November 2006 – November 2019
My 13 years in the UK

From face perception in newborns to the impact of maternal depressive symptoms on infant development

Dr Silvia Rigato

CBCD 21st Anniversary

University of Essex

Università degli Studi di Padova

Birkbeck University of London

Goldsmiths University of London

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2005 | 2006-2010 | 2010-2013 | 2013-PRESENT

Many new and old faces..

Teresa Farroní

Mark Johnson

Andy Bremner

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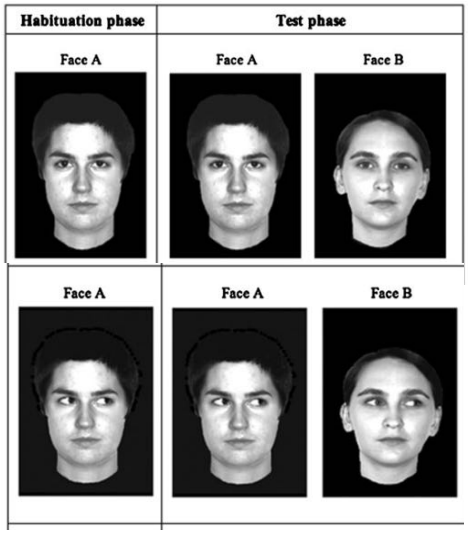
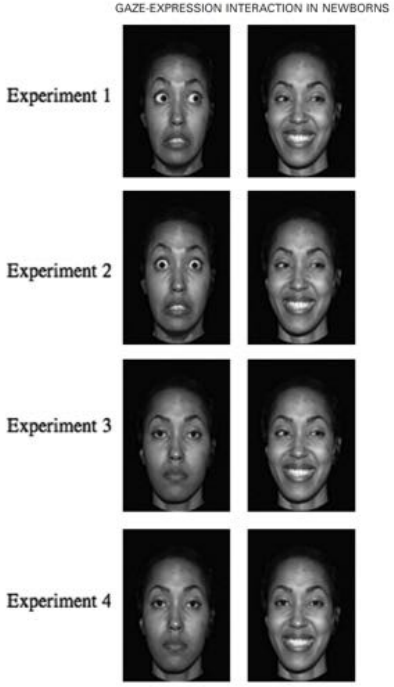
Pre-CBCD

Newborn lab

Elia, just a few hours old!

The perception of facial expressions and gaze direction in newborns





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PhD (Marie Curie fellowship)

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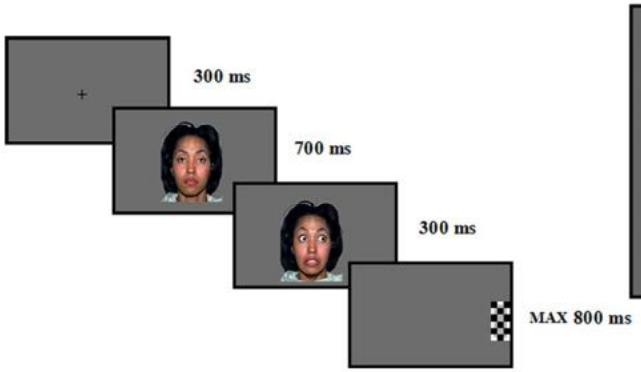
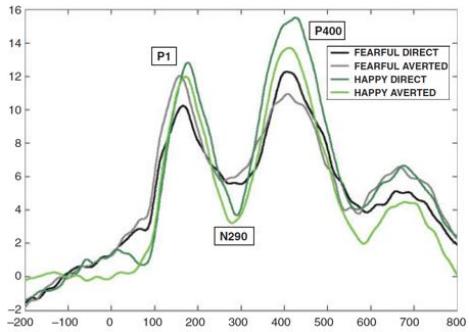
Interactions between emotional facial expression and eye gaze processing





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Memories..

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Memories..

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Memories..

