

Promoting Parental Support of Early Child Language: A BBC Tiny Happy People text messaging service

Danielle Matthews
University of Sheffield

Overview

Background - why produce a service for parents to support child language?

Is a text message service sharing BBC Tiny Happy People materials acceptable to parents and effective in promoting parent-child interaction and child prelinguistic communication and language?

Study 1 - Evaluation of service in infancy

Study 2 - Pilot and Feasibly Study of service in Toddlerhood

Study 3 - Evaluation of improved service in infancy and toddlerhood

Study 4 - Acceptability for parents with children who have EAL and/or SEND

British children's vocabulary as a function of age (3, 5, 11,14 years) and measures of Socio-Economic Circumstances:

1. Parent Education
2. Income
3. Wealth
4. Occupation
5. Neighbourhood
6. Composite

N=15,576

Thornton, E., Matthews, D., Patalay, P., & Bannard, C. (2021). Investigating how vocabulary relates to different dimensions of family socio-economic circumstance across developmental and historical time. *Language Development Research: An*

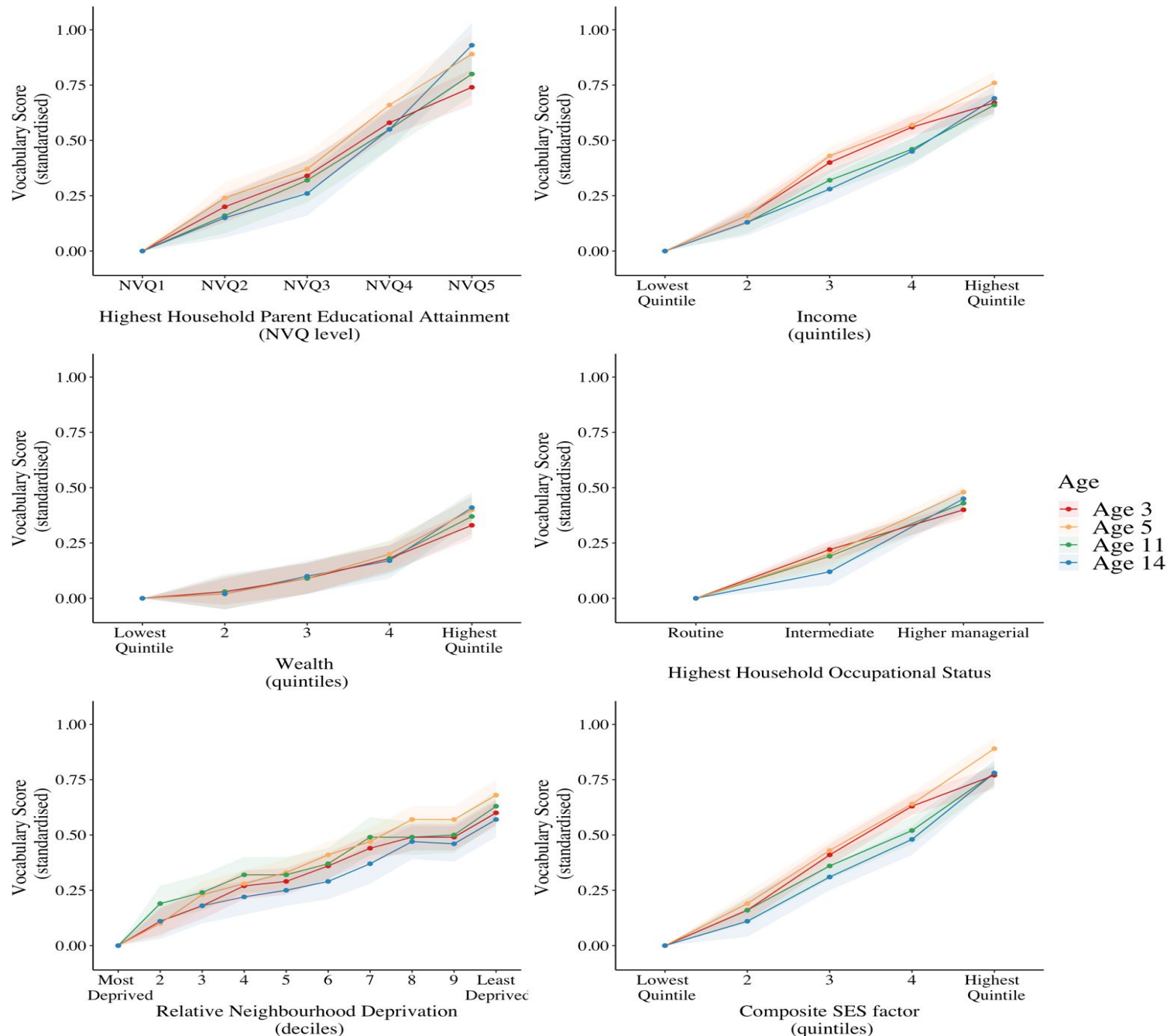
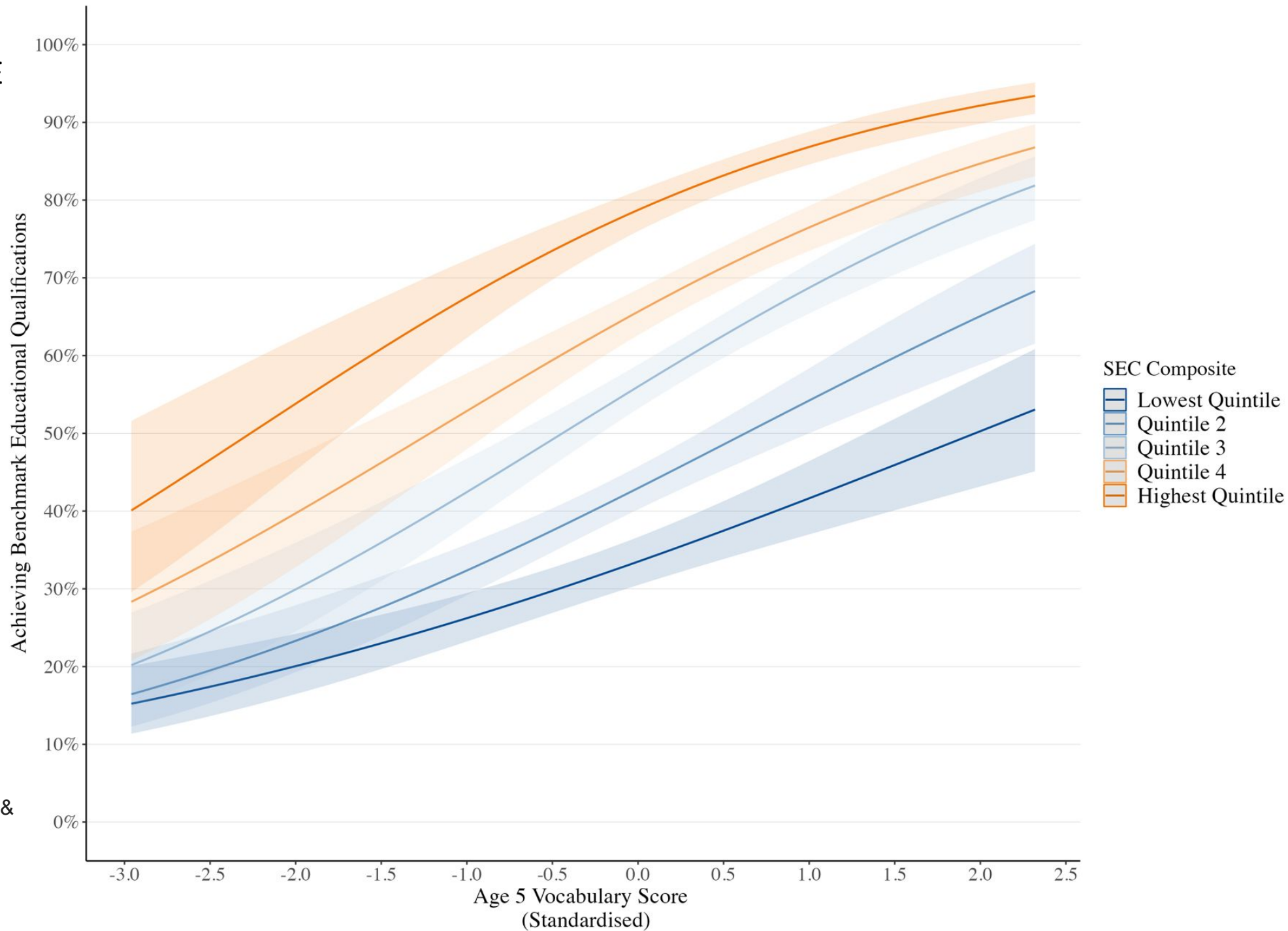


