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Auditory Hypersensitivity Patterns Among Children With Autism Spectrum Disorders

Huan-Ling Yuan

The Hong Kong Polytechnic University, China

Abstract:

Auditory hypersensitivity is common among children with autism spectrum disorders (ASD). However, there have been inconsistent findings on its symptoms. This study aimed to use novel sounds, and behavioral and electrophysiology measures to test the homogeneity of the presenting symptoms. Fifty children with ASD and 38 age-matched typically developing (TD) children assigned like-dislike ratings in response to 18 pure-tone sounds. The participants then passively heard the sounds, and their cortical auditory evoked potential (CAEP) was captured. Their levels of intelligence, emotion, auditory filtering ability, and autistic traits were measured. The ASD participants formed two clusters based on their like-dislike ratings, i.e., the more-disliking (ASD-MDL, n=36) versus more-liking groups (ASD-ML, n=14). Significant between-group CAEP amplitude differences were found in the P1 and P2 components, and latency differences in the P1, N1, and P2 components. The CAEP differences further confirmed the two ASD subgroup memberships. Our findings revealed different but consistent patterns of the symptoms and neural responses among the ASD participants. Future studies should aim to gain better understanding of the neural mechanisms behind auditory hypersensitivity, and investigate differences in hearing novel versus environmental sounds in ASD individuals.

Biography

Huan-Ling Yuan is a Ph.D. student at The Hong Kong Polytechnic University. Her research topic is “Auditory sensitivity processing in individuals with autism spectrum disorder: A psychophysiological study”. My research goals are to explore the characteristics of auditory sensitivity from different perspectives, provide evidence and ideas for effective interventions that are beneficial to the development of children with autism, and stimulate the development of more equipment and instruments.

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