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CBCD 2006 – 2010

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CBCD 2006 – 2010

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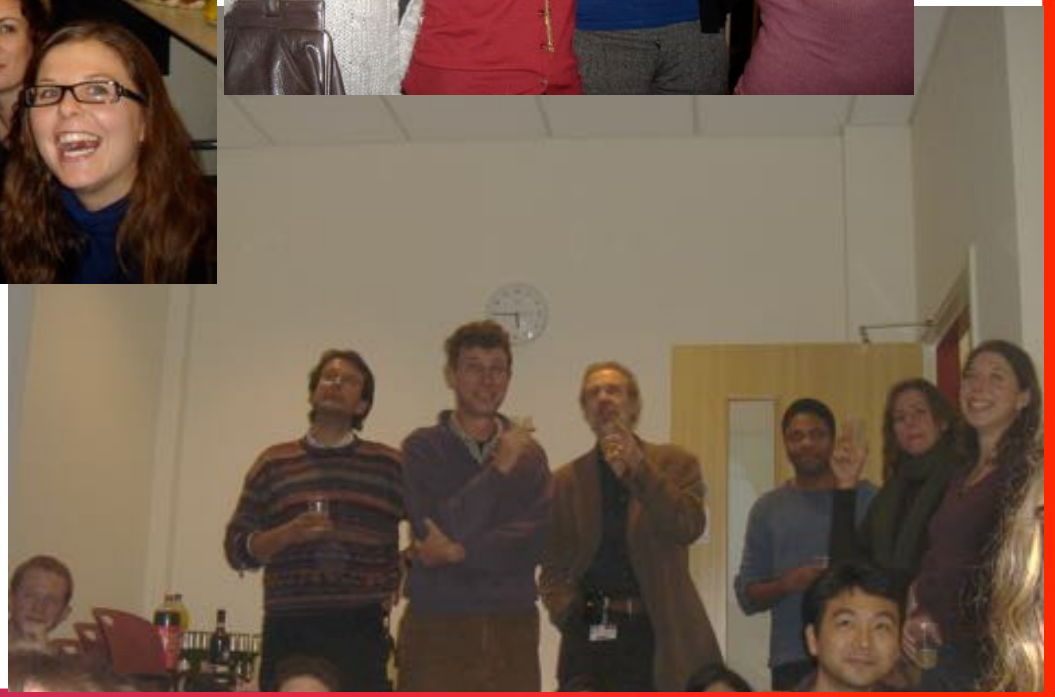


Memories..

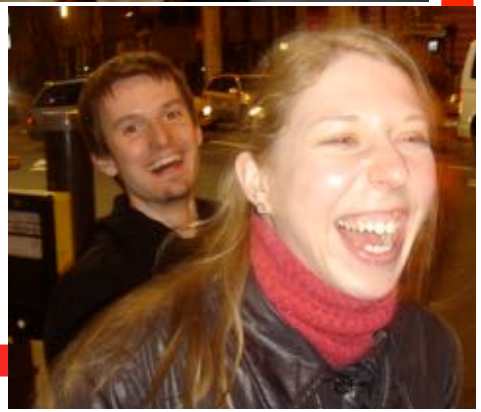
CBCD 2006 – 2010

Memories..

Memories..

CBCD 2006 – 2010

Memories..



