

# Associations between maternal-infant interactive characteristics at 1-month post-partum and cognitive outcomes at pre-school age in a rural area of The Gambia

Bosiljka Milosavljevic<sup>1-2</sup>, Maria M. Crespo-Llado<sup>2-3</sup>, Ebrima Mbye<sup>4</sup>, Ebou Touray<sup>4</sup>, Tijan Fadera<sup>4</sup>, Mariama Saidykhan<sup>4</sup>, Samantha McCann<sup>5</sup>, Giulia Ghillia<sup>2-3</sup>, Marta Perapoch Amado<sup>6-7</sup>, Catherine Southard<sup>2</sup>, Laura Bozicevic<sup>8</sup>, Sophie E. Moore<sup>4-5</sup>, Clare Elwell<sup>7</sup>, Sarah Lloyd-Fox<sup>1-2</sup> & The BRIGHT Project Team

<sup>1</sup>Department of Psychology, University of Cambridge; <sup>2</sup>Centre for Brain and Cognitive Development, Birkbeck, University of London; <sup>3</sup>Department of Women and Children's Health, University of Liverpool; <sup>4</sup>MRC Unit The Gambia at the London School of Hygiene and Tropical Medicine; <sup>5</sup>Department of Women and Children's Health, King's College London; <sup>6</sup>Department of Psychology, University of East London; <sup>7</sup>Department of Physics and Biomedical Engineering, University College London; <sup>8</sup>Department of Psychological Sciences, University of Liverpool

## Background



- Caregiver responses to infant communicative gestures reinforce behaviours necessary for motor, verbal, and attentional skills.
- Cognitively stimulating caregiving practices are posited to support healthy development among infants exposed to environmental adversity
- An important limitation is that most research examining links between caregiving practices and child cognitive outcomes is conducted in Minority World settings.
- Here, we examine associations between maternal - infant dynamics in infancy and child cognitive outcomes at preschool age.

## Methods



Data collected as part of Brain Imaging for Global Health (BRIGHT) project, examining infant development from pregnancy to preschool age in West Kiang, The Gambia

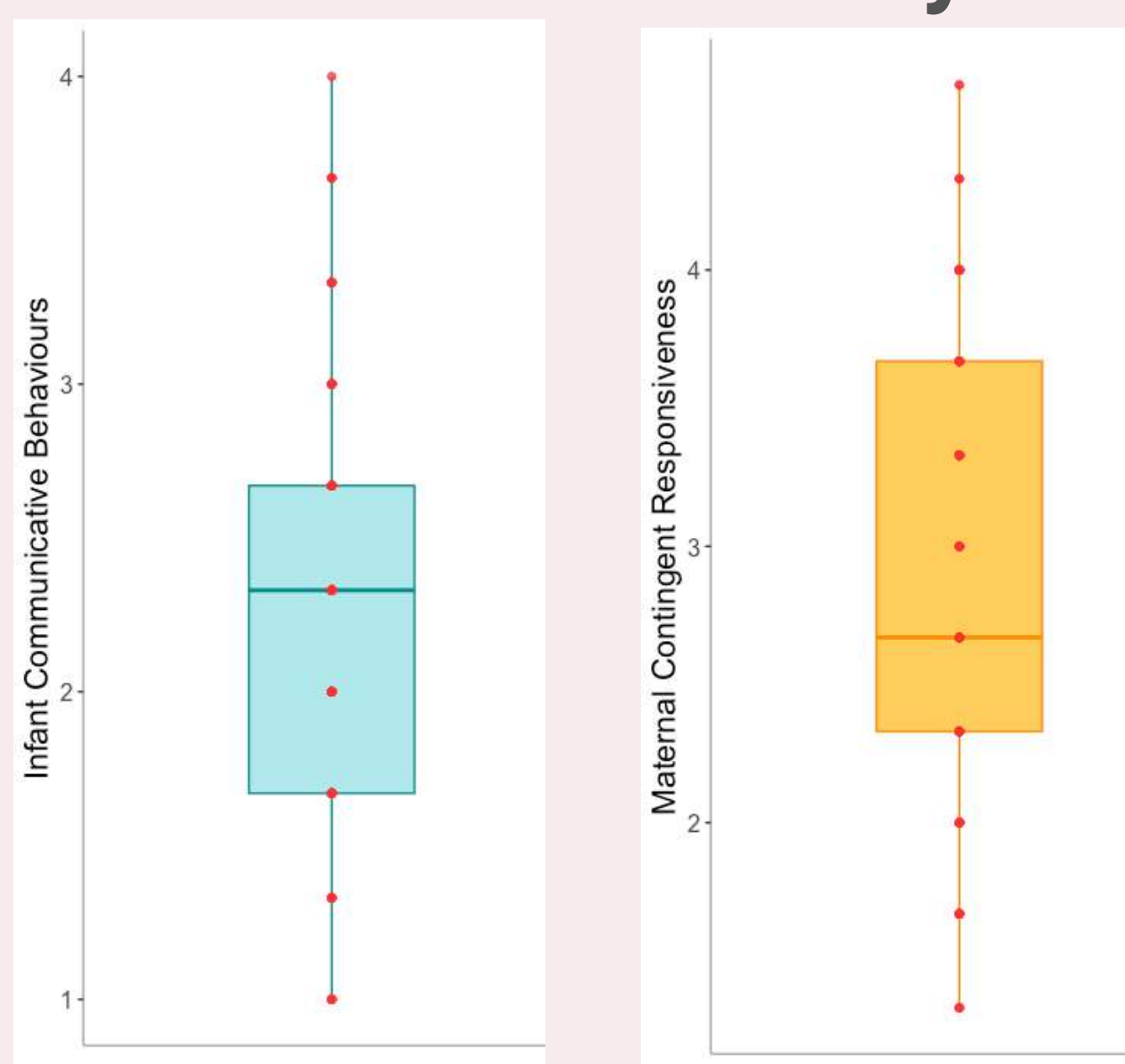
- Maternal - infant interactions assessed at 1-month post partum (N=169) using naturalistic assessment
- **Maternal Contingent Responsiveness** and **Infant Active Communication** were coded, coded using Global Rating Scales (GRS)

