

Background

- Caregiver scaffolding, including verbal (VS) and nonverbal scaffolding (NS), supports joint engagement, critical for reaching developmental milestones.¹
- To our knowledge, no studies have examined NS for infants and toddlers at an elevated likelihood for ASD (EL-ASD).²
- Research questions: What are the associations between caregiver scaffolding strategies, forms of joint engagement, and communication development?

Method

- 24 EL-ASD children (37.5% male) between 4.9 and 31.5 months ($M = 17.0$, $SD = 7$) and their caregivers (100% female; Age: $M = 34.0$, $SD = 5.2$) completed a 5-minute free play task at home.
- We quantified associations between caregiver scaffolding and joint engagement using Pearson's correlations.
- We used regression models to explore whether linear or quadratic relations characterized caregiver scaffolding and communication.

Verbal Scaffolding: caregiver is giving verbal descriptions or prompts of play actions.⁴

Joint Engagement: Dyad is engaged in the same activity, with (CJ) or without (SJ) the child's acknowledgement of caregiver presence.²

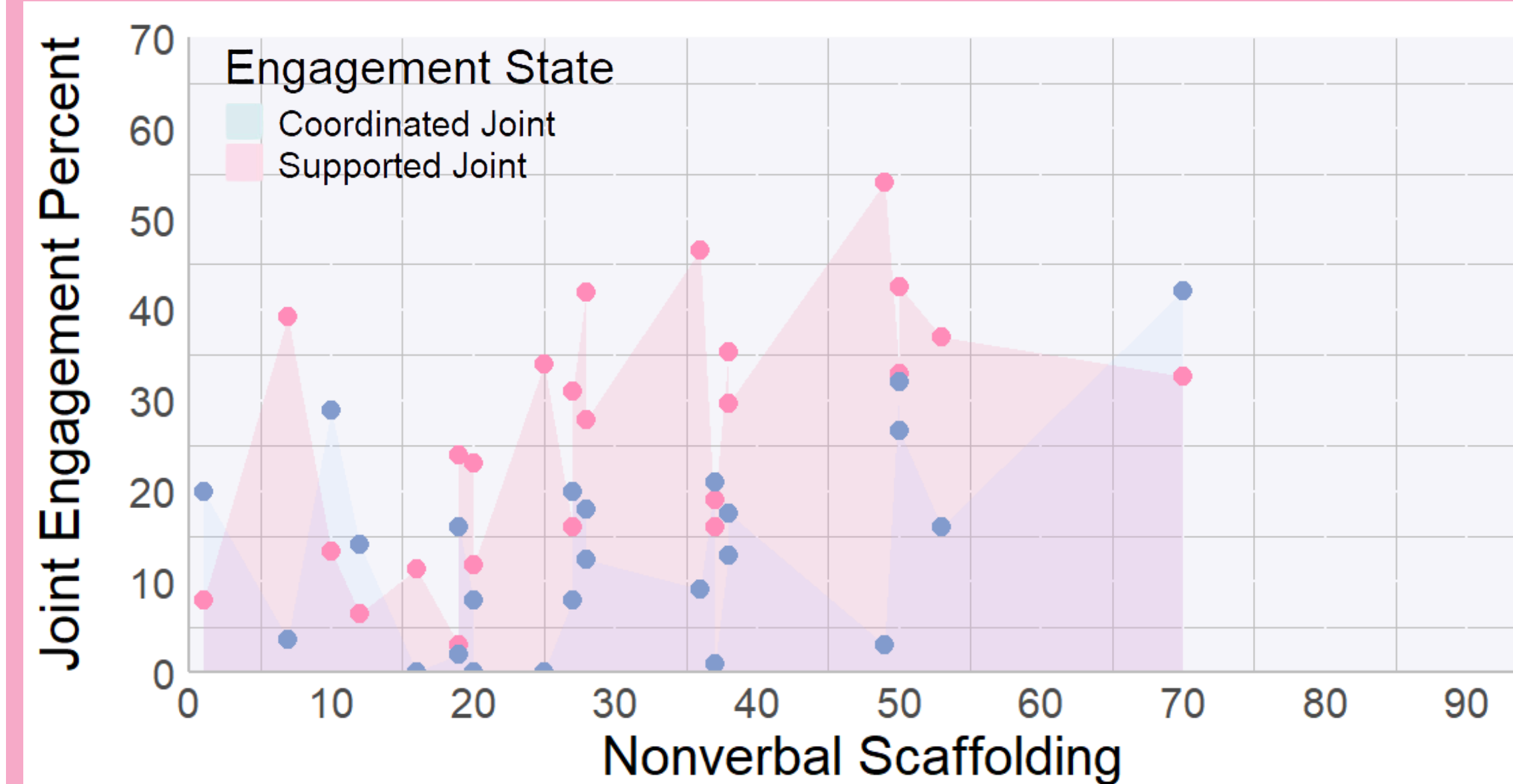
Nonverbal Scaffolding: caregiver is playing with child's toys of interest.³

