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Research Shows Maternal Cell Phone Use May Negatively Impact Infant Language Development

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PRESS RELEASE

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Mothers speak less to infants during detected real-world phone use

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Q&A with Child Development Authors

Research suggests that phone use may have an effect on children's speech input and language development. However, most of the prior work in this area examines parents and children in controlled laboratory experiments in public spaces and may not be representative of daily interactions between a child and their caregivers.

New research in *Child Development* by the University of Texas at Austin in the United States is the first to combine objective markers of speech (via audio recorders worn by infants) and maternal cell phone use from cell phone logs. This research helps document the real-time effects of this phone use on speech to infants in real-world interactions. As predicted, researchers found that maternal cell phone use is associated with a 16% overall decrease in infants' speech input during real-world interactions at home. Phone use had stronger effects on speech during some hours of the day than others, perhaps reflecting differences in how parents use their phones while caring for their infants across the day.

The Society for Research in Child Development had the opportunity to interview Dr. Miriam Mikhelson and Dr. Kaya de Barbaro from the University of Texas at Austin to discuss their important findings.

SRCD: What led you to study maternal phone use and infant language development?

Dr. Mikhelson and Dr. de Barbaro: A growing number of studies are finding associations between parental phone use and children's language development. We wanted to look at the way phone use may impact the quantity of speech infants hear as a potential mechanism for this connection. However, the language environment of an infant is complex, and the existing research only provides a snapshot of how distractions such as smartphones impact parents' rates of speech. We designed our study so that we could characterize patterns of parental phone use and infants' speech input (for infants ranging from 1-7 months old) during

everyday interactions in the home over an extended period of time. Our results, therefore, provide greater ecological validity in the study of phone use behavior and language development.

SRCD: Can you please provide a brief overview of the study?

Dr. Mikhelson and Dr. de Barbaro: We looked at the real-time changes in infants' speech input during periods of maternal phone use. The data were collected from mother-infant dyads in the home using audio recordings and phone logs. We then compared infants' speech input at a one-minute time scale and found a 16% decrease during phone use. We saw that shorter instances of phone use (1-2 minutes) were associated with even greater (26%) decreases in speech input. We also found a stronger relation between phone use and infants' speech input during specific times of the day. The variability in the association between phone use and infants' speech input speaks to the range of ways parents engage with their phones in day-to-day life and the distinct effects different kinds of use may have on children's language development.

SRCD: Based on your findings, what advice do you have for new parents?

Dr. Mikhelson and Dr. de Barbaro: We do not yet know the specific factors that drive the association between parental phone use and decreased speech input or the longer-term effects on language learning. Our results show us that phone use does not have a uniform or consistently "negative" impact on children's speech input. It is therefore unlikely that eliminating phone use entirely during childcare is necessary, nor is it realistic. Our advice to new parents is to be cognizant of the impact phones can have on their ability to be attuned to their child's needs. It is critical for infants to have consistent and responsive care which can be more difficult with the alluring and consuming nature of a smartphone. Some parents, however, may not have the luxury of turning off or putting their phones away due to work obligations or other responsibilities they hold. For parents who are already anxious about the quality of their caregiving, like many new parents are, we recommend that they simply try their best to attend to their children - and to be honest with themselves about the degree to which smartphones hinder their ability to do so. Being aware of how easily we become consumed by our phones, despite our best intentions, is an important first step.

SRCD: Was there anything that surprised you?

Dr. Mikhelson and Dr. de Barbaro: We were surprised by the overall quantity of phone use across participants. Our sample had an average of 4.4 hours of phone use per 12-hour period. While other studies

show comparably high rates of phone use, seeing the numbers, particularly on the higher end, were still striking. We are curious to know what categories of phone use were most common and to what degree they differ from those of adults who are not caregivers. It would also be interesting to know how the participants' phone use changed after having a child, both in terms of the total amount and categories of use.

SRCD: What's next in this field of research?

Dr. Mikhelson and Dr. de Barbaro: The continuous advances in wearable sensor technology and multimodal data collection are enabling researchers to obtain more finite, ecologically-valid measures of parent and child behavior in the home. Future work will therefore be able to assess the impact of different kinds of phone use (e.g., text, phone call, social media, etc.) and different contexts (e.g., meals, play time, breastfeeding) which may have distinct effects on parents' rates of speech, especially given the variation seen in our results. Future work should also prioritize the diversity of participants, including greater variation in class, race, gender, and family composition. While smartphones are increasingly ubiquitous across populations, the ways in which parents engage with them are likely to vary.

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Summarized from an article in *Child Development*, "Mothers Speak Less to Infants During Detected Real-World Phone Use," by Mikhelson, M., Luong, A., Etz, A., Micheletti, M., Khante, P., de Barbaro, K. from University of Texas at Austin. Copyright 2024 The Society for Research in Child Development. All rights reserved.