



# The Importance of the Environment for the Well-Being of Sensitive Children



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# Overview

- **Environmental Sensitivity**
- **Individual Differences**
  - Diathesis-Stress
  - Differential Susceptibility
  - Vantage Sensitivity
- **Measurement of Environmental Sensitivity**
  - The Highly Sensitive Child Scale
  - Sensitivity Groups
- **Empirical Evidence**
- **New Projects in Switzerland**
- **Conclusion**

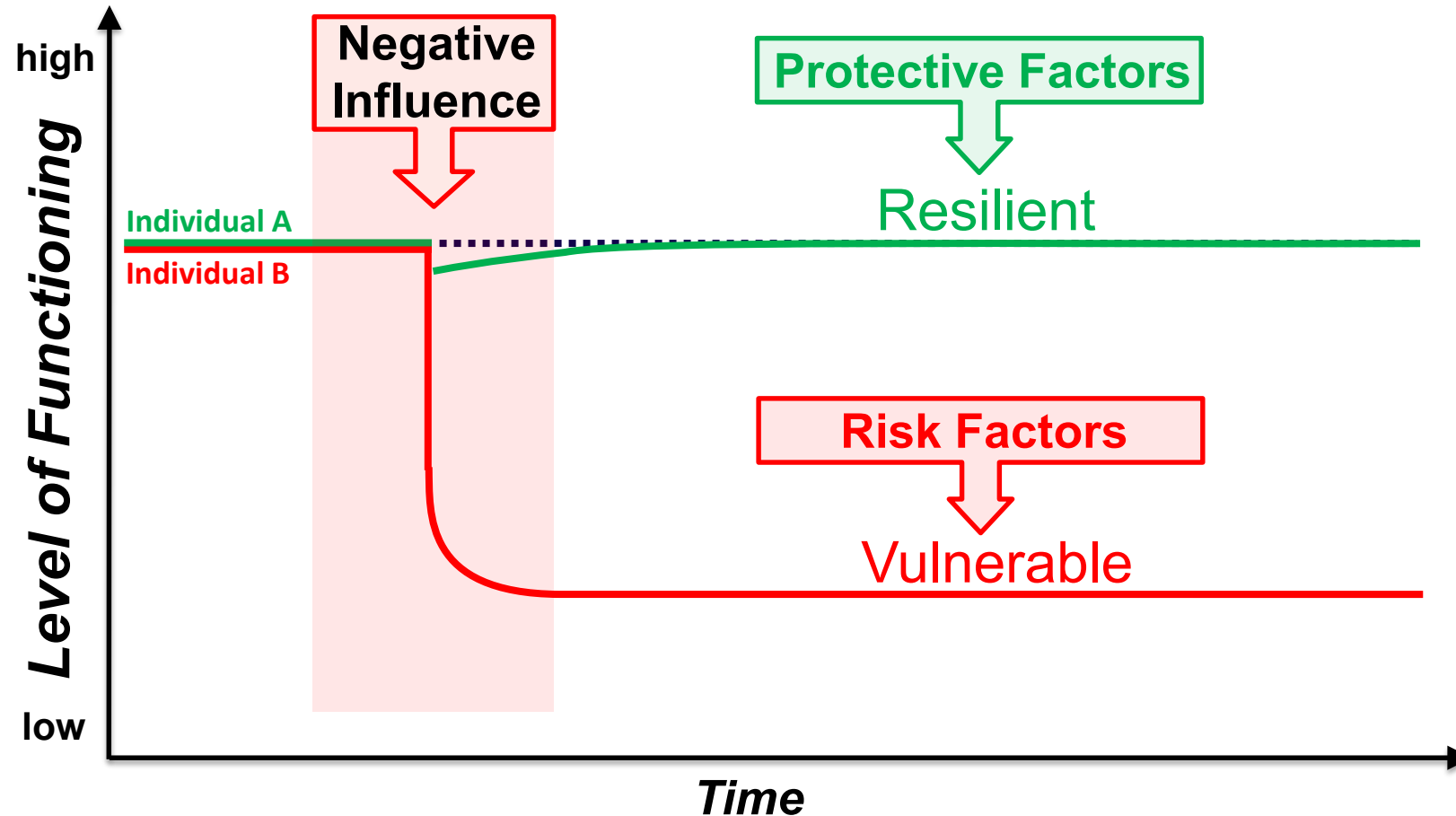


# Environmental Sensitivity

- Environmental Sensitivity is a fundamental trait found in most species, including humans:
  - ***Ability to register and process external stimuli***
- Do all people have the same degree of Environmental Sensitivity?
  - Differences in Environmental Sensitivity are widely observable and are reflected in many psychological concepts
    - E.g.: Personality traits, stress reactivity etc.

→ **Some people are generally more and some people generally less sensitive**

# Vulnerability-Stress



# **From Vulnerability-Stress to Differential Susceptibility**



# Differential Susceptibility

- Jay Belsky (1997;2005); Belsky & Pluess (2009; 2013)
  - Related to Biological Sensitivity to Context (Boyce & Ellis, 2005)
- Based on evolutionary theory

**1. People differ in their degree of Environmental Sensitivity**

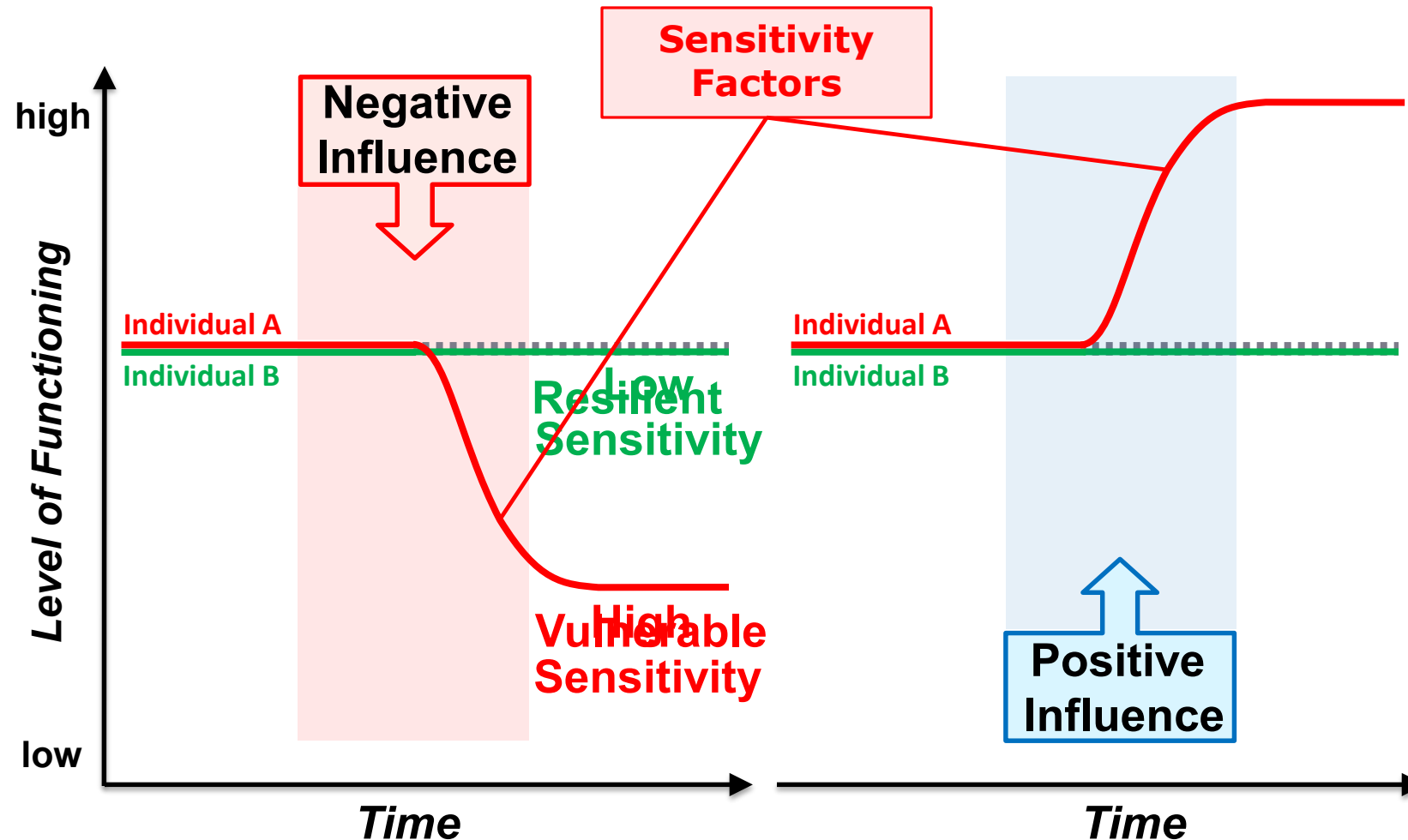
**2. Some are generally more and some generally less susceptible**