Fig. 2: Relationships between SEC indicators and vocabulary at ages 3, 5, 11 and 14 in the MCS2001 cohort
 β coefficients and 95% confidence intervals for vocabulary at ages 3, 5, 11 and 14, plotted as a function of each SEC indicator. Coefficients adjusted for potential confounding

Likelihood of passing GCSE
(or equivalent) Maths,
English and Science as a
function of
age 5 vocabulary and
Socio-Economic quintile



Thornton, E., Matthews, D., Patalay, P., &
Bannard, C. (in prep)

What experiences drive language learning?

- Observational studies
(longitudinal individual differences)
- Corpus informed experiments
- Natural experiments
- Cross-linguistic comparisons
- ‘Training studies’
- PAFS and RCTs





From video on how babies learn to communicate: <https://www.youtube.com/watch?v=-89poSIS6rY>

TINY *Happy* PEOPLE

Your *words* build their *world*

[Home](#)[About](#)[Activities](#)[Tips and advice](#)[Science and facts](#)

A chatty child is a happy child, so Tiny Happy People is here to help you develop your child's communication skills through simple interaction and play.



Activities

Simple, fun and free activities to try with your baby. Just select the age of your child.

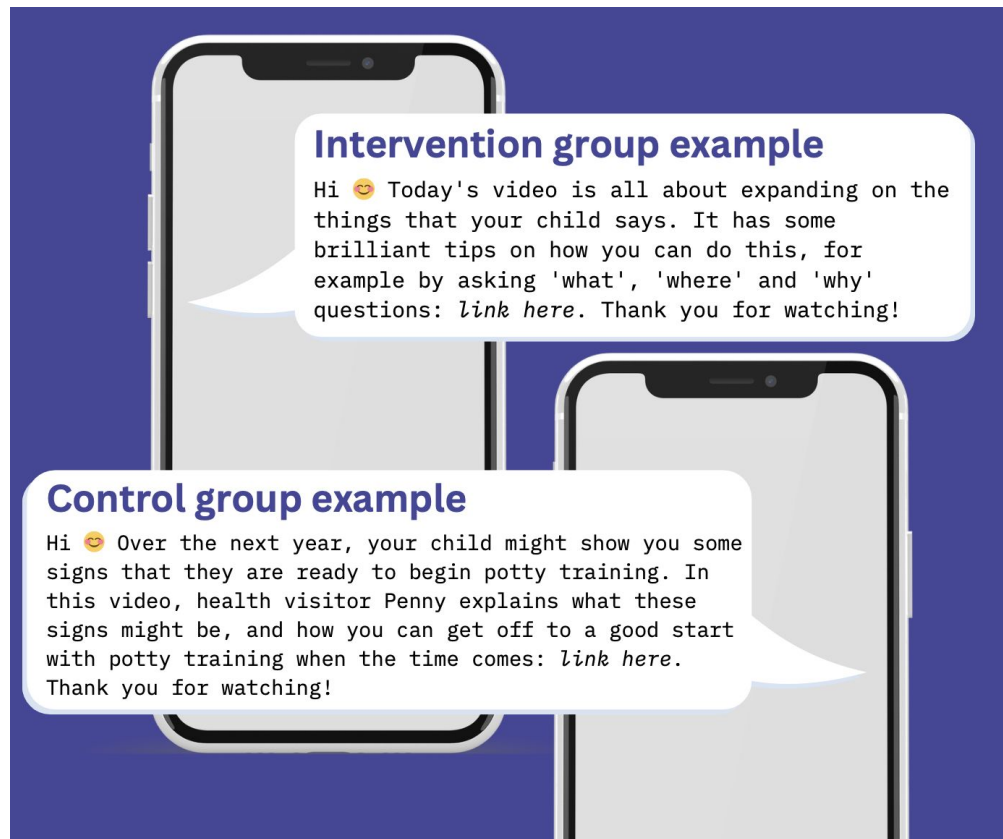


Tips and advice

Experts and parents give their advice on language learning, child development and parent life.

