

## **IDENTIFICATION OF ADHD SYMPTOMS IN SPANISH CHILDREN AND ADOLESCENTS THROUGH THE NEW SERIOUS GAME ATTENTION ROBOTS**

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**INTRODUCCIÓN:** An increasing number of studies emphasize the advantages of developing ecologically valid computer-based tools for neuropsychological assessment, applicable to both clinical and non-clinical populations. These tools target cognitive functions like attention, memory, and processing speed, relevant to conditions such as Attention Deficit Hyperactivity Disorder (ADHD). Serious games have emerged as effective means for assessing cognitive aspects, enhancing participant task involvement, and improving motivation and adherence compared to traditional methods, especially among children and adolescents.

**OBJETIVOS:** Given the importance of understanding neurocognitive profiles in early development, this study investigates the correlation between cognitive abilities, evaluated through the serious game Attention Robots (AR) and neurocognitive performance using the standardized computerized tool CogniFit. Additionally, it examines differences between ADHD and non-ADHD groups, controlling for age.

**METODOLOGÍA:** The study involved 82 children and adolescents (46 boys, 36 girls) aged 6 to 17 years. This sample was divided into ADHD (n=34) and control (n=48) groups. Participants completed a neuropsychological protocol consisting of the CogniFit general cognitive assessment and the serious game AR, assessing concentration, working speed, and accuracy.

**RESULTADOS:** Moderate to strong correlations were observed between concentration/working speed in Attention Robots and focused attention ( $r_c=0.363$ ;  $R_{ws}=0.351$ ,  $P<0.01$ ), Visual scanning ( $r_c=0.403$ ;  $R_{ws}=0.392$ ,  $P<0.001$ ), Visual perception ( $r_c=0.334$ ,  $P<0.01$ ;  $R_{ws}=0.274$ ,  $P<0.05$ ), And processing speed ( $r_c=0.409$ ;  $R_{ws}=0.403$ ,  $P<0.001$ ) In CogniFit. ANCOVA analysis controlling for age indicated age-related differences in concentration ( $F_{1,73}=164.13$ ,  $P<0.001$ ,  $\eta^2=0.681$ ) And working speed ( $F_{1,73}=127.04$ ,  $P<0.001$ ,  $\eta^2=0.631$ ) Between ADHD and control groups in AR.

**CONCLUSIÓN:** AR proves to be a precise computer-based neuropsychological tool for assessing ADHD aspects, especially in children, highlighting its discriminant validity for cognitive evaluation in younger populations, pointing out the influence of age in neurocognitive assessments. The study underscores the relationship between concentration, working speed, and overall cognitive functioning, suggesting that serious games like AR could facilitate cognitive assessment in different settings.

**PALABRAS CLAVE:** ADHD, ATTENTION ROBOTS, NEUROPSYCHOLOGICAL ASSESSMENT, COGNIFIT, CHILDREN, ADOLESCENTS.