

# Update on JASPER in DS: Caregiver adoption of JASPER strategies, suggestions of child gains in engagement

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## Background

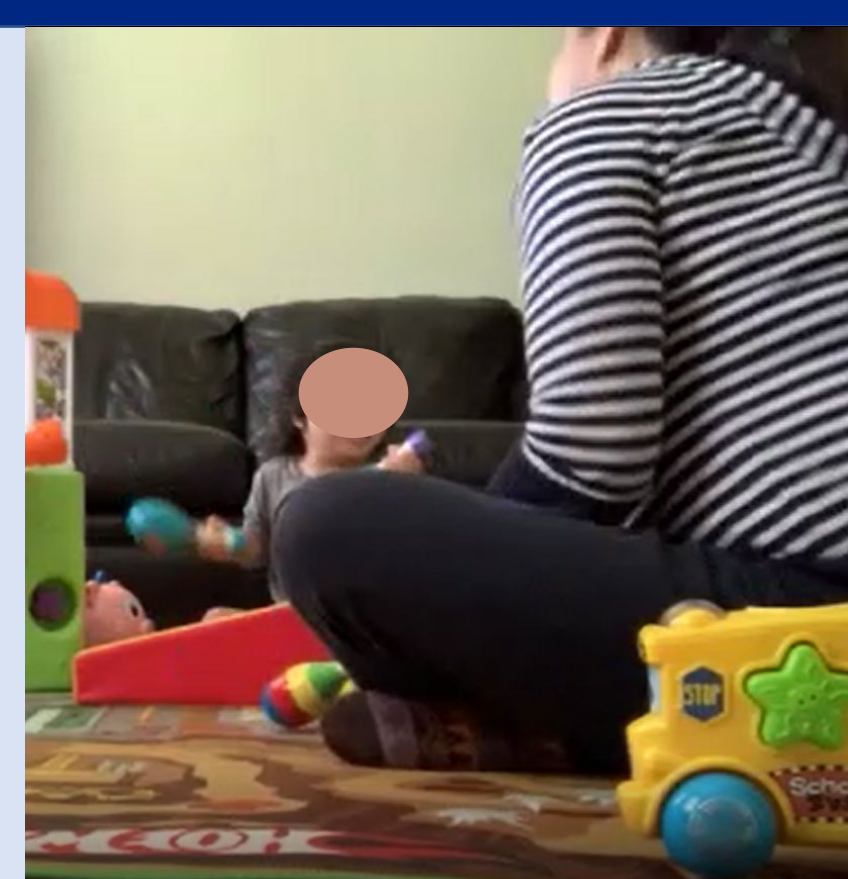
This study provides an update on caregiver and child related changes following receipt of an early intervention program aimed at improving joint attention skills, play skills, joint engagement, and regulation (JASPER; Kasari et al., 2006).

In waitlist control trial investigating JASPER in children with Down Syndrome (DS)

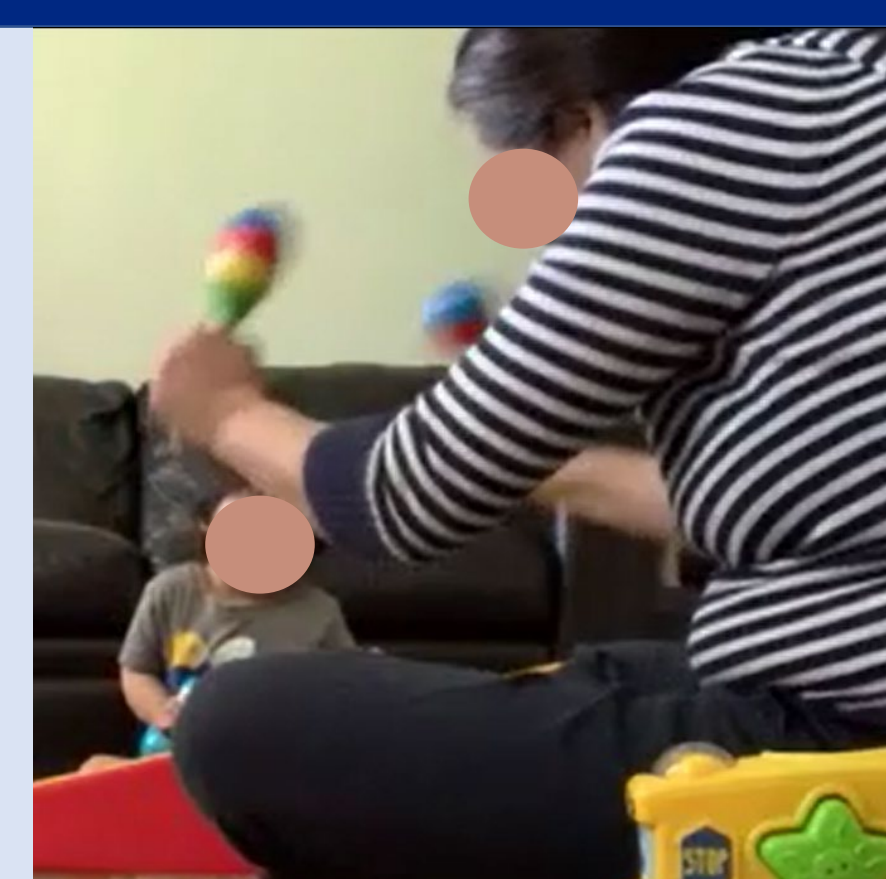
- Treatment condition (n=6 dyads) received 3 months of JASPER
- Waitlist control (n=6 dyads) received care as usual for 3 months, then 3 months of JASPER delivered remotely
- Intervention first delivered in-person then, due to COVID-19, remotely via videoconferencing