Digitally delivered

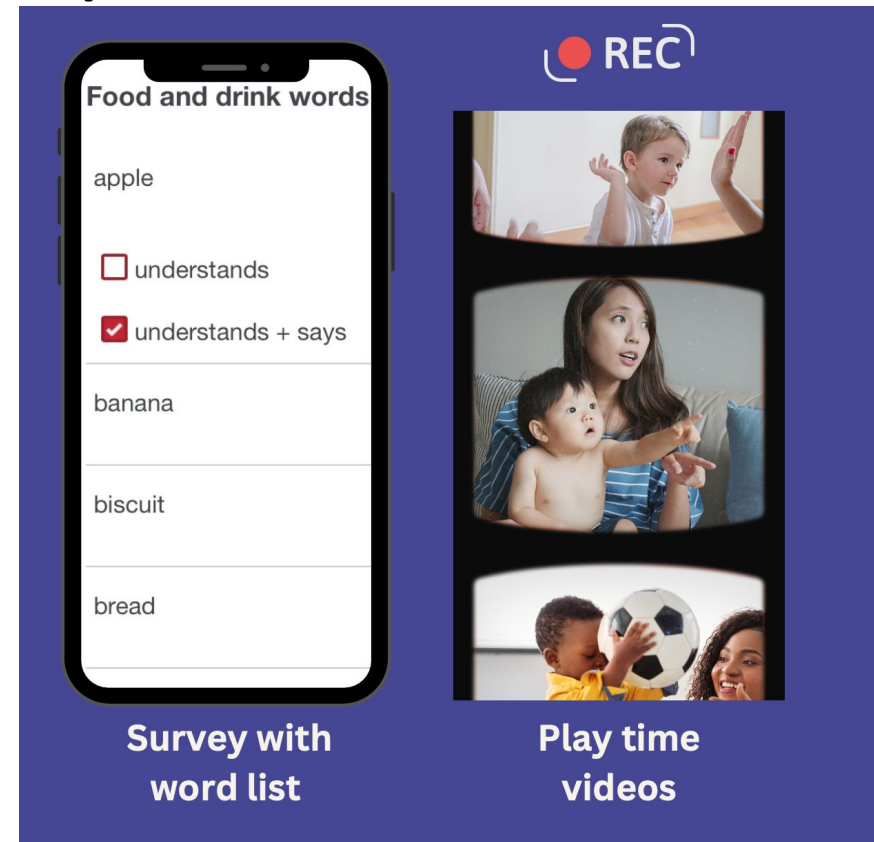
3 text messages / month via Firetext



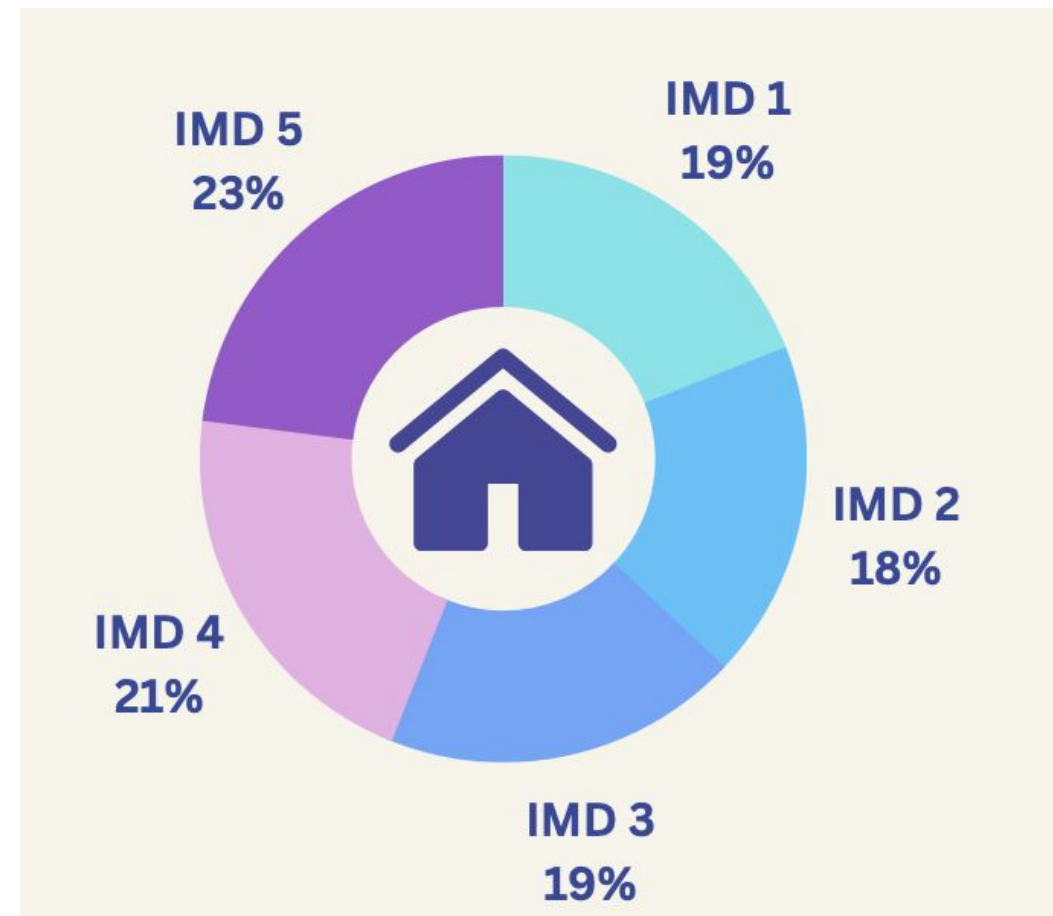
and assessed

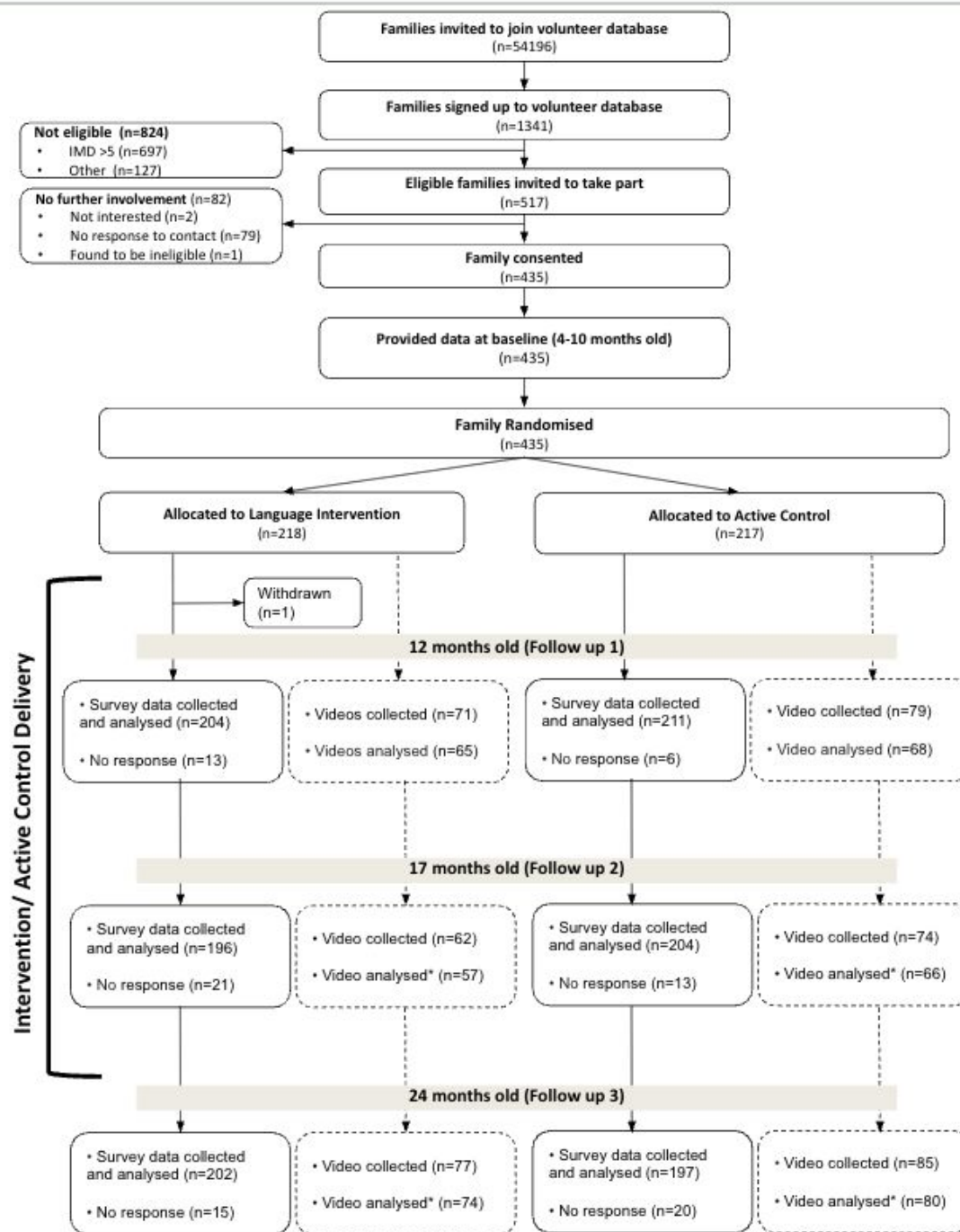
Parent report of child vocab

Optional home video



