

Relating obsessive-compulsive behavior to information uptake in female college students with ADHD

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There are reports of an overlap between symptoms of obsessive-compulsive behavior and ADHD (Geller et al., 2006). However, it is unclear whether executive function deficits of patients with ADHD are also associated to obsessive-compulsive behavior shown by these patients. Thus, we aimed to investigate underlying neuropsychological processes that are related to obsessive-compulsive behavior in patients with ADHD.

Method

Participants

Fifteen female college students (M -age = 29.94 years, SD = 5.60) with ADHD and 24 comparison female students (M -age = 22.46 years, SD = 2.48) without ADHD underwent an extensive diagnostic procedure.

Design

The study followed a 2-between (Group: ADHD vs. control) \times 2-within (Conflict Frequency: 20% vs. 80%) \times 2-within (Flanker Conflict: incongruent vs. congruent) design.

Measures

Flanker Task. In the Flanker Task the target stimulus was flanked by distractor stimuli, which could be associated with either the correct or an incorrect response (compatible and incompatible flanker condition, respectively, see Figure 1; Gawrilow et al., submitted).

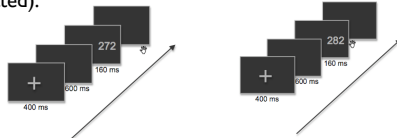


Figure 1. Example of Combined Flanker Task-Trial; (a) incompatible (b) compatible.

Questionnaires. Participants were asked to fill out questionnaires regarding ADHD symptoms (DEX; Wilson et al., 1996; FEDA; Zimmermann et al., 1991; SKID-II; Wittchen et al., 1997), physical and psychological health (BSI; Franke, 2000; SF-36; Bullinger & Kirchberger, 1998), dietary habits (EVT; Böhm, 1993; FEV; Pudel & Westenhöfer, 1989), and achievement motivation (LMI short form; Schuler & Prochaska, 2001).

Discussion

First, participants with ADHD showed less information uptake. This inability to extract information quickly was most pronounced in congruent trials. This finding may be interpreted as a too narrow attentional focus. Second, participants with ADHD were more cautious than participants without ADHD (i.e., in terms of speed-accuracy tradeoff they leaned more towards accuracy than participants without ADHD). Participants that exhibited less information uptake in the congruent trials reported more obsessive-compulsive behavior.

We suggest that these results might indicate a compensation mechanism in female college students with ADHD. To counteract the decreased stimulus processing (i.e., the lower drift rates), female college students with ADHD adopt stricter criteria before a response is initiated (i.e., the higher boundary separation), which can become obsessive-compulsive behavior in everyday live.

Data analysis

To analyze Flanker data we used a diffusion model, which separates response and response time into three parameters representing amount of information uptake (i.e., drift rate), response caution (i.e., boundary separation) and non decision processes (i.e., non decision time, see Figure 2).

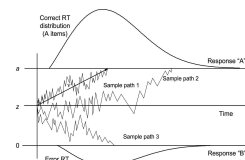


Figure 2. Graphical illustration of a diffusion process (Spaniol, Madden, & Voss, 2006).

Results

Flanker

Members of the ADHD group responded more slowly and made fewer errors. The diffusion model showed that they had had lower drift rates, especially in congruent trials, but higher boundary separation parameters and nondecision time than members of the control group.

Questionnaires

Groups differed in all ADHD questionnaires, but other than that only on the scale for obsessive-compulsive behavior with women with ADHD showing more obsessive-compulsive behavior.

Correlations of Flanker Task and Questionnaires

Analysis of the diffusion model parameters revealed only effects in the high conflict blocks. The ADHD scale "Fatigue and retardation in activities of daily living" was related to all three parameters of the diffusion model, as participants reporting more fatigue and retardation showed less information uptake, $r = .38$, responded more cautious, $r = -.39$, and exhibited longer non decision times, $r = -.38$. Additionally, obsessive-compulsive behavior was correlated with amount of information uptake in congruent trials, $r = -.33$. Participants that reported more obsessive-compulsive behavior exhibited less information uptake.

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