

LANGUAGE DURING COVID-19: THE EFFECTS OF MASKS ON PRESCHOOLERS PROXIMITY & VOCALIZATIONS.

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Background & Significance

Children attending preschool during the COVID-19 pandemic may have experienced barriers to social interaction due to the prevalence of safety precautions, including face-mask mandates and social distancing guidelines. Face-masks, for example, may degrade the quality of the speech signal thereby hindering the intelligibility of children's speech. Suggestions to socially distance may also impact children's language experiences in their preschool classroom by reducing their opportunities for social interactions occurring in close proximity to their peers and teachers.

Objectives & Approach

The objective of the current study was to longitudinally examine before and during COVID-19 and safety precautions on children's language production and proximity to social partners in their preschool classroom. In cohort 1 (pre-COVID-19), there was 20 children, and 9 of those children has hearing loss. In cohort 2 (during COVID-19) there was 15 children, and 7 of children had hearing loss. (Cohort 1: $M_{age}=3.45$ years, $SD=.30$, 11 boys; Cohort 2: $M_{age}=3.59$ years, $SD=.37$, 12 boys). Cohort 1 was observed prior to the onset of COVID-19 between October 2019 and February 2020. Cohort 2 was observed while both children and teachers wore cloth earloop masks between March and June 2021. We continuously recorded children's location in the classroom using the Ubisense Dimension4 system. Each child wore 2 tags (in the left and right pockets of a specially designed vest that housed the LENA recorder) and were tracked using radio-frequency identification. In order to understand whether there were systematic differences in children's proximity to their social partners, we calculated the radial distribution function which indicates distances at which children are closer to their social partners than would be expected by chance. Vocalizations were recorded using LENA audio recorders. LENA pattern recognition software classified children's own speech-related vocalizations. We calculated the rate of children's vocalizations/ speech they produced per minute. Sphinx speech recognition software was also used to calculate the phonemic complexity of children's speech-related vocalizations operationalized as the overall number of phonemes, and the number of unique phonemes.

Outcomes & Future Directions

There were no significant differences between cohorts of children in the rate, duration, or the number of unique phonemes contained in speech-related vocalizations. Children in Cohort 2 (during COVID-19) produced a *larger* number of overall phonemes per speech-related vocalization than children in Cohort 1. Visual inspection of the radial distribution function did not indicate differences in the range of distances in which children were in social contact with their peers or their teachers between cohorts. Social contact was defined as interactions between children or between children and teachers that occurred within the range of .2-2.5 m across both cohorts (during & pre COVID-19) as this was the range of distances in which children were either closer to a peer or teacher than would be expected by chance. Overall, there was no evidence of a decline in the rate, duration, or complexity of child speech with a mask, nor were there differences in the range of social contact in the context of increased safety guideline. The next project step is to compare Cohort 1 and Cohort 2 (before and during COVID-19) with respect to children's language in social contact with a social partner.

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