Study 1: Infancy N = 435





Pre-registration & Blinding

Intention-to-treat analyses were pre-registered at ClinicalTrials.gov NCT04919343

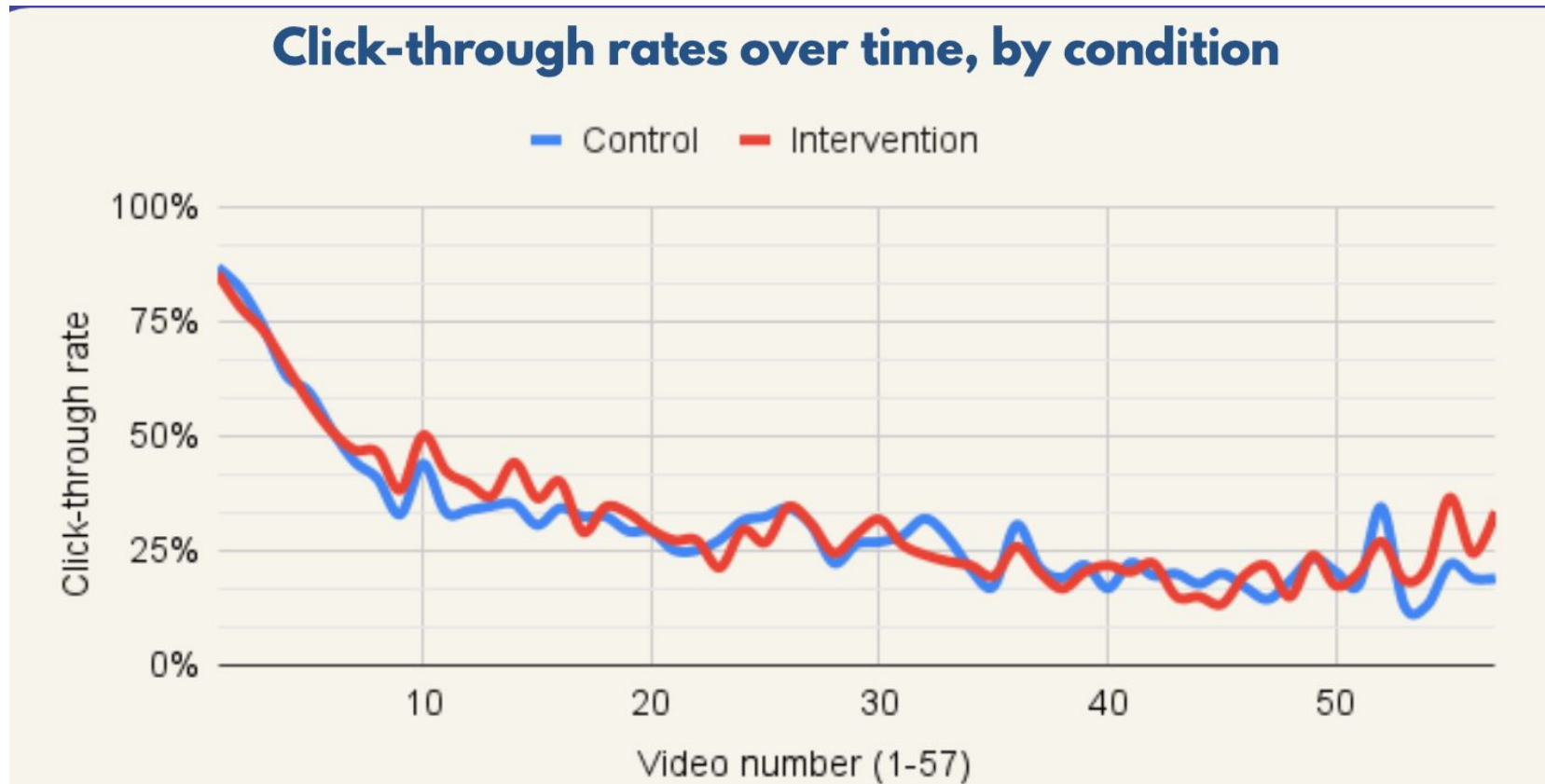
A more detailed Statistical Analysis Plan was pre-registered at OSF:

