



**VNOP Conference 2018 – Full program**

**May 15<sup>th</sup> – 16<sup>th</sup>**

**Wageningen International Congress Center**

**Wageningen, the Netherlands**

# Colophon

This program booklet is published as part of the biennial VNOP conference, held on May 15th & 16th 2018 at the Wageningen International Congress Center.

## **Design**

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## **Sponsors VNOP conference**

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# Welcome!

On behalf of the board of VNOP and the organizing committee we would like to welcome you at the 6<sup>th</sup> Biennial VNOP conference 2018 in Wageningen. This year we have an exciting program with three highly inspiring keynote speakers, symposia and posters, as well as teaching workshops and flash talks. It is an all-round program aiming to bring together students, lecturers, and junior and senior researchers working in the field of developmental psychology.

We would like to thank you all for submitting your work and attending VNOP 2018.

On behalf of the organizing committee, we wish you an exciting and pleasant conference.

The organizing committee,

Berna Güroğlu

Jochem Spaans

Lara Wierenga

Anne Miers

Sabine Peters

## Location Info

### **Opening**

*Ir Haakzaal*

### **Keynotes**

*Ir Haakzaal*

### **Poster session**

*Terraszaal*

### **Symposia / Flash talks / Teaching workshops**

*Ir Haakzaal / Hoevesteinzaal / Peppelzaal*

### **Lunch / Coffee Breaks / Diner**

*Terraszaal*


### **Members Meeting**

*Ir Haakzaal*

### **VNOP Board meeting**

*Hoevesteinzaal*

# Program-at-a-glance

Tuesday May 15th		Wednesday May 16th
9:00 - 10:00 Registration	9:00 - 10:00 Hang up posters	9:00 - 9:30 Registration
10:00 - 10:30 Opening		9:30 - 10:45 Choice: S3A, S3B or S3C
10:30 - 11:30 Keynote 1: Iroise Dumontheil		10:45 - 11:00 Coffee break ☕☕
11:30 - 11:45 Group photo 📷		11:00 - 12:15 Choice: S4A, S4B or S4C
11:45 - 12:45 Lunch / SIGs		12:15-13:15 Lunch / SIGs
12:45 - 14:00 Choice: S1A, S1B or S1C		13:15 - 14:00 Choice: FT1A, FT1B or T2
14:00 - 14:15 Coffee break ☕☕		14:00 - 14:05 Short break
14:15 - 15:30 Choice: S2A, S2B or T1		14:05 - 14:50 Choice: FT2A, FT2B or T2
15:30 - 16:45 Poster session ☕		14:50 - 15:10 Coffee break ☕☕
VNOP Board meeting		15:10 - 16:10 Keynote 3: Jaap Denissen
16:45 - 17:45 Keynote 2: Nienke van Atteveldt		16:10 - 16:15 Closing
17:45 - 18:45 General assembly VNOP members & award ceremony		<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> = Plenary Activity</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> = Keynote</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> = Parallel Session</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> = Board Meeting</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #9370DB; border: 1px solid black; margin-right: 5px;"></span> = Social Activity</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> = Food &amp; Drinks</li> </ul> <p><b>Abbreviations:</b>            S = Symposium            T = Teaching workshop            FT = Flash Talk</p>
18:45 - 20:15 Dinner		
20:30 - Party with Live Music @ Café Loburg		
		

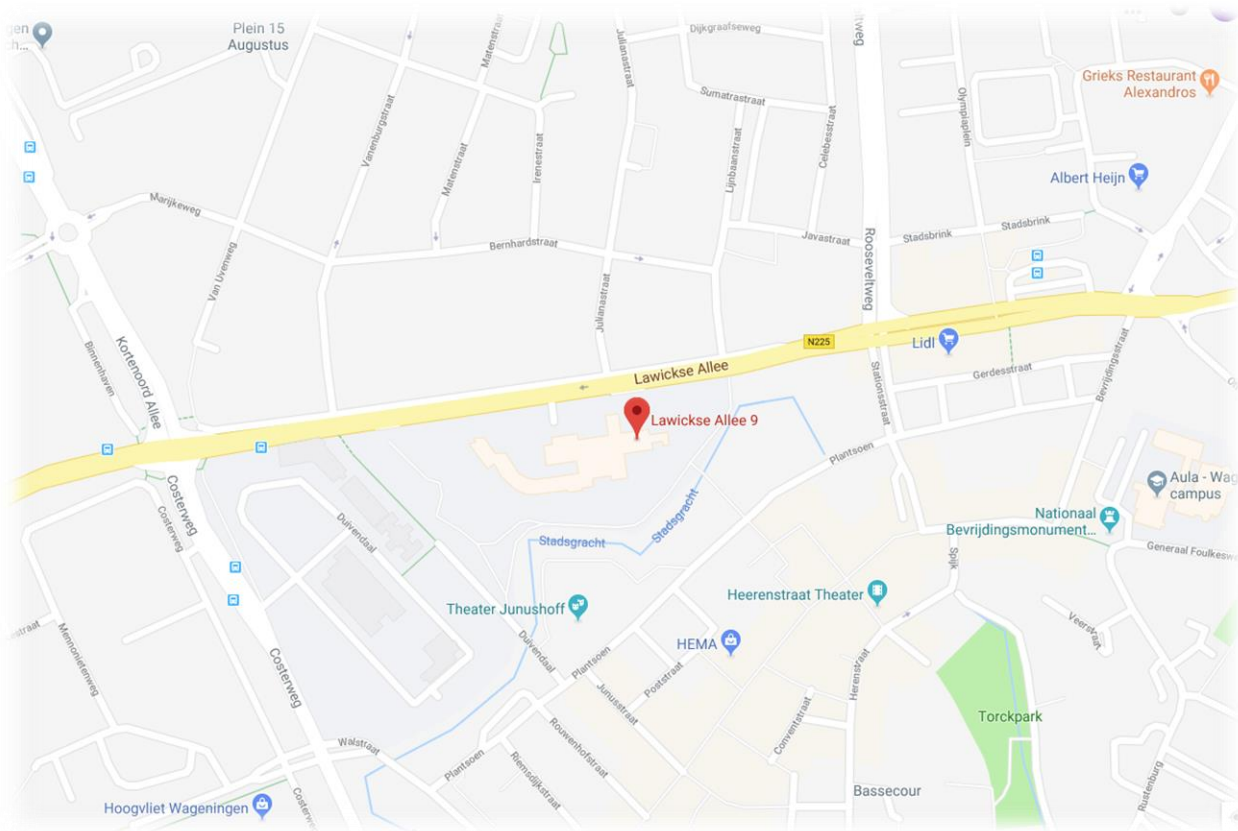
# The Venue

The VNOP conference 2018 will be held at the Wageningen International Congress Center (WICC).

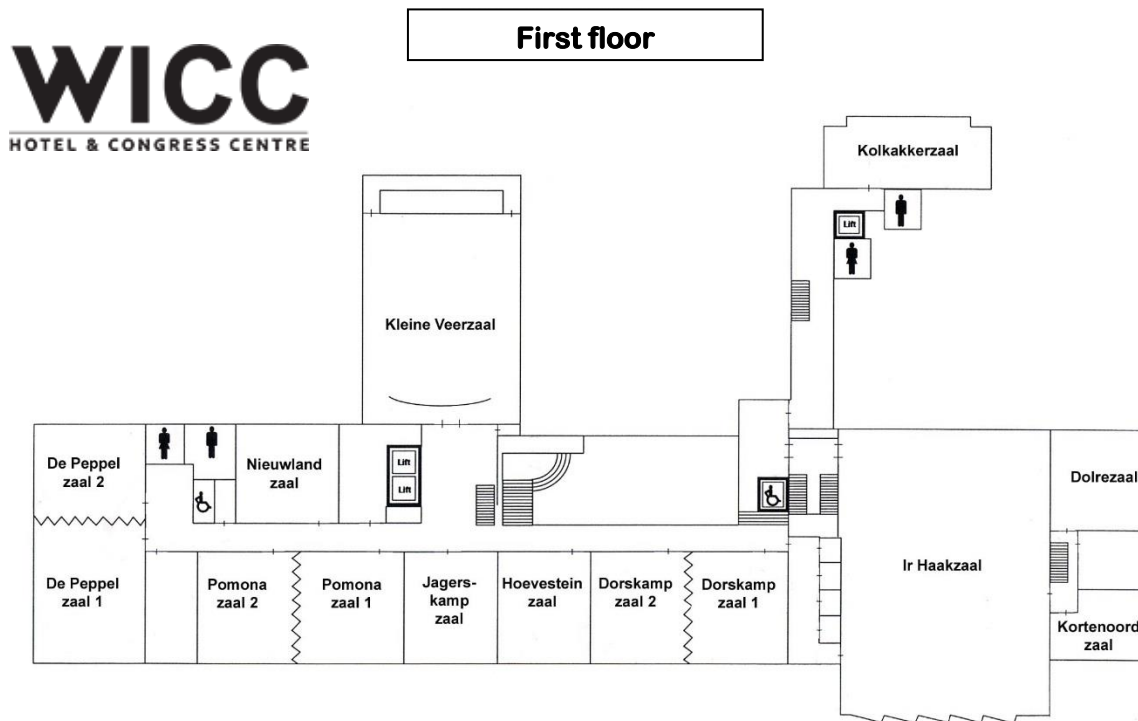
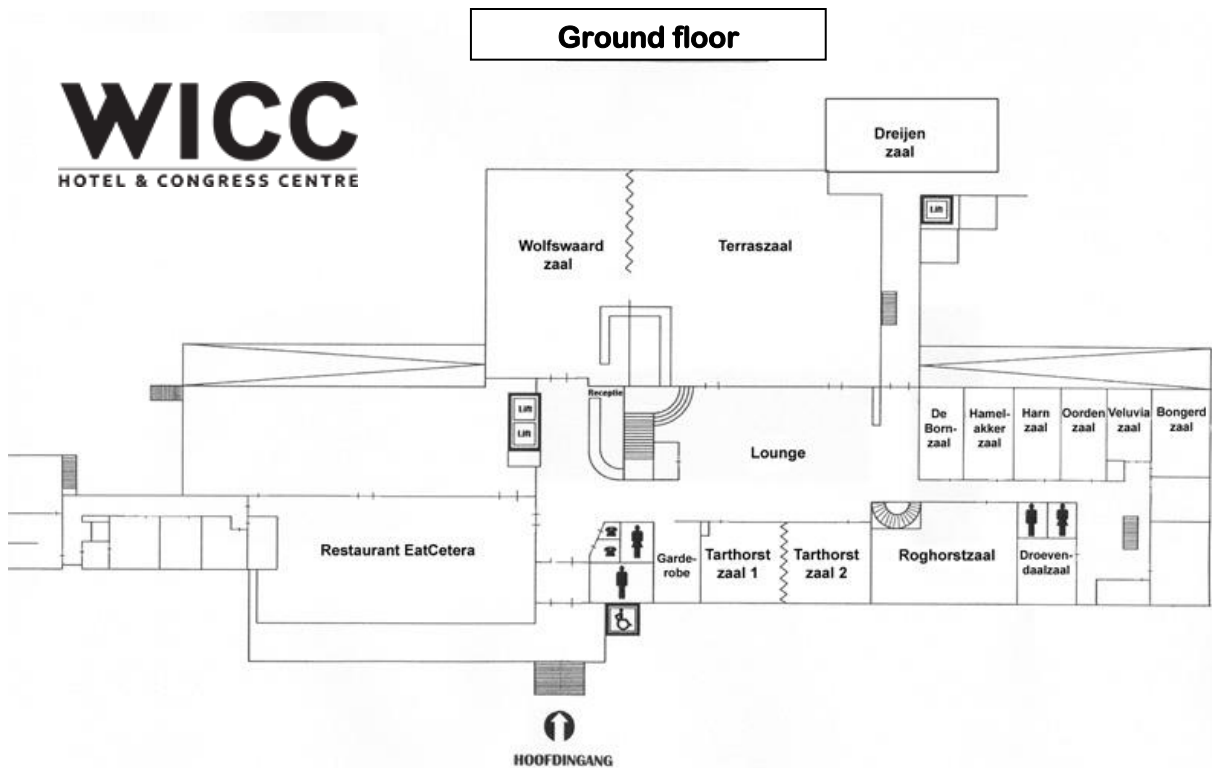
## Address

Wageningen International Congress Center  
Lawickse Allee 9  
6701 AN Wageningen

**For environmental reasons we strongly recommend using public transport or contacting colleagues to look for opportunities in carpooling.**



# Map conference rooms



# Keynote speaker: Dr. Iroise Dumontheil

Tuesday May 15<sup>th</sup> (10.30-11.30)

## Social cognition during adolescence

The human brain reaches adult size around the age of 8-9 years old. However significant changes in brain structure continue to take place beyond childhood. Large scale longitudinal studies of brain structure development have demonstrated prolonged and region-specific trajectories of grey and white matter development, with significant changes occurring during adolescence and until early adulthood. These changes allow fine-tuning of brain networks to individuals' behaviours and their environment.

Adolescence starts with the onset of puberty and ends when individuals achieve an independent role in society. Therefore substantial changes occur in the social environment during adolescence. Relationships with peers become increasingly important, individuals become responsible for their actions, and are given more and more independence. The social brain is the network of brain regions supporting our ability to process social information, from facial expressions to mental states, and to interact with others. Regions of the social brain show prolonged changes in structure, but also function, during adolescence, with for example evidence of a change in the balance of recruitment of the prefrontal and temporal cortices when individuals are mentalising, i.e. reflecting on their own and other people's thoughts. Recent research using novel experimental paradigms have shown that along this structural and functional maturation, there are prolonged cognitive and behavioural changes during adolescence, for example in the use of perspective taking, sensitivity to social exclusion and resistance to peer influence. These changes, along with the development of emotions and executive functions also taking place during adolescence, are thought to underlie behaviours that are typically associated with adolescence, such as risk taking.

**Dr. Iroise Dumontheil** is a lecturer in the department of Psychological Sciences at Birkbeck (University of London). Her research focusses on social cognition and executive functioning in adulthood, as well as their development during adolescence

## Recent publications

Dumontheil, I., & Meaburn, E. (2017). Genome-wide association study of executive functions and their genetic relationship with IQ, academic achievement and psychopathology. *Behavior Genetics an International Journal Devoted to Research in the Inheritance of Behavior in Animals and Man.*, 47(6), 704.

Magis-Weinberg, L., Blakemore, S.-J., & Dumontheil, I. (2017). Social and Nonsocial Relational Reasoning in Adolescence and Adulthood. *Journal of cognitive neuroscience*, 29 (10), 1739-1754





# Keynote speaker: Dr. Nienke van Atteveldt

Tuesday May 15<sup>th</sup> (16.45-17.45)

## **Proving or improving yourself: the neural and behavioral response to feedback and failure in adolescents**

Why do some children thrive at challenging school tasks, while others tend to avoid challenges? Why do some embrace feedback about mistakes as a learning opportunity, while it causes others to give up? In addition to actual ability, children's implicit beliefs about the nature of their abilities also impact their motivation and achievements. Ability beliefs range from viewing abilities as "entities" that cannot be improved much by effort (entity beliefs), to believing that they can increase with effort and time (incremental beliefs). Importantly, ability beliefs shape which goals a student pursues at school: proving themselves (performance goals) or improving themselves (learning goals). To investigate how beliefs and goals result in different responses to challenges and setbacks, we start from the proposition that a child's dominant goal orientation at school may influence learning-related information selection and decision-making. This is based on previous neuro-imaging evidence for the profound top-down influence of behavioral goals on selective information processing. In this talk, I will present an overview of our ongoing behavioral and neuro-imaging studies into how beliefs and goals influence learning processes at the behavioral and neuronal level in the developing adolescent's brain.

**Dr. Nienke van Atteveldt** is Associate Professor at the section of Clinical Developmental Psychology at the Free University of Amsterdam. Her research focusses on the underlying mechanisms of motivation and resilience in high school students.

## **Recent publications**

De Kraker-Pauw, E., van Wesel, F., Krabbendam, L., & van Atteveldt N. (in press). Teachers' mindsets on malleability of intelligence and appraisal of achievement in the context of feedback. *Frontiers in Educational Psychology*.

Schuijjer, J.W., De Jong, I.M., Kupper, F., & Van Atteveldt, N.M. (2017). Transcranial Electrical Stimulation to Enhance Cognitive Performance of Healthy Minors: A Complex Governance Challenge. *Frontiers in Human Neuroscience*, 11:142.





# Keynote speaker: Prof. Jaap Denissen

Wednesday May 16<sup>th</sup> (15.10-16.10)

## Personality-environment transactions across the lifespan

Does the environment determine the way that our personalities are shaped, or do we instead shape our environment? This basic question has been at the center of much scientific debate. The talk will contrast static models of personality traits with more dynamic-interactionist models. In the first part of the talk, a selection of research findings will be presented to demonstrate that traits are affected by situational influences (e.g., social relationships and social norms). Evidence is also presented that traits are partly shaped by dynamic fluctuations of daily social-emotional processes. While this evidence favors an interpretation of personality as an open system, it is also clear that the malleability of personality is not unlimited. This means that establishing an optimal fit between an individual's stable characteristics and his or her environment can be important. To illustrate, evidence is presented that the fit between personality and job characteristics predicts adolescent victimization and adult job earnings.

**Prof. Dr. Jaap Denissen** is full Professor in the unit of Developmental Psychology at Tilburg University. His research focusses on personality and identity formation throughout adolescence and adulthood.

## Recent publications

Schwaba, T., Luhmann, M., Denissen, J.J.A., Chung, J.M.H., & Bleidorn, W. (2018). Openness to experience and culture-openness transactions across the lifespan. *Journal of Personality and Social Psychology*

Bleidorn, W., & Denissen, J.J.A. (2018). Personality and life transitions in early adulthood. In O. P. John & R. W. Robins (Eds.), *Handbook of personality: Theory and research.*: Guilford



# Detailed program VNOP conference 2018

## Day 1, Tuesday May 15th

9.00 – 10.00	Registration Hang up posters	Ground Floor (Lounge) Terraszaal
10.00 – 10.30	Opening	Ir Haakzaal
10.30 – 11.30	Keynote speaker 1: Dr. Iroise Dumontheil <b>Social cognition during adolescence</b>	Ir Haakzaal
11.30 – 11.45	Group photo	Terraszaal
11.45 – 12.45	Lunch	Restaurant
12.45 – 14.00	Parallel symposia round 1	

### **Symposium 1A**

**Hoeversteinzaal**

**ESM in developmental psychology: emotional reactivity in children, adolescents, and adults** - *Chair: Eeske van Roekel*

**S1A.1** Operationalizing and analyzing emotion dynamic patterns in children and adolescents: A systematic review – *Anne Margit Reitsema, University of Groningen*

**S1A.2** Appraisals of everyday situations and the association with positive and negative affect in adolescents – *Sjoerd van Halem, Tilburg University*

**S1A.3** Acute stress responses after indirect exposure to the MH17 airplane crash – *Bertus F. Jeronimus, University of Groningen*

**S1A.4** Self-disclosure in the flow of daily life: Associations with positive and negative affect – *Eeske van Roekel, Tilburg University*

### **Symposium 1B**

**Ir Haakzaal**

**Social functioning in preschoolers: Prosocial behavior, empathy, and links to victimization** - *Chair: Yue Song, Utrecht University*

**S1B.1** Happy little benefactors or happy little victimizers? Young children's happiness following prosocial and antisocial behavior– *Anouk van Dijk, Utrecht University*

**S1B.2** Facial emotional mimicry as an indicator of empathy in 3- and 5-year-olds – *Stefania Vacaru, Radboud University*

**S1B.3** Does Maternal Time, Autonomy Encouragement/Discouragement, and Negative Emotionality Matter in Preschoolers Empathy and Behavior Problems? - *Shuyang Dong, Utrecht University & Capital Normal University, China*

**S1B.4** The Role of Early Childhood Social Behavior in the Development of Peer Victimization – *Loes Pouwels, Erasmus University Rotterdam*

**Symposium 1C**

**Peppelzaal**

**Parenting Dynamics Within Individual Parent-Child Dyads**

*Chair: Savannah Boele, Tilburg University*

**S1C.1** Dynamics between parenting and adolescent adaptation: A systematic review of processes within parent-adolescent dyads – *Savannah Boele, Tilburg University*

**S1C.2** Do you want to know a secret? An empirical example of Random-Intercept Cross-lagged Panel Models (RI-CLPM) on the link between secrecy and privacy invasion – *Evelien Dietvorst, Tilburg University*

**S1C.3** Behavioral Parenting Training: How do we know how it works? – *Joyce Weeland, University of Amsterdam*

**14.00 – 14.15** Coffee break

*Terraszaal*

**14.15 – 15.30** Parallel symposia round 2 & teaching workshop

**Symposium 2A**

**Ir Haakzaal**

**Biological responses to social stress and the development of internalizing problems in adolescents: evidence from birth to adolescence**

*Chair: Marieke Buil, Erasmus University Rotterdam*

**S2A.1** The relation between infant freezing and the development of internalizing symptoms in adolescence: A prospective longitudinal study – *Hannah Niermann, Radboud University*

**S2A.2** The Role of the Mineralocorticoid Receptor in Social Behavior During Adolescence – *Hinke Endedijk, Utrecht University*

**S2A.3** Temporal Aspects of Methylation and Internalizing Problems in Adolescence: Stress Reactivity and Information Processing as Links Between Genetics and Behavior – *Flore Geukens, KU Leuven*

**S2A.4** Bullying-Victimization, DNA Methylation and the Development of Anxiety: A Longitudinal Study from Birth to Adolescence - *Marieke Buil, Erasmus University Rotterdam*

**Symposium 2B**

**Hoevesteinzaal**

**Understanding loneliness in adolescence: Predictors, consequences and underlying mechanisms**

*Chair: Luc Goossens, KU Leuven*

**S2B.1** Predictors of loneliness in adolescence: Belongingness Needs and social perception variables – *Maaïke Verhagen, Radboud University*

**S2B.2** The developmental interplay among loneliness, social anxiety symptoms, and depressive symptoms across adolescence – *Sofie Danneel, KU Leuven*

**S2B.3** Examining prospective relations between loneliness, self-esteem and depressive symptoms in adolescence – *Ellen Jongen or Sanny Smeekens, Open University*

**Teaching Workshop**

**Peppelzaal**

**T1. Activating methods in clinical teaching (Chair: Brenda Jansen)**

Flipping the classroom, e-learning, activating didactics for small and larger groups. What are the best-practices and how could these methods be applied to our ‘expensive’ skills training courses. How can we collaborate in this and strengthen the education of developmental-/ Child and Adolescent Psychologists?

