

## **CHAPTER FOUR: RESULTS**

Detailed descriptive statistics of the Barkley and DuPaul Teacher Rating Scale (BDTRS), the Children's Checking Tasks (CCT) and the Parent Symptom Questionnaire (PSQ) were tabulated. Paired t-tests were performed to analyse the results and compare the experimental group to the placebo group.

In the BDTRS, higher average totals show that children exhibited more behavioural problems as observed by the teachers than lower average total scores. Over time, an improvement in the children's behaviour would be shown by a decrease in average total scores.

In the CCT, children aim to achieve as high a total score as possible, in as short a time as possible. This means that improvement in these children would be indicated by an increase in CCT Total Scores and a decrease in CCT Total Times.

The PSQ rates children's performance according to a list of problematic symptoms. Thus, the lower the average mean scores for each category of symptoms, the better the children are faring in that category. Improvement in all categories is shown by a decrease in mean scores.

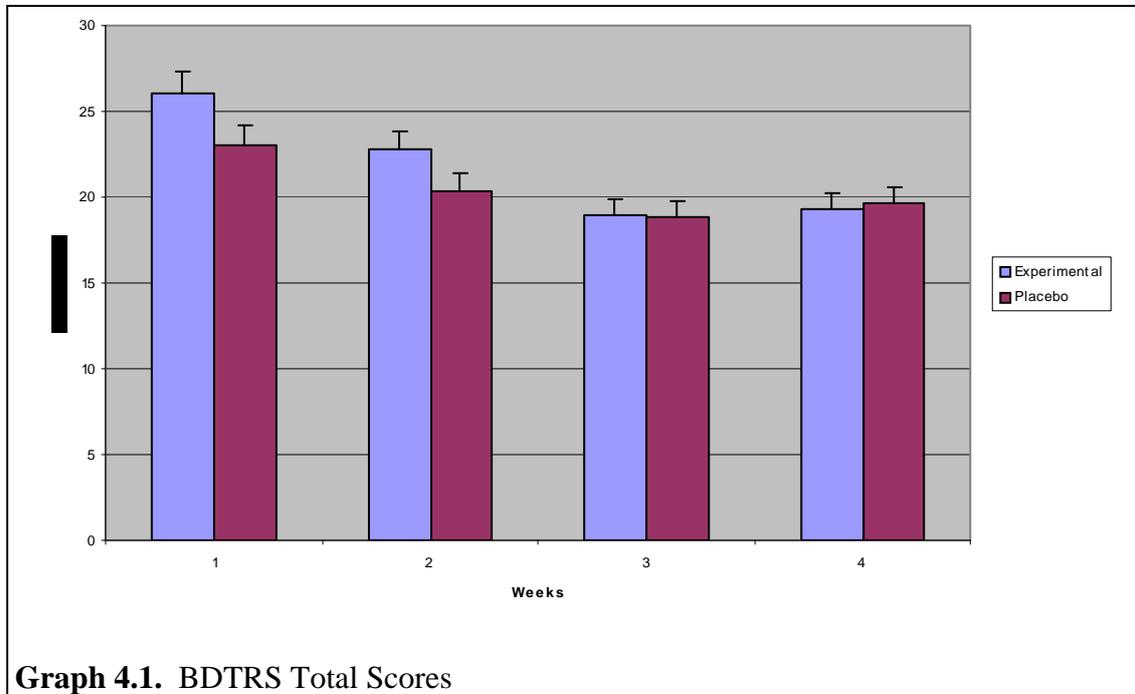
### **4.1. DEMOGRAPHIC DATA**

The sample group was made up of sixteen boys and fourteen girls. ADHD was originally thought of as being more prevalent in boys than in girls, with suggested ratio estimates for gender distribution of between 4:1 and 9:1. (Scholte *et al*, 2001). However, more recent research suggests that in South Africa this ratio may in fact be closer to 1:1 (Faller, 2002), and this was found to be the case in this clinical study sample group.

