Results: The intervention group showed a significant improvement from baseline to follow-up in job interview skills in general (p = .004), and specifically sharing strengths about themselves to a future employer (p = .004). No significant differences were seen from baseline to follow-up in the SAU group.
Conclusions: Individuals on the autism spectrum are significantly underemployed, which negatively impacts one's ability to lead an independent life. Two innovative tools: VR-JIT and KF-STRIDE successfully improved job interview skills, including the ability to identify and express personal strengths. These findings indicate that these combined tools may help to improve employment skills for individuals on the autism spectrum.

Categories: Autism Spectrum Disorders/Developmental Disorders/Intellectual Disability
Keyword 1: autism spectrum disorder
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19 Preseason Neurocognitive Test Performance and Symptom Reporting Among Student Athletes with Autism Spectrum Disorders

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Objective: Participation in sports likely confers multiple benefits for children and adolescents with autism spectrum disorder (ASD). Adolescent student athletes often undergo preseason testing as part of a broader concussion management program for schools. This study compares preseason neurocognitive functioning and symptom reporting between high school athletes with and without ASD.

Participants and Methods: Participants were derived from a database of 60,751 adolescent student athletes from Maine (aged 13-18) who completed preseason testing between 2009 and 2019 and did not have missing data on the history question relating to ASD. There were 425 students (0.7%) who self-reported having been diagnosed with ASD in their health history. Cognitive functioning was measured by ImPACT, and the Post-Concussion Symptom Scale (PCSS) was used to obtain symptom ratings. Group differences between the ASD and the population control group on the five ImPACT cognitive test composite raw scores and the total symptom score from the PCSS were examined using Mann-Whitney U tests.
Results: Compared to the population control sample, those with ASD reported much greater rates of comorbid conditions: attention deficit/hyperactivity disorder (50.1% vs. 10.3%), special education (39.2% vs. 4.4%), learning disabilities (43.8% vs. 4.4%), and prior treatment for a psychiatric condition (23.4% vs. 7.5%). Groups differed significantly across all neurocognitive composites (p values <.002). However, all differences were negligible in terms of the magnitude of the effects (r values range from 0.01-0.03). The groups also differed significantly on the PCSS total symptom score (p<.001), but the magnitude of the difference was negligible (r=.031). Among boys, the ASD group endorsed 21 of the 22 symptoms at a greater rate. Among girls, the ASD group endorsed 11 of the 22 individual baseline symptoms at a greater rate than the control group. Examples of symptoms that were endorsed at a higher rate among both boys and girls with ASD: sensitivity to noise (girls: odds ratio, OR=4.38; boys: OR=4.99), numbness or tingling (girls: OR=3.67; boys: OR=3.25), difficulty remembering (girls: OR=2.01; boys: OR=2.49), difficulty concentrating (girls: OR=1.82; boys: OR=2.40), sleeping more than usual (girls: OR=1.94; boys: OR=1.97), sensitivity to light (girls: OR=1.82; boys: OR=1.76), sadness (girls: OR=1.72; boys: OR=2.56), nervousness (girls: OR=1.80; boys: OR=2.27), and feeling more emotional (girls: OR=1.79; boys: OR=2.84).
Conclusions: Students with ASD participating in organized sports are likely high functioning, on average. There were small differences in their cognitive test scores compared to the population control sample. They endorsed more symptoms, however, during baseline preseason testing. If they sustain a concussion, their clinical

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management should be more intensive to maximize the likelihood of swift and favorable recovery.

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Keyword 3: psychometrics
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20 Using Automated Sentiment Analysis to Examine Self-Evaluation in Youth with Autism Spectrum Disorder

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Objective: Individuals diagnosed with autism spectrum disorder (ASD) experience negative self-evaluation, indicated by low levels of self-esteem and describing themselves more negatively to others. Variations in reading comprehension, difficulty identifying emotions, and masking (camouflaging of autistic traits) make it difficult to accurately measure self-evaluation of individuals with ASD using subjective self-report scales such as the Rosenburg Self-Esteem Scale. Therefore, it is important to explore more objective methods of measuring self-evaluation in ASD. Sentiment analysis is a popular Natural Language Processing (NLP) technique used to quantify the emotional content of language programmatically by automatically transforming text into a data frame of words represented as individual values or tokens. Each token can then be categorized as positive or negative with a sentiment dictionary. The current study aims to investigate an automated sentiment analysis approach to evaluate self-evaluation by quantifying implicit linguistic affective valence of ASD participants' verbal self-describing statements in a naturalistic setting. Specifically, we evaluated the frequency of positive or negative words used during a mock job interview in which individuals with ASD were asked to describe themselves. We then examined the relationship between positive and negative word usage and standard self-report measures of self-evaluation.
Participants and Methods: Twenty-four young adults with ASD were included in this study with an age range of 15-24 and a mean age of 19.2 years. Participants completed a battery of assessments including a mock job interview in which they were asked to describe themselves as a measure of implicit self-esteem. Self-esteem and knowledge of personal strengths was assessed using the Rosenberg Self-Esteem Scale and Strengths Knowledge Scale, respectively. Interview transcripts were automatically transformed into word token data frames using the tidytext package in Rstudio. Frequencies of positive and negative words were calculated and their ratio to total word count was used to measure the implicit positivity and negativity of transcripts.
Results: There was a significant negative correlation between the frequency of negative sentiment in transcripts and measure on the Rosenburg Self-Esteem Scale ($r = -.376$, $p = .035$) and the Strengths Knowledge Scale ($r = -.387$, $p = .031$) indicating that individuals with higher self-esteem and knowledge of their strengths used fewer negative words when talking during a mock interview.
Conclusions: While our results are preliminary, this pilot study represents the first to use automated sentiment analysis to study self-evaluation in individuals with ASD. The use of this technique on natural linguistic data collected through a mock job interview allows researchers to quantitatively analyze the emotionality of transcriptions and create insights that would otherwise be unavailable using more subjective qualitative techniques. Limited research into self-evaluation in this population has yielded inconsistent results, relying too heavily upon qualitative or self-report measures. The ability to programmatically quantify affective valence in transcripts is a time and cost-effective technique for improving validity of future measures of self-evaluation.

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