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Atypical visual preference in children with ASD from Low-Income backgrounds: a case-control study

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Abstract

Early identification of Autism Spectrum Disorder (ASD), a heterogeneous neurodevelopmental condition, remains a challenge in developing countries due to structural barriers. This case-control study investigated visual attention preference between social and geometric stimuli using eye-tracking in children with ASD ($n=29$, 11 girls, $M_{age}=50.3$ months) and typical development (TD, $n=29$, 11 girls, $M_{age}=51.9$ months) from low-income families. A one-way ANOVA revealed a significant effect of the diagnostic group on the proportion of fixation duration on non-social compared to social stimuli, $F(1, 56) = 31.39$, $p < .001$, $\eta^2 = .35$. This visual preference metric correlated strongly with clinical severity (CARS: $r = .53$, $p < .001$) and social responsiveness (SRS-2: $r = .55$, $p < .001$). A logistic regression model achieved high discriminative power ($AUC = .879$). These findings suggest that eye-tracking metrics may serve as a potential adjunctive tool to support clinical screening and objective assessment in underserved populations.