td>
<td>.003</td>
</tr>
<tr>
<td>Eastern</td>
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<td></td>
</tr>
<tr>
<td>Ctrl</td>
<td>9.16</td>
<td>.000</td>
</tr>
<tr>
<td>Expt</td>
<td>.270</td>
<td>NS</td>
</tr>
<tr>
<td>Western</td>
<td></td>
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<td>Ctrl</td>
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<tr>
<td>Expt</td>
<td>.373</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 13 shows the F ratios over age groups for each sessions and Control and Experimental separately and corresponding pair significance of age (3 levels) by post-hoc Tukey Test for Problem Behaviour.

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Post-hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Sig</td>
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<td>Pre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
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<td>NS</td>
</tr>
<tr>
<td>Expt</td>
<td>.519</td>
<td>NS</td>
</tr>
<tr>
<td>Eastern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
<td>2.66</td>
<td>NS</td>
</tr>
<tr>
<td>Expt</td>
<td>2.06</td>
<td>NS</td>
</tr>
<tr>
<td>Western</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
<td>4.99</td>
<td>.011</td>
</tr>
<tr>
<td>Expt</td>
<td>2.27</td>
<td>NS</td>
</tr>
</tbody>
</table>
Table 14: Shows the Means & SDs of two groups according to the level of autism (severity) for 3 sessions of two groups (Ctrl. & Expt) for communication

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pre Ctrl</th>
<th>SD</th>
<th>Pre Expt</th>
<th>SD</th>
<th>Post I Ctrl</th>
<th>SD</th>
<th>Post I Expt</th>
<th>SD</th>
<th>Post II Ctrl</th>
<th>SD</th>
<th>Post II Expt</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>28.17</td>
<td>9.40</td>
<td>38.74</td>
<td>5.93</td>
<td>24.71</td>
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<td>8.99</td>
<td>27.29</td>
<td>9.57</td>
<td>57.22</td>
<td>9.00</td>
</tr>
<tr>
<td>E</td>
<td>30.67</td>
<td>9.66</td>
<td>34.41</td>
<td>6.44</td>
<td>37.29</td>
<td>9.08</td>
<td>53.59</td>
<td>7.22</td>
<td>37.57</td>
<td>9.99</td>
<td>56.00</td>
<td>7.45</td>
</tr>
</tbody>
</table>
Graph M showing the differences in communication between the Experimental and Control Group in Sub-group D (mild to moderate level of autism).

Graph N showing the differences in communication between the Experimental and Control Group in Sub-group E (moderate to severe level of autism).
Table 15: Shows the F ratios (Wilky’s Lambda) over sessions for two groups separately and corresponding pair significance of sessions (3 levels) by paired ‘t’ Test for communication.

<table>
<thead>
<tr>
<th>Groups</th>
<th>ANOVA</th>
<th>Pre &amp; Eastern</th>
<th>Pre &amp; Western</th>
<th>Eastern &amp; Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
<td>Sig</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
<td>3.349</td>
<td>.044</td>
<td>.645</td>
<td>NS</td>
</tr>
<tr>
<td>Expt</td>
<td>82.66</td>
<td>.000</td>
<td>9.06</td>
<td>.000</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ctrl</td>
<td>2.84</td>
<td>.08</td>
<td>2.43</td>
<td>.024</td>
</tr>
<tr>
<td>Expt</td>
<td>72.22</td>
<td>.000</td>
<td>9.95</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 16: Shows the Means & SDs of two groups according to the level of autism (severity) for 3 sessions of two groups (Ctrl. & Expt) for socialization

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pre</th>
<th>Eastern</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contl.</td>
<td>Expt.</td>
<td>Contl.</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28.25</td>
<td>8.70</td>
<td>39.26</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30.43</td>
<td>9.88</td>
<td>34.55</td>
</tr>
</tbody>
</table>
Graph O showing the differences in socialization between the Experimental and Control Group in Sub-group D (mild to moderate level of autism).

