

Elucidating mechanisms of language growth in minimally verbal individuals

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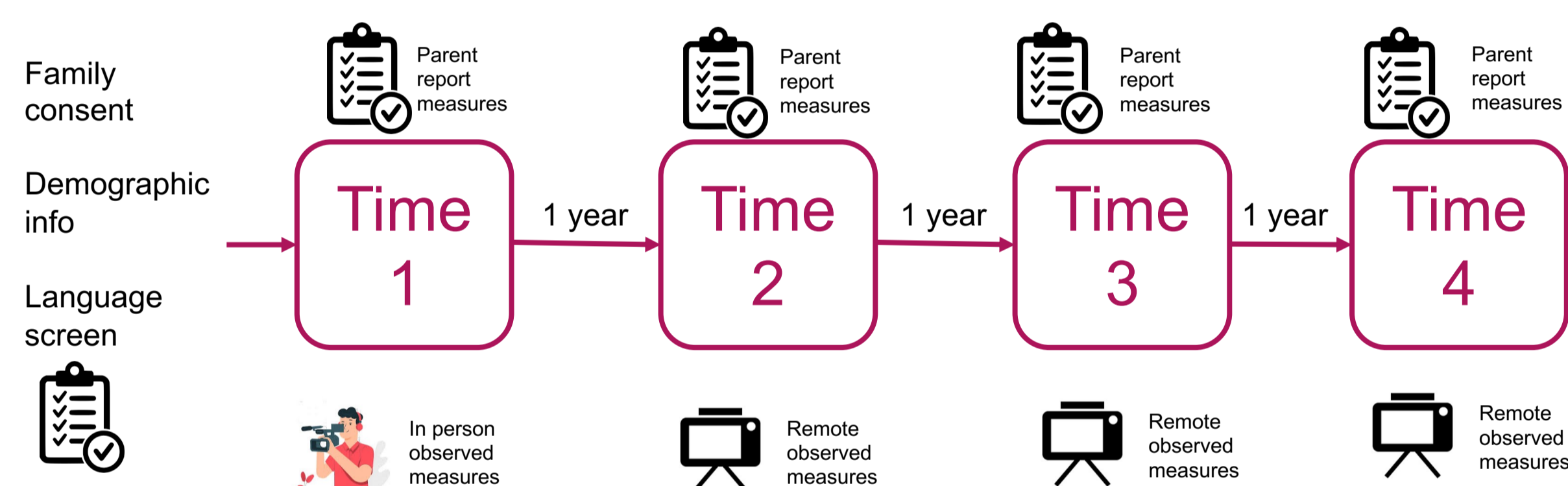


- Approximately 25% of autistic individuals remain ‘minimally verbal’, developing only limited expressive oral language skills¹, yet predictors of language growth remain poorly understood
- Longitudinal language research for this group is limited in sample size, duration, and age range, often excluding those with co-occurring conditions²
- The role of speech-motor planning difficulties (apraxia) is of interest due to emerging evidence that early speech production skills relate to later expressive language in autism^{3,4}, over and above socio-cognitive differences
- **Hypothesis:** initial speech-motor abilities will predict later expressive language over and above socio-cognitive skills in a minimally verbal cohort



Aims

1. Create a large, long and representative UK-based longitudinal sample of school-aged minimally verbal children
2. Measure each child’s skills in domains linked to language at the start to determine which predict spoken language
3. Estimate how frequently apraxia signs and broader motor difficulties occur in the cohort



Construct	Parent Report Measure	In person observed measures
Expressive Spoken language	UK-CDI Words Brief (Fearon, unpublished)	Measures from language sample
Vocal profile	eLVIS items (Naples et al., 2022)	• Measures from language sample • elicited sounds / apraxia markers
Communicative Competence	Language Use Inventory (adapted from O'Neill, 2009)	Measures from language sample
Receptive Understanding	UK-CDI Words Brief (Fearon, unpublished)	Receptive Language task
Social	ASDQ (Frazier et al., 2022)	Measures from language sample
Motor	DCDQ 07 (Wilson et al., 2009) Aut-Eat (Gal et al., 2021)	• motor imitation battery (Stone et al. 1997) • Items from Mullen Fine Motor (Mullen, 1995)

