

Voice Quality in Italian-Speaking Children with Autism

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Abstract : This project aims to measure and assess the voice quality in children with autism. Few previous studies exist which have analyzed the voice quality of individuals with autism: abnormal voice characteristics have been found, like a high pitch, great pitch range, and sing-song quality. Existing studies did not focus specifically on Italian-speaking children's voices and provided analysis of a few acoustic parameters. The present study aimed to gather more data and to perform acoustic analysis of the voice of children with autism in order to identify patterns of abnormal voice features that might shed some light on the causes of the dysphonia and possibly be used to create a pediatric assessment tool for early identification of autism. The participants were five native Italian-speaking boys with autism between the age of 4 years and 10 years (mean $6.8 \pm SD 1.4$). The children had a diagnosis of autism, were verbal, and had no other comorbid conditions (like Down syndrome or ADHD). The voices of the autistic children were recorded in the production of sustained vowels [ah] and [ih] and of sentences from the Italian version of the CAPE-V voice assessment test. The following voice parameters, representative of normal quality, were analyzed by acoustic spectrography through Praat: Speaking Fundamental Frequency, F0 range, average intensity, and dynamic range. The results showed that the pitch parameters (Speaking Fundamental Frequency and F0 range), as well as the intensity parameters (average intensity and dynamic range), were significantly different from the relative normal reference thresholds. Also, variability among children was found, so confirming a tendency revealed in previous studies of individual variation in these aspects of voice quality. The results indicate a general pattern of abnormal voice quality characterized by a high pitch and large variations in pitch and intensity. These acoustic voice characteristics found in Italian-speaking autistic children match those found in children speaking other languages, indicating that autism symptoms affecting voice quality might be independent of the native language of the children.

Keywords : autism, voice disorders, speech science, acoustic analysis of voice

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