The ages of the subjects varied from five to eleven years of age, with a mean age of 7.7 for the experimental group and a mean age of 8.1 for the placebo group.

## 4.2. BARKLEY AND DUPAUL TEACHER RATING SCALE (BDTRS)

Graph 4.1. illustrates the total scores received for the BDTRS. The higher the total score in this scale, the more symptoms, on average, are present in the children.



**Graph 4.1.** BDTRS Total Scores

The graph shows that both the experimental and the placebo groups showed a general improvement in the children's behaviour as observed by the teachers during the period of the study.

In analysing the Barkley and DuPaul Teacher Rating Scale (BDTRS) both experimental and placebo groups showed extremely significant differences between week one and week three, illustrating a general improvement in the behaviour observed by the teacher during this time.

Extremely significant reductions ( $P < 0.001$ ) in some of the individual components of the BDTRS were found in the experimental group, as listed below:

- "Often fidgets or squirms in seat"
- "Often blurts out answers to questions"
- "Has difficulty sustaining attention to task"
- "Often does not seem to listen"

Significant reductions ( $P < 0.05$ ) in symptoms were found in all components of the BDTRS except for the following components:

- “Has difficulty remaining seated”
- “Often talks excessively”

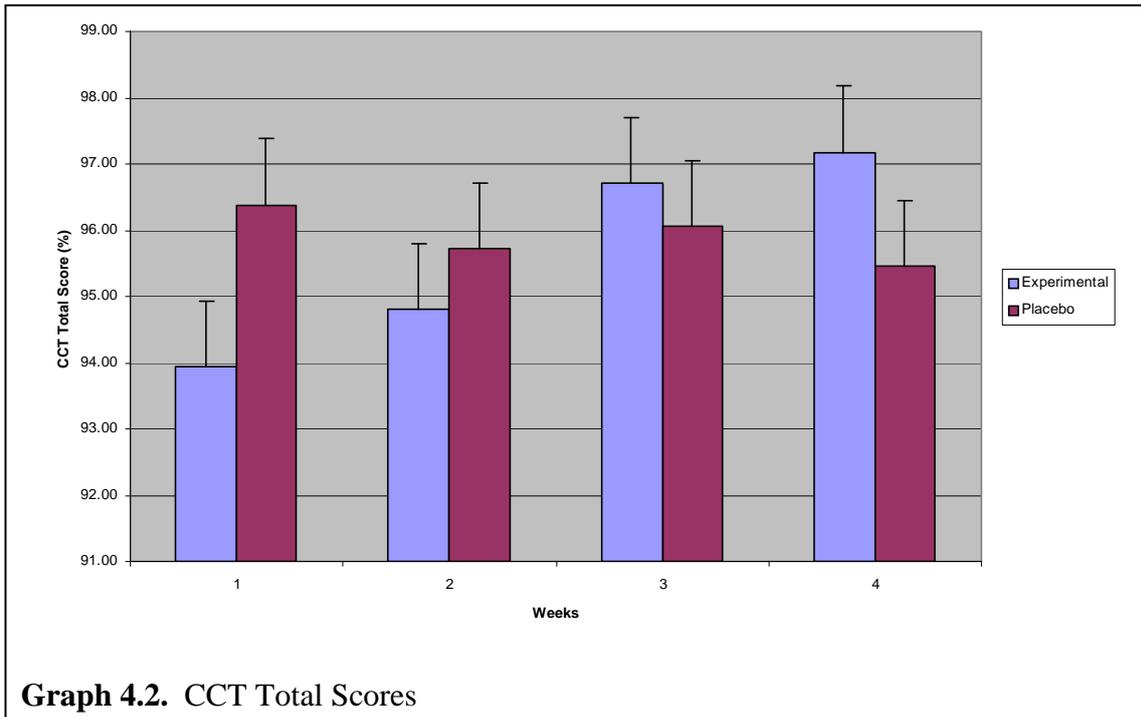
In the placebo group, out of fourteen components of the BDTRS only the following showed significant ( $P < 0.05$ ) reductions in symptoms. All other symptoms reductions were either not quite significant ( $P < 0.1$ ) or not significant ( $P > 0.1$ ).

