

When speaking to infants, parents across various languages and cultures worldwide use a specific variant of language – “parentese”, which supports children's language development. Parental speech differs from everyday language directed at adults in terms of content and vocabulary, as well as tone of voice, its timbre, and the emphasis on vowels or word boundaries. However, it has been observed that when parents speak to children at increased risk of autism, they do not use it in the same way as when speaking to children without such risk. Moreover, children who have siblings on the autism spectrum pay less attention to parental speech and perceive it differently. This is particularly important considering that children at increased risk of autism often experience delays in language development, and autism itself is associated with frequent language deficits.

Increased risk of autism occurs not only when a child has an autistic sibling, but also when at least one parent is autistic. Although we know that the characteristics of parentese can be influenced not only by the child to whom the parent is speaking, but also by factors such as depression or stress in the parent, it has not yet been investigated whether the presence of autism in an infant's mother is also associated with differences in the parentese she uses. We have reasons to suspect that such differences do indeed exist, as autistic adults may use language differently than neurotypical individuals, and autistic mothers less frequently admit using parentese when speaking to their infants.

To understand whether autistic mothers truly speak differently to their infants than neurotypical mothers, I plan to collect voice recordings during their interactions with children and adults. I expect that the tone and timbre of autistic mothers speaking to infants aged 3-6 months will be closer to the tone and timbre they use when speaking to adults, compared to the neurotypical control group. Simultaneously, I plan to record infants' brain activity during these interactions using functional near-infrared spectroscopy. This non-invasive neuroimaging method will allow me to examine the relationship between the characteristics of mother's voice and the infant's brain activity, and to analyse whether there are differences between children of autistic and neurotypical mothers in processing parentese. Additionally, I will ask parents to complete a questionnaire about their child's language development when the children reach 12 months of age. This will allow me to attempt to check whether the mother's tone and timbre of voice in infancy can predict the child's later language development.

The above research will allow me to better understand the mechanisms behind the differences in language development between autistic and neurotypical individuals. An additional advantage is conducting research on the Polish language, which is not frequently represented in scientific studies on parental speech. Most importantly, identifying differences in parentese used by autistic mothers can potentially lead to the development of early interventions supporting the language development of children at increased risk of autism and improving their quality of life.