

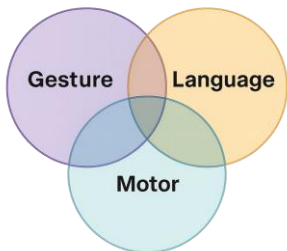
Concurrent associations between observed gesture use and language and motor skills in children with Down syndrome

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BACKGROUND

- Our prior work showed that parent-reported gesture use (MB-CDI) was positively associated with language and motor domains on the Vineland-3 in toddlers with Down syndrome (DS).
- Deictic gestures, specifically pointing to indicate objects or people, has been found to be positively associated with language skills in DS.
- Little is known about how observed deictic gesture use, including gestural approximations, in children with DS relates to multiple areas of development.



RESEARCH QUESTION

How is observed gesture use related to motor and language development in children with Down syndrome?

DEMOGRAPHICS

Table 1. Participant characteristics

	Mean (range) or n(%)
n	39
Age (months)	54.01 (36.3-88.8)
Sex	
Female	19 (48.7%)
VABS-3 Adaptive Behavior Composite Standard Score	71.33 (49.0-83.0)

MEASURES

- Parent-child interaction (PCI):** a 10-min remote in-home interaction using toys at home was collected at baseline (week 0).



- Gestural communication coding scheme:** used PCI to code for gestures using ELAN linguistic annotator.

Table 2. Counts of each deictic gesture

Deictic gesture	Mean (range)
Point	0.38 (0-2)
Point Approx.	3.18 (0-18)
Show	1.97 (0-9)
Give	1.41 (0-10)
Reach	0.28 (0-4)

- Vineland Adaptive Behavior Scale (VABS-3):** Caregiver interview administered; subdomains below were analyzed

Table 3. VABS-3 subdomain V-scale scores

Subdomain	Mean (range)
Receptive	9.90 (1-14)
Expressive	5.41 (1-13)
Fine Motor	9.46 (5-14)
Gross Motor	8.67 (3-14)

RESULTS

Fig. 1. Associations between total gestures and VABS-3 subdomain V-scale scores

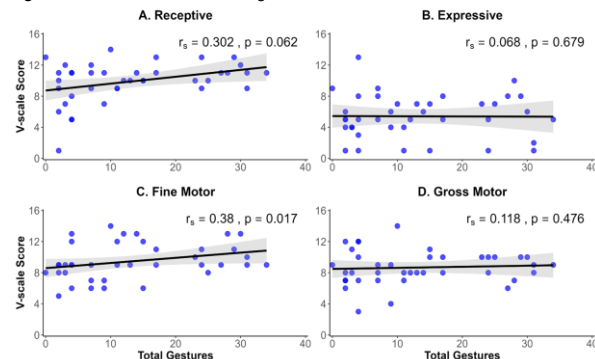
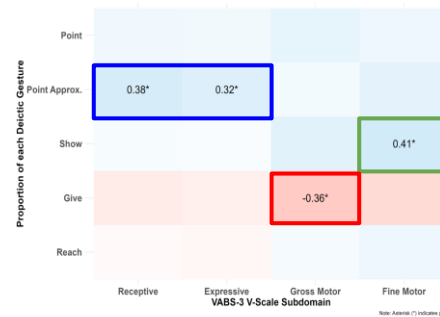


Fig. 2. Associations between proportion of each deictic gesture and VABS-3 subdomain V-scale scores



- Higher proportion of **point approximations** is associated with **stronger development** in **expressive and receptive language**.
- Higher proportion of **show gestures** is associated with **stronger development** in **fine motor** skills.
- Higher proportion of **give gestures** is associated with **more developmental delay** in **gross motor** skills.

- A higher amount of total gestures is correlated with less developmental delay in fine motor skills

ANALYSES

- Deictic gestures were converted to proportions.
- VABS-3 v-scale subdomain scores were used.
- Spearman rho correlations were conducted for gesture use and VABS-3 subdomain v-scale scores.

CONCLUSIONS

- It is important to explore different types of deictic gestures (not only gestural quantity) when considering multiple domains of development.
- Different types of deictic gestures are associated with concurrent developmental profiles and this may provide insight into markers and trajectories of development.
- Gestural *approximations* should be included in DS research and in communication assessments of children with DS.