- “Often fidgets or squirms in seat”
- “Has difficulty remaining seated”
- “Has difficulty sustaining attention to tasks”
- “Often shifts from one uncompleted activity to another”
- “Has difficulty playing quietly”
- “Often engages in physically dangerous activities without considering consequences”

Both the experimental group and the placebo group showed a reappearance or increase of symptoms after the medication was stopped. However, neither group showed a statistically significant increase ( $P < 0.05$ ).

#### **4.3. CHILDREN’S CHECKING TASK (CCT)**

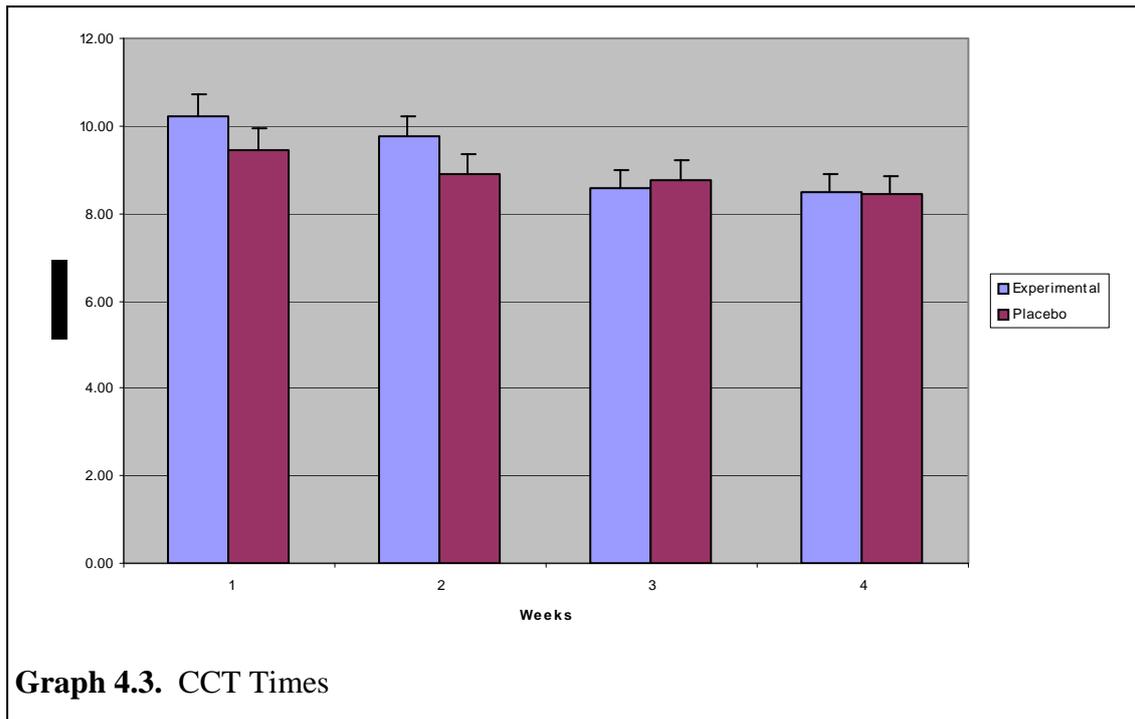
Graph 4.2. illustrates the average total scores achieved by the children in the appropriate CCT test completed. The higher the scores, the better the score achieved by the children in the test.



As can be seen in the graph, children achieved extremely high scores in the tests throughout the study, with the lowest average percentage being almost 94%. This is because the tests were aimed at levels easily achieved by children of the age group being assessed. The purpose of the CCT is not to test intelligence or literacy, but rather to test concentration and the ability to work systematically.

Neither experimental or placebo group showed any significant ( $P < 0.05$ ) difference in the total scores achieved in the CCT.

