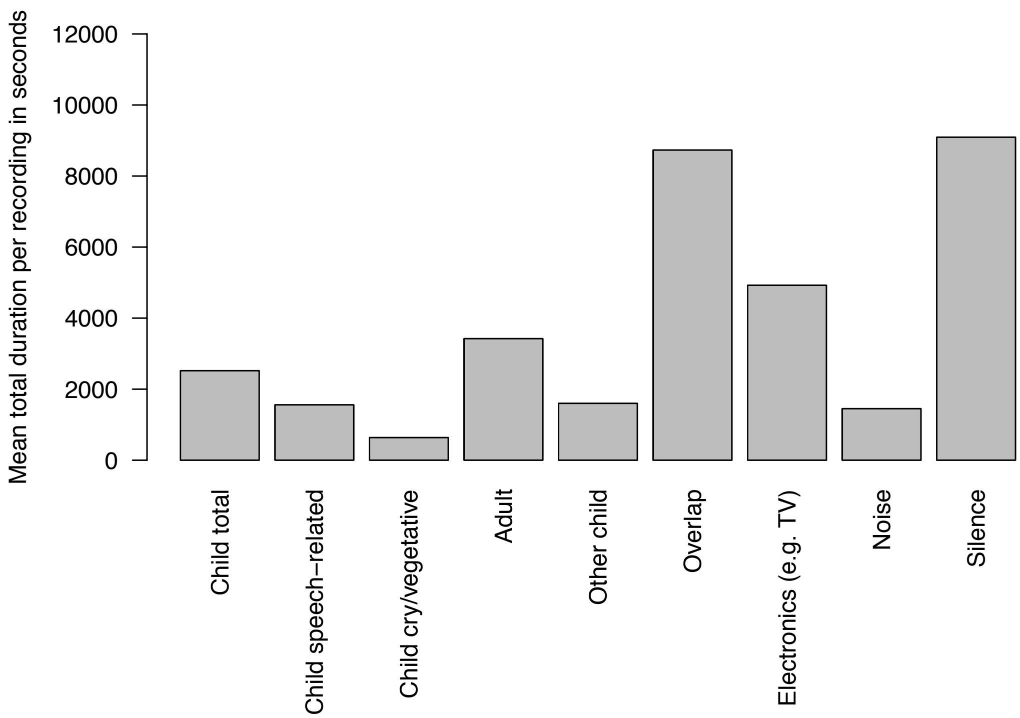
Sound Type Prevalence Supplemental Material

The figure below shows the total duration of each sound source type, averaged across all the recordings. Recall that each recording was 12 hours long.



Prevalence of sound source types in TD and ASD recordings.

Relationships between demographics and sound types

For each segment type, we ran a linear mixed effects model where the total duration within a recording of that segment type was the dependent variable. Participant IDs were treated as random effects and the following demographic variables were treated as fixed effects: ASD diagnosis (ASD = 1, TD = 0), age, maternal education level, gender

(Male = 1, TD = 0), the interaction between age and ASD diagnosis, and the interaction between age and maternal education level. The table below gives the standardized regression coefficient, β, and statistical likelihood, p, relating each demographic variable to each segment type.

Effects of ASD, age, maternal education, and gender (male) on prevalence of sound types. Prevalence is measured as the total duration of the speaker label in each 12-hour recording.

Sound type	ASD	Age	MomEd	Gender	Age*ASD	Age*MomEd
Child total	$\beta = -0.235$ $p < .001$	$\beta = 0.2966$ $p < .001$	$\beta = 0.187$ $p < .001$	$\beta = -0.021$ $p = .643$	$\beta = 0.050$ $p = .286$	$\beta = -0.011$ $p = .789$
Child speech-related	$\beta = -0.283$ $p < .001$	$\beta = 0.458$ $p < .001$	$\beta = 0.225$ $p < .001$	$\beta = -0.036$ $p = .647$	$\beta = -0.014$ $p = .533$	$\beta = -0.064$ $p = .173$
Child cry and vegetative	$\beta = 0.074$ $p = .145$	$\beta = -0.214$ $p < .001$	$\beta = -0.041$ $p = .342$	$\beta = 0.011$ $p = .816$	$\beta = 0.116$ $p = .015$	$\beta = -0.030$ $p = .486$
Adult	$\beta = -0.010$ $p = .842$	$\beta = 0.010$ $p = .814$	$\beta = 0.199$ $p < .001$	$\beta = -0.045$ $p = .293$	$\beta = 0.155$ $p = .001$	$\beta = -0.051$ $p = .213$
Other child	$\beta = -0.259$ $p < .001$	$\beta = 0.271$ $p < .001$	$\beta = 0.078$ $p = .070$	$\beta = -0.022$ $p = .617$	$\beta = 0.028$ $p = .544$	$\beta = -0.012$ $p = .770$
Overlap	$\beta = 0.070$ $p = .150$	$\beta = 0.165$ $p < .001$	$\beta = 0.182$ $p < .001$	$\beta = -0.074$ $p = .097$	$\beta = 0.010$ $p = .826$	$\beta = 0.004$ $p = .918$
Electronic	$\beta = -0.013$ $p = .774$	$\beta = 0.012$ $p = .769$	$\beta = -0.318$ $p < .001$	$\beta = 0.016$ $p = .689$	$\beta = -0.115$ $p = .009$	$\beta = 0.096$ $p = .041$
Noise	$\beta = 0.073$ $p = .161$	$\beta = -0.121$ $p = .005$	$\beta = 0.065$ $p = .151$	$\beta = -0.073$ $p = .123$	$\beta = -0.109$ $p = .027$	$\beta = -0.034$ $p = .426$
Silence	$\beta = -0.075$ $p = .137$	$\beta = -0.196$ $p < .001$	$\beta = -0.001$ $p = .991$	$\beta = 0.099$ $p = .032$	$\beta = -0.034$ $p = .479$	$\beta = 0.030$ $p =.468$

Note that the number of other child segments was statistically significantly lower for the ASD group than the TD group. This could be related to a statistically significant difference between the two groups in terms of the number of siblings living in the children's households on the date of the recordings, $\beta = -0.096$, $p = .005$ (but see the results from the alternative dataset below finding little difference across in the number of siblings but still a lower number of other child segments for the ASD group). How other siblings may play a role in children's speech development is not addressed in the present study. Application of the methods from the present study to the role that other children play in a child's speech development would be an interesting avenue for future research.