<b>15.30 – 16.45</b>	Poster session		<i>Terraszaal</i>
	15.30 – 16.00	<b>P1.1 – P1.11</b>	
	16.15 – 16.45	<b>P2.1 – P2.10</b>	
	VNOP board meeting		<i>Hoevesteinzaal</i>
<b>16.45 – 17.45</b>	Keynote speaker 2: Dr. Nienke van Atteveldt		<i>Ir Haakzaal</i>
	<b>Proving or improving yourself: the neural and behavioral response to feedback and failure in adolescents</b>		
<b>17.45 – 18.45</b>	General assembly VNOP members & award ceremony Three researchers have been shortlisted for the VNOP dissertation prize: Meike Slagt, Milica Nikolic, and Loes Pouwels. Before the winner is announced, each of these nominees will give a short presentation about their work.		
<b>18.45 – 20.15</b>	Dinner		<i>Terraszaal</i>
<b>20.30 – late</b>	Party with live music (see page 17 for details)		<i>Café Loburg</i>

## Day 2, Tuesday May 16th

9.00 – 9.30	Registration	Ground Floor (Lounge)
9.30 – 10.45	Parallel symposia round 3	

**Symposium 3A** **Hoevesteinzaal**  
**Emotion regulation in children and adolescents: strategies, correlates and malleability**

*Chair: Lysanne te Brinke*

**S3A.1** Think Cool, Act Cool: Disentangling the cognitive and behavioral components of emotion regulation – *Lysanne te Brinke, Utrecht University*

**S3A.2** Effectiveness of traditional and third wave emotion regulation strategies in children – *Joyce Weeland, University of Amsterdam*

**S3A.3** Effects of emotion regulation instructions on children's sadness feelings and facial expressions – *Annemiek Karreman, Tilburg University*

**S3A.4** Can you change your feelings, by thinking differently? Effects of emotion regulation instructions and parenting behaviors on children's experienced emotions - *Odilia Laceulle, Utrecht University*

**Symposium 3B** **Ir Haakzaal**  
**The power of peers: the influence of individual and contextual factors on social interactions during childhood and adolescence**

*Chair: Elisabeth Schreuders*

**S3B.2** Peer Rejection and the Development of Elementary School Children's Sharing Behavior With Peers – *Susanne Asscheman, VU University Amsterdam*

**S3B.3** Investigating the role of peer identity as social rewards in a GoNogo paradigm *Miriam Hollarek, VU University Amsterdam*

**S3B.4** Ventral striatum activity for rewards for friends: The role of friendship stability - *Elisabeth Schreuders, Leiden University*

**Symposium 3C** **Peppelzaal**  
**Current trends in developmental research on decision making**

Chair: *Tycho Dekkers, University of Amsterdam*

**S3C.1** What I do and what I say I do: Relating task-related and self-reported risk-taking tendencies to the neural processing of decision-making under risk and ambiguity in adolescence – *Neeltje Blankenstein, Leiden University*

**S3C.2** How children combine their own judgment with that of others; Sequential versus integrative perceptual decision making – *Jacqueline N. Zadelaar, University of Amsterdam*

**S3C.3** Learning from social interactions: Development of adaptive social decision making across adolescence – *Bianca Westhoff, Leiden University*

**S3C.4** Social influences on risky decision-making in adolescents with ADHD: the impact of peer pressure and parental monitoring – *Tycho Dekkers, University of Amsterdam*

**10.45 – 11.00** Coffee break *Terraszaal*

**11.00 – 12.15** Parallel symposia round 4

**Symposium 4A**

**Ir Haakzaal**

**Externalizing behavior during childhood and adolescence: Unraveling the underlying neurobiological mechanisms.**

Chair: *Marieke Bos, Leiden University*

**S4A.1** Longitudinal structural brain development and externalizing behavior in adolescence – *Marieke Bos, Leiden University*

**S4A.2** Behavioral and neural correlates of delay and effort discounting in ADHD – *Gabry Mies, Radboud University*

**S4A.3** Neural mechanisms of social-emotional dysfunction in criminal justice-involved boys with conduct disorder – *Eduard Klapwijk, Leiden University*

**S4A.4** Resting RSA and Heart Rate Reactivity to Sadness-inducing Stimuli in ODD/CD Boys, With and Without Comorbid Anxiety Disorder - *Jarla Pijper, Utrecht University*

**Symposium 4B**

**Peppelzaal**

**Social experiences, psychophysiology and behavioural problems**

Chair: *Pia Behnsen*

**S4B.1** Relational Peer Victimization in Elementary School Relates to Heart Rate and Perceived Stress – *Pia Behnsen, Free University of Amsterdam*

**S4B.2** Risk-taking and the Autonomic Nervous System Reactivity in Elementary School Children – *Jacintha Tieskens, Free University of Amsterdam*

**S4B.3** Childhood Adversity and Levels of Cortisol and DHEA In Adolescence – *Lotte van Dammen, Groningen University*

**S4B.4** Grey matter development is differently modulated by early-life and current pubertal stressful experiences - *Anna Tyborowska, Donders Institute Nijmegen*

**Symposium 4C**

**Hoevesteinzaal**

**Parenting Under the Microscope**

*Chair: Patty Leijten, University of Amsterdam*

**S4C.1** Transactional relationships between parental self-efficacy, attributions, and behaviors during moment-to-moment parenting situations – *Jorg Huijding, Utrecht University*

**S4C.2** Turning parenting goals into action: A field experiment on parents' goal-orientations for improving parenting behavior – *Jolien van Aar, University of Amsterdam*

**S4C.3** Observed sensitivity in early childhood and academic achievement in early adolescence: Different influences of mother and father? – *Nicole Lucassen, Erasmus University Rotterdam*

**S4C.4** Are relationship enhancement and behavior management “The Golden Couple” for reducing disruptive child behavior? Two meta-analyses 4 - *Patty Leijten, University of Amsterdam*

**12.15 – 13.15**

Lunch

*Restaurant*

**13.15 – 14.00**

Parallel flash talks round 1 & teaching workshop

**Flashtalks round 1A\***

**Ir Haakzaal**



**FT1A.1** Visual emotion processing in deaf children with a cochlear implant  
– *Yung-Ting Tsou, Leiden University*

**FT1A.3** Giving to Friends, Classmates, and Strangers in Adolescence  
– *Suzanne van de Groep, Leiden University*

**FT1A.4** Bidirectional relation between Empathy and Friendship  
Development in Youngsters with and without Developmental Language  
Disorder: a Longitudinal study – *Neeltje van den Bedem, Leiden University*

**FT1A.5** Parenting and Adolescent Self-Control: A Multi-Level Meta-  
Analysis  
- *Yayouk Willems, Free University of Amsterdam*

**FT1A.6** Feeling conflicted about who you are: Bicultural adolescents'  
ambivalence toward their bicultural identity – *Sheida Novin, Utrecht  
University*

**Flashtalks round 1B\***

**Hoevesteinzaal**

**FT1B.2** Early Childhood Markers of (Mal)Adaptive Functioning in Emerging  
Adulthood: A 16-Year Follow-Up Study – *Ildeniz Arslan, Erasmus  
University Rotterdam*

**FT1B.3** What characterizes adolescents who have difficulties with making  
academic choices? – *Laura van der Aar, Leiden University*

**FT1B.4** Heterogeneity in cognitive and socio-emotional functioning in  
adolescents with on-track and delayed school progression – *Nikki Lee,  
Vrije Universiteit Amsterdam*

**FT1B.5** Dynamic Transactions between Neuroticism and Negative Daily  
Experiences in Adolescence – *Jeroen Borghuis, Tilburg University*

**FT1B.6** Maternal Postnatal Psychosocial Distress and Its Association With  
Cortisol Levels and Immunological Composition in Breast Milk - *Pamela  
Browne, Radboud University*

\*Cancelled Flash Talks have been removed from the program

**Teaching Workshop**

**Peppelzaal**

**T2.** *Internationalization of education (Chair: Helen Bakker)*

What does this mean for teaching clinical skills? How can we prepare  
students both for the Dutch and international professional practice?

How can we provide appropriate internships for international students?  
But also, how can we promote integration of international students in  
our educational programs?

**14.00 – 14.05**      Short break

**14.05 – 14.50**      Parallel flash talks round 2 & teaching workshops

### **Flashtalks round 2A**

### **Ir Haakzaal**

**FT2A.1** Midfrontal theta power reactivity to unexpected peer rejection feedback: An individual differences approach – *Elise Kortink, Leiden University*

**FT2A.2** Interpretation bias and social anxiety in Chinese adolescents: Cultural replication and comparison - *Meng Yu, Beijing Normal University; Leiden University*

**FT2A.3** The Incredible Years Teacher Classroom Management programme: a mixed methods systematic review – *Elizabeth Nye, University of Oxford*

**FT2A.5** Tree typology of adolescent personality pathology – *Amy See, Tilburg University*

**FT2A.6** A Single Latent Developmental Dimension: Dynamics, Strategies, and Variability - *Jan Boom, Utrecht University*

**FT2A.7** Specificity of implicit and explicit measures of math anxiety in the prediction of math related outcomes using a multitrait-multimethod approach – *Eva Schmitz, University of Amsterdam*

### **Flashtalks round 2B**

### **Hoevesteinzaal**

**FT2B.1** Cross-Cultural Comparison of Early Adolescents' Risky Decision Making – *Joshua Weller, Tilburg University*

**FT2B.2** Typologies of Childhood Adversity and Disparities for Sexual and Gender Minority Youth – *Laura Baams, University of Groningen*

**FT2B.3** Self-reliance, social capital and help seeking in at-risk youth: A qualitative study – *Loïs Schenk, Erasmus University Rotterdam, Margriet Lenkens, Erasmus MC / Research bureau IVO*

**FT2B.4** Maternal Postnatal Psychosocial Distress: Associations with the Breast Milk Microbiome – *Pamela Browne, Radboud University*

**FT2B.5** Paternal and Maternal Self-Control and Child Aggression: Household Chaos and Parental Mindfulness as Moderators – *Marike Deutz, Utrecht University*

**FT2B.6** Individual Differences in Infant's Visual Attention as Predictors of Toddler's Self-Regulation: A Multi-Method Longitudinal Study - *Sanne Geeraerts*

**FT2B.7** Simulating theoretical models: how it works and why it is useful – *Mandy van der Gaag, University of Groningen*

**Teaching Workshop**

**Peppelzaal**

**T2.** *Internationalization of education (Chair: Helen Bakker)*

What does this mean for teaching clinical skills? How can we prepare students both for the Dutch and international professional practice? How can we provide appropriate internships for international students? But also, how can we promote integration of international students in our educational programs?

<b>14.50 – 15.10</b>	Coffee break	<i>Terraszaal</i>
<b>15.10 – 16.10</b>	Keynote speaker 3: Prof. Jaap Denissen <b>Personality-environment transactions across the lifespan</b>	<i>Ir Haakzaal</i>
<b>16.10 – 16.15</b>	Closing	<i>Ir Haakzaal</i>

# Abstracts for parallel symposia

**Tuesday, May 15<sup>th</sup> 12.45 - 14.00**

**Parallel symposia round 1**

## **Symposium 1A**

### **ESM in developmental psychology: emotional reactivity in children, adolescents, and adults**

In recent years, there has been an increase in the use of the Experience Sampling Method in developmental psychology. This symposium integrates four ESM studies exploring different forms of emotional reactivity in children, adolescents, and adults. Paper 1 presents findings from a systematic review of ESM studies on emotion dynamic patterns in children and adolescents, focusing on how emotion dynamics are operationalized and analyzed in these age groups. Paper 2 illustrates how appraisals of everyday situations are associated with positive and negative affect in adolescents. Paper 3 examines whether exposure to the MH17-airplane crash in the Ukraine was associated with affective and somatic responses in Dutch adults, and whether these responses were moderated by age, media exposure and personality traits. Finally, paper 4 presents findings of reciprocal associations between self-disclosure (social sharing) and positive and negative affect in young adults.

*Chair: Eeske van Roekel*

#### **S1A.1 Operationalizing and analyzing emotion dynamic patterns in children and adolescents: A systematic review** – *Anne Margit Reitsema, University of Groningen*

A fundamental characteristic of emotions is their dynamic nature. Technological developments in the field of ecological momentary assessment (EMA) have made it possible to assess dynamic changes in emotions over time and across situations and how these emotions are affected by context. This has given rise to a new surge of research into the temporal dynamics of emotions (e.g., variability, blunting, inertia) and their associations with a wide range of indicators of psychological well-being and ill-being. We present results from a systematic review of EMA studies of emotion dynamics in children and adolescents. As this is a relatively new field, we focus on the broader question of how characteristics of emotion dynamic patterns are operationalized and analyzed in research of emotional change amongst children and adolescents. Key dynamical characteristics that can be assessed and analyzed in emotion research are discussed and outlined with examples of studies amongst child and adolescent populations.

#### **S1A.2 Appraisals of everyday situations and the association with positive and negative affect in adolescents** – *Sjoerd van Halem, Tilburg University*

Emotions not only play a central role in our everyday life, scholars also widely acknowledge their significance in shaping our behaviors and influencing our physical and mental well-being over longer periods of time. Defined as a conscious state, and

although often accompanied by physiological changes, emotions are slow arising and dissipate, and generally caused by cognitive appraisals of one's direct environment. While emotions are assumed to be a product of conscious cognitive appraisals of everyday situations and events, how a situation is perceived, and even which situations are encountered or selected, are dependent on the dynamical emotional patterns people show across time. Our experience sampling study is aimed at disentangling and exploring this reciprocal association between appraisals and emotions. Participants (N = 303, Mage = 14, 59% girls) filled out momentary assessments 9 times per day for 6 days. The first (preliminary) results will be presented at the conference.

### **S1A.3 Acute stress responses after indirect exposure to the MH17 airplane crash**

– *Bertus F. Jeronimus, University of Groningen*

People can experience disasters vicariously (indirect) via conversation, social media, radio, and television, even when not directly involved in a disaster. This study examined whether vicarious exposure to the MH17-airplane crash in the Ukraine, with 196 Dutch victims, elicited affective and somatic responses in Dutch adults about 2600 kilometres away, who happened to participate in an ongoing diary study. Participants (n=141) filled out a diary three times a day for 30 days on their smartphones. Within-person changes in positive affect (PA) and negative affect (NA) and somatic symptoms after the crash were studied. Additionally, we tested whether between-person differences in response could be explained by age, baseline personality (NEO-FFI-3), and media exposure. Results are presented at the symposium, to keep it interesting.

### **S1A.4 Self-disclosure in the flow of daily life: Associations with positive and negative affect**

– *Eeske van Roekel, Tilburg University*

Self-disclosure is referred to as the process of sharing one's emotions and thoughts with close others. Self-disclosure has different functions, varying from venting one's emotions, to coping with negative events or stressors by receiving social support, to getting feedback on one's thoughts and emotions from others (e.g., Rimé, 2016). Although there is a large research tradition exploring between-person differences in self-disclosure, little is known about self-disclosure in the ebb and flow of real life and how it is associated with positive and negative affect. The aim of the present study is to explore how positive and negative affect and self-disclosure to friends and romantic partner are reciprocally associated within the ebb and flow of daily life of young adults. Participants (N = 228) filled out momentary questionnaires about self-disclosure and positive and negative affect 5 times per day, for 11 consecutive days. Reciprocal associations between self-disclosure and positive and negative affect were analyzed using the Dynamic SEM package in Mplus 8. Results will be presented at the conference.

## **Symposium 1B**

### **Social functioning in preschoolers: Prosocial behavior, empathy, and links to victimization**

The preschool years (age 3-5) are a critical stage in children's social development, characterized by rapid advances in children's social-cognitive skills and increasing exposure to peer contexts. The current symposium brings together research on the origins and development of social functioning in preschoolers. The first presentation

addresses happiness as intrinsic motivator of social behavior: Will three-year-olds experience (more) happiness following prosocial or antisocial behavior? The second presentation addresses the developmental trajectories affective and cognitive empathy in 3- and 5-year-olds. Using facial emotional mimicry as an indicator of empathy, this study tests whether affective empathy precedes the emergence of cognitive empathy. The third presentation reports on longitudinal predictors of children's empathetic behavior. Results revealed that mothers' time spend with children at 25 months positively predicted children's empathetic behaviors at 60 months. The fourth presentation reports on the role of social behavior at age 5 in the development of peer victimization from 9 to 13 years of age. Results showed that externalizing behavior at age 5 predicted victimization from age 9 to age 13, especially for children with low ego-resiliency. Together these studies shed light on the early affective and cognitive underpinnings of social behavior in preschoolers, and its effects on children's later well-being.

*Chair: Yue Song, Utrecht University*

**S1B.1 Happy little benefactors or happy little victimizers? Young children's happiness following prosocial and antisocial behavior – Anouk van Dijk, Utrecht University**

There has been a longstanding debate on the social nature of human beings. Are we naturally inclined towards prosocial or antisocial behavior? This research focuses on preschoolers' happiness following prosocial and antisocial behavior to address this question. We test two rivalling perspectives. The happy benefactor perspective predicts preschoolers will feel happy following prosocial behavior (e.g., sharing) because humans have evolved to experience emotions that promote cooperation (Aknin et al., 2012). The happy victimizer perspective predicts preschoolers will feel happy following antisocial behavior (e.g., stealing) because, lacking perspective-taking skills, they focus on their own gain (Malti & Dys, 2015). The present study is the first to investigate both perspectives within one paradigm. Sixty 3-year-old children will play 4 trials of a candy distribution game (dictator game)—each round with another puppet. In 2 baseline trials, we allocate candies to children only or puppets only. In 2 experimental trials (order counterbalanced), we prompt children to either share or steal candies (“will you give/take some candies to/from puppet?”). We will assess children's happiness following each trial using observation and self-report. Data will be collected in March-April 2018. The happy benefactor perspective predicts children that will show more happiness in sharing vs. baseline trials. The happy victimizer perspective predicts that children will show more happiness in stealing vs. baseline trials. Our design also allows for the hypothesis that both perspectives may hold. Accordingly, we will use Bayesian analyses to quantify evidence in support of each perspective.

**S1B.2 Facial emotional mimicry as an indicator of empathy in 3- and 5-year-olds – Stefania Vacaru, Radboud University**

Facial mimicry is the unconscious imitation of another's facial expression, depending on the interpretation and understanding of it (Hess & Fischer, 2013). One mechanism that may enable mimicry of emotional expressions is empathy, defined as the ability to share another's affective and cognitive state (Baron-Cohen & Weelwright, 2013). Adults' facial

mimicry is positively associated with both affective and cognitive empathy (Van Der Graaff et al., 2016). Yet, while the former is thought to be present from early in development, the latter only develops from the age of five. Previous findings have shown that three-year-olds mimic static facial expressions of happiness, but not anger and fear, (Geangu et al., 2016), and hence the role of empathy in the emergence of facial mimicry remains unknown. To tease apart the unique contributions of affective and cognitive empathy to facial mimicry of emotional expressions, this study investigates facial mimicry to distinct emotions (i.e. happiness, pain, disgust) in three- and five-year-old children, when there is direct visual access to the face and when there is no visual access to the face. We hypothesized that all children will mimic facial expressions when the face is visible, underpinned by affective empathy. Yet only 5- but not 3-year-olds can infer the emotions without access to the face, underpinned by cognitive empathy, and hence will mimic these emotions. We will test 80 children, and thus far we tested 26. These findings will elucidate the role of distinct empathic abilities in the emergence of facial mimicry during early development.