Graph 4.3. shows the average total time taken by the children to complete the CCT. A decrease in the time taken to complete the test illustrates that the children were able to complete the CCT faster as the study progressed.



Both the experimental and placebo groups showed significant ( $P < 0.05$ ) improvements in the time taken to complete the CCT. This indicates that the children were all able to complete the CCT faster as the study progressed. Since the tests performed by the children were the same tests each week, this improvement can be attributed to better concentration and better ability to work systematically, or to the fact that the children were becoming accustomed to the test format and recognising/ remembering the work from the previous week, i.e., learning or memorisation of material took place.

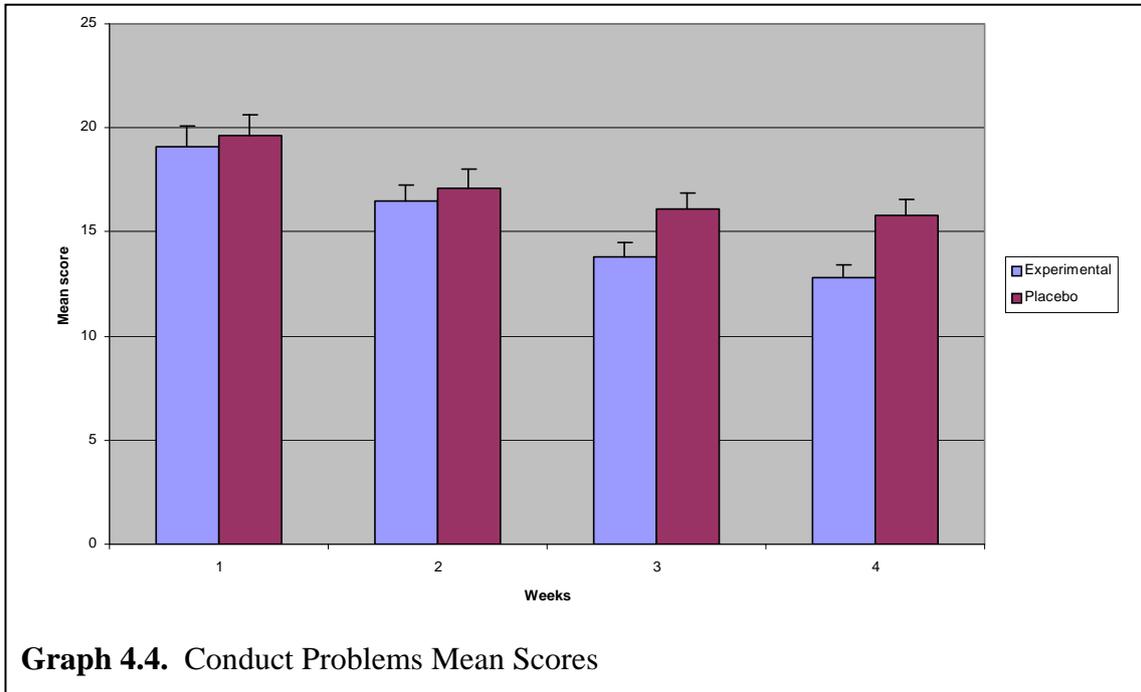
Whatever the reason for the improvements shown in Graph 4.3., these results are important because children with ADHD have been shown to repeat or increase mistakes made despite being shown the correct way to complete an assignment (Barkley, 1998). According to Graphs 4.2. and 4.3., children in this study learnt to complete the assignment faster without scoring lower total scores.

#### **4.4. PARENT SYMPTOM QUESTIONNAIRE (PSQ)**

Once scores had been grouped into the six categories (refer to Table 3.1. on page 45), these six categories were analysed using the paired t-test. In all six categories, a decrease in mean scores over time indicates an improvement in symptoms.

#### 4.4.1. Conduct Problems

Graph 4.4. illustrates trends in conduct problems as noted by the parents.