Post CBCD 2010-2013

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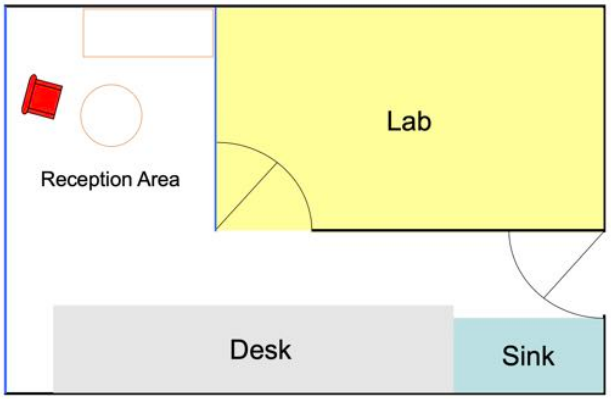
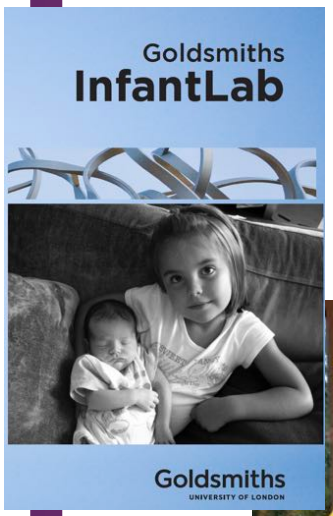
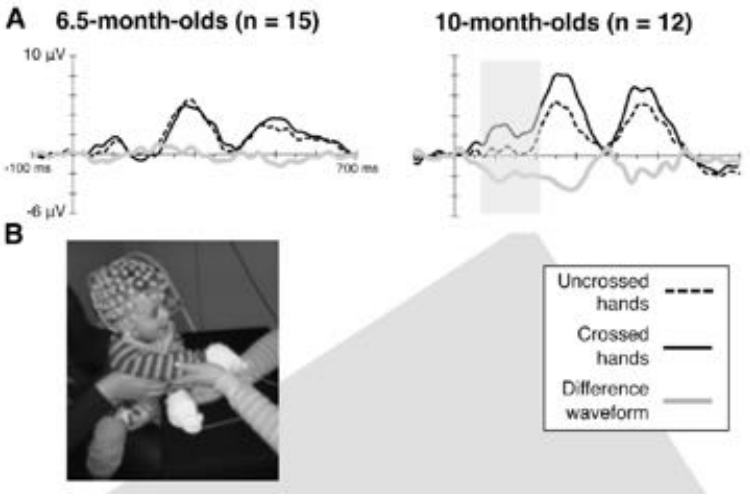


It's not all about faces - babies have bodies too!



The neural basis of somatosensory remapping



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Post CBCD 2010-2013

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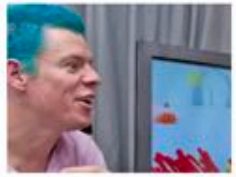
Revealed: The serious science behind a baby's laugh

The first attempt in 50 years to discover why infants smile can help our understanding of conditions such as autism and Down syndrome. Charlotte Philby visits Babylab HQ

Charlotte Philby | @philbycharlotte |
Wednesday 24 October 2012 23:10 |

Revealed: The serious science behind a baby's laugh Show all 2



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Babylab

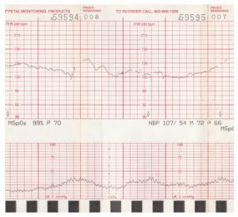
Karla Holmboe

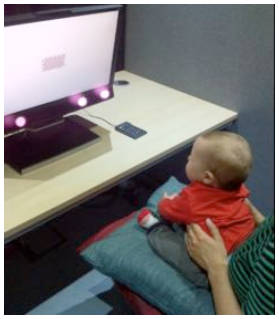
Isabel Quiroz

University of Essex

BILL & MELINDA GATES foundation

Longitudinal trajectories in brain functioning in infancy





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Maternal depression in the first days and months postpartum predicts infant (and child)'s difficult temperament.

e.g. Sugawara et al., 1999; Pesonen et al., 2008

Difficult infant temperament in the first days and months after birth increases the risk of maternal depression.

e.g. Cutrona and Troutman, 1986; Murray et al., 1996

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Adverse bi-directional influences, where one partner reinforces the negative response of the other.