### **S1B.3 Does Maternal Time, Autonomy Encouragement/Discouragement, and Negative Emotionality Matter in Preschoolers Empathy and Behavior Problems? – Shuyang Dong, Utrecht University & Capital Normal University, China**

The autonomous motivation to help is important for prosocial behaviors. Although it has been found that autonomy support promotes empathetic behaviors and prosocial behaviors in adults, it is unknown whether parental autonomy-supportive practice will affect children's empathy, which, usually, is recognized as a protective factor against behavior problems at preschool ages. It is also less investigated in past research that if temperamentally difficult toddlers will display differential susceptibility to parental autonomy-supportive and autonomy-thwarting practices, especially for their preschool outcomes like empathy and behavior problems. Moreover, the heated debate about the effects of parental time with children on socio-emotional outcomes stimulates the researchers to pay attention to not only the quality of parental practices but also the quantity of them. Thus, drawing from 2-wave data from a longitudinal study of Chinese children and their families, the current study addresses the research gaps by examining whether children's negative emotionality at 25 months will moderate the impacts of 25 months maternal autonomy-encouragement and autonomy-discouragement on the 60-month-olds' observed empathy and mother-reported empathy and behavior problems. Maternal time at 25 months is also tested for the associations with preschool empathy and behavior problems. The results showed that preschoolers' empathetic concern was negatively related to behavior problems, but was positively predicted by maternal time 3 years before. The 3-way interaction of maternal autonomy discouragement  $\times$  negative emotionality  $\times$  maternal time was positively associated with mother-reported empathy at 60 months. These findings indicated that maternal time in toddlerhood makes a unique contribution to preschool empathetic behaviors.

### **S1B.4 The Role of Early Childhood Social Behavior in the Development of Peer Victimization – Loes Pouwels, Erasmus University Rotterdam**

Children who deviate from social norms by displaying externalizing or internalizing behavior, are at risk for victimization by peers. However, the impact of externalizing and internalizing on victimization may change with age, due to developmental variation in the



normativity of externalizing and internalizing behavior. Thus, to get insight into the early prevention of adolescent peer victimization, it is important to examine early childhood predictors of adolescent victimization. We therefore conducted an 8-year longitudinal study to predict children's level of peer victimization at age 9 (intercept) and change in victimization from age 9 to age 13 (slope) from their social behaviors at age 5. We also examined whether ego-resiliency was a protective factor in this association.

Participants were 96 children (48% girls) whose teachers completed the Teacher Report Form and the California Child Q-set at age 5 to assess externalizing and internalizing behavior, and ego-resiliency, respectively. Children completed the Olweus Bully/Victim Questionnaire at ages 9, 12, and 13 to assess victimization. Separate multi-level growth curve models were run to predict trajectories of victimization from internalizing and externalizing behaviors. Findings revealed that children with high levels of externalizing behavior in early childhood experienced chronic peer victimization from age 9 to 13, especially if they had low levels of ego-resiliency. In contrast, ego-resilient children with low levels of externalizing behavior in early childhood experienced average levels of peer victimization at age 9 that gradually decreased over time. Internalizing behavior in early childhood was not related to peer victimization throughout middle childhood and adolescence.

### **Symposium 1C**

#### **Parenting Dynamics Within Individual Parent-Child Dyads**

Thousands of studies on parenting, focusing on group-level estimates, have provided valuable insights into differences between parent-child dyads. Whether or not such (sub)group level estimates also inform us about causal mechanisms at the level of the individual parent-child dyads, is a matter of methodological concern (Hamaker, 2012). Some first studies examining both levels, suggest that estimates at the group-level versus the individual parent-child dyad level provide unique pieces of information, which are not necessarily linked (Keijsers, 2015). Hence, there are valuable insights to be gained at the level of the individual parent-child dyad, above and beyond the study of group-level estimates. This symposium compiles a set of studies on processes in individual parent-child dyads, using diverse methodology. The first study to be presented is a systematic review of studies examining multivariate processes of parenting and adolescent adaptation within individual parent-adolescent dyads, as well as a conceptual framework for studying these processes and suggestions for future research. The second study is a longitudinal study ( $N = 244$ ,  $t = 3$ ) about parental privacy invasion and adolescent secrecy, showing opposing findings at the between parent-adolescent dyad level and within parent-adolescent dyad-level. The third study ( $N = 378$ ) is a three-wave observational study with a RCT component, examining real-time dynamics between parents and their school-aged children following an intervention for children's problem behavior. Together, these papers contribute to our understanding about the dynamics between parents and children and will hopefully provide inspiration for future studies, instigated by a discussant from the parenting field.

*Chair: Savannah Boele, Tilburg University*

**S1C.1 Dynamics between parenting and adolescent adaptation: A systematic review of processes within parent-adolescent dyads – Savannah Boele, Tilburg University**

Although parenting theories describe processes at the level of the individual parent-adolescent dyad (e.g., attachment theory, coercion theory), empirical studies on parenting demonstrating differences between parent-adolescent dyads still overshadow studies that actually examined within-dyad processes. The current systematic review is to our knowledge the first to synthesize studies on multivariate processes of parenting and adolescent adaptation within individual parent-adolescent dyads (i.e., correlated over-time differences that can be observed within an individual dyad).

To illustrate the oversight of dyadic processes, PsycINFO provides roughly 22,000 hits for studies on parenting in adolescence (using the terms parent\* and adolescen\*), whereas the database search of the current review (i.e., PsycINFO, PsycARTICLES, Psychological and Behavioral Sciences Collection, MEDLINE, Social Sciences Citation, and ERIC), including specific terms relating to the within-dyad level, resulted in only 197 unique hits. Of these 197 unique hits, around 30 eligible studies remained. In our presentation, we will provide an overview of the eligible studies. The studies involved repeated measurements and multilevel analyses indicating change in an individual parent-adolescent dyad over time, both in parenting and adolescent adaptation. Topics included parental involvement and monitoring and adolescent externalizing and internationalizing problem behavior. Moreover, we will provide a conceptual model of how parenting and adolescent adaptation processes can be studied at the level of the individual parent-adolescent dyad and make suggestions for prospective studies in order to enhance future research.

**S1C.2 Do you want to know a secret? An empirical example of Random-Intercept Cross-lagged Panel Models (RI-CLPM) on the link between secrecy and privacy invasion – Evelien Dietvorst, Tilburg University**

Parenting processes take place at the level of the family unit. Existing longitudinal studies are increasingly critiqued for producing results that are unrelated to these causal mechanisms at the level of individual families (Hamaker, Kuiper, & Grasman, 2015). Some studies on parenting have addressed this concern (e.g., Keijsers, 2015; Smetana, Villalobos, Rogge, & Tasopoulos-Chan, 2010) providing the intriguing suggestion that inferences based on research focusing at the group level (e.g., regression model), may be different from the actual parenting processes at the level of individual families. This symposium contribution applies novel Random-Intercept Cross-lagged panel models (Hamaker, Kuiper, & Grasman, 2015) on the link of privacy invasive parenting with adolescent secrecy, to come to better estimates of how parenting operates within families. The novel method allows to critically evaluate whether there are positive effects of privacy invasive parenting on secrecy at the level of a family unit.

Dutch adolescents (N =244, mean age = 13.84, 39% boys) reported three times on adolescent secrecy and perceived privacy invasion. A standard cross-lagged panel model on adolescent-perceived privacy invasion and secrecy confirmed earlier studies (e.g. Hawk et al, 2013) that privacy invasive parenting predicts increased secretive behaviours over time. However, RI-CLPM, shows a different pattern. A positive between-person correlation confirmed earlier work that in families with more secrets,

more privacy invasive behaviours occur. Within-persons, however, children were more secretive in and following periods with lower levels privacy invasion.

### **S1C.3 Behavioral Parenting Training: How do we know how it works? – Joyce Weeland,**

*University of Amsterdam*

Behavioral Parenting Training (BPT) is the gold standard for preventing and treating externalizing problem behavior in young children. However, BPT is not equally effective for all families. Moreover, we know very little about how these programs work, let alone how they work for specific subgroups of families. Although changes in parenting behavior are theorized to be the main mechanism of change, almost half of studies testing mediation in BPT trials do not support this (Forehand et al., 2014; Weeland et al., 2017). The general principles of parenting, used in BPT programs, possibly do not apply to all individual families. Indeed, pioneering studies on parenting show unique correlations between parenting and adolescent behavior (e.g., Keijsers et al., 2015; Rekker et al., 2017). These novel insights into the complexity of parenting effects show it is crucial to test mechanisms of change of BPT at the individual parent-child dyad level. Moreover, it suggests BPT might be effective not when it leads to group-level changes in the use of certain parenting techniques, but when it breaks down cycles of parent-child interactions related to children's externalizing behavior within a specific family. The current study uses three-wave observational data on 378 parent-child dyads (Magechild = 6.31, SD = 1.33, 55.3% boys) of which half received in the BPT program The Incredible Years. Multilevel structural equation models with both fixed and random effects will be modelled in Mplus to assess the relation between changes in intra-family parent-child correlations and child behavior after intervention. Analyses are ongoing.

**Symposium 2A**

**Biological responses to social stress and the development of internalizing problems in adolescents: evidence from birth to adolescence**

Internalizing problems, such as anxiety and depression, and associated difficulties such as social problems, pose a major threat to adolescents' mental health and well-being. Emerging evidence emphasizes the importance of investigating biological responses to (social) stressors as an important explanatory mechanism for the development of internalizing problems and associated social difficulties. This symposium combines four state of the art longitudinal studies that explore how biological responses to social stress might explain the development of social behavior and internalizing psychopathology. The first study focuses on the role of the Mineralocorticoid Receptor (MR) in social behavior and its link with the development of internalizing psychopathology throughout adolescence. In the second study, it was investigated whether infants' stress responses predicted the development of internalizing psychopathology from infancy to adulthood and whether the serotonin transporter gene (SERT) might modify this association. The third and fourth study will elaborate on the role of changes in DNA methylation (DNAm) of stress-related genes as a response to social stress, in the development of internalizing psychopathology in adolescence. Together, these studies provide inside in how early social stress might get under the skin of the affected child by influencing biological stress-responses and thereby might explain the development of internalizing and social problems in adolescence

*Chair: Marieke Buil*

**S2A.1 The relation between infant freezing and the development of internalizing symptoms in adolescence: A prospective longitudinal study – Hannah Niermann, Radboud University**

Given the long-lasting detrimental effects of internalizing symptoms, there is great need for detecting early risk markers. One promising marker is freezing behavior. Whereas initial freezing reactions are essential for coping with threat, prolonged freezing is associated with internalizing psychopathology. However, it remains unknown whether early life alterations in freezing reactions predict changes in internalizing symptoms. In a longitudinal study, we tested prospectively whether observed freezing in infancy predicted the development of internalizing symptoms from childhood through late adolescence (n=116). In line with the role of serotonin in freezing behavior and in the development of internalizing symptoms in animals, we also explored whether individuals carrying internalizing-risk alleles of the functional variant in the gene encoding the serotonin transporter (SLC6A4; called 5-HTTLPR) display alterations in freezing responses as infants. The results suggest that both longer and absent infant freezing-behavior during a standard challenge (robot-confrontation task) were associated with internalizing symptoms in adolescence. Specifically, absent infant freezing predicted a relative increase in internalizing symptoms consistently across adolescence. Longer infant freezing also predicted a relative increase in internalizing symptoms in early adolescence, which was moderated by peer stress. In line with animal work, exploratory

analyses further propose that S' homozygotes of the 5-HTTLPR/r25531 polymorphism showed more deviant (i.e., absent and longer) freezing than L' carriers. These findings suggest that early deviations in defensive freezing responses signal risk for internalizing symptoms and may be important markers for stress-vulnerability and resilience studies.

### **S2A.2 The Role of the Mineralocorticoid Receptor in Social Behavior During Adolescence** – *Hinke Endedijk, Utrecht University*

High levels of stress have negative programming effects on the HPA-axis causing abnormal stress responses. Thereby, stress alters the development of the prefrontal cortex, resulting in different processing of social behavior and an increased chance for disorders like depression and anxiety. Mainly adolescents might be vulnerable in this respect, as during adolescence rapid development of the prefrontal cortex takes place. Stress triggers release of cortisol via recruitment of the mineralocorticoid receptor (MR). A growing body of evidence proposes MR as an important resilience factor in humans and rodents. Yet, it is unclear which role MR plays in the relation between stress and social behavior during adolescence. We followed a group of 343 adolescents between the age of 13 and 26 years. Adolescents completed questionnaires at 9 waves, and genetic data was collected. Results show a protective effect of MR for girls, but not for boys, for anxiety and depression. For social behaviors, MR was a risk factor for adolescents that experienced stress during adolescent years, but protective over time for adolescents with early childhood traumas. MR was for example protective for the perspective taking scales of these adolescents and for the prosocial behaviors of boys with early childhood traumas. Difference between adolescent stress and early childhood stress will be discussed based on the timing, intensity and frequency of traumatic life events. The current study hereby extends previous knowledge about the role of MR to the development of social behavior during the crucial developmental period of adolescence.

### **S2A.3 Temporal Aspects of Methylation and Internalizing Problems in Adolescence: Stress Reactivity and Information Processing as Links Between Genetics and Behavior** – *Magali Van de Walle, presented by Flore Geukens, KU Leuven*

The Methylation in Development (MIND) project aims to provide a comprehensive picture of the role that methylation plays in the development of internalizing problems (i.e., depressive symptoms, loneliness, and social anxiety) in adolescence. A large group of young adolescents (N = 600; 10 years of age) will provide a saliva sample and complete measures of internalizing problems at three waves with a one-year interval. At Wave 2, a subgroup will be given an objective stress task (i.e., the Trier Social Stress Test for Children; TSST-C) and a computer-administered information processing task. Three issues will be addressed. First, the degree of methylation in the promoter region of several genes that are linked to the stress system, for instance, the glucocorticoid receptor gene (NR3C1), the serotonin receptor gene (SLC6A4), and the oxytocin receptor gene (OXTR), will be related to the level of internalizing problems at Wave 1. Second, correlations among the methylation levels at the three waves will be examined to study the neglected topic of methylation stability over time (Waves 1 to 3). In addition, changes in methylation levels across time will be related to changes in internalizing problems across the same time interval. Third, methylation levels will be related to stress

reactivity as observed in the objective stress task (TSST-C) and speed and accuracy when processing emotionally charged information in a computer-administered task. Preliminary findings, based on Wave 1, will be presented at the symposium and their implications for current understanding of internalizing problems in adolescence will be discussed.

#### **S2A.4 Bullying-Victimization, DNA Methylation and the Development of Anxiety: A Longitudinal Study from Birth to Adolescence - Marieke Buil, Erasmus University Rotterdam**

DNA methylation (DNAm) is a potential mechanism for propagating the effects of exposure to social stress on child and adolescent mental health (Barker, Walton, Cecil, 2017). The current study investigated whether DNAm patterns of two stress-related genes (GR and SERT) at birth, age 7 and age 15, were different for children who were chronically bullied during elementary school, versus children who were not chronically bullied. Furthermore, we investigated whether these potential DNAm differences coincided with differences in levels of anxiety symptoms. Participants were 907 children (49% boys) followed from birth to age 15. Children reported on bullying-victimization at ages 8, 10 and 12 years. DNAm levels were retrieved from cord blood samples at birth and from peripheral blood at ages 7 and 15. Parent-reports (age 7) and self-reports (age 15) were used to assess symptoms of generalized anxiety disorder (GAD). All models were controlled for important pre- and postnatal environmental stressors. Results from latent profiles analyses indicated that 62 (7%) of our sample was chronically bullied during the elementary school years and 845 (93%) was not chronically bullied. Furthermore, no differences were found between victims and non-victims DNAm levels at birth. However, from age 7 onwards, chronically victimized children had heightened DNAm levels which coincided with increasing anxiety levels from age 7 to 15, while non-victimized children showed no increases in DNAm or anxiety. Our results indicate that DNAm of SERT and GR might be an important pathogen explaining the link between bullying-victimization and internalizing psychopathology.

#### **Symposium 2B**

##### **Understanding loneliness in adolescence: Predictors, consequences and underlying mechanisms**

Satisfying social relationships are vital for good mental and physical health. Loneliness is a crucial marker of social relationship deficits and defined as the negative emotional response to a discrepancy between one's desired and actual social relationships (Peplau and Perlman, 1982). Chronic feelings of loneliness are a cause for concern. Indeed, numerous researchers have asserted that loneliness has a major influence on psychosocial problems, mental health, and physical well-being. Therefore, investigating the predictors of loneliness as well as potential mechanisms in the well-established association between loneliness and mental health problems is of crucial importance. Paper 1 examines how fulfilled versus unmet belongingness needs predict loneliness and how social perception variables (i.e., emotion recognition and social evaluation) are interrelated concurrently and over time. To gain more insights in the dynamic aspects of

the co-morbidity of loneliness and internalizing mental health problems, Paper 2 examines the prospective associations between loneliness, social anxiety and depressive symptoms. Paper 3 longitudinally examines the link between loneliness and depression across adolescence and the role of self-esteem in this link over time. Each paper specifically addresses the question how the results can inform clinical practice to prevent or reduce loneliness in adolescence. Collectively, the papers in this symposium yield new insights in the predictors, consequences, and underlying mechanisms of loneliness across the developmental range of adolescence. The papers will be discussed by an expert in the domain of loneliness.

*Chair: Luc Goossens, KU Leuven*

### **S2B.1 Predictors of loneliness in adolescence: Belongingness Needs and social perception variables** – *Maaïke Verhagen, Radboud University*

Previous work has linked high levels of belongingness needs to low well-being, suggesting that high desire for social connection causes problems, including loneliness. Against that view, we hypothesized that problems such as loneliness stem especially from unmet belongingness needs. To examine this, discrepancies between belongingness needs and relationship satisfaction were related to loneliness. In a second study, we examined how two social perception variables (i.e., emotion recognition and social evaluation) and loneliness are interrelated over time. Adolescents completed questionnaires on belongingness needs, relationship satisfaction, and loneliness, and conducted an emotion recognition and social evaluation task. A combination of polynomial regression analyses with response surface modeling examined the effects of both fulfilled and unmet belongingness needs on loneliness. Furthermore, cross-lagged analyses were used to examine how the social perception variables and loneliness were interrelated over time. Results showed that loneliness was most strongly affected by unmet belongingness needs, while fulfilled belongingness needs did not affect loneliness. The second study showed that emotion recognition and social evaluation were concurrently associated with loneliness but not over time. We add to the current knowledge by emphasizing that especially belongingness needs that exceed relationship satisfaction, regardless of the actual levels of both, contributes to loneliness. Thus, a high need to belong is detrimental only in combination with low relationship satisfaction. In addition, we did not find evidence for the possibility of adapting social perception processes to reduce levels of loneliness. Implications for clinical practice could be to prevent unmet belongingness needs, to ultimately alleviate loneliness.

### **S2B.2 The developmental interplay among loneliness, social anxiety symptoms, and depressive symptoms across adolescence** – *Sofie Danneel, KU Leuven*

Loneliness, social anxiety symptoms, and depressive symptoms often co-occur, which results, for example, in more social and academic difficulties and greater life dissatisfaction. Less is known about the dynamic aspects of the co-morbidity among these internalizing problems. The current study will contribute to the literature by investigating the prospective associations among loneliness, social anxiety, and depressive symptoms simultaneously. Three Flemish adolescent samples were used. Adolescents attended Grades 7, 8, and 9 at T1 in Sample 1 (N = 1,116; Mage = 13.79



years) and Sample 2 (N = 1,423; Mage = 13.59 years) and Grades 9 and 10 at T1 in Sample 3 (N = 549; Mage = 14.82 years). In all three samples, adolescents participated in a three-wave longitudinal study with annual measurement waves. Adolescents filled out established self-report measures of loneliness, social anxiety, and depressive symptoms during regular school hours. Two-variable and three-variable cross-lagged panel analyses were conducted using Mplus Version 7.31. In all three samples, the results of both the two-variable and three-variable models indicated that loneliness positively predicted social anxiety symptoms over time and that social anxiety symptoms predicted subsequent loneliness. These results suggest that interventions intended to alleviate either loneliness or social anxiety symptoms in adolescents should pay attention to both problems and not just to a single one of them. Longitudinal bidirectional associations between depressive symptoms and both loneliness and social anxiety symptoms were found in the two-variable models in all three samples but were not found in the three-variable models.

### **S2B.3 Examining prospective relations between loneliness, self-esteem and depressive symptoms in adolescence** – *Ellen Jongen & Sanny Smeekens, Open University*

Although relations between self-esteem and loneliness, and loneliness and depressive symptoms have been investigated intensively, no studies have investigated the developmental interplay between loneliness, self-esteem, and depressive symptoms across adolescence. We examined (1) how loneliness develops from early to middle adolescence, (2) whether loneliness predicts later depression, and (3) whether the relation between loneliness and depression is mediated by self-esteem or whether loneliness mediates the relation between self-esteem and depression. Participants were children (N between 92-108) from the Nijmegen Longitudinal Study on Infant and Child Development. Data were used from 4 measurement waves at ages 12, 13, 16 and 17. The Loneliness and Aloneness Scale for Children and Adolescents (LACA) was used to capture peer-related loneliness at ages 13 and 16. Depressive symptoms were measured with the Children's Depression Inventory (CDI) at age 12 and with the Symptom Check List (SCL-90) at age 17. Self-esteem was measured with the Rosenberg Self-Esteem Scale at ages 12 and 16. Results showed that loneliness tends to decrease from age 13 to 16. Furthermore, loneliness in early (i.e., age 13) and middle (i.e., age 16) adolescence independently predicted later depression (i.e., age 17), after controlling for prior depression. Finally, loneliness mediated the relation between self-esteem and depression, but self-esteem did not mediate the relation between loneliness and depression. This implicates that loneliness is part of the mechanism explaining how low self-esteem leads to depression and that interventions targeting both self-esteem and loneliness will be most effective in preventing or reducing depression in adolescence.