Time 1

Inclusion criteria

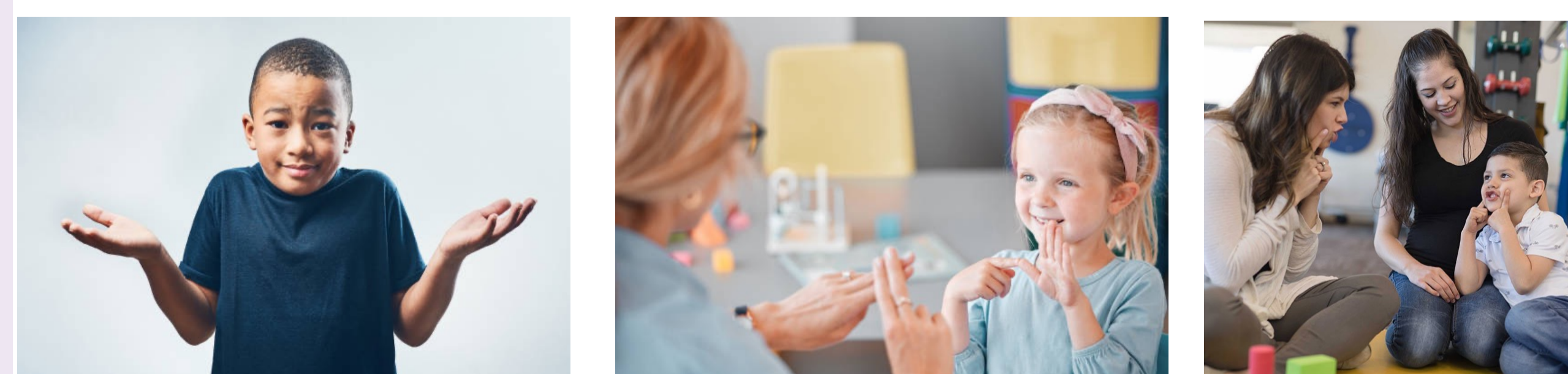
- "Minimally verbal" at Time 1: not regularly using intelligible, flexible phrase speech communicatively
- Age: 4-12yrs at Time 1
- Language challenges attributed to **any** neurodevelopmental condition: no autism diagnosis required (but expected for most)

Method

- Recruit 150 minimally verbal children aged 4-12yrs via schools, independent practitioners, social media and charities
- Measure language at 4 time points spread over 3 years
- Combine parent-mediated remote data gathering with traditional in-person child assessments and parent report measures
- Measures of wellbeing, educational attainment and functional outcomes also gathered, to evaluate how these covary with spoken language development
- There will be no exclusion criteria to reflect the true diversity of co-occurring conditions in this population (and no restriction to monolingual participants)

Analysis

- Examine relationships between initial predictors and language trajectories
 - Latent Growth Curves will be used if sample characteristics permit
 - Otherwise linear mixed effects models will be used
- Establish their prevalence and stability of apraxia signs and motor difficulties in this cohort
- Latent transition analysis to determine subgroups



References

1. Rose V, Trembath D, Keen D, Paynter J. (2016). Journal of Intellectual Disability Research, 60(5), 464-77. <https://doi.org/10.1111/jir.12284>. 2. Tager-Flusberg, H., & Kasari, C. (2013). Autism Research, 6(6), 468–478. <https://doi.org/10.1002/aur.1329>. 3. Chenausky, K. et al. (2019). Autism & Developmental Language Impairments, 4, 1–12. <https://doi.org/10.1177/2396941519856333>. 4. Mcdaniel, J., Ambrose, K. D., & Yoder, P. (2018). Research in Developmental Disabilities, 72(November 2017), 202–213. <https://10.1016/j.ridd.2017.11.010>