



# Predictive Associations Between Prenatal and Postnatal Risk Factors and Developmental and Temperamental Outcomes Among Infants in Foster Care

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## Introduction

- Infants detained for maltreatment often have many prenatal/perinatal risk factors (e.g., prenatal substance exposure, prematurity, low birth weight)
  - Pose significant risk for developmental & temperament outcomes in infancy<sup>1,2</sup>
- Infants adopted from foster care may also have postnatal risk factors, e.g., disrupted attachments due to multiple foster placements and/or older age at detainment
  - These vary substantially among individuals, and may uniquely affect developmental outcomes, above and beyond prenatal factors<sup>3,4</sup>
- Despite needing to better understand how much prenatal and postnatal risk factors influence later functioning, few studies have tested their independent and cumulative associations with outcomes for infants in foster care
- Furthermore, due to the lack of longitudinal studies investigating infants transitioning from foster care to adoption, it is unclear how placement in a stable adoptive home may influence these effects across time

### Study Questions:

- On average, how are these high-risk infants doing in terms of cognitive, language, motor, and temperament development at adoptive placement?
- Do these developmental domains remain stable across time?
- Do prenatal and postnatal risk factors account for individual differences in developmental functioning at adoptive placement?
- Do prenatal and postnatal risk factors continue to predict outcomes one year after adoptive placement?

## Method

### Participants

- 62 infants in foster care referred for developmental assessment within 2 months of adoptive placement
- Race/ethnicity: 26% Hispanic, 14% African-American, 11% Caucasian, 1% Asian/Pacific Islander, 26% Mixed, 22% Unknown
- 0-28 months of age at baseline
- Almost all had prenatal substance exposure
- Assessed at baseline & 1-yr follow-up

### Measures

- Prenatal and Postnatal Risk Factors**
  - Prenatal risk index: Prematurity, birth weight, birth complications
  - Postnatal factors: # of placements (0-3), age at adoptive placement (0-28 months)
  - Coded from previous medical, DCFS, and court records
- Bayley Scales of Infant Development, III**
  - Cognitive, Motor, Language
- Infant/Toddler Temperament Questionnaire**
  - Sensitivity, Intensity, Regularity

## Results

### Change/Stability of Outcomes from Baseline to 1-Year Follow-up

|                    | Baseline       | 1-yr Follow-up | Paired t-test |       |
|--------------------|----------------|----------------|---------------|-------|
|                    | Mean (SD)      | Mean (SD)      | t (df)        | p     |
| <b>Bayley</b>      |                |                |               |       |
| Cognitive          | 100.73 (11.73) | 98.56 (9.60)   | t(62) = 0.90  | .37   |
| ↑ Language         | 90.34 (10.58)  | 94.70 (14.01)  | t(62) = -2.65 | .01 * |
| Motor              | 92.59 (13.33)  | 90.60 (15.76)  | t(62) = 1.30  | .20   |
| <b>Temperament</b> |                |                |               |       |
| ↑ Sensitivity      | 2.72 (.16)     | 3.14 (.14)     | t(47) = -0.33 | .02 * |
| ↓ Intensity        | 3.10 (.16)     | 2.73 (.11)     | t(47) = 2.13  | .04 * |
| Irregularity       | 2.75 (.14)     | 2.66 (.14)     | t(47) = 0.63  | .53   |

### Multiple linear regressions predicting outcomes at baseline and 1-year follow-up from prenatal and postnatal risk factors

|                                   | Baseline     |       | 1-Year Follow-up |     |
|-----------------------------------|--------------|-------|------------------|-----|
|                                   | B (SE)       | p     | B (SE)           | p   |
| <b>Bayley - Cognitive</b>         |              |       |                  |     |
| Prenatal Risk                     | -6.78 (2.85) | .02 * | -2.84 (1.65)     | .09 |
| Number of Placements              | -3.10 (2.25) | .17   | -3.27 (2.07)     | .12 |
| Age of adoptive placement         | .07 (.08)    | .38   | .04 (.04)        | .33 |
| <b>Bayley - Language</b>          |              |       |                  |     |
| Prenatal Risk                     | -1.96 (1.41) | .17   | -1.92 (1.77)     | .29 |
| Number of Placements              | -1.46 (4.00) | .72   | 1.70 (3.15)      | .59 |
| Age of adoptive placement         | -.02 (.13)   | .87   | .03 (.12)        | .78 |
| <b>Bayley - Motor</b>             |              |       |                  |     |
| Prenatal Risk                     | -5.98 (2.86) | .04 * | -1.31 (2.17)     | .55 |
| Number of Placements              | -3.33 (3.57) | .36   | 3.02 (3.06)      | .33 |
| Age of adoptive placement         | .19 (.09)    | .04 * | .08 (.10)        | .44 |
| <b>Temperament - Sensitivity</b>  |              |       |                  |     |
| Prenatal Risk                     | -.05 (.20)   | .82   | -.01 (.14)       | .95 |
| Number of Placements              | .69 (.23)    | .01 * | .19 (.24)        | .44 |
| Age of adoptive placement         | -.01 (.01)   | .03 * | -.01 (.01)       | .93 |
| <b>Temperament - Intensity</b>    |              |       |                  |     |
| Prenatal Risk                     | .47 (.18)    | .01 * | -.09 (.07)       | .23 |
| Number of Placements              | .17 (.25)    | .51   | -.07 (.11)       | .53 |
| Age of adoptive placement         | -.01 (.01)   | .34   | .01 (.01)        | .23 |
| <b>Temperament - Irregularity</b> |              |       |                  |     |
| Prenatal Risk                     | .37 (.19)    | .05   | -.02 (.16)       | .91 |
| Number of Placements              | .16 (.27)    | .54   | .01 (.19)        | .98 |
| Age of adoptive placement         | -.02 (.01)   | .14   | -.01 (.01)       | .31 |

## Discussion

- Findings provide a preliminary snapshot of a notably high-risk and high-needs group: Infants being adopted through foster care
- Despite a range of prenatal and postnatal risk factors, infants' outcomes were relatively comparable to normative sample
- While cognitive and motor development remained relatively stable across initial adoptive placement to a 1-yr follow-up, language significantly improved
- Prenatal and postnatal effects on development and temperament were largely transient, with significant risk factors no longer demonstrating an effect at the 1-year follow-up after being placed with adoptive parents.
- Results support adoption as a critical early intervention and provide preliminary evidence that adoption may significantly buffer pre-placement risk factors on developmental outcomes for high-risk infants, even within a relatively short time period of one year
- Study's modest sample size (N = 62) may have limited power in statistical analyses

## References

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