**Symposium 3A****Emotion regulation in children and adolescents: strategies, correlates and malleability**

The capacity to regulate emotions is related to children's psychosocial adjustment. Extending previous research on adaptive (e.g., reappraisal) and non-adaptive (e.g., suppression) emotion regulation strategies, the current symposium brings together a collection of studies examining more specific strategies, their correlates and malleability. The presented studies address these issues using state-of-the-art designs (i.e., experimental, psychophysiological, developmental). Specifically, the first presentation disentangles cognitive and behavioral emotion regulation strategies and explores their respective links with externalizing problem behavior in adolescence. Second, findings are presented of a controlled experiment assessing the effectiveness of traditional (e.g., reappraisal) and advanced cognitive strategies (e.g., mindfulness and self-compassion) in child regulation of negative emotions. The third presentation will zoom in on sadness regulation. Using an experimental design it is examined whether self-regulation attenuate children's sadness feelings and facial expressions. Presenting findings based on data from the same study, the symposium will conclude with a study examining whether children who are raised with more positive parenting behaviors respond differently to the emotion regulation instructions. Taken together, findings indicate the multi-faceted nature of emotion regulation in children and adolescents, and may provide a next step towards low-key training programs aimed at enhancing emotion regulation capacities.

*Chair: Lysanne te Brinke*

**S3A.1 Think Cool, Act Cool: Disentangling the cognitive and behavioral components of emotion regulation – Lysanne te Brinke, Utrecht University**

Emotion regulation is a multi-faceted construct, that includes the cognitive and behavioral processes that individuals use to modify emotional reactions. Adolescents who have difficulties to regulate emotions seem to engage more often in externalizing problem behaviors, including aggression and delinquency. These behaviors form a serious risk factor for adverse outcomes later in life, such as unemployment and crime involvement. It is important to know which aspects of emotion regulation are particularly related to externalizing problems, because this information can be used to increase intervention effectiveness. The aim of the current cross-sectional study is therefore to disentangle cognitive (i.e., restructuring, problem solving) and behavioral (i.e., distraction, physical relaxation) emotion regulation strategies. Participants were 256 Dutch adolescents between 14 and 19 years old (M age = 16.37, SD = 1.05), who filled in in the externalizing subscale of the Youth Self Report, the FEEL-KJ and a vignette measure that was designed to measure several cognitive and behavioral emotion regulation strategies. Results showed that on average, adolescents used more cognitive than behavioral emotion regulation strategies. Adaptive cognitive emotion regulation strategies were negatively related to externalizing problem behavior, whereas behavioral

regulation strategies were not related to externalizing problem behavior. In conclusion, this research shows that cognitive and behavioral aspects of emotion regulation can be disentangled and might be differentially related to externalizing problem behavior in adolescence. It will be discussed how these components can be incorporated in a modular intervention.

### **S3A.2 Effectiveness of traditional and third wave emotion regulation strategies in children – Joyce Weeland, University of Amsterdam**

Emotion regulation is an important skill. The use of non-adaptive emotion regulation strategies predict both internalizing and externalizing psychopathology (Aldeao, Nolen-Hoeksma & Schweizer, 2010). Whereas adaptive emotion regulation techniques positively impact wellbeing, school performance, and prosocial behavior (John & Gross, 2004). In adults, it has been shown that short exercises based on the more traditional (cognitive reappraisal) and third wave cognitive strategies (mindfulness and self-compassion) can help regulate negative emotions (Gross, 2015). We know less about if such exercises work for children, specifically third wave strategies. Promoting emotion regulation skills in late childhood might be specifically important because during this developmental period such skills consolidate into forms that persist into adolescence and adulthood. In the current controlled experiment we will assess whether and which cognitive emotion regulation strategies can help children regulate negative emotions. In total, 188 (59% girls) children aged 8-14 years participated ( $M_{\text{age}} = 10.72$ ). First, before and after negative emotion induction (i.e., Lion King video clip) children answered both implicit and explicit questions about their current emotions. Second, after randomization children were exposed to a short exercise based on cognitive reappraisal, mindfulness or self-compassion or a waiting condition (control group). We expect all strategies to help children reduce negative emotions, but specifically the third wave strategies since they rely less on direct reflection on the experienced emotions. Analyses are ongoing. If effective, the exercises in our study might inform easy to implement and cost-effective prevention methods.

### **S3A.3 Effects of emotion regulation instructions on children's sadness feelings and facial expressions – Annemiek Karreman, Tilburg University**

Sadness regulation is important for children's psychosocial adjustment. Little is known about the effectiveness of emotion regulation strategies in the regulation of sadness. This experimental study therefore examined whether instructions to use suppression and distraction could attenuate children's sadness feelings and facial expressions. Age and gender differences were explored. The experiment took place in NEMO Science Centre Amsterdam. Children ( $N = 365$ ; 52% girls) of 6 to 15 years of age were randomly assigned to one of three conditions: neutral, distraction (focusing on nice things), suppression (not paying attention to or showing feelings). Children watched a neutral film clip, rated how sad they felt, watched a sad film clip while applying the emotion regulation strategy of their target condition, and again rated how sad they felt. Sad facial expressions were video recorded and analyzed afterwards using Noldus's FaceReader. Repeated measures ANOVA showed that suppression instructions, in contrast to distraction or neutral instructions, were effective in attenuating children's sad facial expressions during the sad film,  $F(2, 338) = 3.54$ ,  $p = .030$ ,  $\eta^2 = .020$ . Moreover, suppression was the only strategy that was effective in attenuating children's sadness

feelings during the sad film, but only in younger children,  $F(2, 357) = 3.03$ ,  $p = .049$ ,  $\eta^2 = .017$ . No gender differences were found. To conclude, if children feel sad, they might be unable to shift their attention to positive elements in the environment. However, young children can be successfully instructed to apply suppression to regulate mild sadness feelings and facial expressions.

### **S3A.4 Can you change your feelings, by thinking differently? Effects of emotion regulation instructions and parenting behaviors on children's experienced emotions** - *Odilia Laceulle, Utrecht University*

The capacity to regulate emotions is crucial for children's psychosocial adjustment. Much remains unknown, however, on how children learn to regulate their emotions. The aim of the present study was two-fold: First, it was examined whether children can be instructed on how to regulate their negative emotions. Second, it was examined whether children who are raised with more positive parenting behaviors respond differently to the emotion regulation instructions. The experiment took place in NEMO Science Centre Amsterdam. Children ( $N = 365$ ; 52% girls) of 6 to 15 years of age were randomly assigned to one of three conditions: neutral, distraction (focusing on nice things), suppression (not paying attention to or showing feelings). Children watched a film clip aimed at inducing negative emotion (i.e., Lion King video clip) while applying the emotion regulation strategy of their target condition. Before and after the clip children rated how they felt (i.e., anger, sadness, happiness, fear). Parents reported on positive discipline and nurturance. Results did not provide robust support for main effects of either condition or parenting. However, moderation analyses indicate that children who are raised with more positive discipline (but not high nurturance) are better able to control their anger, sadness and happiness (but not fear) when instructed to focus on nice things ( $F(8, 732) = 2.16$ ,  $p = .028$ ,  $\eta^2 = .023$ ). In sum, findings indicate that the effects of specific emotion regulation instructions may be conditional on positive parenting behaviors at home.

## **Symposium 3B**

### **The power of peers: the influence of individual and contextual factors on social interactions during childhood and adolescence**

The developmental period from late childhood to young adulthood is a sensitive period for social development. Social interactions and one's own social position in the peer group significantly impact children's and adolescents' socio-emotional well-being. On the one hand, positive relationships such as friendships provide support and a feeling of belongingness, which is associated with positive developmental outcomes like better social adjustment, higher levels of self-esteem, and fewer behavioral difficulties. On the other hand, negative relationships based on peer dislike are characterized by increased levels of externalizing and internalizing behaviors and peer rejection. Across development, children and adolescents adopt social skills that are essential for the understanding of others and for regulating their behavior in social interactions. As such, in social interactions, social motives and decisions become more dependent on the social context. For example, social decisions change depending on the interaction partner and the costs and potential outcome of sharing decisions. In this symposium, we integrate recent findings of novel and innovative studies on social motives and cognition

in different types of relationships drawing on behavioral, social network, and neuroimaging methods. Discussion of the findings contribute to the understanding of the interplay between individual and contextual factors in social interactions across development.

*Chair: Elisabeth Schreuders*

**S3B.1 Development of Sensitivity to Social Rewards in Adolescents and Young Adults: The Social Reward Questionnaire – Adolescent Version – Sibel Altikulaç, VU University Amsterdam –**  
**Talk cancelled**

**S3B.2 Peer Rejection and the Development of Elementary School Children's Sharing Behavior With Peers – Susanne Asscheman, VU University Amsterdam**

Peer rejection may threaten children's fundamental need of belonging to a peer group and is therefore thought to be experienced as painful and distressing (Baumeister & Leary, 1995). Several studies suggest that such social stressors may impact individuals' decision-making tendencies (e.g. Starcke & Brand, 2012), including decisions to share. However, little is known about the longitudinal associations between peer rejection and sharing behavior. Here, we hypothesized that across a one-year interval peer rejection would predict increases in sharing behavior toward friends but decreases in sharing behavior toward disliked peers. In the current study 963 elementary school children (51,8% boys) aged between six and twelve years (mean age = 9.07 years) were assessed on sharing behavior using the Dictator Game (Kahneman et al., 1986). Children played three rounds of the Dictator Game with three different recipients, namely someone they considered a friend, a disliked peer, and an anonymous other. Peer rejection was assessed with peer nominations of likeability and dislikeability. A cross-lagged panel model was used to assess the unique effect of peer rejection on changes in sharing behavior. All models were controlled for age and gender effects. Results showed that peer rejection predicted decreases in sharing behavior toward a disliked peer one year later. No significant effects of peer rejection on changes in sharing behavior for friends or anonymous others were found. Findings highlight the impact of social stressors like peer rejection on children's social decisions, but also suggest that this may depend on the child's relationship with the peer.

**S3B.3 Investigating the role of peer identity as social rewards in a GoNogo paradigm - Miriam Hollarek, VU University Amsterdam**

While we are all motivated by rewards throughout the lifespan, it has been postulated that adolescents might be disproportionately motivated and driven by social rewards. Social rewards from peers especially become more prominent and can guide adolescents' behavior. In this study we used a socially rewarding go/nogo task, to investigate the effect of different peer identities on inhibitory control in adolescents. Pupils from one high school (n = 84, mean age = 16.7), and one primary school (n = 49, mean age = 11.6) in the Netherlands participated in the study. During the task each participant viewed a smiling face of a peer in their classroom whom they liked or a peer whom they disliked after correct inhibition. Results from a repeated measures ANOVA showed that peer feedback from a liked peer significantly decreased reaction times for hit trials as compared to the control condition and the disliked peer condition. False alarm rates

were significantly larger for younger adolescents. No interaction effects between social reward conditions and age were found. Lastly, participants' social network position in their classroom were calculated using peer nomination data and network analysis. These individual differences in social network position were then related to the effect of social rewards in inhibition behavior.

### **S3B.4 Ventral striatum activity for rewards for friends: The role of friendship stability** - *Elisabeth Schreuders, Leiden University*

Previous studies have consistently found that reward sensitivity in the ventral striatum (VS) peaks in mid-adolescence when winning money for oneself, which is shown to be implicated in explorative and novelty seeking behaviors. However, no studies to date have reported a similar developmental trajectory for winning for friends, despite the notion that friends play a significant role in adolescent development. In the current functional magnetic resonance imaging (fMRI) study, we used an accelerated longitudinal design to examine developmental trajectories across adolescence of reward sensitivity in the VS when winning for friends in two groups of participants: those with a stable ( $n = 48$ ) and an unstable best friendship ( $n = 75$ ). Participants (aged 8 to 28 years) played a gambling task in which they could win or lose money for their best friend at three time points that were two years apart. Our findings demonstrate that VS activity when winning for friends peaks in adolescence for those with stable friendships, whereas there were no age-related changes in activity when winning for friends for those with unstable best friendships. Furthermore, self-reported closeness with the best friend relates positively to VS responses to rewards for friends only for participants with unstable best friendships. Our findings provide insights in different types of friendships across adolescence and how these are related to neural reward sensitivity for vicarious rewards for close others, which is pivotal for understanding the role of friendships in adolescent development.

## **Symposium 3C**

### **Current trends in developmental research on decision making**

Adequate decision making is crucial to overall human functioning. A substantial body of developmental research shows that (1) risky decision making peaks in adolescence and (2) adolescent decision making is highly influenced by several social factors. The current symposium continues from here and reveals several current trends in research on developmental (risky) decision making. The first speaker elegantly demonstrates that task-related and self-reported decision making reflect different processes, which also appeared at the neural level. The second speaker disentangles reliance on internal versus external judgement when making decisions, and reveals that integration of these two sources fully develops from adolescence. Further extending social influences on decision making, the third speaker concludes that adaptive social decision-making strategies like trust and cooperation increase with age. The fourth and final speaker demonstrates that both peer pressure and the lack of parental monitoring are associated with increased risk-taking in adolescence, and reports connections with ADHD, a highly prevalent neurodevelopmental disorder. Altogether, this symposium provides an overview of state-of-the-art developmental research on decision making, using a wide range of measurements and experimental designs, spanning from child- to adulthood and investigating both typically and atypically developing groups.

Chair: Tycho Dekkers

**S3C.1 What I do and what I say I do: Relating task-related and self-reported risk-taking tendencies to the neural processing of decision-making under risk and ambiguity in adolescence** – *Neeltje Blankenstein, Leiden University*

Although many neuroimaging studies have investigated adolescent risk taking, few studies have examined both task-related, as well as self-reported, risk-taking in relation to brain activation in one comprehensive study. Furthermore, few studies dissociate between decision-making under risk (unknown outcomes with known probabilities) and ambiguity (unknown outcomes with unknown probabilities). We presented 198 adolescents (11-24 years) with an fMRI paradigm that separated decision-making (choosing to gamble or not) and reward outcome processing (gains, no gains) under risky and ambiguous conditions, and related this to task-related and self-reported risk taking. First, task-related and self-reported risk-taking tendencies were uncorrelated, suggesting that these measures reflect different processes. Second, individual differences in task-related risk taking were positively associated with ventral striatum activation in the decision phase, specifically for risk, and negatively associated with insula and dorsomedial prefrontal cortex (PFC) activation, specifically for ambiguity, indicating that different mechanisms underlie these individual differences depending on the task condition. Third, greater self-reported risk-taking was associated with reduced dorsolateral PFC activation during the outcome phase, indicative of reduced cognitive control during reward processing. Together, this study demonstrates the importance of considering multiple risk-taking measures, and contextual moderators, in understanding the (neural) mechanisms underlying adolescent risk taking.

**S3C.2 How children combine their own judgment with that of others; Sequential versus integrative perceptual decision making** – *Jacqueline N. Zadelaar, University of Amsterdam*

When making decisions people may rely on internal judgement (i.e. their own observations and knowledge) as well as external judgement (i.e. the observations and knowledge of external sources, e.g. peers or parents). Despite a general preference for internal judgement, reliance on external judgement has been shown to increase with decision difficulty, uncertainty, and status of the external source. Yet unknown is whether the two types of judgement are considered sequentially (i.e. people rely on either internal or external judgement, depending on the former being deemed sufficiently informative) or integratively (i.e. internal and external judgement are merged to reach a decision). This study tests sequential vs. integrative processing in perceptual decision making. Experiment 1 consists of an auditory discrimination task incorporating external judgement in the form of hints. The data were best explained by an integrative rather than a sequential model, supporting the notion of integrative decision making. Notably, children (<12 y/o) were found less proficient at judgement integration than adolescents or adults, suggesting that this cognitive ability is not yet fully developed at this age. In experiment 2 (currently in progress) a visual discrimination task with hints, along with an ADHD questionnaire is administered to children (8-12 y/o). This allowed us to test for the effects of ADHD symptomatology on sequential vs. integrative decision making in

childhood. Results may provide insights into the development of sequential vs. integrative decision making and interpersonal differences therein.

### **S3C.3 Learning from social interactions: Development of adaptive social decision making across adolescence – Bianca Westhoff, Leiden University**

Humans live in a highly social environment, thus the ability to quickly adjust to social situations is a critical skill. For decision making in social situations, we need to incorporate and anticipate other's choices as well as outcomes, and additionally flexibly adapt our own behavior across contexts. Little is known, however, about the developmental trajectories and the mechanisms of such adaptive social decision making. Here, we assessed social decision making and learning in adolescents and young adults between 8 and 26 years (N=252, 59.5% female), using an incentivized social decision making task. Participants played two computerized social economic games, each composed of several single-shot games with anonymous opponent players that had been assigned to either a cooperative or a competitive community. Over the course of the experiment, participants could learn to adjust their response adaptively to each community they interacted with. As a control condition we included a simple non-social decision game with two communities of computer opponents. Preliminary results showed that all age groups are able to learn and adjust choice behavior in the non-social condition. However, the ability to adjust to different social groups increased across adolescence. Particularly, learning to trust and cooperate with a cooperative community increased with age. Moreover, social preferences such as inequality aversion and prior expectations explained individual differences in adolescents' tendency to trust or cooperate. Together, these results provide new insights on the changing influence of others in young adolescents' social decision making and learning.

### **S3C.4 Social influences on risky decision-making in adolescents with ADHD: the impact of peer pressure and parental monitoring – Tycho Dekkers, University of Amsterdam**

Attention Deficiency/Hyperactivity Disorder (ADHD) is associated with several forms of risky decision making. For example, ADHD is related to elevated substance abuse, antisocial behavior and sexual risk-taking. To treat or prevent this risky decision-making, underlying mechanisms need to be disentangled. In two studies, the influence of peer pressure and parental monitoring was investigated, as risk taking often emerges in social contexts. In the first study, the influence of peer pressure on risk taking was investigated in 45 adolescents with and 56 adolescents without ADHD. The Balloon Analogue Risk Task was administered twice, with and without a peer pressure manipulation. Risk taking was higher in the peer-pressure condition in both groups. Unexpectedly, no group differences in risk taking nor peer pressure susceptibility were observed. In the second study, the relationship between ADHD symptoms, parental monitoring and real-life risk taking was investigated in 78 adolescents. ADHD symptoms and a lack of parental monitoring both predicted risk-taking. However, parental monitoring did not mediate the relationship between ADHD symptoms and risk taking. To conclude, risky decision-making in adolescence is highly influenced by social factors, such as peer pressure and the lack of parental monitoring. Most of these patterns emerged in adolescents with and without ADHD, although real-life risk taking was higher in adolescents with many ADHD symptoms. These studies show the importance of



social influences on risk taking in adolescence, and current insights should guide future development of prevention and intervention programs for groups of adolescents with increased risk-taking, such as adolescents with ADHD.

## **Wednesday, May 16<sup>th</sup> 11.00-12.15      Parallel symposia round 4**

### **Symposium 4A**

#### **Externalizing behavior during childhood and adolescence: Unraveling the underlying neurobiological mechanisms.**

Severe externalizing behavior (i.e., aggression, noncompliance, rule-breaking) in childhood and adolescence is associated with negative life outcomes and form a major social and financial burden on society. Problems with externalizing behaviors are characteristic for psychiatric disorders, such as oppositional defiant disorder (ODD), Conduct Disorder (CD), and Attention Deficit/ Hyperactivity Disorder (ADHD). The current symposium highlight recent findings in the field of externalizing behavior problems in children and adolescents, collectively addressing neurobiological underpinnings of various aspects of social- and emotional functioning in individuals who experience difficulties with externalizing behavior problems. The first talk in this symposium addresses the longitudinal relation between structural brain development and externalizing behavior in a large community sample of children and adolescents. In this study, externalizing behavior is measured on a dimensional scale examining “normal” variation in externalizing behavior. In the latter three talks, social- and emotional functioning of groups of individuals with externalizing behavior disorders are compared to a control group of peers. The second talk in this symposium focuses on decision making in adolescence with ADHD. This fMRI study examined the question whether adolescents with ADHD are delay averse. The third talk will present data of several fMRI studies focusing on interactive decision making and empathy in adolescents with CD compared to adolescents with Autism and a healthy control group. The last talk will present psychophysiological data on empathic responding in children with CD with and without comorbid anxiety disorder. Taken together, these studies provide new insights in the neurobiological mechanisms of several aspects of externalizing behavior.

*Chair: Marieke Bos, Leiden University*

#### **S4A.1 Longitudinal structural brain development and externalizing behavior in adolescence – Marieke Bos, Leiden University**

Adolescence is a developmental period, which is characterized by substantial physical, social, cognitive, and affective changes. This transitional phase between childhood and adulthood is a unique time-window to study normative and deviant development of externalizing behavior problems, such as rule-breaking, aggression, and noncompliance behavior. In this talk, I will present data of a large longitudinal study (BrainTime) investigating the relation between externalizing behavior and structural brain abnormalities. A community sample of 299 participants underwent magnetic resonance imaging (MRI) in three biennial waves spanning 5 years across ages 8 – 29 years. We

assessed externalizing behavior with CBCL (parent-report) and aggressive behavior with Buss-Perry Aggression questionnaire (self-report). We first show that higher CBCL externalizing scores were related to lower cortical thickness in ACC, lower hippocampus volume and greater pallidum volume. Buss-perry aggression scores were negatively related to caudate, putamen and thalamus volumes. Second, we examined with structural covariance analyses whether longitudinal relations between ROIs (maturational coupling) were associated with externalizing behavior. Interestingly, high CBCL externalizing score was associated with less ACC maturational coupling with hippocampus and amygdala, but with stronger maturational coupling between dlPFC, OFC with basal ganglia. Buss-Perry aggression scores were associated with more pronounced maturational coupling of subcortical networks. Our findings reinforce the hypothesis that altered structural brain development coincides with development of externalizing behavior.