e.g. Tronick, 1989, Cumming and Davis, 1994; Perry et al., 2017

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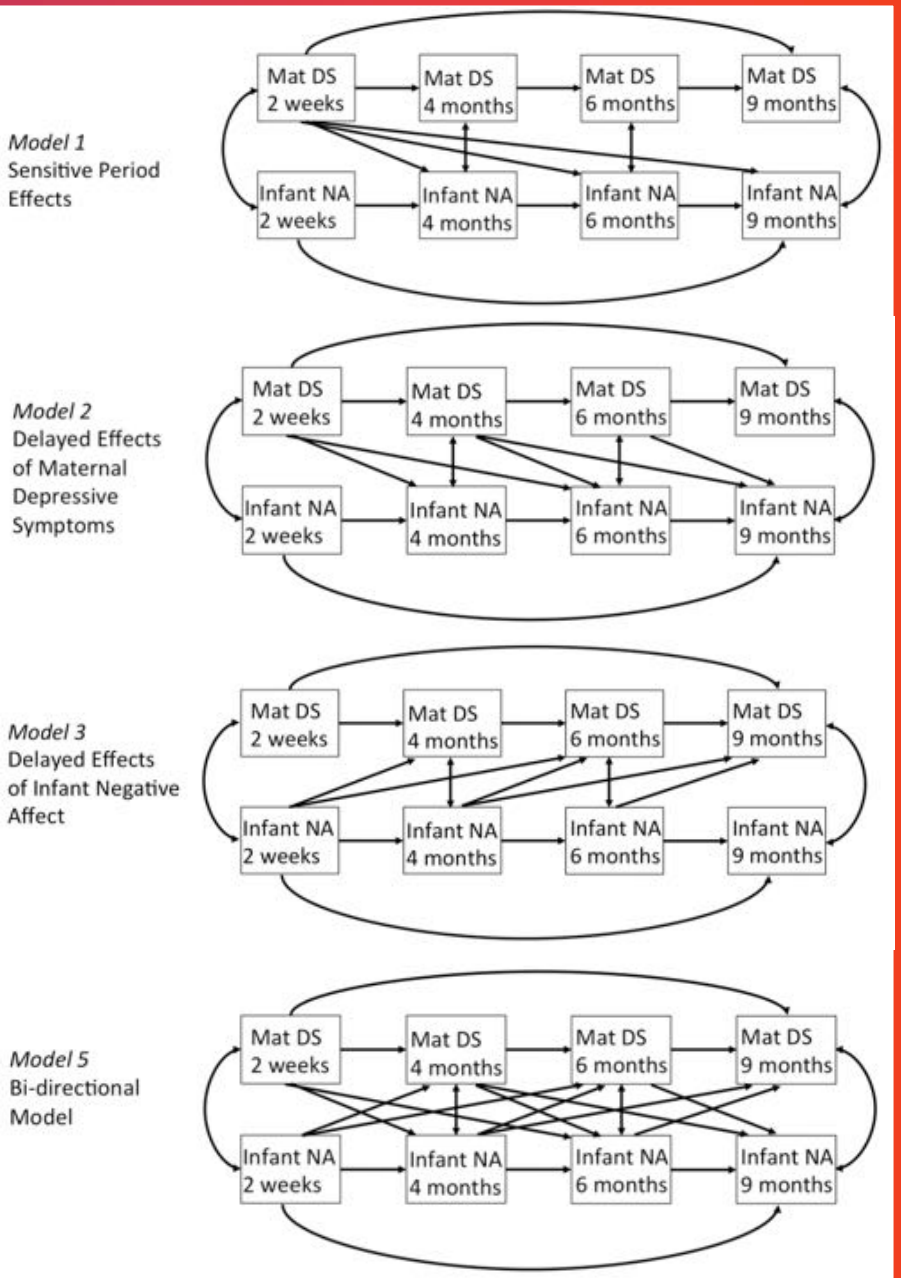
Structural equation modelling and predictions

The first two models tested whether depression around the time of birth had a primary and exclusive effect on later infant NA (**Model 1**), or whether effects would be cascading, with new effects of maternal DS emerging a few months after a change in maternal mood (**Model 2**).

Model 3 tested the reverse pattern of association, i.e. infant NA predicting maternal DS.

We predicted that all of these models would fit the data better than a control model involving stability in each measure, but without there being any longitudinal associations between maternal DS and infant NA (**Model 4**).

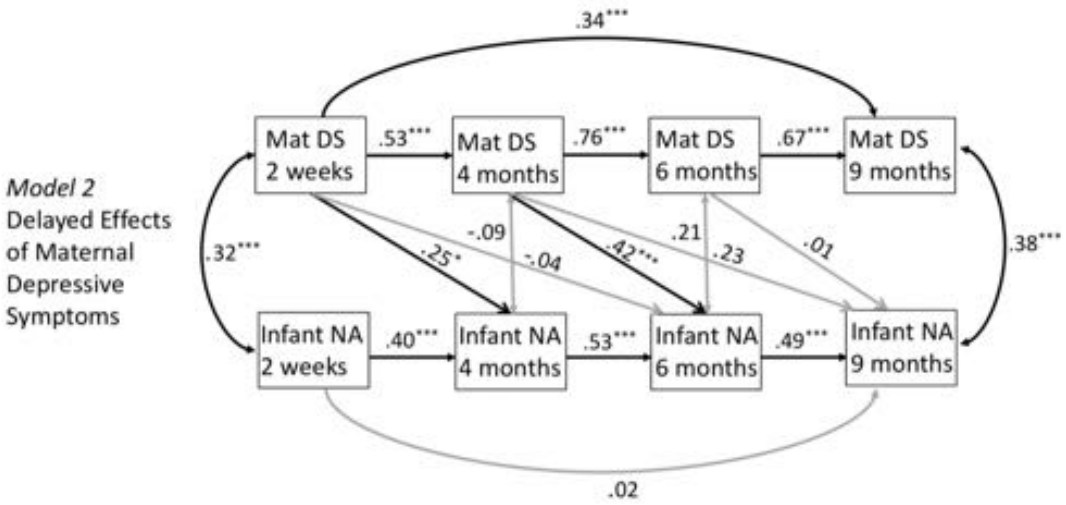
Model 5 tested a more complex bi-directional model with cascading longitudinal paths between maternal DS and infant NA.



