

# ASQ-3 is a reasonable tool for assessing outcomes in RCTs, but should not replace diagnostic assessments of delay

## Parent reported (ASQ-3) vs. clinician assessment (BSID-III)

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### Bayley Scales of Infant Development III (BSID-III)

- measures developmental delay
- gold standard assessment (validated)
- completed by certified psychologist
- relatively expensive

### Ages and Stages Questionnaire (ASQ-3)

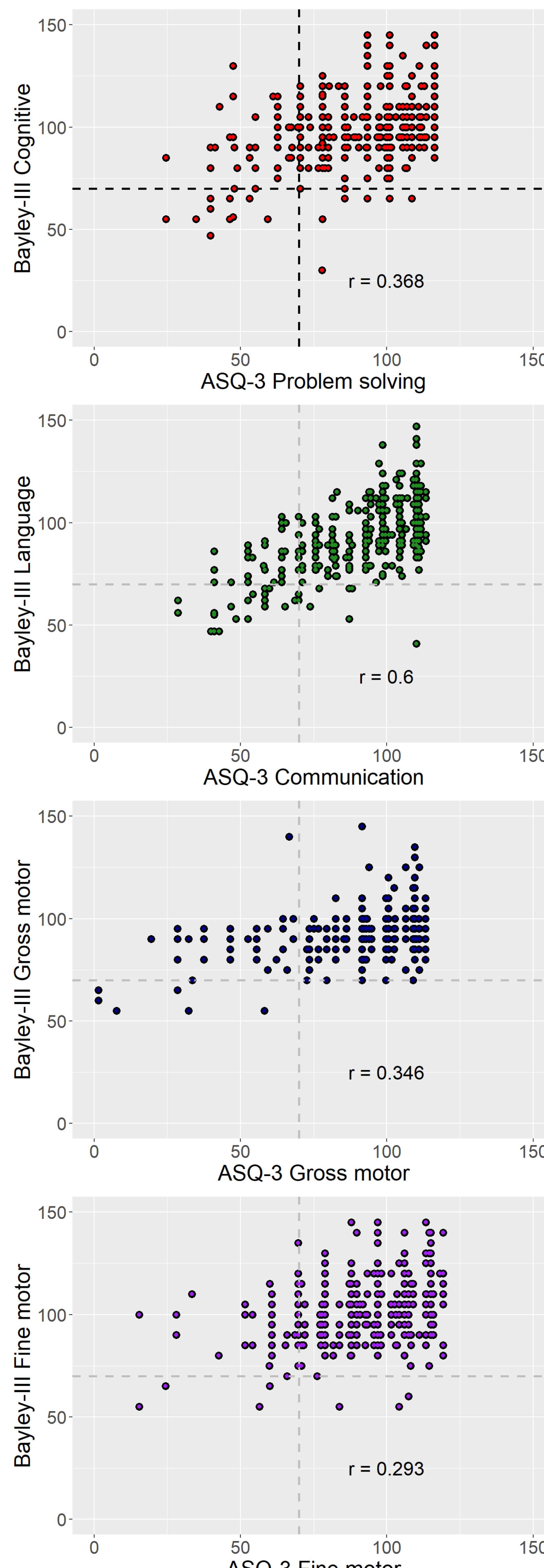
- developed as screening tool
- completed by parents
- relatively inexpensive

### Objectives

- Compare ASQ-3 to BSID-III
- Assess current ASQ-3 cutpoints for predicting disability according to BSID-III
- Identify optimal cutpoints for ASQ-3

### Infants

- babies born <30 weeks gestational age from APTS (Tarnow-Mordi et al. (2017))
- 405 assessed at 24 months with both tools ( $\pm$  3 months) (updated data from abstract)
- median age: 24 months (range: 22–42)
- mean gestation 27.6 weeks (SD 1.6)
- mean birthweight 1016g (SD 262)
- 50% were treated with deferred cord clamping
- 58% male
- 79% singleton births.



### Predicting delay with the ASQ-3

Moderate Delay: >2 standard deviations below average.