#### **S4A.2 Behavioral and neural correlates of delay and effort discounting in ADHD – Gabry Mies, Radboud University**

Children and adolescents with ADHD have a relatively strong preference for smaller immediate rewards over larger delayed rewards (steep delay discounting). It is unknown whether such steep discounting of rewards is specific for delayed rewards, i.e., supporting the delay aversion account of ADHD, or whether it is also present for effortful rewards, i.e., representing general reward insensitivity. Therefore, this study compared behavioral and BOLD responses during delay discounting (DD) and effort discounting (ED) between adolescents with ADHD and controls. Thirty adolescents with ADHD and 28 controls (12-17 years) were scanned while performing a DD-ED task. During DD, participants were presented with a series of choices between a small reward delivered immediately and a larger reward delivered after 5-25s. During ED, participants were presented with choices between a small reward that was delivered after exerting 15% of their maximal hand-grip strength and a larger reward delivered after exerting 30-90% of their strength. Adolescents with ADHD showed steeper discounting than controls for DD, but not ED. This was accompanied by a slightly stronger delay dose-response relationship in the amygdala for adolescents with ADHD who reported to be more delay averse in daily life. This study thus provides evidence for delay aversion in adolescents with ADHD.

#### **4A.3 Neural mechanisms of social-emotional dysfunction in criminal justice-involved boys with conduct disorder – Eduard Klapwijk, Leiden University**

Research suggests that individuals with conduct disorder (CD) are marked by social-emotional impairments, such as difficulties in processing the affective reactions of others. In this talk I will present neuroimaging work in which we investigated social-emotional processing in CD. First, I will present studies on the specificity of these difficulties in CD in which we compared criminal justice-involved boys with CD that have high levels of callous unemotional traits to boys with autism spectrum disorder (ASD). This was done by comparing brain activity during basic emotion processing to assess cognitive and affective aspects of empathy, and by comparing white matter tracts that may underlie social-emotional processing. Results suggest social-emotional problems in CD can be partly linked to specific neural abnormalities compared to ASD. Moreover, I will discuss the neural processes involved at the level of social interactions, by

presenting an fMRI study on interactive decision-making in response to other's emotions in CD. Results of this study show that boys with CD show decreased adjustment of decisions in response to different emotions compared to typically developing boys, which was associated with reduced responses to others' emotions in brain regions important for perspective-taking (temporoparietal junction) and cognitive control (dorsolateral prefrontal cortex).

#### **S4A.4 Resting RSA and Heart Rate Reactivity to Sadness-inducing Stimuli in ODD/CD Boys, With and Without Comorbid Anxiety Disorder - Jarla Pijper, Utrecht University**

It is hypothesized that emotion regulation is involved in empathy-related responding. This is a first study that investigated this hypothesis at a physiological level in boys with oppositional defiant disorder (ODD) or conduct disorder (CD), with (N = 32) and without (N = 18) comorbid anxiety (7 – 12 years). Resting respiratory sinus arrhythmia (RSA) was used as an index of emotion regulation. Heart rate (HR) reactivity in response to sadness inducing film clips was used as an index of empathy-related responding. Two clips were mildly sad involving children in common childhood situations and one clip was highly sad involving a bear cub losing his mother. In response to the mildly sad clips only ODD/CD boys without anxiety showed a significant negative relationship between RSA and HR reactivity, whilst no such a relationship occurred in ODD/CD boys with anxiety. However, a significant positive relationship was observed between RSA and HR reactivity in response to the most intense sad clip in the total ODD/CD sample. The pattern of findings seems to indicate that efficient regulation of empathic arousal in those with ODD/CD is limited to moderately intense empathy-inducing situations, whereas it may be challenged in highly intense empathy-inducing situations. Furthermore, the meaning of HR deceleration as index of empathy or sympathy is discussed.

### **Symposium 4B**

#### **Social experiences, psychophysiology and behavioural problems**

Stress stemming from the social context and relationships with others becomes more salient in childhood. Stressful social experiences have important implications for children's stress system functioning and the potential onset of psychopathology. Exploring the associations of salient chronic stressors and the activation of the stress system will help to identify children at risk for developing behaviour problems. Evidence suggests that chronic stress is associated with alterations of our central stress response systems as well as neurodevelopment. However, it is still unclear to what degree repeated exposure to salient social stressors impacts psychophysiology and subsequent behaviour problems in children and adolescents. This symposium will contribute to this area of research by examining the associations of social experiences at home and school with psychophysiological indicators in childhood and adolescents. Paper 1 will address the association between relational victimization and Autonomic Nervous System functioning among elementary school children. Paper 2 will focus on the link between stress reactivity and risk taking among elementary school children. Paper 3 will stress the link between early life stressors and HPA-axis functioning. Cortisol, DHEA concentrations and cortisol:DHEA ratio and the respective link with environment and person-related adversity was assessed among adolescents. Paper 4 will elaborate on

the association between both early-life traumatic events and ongoing stress episodes and grey matter volume among adolescents. Together, the four studies in this symposium will address the impact of stressful social situations on psychophysiology and behaviour problems among children and adolescents.

*Chair: Pia Behnsen*

#### **S4B.1 Relational Peer Victimization in Elementary School Relates to Heart Rate and Perceived Stress – Pia Behnsen, Free University of Amsterdam**

Social stress has been linked to altered autonomic nervous system (ANS) functioning in adolescents and adults. In the primary school period, some children are exposed to social stress in the peer context, such as relational victimization. However, insight into the association between relational victimization and the ANS functioning in children is lacking. The goal of this study was to examine the association between relational victimization in the classroom and heart rate (HR), heart rate variability (HRV) and perceived stress in 504 children (M age = 9.78 years, SD = 1.05, 52% boys) in the Netherlands. HR and HRV were assessed during a regular school day. Perceived stress and relational victimization were assessed via self-report. Our results showed that higher levels of relational victimization were associated with lower HR and higher perceived stress on a regular school day. Relational victimization was not associated with HRV.

#### **S4B.2 Risk-taking and the Autonomic Nervous System Reactivity in Elementary School Children – Jacintha Tieskens, Free University of Amsterdam**

Differences in Autonomic Nervous System Activity (ANS) activity changes have been linked to individual differences in risk taking among adults (Crone et al. 2004; Schmidt et al. 2013). As proposed by the somatic marker theory (Damasio, 1996), changes in ANS activity might function as an index for behaviour adjustment to avoid for example excessive risk taking (Somsen, van der Molen & Orlebeke, 1983). Individual differences in risk taking typically develop as early as during elementary school (Hargreaves & Davies, 1996), while increased risk taking is linked to e.g. early onset of substance use (Johnsen, Dariotis & Wang 2012). We suggest that increased risk taking is linked to maladaptive changes of ANS functioning in children. For the current study, changes in ANS activity in response to a risk taking task and the association with risk taking was assessed among elementary school children. Changes in ANS activity were indexed with heart rate (HR) changes and heart rate variability (HRV) changes in response the Balloon Analogue Risk Task (BART; Lejuez et al. 2002) during a regular school day. Children's risk-taking propensity score were computed by averaging the amount of pumps of non-exploded balloons during the BART (Lejuez et al. 2002). Heightened increases in heart rate in response to the BART were associated with increased risk taking during the BART. Decreased changes in HRV in response to the BART were associated with more risk taking during the BART. These findings might suggest that increased risk taking in children arises from reduced control of Autonomic Nervous System responses.

#### **S4B.3 Childhood Adversity and Levels of Cortisol and DHEA In Adolescence – Lotte van Dammen, Groningen University**

Childhood adversity has been demonstrated to increase the risk of impaired mental health and general well-being in later life. Developmental programming of the HPA-axis has been suggested to underlie this association. A total of 215 Dutch adolescents consented to participation in the study and filled out the 27-item Adverse Life Events Questionnaire for the assessment of childhood adversity. Cortisol and DHEA concentrations and cortisol:DHEA ratio were determined in proximal 3 cm long hair segments, which reflect hormone secretion over the three-month-period prior to hair sampling. Additionally, cortisol samples in saliva were collected. The outcomes showed significant higher DHEA levels in the last month and 3 months in girls with more person-related adversity, and in boys with more environment-related adversity. Hair cortisol levels in the last month and the last 3 months were only higher in boys with more person-related adversity. A trend towards significance was observed for a negative association between environment-related adversity and mean cortisol:DHEA over the last 3 months in boys only. The saliva cortisol day curve showed a trend towards lower cortisol secretion in boys with environment-related adversity compared to boys without adversity. A significant lower evening cortisol was observed in girls with person-related adversity, compared to girls without adversity. Adolescents with more childhood adversity had higher levels of cortisol and DHEA in hair, but a tendency to lower saliva cortisol levels during the day or evening. In addition, we found uncoupling of adversity effects on DHEA in boys and girls, for respectively environment-related and person-related adversity.

**S4B.4 Grey matter development is differently modulated by early-life and current pubertal stressful experiences** - *Anna Tyborowska, Donders Institute Nijmegen*  
Animal and human studies have shown that both early-life traumatic events and ongoing stress episodes affect neurodevelopment, however, it remains unclear whether and how they modulate normative adolescent neuro-maturational trajectories. We characterized effects of early-life (age 0-5) and ongoing stressors (age 14-17) on longitudinal changes (age 14 to 17) in grey matter volume (GMV) of healthy adolescents (n=37). Timing and stressor type were related to differential GMV changes. More personal early-life stressful events were associated with larger developmental reductions in GMV over anterior prefrontal cortex, amygdala and other subcortical regions; whereas ongoing stress from the adolescents' social environment was related to smaller reductions over the orbitofrontal and anterior cingulate cortex. These findings suggest that early-life stress accelerates pubertal development, whereas an adverse adolescent social environment disturbs brain maturation with potential mental health implications: delayed anterior cingulate maturation was associated with more antisocial traits – a juvenile precursor of psychopathy.

### **Symposium 4C: Parenting Under the Microscope**

Despite overwhelming attention for the topic of parenting in developmental psychology, parenting is often studied imprecisely. Much research on parenting relies on general, sometimes ill-defined, dimensions of parenting, such as “positive and negative parenting” and “warmth and control”. While these dimensions indeed predict some aspects of child development reasonably well, they leave many questions unanswered. These questions includes, for example, why parents parent the way they do (e.g., the cognitions that shape parents’ behaviour), the aspects of parenting that have the most profound effect on children (e.g., unconditional positive attention versus conditional praise), and unique contributions of fathers and mothers to children’s development (e.g., how parental and maternal language use shape child development). This symposium brings together a group of researchers committed to disentangle the broad concept of parenting into more precise parental cognitions and behaviours that shape daily parenting processes, and in turn child development. Specifically, we put parenting under the microscope by addressing: the causal effects of parental attribution biases on parental feelings of competence (Presentation 1), and of parental goal orientation on parental use of praise (Presentation 2); differential contributions of paternal and maternal language to children’s language development (Presentation 3); and the precise parenting behaviours that contribute to reducing disruptive child behaviour (Presentation 4). Together, these presentations contribute to uncovering some of the complexities involved in parenting practices. These insights can improve our understanding of how seemingly subtle, but meaningfully different aspects of parental cognitions and behavior shape child development.

*Chair: Patty Leijten, University of Amsterdam*

#### **S4C.1 Transactional relationships between parental self-efficacy, attributions, and behaviors during moment-to-moment parenting situations – Jorg Huijding, Utrecht University**

Parental cognitions such as parental self-efficacy (PSE) and parental attributions regarding their child’s behaviors are found to be related to parenting behaviors. Little is known, however, on how PSE and parental attributions may change from one situation to another, how they may influence each other, and how this is related to parenting behaviors in daily situations. Therefore, we studied transactional relationships between PSE, parental attributions, and parenting behaviors in moment-to-moment parenting situations. Dutch mothers (N=361) of toddlers (24-48 months old) completed an online experiment in which they encountered a series of 8 consecutive challenging parenting situations during a virtual day with their child (e.g., the child breaking a vase). For each situation mothers reported on how competent they would feel to adequately handle the situation (PSE), the likelihood of making certain attributions, and how they would respond. Results showed that when repeatedly facing challenging situations, mothers’ PSE, child-responsible attributions and positive parenting behaviors decreased, while parent-causal attributions increased. Mothers who tended to make more child-responsible attributions reported lower PSE in the next situation. Lower PSE, in turn, predicted more child-responsible attributions and less positive parenting behaviors consequently. Thus a transactional relationship was found between PSE and child-responsible attributions. These findings provide insight into the transactional process of

parenting and highlight the importance of child-responsible attributions and PSE in influencing parenting behaviors in moment-to-moment situations.

**S4C.2 Turning parenting goals into action: A field experiment on parents' goal-orientations for improving parenting behavior** – *Jolien van Aar, University of Amsterdam*

Background: Parent training aims for sustained improvements in parenting processes to shape child behavior. For sustained improvements, focus on both initiation and maintenance of positive parenting is essential. How people set goals (i.e., oriented towards promotion or prevention) affects their ability to initiate and maintain new behavior differently. The present study tested whether promotion oriented goals help parents to initiate more positive parenting, while prevention oriented goals help parents to maintain more positive parenting. Method: Parents (N=180) participated in a 2x2 between subjects experimental study with two additional control conditions: 1) parent training with promotion goals only, 2) parent training with promotion switched to prevention goals, 3) parent training with prevention switched to promotion goals, 4) parent training with prevention goals only, 5) parent training without goal setting, 6) waitlist. At the start of the two-week training phase, and immediately after that, parents received condition-specific promotion or prevention-framed information about what they could reach or avoid by using praise, and stated their personal promotion or prevention oriented goals. Results: Preliminary results show that the parent training was effective: parents report lower levels of disruptive child behavior, immediately after intervention and at two-week follow-up. Full data will be available in February 2018, and will provide insight into additional effects of goal orientation in parent training to enhance sustained change in parenting processes.

**S4C.3 Observed sensitivity in early childhood and academic achievement in early adolescence: Different influences of mother and father?** – *Nicole Lucassen, Erasmus University Rotterdam*

Sensitivity, defined as the ability to perceive and to accurately interpret the signals implicit in the child's behavior, and to respond to these signals promptly, is a key element of parenting. Parental sensitivity has been shown to be important for achievement-relevant variables as preacademic reading and cognitive engagement. Most research spans only a few years, typically from preschool to the first years of school. In the current study, associations of both maternal and paternal sensitivity in early childhood with academic achievement in early adolescence were investigated in 252 families participating in the longitudinal Generation R study. Sensitivity was represented by supportiveness (the degree to which the parent expresses positive regard and emotional support to the child) and nonintrusiveness (the degree to which the parent respects the child's autonomy). Results showed that maternal supportiveness and paternal nonintrusiveness were related to higher academic achievement eight years later. Based on the current study, it is concluded that different aspects of mothers' and fathers' behaviors predict academic achievement. Traditionally, mothers and fathers appear to engage in different types of interaction with their children. Emotional support, warmth, and positive regard are assumed to be maternal characteristics, whereas fathers tend to be more physical and stimulating, but also often more directing and

intrusive. The discussion of the results focuses on the question whether constructs of mothering and fathering are unique.

**S4C.4 Are relationship enhancement and behavior management “The Golden Couple” for reducing disruptive child behavior? Two meta-analyses - Patty Leijten, University of Amsterdam**

Background: Established parenting programs for reducing disruptive child behavior are built on two main perspectives: relationship enhancement (i.e., unconditional sensitivity diminishes disruptiveness) and behavior management (i.e., conditional rewards diminish disruptiveness). We tested the dominant model that for reducing disruptive child behavior, integrating relationship enhancement with behavior management is superior to behavior management alone. In addition, we tested whether this hypothesis holds specifically (1) in treatment, relative to prevention, where parent-child relationships tend to be more distressed, and (2) for obtaining more sustained effects, because relationship enhancement may be a gradual process that needs time to evolve. Method: We conducted two meta-analyses on immediate and longer-term effects of parenting programs adopting either a behavior management or an integrative approach (156 and 41 RCTs; Ntotal=15,768; Mchildage=2–9 and 1–10 years). We tested our hypotheses using robust variance estimation (Meta-Analysis 1) and multilevel meta-analysis (Meta-Analysis 2). Results: The integrative approach showed no overall superiority to behavior management alone. This finding masked, however, that relative to behavior management alone, the integrative approach was superior in treatment settings, but inferior in prevention settings. The integrative approach and behavior management approach did not have differential sustained effects up to three years after the program. Conclusion: Our findings argue against current practice to implement the same parenting programs in treatment and prevention settings. Instead, behavior management alone may be more effective in prevention, while an integrated approach of relationship enhancement and behavior management may be more effective in treatment.



# Abstracts for Flashtalks

## **13.15-14.00** **Flashtalks round 1A**

### **F1A.1 Visual emotion processing in deaf children with a cochlear implant – Yung-Ting Tsou, Leiden University**

Objectives: A cochlear implant (CI) provides a sense of hearing through electrical stimulation. As a result, deaf children with a CI have minimal auditory input before implantation and a different hearing from their hearing peers after implantation. This altered auditory experience limits their access to the social world and is assumed to affect emotion processing. However, how and to what extent emotion processing is affected has not been understood. Therefore, this study aimed to investigate how these children processed visual emotional cues by utilizing eye-tracking technology.

Methods: A total of 55 Mandarin-speaking children aged between 5 and 9 years were recruited from Taiwan, including 25 children with a CI and 35 hearing children. The mean age of receiving CI is 32.72 months and the mean duration of using CI is 50.80 months. Children were presented emotional faces and emotion-provoking scenes on a computer, while their eye gaze movements were being recorded. Results: The children with a CI were as accurate as their hearing peers in identifying emotions, but they were less accurate in predicting an emotion in a given situation. Interestingly, the children with a CI showed a similar eye fixation pattern as the hearing children: they focused more on the eye region than the other parts of the face. Conclusion: Cochlear implantation is beneficial for deaf children's emotion development. Children with a CI were able to identify emotions and process emotional cues in an effective way. However, they still lag behind in more complex emotion understanding that requires the interpretation of social situations. Future research needs to look into this.

### **~~F1A.2 The effectiveness of the online mindset intervention 'The Growth Factory' for youth with intellectual and developmental disabilities – Fenneke Verberg, University of Amsterdam~~ Talk cancelled**

### **F1A.3 Giving to Friends, Classmates, and Strangers in Adolescence**

– Suzanne van de Groep, Leiden University

Adolescence is a developmental period in which there are many changes in socio-cognitive abilities (e.g. perspective taking) and prosocial behaviors (e.g. donating). Recent studies have shown that donating behavior differs as a function of whom the adolescent interacts with, but relatively little is known about whether and how this differentiation between interaction partners is influenced by other-oriented personality traits. We examined donating behavior in 520 adolescents aged 12 – 17 years, by having them play a Dictator Game in which they had to divide coins between themselves and several peers (a stranger, classmate, and friend). In addition, we asked them to fill out personality questionnaires. We found that adolescents donated most coins to a friend, followed by classmate, and donated least to a stranger. Individual differences in other-oriented traits (i.e., perspective taking, sensitivity to social rewards, and prosocial motivation) were associated with how much adolescents donated in general, and this

relationship was stronger for donations to relatively unfamiliar others. No developmental differences were observed. Girls generally donated more than boys. Together, these findings suggest that it is important to consider the interaction between adolescents' personality and varying social contexts in explaining giving behavior in adolescence.

#### **F1A.4 Bidirectional relation between Empathy and Friendship Development in Youngsters with and without Developmental Language Disorder: a Longitudinal study – Neeltje van den Bedem, Leiden University**

The association between empathy and friendship quality in children and adolescents is well established, but longitudinal research on the interrelation of these developments is lacking. Empathy is thought to enable children to develop positive friendships, but friendships are also thought to provide learning opportunities to further enhance empathic skills through emotion socialization. Because social interactions typically involve language, the socializing effect of friendships might be moderated by children's communication levels. In the current study, we followed 317 children between 8 and 15 years old during 1.5 years. Of these children 112 had a developmental language disorder (DLD, DSM-5, APA, 2013). Children reported on their empathy (affective empathy, cognitive empathy, prosocial motivation) and friendship quality (positive and negative) at three time points. Parents reported on the severity of their children's communication problems. Results confirmed a bidirectional relation between empathy and friendship quality. Cognitive empathy and prosocial motivation contributed to more positive friendships across 1.5 years in children with and without DLD. Positive friendships in turn contributed to higher empathy on all three aspects, although the effect on affective empathy was less strong in children with DLD. These relations were unaffected by the severity of their communication problems. Negative friendship features were related to higher affective empathy and lower prosocial motivation in both groups, but these variables did not contribute to each others development over time. These results imply that especially positive friendship features are important for the development of empathic skills and vice versa both in children with and without DLD.