Rigato et al., under review

SEM results

The best-fitting model (Model 2) showed that maternal DS at 2 weeks were significantly associated with infant NA within age and predictive of infant NA at 4 months. A new effect emerged at 4 months (which could not be accounted for by maternal DS at 2 weeks), with maternal depression level at this age reliably predicting infant NA at 6 months.
No other predictive paths between maternal DS and infant NA reached significance.



Best-fitting model of the relationship between maternal depressive symptoms (Mat DS) and infant negative affect (Infant NA). Standardized estimates are reported. Grey lines represent non-significant paths. ***p < .001, **p < .01, *p < .05, two-tailed.

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Rigato et al., under review

Conclusions

- Our study confirmed the directionality of the effect found by Pesonen et al. (2008), i.e. maternal DS predict infant NA.

- The findings highlight the importance of focusing not only on clinically depressed mothers but also on that considerable proportion of women (20% in our study, 20% in Cutrona & Troutman, 1986, 11% in Cents et al., 2013, 40% in Giallo et al., 2015) who experience sub-clinical postnatal depressive symptoms that are likely to remain undetected.

- These sub-clinical symptoms might in fact have a similar adverse long-term impact on a child's emotional and behavioral development as the more severe symptoms associated with clinical maternal depression.

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Rigato et al., under review

Silvia Dalvit Menabe






babybrains
THE FUN SIDE OF SCIENCE

Carina de Klerk

María Laura Filippetti

University of Essex

/ Departments / Psychology / Research / Babylab / From the Womb to the World

BABYLAB

From the Womb to the World

THANKS for these last 13 years!!

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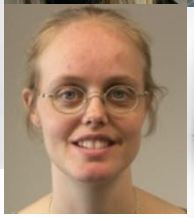
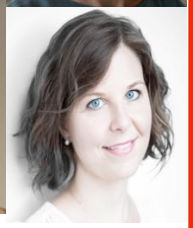


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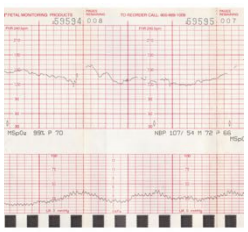
Overview of the project

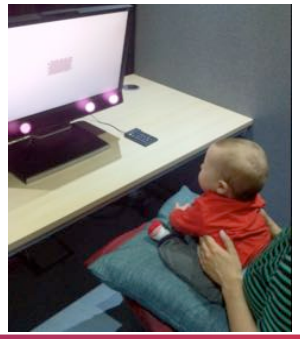
Stage	Number of Participants	Average Age
36 weeks prenatal	73	36w + 3d gest.
2 weeks	63	15.5d
4 Months	63	125.1d
6 Months	61	187.3d
9 Months	60	278.5d

- Behavioural & brain measures, including foetal and infant heart rate
- Outcome at 9 months: assessment of general cognitive development (Bayley-III), mother-infant interaction, blocks task
- Maternal depression and infant temperament at all postnatal assessment stages





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Methods - questionnaires

	Prenatal	2 weeks	4 Months	6 Months	9 Months
Background	✓				
Pregnancy & Birth		✓			
IBQ-R-VS		✓	✓	✓	✓
Bayley Motor		✓	✓	✓	✓
BDI-II		✓	✓	✓	✓
Ages & Stages 3			✓	✓	✓
Ages & Stages – Social Emotional 2			✓	✓	✓
Follow up (EPDS, parenting, life events, feeding-sleep-work-childcare)					✓

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Methods

Maternal DS in a general (i.e. non clinical) population (Beck Depression Inventory 2nd Edition; Beck, Steer, and Brown, 1996) and **infant NA** (Infant Behavior Questionnaire – Revised, Very Short Form; Putnam et al., 2014) at 4 time points: **2 weeks, 4, 6 and 9 months**.