**3. To effects of both *negative* and *positive* environmental experiences**

Belsky, J. & Pluess, M. (2009). Beyond Diathesis-Stress: Differential Susceptibility to Environmental Influences. *Psychological Bulletin*, 135(6), 885-908.



# Differential Susceptibility



Belsky, J. & Pluess, M. (2009). Beyond Diathesis-Stress: Differential Susceptibility to Environmental Influences. *Psychological Bulletin*, 135(6), 885-908.

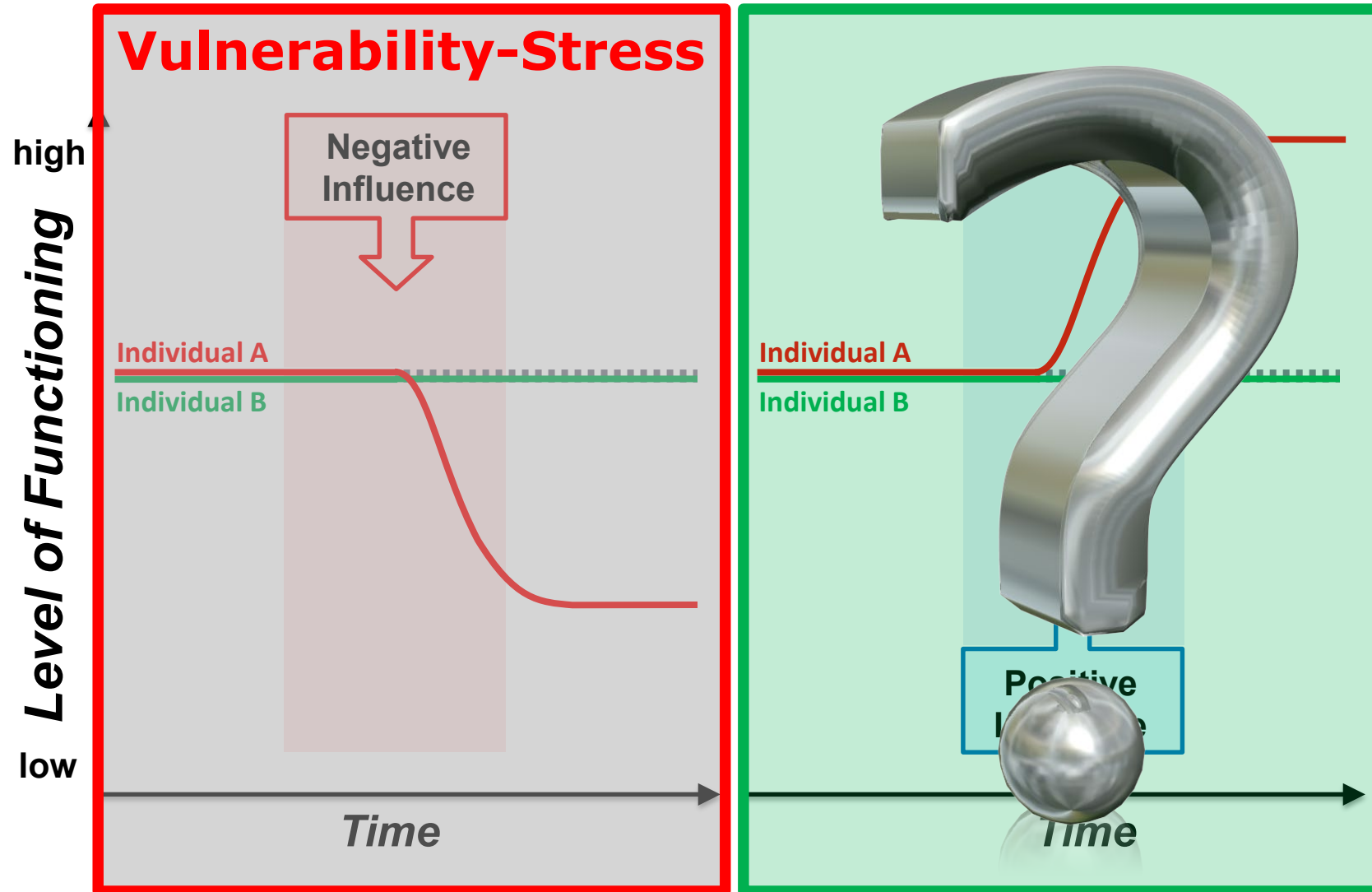


# **From Differential Susceptibility to Vantage Sensitivity**

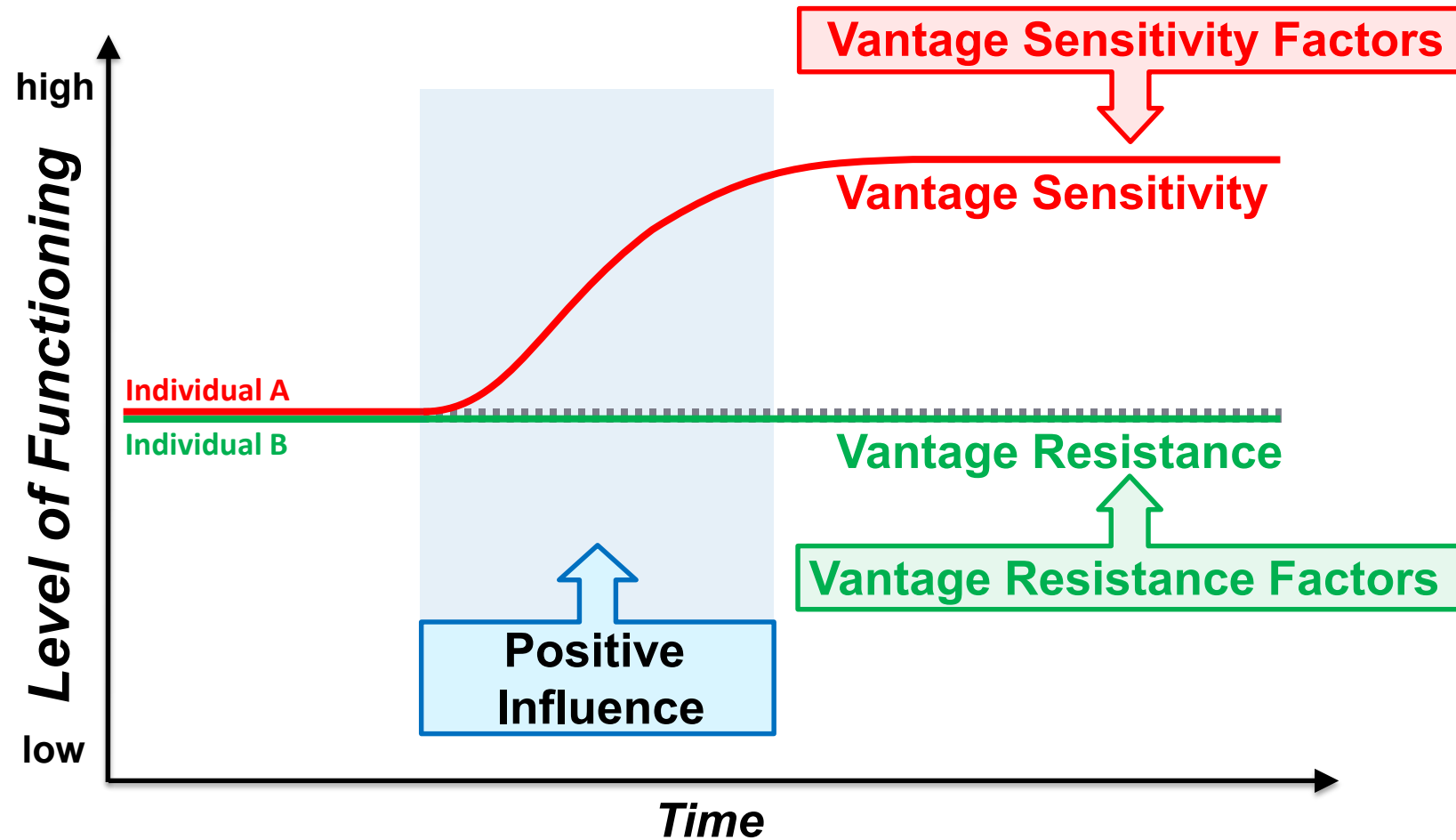




# Two Sides to Differential Susceptibility



# Vantage Sensitivity



Pluess, M., & Belsky, J. (2013). Vantage Sensitivity: Individual Differences in Response to Positive Experiences. *Psychological Bulletin*, 139(4), 901-916. doi: 10.1037/a0030196



# Sensitivity Factors

- Extensive review of empirical studies revealed associations between heightened Environmental Sensitivity and three categories of individual characteristics:

## 1. Psychological Factors

- *e.g., infant temperament*

## 2. Physiological Factors

- *e.g., cortisol reactivity*
  - See Boyce & Ellis (2005) Biological Sensitivity to Context

## 3. Genetic Factors

- *e.g., serotonin transporter polymorphism*

Belsky, J. & Pluess, M. (2009). Beyond Diathesis-Stress: Differential Susceptibility to Environmental Influences. *Psychological Bulletin*, 135(6), 885-908.



# Measurement of Environmental Sensitivity



# Measurement of Environmental Sensitivity

## ▪ Sensory Processing Sensitivity

- Elaine Aron (1996)



- **Common personality trait:**
  - more aware of subtleties in his/her surroundings
  - processing experiences more deeply
  - is more easily overwhelmed when in a highly stimulating environment