- Child cognitive skills assessed at preschool age (N=171)
- **Mullen Scales of Early Learning (MSEL):** general cognitive ability
- **Executive Functions (EFs):** working memory (WM), Inhibitory control (IC) and cognitive flexibility (CF)



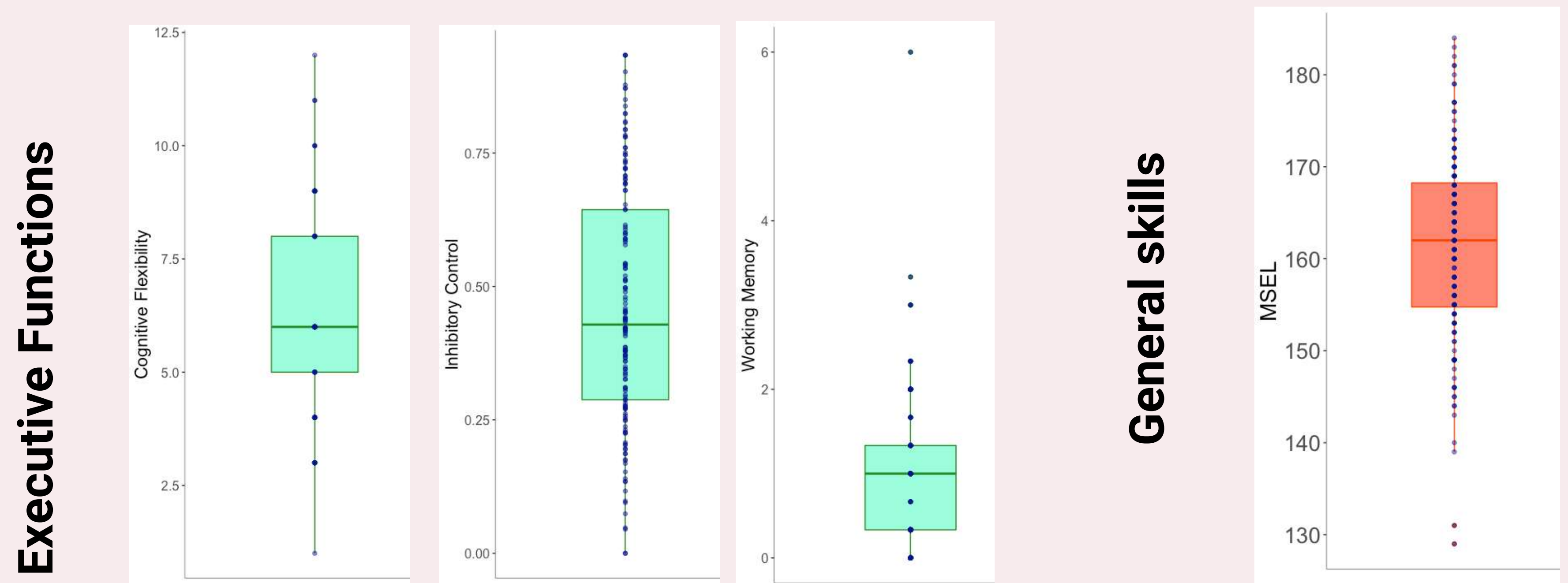
## Results

### Maternal- Infant Dynamics



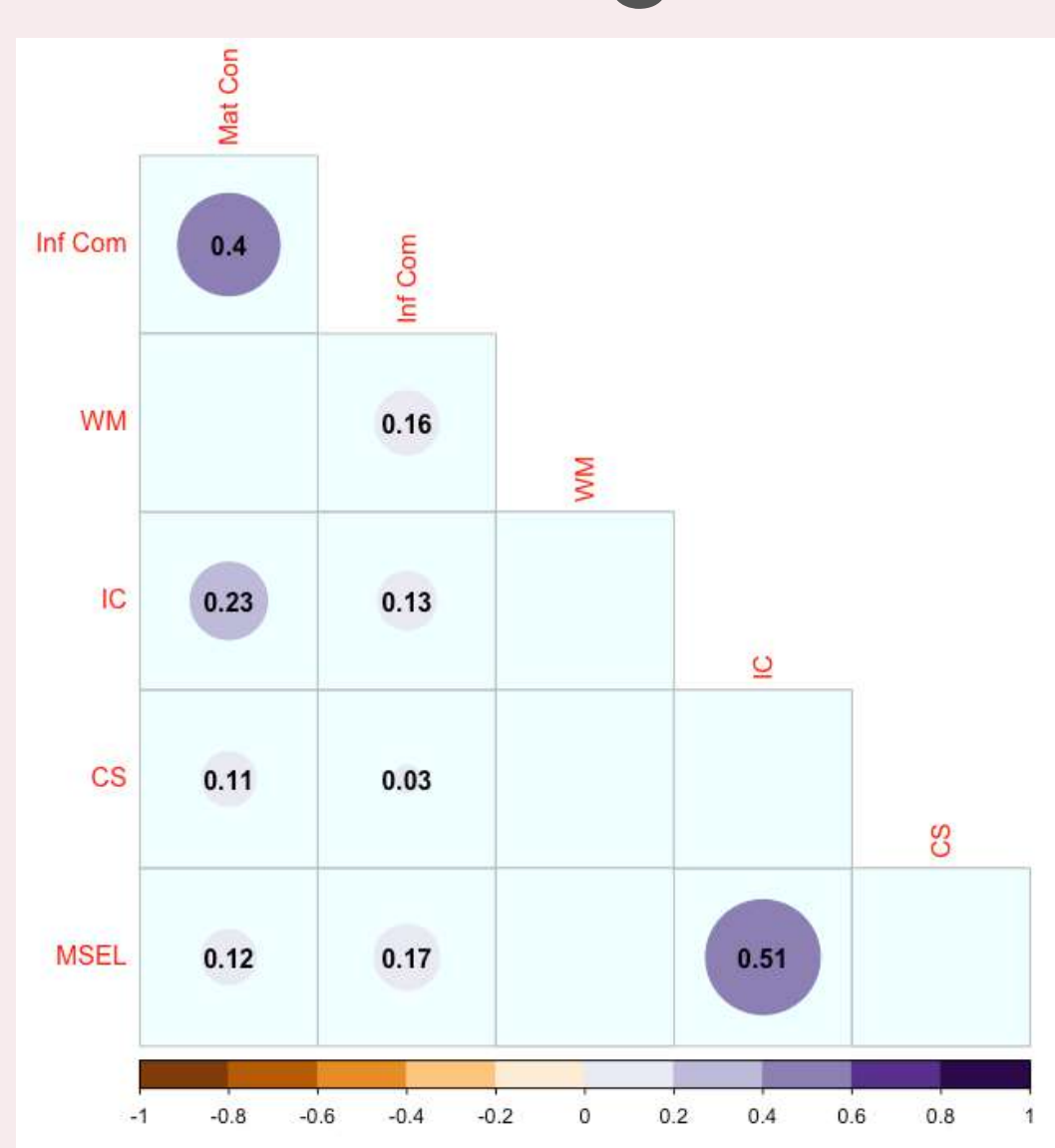
Both maternal contingent responsiveness and infant active communication scores showed a range of individual differences

### Child Cognitive Outcomes



Similarly, there were individual differences in performance on cognitive tasks at preschool age.

### Associations between parent-infant interactions and cognitive outcomes



There were significant correlations between maternal contingent responsiveness at 1m and child IC and WM. On the other hand, infant active communication at 1m was significantly correlated with MSEL scores at preschool age.

## Discussion

- Infant communicative behaviours predicted general cognitive skills at pre-school age, while maternal responsiveness was associated with EF skills (WM, IC) but not overall cognitive ability
- Likely due to skills required by the different measurement types
- Infant communication promotes language skills relevant for general cognitive ability, while maternal responses may foster development of regulatory abilities

