20.8: ADHD Treatment

Learning Objectives

- Treatment Effects of a Drug on Cognitive Functioning in Children with Mental Retardation and ADHD

Research conducted by

Pearson et al. (2003, see reference below)

Case study prepared by

David Lane and Emily Zitek
Overview

This study investigated the cognitive effects of stimulant medication in children with mental retardation and Attention-Deficit/Hyperactivity Disorder. This case study shows the data for the Delay of Gratification (DOG) task. Children were given various dosages of a drug, methylphenidate (MPH) and then completed this task as part of a larger battery of tests. The order of doses was counterbalanced so that each dose appeared equally often in each position. For example, six children received the lowest dose first, six received it second, etc. The children were on each dose one week before testing.

This task, adapted from the preschool delay task of the Gordon Diagnostic System (Gordon, 1983), measures the ability to suppress or delay impulsive behavioral responses. Children were told that a star would appear on the computer screen if they waited “long enough” to press a response key. If a child responded sooner in less than four seconds after their previous response, they did not earn a star, and the 4-second counter restarted. The DOG differentiates children with and without ADHD of normal intelligence (e.g., Mayes et al., 2001), and is sensitive to MPH treatment in these children (Hall & Kataria, 1992).

Questions to Answer

Does higher dosage lead to higher cognitive performance (measured by the number of correct responses to the DOG task)?

Design Issues

This is a repeated-measures design because each participant performed the task after each dosage.

Descriptions of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
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<tbody>
<tr>
<td>d0</td>
<td>Number of correct responses after taking a placebo</td>
</tr>
<tr>
<td>d15</td>
<td>Number of correct responses after taking .15 mg/kg of the drug</td>
</tr>
<tr>
<td>d30</td>
<td>Number of correct responses after taking .30 mg/kg of the drug</td>
</tr>
<tr>
<td>d60</td>
<td>Number of correct responses after taking .60 mg/kg of the drug</td>
</tr>
</tbody>
</table>
Data Files

ADHD.xls

Links

Methylphenidate

References

• Hall CW, Kataria S (1992), Effects of two treatment techniques on delay and vigilance tasks with attention deficit hyperactive disorder (ADHD) children. J Psychol 126:17-25

Contributor

• Online Statistics Education: A Multimedia Course of Study (http://onlinestatbook.com/). Project Leader: David M. Lane, Rice University.