We used path analysis within a **structural equation modelling** (SEM) framework (Kline, 2016) to evaluate the **primary direction of the associations** between maternal DS and infant NA across the first year of life.

with Dr Arielle Bonneville-Roussy

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Rigato, Stets, Bonneville-Roussy, & Holmboe, under review

Maternal depression

Between 11 and 29% of women experience depression and/or stress during pregnancy or after giving birth (Howard et al., 2014; Priest et al, 2008). A substantial proportion of these women continue to have depressive symptoms (DS) into their child's early years (e.g. Giallo et al., 2015).

DS are associated with increased risk of sub-optimal neonatal outcomes and can impact on a range of aspects of infant and child development, from insecure attachment to difficult temperament, behavioral problems and cognitive deficits (e.g. Beck, 1996, 1998; Kingston et al., 2012, 2015; Murray et al., 2010).

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Infant negative affect

Negative affect (NA) refers to the tendency to experience and express the emotions of frustration/anger, fear, and sadness (Goldsmith et al., 1987).

Infants of depressed mothers have been found to show more NA (McMahon et al., 2001; Whiffen & Gotlib, 1989).

Since depressed mothers also express more NA and show less positive engagement and responsiveness (e.g., Campbell et al., 1995; Field, 1984), this potentially leads to a negative self-reinforcing interaction pattern (Cummings & Davies, 1994; Tronick, 1989).

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Results – Infant NA

	2w	4mo	6mo	9mo
2w	1			
4mo	0.45	1		
6mo	0.41	0.61	1	
9mo	0.33	0.52	0.63	1

Infant NA was generally highly correlated across time points (*p*s ≤ .01) but there was little prediction from newborn NA beyond 4 months.

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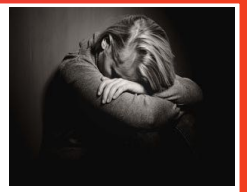
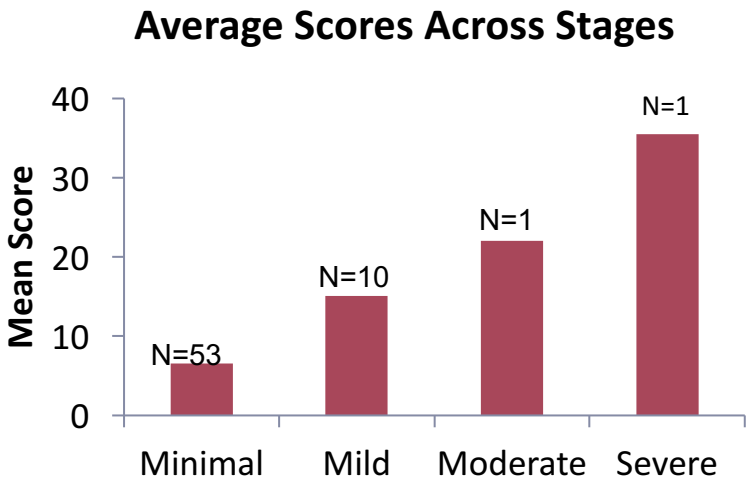
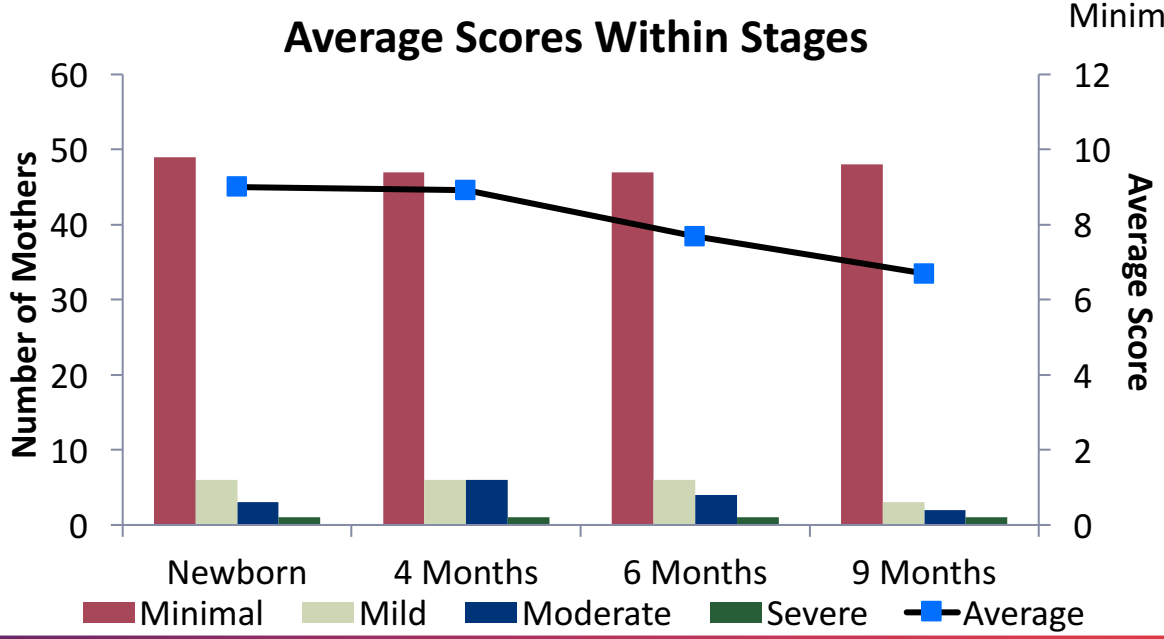
Rigato et al., under review

