Predictive Value of Early Joint Attention for Later Absolute and Relative Language Abilities in Neurogenetic Syndromes

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Background

- Joint attention, the ability of a child to coordinate attention with their caregiver to focus on the same object or event, is a critical precursor skill in typical language development
- Neurogenetic syndromes (NGS) is often characterized by substantial delays in developmental domains, including attentional and language skills
- Yet, the relationship between early joint attention and later expressive language is unclear in NGS

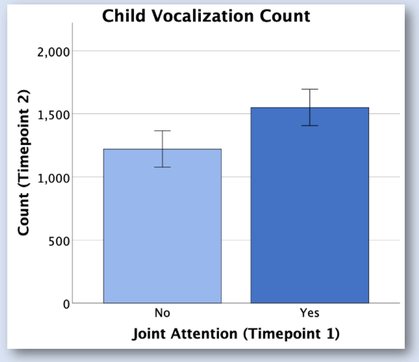
Research Questions

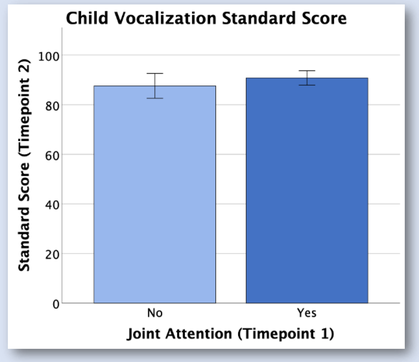
- Does joint attention predict absolute (vocalization count) and relative (vocalization standard score) language development in NGS?
- Would absolute measures be more sensitive in assessing language development in NGS?

Methods

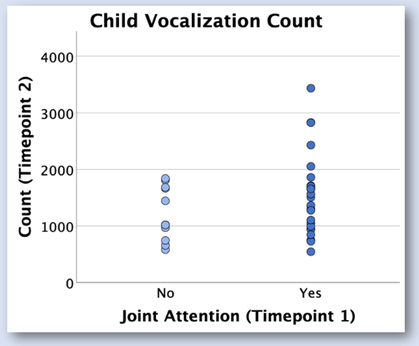
- *N* = 36 children with NGS (Angelman, Down, and Fragile X syndromes)
  - Sex: 52.8% male
  - Age (months)
    - Time 1 (T1): *M* = 16.5, *SD* = 7.95
    - Time 2 (T2): *M* = 26.3, *SD* = 8.49
- Early joint attention
  - Assessed at T1 based on parent-administered joint attention presses
  - Each child was categorized as having joint attention or not using behavioral coding
- Later language abilities
  - Assessed at T2 using wearable LENA device designed for naturalistic, daylong recordings
  - LENA automatically provides child vocalization (CV) count (absolute measure) and standard score (relative measure)
- Independent samples *t*-tests used to assess if T2 vocalization measures were greater for T1 group with joint attention than without joint attention

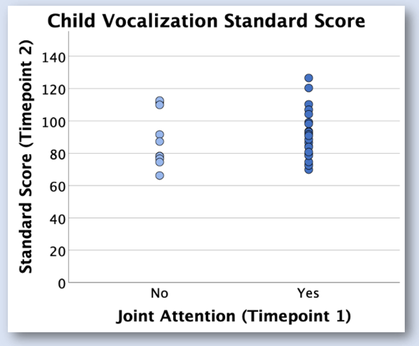
Early joint attention may not be predictive of later vocalizations in children with neurogenetic syndromes.





When assessing child vocalizations in neurogenetic syndromes, raw count metrics may serve as more sensitive and strength-focused measures of language development than standard scores.





Results

- More children demonstrated joint attention over time
- On average, children had a greater number of vocalizations over time, though their language gains were slower than developmental norms

	T1 *M* (*SD*)	T2 *M* (*SD*)
Joint Attention (%)	69.4	80.6
CV Count	1,303 (431)	1,450 (668)
CV Standard Score	96.7 (14.3)	89.8 (15.0)

- CV Count at T2 was marginally greater for children who had early joint attention (*M* = 1,550, *SD* = 722) than those who did not (*M* = 1,221, *SD* = 478), *t*(34) = 1.38, *p* = .088, *d* = 0.50
- CV Standard Score at T2 was not significantly different between children with (*M* = 90.8, *SD* = 14.6) and without (*M* = 87.6, *SD* = 16.6) early joint attention, *t*(34) = 0.58, *p* = .283, *d* = 0.21

Future Directions

- Use larger NGS samples to clarify potential syndrome-specific relationships between early joint attention and later language abilities
- Examine other outcome measures of language development in addition to LENA-based vocalization metrics (e.g., number of functional words used consistently)
- Extend analytic models to include potential confounding variables (e.g., typicality of CV during daylong recording)

References

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