- **Facets of SPS:**
  - Behavioural Inhibition
  - Sensory Sensitivity
  - Depth of Cognitive Processing
  - Emotional/Physiological Reactivity

Aron, E. N., Aron, A., & Jagiellowicz, J. (2012). Sensory processing sensitivity: a review in the light of the evolution of biological responsivity. *Personality and Social Psychology Review*, 16(3), 262-282.



# Measurement of Environmental Sensitivity

- Highly Sensitive Person (HSP) scale with 27 items (Aron & Aron, 1997)
  - **Brief versions for adults and children** (Pluess et al., 2018)

INSTRUCTIONS: Answer each question according to the way you personally feel, using the following scale:

1	2	3	4	5	6	7
Not at All			Moderately			Extremely

1. I notice when small things have changed in my environment
2. Loud noises make me feel uncomfortable
3. I love nice smells
4. I get nervous when I have to do a lot in little time
5. Some music can make me really happy
6. I am annoyed when people try to get me to do too many things at once
7. I don't like watching TV programs that have a lot of violence in them
8. I find it unpleasant to have a lot going on at once
9. I don't like it when things change in my life
10. I love nice tastes
11. I don't like loud noises
12. When someone observes me, I get nervous. This makes me perform worse than normal

Pluess, M., Assary, E., Lionetti, F., Lester, K. J., Krapohl, E., Aron, E., & Aron, A. (2018). Environmental Sensitivity in Children: Development of the Highly Sensitive Child Scale and Identification of Sensitivity Groups. *Developmental Psychology*.



# Sensitivity Groups



# Sensitivity Groups

## Dandelions

- Less sensitive
- Majority (80%)



## Orchids

- Highly sensitive
- Minority (20%)