<https://osf.io/kme68/>

Additional analyses of home videos pre-registered: <https://osf.io/6qrc2/resources>

All coding and analysis blind to condition

Rate at which parents clicked through to video links

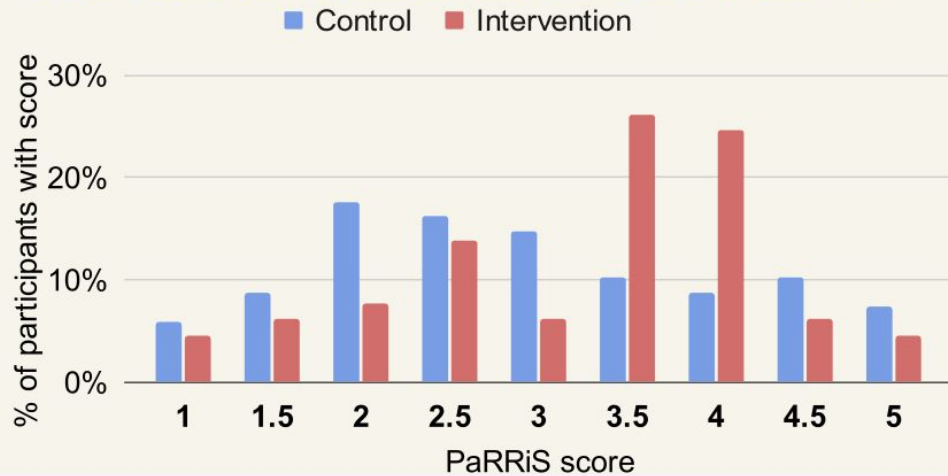


This graph shows the percentage of caregivers who clicked on each video link they were sent. Video 1 was sent when children were aged 4-9 months old and caregivers then received up to 57 videos until their child was aged 24 months. The lines for the control and intervention group broadly follow the same trend, decreasing over time and then settling between 20-35%.

Analysis of 5-minute home videos

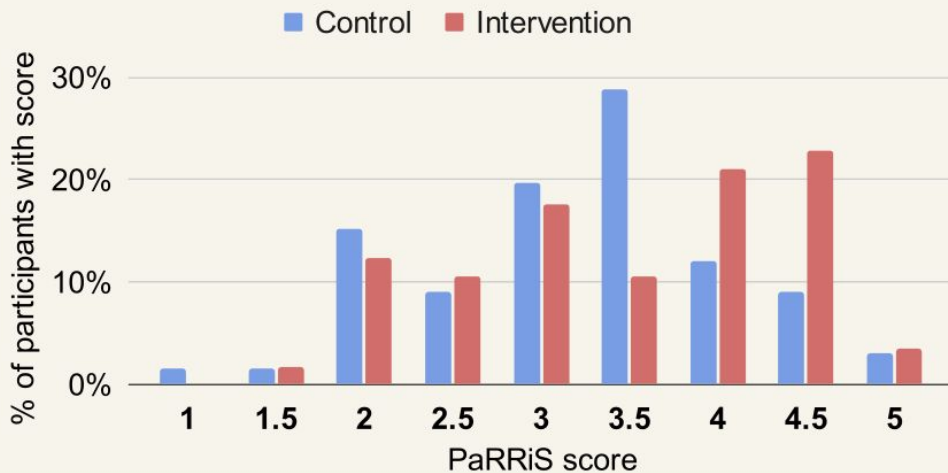
- **PaRRiS scores:** rating of how often the caregiver used language in a responsive and developmentally appropriate way...
 1. Rarely
 2. Occasionally
 3. Sometimes
 4. Often
 5. Frequently
- **Specific parent strategies** suggested in the Tiny Happy People videos (allows us to look at causal pathways)
- **Infant prelinguistic communication**

Distribution of PaRRiS scores at 12 months old

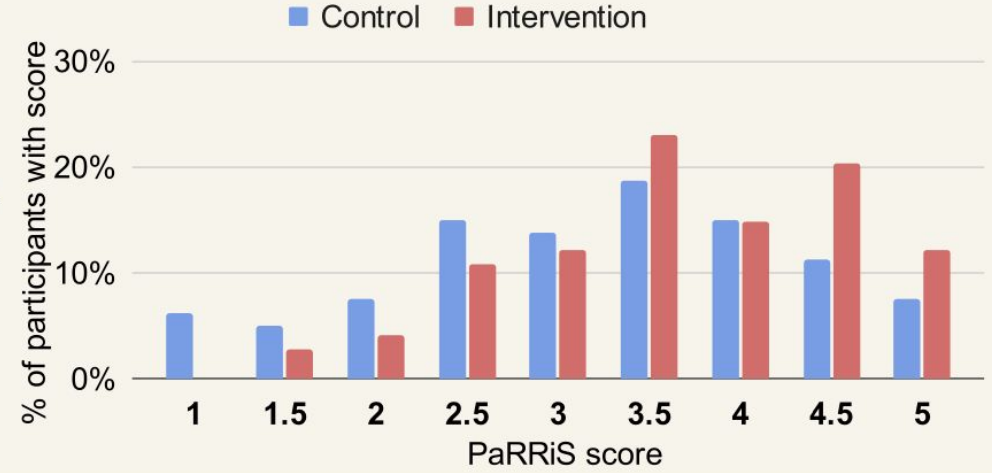


Multilevel ordinal regression, mean-centered and scaled age at time of data collection as a covariate. Participant as a random effect on the intercept and on the effect of age. PaRRiS scores sig. greater in language condition ($B=0.93$, $z=3.2$, $p=0.001$). At each score boundary of the ordinal PaRRiS scale the odds of being on the upper side of the boundary are 2.53 times higher in language condition