Graph P showing the differences in socialization between the Experimental and Control Group in Sub-group E (moderate to severe level of autism).
Table 17: Shows the F ratios (Wilky’s Lambda) over sessions for two groups separately and corresponding pair significance of sessions (3 levels) by paired 't' Test for socialization

<table>
<thead>
<tr>
<th>Groups</th>
<th>ANOVA</th>
<th>Pre &amp; Eastern</th>
<th>Pre &amp; Western</th>
<th>Eastern and Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
<td>Sig</td>
</tr>
<tr>
<td>D</td>
<td>Ctrl</td>
<td>.567</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>54.9</td>
<td>.000</td>
<td>7.687</td>
</tr>
<tr>
<td>E</td>
<td>Ctrl</td>
<td>1.66</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Expt</td>
<td>131.16</td>
<td>.000</td>
<td>9.64</td>
</tr>
</tbody>
</table>

Table 18: Shows the Means & SDs of two groups according to the level of autism (severity) for 3 sessions of two groups (Ctrl. & Expt) for problem Behavior

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre</th>
<th>Post I</th>
<th>Post II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ctrl</td>
<td>Expt</td>
<td>Ctrl</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>D</td>
<td>95.08</td>
<td>34.82</td>
<td>150.04</td>
</tr>
<tr>
<td>E</td>
<td>117.05</td>
<td>44.20</td>
<td>133.82</td>
</tr>
</tbody>
</table>
Graph Q showing the differences in problem behaviour between the Experimental and Control Group in Sub-group D (mild to moderate level of autism).

Graph R showing the differences in problem behavior between the Experimental and Control Group in Sub-group E (moderate to severe level of autism).
Table 19: Shows the F ratios (Wilky's Lambda) over sessions for two groups separately and corresponding pair significance of sessions (3 levels) by paired 't' Test for problem Behaviour

<table>
<thead>
<tr>
<th>Groups</th>
<th>ANOVA</th>
<th>Pre &amp; Eastern</th>
<th>Pre &amp; Western</th>
<th>Eastern &amp; Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
<td>Sig</td>
</tr>
<tr>
<td>Ctrl</td>
<td>93.43</td>
<td>.000</td>
<td>2.28</td>
<td>.03</td>
</tr>
<tr>
<td>Expt</td>
<td>20.84</td>
<td>.000</td>
<td>5.67</td>
<td>.000</td>
</tr>
<tr>
<td>Ctrl</td>
<td>1.19</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Expt</td>
<td>9.59</td>
<td>.001</td>
<td>3.347</td>
<td>.003</td>
</tr>
</tbody>
</table>

Table 20: Shows the t ratios between two groups according to the level of autism (severity) for each sessions of two groups (Ctrl. & Expt) separately for all three dependent variables

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Eastern</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl.</td>
<td>t ratio</td>
<td>Sig.</td>
<td>t ratio</td>
</tr>
<tr>
<td>Expt.</td>
<td>t ratio</td>
<td>Sig.</td>
<td>t ratio</td>
</tr>
<tr>
<td>Com</td>
<td>.88</td>
<td>NS</td>
<td>2.35</td>
</tr>
<tr>
<td>Soc</td>
<td>.186</td>
<td>NS</td>
<td>2.28</td>
</tr>
<tr>
<td>Prob. Beha.</td>
<td>1.87</td>
<td>NS</td>
<td>1.18</td>
</tr>
<tr>
<td></td>
<td>1.68</td>
<td>NS</td>
<td>1.38</td>
</tr>
</tbody>
</table>
Graph S Graphical representation shows the gain in two sessions for two groups according to severity for control Group

Estimated Marginal Means of MEASURE_1
At Control Gr Code = 1

Graph T Graphical representation shows the gain in two sessions for two groups according to severity for experimental group

Estimated Marginal Means of MEASURE_1
At Control Gr Code = 2
Table 21: Shows the Means & SDs of two groups (Epileptic & Non-Epileptic) for 3 sessions for communication.