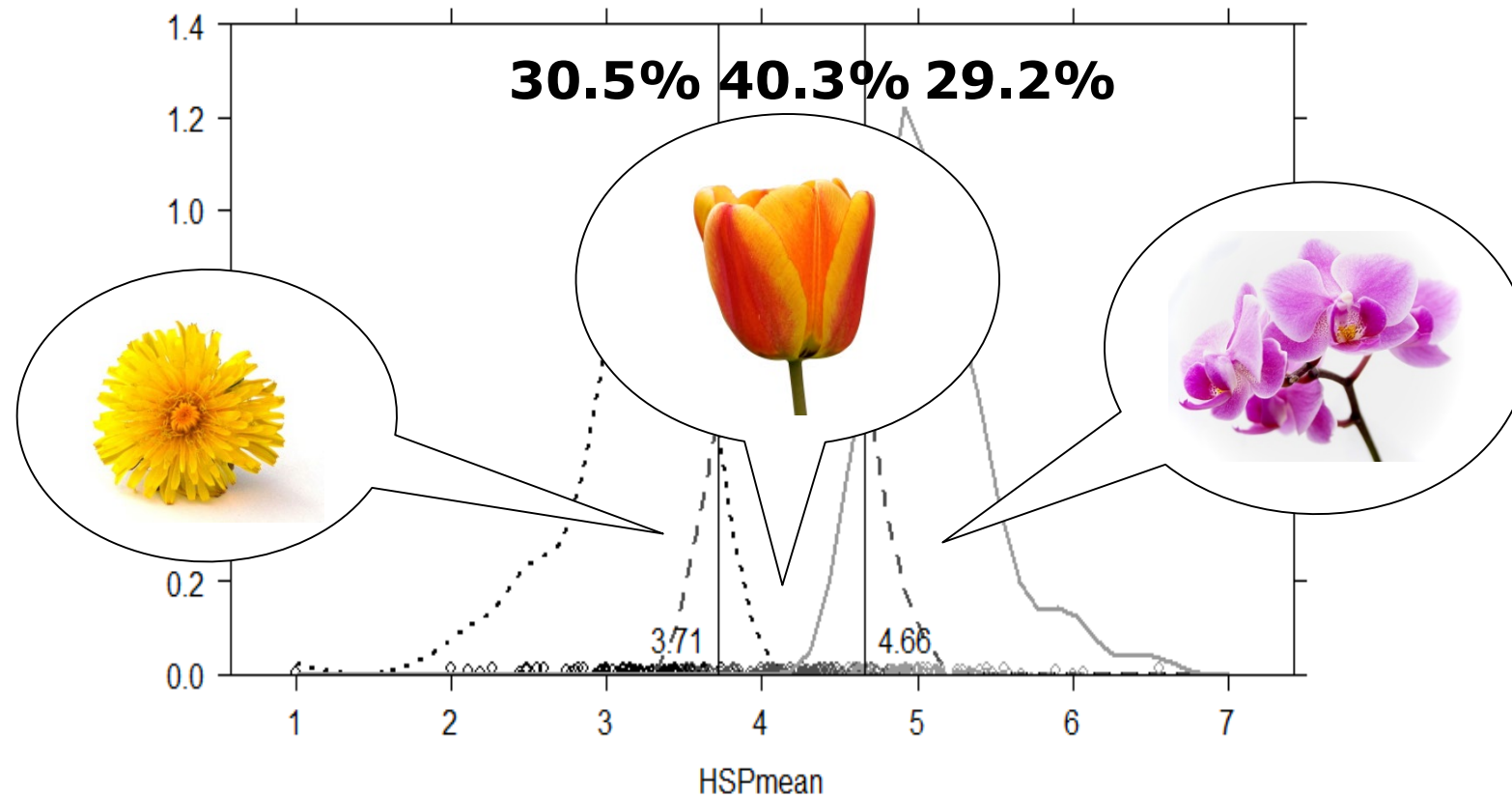


Boyce, W. T., & Ellis, B. J. (2005). Biological sensitivity to context: I. An evolutionary-developmental theory of the origins and functions of stress reactivity. *Development and Psychopathology*, 17(2), 271-301.



# Sensitivity Groups

- **What does data suggest?**
  - Latent Class Analysis (N = 901 undergraduate students)



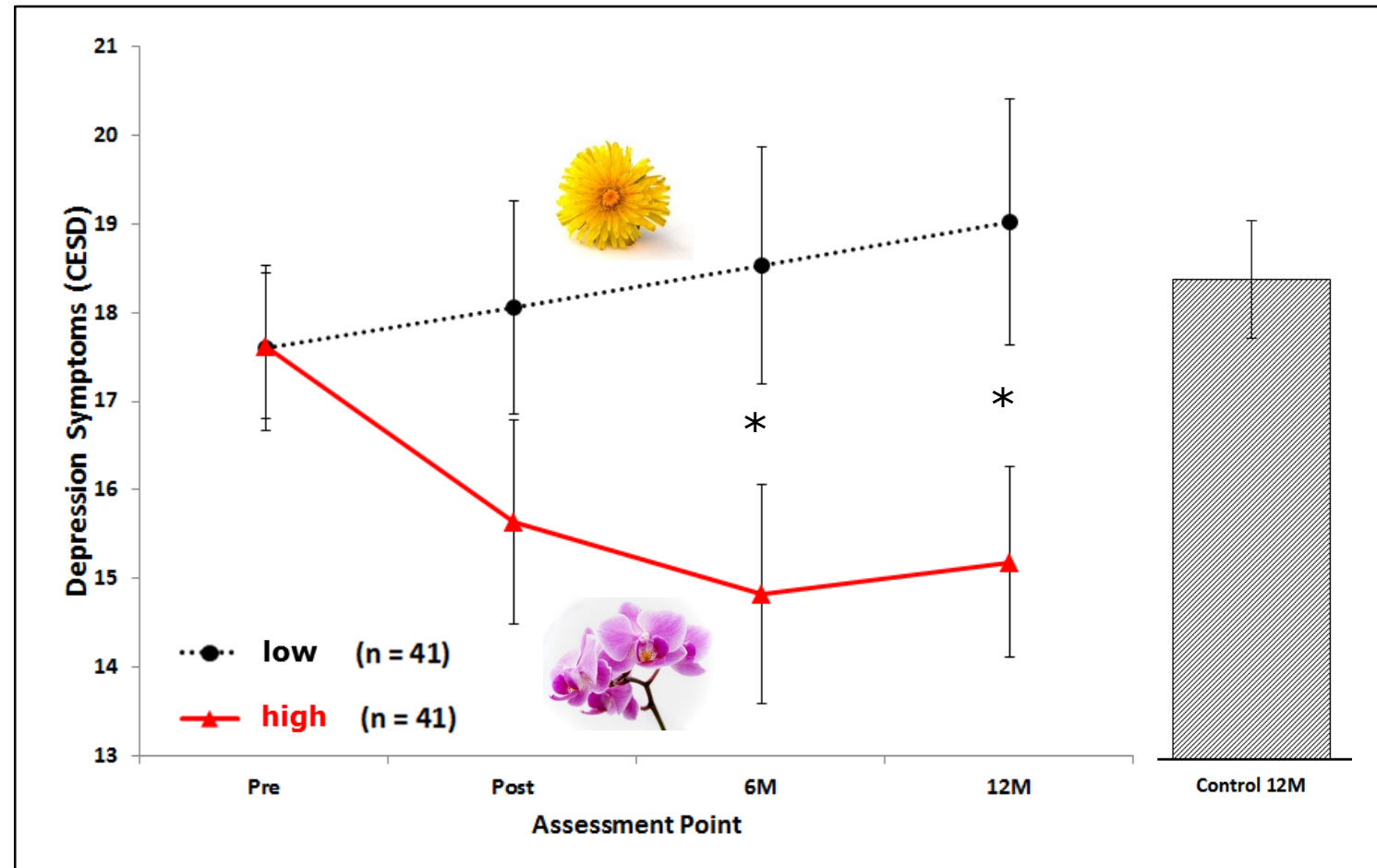
Lionetti, F., Aron, A., Aron, E., Burns, G. L., Jagiellowicz, J. & Pluess, M. (2018). Dandelions, Tulips, and Orchids: Evidence for the Existence of Low, Medium, and High Sensitive Individuals in the General Population. *Translational Psychiatry*.

# **Are Sensitive Children more Sensitive to their Environment?**



# Sensitivity to Intervention

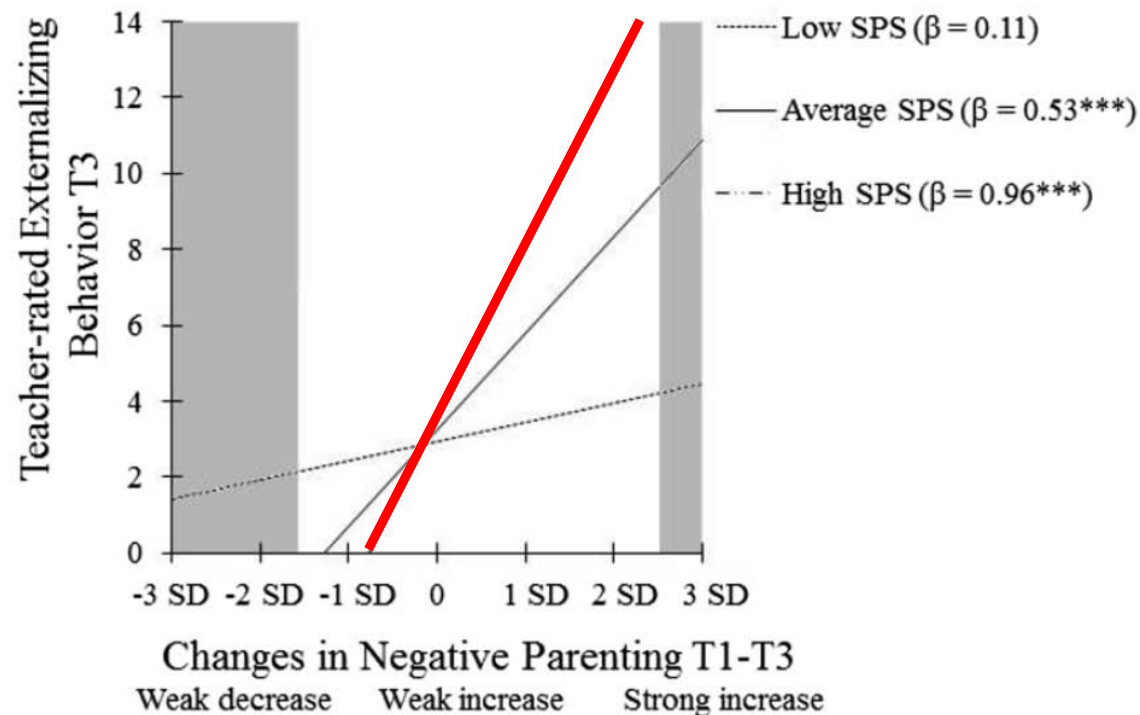
## ▪ School-Based Resilience Intervention



