

*CHAPTER 6*  
*RESULTS*

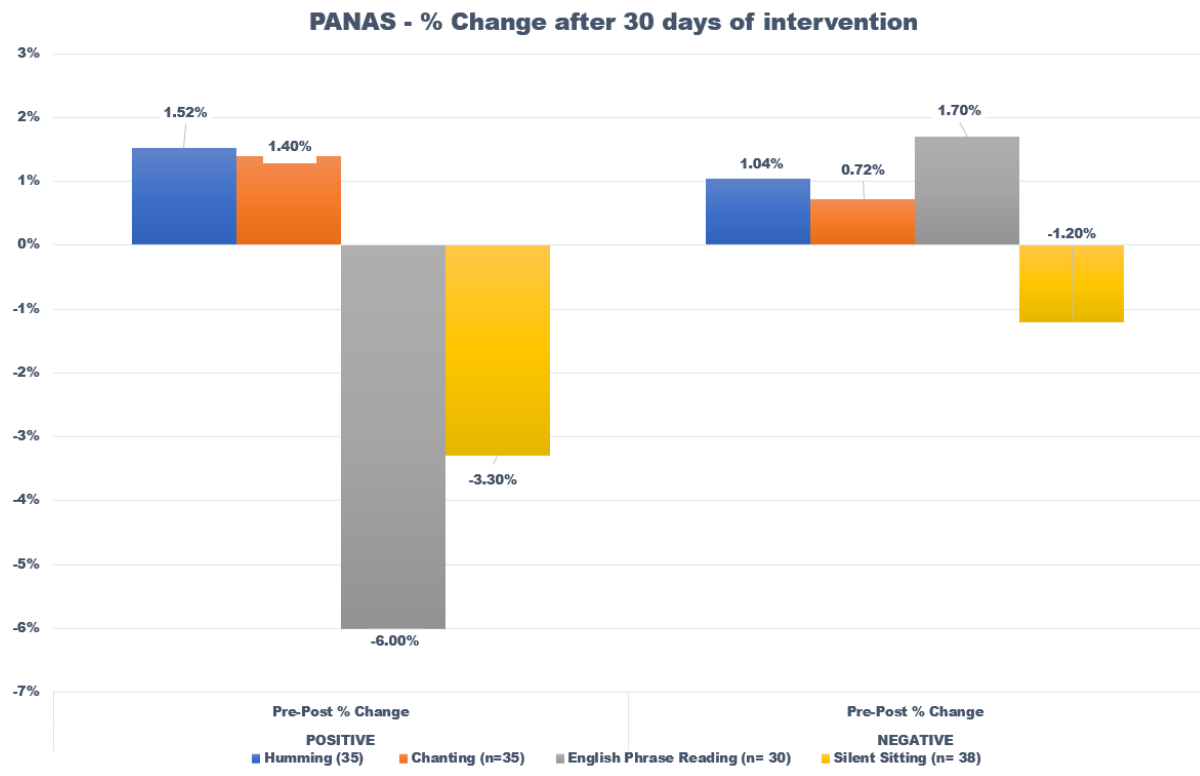
## 6. RESULT:

**PANAS-C:** There was no difference in both domains of PANAS in within group analysis. However, the positive affect was statistically significant when compared between the groups ( $p>0.01$ ). A post-hoc analysis revealed the superiority of the CM and HM groups in positive affect alone when compared with other two groups.

