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Presentation

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## Introduction

- Social cognition has traditionally been measured with lab tasks (e.g., Carpenter, et al., 1998)
- Recently, Tahiroglu et al (2014) have developed the Children's Social Understanding Scale for 3- to 5-year-olds which found parents reliably report socio-cognitive development.
- To examine earlier socio-cognitive development, we have created a parent-report measure of social cognition from birth to 3 years, the Early Social Cognition Survey.

## Survey Construction

- 23 questions sought to determine children's level of social cognition
- Based on past lab research covering attention to faces (e.g., Csibra & Gergely, 2006); joint engagement, pointing, point and gaze following, mimicry, imitation, intention understanding (e.g., Carpenter, et al., 1998); understanding desires (e.g., Repacholi & Gopnik, 1997); perspective taking (e.g., Moll & Tomasello, 2006); emotions (e.g., Denham, 1986); appearance vs reality (e.g., Flavell, et al., 1983); and knowledge and beliefs (e.g., Baron-Cohen, et al., 1985).
- Include own intentions, emotions, etc., as well as others (e.g., Meltzoff, 2007)

## Exploratory Analysis

- 230 parents of children 17 days – 47;10 ( $M = 18;14$ )
- 23-question survey on babylovesscience.com
- One item did not correlate well with the average score of all items: "Does your child like to look at faces?"
- The remaining 22 items correlated with the average score of these items, all *Spearman's rho* > .3,  $p < .05$ .
- Scale reliability was excellent,  $KR_{20} = 0.95$ .

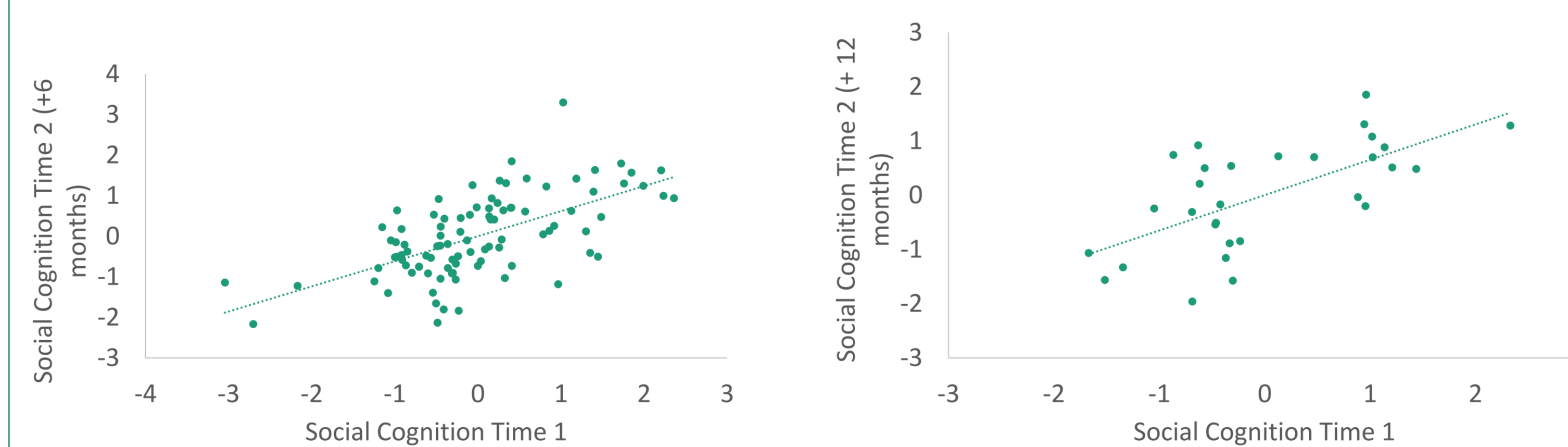
## Replication

- Separate group of 228 parents of children 21 days – 47;16 ( $M = 20;21$ )
- Scale reliability for 22 items was excellent,  $KR_{20} = 0.93$ .