Pluess, M., & Boniwell, I. (2015). Sensory-Processing Sensitivity predicts treatment response to a school-based depression prevention program: Evidence of Vantage Sensitivity. *Personality and Individual Differences*, 82(0), 40-45.

# Sensitivity to Parenting

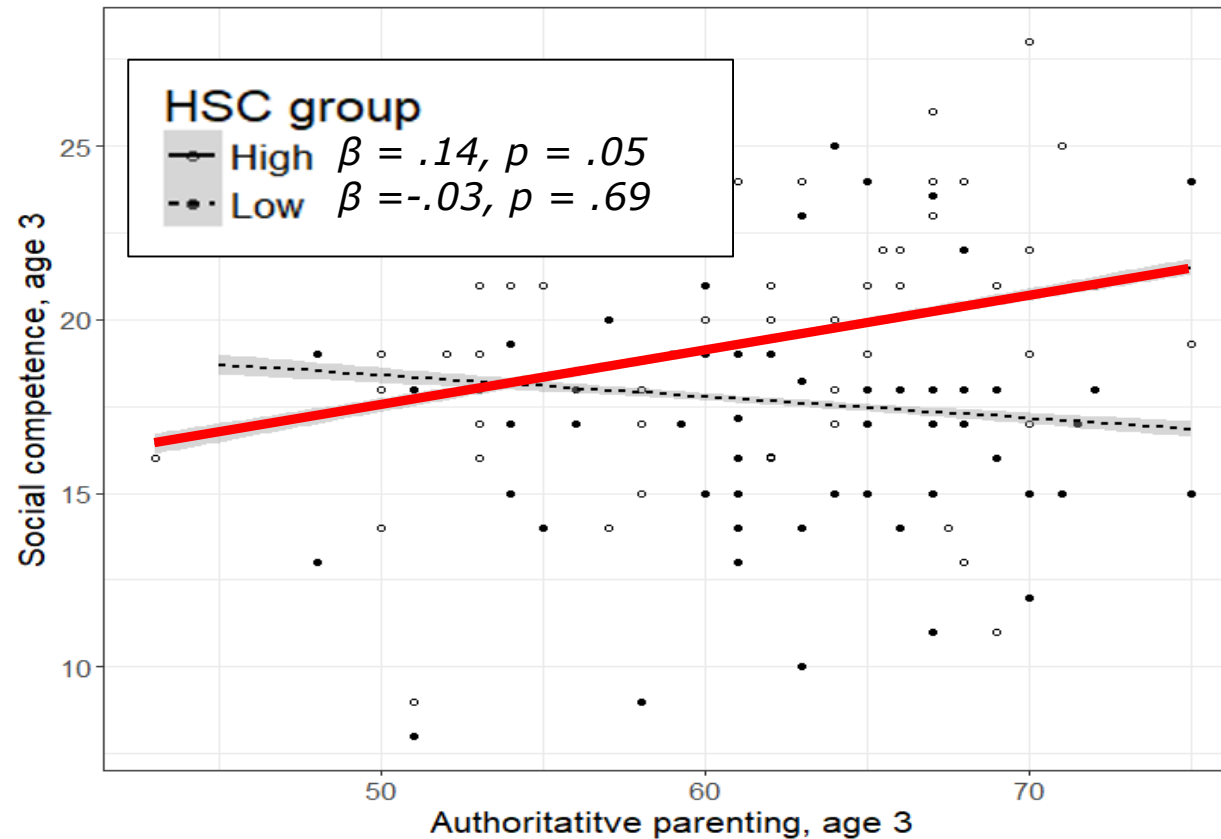
- **Parenting and Externalising Behaviour**
  - Parent-rated Sensitivity (HSC scale)



Slagt, M., Dubas, J. S., van Aken, M. A. G., Ellis, B. J., & Dekovic, M. (2018). Sensory Processing Sensitivity as a Marker of Differential Susceptibility to Parenting. *Developmental Psychology*, 54(3), 543-558. doi:10.1037/dev0000431

# Sensitivity to Parenting

- **Authoritative Parenting and Social Competence**
  - Observer-rated Sensitivity (HSC-RS)

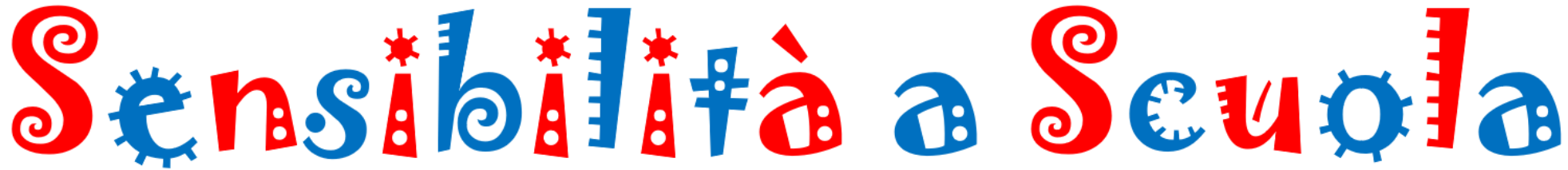


Lionetti, F., Klein, D. N., Aron, A., Aron, E., & Pluess, M. (2019). Observer-Rated Environmental Sensitivity Moderates Children's Response to Parenting Quality in Early Childhood. *Developmental Psychology*.