(a)

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>36.00</td>
<td>7.63</td>
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</tbody>
</table>

(b)

<table>
<thead>
<tr>
<th></th>
<th>Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>53.67</td>
<td>8.45</td>
</tr>
</tbody>
</table>

(c)

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>57.33</td>
<td>7.57</td>
</tr>
</tbody>
</table>
Graph U showing the differences in communication between the Epileptic and non-epileptic group in the two sessions.
Table 22  Shows the Means & SDs of two groups (Epileptic & Non-Epileptic) (severity) for 3 sessions for socialization.

(a) Pre

<table>
<thead>
<tr>
<th></th>
<th>Epi</th>
<th></th>
<th>N-Epi</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>t</td>
</tr>
<tr>
<td>38.26</td>
<td>5.74</td>
<td>36.87</td>
<td>6.79</td>
<td>.82</td>
</tr>
</tbody>
</table>

(b) Eastern

<table>
<thead>
<tr>
<th></th>
<th>Epi</th>
<th></th>
<th>N-Epi</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>t</td>
</tr>
<tr>
<td>51.80</td>
<td>5.42</td>
<td>53.00</td>
<td>4.88</td>
<td>.64</td>
</tr>
</tbody>
</table>

(c) Western

<table>
<thead>
<tr>
<th></th>
<th>Epi</th>
<th></th>
<th>Non-Epl</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>t</td>
</tr>
<tr>
<td>60.73</td>
<td>7.07</td>
<td>62.80</td>
<td>6.45</td>
<td>.85</td>
</tr>
</tbody>
</table>
Graph V showing the differences in socialization between the Epileptic and non-epileptic group in the two sessions.
Table 23 - Shows the Means & SDs of two groups (Epileptic & Non-Epileptic) for 3 sessions for problem Behavior.

(a) 

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
<td>N-Epi</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>Mean</td>
<td>145.00</td>
<td>137.40</td>
<td>.64</td>
<td>NS</td>
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<tr>
<td>SD</td>
<td>49.84</td>
<td>59.40</td>
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</tbody>
</table>

(b) 

<table>
<thead>
<tr>
<th></th>
<th>Eastern</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
<td>N-Epi</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>Mean</td>
<td>89.40</td>
<td>104.47</td>
<td>.84</td>
<td>NS</td>
</tr>
<tr>
<td>SD</td>
<td>50.72</td>
<td>45.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(c) 

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epi</td>
<td>Non-Ep</td>
<td>t</td>
</tr>
<tr>
<td>Mean</td>
<td>84.73</td>
<td>103.13</td>
<td>1.06</td>
</tr>
<tr>
<td>SD</td>
<td>47.95</td>
<td>46.93</td>
<td></td>
</tr>
</tbody>
</table>
Graph W showing the differences in problem behavior between the epileptic and non-epileptic group in the two sessions.

Differences in problem behavior in the epileptic and non-epileptic group across the two sessions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>200</td>
</tr>
<tr>
<td>Post eastern</td>
<td>150</td>
</tr>
<tr>
<td>Post western</td>
<td>100</td>
</tr>
</tbody>
</table>

- Epileptic group
- Non epileptic group
Table 24 - Shows F-ratios over sessions for two groups separately and corresponding pair significance of sessions (3 levels) by post-hoc Tukey Test for problem Behavior

<table>
<thead>
<tr>
<th></th>
<th>ANOVA</th>
<th>Post-hoc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
</tr>
<tr>
<td>EPI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commu</td>
<td>131.1</td>
<td>.000</td>
</tr>
<tr>
<td>Social</td>
<td>66.13</td>
<td>.000</td>
</tr>
<tr>
<td>Prob. Beh</td>
<td>12.33</td>
<td>.001</td>
</tr>
<tr>
<td>N-EPI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commu</td>
<td>34.41</td>
<td>.000</td>
</tr>
<tr>
<td>Social</td>
<td>60.85</td>
<td>.000</td>
</tr>
<tr>
<td>Prob. Beh</td>
<td>1.79</td>
<td>NS</td>
</tr>
</tbody>
</table>

NARRATION OF RESULTS

Tables 1, 2, 3 and 4 as well as graphs A, B and C show that there is significant difference between the control group and experimental group in all the 3 sessions for all the variables. From the mean values it can be said that there is a definite and significant improvement over the sessions for the experimental group for all the variables.