**Table 2: Showing the Mean + SD scores of PANAS-C during pre and post assessments**

| GROUPS  | POSITIVE    |              |            |         | NEGATIVE    |             |            |         |
|---|-------------|--------------|------------|---------|-------------|-------------|------------|---------|
|   | Pre         | Post         | MD         | P-value | Pre         | Post        | MD         | P-value |
| <b>Humming (35)</b>   | 43.51±13.34 | 44.17±12.83  | 0.65±11.00 | 0.72    | 35.45±13.04 | 35.08±13.26 | 0.37±14.57 | 0.88    |
| <b>% change</b>   | 1.52%       |              |            |         | -1.04%      |             |            |         |
| <b>Chanting (n=35)</b>  | 48.65±5.35  | 49.37±6.36   | -0.71±4.23 | 0.32    | 31.80±9.60  | 31.57±12.57 | 0.22±10.00 | 0.89    |
| <b>% change</b>   | 1.40%       |              |            |         | -0.72%      |             |            |         |
| <b>English Phrase Reading (n= 30)</b>   | 45.23±9.27  | 42.50±8.29   | 2.73±9.65  | 0.13    | 36.76±12.69 | 36.13±9.10  | 0.63±12.57 | 0.78    |
| <b>% change</b>   | -6.00%      |              |            |         | -1.70%      |             |            |         |
| <b>Silent Sitting (n= 38)</b>   | 44.89±8.60  | 43.39±8.71   | 1.50±8.10  | 0.26    | 33.71±11.97 | 34.13±8.79  | 0.42±10.10 | 0.79    |
| <b>% change</b>   | -3.30%      |              |            |         | 1.20%       |             |            |         |
| <b>p-value</b>  | 0.14        | <b>0.01*</b> |            |         | 0.35        | 0.38        |            |         |
| <b>p-value (adjusted for baseline)</b>  |             | 0.004 a,c    |            |         |             | 0.35        |            |         |
| <p>Table demonstrates the one-way ANOVA between the groups at baseline and post intervention data. Baseline adjusted p value is calculated for those parameters which were not normally distributed at baseline across the groups. A = Chanting Vs English Phrase Reading, b = Chanting Vs Humming, c = Chanting Vs Silent Sitting, d= English Phrase Reading Vs Humming, e = English Phrase Reading Vs Silent Sitting, f = Humming Vs Silent Sitting. *denotes statistical significance (<math>p&lt;0.01</math>) in between group analysis</p> |             |              |            |         |             |             |            |         |

**Fig 3: Graph capturing comparison of scores between baseline and post intervention in Positive and Negative affect scale for children (PANAS-C)**



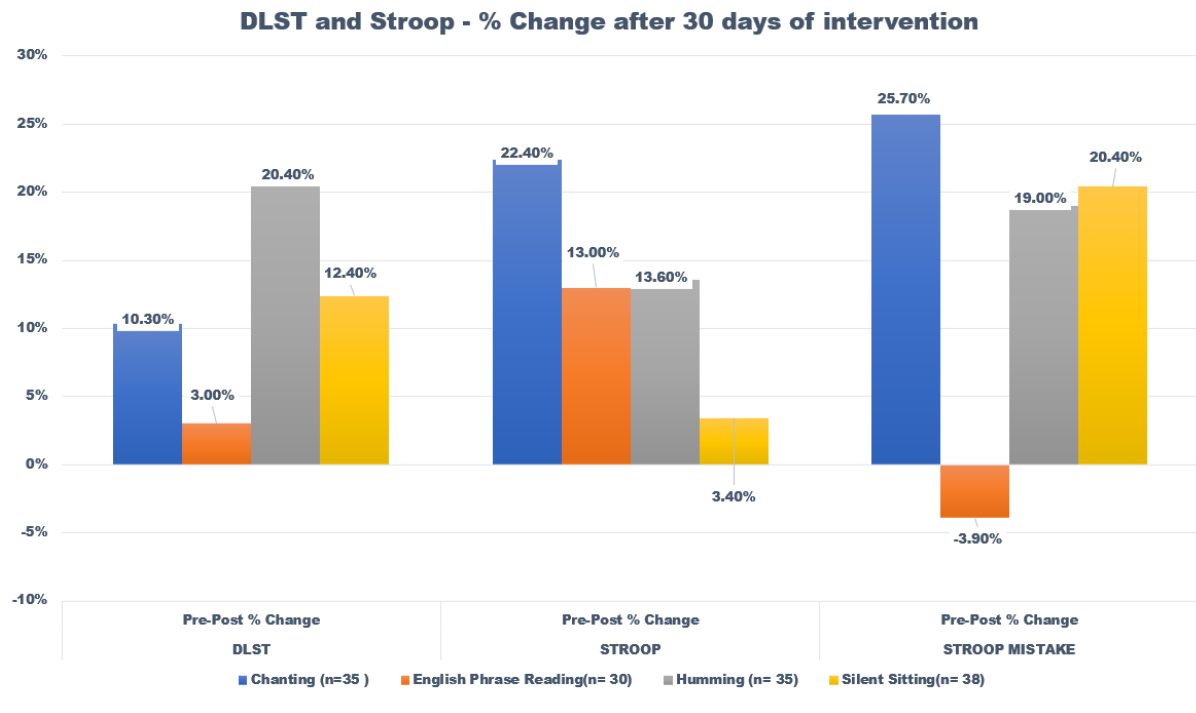
**DLST and Stroop:** DLST and Stroop’s scores were adjusted for baseline as they lacked balance at baseline ( $p < 0.02$ ). Within-group analysis using sample t-test demonstrated significant changes in chanting, humming, and silent sitting groups ( $p < 0.001$ ) with DLST scores. There was no statistical significance in the DLST scores in the English phrase reading group. The post-doc analysis revealed that the chanting group had higher scores; however, there were no differences between humming and chanting groups. Stroop scores improved in all the groups in the within-group analysis except for the silent sitting group. The ANOVA test revealed a significant difference between the groups, post-intervention. Post-hoc analysis to examine the superiority between groups presented a higher statistical significance in the chanting group than the humming group. A statistical significance was also observed between the chanting and silent sitting group. In the Stroop mistake scores, there were