# New Projects in Switzerland



# Sensitivity to School Study (ESToSCHOOL)



Queen Mary  
University of London

Scuola universitaria professionale  
della Svizzera italiana

SUPSI

JACOBS  
FOUNDATION

## ■ Study

- Collaboration between QMUL and SUPSI, funded by Jacobs Foundation
- Longitudinal study across the first two years of primary school in Ticino
- The sample includes about 200 children from 10 different schools

## ■ Objectives

- Find out what aspects of the school context (i.e., classroom, teacher support, peers etc.) matter most for sensitive children's socio-emotional and academic development
- Create new tools to measure children's sensitivity in school (rating scales)
- Write booklet with basic information on sensitivity for teachers and parents



## Sensitivity Website (ESWEB)



### ■ Features

- Providing reliable information on sensitivity for both the public and researchers
  - Basic information and frequently asked questions
  - Research blog with summaries of recent studies
- Online tests for sensitivity (for children and adults)
- Content will be available in English, German and Italian
- The website will be launched in June 2020



# Conclusion



## Conclusion

- Children differ in their Environmental Sensitivity with some **more affected by negative and positive** environmental influences
- As a function of genetic, physiological and psychological factors. **Sensitivity can be measured with a short questionnaire**
- Substantial **variability in response to environmental influences** is the norm
- Environmental Sensitivity is an important trait of school children and **should be considered in the context of school**

# Acknowledgments

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  - Stony Brooks University, USA
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  - Stony Brooks University, USA
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  - UC Davis, USA
- **Davide Antognazza**
  - SUPSI, CH
- **Michele Egloff**
  - SUPSI, CH
- **Luciana Castelli**
  - SUPSI, CH
- **Alina Vanini**
  - SUPSI, CH

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  - University of Virginia, USA
- **Galena Rhoades**
  - Denver University, USA
- **Gabriel Schlomer**
  - University of Albany, USA
- **Annalaura Nocentini**
  - University of Florence, Italy
- **Gabriela Bodale**
  - Queen Mary University of London, UK
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Established by the European Commission







# Thank you for your attention!

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# Implications





# Implications

- Given that individuals differ in their degree of Environmental Sensitivity:
  - Some individuals will be **less** affected by environmental influences:
    - More resilient to adverse experiences
    - Less responsive to positive experiences
  - Some individuals will be **more** affected by environmental influences:
    - More vulnerable to adverse experiences
    - More responsive to positive experiences

→ **Adverse experiences will not harm all individuals to the same degree!**

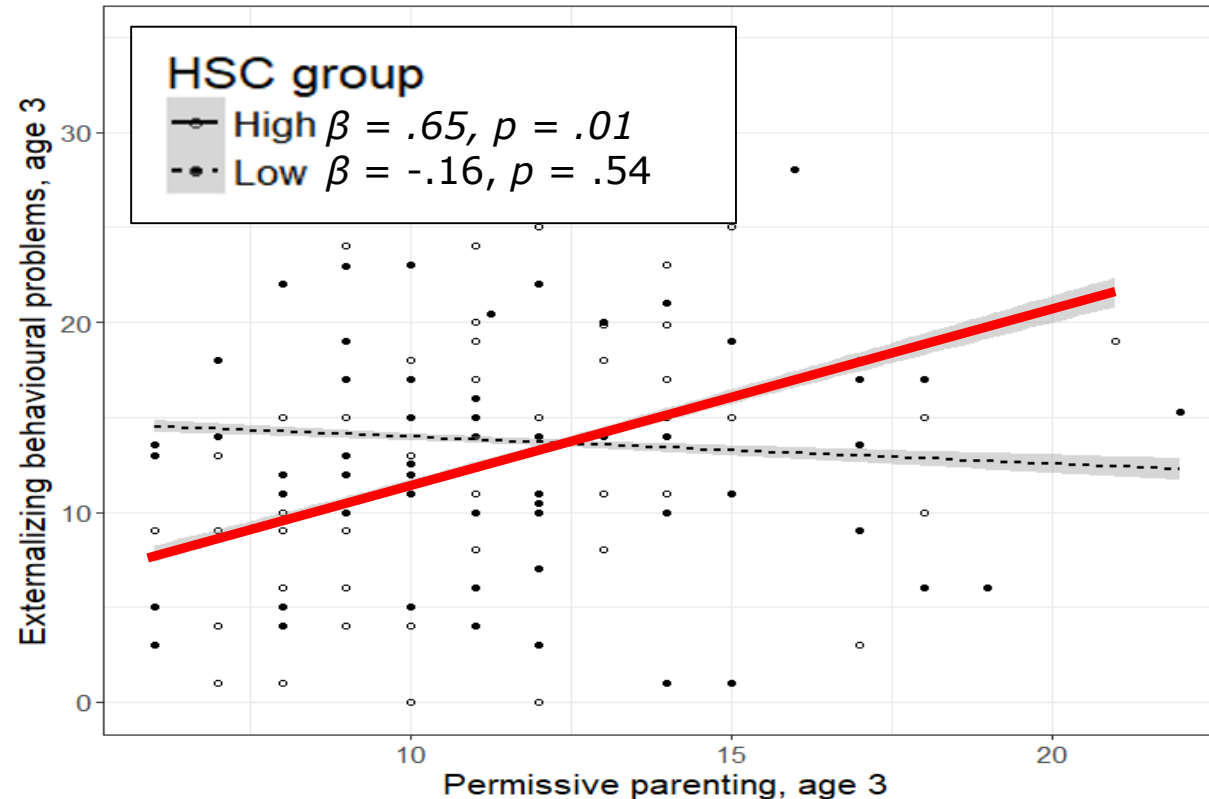
→ **Supportive experiences will not benefit all individuals to the same degree!**



# Sensitivity to Parenting

## ■ Permissive Parenting

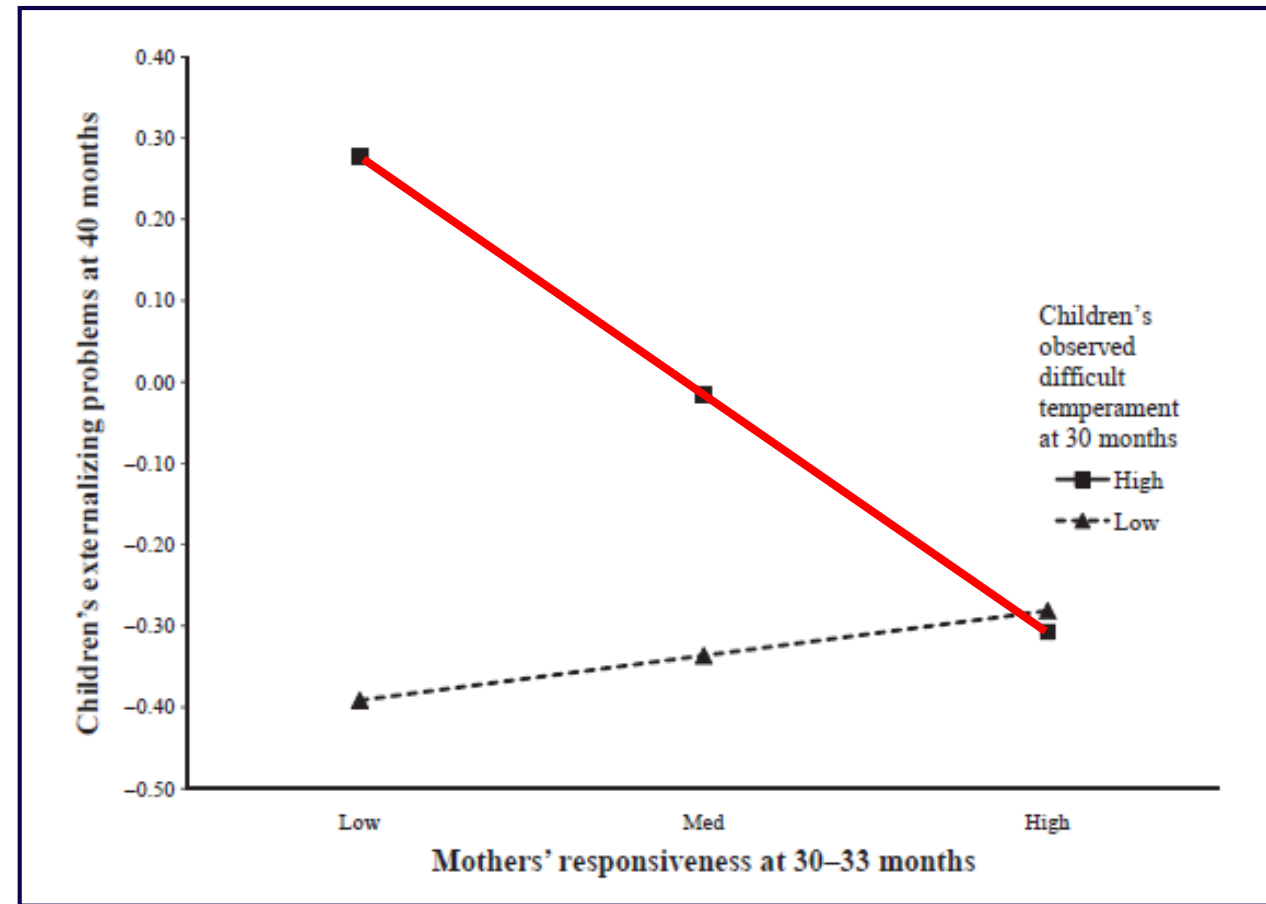
- Observer-rated sensitivity in 3 year olds (N = 292)
  - Interaction fit best with Differential Susceptibility pattern