#### **F1A.5 Parenting and Adolescent Self-Control: A Multi-Level Meta-Analysis**

- *Yayouk Willems, Free University of Amsterdam*

The present multi-level meta-analysis examined three questions: (1) whether parenting is important to self-control of adolescents aged 10 to 22 (2) whether adolescents' self-control reversely influences parenting; and (3) whether the above two relationships hold equal or different across various theoretical and methodological circumstances. Based on 191 articles reporting 159 independent studies and comprising of 1,540 effect sizes (total sample size  $N = 164,459$ ), the results showed that throughout adolescence, parenting is crucial to self-control both concurrently ( $ESz = .207$ ,  $p < .001$ ; 95% CI = [.187, .227],  $ESr = .204$ ) and longitudinally ( $ESz = .158$ ,  $p < .001$ ; 95% CI = [.128, .188],  $ESr = .157$ ). Based on the results of longitudinal studies, youth self-control affects subsequent parenting ( $ESz = .156$ ,  $p < .001$ ; 95% CI = [.113, .199],  $ESr = .155$ ). The longitudinal effect of parenting on self-control and the one of self-control on parenting was not significantly different. Moderator analyses showed that the overall effect sizes were moderated by only a few (mainly methodological) factors.

**F1A.6 Feeling conflicted about who you are: Bicultural adolescents' ambivalence toward their bicultural identity – Sheida Novin, Utrecht University**

Identity formation is a key developmental task for all adolescents. Adolescents who grow up with more than one culture develop a bicultural identity by integrating their identification with the parental and dominant culture. Descriptive studies indicate that having a bicultural identity is associated with both positive (e.g., pride and uniqueness) and negative (e.g., conflict and confusion) feelings, but these ambivalent feelings have not yet been systematically examined. Ambivalence refers to having both positive and negative thoughts and feelings about one object or trait at the same time. The aim of the current study was to examine second-generation immigrant adolescents' ambivalence towards their bicultural identity. First, we measured adolescents' ambivalence using mouse tracker software that recorded motor-output during an evaluation task with topics relevant and irrelevant to biculturalism. Second, we examined how feelings of ambivalence are related to self-reported identification with both the parental and dominant culture. Third, we tested the relationships with perceived discrimination and indices of internalizing and externalizing problems in order to understand potential functionality of being ambivalent. We were able to successfully measure adolescents' ambivalence towards their bicultural identity: bicultural adolescents were more ambivalent towards topics relevant to biculturalism compared to topics irrelevant to biculturalism. Further, ambivalence was related to lower levels of self-reported bicultural identity and to more perceived discrimination, but not to internalizing and externalizing problems. Our next step is to examine the directionality of these relationships, which will provide more insight into the causes and consequences of adolescents' conflicting feelings about their bicultural identity.

**13.15-14.00                      Flashtalks round 1B**

**~~F1B.1 The protective function of social emotions on the development of aggression in adolescents with and without hearing loss – Evelien Broekhof, Leiden University~~ Talk cancelled**

**F1B.2 Early Childhood Markers of (Mal)Adaptive Functioning in Emerging Adulthood: A 16-Year Follow-Up Study – Ildeniz Arslan, Erasmus University Rotterdam**

Adjustment problems, with a peak in emerging adulthood, are related to a broad range of outcomes. As most research examines effects of psychopathology from adolescence onward, less is known about early childhood predictors of emerging adulthood functioning. Also, as externalizing problems are often the focus of study, long-term effects of internalizing problems and comorbidity of internalizing and externalizing problems remain understudied. We examined whether early internalizing problems, externalizing problems and comorbidity were related to (mal)adaptive emerging adulthood functioning. Multi-informant prospective data (N=381; 45% boys) from the Flemish Study on Parenting, Personality, and Development were used. At Time 1 (1999) mothers rated adjustment problems through the Child Behavior Checklist. Four groups

of adjustment problems were created: (1) low adjustment problems; (2) clinical levels of internalizing problems; (3) clinical levels of externalizing problems; (4) comorbidity of clinical levels of internalizing and clinical levels of externalizing problems. Emerging adulthood functioning was measured through adult self-reports at Time 8 (2015). Group differences of (mal)adaptive emerging adulthood functioning were examined across the following domains: psychological functioning, social functioning, cognitive functioning, work, physical health, and development of the self-concept. Early adjustment problems were related to emerging adulthood functioning. Especially children with clinical levels of early externalizing problems and early comorbidity showed the highest levels of psychological problems, social problems and cognitive problems 16 years later. Moreover, children with low adjustment problems showed highest levels of self-efficacy and general health satisfaction. The results indicate that early childhood markers of (mal)adaptive functioning in emerging adulthood are present.

### **F1B.3 What characterizes adolescents who have difficulties with making academic choices? – Laura van der Aar, Leiden University**

An important challenge for adolescents is to make future-oriented academic choices that fit with their identity, such as choosing a major in higher education. However, educational decision-making is a complex process, and individual factors such as how adolescents think about – and evaluate themselves, could complicate this process by preventing them from making a decision or leading to a less than optimal decision. In this study, we combined behavioral indices and neural correlates of a diverse set of self-concept measures to examine what characterizes adolescents who experience difficulties with making future-oriented academic choices. We included 38 adolescents (16 – 24 years,  $M = 18,7y$ ) who were at the start of participating in a training program named “the Gap year program”. This program is developed for adolescents who have dropped out of higher education and focuses on increasing self-awareness and self-esteem. We compared these adolescents with a group of 41 same-aged peers (16 – 21 years,  $M = 18,8y$ ) who reported not to experience problems with academic choices or already had successfully chosen a major. Behavioral results (controlled for IQ) showed significant differences in multiple self-concept measures, with participants starting the Gap-Year program scoring lower on general self-esteem, self-concept clarity, and academic self-concept compared to adolescents who do not experience difficulties with academic choices. We are currently analyzing the neural data of the self-concept measures and expect these data to mirror the behavioral results, showing decreased activation for positive self-evaluations in striatum and vmPFC in the Gap-Year group.

### **F1B.4 Heterogeneity in cognitive and socio-emotional functioning in adolescents with on-track and delayed school progression – Loren Vandenbroucke, KU Leuven, presented by Nikki Lee, Vrije Universiteit Amsterdam**

Adolescence is characterized by considerable changes in cognitive and socio-emotional skills. With regard to development of these skills there are large differences between adolescents. However, most studies examine adolescents average functioning, without taking into account this heterogeneity. The current study applies network and community analysis to the topic of grade retention, in order to examine heterogeneity of cognitive and socio-emotional functioning in adolescents on-track or delayed in their school progression. Data was collected at two time-points in a sample of on-track ( $n=320$ ) or

delayed (n=69) adolescents (Mage=13.30 years, SDage=0.77). Repeated measures ANOVA showed no significant differences between the groups ( $p > .05$ ). Network analysis revealed that executive functions play a key role in the network of cognitive, social, and emotional functioning. This is especially the case in the delayed group where executive functions are even more central both at T1 (inhibition and shifting) and T2 (shifting). Community analysis revealed three profiles in both groups: a well-adapted and well-balanced group, a group with high levels of need for arousal and risk taking, and a group with regulation problems. At T1, delayed adolescents showed even higher levels of risk taking in the second profile and higher levels of executive function problems in the third profile. These differences were leveled out at T2. This study highlights the intricate balance between cognitive, social and emotional functioning in adolescents in relation to school performance and shows the importance of taking individual differences within groups into account.

### **F1B.5 Dynamic Transactions between Neuroticism and Negative Daily Experiences in Adolescence – Jeroen Borghuis, Tilburg University**

Despite a large number of theories, we still know relatively little about the sources and mechanisms of change in personality traits, particularly true during the developmentally critical period of adolescence. This study investigated the longitudinal relationship between neuroticism and negative daily experiences. Dutch adolescents and their best friends (N = 1,046) completed up to six yearly personality questionnaires and 15 bursts of experience-sampling assessments between the ages 13 to 18. During each online assessment burst, participants reported on five consecutive days about their negative affect and interpersonal conflicts with their mother and best friend. Using multilevel structural equation modelling, we found evidence for dynamic transactions between personality traits and negative daily experiences. Adolescents who scored high on neuroticism showed stronger increases in their daily level of negative affect than adolescents who scored low on neuroticism. Furthermore, daily experiences of negative affect and conflict with mother and best friend predicted a subsequent rank-order increase in neuroticism. The mutually reinforcing longitudinal effects between negative affect and neuroticism partly accounted for the stability of adolescents' rank-order position on neuroticism. We did not find evidence for dynamic transactions between neuroticism and adolescents' contingency between their daily levels of conflict and negative affect. Exploratory analyses showed that negative daily experiences also predicted rank-order changes in extraversion, agreeableness, and conscientiousness. These results will be discussed with regard to contemporary personality development theories that emphasize the role of repeated momentary experiences as a key mechanisms of personality trait development.

### **F1B.6 Maternal Postnatal Psychosocial Distress and Its Association With Cortisol Levels and Immunological Composition in Breast Milk - Pamela Browne, Radboud University**

Objectives: Recent studies indicate that maternal mood is related to alterations in immunological components of human milk. This study investigated the association between maternal postnatal psychosocial distress (e.g. anxiety, depression and stress), cortisol and immunological components in BM, including immunity factors, chemokines, growth factors and immunoglobulins across the first three months postpartum.

Method: Milk samples and questionnaires from 59 healthy mothers after full term pregnancies were collected at three time points during the first three months post-delivery. BM immune compounds were quantified by magnetic beads-based multiplex immunoassays; cortisol levels by liquid chromatography-tandem mass spectrometry. Multivariate analyses were performed to assess the association between maternal mood and milk immune and cortisol levels. Results: The concentration of immunological factors significantly decreased during the first three months postpartum for IgG ( $p < 0.001$ ), IgM ( $p < 0.001$ ), IL6 ( $p = 0.002$ ), MCP1 ( $p < 0.001$ ), MIP1b ( $p < 0.001$ ), GROa ( $p = 0.003$ ), EGF ( $p = 0.015$ ), and TGFb2 ( $p = 0.003$ ). BM cortisol concentration significantly increased over time ( $p = 0.031$ ). Significant differences were observed in milk immune factors and cortisol between mothers with high psychosocial distress compared to mothers with low psychosocial distress. Mothers with low psychosocial distress compared to mothers with high psychosocial distress had lower cortisol concentrations, higher concentrations of IL5 and G-CSF (two weeks post partum), and lower numbers of IL5 and IgM (12 weeks post partum). Conclusion: Breast milk of mothers is characterized by changes in abundance of immunoprotective, pro-inflammatory compounds and cortisol during the first three months postpartum. The relevance of these changes for infant health requires future research.

## **14.05-14.50                      Flashtalks round 2A**

### **F2A.1 Midfrontal theta power reactivity to unexpected peer rejection feedback: An individual differences approach – *Elise Kortink, Leiden University***

Monitoring social threat is essential for maintaining healthy social relationships and a host of studies have shown that humans are equipped with a neural alarm system governing our response to social rejection. Recent evidence suggests that midfrontal theta (4-8 Hz) power might act as a neural correlate of this system by being particularly sensitive to unexpected social rejection. Here we examined whether this theta response to social rejection is modulated by individual differences in personality constructs sensitive to social disconnection. Sixty-five undergraduate female participants (mean age = 19.69 years) participated in the Social Judgment Paradigm, a fictitious peer-evaluation task in which participants provided expectancies about being liked/disliked by peer-strangers. Thereafter, they received feedback signaling social acceptance/rejection. A community structure analysis was employed to assess distinct personality profiles in our data. Results provided evidence of two subgroups: one group scored high on attachment-related anxiety and fear of negative evaluation, whereas the other group scored high on attachment-related avoidance and low on fear of negative evaluation. In both groups, we observed that unexpected rejection feedback induced a significant increase in theta power. Together, these findings confirm the sensitivity of midfrontal theta oscillations to the processing of social threat, and suggest that this alleged neural alarm system behaves similarly in individuals that differ in personality constructs relevant to social evaluation.

## **F2A.2 Interpretation bias and social anxiety in Chinese adolescents:**

**Cultural replication and comparison** - *Meng Yu, Beijing Normal University; Leiden University*

Interpretation bias (IB), defined as the tendency to interpret ambiguous social situations in a threatening manner, has increasingly been studied in youth. According to the prominent cognitive and behavioral models, IB is viewed as one of the vital maintaining factors of social anxiety (disorder). However, the relation between interpretation bias and social anxiety in Chinese youth has received little attention. Therefore, the main aim of the present study was to examine the relationship between IB, measured by the Adolescents' Interpretation Bias Questionnaire (AIBQ; Miers et al., 2008), and social anxiety among a group of high socially anxious Chinese adolescents ( $n = 25$ ) and a control group of non-socially anxious adolescents ( $n = 29$ ). Depression was included as a covariate to examine IB specificity to social anxiety and the content-specificity hypothesis. Participants were asked to rate the likelihood of interpretations coming to mind in social and non-social situations and choose which interpretation is the most believable. Results showed that the high social anxiety group had more negative interpretations and belief in social situations and these effects remained after controlling for depression, suggesting a specificity of negatively biased interpretations to social anxiety. Additionally, the cognitive content-specificity hypothesis was supported; the high anxious group did not have more negative interpretations of non-social situations, after controlling for depression. As a replication of and comparison with the Miers et al. (2008) study in a Dutch adolescent sample, the present study yielded comparable findings regarding the relation between IB and social anxiety.

## **F2A.3 The Incredible Years Teacher Classroom Management programme: a mixed methods systematic review** – *Elizabeth Nye, University of Oxford*

**Aim:** Children's early problematic behaviours are associated with stressed teacher-child relationships and later deviancy. The Incredible Years Teacher Classroom Management (IY TCM) programme trains teachers to use positive, proactive strategies. This mixed methods systematic review answers: What is known about the effectiveness of IY TCM, and how do people experience the programme and its effects? **Methods:** RCTs comparing IY TCM against treatment-as-usual controls were included in the effectiveness strand. Qualitative interviews with key stakeholders were included in the experiential strand. Primary outcomes were teacher management strategies and child conduct problems. Secondary outcomes included teacher-parent collaboration, child prosocial behaviours and academic readiness. Multilevel meta-analysis was applied to effect sizes from RCTs. Grounded theory analysis was applied to qualitative data. **Cross-synthesis** used framework analysis and integrative grids. **Results:** Nine studies from England, Ireland, Jamaica, the USA, and Wales were included. IY TCM had small effects on reducing negative management strategies and child conduct problems, and moderate effects on increasing positive management strategies. Effects were not statistically significant for increasing child prosocial behaviours. A cyclical process of training and observing effective outcomes emerged in the qualitative strand. Teachers described benefits relating to increased knowledge, locus-of-control, emotional wellbeing, and practice. RCT and experiential findings were generally harmonious, although qualitative findings suggested a broader conceptualisation of benefits.

Conclusions: IY TCM is effective for reducing problematic behaviours in schools. Teachers like IY TCM and benefit from it. Decision-makers balance information on effectiveness, acceptability, and contextual appropriateness when selecting programmes for children's mental/behavioural health.

**F2A.4 Changes in Working Memory from Pregnancy to Postpartum** — *Sara Pieters, Radboud University* **Talk cancelled**

**F2A.5 Tree typology of adolescent personality pathology** – *Amy See, Tilburg University*

Generating a typology based on dimensions of personality pathology (PP) is a way to bridge categorical and dimensional conceptualizations of PP. However, when based on large samples, typologies often contain (too) many classes, and relations among them are unclear. Latent class tree modelling (LCTM) is a new approach that could solve some of these issues. With LCTM, the classes are assessed stepwise until model fit no longer improves. This provides clear insight into how classes of PP are linked to one another. We applied LCTM to 25 facets of the Personality Inventory for DSM-5. Participants were 1,940 Dutch adolescents (52.6% girls). Preliminary analyses identified 3 main classes (varying levels of PP symptoms) that split up till 10 subclasses. These classes could reflect risk groups predicting later psychopathology. Beyond identifying classes, we examine the relationship between the found classes with various aspects of interpersonal functioning (i.e., peer relationships and status). We predict classes with PP features to be associated with poorer aspects of interpersonal functioning.

**F2A.6 A Single Latent Developmental Dimension: Dynamics, Strategies, and Variability** - *Jan Boom, Utrecht University*

Development presupposes a process dimension (dynamics, change, time) and a normative dimension with indicators that chart progress (strategies, levels). These two dimensions are probabilistically related to performance.

In the Dynamic Overlapping Waves Model persons are assumed to move along a single latent developmental dimension. Let us assume that the inclination to use a certain strategy rises with progression along the developmental scale, reaches its maximum, and then decreases (when this strategy is abandoned in favor of a better one). Focusing on strategy-use and group comparisons makes it possible to model the use of a multitude of strategies along one and the same dimension. This means that to model development properly we need both a time and a complexity level dimension in the model, without conflating them. No previous existing models ever has done that. I will present a novel model with two separate dimensions underlying developmental change and a third outcome dimension that represents the likelihood of responding. Time refers to a process which implies changes for an entity. This is the chronological temporal dimension of development. Time elapsing does not imply or guarantee development: development takes time but the reverse need not hold. Complexity level refers to a logical hierarchical dimension and a measurement scale with markers that refer to qualitatively different ways of thinking. This complexity dimension is hypothesized to be related to learning in the sense of reflective abstraction leading to more encompassing structures which incorporate the lower structure as (modified) substructure in a new higher structure.



## **F2A.7 Specificity of implicit and explicit measures of math anxiety in the prediction of math related outcomes using a multitrait-multimethod approach**

– *Eva Schmitz, University of Amsterdam*

Math anxiety has been conceptualized as a negative emotional response evoked by (the prospect of) math-related situations that disrupts performance. Mathematics anxiety peaks in adolescence, a critical period in which it might negatively influence career choices. Math anxiety is often assessed using self-report measures. Possibly, more automatic and implicit attitudes and processes also play a role and learn us more about the mechanism underlying the relationship between math anxiety and math performance. Previous research concerning math showed that the association between math and negative words is stronger, explicitly and implicitly, in comparison to the association between language or arts and negative words. However, implicit and explicit measures of math attitudes are only medium related and both measures independently predict math performance. In this study implicit associations between math and anxiety will be investigated. A multitrait-multimethod approach is used to investigate the specificity of implicit and explicit measures of math anxiety in the prediction of math related outcomes in contrast to implicit and explicit English and trait anxiety measures. A sample of 189 secondary school students completed explicit (questionnaires) and implicit (Single-Category Implicit Association Task) measures on anxiety in three contents, that is math anxiety, English anxiety and trait anxiety. Structural Equation Modeling showed that explicit measures of anxiety are related to math anxiety and math performance. However, implicit math-anxiety associations do not specifically predict math related outcomes.

## **14.05-14.50                      Flashtalks round 2B**

### **F2B.1 Cross-Cultural Comparison of Early Adolescents' Risky Decision Making**

– *Joshua Weller, Tilburg University*

In many cultures, early adolescence is a developmental period in which the initiation of risk behaviors, such as substance use, health-risking sexual behavior and criminality begin, potentially marking the prelude to a problematic life trajectory. However, less research has examined the (a) decision processes the early adolescents may utilize when making choices in the face of uncertainty, (b) the antecedent variables that may predict suboptimal decision processes, and (c) whether process-level decision components may predict health and psychological outcomes. Moreover, past research has disproportionately focused on Western cultures, leaving opening research questions surrounding the universality of the development of advantageous decision-making. In a sample of American, & Italian, and Korean children (12.9 – 15.5 years), we assessed risky decision-making tendencies using the Cups Task (Weller et al., 2007). Additionally, we measured individual differences in temperament, impulsiveness (i.e., delay discounting), and numeracy. Gender, pubertal timing, and parental education level were also collected as covariates. Finally, students completed the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), a measure shown to predict problem behaviors. We have only recently finished data collection, but plan to report results that examine (a)

the associations between antecedent predictors and risky decision-making, (b) how components of risk taking (e.g., sensitivity to outcome valence and magnitude, expected value sensitivity) differentially predict interpersonal difficulties, and (c) the degree to which the associations between antecedent predictors and outcomes are mediated by suboptimal decision processes.

### **F2B.2 Typologies of Childhood Adversity and Disparities for Sexual and Gender Minority Youth** – *Laura Baams, University of Groningen*

Lesbian, gay, bisexual, transgender, questioning (LGBTQ) and gender nonconforming adolescents experience high rates of parental abuse and polyvictimization. However, there is currently no research that examines what types of childhood adversity are likely to co-occur and whether LGBTQ adolescents, and those with high gender nonconformity, are more likely to experience patterns of abuse. Awareness of patterns of childhood adversity could help physicians and pediatricians to monitor these experiences. Utilizing the cross-sectional, statewide, anonymous 2016 Minnesota Student Survey, 81,885 students were included in the current study (50.6% male; mean age = 15.51). Participants were enrolled in grades 9 and 11 in a total of 348 schools. Using a three-step latent class analysis, four patterns of childhood adversity were identified, ranging from relatively low levels of abuse to polyvictimization. The results showed that: compared to heterosexual adolescents, gay/lesbian, bisexual, and questioning adolescents were more likely to be classified into profiles characterized by polyvictimization (ORs 1.93-7.24) and psychological/physical abuse (1.31- 3.32), than no/low adversity. Similarly, compared to non-transgender adolescents, transgender adolescents were more likely to be classified into profiles characterized by patterns of polyvictimization (1.39-2.77) and psychological/physical abuse (1.21-1.88). A higher level of gender nonconformity predicted a higher likelihood of being classified into each adversity profile, compared to the no/low adversity profile (1.19-2.77). Concluding, sexual minority adolescents and adolescents with high levels of gender nonconformity are vulnerable to experience adversity. The findings point to the need for further research on the benefits and harm of screening for childhood adversity by physicians and pediatricians.