statistical differences within the group in humming and chanting groups, but no differences were observed between groups.

**Table 3: Showing the Mean  $\pm$  SD scores of DLST and Stroop test during pre and post assessments**

| GROUPS   | DLST              |                   |                  |         | STROOP            |                   |                    |         | STROOP MISTAKE  |                 |                  |         |
|--|-------------------|-------------------|------------------|---------|-------------------|-------------------|--------------------|---------|-----------------|-----------------|------------------|---------|
|  | Pre               | Post              | MD               | p-value | Pre               | Post              | MD                 | p-value | Pre             | Post            | MD               | p-value |
| <b>Chanting (n=35)</b>   | 49.4 $\pm$ 16.75  | 54.51 $\pm$ 13.88 | -5.07 $\pm$ 9.68 | <0.001# | 55.54 $\pm$ 12.54 | 67.97 $\pm$ 12.45 | -12.42 $\pm$ 10.35 | <0.001# | 4.91 $\pm$ 2.22 | 3.65 $\pm$ 2.27 | 1.25 $\pm$ 2.87  | 0.01#   |
| <b>% change</b>  | 10.30%            |                   |                  |         | 22.40%            |                   |                    |         | -25.70%         |                 |                  |         |
| <b>English Phrase Reading (n= 30)</b>  | 43.63 $\pm$ 10.11 | 44.96 $\pm$ 8.51  | -1.33 $\pm$ 9.19 | 0.43    | 64.93 $\pm$ 6.30  | 73.36 $\pm$ 9.29  | -8.43 $\pm$ 7.67   | <0.001# | 4.36 $\pm$ 2.12 | 4.53 $\pm$ 2.11 | -0.16 $\pm$ 2.37 | 0.7     |
| <b>% change</b>  | 3.00%             |                   |                  |         | 13.00%            |                   |                    |         | 3.90%           |                 |                  |         |
| <b>Humming (n= 35)</b>   | 39.71 $\pm$ 14.15 | 47.82 $\pm$ 15.98 | -8.11 $\pm$ 9.94 | <0.001# | 70.57 $\pm$ 8.07  | 80.20 $\pm$ 12.45 | -9.62 $\pm$ 13.27  | <0.001# | 4.37 $\pm$ 1.98 | 3.54 $\pm$ 2.25 | 0.82 $\pm$ 2.31  | 0.04    |
| <b>% change</b>  | 20.40%            |                   |                  |         | 13.60%            |                   |                    |         | -19.00%         |                 |                  |         |
| <b>Silent Sitting (n= 38)</b>  | 41.63 $\pm$ 12.75 | 46.81 $\pm$ 12.60 | -5.18 $\pm$ 8.69 | <0.001# | 75.81 $\pm$ 12.38 | 78.39 $\pm$ 14.22 | -2.57 $\pm$ 10.70  | 0.14    | 4.52 $\pm$ 1.84 | 3.60 $\pm$ 2.22 | 0.92 $\pm$ 2.85  | 0.0539  |
| <b>% change</b>  | 12.40%            |                   |                  |         | 3.40%             |                   |                    |         | -20.40%         |                 |                  |         |
| <b>p-value</b>   | 0.02              | 0.02              | -                | -       | <0.0001           | 0.0002*           |                    |         | 0.65            | 0.24            |                  |         |
| <b>p-value (for baseline)</b>  |                   | 0.001a            |                  |         |                   | <0.0001 b, c      |                    |         |                 | 0.32            |                  |         |
| <p>Table demonstrates the comparison of scores between the groups at baseline and post intervention, using one-way ANOVA. Baseline adjusted p-value is calculated for those parameters which were not normally distributed at baseline across the groups.<br/>           *Denotes statistical significance (<math>p &lt; 0.01</math>) in between group analysis while #Denotes statistical significance (<math>p &lt; 0.01</math>) in within group analysis.</p> |                   |                   |                  |         |                   |                   |                    |         |                 |                 |                  |         |

