“Your Baby Can’t Hear You”:
How Mothers Talk to Infants with Simulated Hearing Loss

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Abstract

In this study mothers were told “your baby can’t hear you,” and their interactions recorded in either (i) a hearing condition in which infants could hear their mothers or (ii) a hearing loss condition in which infants could not hear their mothers. It was found that pitch levels of speech were similar in both conditions, but that there was vowel hyperarticulation in the hearing, but not the hearing loss condition, suggesting that mothers use of linguistic devices depends on their infants responsiveness.

Index Terms: hearing impairment, infant-directed speech, vowel hyperarticulation, double video, mother-infant interaction

1. Introduction

Caregivers use infant-directed speech (IDS) to communicate with infants. Compared to adult-directed speech (ADS), IDS has \([1]\) exaggerated pitch which is said to benefit the infant attentionally \([2]\) and vowel hyperarticulation, said to benefit the infant linguistically \([3]\). This study examines how infant hearing loss may affect IDS. Mother-infant dyads were assigned to a condition which allowed the infant to see and hear their mother (hearing), or one in which the infant could see, but not hear their mother (hearing loss). Thus, the aim is to examine how mothers’ speech behaviour is adjusted when their infant can or cannot hear them.

2. Method

Eight mothers were recorded talking to their normal hearing 26-week-old infants (24 to 31 weeks). All mothers were told “your baby can’t hear you,” with 4 mothers randomly assigned to the hearing condition, and 4 mothers to the hearing loss condition. Mothers and infants were seated in separate rooms and interacted over a closed-circuit television system. Mothers were asked to interact normally with their infant using three toys, a sheep, a shoe and a shark in order to collect tokens of the corner vowels /i/ /u/ and /a/. A 10-minute ADS sample was also collected.

3. Results and Discussion

The results for the hearing condition are shown in Figure 1 and for the hearing loss condition in Figure 2. Vowel triangles are shown in panel (a), and mean pitch and pitch range in panel (b). Mean pitch and pitch range are higher in IDS than ADS in both conditions (all \(ps < 0.05\)) but there is no difference between the two conditions. There is a trend for the vowel triangles to be larger in IDS than ADS in the hearing condition \((p < 0.1)\), but not in the hearing loss condition. It should be noted that the current analysis only contains 4 of the 16 mothers tested in each condition. Examination of other aspects of mother infant interactive behaviours, e.g., gaze and smile, vocal affect, and infant vocalisations could clarify these findings.

4. Conclusions

Mothers modify the pitch of IDS irrespective of whether their infants can or cannot hear them indicating that exaggerated pitch is important for attracting infants’ attention. Most interestingly, it appears that vowel hyperarticulation is influenced by whether infants can or cannot hear their mothers. This indicates that linguistic elements of IDS, vowel hyperarticulation, are sacrificed if mothers have difficulties maintaining infant attention. Studies using preverbal infants with hearing loss are necessary to support and confirm these findings.

5. References