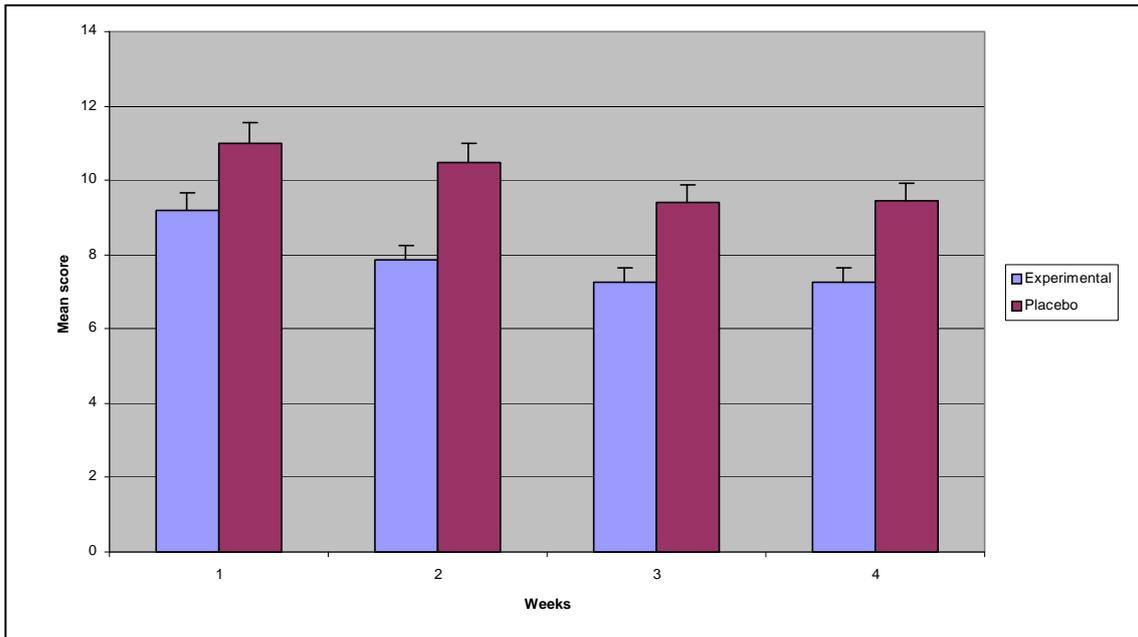


The graph above illustrates a lowering of mean scores, and thus an improvement, as observed by the parents, in symptoms related to conduct problems in both the placebo and the experimental groups between week 1 and week 3. Neither group showed an improvement or reappearance of symptoms after the cessation of medication.

In the area of conduct problems, it was found that the experimental group showed an extremely significant improvement ( $P = 0.00103$ ), while the placebo group showed a less significant improvement ( $P = 0.01778$ ).

#### 4.4.2. Inattention

Graph 4.5. shows the mean scores obtained by the children in the category of inattention.



