A serious game for children with Attention Deficit Hyperactivity Disorder: Who benefits the most?

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Abstract

OBJECTIVE:
The aim of the current study was to identify which subgroups of children with Attention Deficit Hyperactivity Disorder (ADHD) benefitted the most from playing a Serious Game (SG) intervention shown in a randomized trial to improve behavioral outcomes.

METHOD:
Pre-intervention characteristics [i.e., gender, age, intellectual level of functioning, medication use, computer experience, ADHD subtype, severity of inattention problems, severity of hyperactivity/impulsivity problems, comorbid Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) symptoms] were explored as potential moderators in a Virtual Twins (VT) analysis to identify subgroups for whom the SG intervention was most effective. Primary outcome measures were parent-reported time management, planning/organizing and cooperation skills.

RESULTS:
Two subgroups were identified. Girls (n = 26) were identified as the subgroup that was most likely to show greater improvements in planning/organizing skills as compared to the estimated treatment effect of the total group of participants. Furthermore, among the boys, those (n = 47) with lower baseline levels of hyperactivity and higher levels of CD symptoms showed more improvements in their planning/organizing skills when they played the SG intervention as compared to the estimated treatment effect of the total group of participants.

CONCLUSION:
Using a VT analysis two subgroups of children with ADHD, girls, and boys with both higher levels of CD and lower levels of hyperactivity, were identified. These subgroups mostly benefit from playing the SG intervention developed to improve ADHD related behavioral problems. Our results imply that these subgroups have a higher chance of treatment success.