In prior studies of JASPER, behavioral coding of caregiver-child interaction (CCX) tapes yielded a reliable measure of caregiver-child engagement that correlated with other social-communication measures and was sensitive to treatment-related changes (Kasari et al., 2006; 2010).

In children with autism, JASPER intervention leads to less time spent in object-focused play and more time spend in joint engagement during CCX (Kasari et al., 2010).



Through modeling and imitation, the caregiver engages the child in a turn-taking activity where he initiates play through actions, eye contact, and vocalizations.



Noticing early signs of disengagement (changes in anticipation, eye contact, functional object use, and affect), the caregiver models a new activity.



The new activity, a song routine, brings the child into person-oriented engagement (he is imitating her). Now that she has the child's attention the caregiver will bring objects into the routine, bringing him into a state of supported joint engagement.

Table 2. Child engagement after exposure to JASPER, as measured by CCX.

	M (SD)					
	Tx Visit 1	WL Visit 1	Tx Visit 2	WL Visit 2	Tx Visit 3	WL Visit 3
Coordinated Joint Engagement	37.75 (27.9)	53.25 (50.0)	33.00 (27.3)	29.00 (25.5)	58.50 (24.8)	77.00 (18.4)
Supported Joint Engagement	34.25 (11.2)	19.25 (25.9)	22.80 (15.5)	39.50 (37.5)	15.50 (21.9)	19.50 (20.5)

## Results

To date, half of the collected CCX samples (n=19) have been coded for caregiver use of JASPER strategies and child engagement. Preliminary data show gains from Study Visit 1 (baseline) to Study Visit 2 (post-intervention) for caregivers in the immediate intervention condition, who had average fidelity of 55% at baseline and 73% at post-intervention. Data also suggest maintenance of post-intervention levels at Study Visit 3 (3-month follow-up). Average fidelity at follow-up was 77%.

Caregivers in the waitlist condition had similar baseline levels (55% at Visit 1 and 47% at Visit 2) and demonstrated gains in fidelity at post-intervention (mean = 78%).



Figure 3. Duration of child engagement with caregiver during CCX.

## Discussion

- Baseline similarities in caregiver fidelity levels suggest randomization of dyads was successful regarding treatment exposure
- Data thus far suggest caregiver adoption of JASPER strategies after 3 months of training
- Maintenance of fidelity levels at follow-up suggest caregivers continue to use strategies after intervention
- Present data support a trend toward increased coordinated joint engagement following treatment
- No qualitative analyses have been conducted due to the incompleteness of the data
- Future directions include quantifying change in engagement states and exploring caregiver fidelity as a predictor of outcome

## References

Adamson, L. B., Bakeman, R., & Deckner, D. F. (2004). The development of symbol-infused joint engagement. *Child development*, 75(4), 1171-1187.  
 Kasari, C., Freeman, S., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: A randomized controlled intervention study. *Journal of child psychology and psychiatry*, 47(6), 611-620.  
 Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of autism and developmental disorders*, 40(9), 1045-1056.

Table 1. Kasari and colleagues' documented change in child engagement after exposure to JASPER, as measured by CCX (2010).

	M (SD)					
	Tx pre	Tx post	WL pre	WL post	Tx Follow Up	
Unengaged/ other engagement	20.80 (19.03)	22.01 (18.24)	19.52 (14.95)	17.31 (10.17)	15.87 (13.55)	NS
Object engagement	48.58 (21.87)	34.75 (18.39)	54.97 (17.43)	54.69 (18.15)	28.35 (15.87)	d=1.09
Joint engagement	30.26 (14.91)	42.85 (19.96)	24.98 (10.74)	27.87 (14.01)	52.57 (20.56)	d=0.87

Note: Tx = JASPER treatment; WL = Waitlist; Tx Follow Up = 1 year later  
 n=19 in Tx group; n=19 in WL group

## Method

10-minute Caregiver-Child Interaction videotapes were coded by a rater blind to group membership and collection timepoint. The JASPER Treatment Fidelity Checklist (Kasari Lab, n.d.), a 1-5 Likert scale measuring quality and appropriateness of strategy implementation, was used to measure caregiver use of JASPER strategies. Adamson and colleagues' joint engagement coding scheme (Adamson et al., 2004), a continuous coding system measuring duration of time spent dysregulated, unengaged, object engaged, person engaged, in supported joint engagement, and in coordinated joint engagement, was used to measure child engagement with caregiver and toys.