**Fig 4: Graph capturing comparison of scores between baseline and post intervention in Digit Letter Substitution test (DLST) and Stroop color-word test.**



**Spence Children’s Anxiety Scale, MAAS-C & Children’s Self Concept Scale:**

There were no significant changes in the domains of **spence children’s anxiety scale** for children when compared between groups. However, there was significant difference in the domains of SA, SP, PD, PIF and GA in chanting group and PD and GA in the humming group during within group analysis. (p< 0.05).

**Mindfulness attention awareness scale** for children reported no significant difference when compared between groups. However, there was significant difference in all the groups in within group analysis.

A significant change was noticed in the domains of anxiety, Intellectual, school status, physical appearance and attributes, and the total scores of the **self-concept scale** in all the four groups after the interventions. On pairwise group comparisons, the change in the domain

of anxiety was significant for the Chanting vs English phrase reading, Chanting vs Humming and Chanting vs Silent sitting ( $p < 0.05$ ). When intellectual and school status for English phrase reading was compared to Silent sitting group, a significant difference was depicted ( $p < 0.05$ ). Also, Physical appearance and attributes scores and total scores were found significantly improved for Chanting vs Humming but only total scores in humming vs Silent sitting groups.

There was a significant change in all the domains except happiness and satisfaction after chanting ( $p < 0.01$ ). However, participants in the English phrase reading group also showed a significant increase in the scores of anxiety and total scores of the Self-concept scale after intervention ( $p < 0.01$  and  $p = 0.03$ ). There was reduction in the anxiety levels for the humming group whereas increase in all anxiety scores in the remaining three groups.

**Table 4: Showing the Mean  $\pm$  SD scores of Spence Children’s Anxiety Scale during pre and post assessments**

| Domains | Stage   | Chanting        | % change | Eng Ph Read     | % change | Humming         | % change | Silent Sitting  | % change | p-value    |                       | f-value |
|---------|---------|-----------------|----------|-----------------|----------|-----------------|----------|-----------------|----------|------------|-----------------------|---------|
|         |         |                 |          |                 |          |                 |          |                 |          | Unadjusted | adjusted for baseline |         |
| SA      | Pre     | 8.40 $\pm$ 2.93 | -14.30%  | 8.43 $\pm$ 2.89 | -9.10%   | 7.97 $\pm$ 2.35 | -8.30%   | 7.76 $\pm$ 2.45 | -9.80%   | 0.66       | 0.23                  | 0.377   |
|         | Post    | 7.20 $\pm$ 1.89 |          | 7.66 $\pm$ 2.45 |          | 7.31 $\pm$ 2.94 |          | 7.00 $\pm$ 2.95 |          | 0.76       |                       |         |
|         | MD      | 1.20 $\pm$ 2.78 |          | 0.76 $\pm$ 2.26 |          | 0.65 $\pm$ 2.64 |          | 0.76 $\pm$ 3.13 |          |            |                       |         |
|         | p-value | 0.01#           |          | 0.007#          |          | 0.15            |          | 0.14            |          |            |                       |         |
| SP      | Pre     | 8.71 $\pm$ 2.28 | -15.00%  | 9.10 $\pm$ 2.92 | -9%      | 8.80 $\pm$ 2.5  | -6%      | 8.47 $\pm$ 2.50 | -14.30%  | 0.79       | 0.59                  | 1.249   |
|         | Post    | 7.40 $\pm$ 2.91 |          | 8.30 $\pm$ 2.84 |          | 8.25 $\pm$ 2.95 |          | 7.26 $\pm$ 2.84 |          | 0.29       |                       |         |
|         | MD      | 1.31 $\pm$ 2.74 |          | 0.80 $\pm$ 3.58 |          | 0.54 $\pm$ 3.07 |          | 1.21 $\pm$ 4.26 |          |            |                       |         |
|         | p-value | 0.0076#         |          | 0.23            |          | 0.3             |          | 0.08            |          |            |                       |         |
| OCD     | Pre     | 5.97 $\pm$ 3.40 | -9.20%   | 6.33 $\pm$ 3.52 | -12.20%  | 5.11 $\pm$ 2.62 | -10.60%  | 5.44 $\pm$ 3.09 | -5.90%   | 0.41       | 0.45                  | 0.936   |
|         | Post    | 5.42 $\pm$ 3.16 |          | 5.56 $\pm$ 2.52 |          | 4.57 $\pm$ 3.10 |          | 5.76 $\pm$ 3.83 |          | 0.42       |                       |         |
|         | MD      | 0.54 $\pm$ 4.25 |          | 0.76 $\pm$ 3.50 |          | 0.54 $\pm$ 2.97 |          | 0.31 $\pm$ 4.99 |          |            |                       |         |
|         | p-value | 0.45            |          | 0.24            |          | 0.28            |          | 0.69            |          |            |                       |         |
| PD      | Pre     | 7.34 $\pm$ 4.53 | 0.2916   | 7.70 $\pm$ 4.42 | 0.0481   | 8.28 $\pm$ 3.68 | 0.2029   | 6.36 $\pm$ 2.87 | 0.0236   | 0.18       | 0.97                  | 1.486   |
|         | Post    | 5.20 $\pm$ 3.98 |          | 7.33 $\pm$ 3.79 |          | 6.60 $\pm$ 4.49 |          | 6.21 $\pm$ 4.33 |          | 0.22       |                       |         |