**Graph 4.5. Inattention Mean Scores**

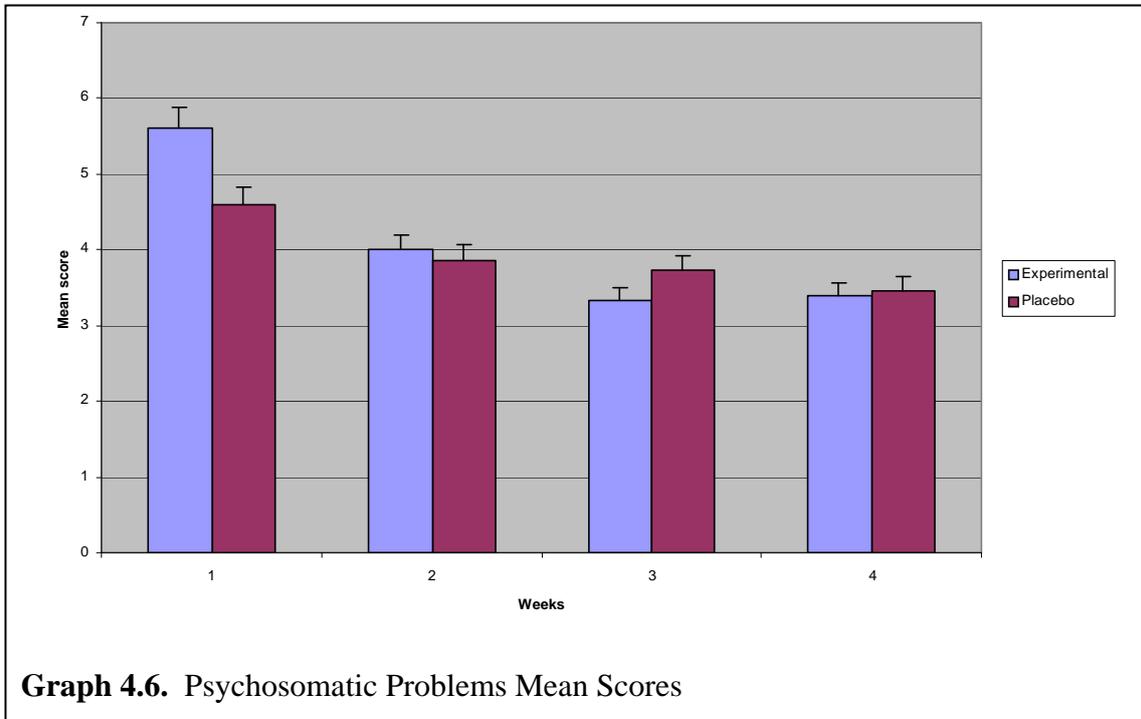
The above graph illustrates that all children involved in the study showed extremely significant improvement in the symptoms related to inattention during the course of this study. This improvement was seen in children on the medication as well as taking the placebo.

The measure in the PSQ for symptoms of inattention did not show a significantly better improvement in the experimental group than in the placebo group. However, the BDTRS showed that improvement in the areas of inattention to be more significant in children on the medication than those taking a placebo. Thus the results of these two assessment tools differ in their analysis of the children’s symptoms.

A possible explanation for this could be that since this was a major problem area and reason of concern for many parents, and since children were possible searching for positive attention and reinforcement from their parents, children in both groups were eager to show an improvement in these areas for the duration of the study.

### 4.4.3. Psychosomatic Problems

Graph 4.6. shows the children's mean scores in the category of psychosomatic problems as noted by their parents.

