

Validating a new screening scale for children with autism against the Motor Skills section of the Vineland scale (VABS-II)

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Abstract

Background: Autism Spectrum Disorder (ASD) belongs to a group of neurodevelopmental disorders, which includes delays in a variety of developmental components. The diagnosis includes a persistent deficit in social communication and social interaction and is characterized by restricted, repetitive patterns of behavior, interests, or activities. According to the Centers for Disease Control and Prevention (CDC) in the United States, as of today, the prevalence of autism in children is 1:36, with boys diagnosed four times more than girls. The diagnosis of autism will accompany the child throughout his or her life; however, one's quality of life, functioning, and integration into independent living may be affected by the provision of appropriate therapeutic intervention in the early stages of development. In addition to social or communication difficulties, many children also have motor difficulties. The motor diagnostic scales used today are not accommodated for use with children with ASD, and therefore, the duration of the diagnosis is prolonged. Moreover, constant changes and adjustments are being made during the use of the scales with this population, which further impair their validity and reliability.

Aims: To validate a new motor survey tool, the Motor Screening test, for children with Autism (MoSA). Another goal is to examine the ways in which the children's age influences motor function and the functional gap between their chronological age and motor abilities.

Tools: The MoSA was validated against the Motor Skills section of the Vineland Adaptive Behavior Scales (VABS-II) test. VABS-II is the most common assessment tool used for diagnosing adaptive behavior among the population of children with ASD, and every child enrolled in the "OTI" association is evaluated with the use of this assessment. MoSA is a screening tool that evaluates motor abilities. It is based on several developmental motor scales and designed for rapid motor assessment of children with ASD aged 3-6 years.

Methods: Using the Spearman correlation test, VABS-II and Screening scores of 134 children aged 3-6 years were compared (mean age 48.57 ± 9.08 months, age range 36-72 months). A paired samples T-test was conducted to test the mean difference in all MoSA test elements against the mean general difference.

Results: A strong, significant positive correlation was observed between VABS-II and MoSA scores ($R = 0.645$, $P < 0.05$). Age and gender variables were found to have a similar trend in their effect on both tests. In addition, the children's motor functional gap was found to increase over the years in comparison to motor abilities expected from typically developing children.

Conclusions: The MoSA was found to be a valid tool compared to the Motor Skills section of the gold standard test (VABS-II). The gap between the motor function of children with autism aged 3-6 years was found to grow with age, compared to the expected motor function of neuro-typical children. These findings stress the importance of a comprehensive motor assessment for all children with ASD as a routine procedure, and the value of implementing an individually tailored motor intervention program based on the findings of the above-mentioned assessment for this population.

Keywords: Autism, ASD, Motor abilities, Assessment, Validation