The control group also shows improvement but that improvement is not significant in the post I sessions. In the post II sessions there is significant gain in communication and socialization. But this gain is not as much as that of the experimental group.
Again it is seen, in the control group, that for all the three variables the experimental group has gained significantly more in the western sessions than in the eastern ones.

Tables 5, 6 and 11 as well as graphs D, E and F reflect the communication of the children across the 3 sessions of the control and experimental group on the basis of the subgroups A, B and C. Here the experimental group for all the 3 sub groups has gained significantly. The control group has gained but not significantly. In all the groups the gain is significantly higher in the western session than in the eastern one. The groups B and C have gained significantly more than group A.

Tables 7, 8 and 12 as well as graphs G, H and I reflect the socialization of the children. Both the experimental and control group have gained across the sessions for each age group. The experimental group has gained more than the control group in all the sub groups. The gain is higher in the western sessions than the eastern ones. The groups B and C have progressed more than group A.

Tables 9, 10 and 13 as well as the graphs J, K and L reflect the problem behaviour of the children. Reduction in problem behaviour is seen in both the experimental and control group across the 3 age groups in both the sessions. The experimental group has gained significantly more in both the sessions. The gain is higher in the western sessions. However no significant difference between the groups could be seen.
Tables 14, 15, 16, 17, 18, and 19 as well as graphs M, N, O, P, Q, R, S, T show the differences in the 3 variables of the children on the two groups on the basis of the level of autism (D and E). Both the groups have gained. The experimental group has gained significantly higher than the control group. Western music has yielded better results. However, the 2 groups have not differed significantly.

Tables 20, 21, 22, 23, and 24 as well as graphs U, V show the differences in the 3 variables of the children on the two groups- epileptic and non epileptic. The experimental group has gained significantly higher than the control group. Western music has yielded better results. However, the 2 groups have not differed significantly.
HYPOTHESES TESTING

The probability level for significance has been taken upto 0.05, i.e., 95% cases.

1. Results show a significant and positive effect of musical intervention on:
   a. Problem behaviour
   b. Communication
   c. Socialization
So, the null hypotheses 1a, 1b, 1c are rejected.

2. Results show a significant and positive effect of Hindustani raga on:
   a. Problem behaviour
   b. Communication
   c. Socialization
So, null hypotheses 2a, 2b, and 2c are rejected.

3. Results show a significant and positive effect of Hindustani raga on:
   a. Problem behaviour
   b. Communication
   c. Socialization
So, null hypotheses 3a, 3b, and 3c are rejected.

4. Results show western music to have a positive and significant effect on
   a. Problem behaviour
b. Communication  
c. Socialization  
So, null hypotheses 4a, 4b and 4c are rejected.

5. Results show a significant and positive effect of the musical intervention upon children with autism of different age groups upon their:
   a. Problem behaviour  
b. Communication  
c. Socialization
So, null hypotheses 5a, 5b and 5c are rejected.

6. Results show a significant and positive effect of the musical intervention upon children with autism of different levels of severity upon their:
   a. Problem behaviour  
b. Communication  
c. Socialization
So, null hypotheses 6a, 6b and 6c are rejected.

7. Results show a significant and positive effect of the musical intervention upon children with autism with and without epilepsy upon their:
   a. Problem behaviour  
b. Communication  
c. Socialization
So, null hypotheses 7a, 7b and 7c are rejected.