Supported Joint

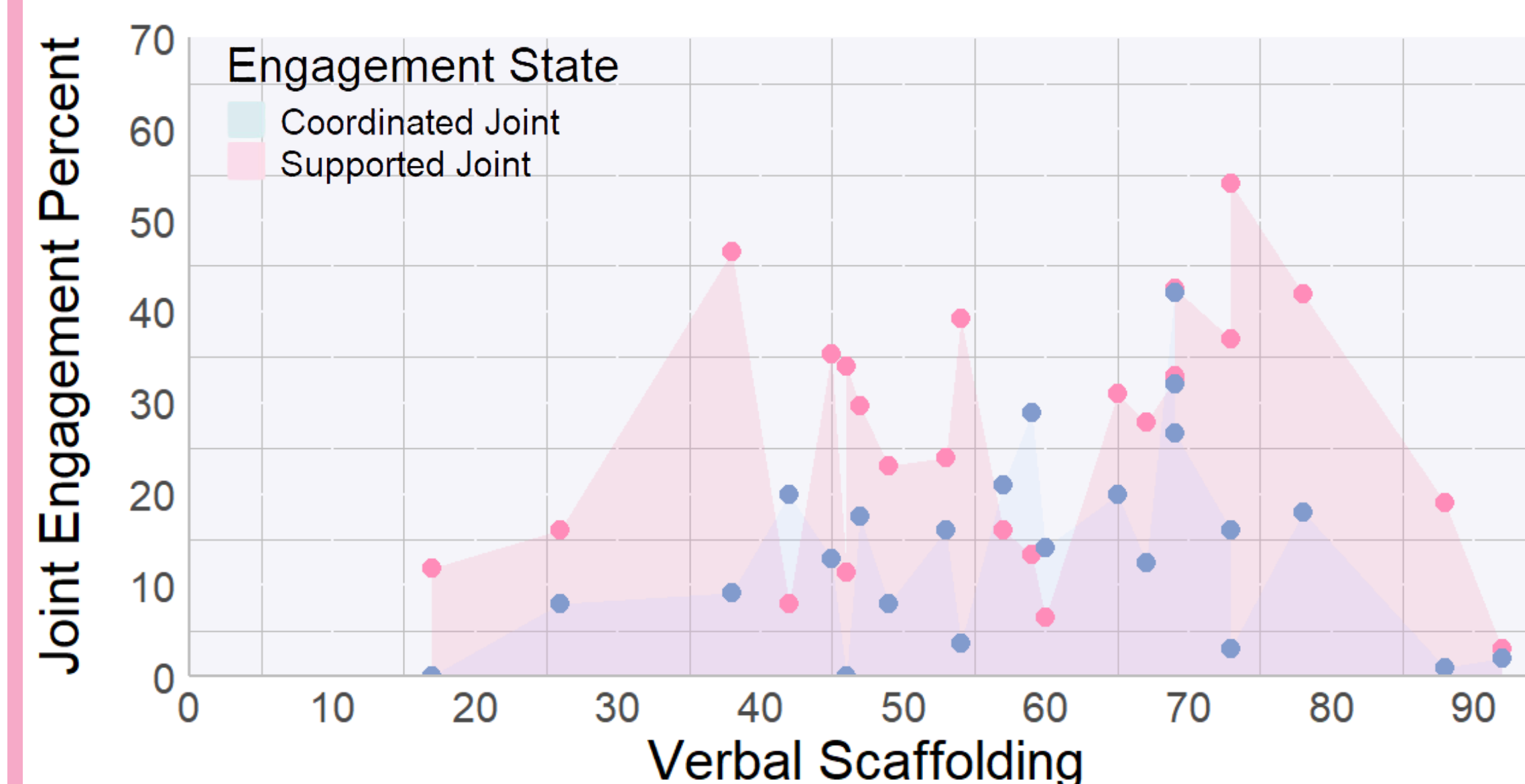
Communication Standard Score (CSS):
A measure of expressive and receptive communication from the Vineland-III.