Lionetti, F., Klein, D. N., Aron, A., Aron, E., & Pluess, M. (in revision). Observer-Rated Environmental Sensitivity Moderates Children's Response to Parenting Quality in Early Childhood. *Developmental Psychology*.

# Empirical Evidence

## ■ Child Temperament and Parenting

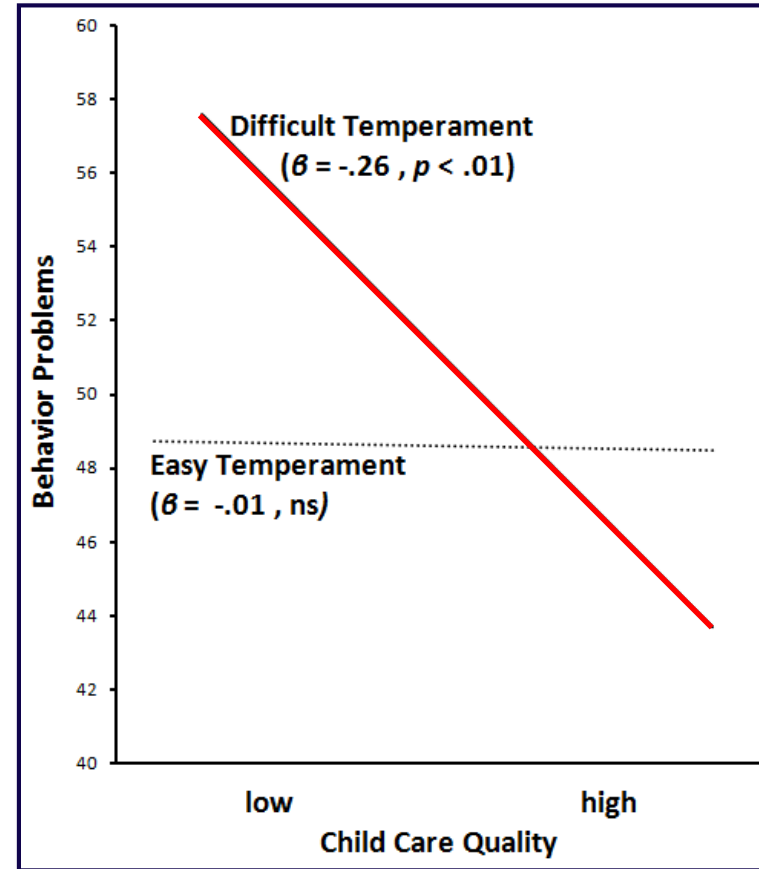


Kochanska, G., & Kim, S. (2013). Difficult temperament moderates links between maternal responsiveness and children's compliance and behavior problems in low-income families. *Journal of Child Psychology and Psychiatry*, 54(3), 323-332.



# Empirical Evidence

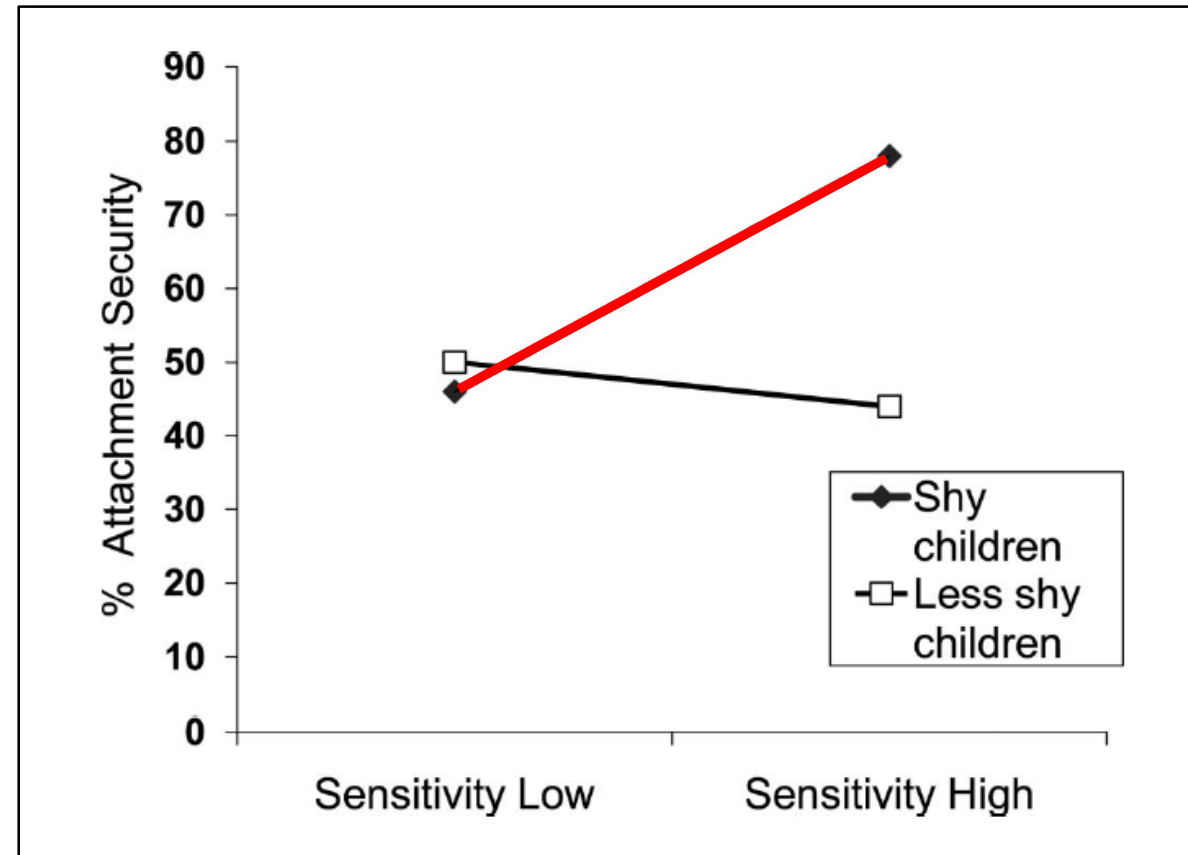
## ▪ Infant Temperament and Child Care



Pluess, M., & Belsky, J. (2009). Differential Susceptibility to Rearing Experience: The Case of Childcare. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 50(4), 396-404.

