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Kolbie A. Vincent
University of Louisville

Katherine G. Golway
University of Louisville

Nonah M. Olesen
University of Louisville

Cara H. Cashon
University of Louisville

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The Role of Socioeconomic Status on Infant's Expressive Vocabulary on Kentucky Families during COVID-19

Kolbie A. Vincent, Katherine G. Golway, Nonah M. Olesen, Cara H. Cashon

Department of Psychological and Brain Sciences, University of Louisville

Background

- Most language inequality for infants begins very early in their development. For most, this disparity develops prior to 36 months (Farkus & Baron, 2000).
- Significant disparities in vocabulary size between socioeconomic status (SES) were evident by 18 months. By 24 months, there was a 6-month age gap (Fernald et al, 2011).
- 65% of low SES preschoolers in head start programs had clinically significant language delays (Ramey and Ramey, 2004).
- Maternal education is a known indicator of SES and is correlated with language input for infants (Dollaghan et al. 1999).
- At 18 months, most infants experience "word spurts" and an increase in expressive vocabulary (Reznick & Goldfield, 1992).
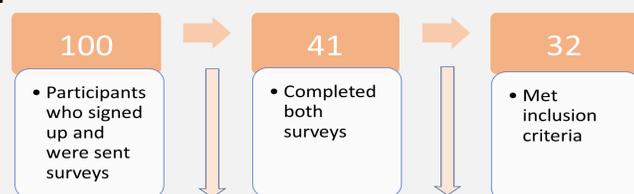
Research Question: Are SES (maternal education) and expressive vocabulary related in Kentucky families during the COVID pandemic?

Methods

Kentucky parents of infants ages 8-34 months were recruited online. Survey links were then emailed to interested parents. Parents completed online questions about their family and infant's language development during the COVID-19 Pandemic.

Surveys were completed between June 17th and July 18th, 2020. Expressive vocabulary skills were measured using the web CDI, an online version of the MacArthur-Bates Communicative Development Inventory (CDI). SES (maternal education) was obtained through the CDI.

Participants

100	41	32
• Participants who signed up and were sent surveys	• Completed both surveys	• Met inclusion criteria

Removed: 59	Removed: 9
Never started: 31	Premature: 3
Did not complete REDCAP: 7	Reported developmental delay: 5
Completed REDCAP but not CDI: 21	Bilingual: 1

Methods (cont.)

The final sample consisted of 32 8 and 33-month-old infants (mean age= 17.34 months; 15 females and 17 males) and their parents (27 women and 5 men)

Race/Ethnicity of infants
24-White/Non-Hispanic
3-Black or African American
2-Black/White
2-White/Hispanic
1-Native Hawaiian or other Pacific Islander/Black/White/Hispanic

Maternal Education (highest level attained)
20- Advanced degree (18 or higher)
8- College degree (16-17)
2- Some college
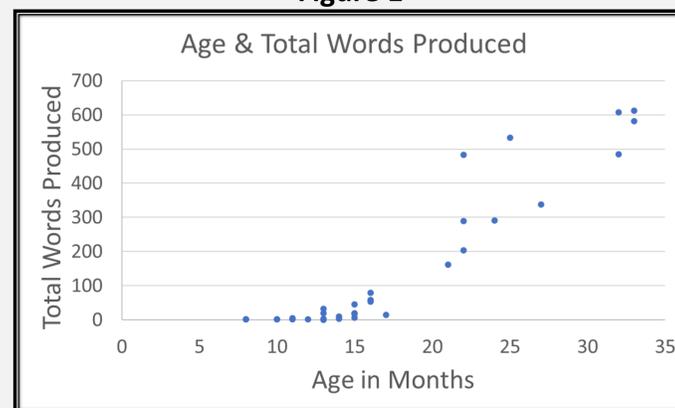2- High school degree
0- Did not complete high school

Additional Characteristics of Sample (at time of survey)
19- Primary caregivers working from home
9- Infants in some form of daycare

Results

Before testing our main hypothesis, we investigated the relationship between infant age and expressive vocabulary size (see Fig.1).
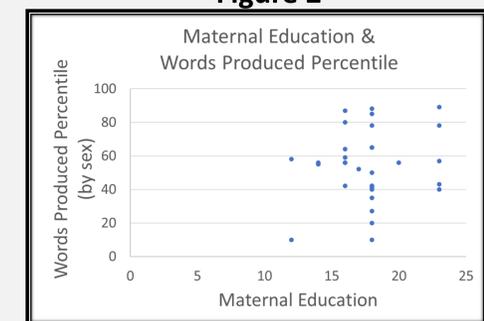
Figure 1

Age & Total Words Produced

$r = .936, p < .001$

Results (cont.)

To explore the relationship between SES and expressive vocabulary, a Pearson correlation was run on maternal education and words produced percentile scores (by sex) provided by the CDI (see Fig. 2). No significant correlation was found ($r = .151$, $p = .411$).

Figure 2

Maternal Education & Words Produced Percentile

Given the differential impacts of the pandemic, we also explored a relationship between words produced percentiles and household income (Fig. 3) as well as median income per zip code (from zipatlas.com) (Fig. 4).
Neither median income based on zip code, nor annual family income was significantly correlated with infant's vocabulary (ps > .70).
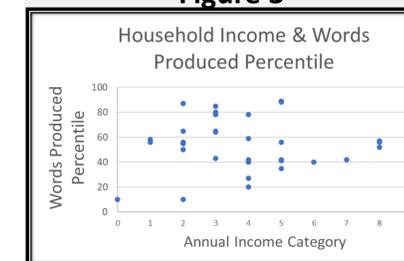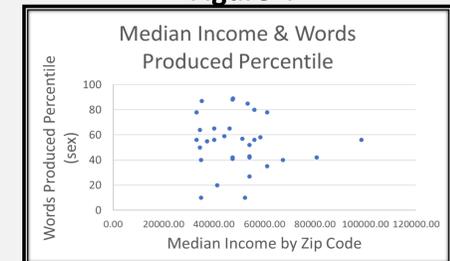
Figure 3

Household Income & Words Produced Percentile

Figure 4

Median Income & Words Produced Percentile

Discussion

- The current study did not find a significant relationship between infant's expressive vocabulary and SES (as measured through maternal education, annual family income, and median income of zip codes).
- Despite these null findings, we did find a statistically significant strong, positive correlation between age and total words produced.
- One limitation of this study was a relatively small sample size compared to the number of initial sign ups, which may in part be due to the extra stressors related to COVID-19.
- The variability in maternal education was limited in our sample. Our final sample primarily consisted of highly educated mothers. Twenty eight out of 32 had college degrees, with the majority of those having advanced degrees.
- Data collection will continue with these participants at a later time to explore changes in their infant's language development during this pandemic.