Results – Maternal DS



	2w	4mo	6mo	9mo
2w	1			
4mo	.54	1		
6mo	.53	.77	1	
9mo	.65	.71	0.89	1





Mothers' BDI-II scores were highly correlated between all ages (all Rs>.5, all ps<.01) and stable in the cohort.

About **20%** of mothers scored mild or higher in the BDI-II.

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Rigato et al., under review

Zero order correlations

		2 weeks		4 months		6 months		9 months	
		BDI-II	NA	BDI-II	NA	BDI-II	NA	BDI-II	NA
2 weeks	BDI-II	1							
	NA	**.327****	1						
4 months	BDI-II	.540***	.232	1					
	NA	**.399****	.483***	.183	1				
6 months	BDI-II	.488***	.136	.762***	.066	1			
	NA	**.378****	.417***	**.502*****	.588***	**.255***	1		
9 months	BDI-II	.641***	**.321****	.685***	**.281***	.819***	**.288***	1	
	NA	**.284***	.346**	**.496*****	.506***	**.328****	.599***	**.459*****	1

- Higher DS at 2 weeks was associated with higher infant NA at all ages (Model 1).
- Maternal DS at later ages was substantially predictive of infant NA at subsequent age points (Model 2).
- Some evidence of small-to-moderate reverse effects of infant NA on maternal DS (Model 3).

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Rigato et al., under review

Conclusions

- Our results are in line with those that indicate the important impact of maternal DS across a child's early development (Brennan et al., 2000; Campbell et al., 2007; Field, 1992; Tronick 1989).

- Our study confirmed the directionality of the effect found by Pesonen et al. (2008), i.e. maternal DS predict infant NA. Future research involving a larger sample should test a more comprehensive model involving bi-directional longitudinal influences between maternal DS and infant NA.

- Our study, examining both maternal DS and infant NA using the same well-validated measures across the very earliest part of infant development, allowed us to shed further light on the time course of the complex interactions between these factors from birth onwards, revealing delayed effects of maternal DS on infant NA in the first months of life.

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Rigato et al., under review

Limitations

- A larger sample size would have allowed testing of more comprehensive models, e.g. bi-directional or transactional.
- Our study did not include prenatal measures of maternal depression. We cannot rule out the possibility that the impact of maternal DS at birth on infant NA is instead a biologically-mediated carryover effect from prenatal DS.
- However, the additional effect emerging around 4 months of age cannot be explained by the same biological mechanism.

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Rigato et al., under review