### **F2B.3 Self-reliance, social capital and help seeking in at-risk youth: A qualitative study** – *Lois Schenk Erasmus University Rotterdam, Margriet Lenkens, Erasmus MC / Research bureau IVO*

This qualitative study explores at-risk adolescents' perspectives on their problems and needs. Semi-structured interviews were conducted with 22 youths (15-25 years old) from the Netherlands, with problems in the area of school, employment, care and/or security. Adolescents demonstrated a negative perception of help and a tendency to be self-reliant, which appears to be related to a strong internal locus of control, accompanied by negative social experiences. This attitude may increase the risk for continuation of problems, as it hinders help seeking and seems conducive to delinquent behavior. Resources that can be activated in their immediate social environment are scarce. Whereas bonding capital is provided by mothers and aunts, adolescents' access to bridging capital seems limited due to rejection of formal care. For adolescents it appears important that help comes from individuals with similar characteristics to them. Our findings have several implications regarding offering support to at-risk youths. These

adolescents appear to perceive criminal involvement as a stand-alone problem that does not need prioritization until other sources for future stability are established. The support provided should therefore not be focused on what may seem most problematic from a professional or policy perspective, but should be tailored to adolescents' true needs. By supporting the adolescent in creating circumstances in their lives (a supportive social network, education, employment) that they consider most important, their firm conviction that they have to do everything on their own can be challenged. Furthermore, achieving a balance between autonomy and help-seeking may foster more resilient development.

#### **F2B.4 Maternal Postnatal Psychosocial Distress: Associations with the Breast Milk Microbiome** – *Pamela Browne, Radboud University*

**Objectives and Study:** Breast milk (BM) transfers many microbes to breastfed infants. Its composition seems influenced by maternal factors, including stress. This study investigates the association between maternal postnatal psychosocial distress (i.e. anxiety, stress and depression) and BM microbiota composition across the first three months postpartum. **Method:** The sample consisted of 59 healthy mothers after full term pregnancies. Questionnaire data and milk samples were collected at three time points during three months post-delivery. For microbial identification, Illumina technology based on sequencing of the 16S ribosomal RNA gene was used. **Results:** Levels of maternal postnatal anxiety, stress and depression were independently associated with changes in the composition of milk microbiota at the different time points. Low levels of maternal postnatal anxiety compared to higher levels of maternal postnatal anxiety were associated with more reads belonging to the Order Lactobacillales, lower reads of Family Enterococcaceae and Genus Enterococcus two weeks postpartum, and more reads two weeks postpartum of the Family Actinobacteria and the species *Bifidobacterium infantis*. Regarding stress, the number of reads two weeks postpartum corresponding to Class clostridia, Family Veillonellaceae, Family Streptococcaceae and Genus Veillonella were highest in milk samples of mothers with low/medium levels of stress. Reads from Genus Fusobacterium were only detected in milk samples from mothers with high levels of depression. **Conclusion:** This study shows an association between maternal mood and microbial composition in healthy breastfeeding women during the last three months postpartum. Class bacilli, Order Bacillales, Genus *Staphylococcus* and Class Actinobacteria mainly drove the differences between groups.

#### **F2B.5 Paternal and Maternal Self-Control and Child Aggression: Household Chaos and Parental Mindfulness as Moderators** – *Marike Deutz, Utrecht University*

Previous research found links between parental self-control and child aggression, however research on fathers and young children is lacking. This study therefore focused on fathers and mothers of young children. Furthermore, two potential moderators were examined: the degree of chaos in the home (household chaos) and the level of intentionality in parent-child interactions (parental mindfulness).

Data was collected through Amazon Mechanical Service (MTurk). Participants were 30 fathers and 41 mothers with a 3- to 5-year-old child. Self-control was measured with the Brief Self Control Scale, child aggression with the Aggressive Behavior scale of the Child Behavior Checklist for ages 1.5-5, household chaos with a brief version of the Confusion, Hubbub and Order Scale and parental mindfulness with the Parenting Mindfulness Scale (all Cronbach's alphas > .77). The SPSS PROCESS macro was used

to examine interactions, with parental age, educational level, and child age as covariates. Fathers and mothers did not differ on any of the study variables. Lower levels of parental self-control predicted higher child aggression for both mothers and fathers. For fathers only, household chaos was a significant moderator, with links between low self-control and aggression strongest when household chaos was high. For mothers only, parental mindfulness was a significant moderator, with links between low self-control and aggression strongest when mindfulness was low. Data collection is still underway. These preliminary findings show promise in identification of potential targets to reduce aggression in young children of parents with low self-control and underscore the importance of examining both fathers and mothers.

### **F2B.6 Individual Differences in Infant's Visual Attention as Predictors of Toddler's Self-Regulation: A Multi-Method Longitudinal Study** - *Sanne Geeraerts, Utrecht University*

Given the developmental importance of self-regulation, identifying its precursors is paramount. Visual attention has been pointed out as an important antecedent of self-regulation, as it plays a central role in the selection of relevant information, and exclusion of irrelevant information. Visual attention can be assessed through eye-tracking, which allows for higher spatial and temporal precision compared to video-coding. However, most studies on antecedents of self-regulation relied on relatively coarse video-coded attention measures. The aim of this study was to examine the predictive value of three fine-grained visual attention measures (disengagement, fixation duration, variation in fixation duration) in infancy (9-11 months) for effortful control and compliance in toddlerhood (26-32 months). The sample consisted of 75 children. In infancy, scores for disengagement (mean time between the appearance of a peripheral target and the first fixation on this target across trials), fixation duration (median time during which the point of regard is relatively stable with respect to the stimulus), and variation in fixation duration were obtained with two eye-tracking tasks (gap-overlap for disengagement, and visual search for fixation duration and its variation). Effortful control and compliance in toddlerhood were operationalized using composite scores of parent-reports and observed measures (during clean-up and delay of gratification). Multiple regression models showed that longer fixations, as well as less variation in their durations, were predictive of better effortful control 1,5 year later. Compliance was only predicted by less variation in fixation duration. The results underscore the importance of visual attention in facilitating the early development of self-regulation.

### **F2B.7 Simulating theoretical models: how it works and why it is useful** – *Mandy van der Gaag, University of Groningen*

A theoretical simulation study is a powerful method that allows a researcher to form theory about elusive processes within individuals or populations. There are many reasons why it can be difficult to form a clear theory or a precise hypothesis on a process. For example, it may be difficult to observe the process (such as the cognitive process of making a decision) or the process is complex in nature (such as the evolution of mate choice). Creating a theoretical model of such an elusive process and then simulating this model, is a way to overcome such difficulties. In this talk I will briefly show a few examples of studies where theoretical simulation has brought crucial insights that could not have been achieved otherwise. In addition, I will clarify how such simulation

models compare to the more widely known statistical models, and briefly introduce you to a few methods to build such theoretical simulation models.

# Abstracts for Poster Session

**Tuesday, May 15<sup>th</sup> 15.30 - 16.00**

**P1.1 The Leiden Family Lab study on Social Anxiety Disorder: background, design and sample characteristics** – *Janna Marie Bas-Hoogendam, presented by Michiel Westendorp, Leiden University*

Background: Social anxiety disorder (SAD) is a disabling and prevalent psychiatric condition, with a heritable component and an early onset during late childhood or early adolescence. However, little is known about the characteristics that are associated with the genetic vulnerability to SAD, the so-called 'endophenotypes'. These endophenotypes could advance our knowledge about the genetic background of SAD, as they are on the pathway from genotype to phenotype. The Leiden Family Lab study on Social Anxiety Disorder (LFLSAD) is the first multiplex, multigenerational study aimed to identify neurocognitive endophenotypes of social anxiety. Methods: The LFLSAD is characterized by a multidisciplinary approach and encompasses a variety of measurements, including a clinical interview, functional and structural magnetic resonance imaging (MRI) and an electroencephalography (EEG) experiment. Furthermore, saliva was collected for genotyping. Participants are family members from two generations, from families genetically enriched for SAD. Results: The LFLSAD sample (n=132 participants, from nine families) was characterized by a high prevalence of SAD, in both generations (prevalence (sub)clinical SAD: 38.3%). Furthermore, (sub)clinical SAD was positively related to levels of self-reported social anxiety, fear of negative evaluation, trait anxiety, behavioral inhibition, negative affect and the number of depressive symptoms. Conclusion: The multidimensional character of the measurements and thorough characterization of the LFLSAD sample offer unique opportunities to investigate candidate neurocognitive endophenotypes of SAD, as measured with MRI and EEG.

**P1.2 Cortisol Concentrations in Human Breast Milk: Associations with Infant Crying** – *Roseriet Beijers, Radboud University*

Breastfeeding is beneficial for infant health and development. A longer duration of breastfeeding has been related, for example, to better cognitive development, even beyond infancy and childhood. Less research has been devoted to possible effects of biological constituents of breast milk on offspring phenotype. In animals, milk concentrations of cortisol have been found to be related to offspring behavior. The present study longitudinally investigated whether breast milk cortisol predicts crying behavior in human infants. Seventy breastfeeding mothers collected one morning sample of their breast milk and kept a 3-day infant behavior diary to measure crying when the infant was 2, 6, and 12 weeks old. Three measures of crying were derived from the diary: total duration (mean duration in minutes per 24 hours), frequency (mean number of episodes per 24 hours), and bout (mean bout length of each episode in minutes). Cortisol was extracted from breast milk samples with methyl tertiary butyl ether, and quantified by Liquid chromatography-tandem mass spectrometry (LC-MS/MS). Breast milk cortisol did not predict total duration, frequency, and bout length of

infant crying. There was a significant interaction effect between infant sex and milk cortisol on crying bout length ( $p=.024$ ). More cortisol in breast milk was related to longer crying bouts in female infants, but shorter crying bouts in male infants. These findings might point at differential lactational programming effects of breast milk cortisol depending on infant sex. Future studies with larger populations are needed to replicate these findings and to discard alternative interpretations of the results.

### **P1.3 Using interactive virtual reality exposure to treat aggressive behavior problems in youth: Design of a randomized controlled trial – Sophie Alsem, Utrecht University**

The effects of current evidence-based cognitive behavioral treatments (CBT) on children's aggressive behavior problems are modest at best. The goal of the present research is to test whether CBT effectiveness can be enhanced using interactive virtual reality exposure. Moreover, CBT is expected to be most effective when children's aggressive cognitions are challenged in emotionally involving social situations—i.e., the types of situations that trigger their aggression in real life. Virtual reality allows for such exposure within a controlled treatment context. In addition, virtual reality has been found to enhance treatment motivation, which may foster intervention adherence as well as effectiveness. This poster presents the design of a randomized controlled trial to examine the effectiveness of CBT with virtual reality exposure to treat children's aggressive behavior problems. In total, 200 boys aged 8-12 years will be recruited in clinical settings. Children will be randomized into three groups: individual CBT with virtual reality exposure, individual CBT (active control group), and waitlist (passive control group). We will adopt a multi-informant approach (i.e., parent-, teacher-, and self-report) to assess children's behavior problems, aggressive cognitions, treatment motivation, and emotional engagement at pre-test, intermediate test, post-test, and 6-month follow-up. We expect that boys receiving CBT with virtual reality exposure (versus the two control conditions) will show larger decreases in aggressive cognitions and behavior, as well as larger increases in treatment motivation and higher levels of emotional engagement. We hope that this knowledge will help scholars and practitioners to be better able to treat aggression in children.

### **P1.4 Biological embedding of early-life stress: How maternal postnatal wellbeing affects later child physical health – Daria Daehn, Radboud University**

It is well established that early-life stress (ELS) has long-term consequences on later physical health. However, former studies investigating this link focused on harsh early-life stressors in high-risk samples (e.g.: abuse and neglect), disregarding potential effects of stressors such as variations in maternal wellbeing in low-risk samples. The first aim of this ongoing project is to examine whether variations in maternal postnatal wellbeing (depression, anxiety and stress) predict later child physical health. The second aim is to examine mechanisms by which postnatal wellbeing affects child physical health long after environmental perturbation. ELS is hypothesized to dysregulate child biological systems, including Hypothalamic-Pituitary-Adrenal (HPA)-axis and telomere dynamics - a biomarker of accelerated aging -, resulting in compromised later physical health. By using a longitudinal design, this study will give new insights into the biological embedding of ELS: the possible mediating roles of HPA-axis regulation and telomere length, relating maternal postnatal wellbeing to later child physical health. This study will

be the first to examine whether postnatal maternal wellbeing in the first year is associated with disease vulnerability in childhood (ages 6-10) and investigate HPA-axis regulation and telomere length as potential biological mechanisms mediating this relationship. For this project, data from an ongoing longitudinal study focusing on psychobiological development in children (BIBO project: Basal Influences on the Baby Development) at Radboud University is currently being analyzed. In this study, 193 mothers and their infants were followed from pregnancy to age 10. The results of the SEM analysis will be presented on a poster.

**P1.5 Association between psychosocial stress and faecal microbiota in pregnant women** - *Roseriet Beijers, Radboud University*

Background: Recent research indicates that maternal psychosocial stress during pregnancy adversely affects infant birth outcomes and child emotional and behavioral development. While the mechanisms underlying these relations are only partly understood, one of these might be that prenatal psychosocial stress affects child outcomes via the mother's, and in turn the child's, intestinal microbiota. To our knowledge, the present study is the first to investigate an essential part of this potential mechanism, namely the relation between psychosocial stress and faecal microbiota in pregnant mothers. Methods: During the third trimester of pregnancy, 73 mothers filled in questionnaires on general and pregnancy-specific stress and anxiety, and provided a stool sample from where microbial DNA was extracted. Results: A significant association between maternal general anxiety and microbial composition was found. Mothers with high general anxiety had, amongst others, higher relative abundance of *Faecalibacterium* than mothers with low general anxiety. In contrast, mothers with low general anxiety had, amongst others, higher levels of *Lactobacillus* and *Ruminococcus* than mothers with high general anxiety. Differences were also found between mothers with high and low anxiety in the relative abundance of bacteria that have previously been associated with health risks and diet. In contrast, no associations between relative abundance of specific microbial groups and any of the other psychosocial stress variables were found. Conclusions: This study shows associations between maternal general anxiety and microbial composition during pregnancy. As such, it provides a starting point for future investigations in which infant microbiota and development are also assessed.

**P1.6 Gaze Behavior during Public Speaking: Relations with Social Anxiety and Public Speaking Anxiety** – *Jiemiao Chen, Leiden University*

Social Anxiety Disorder (SAD) is typically characterized by overwhelming fear or anxiety for being judged negatively by other people in social situations. Some studies showed that SAD patients looked less at the audience than healthy controls while presenting (Chen et al., 2015; Kim et al., 2017), the significant relations were found while patients were presenting self-related topics, but not general topics (Kim et al., 2017). However, relatively little attention still has been paid to gaze avoidance in social anxiety. The present study will investigate the relations between gaze avoidance and social anxiety in a community sample. The major aim is to address whether gaze avoidance is related to social anxiety or to public speaking anxiety in two conditions (speaking condition and viewing condition without speaking). One-hundred female students (aged 17-21) will be recruited (50 have been tested so far). After completing questionnaires on social anxiety



and public speaking anxiety, participants first watch a pre-recorded audience of nine members who behaved neutrally (1 min) and then introduced themselves to the audience (1 min), and other fifty participants go through the same tasks in the reversed order in an attempt to control for order effects. The proportion of fixations and the total fixation time on faces; as well as scanpath length and pupil size will be measured using a wearable eye-tracker (Tobii Pro Glasses 2). In this poster, we present the preliminary results of the study.

**P1.7 Trial of Blended Care in Adolescents with Social Anxiety – Sara Mansson, Leiden University**

Social anxiety disorder (SAD) appears to be one of the most difficult anxiety disorders to treat. Research on treatment effectiveness has shown much lower recovery rates compared to other anxiety disorders (Hudson et al., 2015). The overarching aim of this study is to investigate a more intensive treatment approach in adolescents with social anxiety in the hope that it may provide better and longer lasting effects. To achieve this, effectiveness of treatment as usual will be compared to blended care for socially anxious adolescents ages 15-16 years. Treatment as usual consists of an established group cognitive behavior therapy program. Blended care comprises treatment as usual with the addition of access to an eHealth mobile app: Luca. Luca was designed to offer extra support to adolescents between therapy sessions. It allows more frequent contact with the therapist and other group members, includes features to track emotions and moods, possibilities of keeping a diary, and more. The feasibility, acceptability, and credibility in the implementation of blended care using an eHealth module has not yet been researched in adolescents, and so a pilot study will first be conducted with one group of six adolescents with a SAD diagnosis. In this poster, we present the hypotheses, methods and procedure of this pilot, along with preliminary results at pre- and mid-points on the levels of motivation, attendance, and client-therapist alliance.

**P1.8 The Identification of anxiety disorders in a youth referral cohort – Semiha Aydin, Leiden University**

There is mounting evidence that children and adolescents with anxiety disorders do not receive proper treatment and that over time their problems become more severe and treatment resistant (Teubert & Pinquart, 2011; Beesdo-Baum et al., 2007). Researchers point towards major difficulties in the identification of these youth in primary healthcare (Chavira, Stein, Bailey, & Stein, 2004). However no study has investigated the process that takes place before the referral of cases which do enter treatment. As a first step to address the lack of scientific knowledge in this area, we will review medical records of youth in specialized mental healthcare by including information from the referral letters of their general practitioner (GP). To study the referral-intake process we investigate the correspondence between a) the GPs' referral reason as indicated in the referral letters, b) the perceived symptoms by parents and youth themselves as obtained from the Developmental and Well-Being Assessment (DAWBA), c) the probable DSM-IV diagnoses as rated by a senior clinician within the DAWBA digital environment before the clinical intake, and d) the final clinical classification resulting from a face-to-face intake performed by a clinician in specialized mental health care. Based on available literature, discrepancies are expected for anxiety disorders generally, and especially in regards to the recognition of social anxiety disorder. Contrary to anxiety disorders,

externalizing disorders are expected to show better symmetry between initial referral reason and the final diagnosis. That is to say; cases that are clinically identified with anxiety disorders are expected to have significantly fewer anxiety complaints as reported in the GPs' referral letter, as well as fewer anxiety related symptoms reported by their parents. We have recently entered the final stage of data extraction. Thus, it will be possible to present the initial analyses at the conference.

**P1.9 Parenting in Times of Refuge: A Qualitative Investigation of how Parenting is Affected by War, Displacement, Flee, and Refuge – Hend Eltanamly, University of Amsterdam**

The outbreak of the refugee crisis in 2015 meant that hundreds of thousands of war-affected families moved to European countries. Experiencing war, displacement, flee, and refuge place immense stress on families. The effects of war on children's mental health are studied exhaustively, much less is known about parenting, especially in times of refuge. Specifically, we will explore the extent to which parents feel that being exposed to war has impacted how they feel or behave as parents. This study will inform science by increasing our understanding of how and why parenting might change when families have to flee their countries. It feeds practice by identifying areas of strengths and difficulties these families face, which could guide clinicians and intervention workers working with Syrian refugee families in the Netherlands.

**Aim:** We aim to understand how war, displacement, flee, and refuge become important events in parents' lives and subsequently influence their parenting practices.

**Methods:** Using semi-structured interviews with Syrian refugee parents in the Netherlands and using thematic analysis to analyze their experiences. So far, we have interviewed 10 families (10 mothers and 7 fathers) with children under 12 who were co-exposed to the Syrian war. **Preliminary findings:** War exposure reduces parents' self-efficacy beliefs. Parents feel they become more hostile and withdrawn during displacement, yet report being warmer and more supportive after resettling. Final results are expected in the Spring of 2018.

**P1.10 ADHD Symptoms in Children Adopted from Poland and their Atypical Association Patterns: a Bayesian Approach – Donna de Maat, Erasmus University Rotterdam**

Although high rates of attention-deficit hyperactivity disorder (ADHD) symptoms have been observed among internationally adopted children, research on these symptoms in Polish adoptees is lacking. Therefore, we examined ADHD symptoms in Polish adoptees and their relationship to pre-adoptive risk factors, that is, time in institutional care, early deprivation, and prenatal alcohol exposure. We further compared the association patterns and gender distribution of ADHD symptoms in children adopted from Poland to those reported in the literature for ADHD symptoms in non-adopted children. Dutch adoptive parents of 121 Polish adoptees (52% boys; M age = 10.9 years, range 6.2–15.6; M age adoption = 3.0 years, range 0.8–6.9) completed questionnaires regarding ADHD symptoms, pre-adoptive risk factors, attachment problems, conduct problems, and executive functioning deficits. Bayesian evaluation of informative hypotheses showed that Polish adoptees had increased levels of ADHD symptoms, compared to Dutch children in the general population. Time in institutional care, early deprivation, and prenatal alcohol exposure were not associated

with ADHD symptoms. ADHD symptoms in Polish adoptees were more strongly associated with attachment problems and executive functioning deficits, but less strongly with conduct problems, compared to ADHD symptoms in non-adoptees. Furthermore, ADHD symptoms were more equally distributed among boys and girls than they are in non-adopted children. The findings indicate that Polish adoptees and their adoptive parents need special attention and support. The dissimilarities between ADHD symptoms in Polish adoptees and non-adoptees might indicate a different underlying causal mechanism, which may have important implications for clinical practice.