|            |                |           |   |           |   |           |   |            |       |      |      |       |
|------------|----------------|-----------|---|-----------|---|-----------|---|------------|-------|------|------|-------|
|            | <b>M D</b>     | 2.14±4.05 |   | 0.36±3.76 |   | 1.68±4.10 |   | 0.15±5.01  |       |      |      |       |
|            | <b>p-value</b> | 0.0036    |   | 0.59      |   | 0.02      |   | 0.84       |       |      |      |       |
| <b>PIF</b> | <b>Pre</b>     | 4.34±2.91 | - | 4.21±2.74 | - | 4.22±2.35 | - | 4.02±2.67  | 6.00% | 0.28 | 0.27 | 2.124 |
|            | <b>Post</b>    | 2.65±2.73 |   | 3.80±2.39 |   | 4.11±3.35 |   | 4.26±3.21  |       | 0.1  |      |       |
|            | <b>M D</b>     | 1.68±2.32 |   | 1.40±0.60 |   | 0.11±2.47 |   | -0.23±4.25 |       |      |      |       |
|            | <b>p-value</b> | 0.0001#   |   | 0.02      |   | 0.78      |   | 0.72       |       |      |      |       |
| <b>GA</b>  | <b>Pre</b>     | 7.20±2.84 | - | 7.43±2.84 | - | 7.02±2.75 | - | 7.07±3.28  | -     | 0.94 | 0.29 | 1.471 |
|            | <b>Post</b>    | 4.88±2.77 |   | 5.93±2.42 |   | 5.94±2.49 |   | 6.19±3.43  |       | 0.22 |      |       |
|            | <b>M D</b>     | 2.31±3.25 |   | 1.50±3.36 |   | 1.08±3.00 |   | 0.89±4.44  |       |      |      |       |
|            | <b>p-value</b> | 0.0002#   |   | 0.02      |   | 0.03      |   | 0.22       |       |      |      |       |

