

## Stress and attachment experiences in the early childhood: Does the quality of the mother-infant relationship influence the cortisol response during the Strange Situation Procedure?

Mayinger, C., Quehenberger, J., Landers, S., Oberschneider, L., Meinardi-Weichhart, L. & Brisch, K.H.

University Hospital of Munich | Dr. von Hauner Children's Hospital | Department of Pediatric Psychosomatic Medicine and Psychotherapy

### INTRODUCTION

Research in animal models implicates that early childhood experiences of mammals show an important effect on the individual differences of the biological stress response system by epigenetic processes (e.g., Zhang et al., 2013). This study analyses whether this correlation between the offspring's hypothalamus-pituitary-adrenal (HPA) axis and maternal care is transferrable to humans.

### AIMS OF STUDY

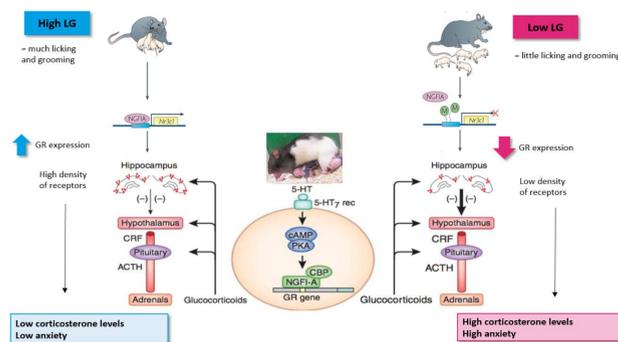
The aim of the study was to investigate whether the quality of the mother-child relationship is associated with the negative feedback mechanism of the infant's HPA axis and predicts the stress regulation of the child.



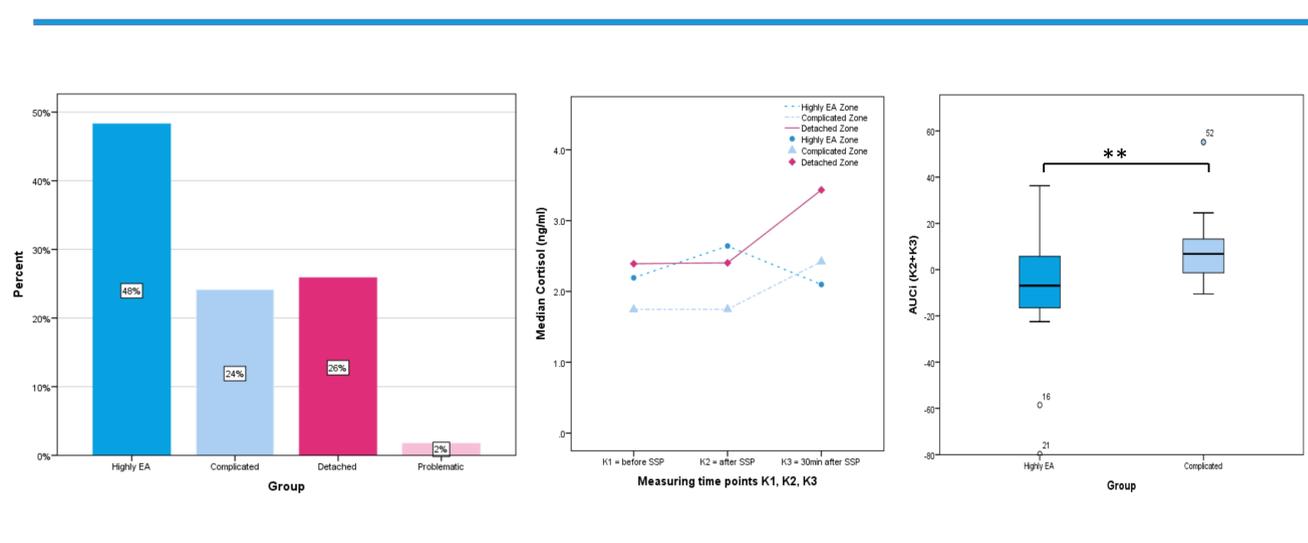
N = 58 mothers and their infants

### RESULTS

As a significant effect was found that the stress regulation of the children after the SSP were different between the zones ( $H(2, N=46) = 8.90, p < .05$ ). Infants classified "Highly Emotionally Available" showed an advanced stress regulation and an enhanced decrease of the cortisol secretion after the stressor compared to children classified into a lower zone ( $r = .38, p < .05$ ). As a general tendency, the dimension Sensitivity correlated negatively with the decrease of the cortisol level after the SSP ( $r = -.25, p = .10$ ).

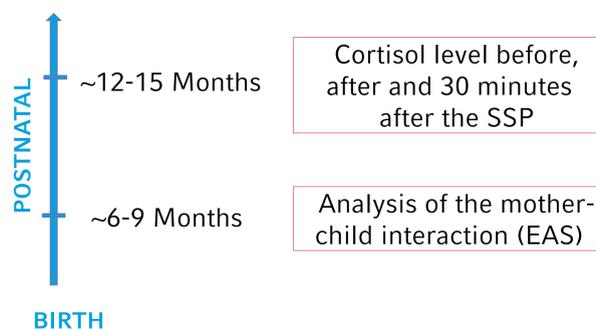


<sup>1</sup> modified by Zhang et al. 2013, p. 113 and by Hackman, Farah & Meaney, 2010. Regulation of the Glucocorticoid Receptor (abbreviated GR).



### MATERIALS & METHOD

Within the framework of a longitudinal study (N=58 mothers and their infants) the quality of the mother-child relationship was analyzed during a feeding interaction using the Emotional Availability Scales (EAS; Biringen 2008). The child's stress reaction was measured by the cortisol level before and after the Strange Situation Procedure (SSP; Ainsworth 1978) approximately six months (SD=3.69) after the feeding interaction. To detect the stress regulation of the infant after the stressor the cortisol level was additionally determined 30 minutes after the SSP.



### CONCLUSIONS

There is a significant association between the quality of the mother-child interaction in the early childhood and the child's stress regulation during its first year of life. The results suggest that children with positive attachment experiences have an enhanced stress response system. In long term it might be possible to de-escalate the development of a dysregulated HPA axis during an early stage by offering preventative programs that promote the quality of the relationship between the parent and the child.