Acoustic Features of Infant-directed speech to Infants with Hearing Loss

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The main goal of this study was to investigate infant-directed speech (IDS) to infants with hearing loss (HL), with focus on the effects of infants' chronological and hearing age on acoustic features of their mothers' IDS. Accordingly, IDS to HL infants (n=20, *M Age* = 15.09 months) was compared with IDS to two normal hearing (NH) infant control groups, one matched for chronological-age (NH-CA, n=20, *M Age* = 15.37 months) and the other for hearing-age (NH-HA, n=20*, M Age* = 11.68 months). Mothers were recorded during a play session with their infant while using a toy sheep, shoe, and shark (to elicit productions of /i,u,a/) (IDS) and in a semi-structured interview with an adult experimenter (ADS).

The results showed that the degree of vowel hyperarticulation was only moderated by infants' individual HL configuration; mothers reduced the space between the three corner vowels in their IDS to infants with unilateral HL, i.e., there was hyp***o***articulation to unilateral HL infants, but not bilateral HL infants. Also, results indicated greater variability for F1 and F2 for vowel /a/ and F2 for vowel /i/ in IDS than in ADS with no difference across groups. Additionally, results showed that the F2-F1 distance for the vowel /a/ was greater in IDS to infants with HL than to NH-HA infants.

These findings suggest that IDS is qualified by greater variability in vowel production in IDS compared to ADS, regardless of infants' hearing status. Although the variability across phonetic dimensions may hinder category learning by making vowels less clear and more difficult to learn (Cristia & Seidl, 2014; Englund, 2018; McMurray et al., 2013), it could be that this variability would maintain infants' attention to speech for longer, which may be in response to infants' linguistic need specific at this stage in their development.

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