Coordinated Joint

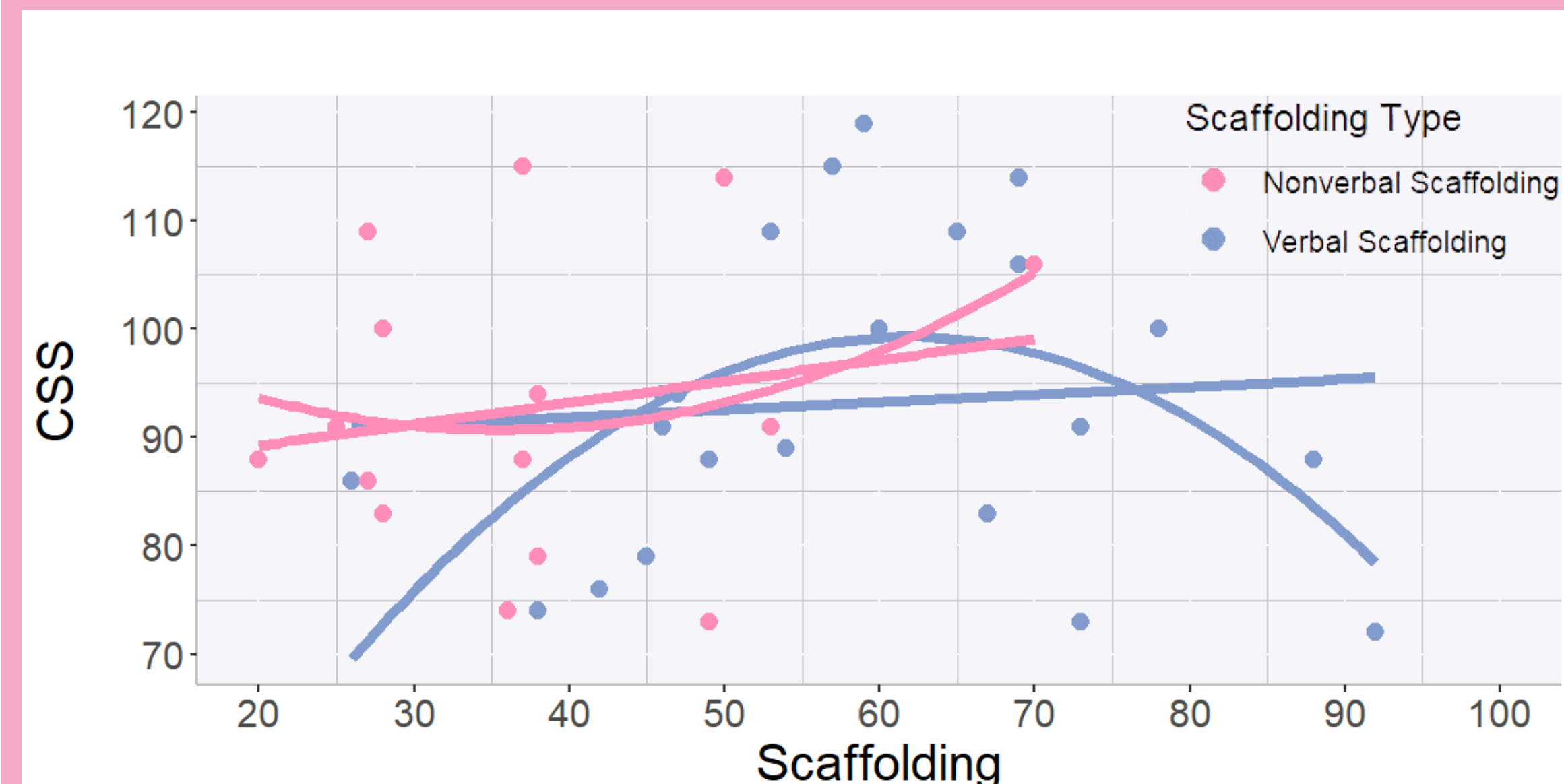
Caregiver nonverbal scaffolding was correlated with both supported and coordinated joint engagement.



Caregiver verbal scaffolding was not associated with supported and coordinated joint engagement.



A quadratic model best characterized the relationship between caregiver verbal scaffolding and child communication score.



Results

- Caregivers exhibited 29.9 ($SD = 16.6$) instances of NS and 57.6 ($SD = 18.0$) of VS.
- Children were in SJ and CJ engagement states for 26.6% ($SD = 13.8$) and 13.9% ($SD = 11.2$) of the free-play task, respectively.

Table 1. Scaffolding and Engagement

	SJ	CJ
NS	$r = .58$ $p = .003$	$r = .43$ $p = .034$
VS	$r = .16$ $p = .445$	$r = .21$ $p = .316$

Table 2. Scaffolding and Communication

	Linear	Quadratic
NS	$t = 0.39$ $p = .699$	$t = 0.48$ $p = .638$
VS	$t = 0.36$ $p = .722$	$t = 2.70$ $p = .014$

Discussion

- Nonverbal supports may be particularly useful in facilitating the development of EL-ASD children.
- The curvilinear relationship between communication ability and VS but not NS suggests there is an optimal amount of verbal support caregivers may provide during dyadic play.

Implications

- Our findings may inform caregiver-mediated interventions for EL-ASD in terms of recommended type, amount, timing, and integration of caregiver scaffolding.
- Future work could examine how specific NS and VS strategies, such as modeling and prompting, may impact engagement states and communication development.

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