# Empirical Evidence

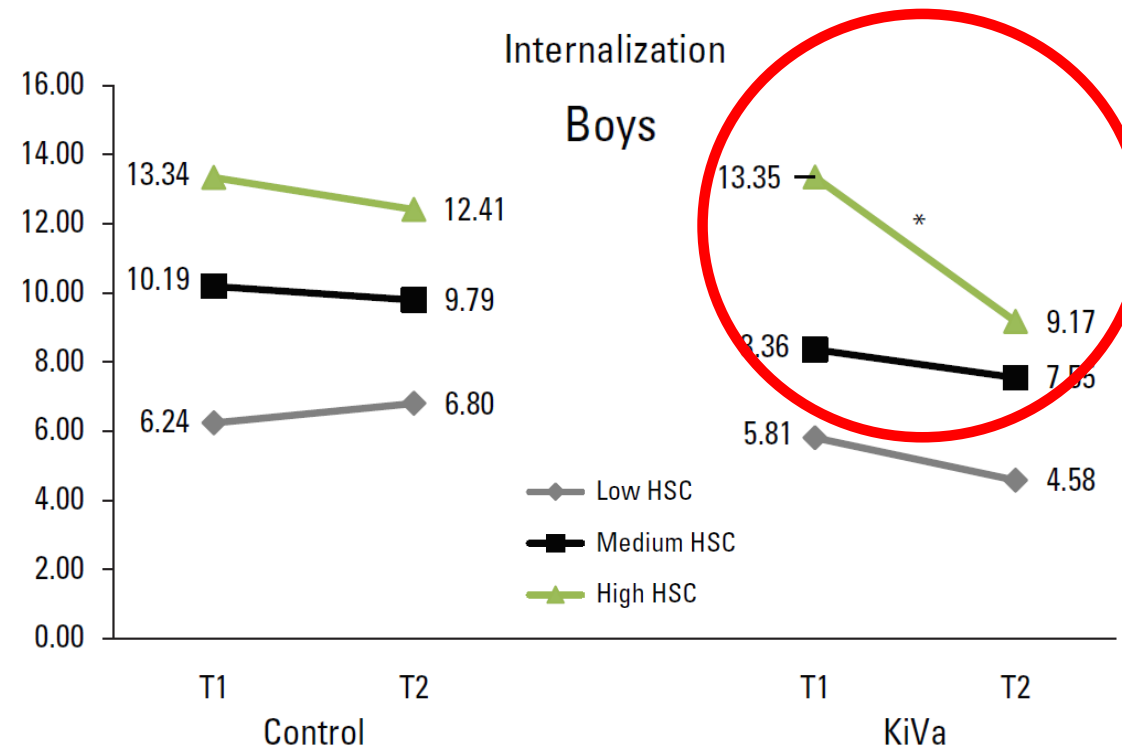
## ▪ Infant Temperament and Parenting



De Schipper, J. C., Oosterman, M., & Schuengel, C. (2012). Temperament, disordered attachment, and parental sensitivity in foster care: differential findings on attachment security for shy children. *Attachment & Human Development*, 14(4), 349-365.

# Sensitivity to Intervention

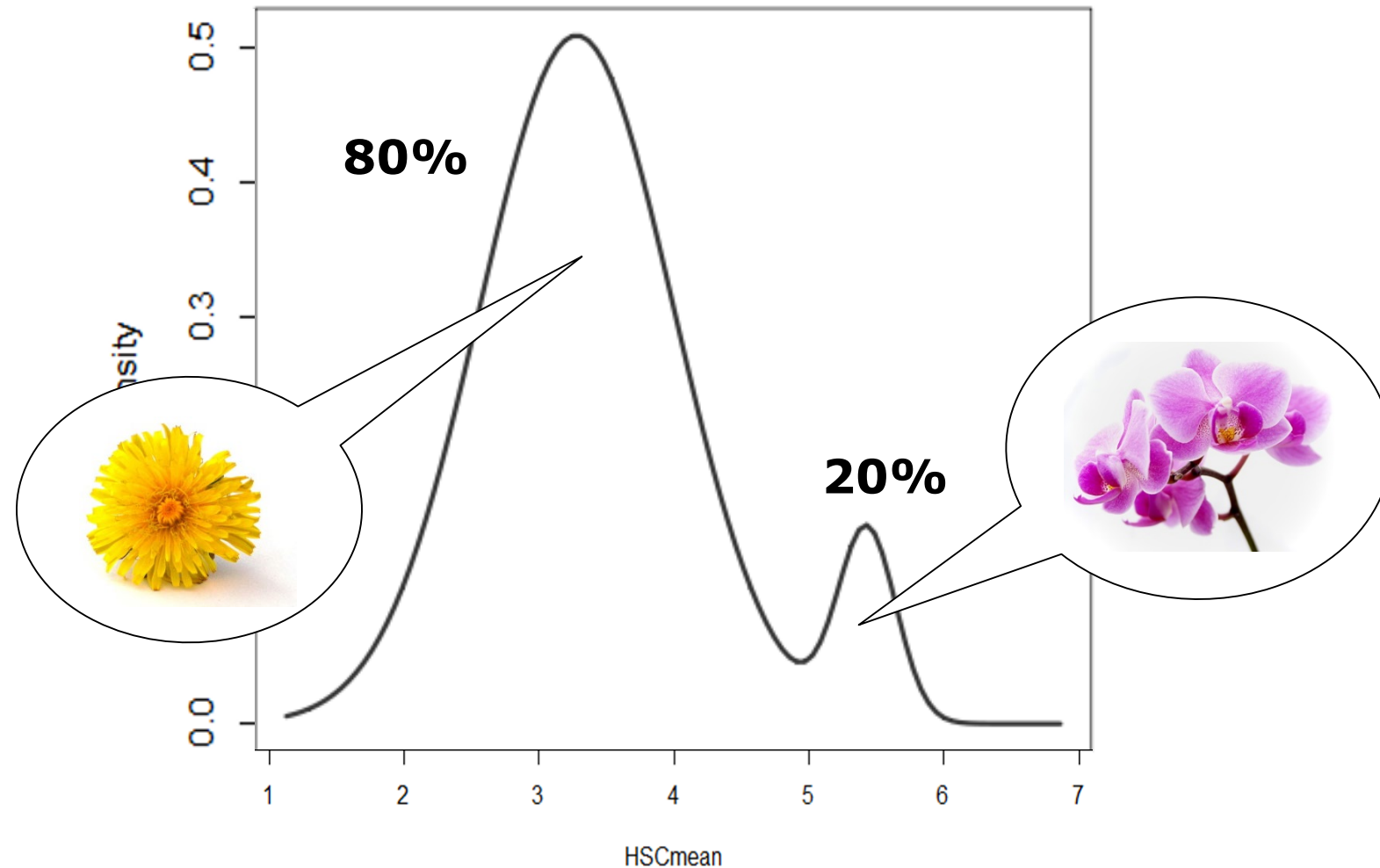
- **Anti-Bullying Intervention (KiVa)**
  - N = 931 (control = 461; treatment = 460)
  - Significant interaction: group X time X HSC X gender



Nocentini, A., Menesini, E., & Pluess, M. (2018). The Personality Trait of Environmental Sensitivity Predicts Children's Positive Response to School-Based Anti-Bullying Intervention. *Clinical Psychological Science*.

# Sensitivity Groups

- Do these two groups exist in the general population?



# Sensitivity Groups

## ▪ Distribution of Sensitivity

- Normal rather than bimodal!
- Similar to other common personality traits