## Final Items

- Does your child follow where you look to look at the same things as you?
- Is your child aware of other people's motives? E.g., that they might give someone a gift in order to make them happy
- Is your child aware of their own desires? E.g., prefer chocolate over broccoli
- Is your child aware that other people know the same information they do? E.g., they know where a certain book is kept, and they know their dad knows where that book is kept too
- Is your child aware of others' perspectives? E.g., could they tell sometimes they can see something, but someone else can't, because it's not in their line of sight
- Is your child aware of his/her own mistakes? E.g., if s/he drops something by accident
- Does your child perform actions intentionally/with specific goals in mind? E.g., stack blocks on purpose, instead of by trial and error.
- Does your child follow where you point to look at the same things as you?
- Does your child look back and forth between you and objects, instead of only looking at you or an object?
- Does your child understand that sometimes things aren't as they appear? E.g., something that looks hard might feel soft?
- Does your child copy others in order to achieve the same goal? E.g., copying pressing a button to make a song play on a toy
- Is your child aware that sometimes other people don't have the same beliefs as them? E.g., your child might think dogs are the best animal, but they understand that their sister thinks cats are the best animal.
- Is your child aware of their own emotions? E.g., happy, sad, angry, etc.
- Does your child point to get information from you? E.g., to get a toy that is out of reach
- Does your child understand that sometimes other people have different desires to themselves. E.g., other people might like broccoli, even if they don't
- Does your child point to share information with you? E.g., point to show you a dog in the park
- Is your child aware of other people's emotions? E.g., happy, sad, angry, etc.
- Is your child aware that other people have the same beliefs as them? E.g., that dogs are the best animals.
- Does your child copy others for no clear reason? E.g., raises arm because someone else did, with no clear goal (other than to raise one's arms)
- Is your child aware that sometimes other people don't know the same information they do? E.g., child might know where a toy is, but dad might not.
- Does your child understand what it means for others to make mistakes? E.g., that they dropped a plate by accident
- Does your child perform actions with specific goals in mind? E.g., stacking blocks specifically to make a house

## Test-Retest Reliability

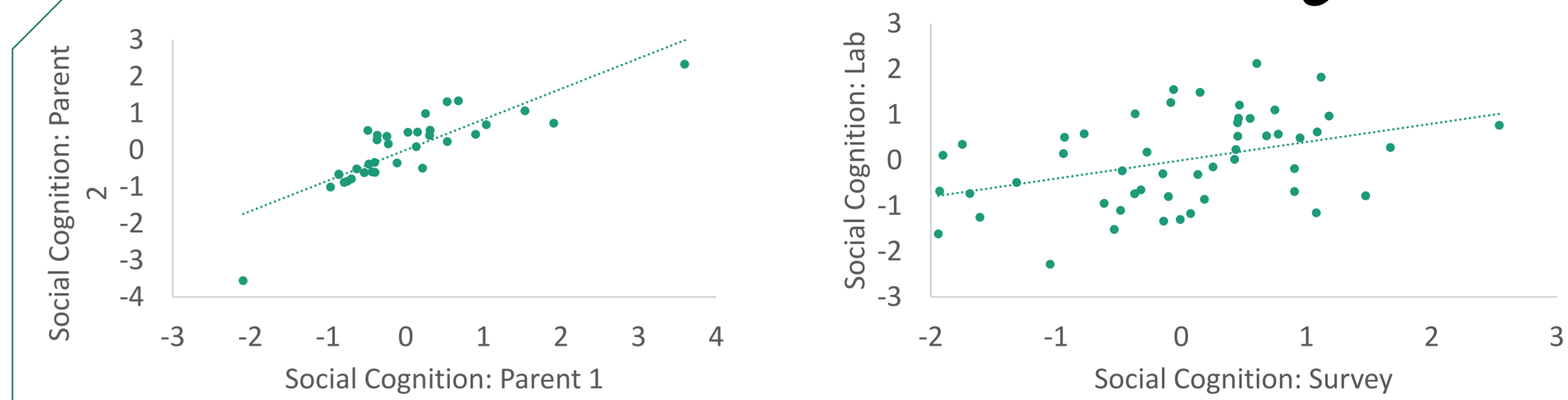


- Test-retest reliability after 6 months good,  $N=95$ ,  $df=92$ , *Partial r* = 0.62,  $p < .001$ , controlling for age
- Test-retest reliability after 12 months good,  $N=30$ ,  $df=27$ , *Partial r* = 0.65,  $p < .001$ , controlling for age

## Inter-Rater Reliability

- Both parents independently completed the survey
- Survey vs. 13 social cognition tasks in lab (see tasks from survey construction)

## Reliability



- Inter-observers reliability between parents good,  $N=35$ ,  $df=32$ , *Partial r* = 0.83,  $p < .001$ , controlling for age
- Lab  $KR_{20} = 0.73$ ; Survey  $KR_{20} = 0.89$ ; Inter-observers reliability between survey and lab tasks good  $N=51$ ,  $df=48$ , *Partial r* = 0.40,  $p = .004$ , controlling for age

## Discussion

- The Early Social Cognition Survey is a reliable measure
- It has good internal reliability
- It has good test-retest reliability
- It correlates well with validated lab measures
- **Next Steps:**
- Extending inter-observer agreement by increasing sample size to  $N=84$
- **Uses:**
- Collect social cognition data easily online
- Easy way to correlate social cognition to lab tasks
- Easy way to provide social cognition baseline for social cognition experiments

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