Sensitivity and Specificity for ASQ-3 traditional cutpoints

Domain	Sensitivity	Specificity
Cognition	65% (38-86)	89% (86-92)
Language	81% (64-93)	90% (86-93)
Fine motor	57% (18-90)	88% (85-91)
Gross motor	100% (66-100)	89% (86-92)

Sensitivity and Specificity for ASQ-3 optimal cutpoints

Domain	Sensitivity	Specificity
Cognition	65% (38-86)	95% (92-97)
Language	84% (67-95)	88% (84-91)
Fine motor	71% (29-96)	71% (66-75)
Gross motor	100% (66-100)	92% (89-95)

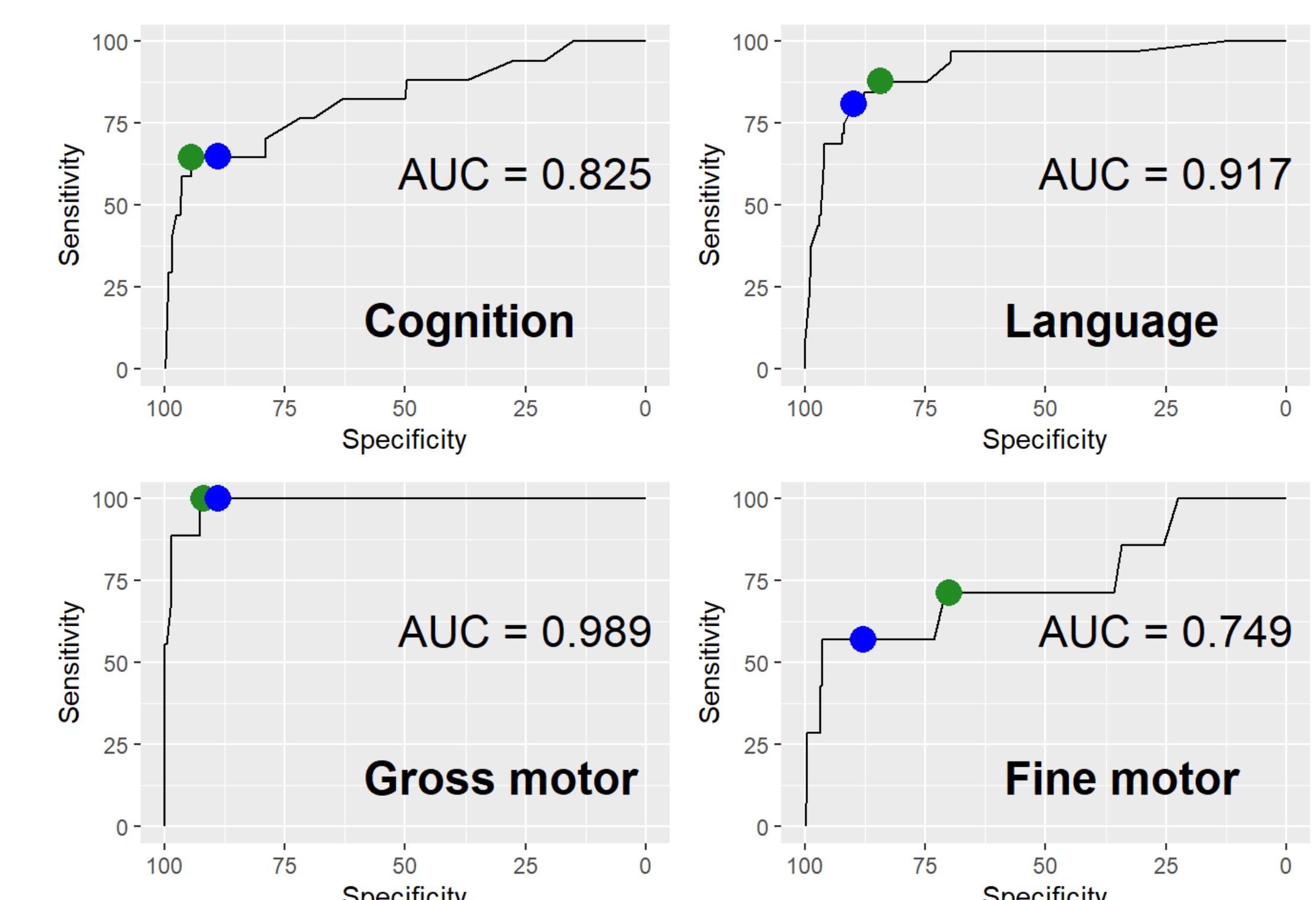


Figure 1: ROC for ASQ-3 domains. Blue indicates traditional cutpoints. Green indicates optimal cutpoints.

### Take home messages

- ASQ-3 and BSID-III are moderately well correlated
- Alternative ASQ-3 cutpoints with higher sensitivity are suggested to avoid missing children with moderate delays.
- The ASQ-3 is a reasonable tool for assessing outcomes in RCTs, but should not replace diagnostic assessments of delay.

Tarnow-Mordi, William, Jonathan Morris, Adrienne Kirby, Kristy Robledo, Lisa Askie, Rebecca Brown, Nicholas Evans, et al. 2017. "Delayed Versus Immediate Cord Clamping in Preterm Infants." *New England Journal of Medicine* 377 (25): 2445-55. <https://doi.org/10.1056/NEJMoa1711281>.