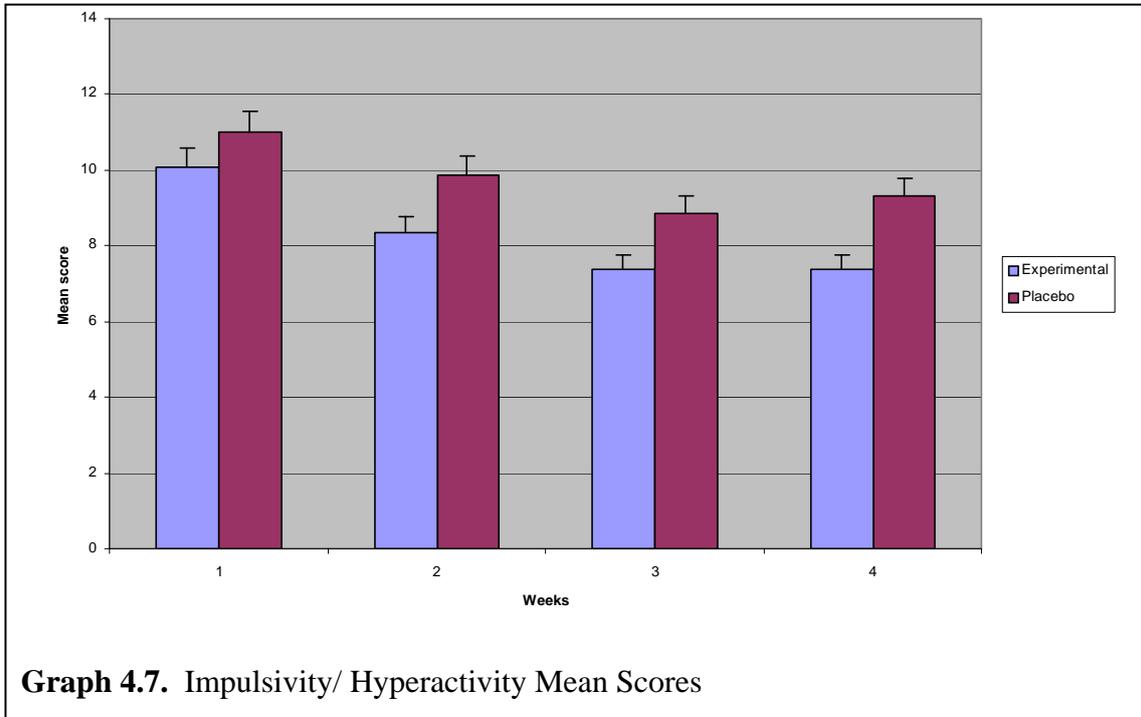


As noted in the above graph, both groups of children were seen to have an extremely significant improvement over the first three assessments.

Psychosomatic problems can be explained as physical symptoms a child experiences as a result of mental problems and not physical ones (Barkley, 1998). In the case of children who were not receiving positive attention from parents, such symptoms may have been caused by a child's need for attention. Due to the sustained attention given by the parents to the children during the course of this study, the improvement shown by both groups of children supports the theory that the children improved mentally from the attention shown them, and were thus able to reduce the amount of physical symptoms manifested as a result of mental anguish.

#### 4.4.4. Impulsivity/ Hyperactivity

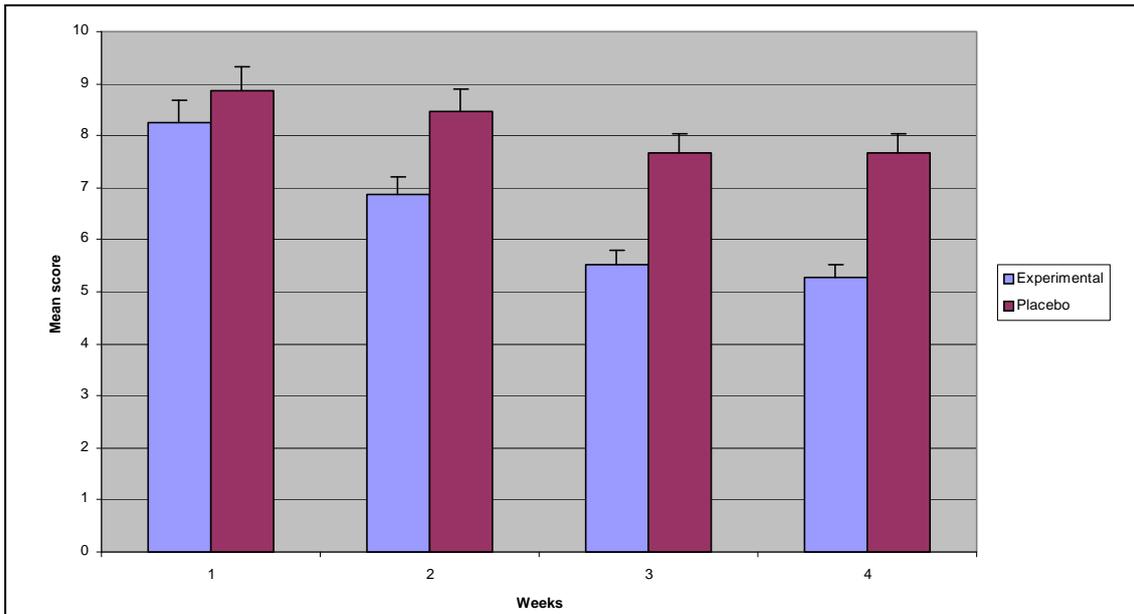
The children's mean scores in the area of impulsivity/ hyperactivity is illustrated below in Graph 4.7.