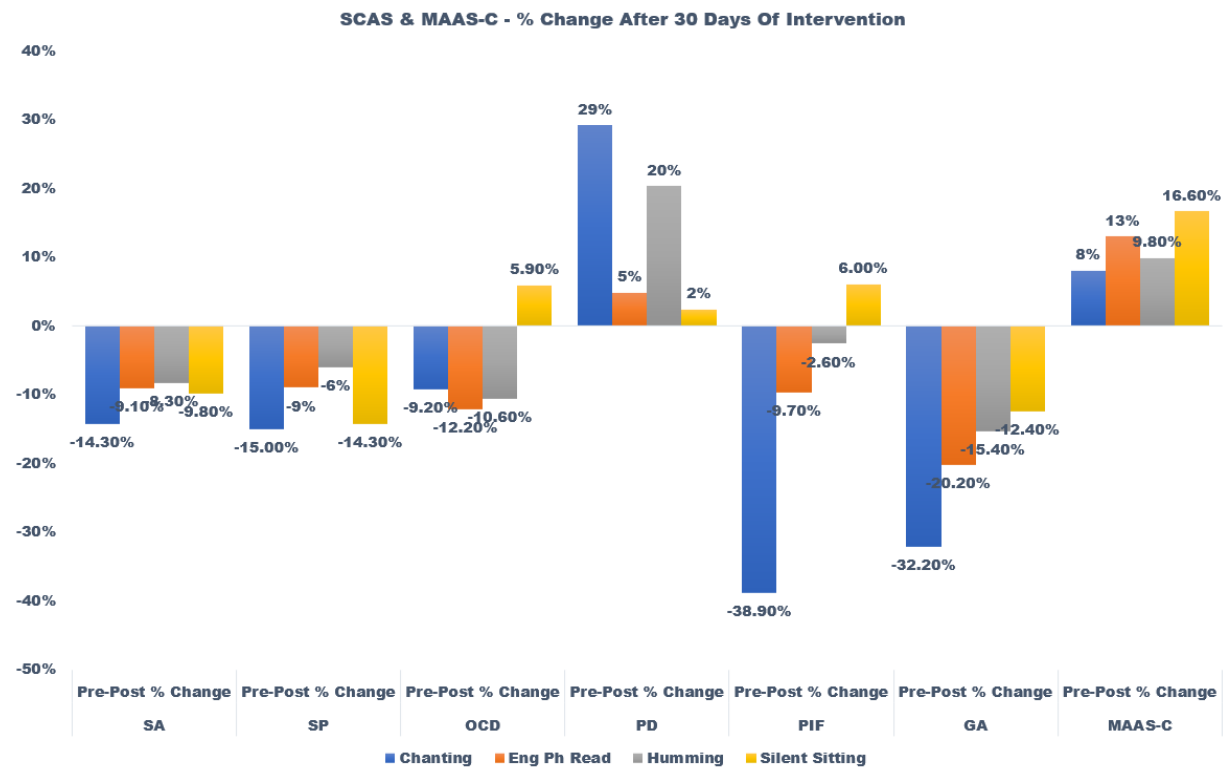
Table demonstrates the comparison of scores between the groups at baseline and post intervention using one-way ANOVA.  
 \*Denotes statistical significance (p<0.01) in between group analysis while #Denotes statistical significance (p<0.01) in within group analysis

**Table 5: Showing the Mean ± SD scores of MAAS-C during pre and post assessments**

| <b>GROUPS</b>                          | <b>Pre</b> | <b>Post</b> | <b>MD</b>  | <b>p-value</b> |
|--|------------|-------------|------------|----------------|
| <b>Chanting</b>                        | 4.00±0.99  | 4.32±1.00   | -0.32±0.82 | 0.02           |
| <b>% change</b>                        | 8.0%       |             |            |                |
| <b>Eng Ph Read</b>                     | 3.77±0.87  | 4.26±0.66   | -0.49±0.74 | 0.0011#        |
| <b>% change</b>                        | 13%        |             |            |                |
| <b>Humming</b>                         | 3.87±0.71  | 4.25±0.86   | -4.37±0.77 | 0.0075#        |
| <b>% change</b>                        | 9.80%      |             |            |                |
| <b>Silent Sitting</b>                  | 3.73±0.69  | 4.35±0.84   | -0.61±0.65 | <0.0001#       |
| <b>% change</b>                        | 16.60%     |             |            |                |
| <b>p-value (unadjusted)</b>            | 0.51       | 0.95        |            |                |
| <b>p-value (adjusted for baseline)</b> |            | 0.45        |            |                |
| <b>f-value</b>                         | 0.117      |             |            |                |

Table demonstrates the comparison of scores between the groups at baseline and post intervention using one-way ANOVA.  
 \*Denotes statistical significance (p<0.01) in between group analysis while #Denotes statistical significance (p<0.01) in within group analysis

**Fig 5: Graph capturing comparison of scores between baseline and post intervention in Spence Children’s Anxiety Scale (SCAS) and Mindfulness Attention Awareness Scale for Children (MAAS-C)**