### **P1.11 Heritability of neural reactions to social exclusion and prosocial behavior in middle childhood** – *Mara van der Meulen, Leiden University*

Observing social exclusion can be a distressing experience for children that can be followed by concerns for self-inclusion, as well as prosocial behavior to help others in distress. So far, little is known about heritability of these reactions. To distinguish between self-concerns and other-concerns when observing social exclusion in childhood in a twin sample (N=512), we used a four-player Prosocial Cyberball Game in which participants (aged 7-9) could toss a ball to three other players. When one player was excluded by two other players, participants showed consistent prosocial helping behavior in response to this exclusion by tossing the ball more often to the excluded player. In a sub-sample (N = 283) we studied neural reactions to social exclusion. We found activity in social perception related areas (mPFC, IFG, and subACC) for experiencing exclusion, which was best explained by genetic and unique environmental factors (mPFC), or shared environmental factors (IFG) and unique environmental factors. We found activity in reward and salience related areas (striatum, insula, and ACC) for experiencing inclusion, and activity in PCC for prosocial helping behavior. Differences in activity in these regions, as well as differences in prosocial behavior, were best explained by unique environmental factors and measurement error. Together, these findings show that experiencing exclusion is sensitive to genetic and shared environmental factors, whereas experiencing inclusion and showing prosocial helping behavior were sensitive to unique environmental factors, supporting the hypothesis of a dissociation between social exclusion and prosocial behavior.

## **16.15-16.45**

### **P2.1 Prenatal maternal stress, infant circadian cortisol, and late childhood health outcomes: Assessing vulnerability as moderated by sex and maternal sensitivity** – *Brianna Natale, Radboud University*

The prenatal period has been identified as a time in which maternal stress can affect a child's subsequent development. Previous studies indicate that prenatal maternal stress (PNMS) is related to a number of psychological and biological disease risk factors during infancy, some of which persist throughout childhood and into adulthood. However, the majority of studies which have examined long-term health outcomes have either retrospectively assessed PNMS or not considered additional explanations for adverse outcomes in conjunction with PNMS. Other factors, such as cortisol activity, parental

care, and sex, are also empirically supported influences on health development. Thus, a prospective investigation of these relationships within the longitudinal BIBO study (n = 193) is currently being conducted through Structural Equation Modeling. This research intends to discern the association between PNMS and 10-year-old child mental and physical health outcomes, as mediated by 2.5-year-old circadian cortisol and moderated by maternal sensitivity and the child's sex. PNMS was measured in terms of both psychosocial and physiological stress at 37 weeks gestation via four self-report questionnaires and salivary cortisol samples, respectively. Maternal sensitivity was evaluated by a rating of the mothers' sensitivity during two mother-child interactions within the first year. Infant circadian cortisol was assessed through the diurnal slope and AUCg of 2.5-year-old salivary cortisol samples. The 10-year-old mental health outcomes, internalizing and externalizing behavior, were evaluated through maternal- and self-reported responses to the Child Strengths and Difficulties Questionnaire. The 10-year-old physical health outcomes, illnesses and CRP levels, were assessed via a questionnaire and saliva samples.

## **P2.2 Longitudinal Associations between Parenting Practices and Decision-Making Competence** – *Joshua Weller, Tilburg University*

Research has suggested that parenting practices may impact the development of health-risking behaviors later in life. However, little evidence exists regarding how parenting variables may impact actual decision processes that may lead to suboptimal choices. This study examined how parenting practices in early childhood influence later decision-making competence (DMC), a latent trait that reflects individual differences in rational responding, and has been linked with risk behaviors (e.g., drug use, sexual behavior). Using a diverse longitudinal dataset, we assessed children's reports of parenting behaviors at 10 -12 years (baseline; n=775) and a measure of rational decision-making approximately 9 years later (19 years; n=563). We used two well-established measures parenting practices: Loeber's (1989) parental supervision/monitoring scale, and Schludermann, and Schludermann's (1970) Child Report on Parenting Behavior, and correlated these with scores on the Youth Decision-Making Competence (Y-DMC) measure (Parker & Fischhoff, 2005), which was assessed at Visit 4. Y-DMC involves a battery of classical decision-making tasks that measure response deviance from what would be predicted by a normative rational model. We found significant correlations between parenting practices and DMC. Specifically, children whose parents engaged in greater supervision and parental monitoring demonstrated higher DMC scores, whereas children whose parents who used psychological control (i.e., instilling guilt and anxiety) demonstrated lower DMC scores. These variables parenting practices uniquely contributed to the variance in DMC scores, controlling for socioeconomic status, child's gender, child's self-control, and cognitive ability at age 10. The findings from this study highlight environmental factors that might impact the development of advantageous decision-making.

## **P2.3 The interplay between intra-individual and inter-individual predictors of loneliness in middle childhood** – *Sanny Smeekens, Open University*

Loneliness has a major influence on mental health. Therefore, investigating the predictors of loneliness is crucial. The present study focused on the interplay between three intra-individual (i.e., shyness, self-esteem, neuroticism) and four social-

environmental (i.e., attachment relationship with father and mother, peer social preference, friendship quality) in relation to loneliness in middle childhood. Additive, moderation and mediation models were tested. Participants were 116 children (Mage = 9.27 years, 52% boys) from the Nijmegen Longitudinal Study on Infant and Child Development. Data were gathered using multiple sources and methods. Children filled in questionnaires on self-esteem, friendship quality, the quality of the attachment relationship with father and mother, and loneliness. Sociometric data were collected in the children's classrooms to measure shyness (i.e., total number of nominations received) and social preference (i.e., liked most minus liked least nominations received). Neuroticism was rated by a questionnaire filled in by the children's teacher. Results indicated that low self-esteem and being poorly accepted by peers contributed independently to higher loneliness. Further, a significant interaction was found between self-esteem and the quality of the attachment relationship with mother in predicting loneliness. Finally, social preference mediated the relation between neuroticism and loneliness, while friendship quality mediated the relation between shyness and loneliness. The present study underlines the importance of investigating both inter-individual and intra-individual characteristics in examining loneliness and elaborates on previous research by including both parent and peer variables in the social-environmental domain and by including personality (i.e., neuroticism) in addition to shyness and self-esteem.

#### **P2.4 Intergenerational transmission of internalizing and externalizing psychopathology in adolescence: A longitudinal cross-lagged analysis – *Susanne Schulz, Utrecht University***

Psychopathological (i.e., internalizing and externalizing) symptoms in adolescence are common, persistent, and associated with a variety of adjustment problems. Particularly adolescents whose parents suffer from psychopathology are at increased risk for developing such symptoms. Few studies investigated the intergenerational transmission of internalizing and externalizing symptoms in a longitudinal design applying a dimensional view on psychopathology. This study tested the reciprocal associations between parental and adolescent internalizing and externalizing psychopathology over a six-year period in a community sample. Further, we examined how these associations differ across gender. The findings provide insight into the temporal pathways of the intergenerational transmission of psychopathology and into gender-specific risks during adolescence. Participants were 497 adolescents (43.1% girls; Mage=13.0 years at T1), their mothers (Mage=44.4 years at T1) and fathers (Mage=46.7 years at T1) who participated in an ongoing longitudinal community study. In annual assessments, adolescents and their parents reported on their internalizing and externalizing symptoms. Cross-lagged panel analysis was used to examine reciprocal associations between parental and adolescent psychopathology. Across adolescence, mothers' internalizing and externalizing symptoms predicted girls', but not boys', internalizing ( $\beta$ s=.05-.06,  $p$ <.043) and externalizing symptoms ( $\beta$ s=.08-.10,  $p$ <.001) in the following year, respectively. Fathers' internalizing, but not externalizing, symptoms marginally significantly predicted girls' ( $\beta$ s=.02,  $p$ <.067) and boys' internalizing symptoms ( $\beta$ s=.03-.04,  $p$ <.072). We detected no effects from adolescent to parental psychopathology. Our findings suggest that parental symptoms might play a greater role in the transmission of

internalizing than externalizing symptoms. Particularly maternal symptoms put adolescent girls at risk for developing psychopathology.

**P2.5 Same problem, different causes: Individualized explanations for susceptibility to peer influence in adolescents with mild-to-borderline intellectual disabilities** – *Eline Wagemaker*

In this contribution we will present our research plans regarding the heightened susceptibility to peer-influence in adolescents with mild-to-borderline intellectual disability (MBID,  $50 < IQ < 85$  and deficits in adaptive functioning). We aim to establish the importance of three candidate factors (inhibition, theory of mind, and interpretation bias) that may contribute to this heightened susceptibility. In study 1 we assess whether adolescents with MBID differ from typically developing adolescents on susceptibility to peer-influence and on the three candidate factors. In study 2, we assess how the candidate factors affect susceptibility to peer-influence in adolescents with MBID. With this information, we calculate a Relative Training Index which enables us to construct an intervention targeting these candidate factors in an individualized way. In study 3, we will pilot the individualized intervention using multiple N=1 studies. Study 4 will be an RCT in which we compare the individualized intervention with non-individualized training of the candidate factors. We expect that this new individualized approach will have great potential in mental health care for the MBID population, as well as for mental health care in general. We would like to obtain feedback on our proposed plans.

**P2.6 Development of reactive and proactive inhibitory control in primary school-aged children** – *Margot Schel, Leiden University*

Currently, most research on the development of response inhibition in primary school-aged children has focused on reactive inhibition, that is stopping in response to an external stop-signal. The development of proactive inhibition, that is anticipating the need to stop, has received less attention. In the present study, 110 primary school children (aged 6-12) performed a child-friendly adaption of the stop-signal anticipation task to measure both reactive and proactive inhibition. In the stop-signal anticipation task, a squirrel runs towards a colored nut and participants have to help the squirrel collect nuts by pressing a button when the squirrel has reached the nut. On some trials the squirrel stops running before he has reached the nut and on these trials participants have to inhibit responding. The probability that participants will have to inhibit is signaled by the color of the nut. Results show that reactive inhibition performance improved with age, with older children showing shorter stop-signal reaction times. Children across the whole age-range showed proactive inhibition, that is slowing down responding when anticipating a stop-signal, and this did not differ with development. However, the relation between reactive and proactive inhibition differed with age; younger children who were good at reactive inhibition were also good at proactive inhibition, whereas older children who were good at reactive inhibition were less good at proactive inhibition, indicating possible strategy differences between younger and older children. Currently, more data are collected and future analyses will also examine the link with educational outcomes.

**P2.7 Gifted Children: How Do Teachers View Them?** – *Tessa Weyns, KU Leuven*

Research showed that, teachers' view of gifted students' personality is in line with the disharmony hypothesis, which states that giftedness implies positive achievement-

related characteristics but comes at social-emotional costs. Our study extends this research by examining (a) whether teacher perceptions of social competence and teacher-child relationship quality are also negatively biased, and (b) whether adding information on children's social competence can buffer these negative views. Our experimental study, with a 2x2x2 between-subject design, measured perceptions of teachers-in-training (N=371). We presented each participant with a vignette (gifted/average, girl/boy, having friends/neutral condition) and questionnaires regarding their perceptions of the child on the vignette. Multiple ANOVA'S were carried out. In line with the disharmony hypothesis, gifted children were perceived as more conscientious ( $F(1,315)=15.30, p<.001, \eta^2=0.046$ ) and more open to experiences ( $F(1,319)=15.41, p<.001, \eta^2=0.047$ ), but also as less extraverted ( $F(1,317)=7.39, p=.007, \eta^2=0.023$ ), less agreeable ( $F(1,317)=4.94, p=.027, \eta^2=0.015$ ), and less emotionally stable ( $F(1,317)=22.87, p<.001, \eta^2=0.067$ ). Also, they were described as less socially competent ( $F(1,319)=17.61, p<.001, \eta^2=0.052$ ) and teachers perceived they would have more conflict with gifted children ( $F(1,320)=20.28, p<.001, \eta^2=0.060$ ). There were no effects regarding closeness and dependency. Adding information regarding friends did not buffer these effects for gifted children. Finally, teachers perceived they would have closer relationships with gifted girls than with boys ( $F(1,319)=3.88, p=.05, \eta^2=0.012$ ). In conclusion, teachers have a more negative view of gifted children's personality, social competence, and teacher-child relationship quality, regardless of information on children's social acceptance. These views may put gifted children at risk for developing teacher-student relationship difficulties.

### **P2.8 Illuminating differences in the science interest structure between countries using a psychometric network approach – Maïen Sachistal, University of Amsterdam**

In this study, we introduce a causal science interest network (CSIN) and establish that science interest can be represented and analyzed using a psychological network approach. More specifically, we extended the Causal Attitude Network model, which has been developed to represent attitudes as networks of evaluative reactions (Dalege et al., 2016), to be applicable in the context of science interest. We applied the CSIN to the PISA 2015 data of two countries, which differ importantly on Inglehart's and Baker's (2000) macro-cultural dimensions, traditional vs secular-rational orientations, and survival vs self-expression values, that is, the Netherlands and Colombia. Applying the CSINs of the two countries, we modeled two important theoretical assumptions of science interest: a) the mutual interactions between interest-related constructs hypothesized to underlie the development in interest and b) variation in domain specificity of interest. Using the CSIN not only allowed us to model these theoretical assumptions, but we were also able to replicate earlier findings of the literature, namely that enjoyment is central within the network of interest-related constructs and that important structural differences exist in the interest network across countries. The network approach is thus sensitive to structural differences in science interest across countries. Importantly, the structural differences between countries do not only have theoretical implications but also practical ones, as they can indicate which indicators are most promising to target in an intervention aimed at increasing science interest.

### **P2.9 Maternal Distress and Early Caregiving – Sterre Simons, Radboud University, presented by Kelly Cooijmans, Radboud University**

Introduction: Maternal distress may influence maternal caregiving, and hence long-term child development. The current study investigated associations between maternal prenatal and postnatal distress and caregiving, operationalized as maternal caregiving quality, holding, breastfeeding and co-sleeping. Methods: Participants were 193 healthy mother-child dyads. Maternal stress and anxiety were assessed prenatally by means of self-reports and saliva cortisol. At three and six months postnatally, maternal distress was assessed using self-report. Five weeks postpartum, maternal caregiving quality was observed. At six weeks and five months postpartum, mothers completed a four-day diary on infant holding. During the first six postnatal months mothers completed daily diaries on co-sleeping and weekly diaries on breastfeeding. Hierarchical and logistic regressions, repeated measures ANOVAs, and multilevel analyses were conducted. Results: More holding at six weeks was associated with higher levels of pregnancy-specific hassles and lower levels of fear of bearing a handicapped child. More holding at five months was related to higher prenatal anxiety. More co-sleeping was associated with higher levels of prenatal evening cortisol and lower levels of prenatal daily hassles. No associations were found between maternal prenatal and postnatal distress, and quality of caregiving and breastfeeding. Discussion: Differential results were found for the specific maternal prenatal distress and caregiving variables. Links between maternal prenatal distress and holding and co-sleeping were found. However, no support for associations between maternal prenatal distress and breastfeeding and the quality of caregiving or for links between maternal postnatal distress and caregiving were found. Future studies should replicate these results and examine underlying mechanisms.

## **P2.10 Data-driven brain-types and their cognitive consequences** - *Joe Bathelt, University of Cambridge*

The canonical approach to exploring brain-behaviour relationships is to group individuals according to a phenotype of interest, and then explore the neural correlates of this grouping. A limitation of this approach is that multiple aetiological pathways could result in the phenotype of interest, so the role of any one brain mechanism may be substantially underestimated. We show that recent advances in network analysis make it possible to group individuals at a neural level - to identify subgroups of individuals with similarly organized brains. Across three independent samples (total N = 313, mean age: 11.24 years, range: 5-21 years) we used a data-driven community clustering algorithm to identify robust subgroups using white-matter microstructure organization in childhood and adolescence. The algorithm indicated the presence of two groups of roughly equal sizes. A critical organizational difference between the groups was the role of the left and right cingulum. These different brain types had profoundly different cognitive abilities: Groups with higher FA in the cingulum performed better across assessments of fluid intelligence, vocabulary, verbal and visuospatial short-term and working memory, and longer-term memory. We next explored the potential mechanistic role of the cingulum. A connectomics analysis indicated reduced anterior-posterior structural connectivity in the low cingulum FA subgroup. We then used resting-state functional data from the same individuals and showed that cingulum FA was strongly related to activation of the default mode network. In summary, inter-individual differences in cingulum microstructural organisation allowed for biologically-based grouping, which has a dramatic effect on cognition and the functional activation of the default mode network. Using this new approach, we propose that the cingulum plays a key role in the



integration of cortical areas, which is pivotal for cognitive ability in children and young people.

## Teaching workshops

**Tuesday, May 15<sup>th</sup> 14.15-15.30**

**Teaching Workshop 1**

### **Activating didactics in clinical (skills) education (Brenda Jansen)**

Flipping the classroom, e-learning, activerende didactics for small and larger groups. What are best-practices and how could these methods be applied to our 'expensive' skills training courses, for example. How can we collaborate in this and strengthen the education of developmental-/Child and Adolescent Psychologists?

**Wednesday, May 16<sup>th</sup> 13.15-14.50**

**Teaching Workshop 2**

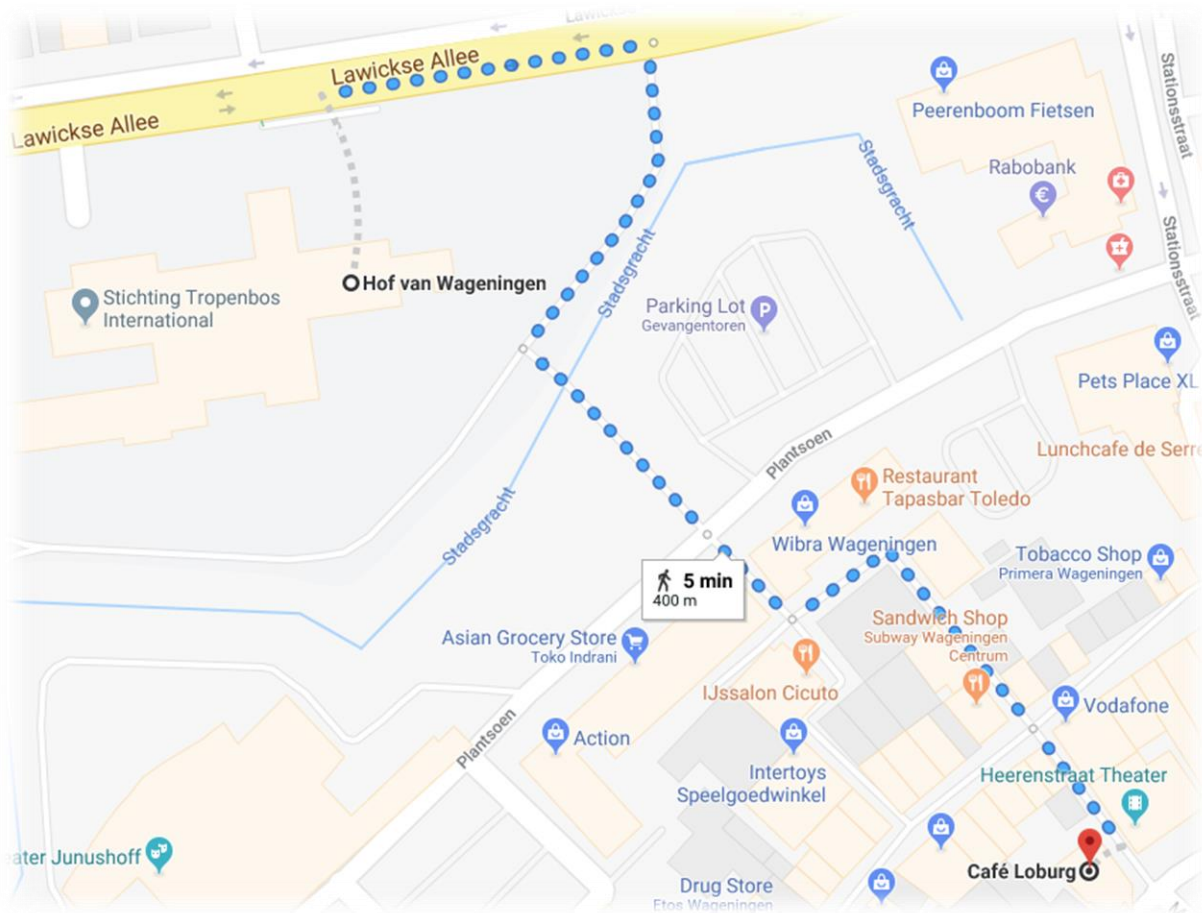
### **Internationalization of education in developmental psychology (Helen Bakker)**

What does this mean for teaching clinical skills? How can we prepare students both for the Dutch and international professional practice? How can we provide appropriate internships for international students? But also, how can we promote integration of international students in our educational programs?

NB: The language during the workshops (English or Dutch) will be adapted to the needs of the participants.

# Information social event

Our social event will take place at **Café Loburg**, which is a 5-minute walk from the Wageningen International Congress Centre. See below for a map with directions from WICC to Café Loburg:



During the social event we will be entertained by coverband Plunck:  
<https://www.plunck.com/index.php>