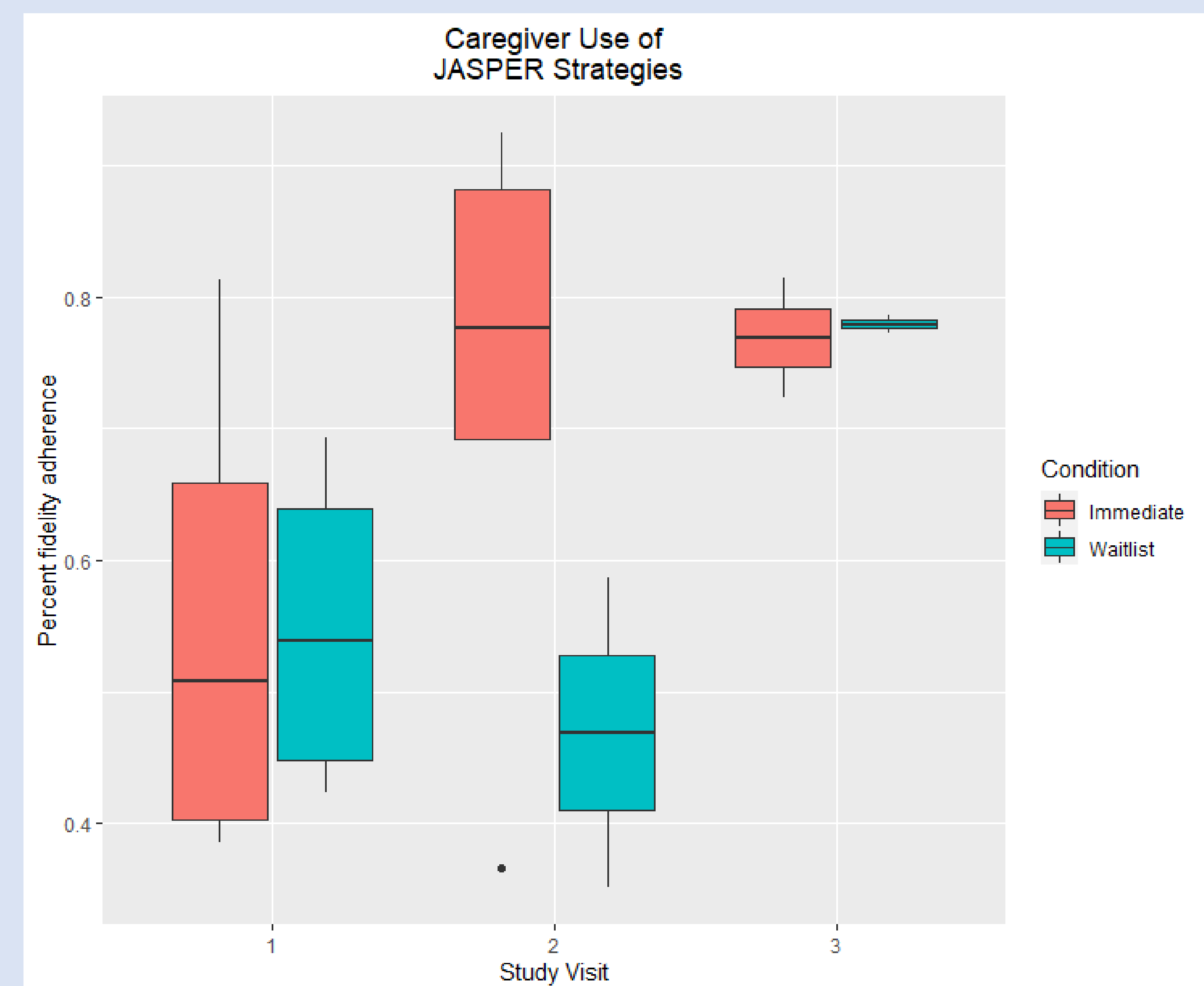


Table 2. Caregiver use of JASPER strategies during CCX.

	M (SD)					
	Tx Visit 1	WL Visit 1	Tx Visit 2	WL Visit 2	Tx Visit 3	WL Visit 3
Fidelity adherence	0.55 (0.2)	0.55 (0.1)	0.73 (0.2)	0.47 (0.2)	0.77 (0.1)	0.78 (0.1)

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