Distribution of PaRRiS scores at 17 months old



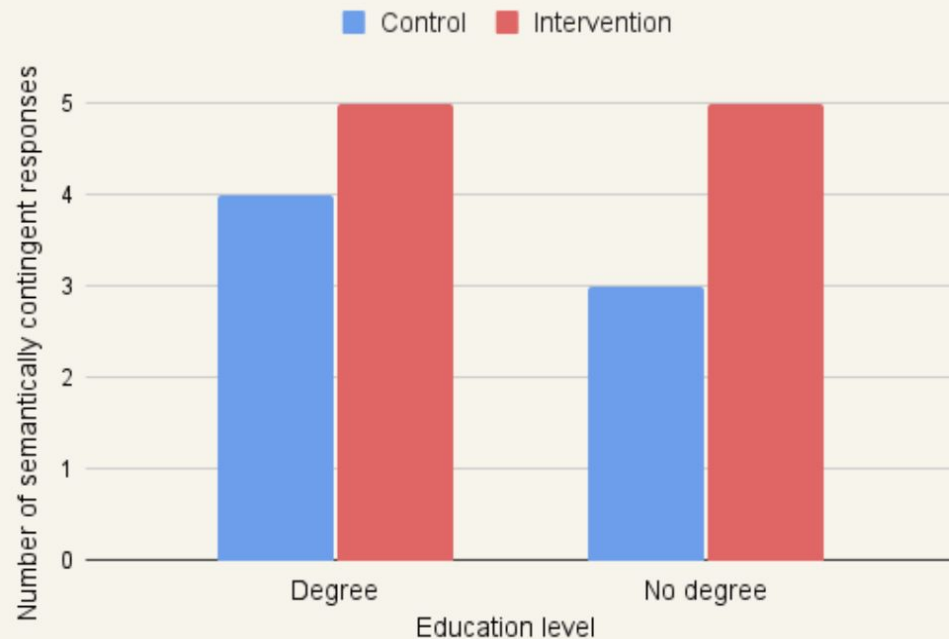
Distribution of PaRRiS scores at 24 months old



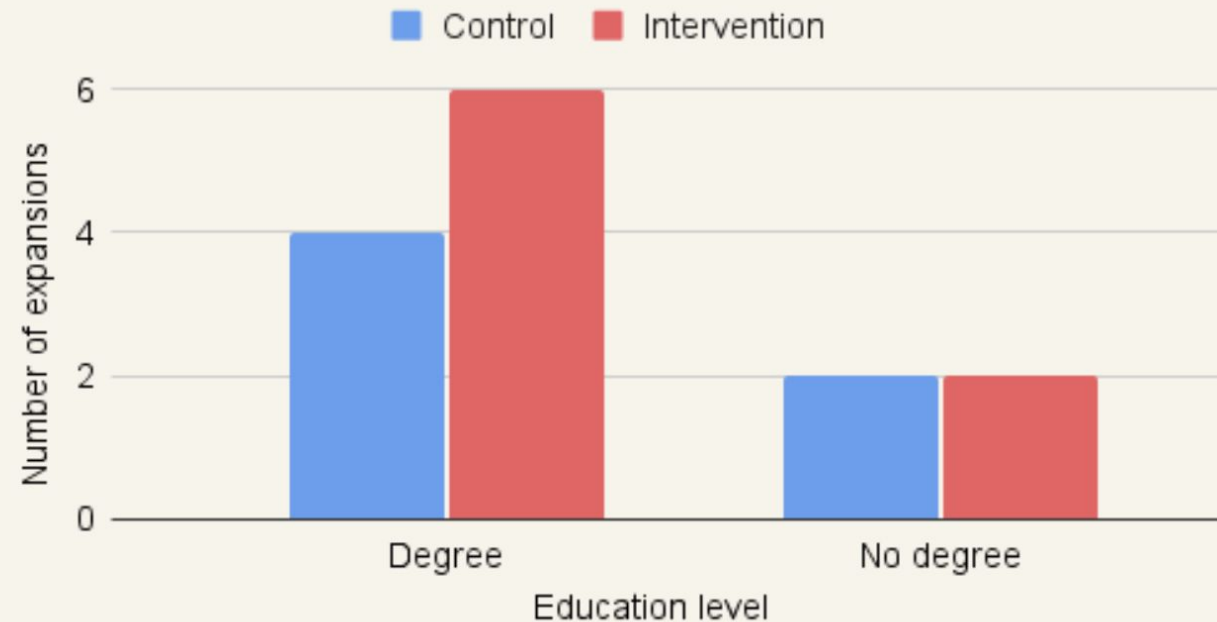
Caregiver talk at 12 and 24 months

~ Condition x Caregiver Education

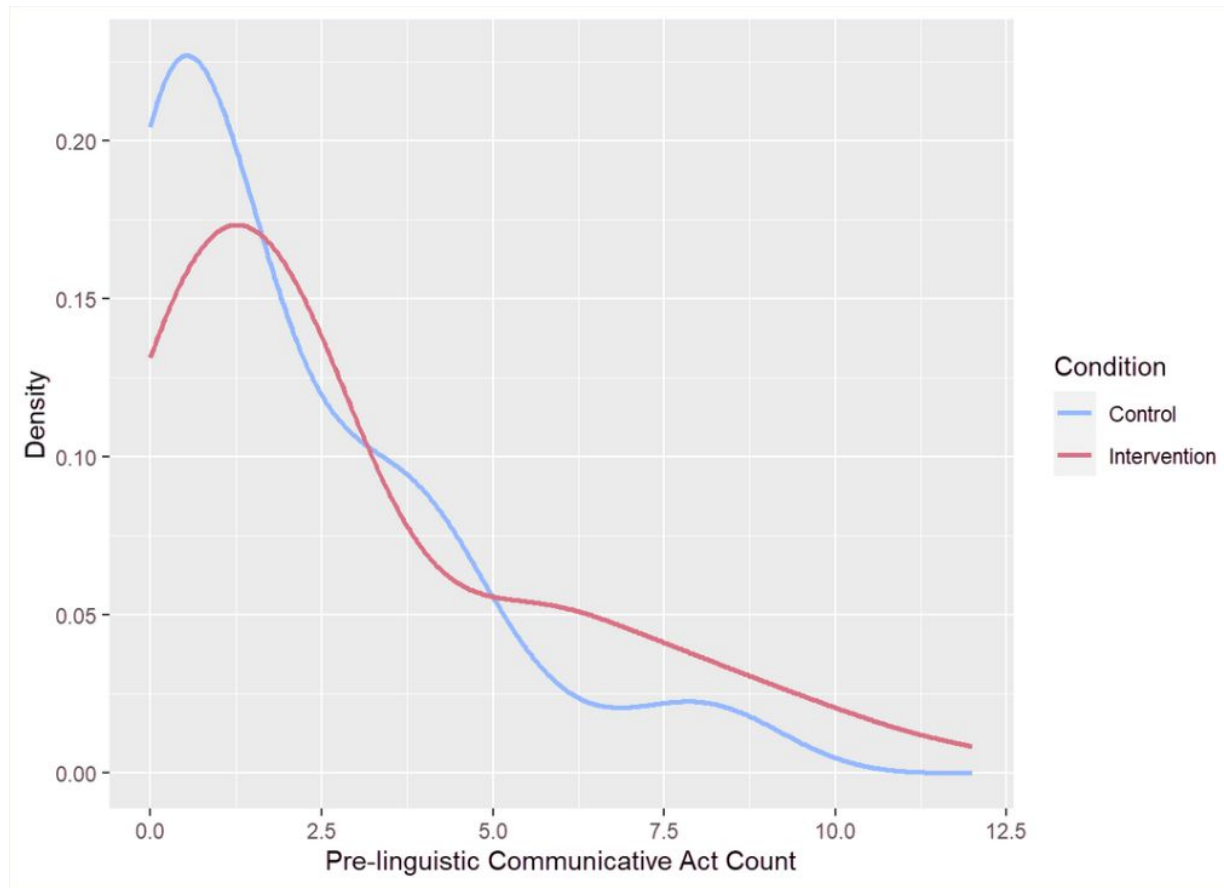
Median number of semantically contingent responses at 12m by education level and condition