As can be seen in the above graph, both groups showed an improvement in their symptoms during the course of the study. The experimental group showed a far more significant improvement ( $P=0.00006$ ) than the placebo group ( $P=0.00018$ ).

#### 4.4.5. Anxiety

Graph 4.8. shows the mean scores for the category of anxiety as noted by the parents.



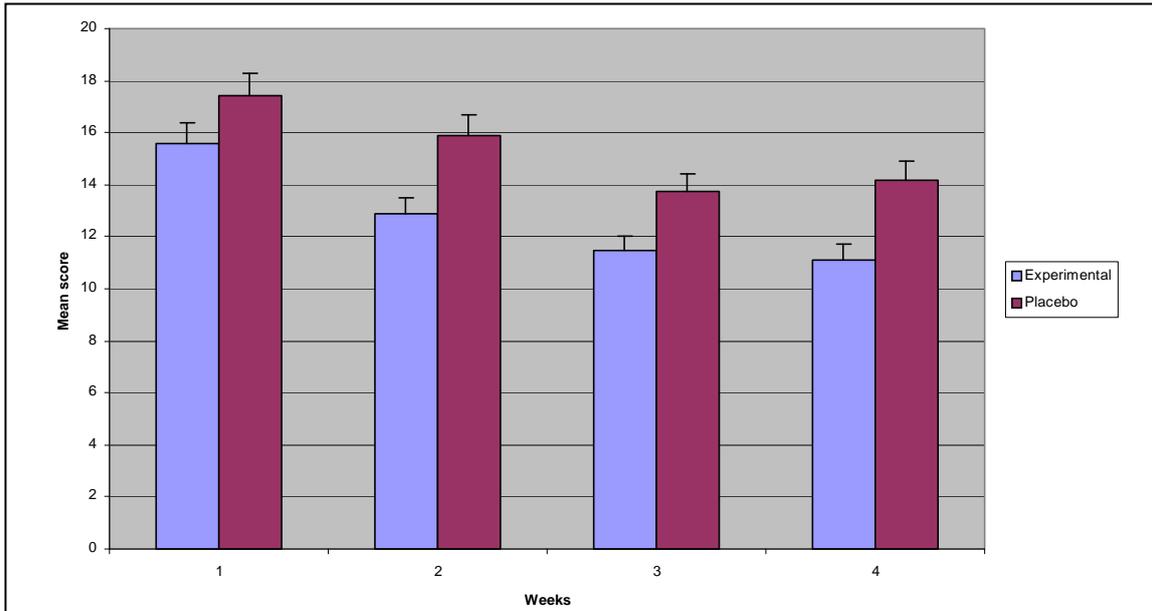
**Graph 4.8.** Anxiety Mean Scores

Once again, in the area of anxiety, children in both groups showed an improvement in their symptoms over the course of the study. However, once again, the experimental group showed a more significant improvement ( $P = 0.0026$ ) than the placebo group ( $P = 0.0070$ ).

The reason for improvement occurring in both groups of children can once again be attributed to increased support and attention received from the parents during the course of the study. More significant improvement in the experimental group can be attributed to the medication used.

#### **4.4.6. Hyperactivity Index**

The mean scores for the children's hyperactivity index is illustrated in Graph 4.9.



**Graph 4.9.** Hyperactivity Index Mean Scores

In the above graph both the experimental and the placebo groups show an improvement in the symptoms comprising the hyperactivity index. The experimental group showed extremely significant improvement throughout the duration of the study, whereas the placebo group showed less significant improvement in the symptoms, as well as the reappearance of symptoms after the third assessment.

The experimental group was seen not only to improve extremely significantly in the area of the Hyperactivity Index, but to continue to improve after cessation of the medication. This could be due to the sustained effect of the medication on the children.

In all six categories of the Parent Symptom Questionnaire (refer to Table 3.1. and Appendix G) the children showed a decrease in mean scores that indicates an improvement in all areas assessed.