**Table 6: Showing the Mean ± SD scores of Children’s Self-Concept Scale during pre and post assessments**

| Domain                         | Chanting (n=35) |              | Eng Ph Reading (n=30) |              | Humming (n=35) |              | Silent Sitting (n=38) |              | p-value b/w group | F value |
|--------------------------------|-----------------|--------------|-----------------------|--------------|----------------|--------------|-----------------------|--------------|-------------------|---------|
|                                | Pre             | Post         | Pre                   | Post         | Pre            | Post         | Pre                   | Post         |                   |         |
| Anxiety                        | 14.62 ± 3.63    | 17.48 ± 3.81 | 12.1 ± 3.66           | 14.86 ± 3.38 | 13.57 ± 3.06   | 12.97 ± 3.47 | 13.94 ± 2.94          | 13.94 ± 3.03 | < 0.01*           | 12.87   |
|                                | < 0.01#         |              | < 0.01#               |              | 0.25           |              | 0.99                  |              | *1,2,3            |         |
| Behavior                       | 9.68 ± 2.24     | 10.88 ± 2.84 | 8.86 ± 2.73           | 9.7 ± 2.56   | 9.77 ± 2.49    | 9.97 ± 2.95  | 9.57 ± 2.92           | 10.05 ± 2.81 | 0.39              | 1       |
|                                | < 0.01#         |              | 0.28                  |              | 0.64           |              | 0.21                  |              |                   |         |
| Happiness and satisfaction     | 5.74 ± 1.54     | 6.14 ± 1.41  | 5.83 ± 1.98           | 6.13 ± 1.30  | 6.08 ± 1.50    | 5.82 ± 1.88  | 5.84 ± 1.48           | 6.05 ± 1.29  | 0.69              | 0.66    |
|                                | 0.08            |              | 0.54                  |              | 0.39           |              | 0.24                  |              |                   |         |
|                                | 9.2 ± 2.36      | 10.65 ± 2.40 | 9.83 ± 2.52           | 10.96 ± 1.93 | 9.37 ± 2.76    | 9.54 ± 2.25  | 9.0 ± 2.78            | 9.21 ± 2.81  | 0.01*             | 4.05    |
| Intellectual and school status | < 0.01#         |              | 0.11                  |              | 0.67           |              | 0.62                  |              | *5                |         |

|   |               |               |               |             |              |              |              |              |         |      |
|---|---------------|---------------|---------------|-------------|--------------|--------------|--------------|--------------|---------|------|
|   | 6.85 ± 2.01   | 7.77 ± 1.64   | 6.8 ± 1.98    | 7.43 ± 1.85 | 6.68 ± 1.77  | 6.34 ± 1.81  | 6.42 ± 1.95  | 6.68 ± 2.13  | < 0.01  | 4.55 |
| Physical appearance and attributes  | < 0.01#       |               | 0.21          |             | 0.25         |              | 0.23         |              | *2      |      |
| Popularity  | 7.0 ± 2.52    | 8.08 ± 2.58   | 6.9 ± 2.36    | 7.4 ± 2.20  | 7.0 ± 2.61   | 6.74 ± 2.61  | 7.05 ± 2.56  | 6.97 ± 2.52  | 0.05    | 2.66 |
|   | < 0.01#       |               | 0.47          |             | 0.51         |              | 0.79         |              |         |      |
| Total Score   | 53.11 ± 10.39 | 61.02 ± 11.13 | 50.33 ± 10.37 | 56.5 ± 9.37 | 52.48 ± 9.42 | 51.4 ± 10.63 | 51.84 ± 9.87 | 52.92 ± 9.79 | < 0.01* | 7.77 |
|   | < 0.01#       |               | 0.03          |             | 0.47         |              | 0.33         |              | *2,3    |      |
| Table demonstrates the comparison of scores between the groups at baseline and post intervention using one-way ANOVA. |               |               |               |             |              |              |              |              |         |      |
| *Denotes statistical significance (p<0.01) in between group analysis while  |               |               |               |             |              |              |              |              |         |      |
| # Denotes statistical significance (p<0.01) in within group analysis  |               |               |               |             |              |              |              |              |         |      |

**Fig 6: Graph capturing comparison of scores between baseline and post intervention in Children's self-concept Scale.**