Median number of expansion responses at 24m by education level and condition



Frequency of prelinguistic communication acts on home video at 12 months



Coded blind to condition:

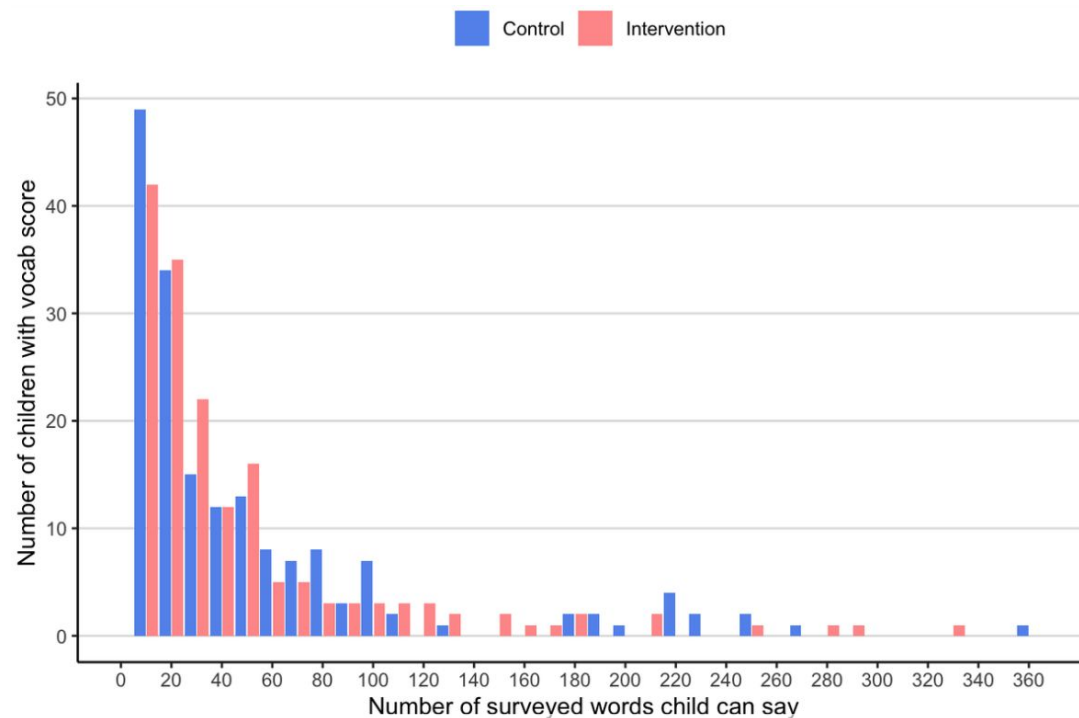
- Give gestures
- Show gestures
- Index finger point gestures
- Gaze-coordinated vocalisations



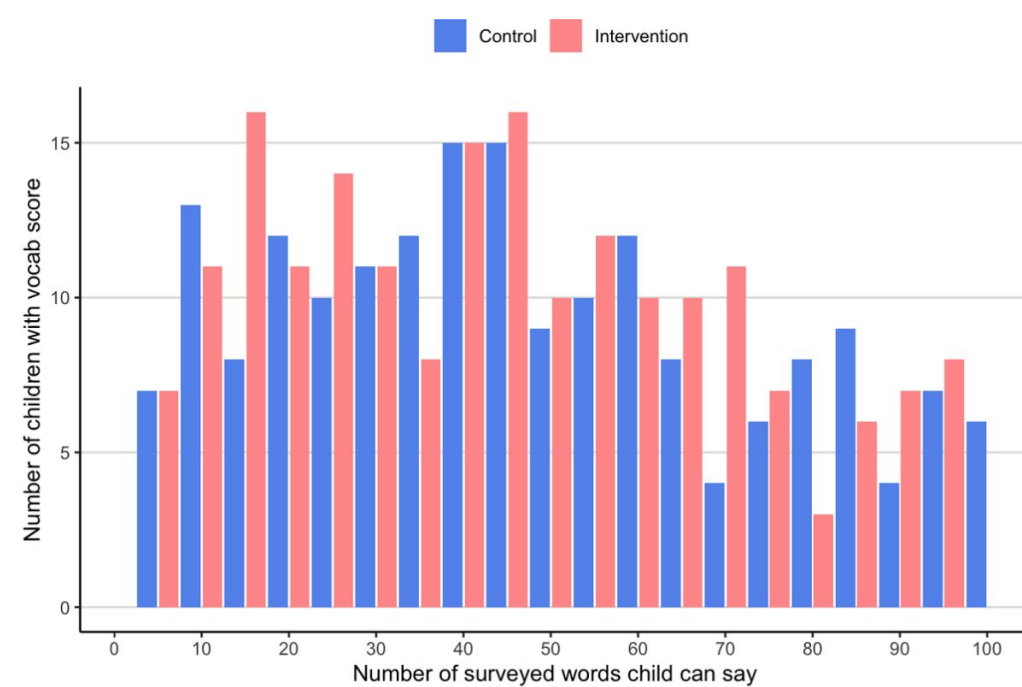
Significantly more communicative acts produced by infants whose families had received the THP videos

