

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

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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 20.8.1 : Description of Variables

Variable	Description
d0	Number of correct responses after taking a placebo
d15	Number of correct responses after taking .15 mg/kg of the drug
d30	Number of correct responses after taking .30 mg/kg of the drug
d60	Number of correct responses after taking .60 mg/kg of the drug

Data Files

ADHD.xls

Links

Methylphenidate

References

- Gordon M (1983), The Gordon Diagnostic System. DeWitt, NY: Gordon Systems
- 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
- Mayes SD, Calhoun SL, Crowell, EW (2002), The Gordon Diagnostic System and WISC-III Freedom from Distractibility index: Validity in identifying clinic-referred children with and without ADHD. Psychol Rep ,91, 575-587.
- Pearson DA, Santos CW, Roache JD, Casat CD, Loveland KA, Lachar D, Lane DM, Faria, LF, Cleveland LA (2003), Treatment effects of methylphenidate on behavioral adjustment in children with mental retardation and ADHD. J Am Acad Child Adolesc Psychiatry, 42, 209-216.
- Pearson, D.A., Santos, C.W., Jerger, S.W., Casat, C.D., Roache, J., Loveland, K.A., Lane, D.M., Lachar, D., Faria, L.P., & Getchell, C. (2003) Treatment effects of methylphenidate on cognitive functioning in children with mental retardation and ADHD. Journal of the American Academy of Child and Adolescent Psychiatry, 43, 677-685.

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