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„Związek pomiędzy intelektem a zaburzeniami ze spektrum autyzmu."

"The relationship between intellectual ability and autism spectrum disorder"

Rozprawa doktorska na stopień doktora
w dziedzinie nauk medycznych i nauk o zdrowiu
w dyscyplinie nauki o zdrowiu
przedkładana Radzie Dyscypliny Nauk o Zdrowiu
Warszawskiego Uniwersytetu Medycznego

Promotor: dr hab. n. med. Agnieszka Butwicka

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8. Streszczenie w języku angielskim

English title: “The relationship between intellectual ability and autism spectrum disorder”

Autism spectrum disorder is a neurodevelopmental disorder and it has been often linked with intellectual ability. Data of 72 children and adolescents with autism and 73 neurotypical children and adolescents were collected. The IQ was measured by Stanford-Binet test and autism symptom severity was measured through ADOS-2. The major results showed that the verbal and nonverbal IQ were correlated ($r=.84$, $p<.001$). The subcomponents of ADOS-2 were highly correlated, with significant correlations among Fluid Reasoning, Knowledge, Quantitative Reasoning, Visuospatial Processing and Working Memory. For the children with ASD, children with higher IQ scores had lower ADOS scores and, therefore, less severe ASD behavior. Subsequent correlations showed that total IQ was significantly correlated with communication and RSI ADOS, but not RRB. The same pattern emerged when assessing the association between verbal and nonverbal IQ with ADOS subcomponents. The results showed no significant differences between non-ASD patients and ASD patients in their verbal skills. However, a strong negative correlation has been found between both nonverbal and verbal IQ and ADOS-2 Communication component. Eight machine learning models were run to predict ICD-10 classification from IQ scores. The predictors were full IQ, verbal and non-verbal IQ. The highest model accuracy was achieved by logistic regression at 75% accuracy. Age was regressed out of IQ, verbal and nonverbal IQ. The models had a comparable performance, with the best models achieving 79% and 76% accuracy. Lower accuracy was found in predicting class F84.0. Limiting the analysis to predict only classes F84.1 and F84.5 increased the accuracy of the best two models to 88% and 86%.