Caregiver reported vocabulary

17 months

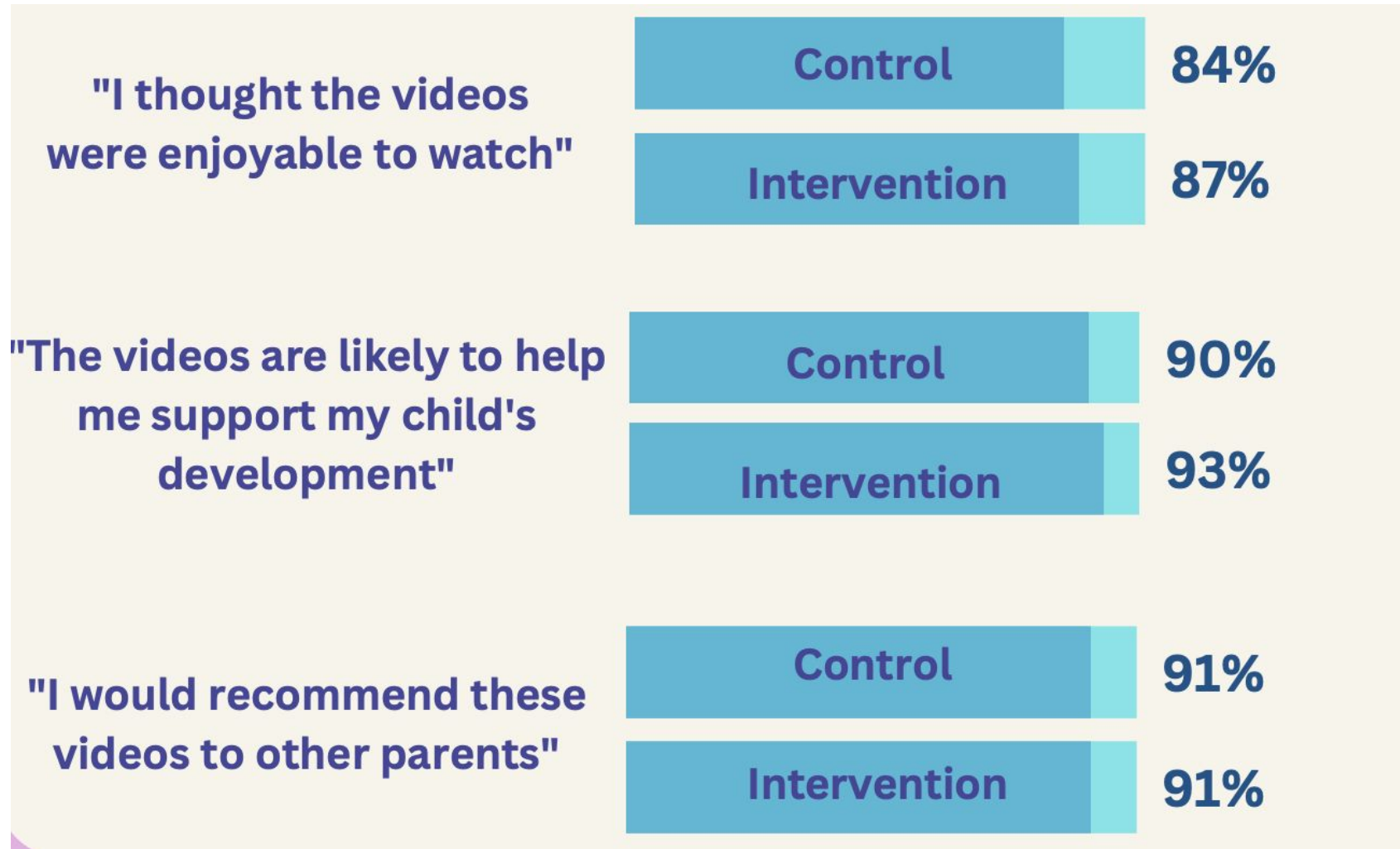


24 months



Primary outcome measure. Negative Binomial regression. Vocab at 17 months ~ condition. No difference ($B=-0.02737$, $z=-0.242$ $p=0.809$)

Acceptability to caregivers



Qualitative analyses of focus groups

The majority of caregivers had **positive** things to say about the Tiny Happy People videos:

- Many talked about how the videos provided **reassurance** and helped build **confidence**.
- The convenience of **short** videos with **accessible** ideas appealed to parents, and lots talked about how **busy** their schedules were (which highlights the **need for quick, low pressure interventions** such as this).
- Lots of caregivers commented on the fact that their **children seemed to respond well** to the activities suggested in the videos.
- The **experience** of receiving the videos at the same time as other parents, and being able to **chat** and **query** things with the research team was also valued by caregivers.

When reflecting on their experience of receiving Tiny Happy People video, some parents had **suggestions for improvements**, and highlighted some **barriers to their engagement**:

- Some suggestions for improvements included **sending videos to both parents** and sending videos that were **more relevant to each child's individual progression**.
- Some caregivers mentioned that the videos seemed to cover **things they already knew** about or did.
- Having a **lack of time** or **forgetting** to watch the videos was a common barrier for caregivers.

Follow-on studies

Study 2: Toddler phase Pilot and Feasibility Study

- new content for toddler age range
- optional sessions with an SLT – ELIM-I adapted for digital delivery
- option to send texts to another caregiver (e.g., Dad)
- outcome measures collected at family home by an RA

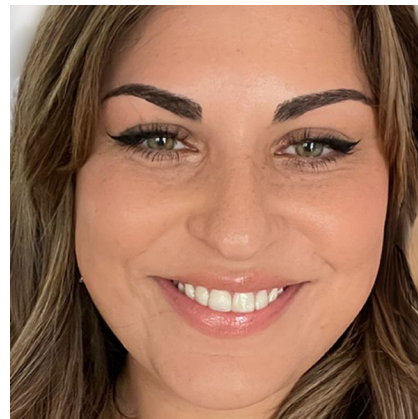
Study 3: RCT testing both infant and toddler service with 800 families

Study 4: Acceptability study with families who are multilingual with EAL and / or child with SEND

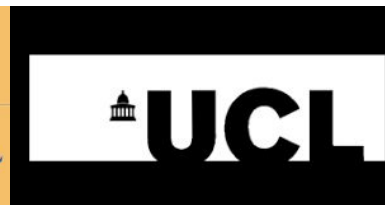
Planned: Pilot local authority delivery to explore take up (Nesta)

Conclusions

- Digital services are acceptable to many parents but would benefit from personalization
- Possible to reach a large number of families with high-fidelity
- Version 1 effective in promoting parent-child interaction
- Version 1 not effective in promoting toddler vocab
- Improvements needed in toddler phase messaging and for SEND



Thank you!



What experiences drive language learning?

- Emergence of communication and language in infancy and toddlerhood
- Pragmatic development – using language for social communication

