

Delays in school readiness among preschoolers with externalizing behavior problems are associated with deficits in fine motor skills



PRESENTER:
Hailey Alfaro

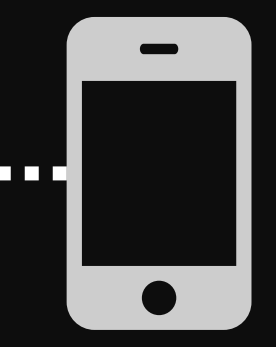
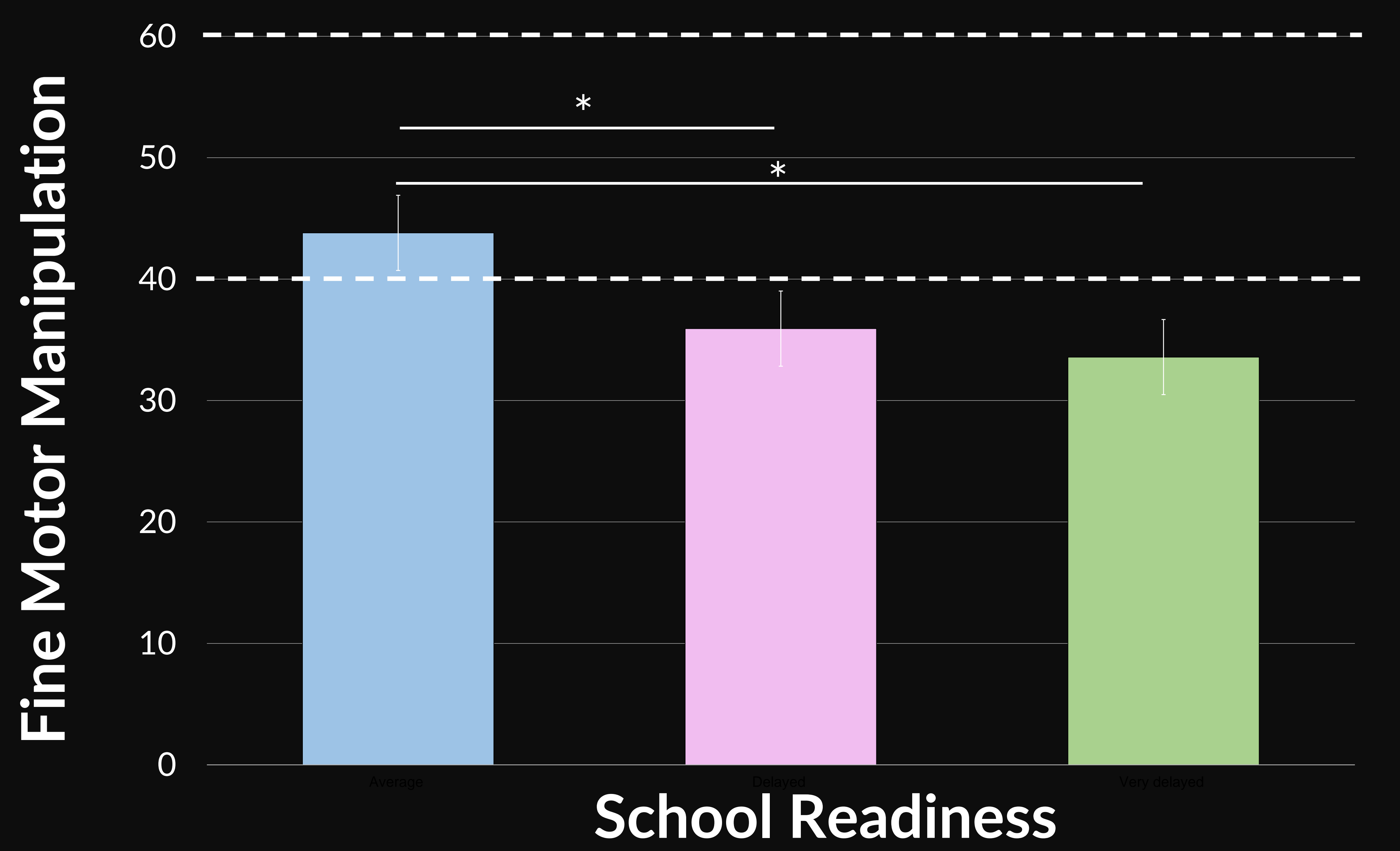
BACKGROUND:

- Fine motor skills (FMS; movements involving hands and fingers) are one indicator of school readiness because they predict later academic achievement.
- Externalizing behavior problems (EBP; aggression, defiance, hyperactivity, and inattention) have been shown to impact children’s kindergarten transition.
- Children with behavior problems are also at risk for motor problems, although we do not know the extent of FMS problems in preschoolers with EBP.
- We hypothesized that there is a link between FMS and school readiness in preschoolers with EBP. We predicted that preschoolers with **higher school readiness** scores would have **higher FMS** scores.
- We tested our hypothesis by measuring FMS (manipulation and writing) and school readiness in preschoolers with EBP enrolled in a summer camp designed to promote readiness for kindergarten.

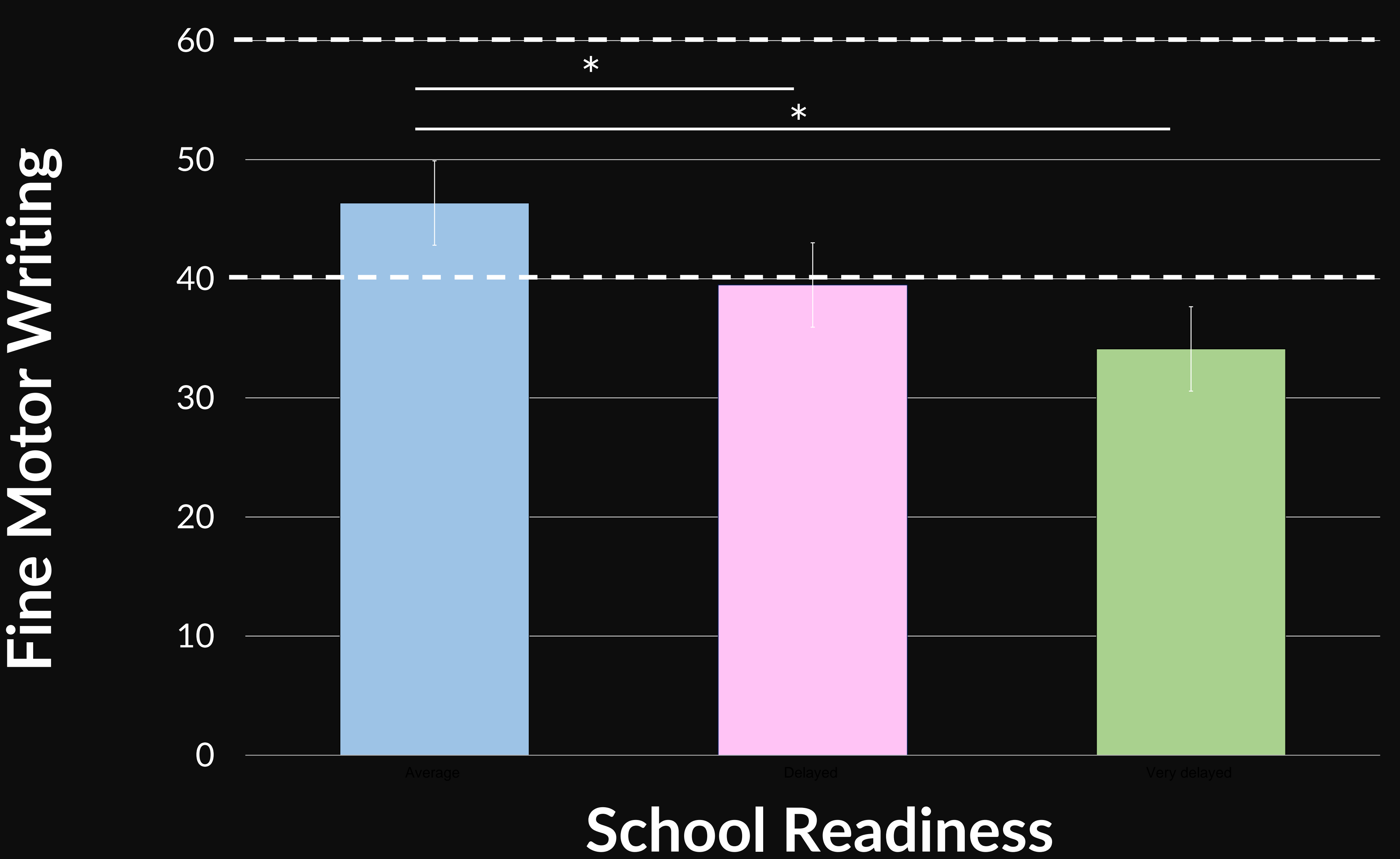
METHOD:

- 133 preschoolers with EBP living in urban poverty aged 48 to 70 months (63% male and 84% black) were enrolled in a 7-week summer camp to promote school readiness from 2016 to 2019.
- We analyzed data from baseline testing because we were interested in the potential link between FMS and school readiness prior to treatment.
- The Bracken School Readiness Assessment third edition (BSRA-3) was used to measure school readiness. Data were collected prior to camp start. The BSRA-3 measures performance in five areas: colors, letters, numbers/counting, size/comparison and shapes. Analyses used the total score.
- Two subscales from the Learning Accomplishment Profile–Diagnostic third edition (LAP-D) were used to measure FMS: fine motor manipulation (FM; level of manual dexterity via the manipulation of different objects) and fine motor writing (FW; level of writing ability via writing and drawing tasks). Data were collected during the first week of camp. Analyses used t-scores from each subscale.

Preschoolers with EBP who have **higher school readiness** scores have **higher fine motor scores**.



■ Average ■ Delayed ■ Very Delayed



Dashed lines indicate average fine motor scores (M ± SD = 50 ± 10).

DATA ANALYSIS:

- Preschoolers were grouped for analysis using BSRA-3 scores according to the following cutoffs:
 - Average: 86-114
 - Delayed: 71-85
 - Very Delayed: 40-70
- One-way ANOVAs were used to examine the effect of school readiness on fine motor skills.

RESULTS:

Descriptives for BRSA-3 groups on LAP-D FM scores

School Readiness Group	N	M	SD	Min	Max
Average	64	43.81	10.55	27	66
Delayed	28	35.93	6.19	27	50
Very Delayed	19	33.58	6.29	27	48

- There was a significant effect of school readiness group on FM scores, (F(2,108)=13.2, p<0.001). Preschoolers with **average school readiness** had **higher manipulation skills** than preschoolers in the delayed and very delayed groups. Those in the delayed groups did not differ from each other.

Descriptives for BRSA-3 groups on LAP-D FW scores

School Readiness Group	N	M	SD	Min	Max
Average	64	46.36	9.94	27	71
Delayed	28	39.48	7.90	27	62
Very Delayed	19	34.11	6.26	27	48

- There was a significant effect of school readiness group on FW scores, (F(2,108)=15.34, p<0.001). Preschoolers with **average school readiness** had **higher writing skills** than preschoolers in the delayed and very delayed groups. Those in the delayed groups did not differ from each other.

DISCUSSION:

- Results **supported our prediction** regarding the link between school readiness and FMS in EBP.
- Delays in school readiness observed in some preschoolers with EBP may be due to comorbid deficits in FMS (both in manipulation and writing).
- These findings suggest the preschoolers with EBP should be additionally screened for FMS deficits in interventions aimed at improving school readiness.

H. Alfaro, A. Karimi, K. Contino, B. Poznanski,
H. Flores, K.C. Hart and E.L. Nelson

