Overview

- Resilience
  - Diathesis-Stress
  - Gene-Environment Interaction

- Environmental Sensitivity
  - Differential Susceptibility
  - Vantage Sensitivity

- Mechanisms of Environmental Sensitivity
  - Neurosensitivity Hypothesis

- Phenotype of Environmental Sensitivity
  - Sensory Processing Sensitivity

- New: Resilience of Syrian Refugee Children
Diathesis-Stress/Dual Risk Model

- **Resilient**
  - Protective Factors
  - Time: Level of Functioning
  - Individual A: High
  - Individual B: Low

- **Vulnerable**
  - Risk Factors
  - Time: Level of Functioning
  - Individual A: Low
  - Individual B: Low

**Negative Influence**

- High Impact on Resilience
- Low Impact on Vulnerability
Serotonin Transporter Polymorphism

L/L

S/L

S/S
Empirical Evidence

- Serotonin Transporter (5-HTTLPR)

Environmental Sensitivity
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.: Temperament, Personality, Stress Reactivity etc.

→ People differ fundamentally in how they perceive and process environmental features, with some being generally more and some generally less sensitive

Differential Susceptibility

Level of Functioning

Time

Low Sensitivity

High Sensitivity

Individual A

Individual B

Negative Influence

High Sensitivity

Individual A

Individual B

Positive Influence

Sensitivity Factors

Genetic Differential Susceptibility

- Serotonin Transporter (5-HTTLPR)

Two Sides of Environmental Sensitivity

Diathesis-Stress

- Negative Influence
- Level of Functioning
  - high
  - low
- Time

Individual A
Individual B

Positive Influence

Individual A
Individual B

Time
Empirical Evidence

- Serotonin Transporter (5-HTTLPR)

Mechanisms of Environmental Sensitivity
Mechanisms of Environmental Sensitivity

- The „Neurosensitivity“ Hypothesis
  - Some individuals have a more sensitive central nervous system on which experiences register more easily and more deeply (Aron, 1996; Belsky, 2005; Belsky & Pluess, 2009)
Mechanisms of Environmental Sensitivity

- **Amygdala Reactivity**
  - Amygdala is part of the limbic system with primary role in the processing and memory of emotional reactions.
  - Sensitivity genes are related to amygdala reactivity:
    - 5-HTTLPR short allele

The Neurosensitivity Hypothesis

Mechanisms of Environmental Sensitivity

- Amygdala Volume

Phenotype of Environmental Sensitivity
Resilience and Environmental Sensitivity

Phenotype 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

High Sensitive Personality Scale

- Original scale with 27 items (Aron & Aron, 1997)
  - Brief versions for adults and children (Pluess et al., submitted)

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

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

Resilience and Environmental Sensitivity

HSC and Response to Intervention

- Resilience Intervention

Conclusion
Conclusion

→ People differ in their environmental sensitivity with some being more affected by negative and/or positive environmental influences

→ As a function of genetic, physiological and psychological factors

→ Suggesting a more sensitive central nervous system as a mechanism of heightened environmental sensitivity

→ Substantial variability in response to environmental influences should be expected (norm rather than exception)!
Biological Pathways of Risk and Resilience in Syrian Refugee Children Based in Lebanon (BIOPATH)
BIOPATH Study

- Millions of children are affected by war and displacement
  - Some develop psychological problems
  - Some show remarkable resilience

- We investigate the **biological underpinnings** of individual differences in response to war and displacement
  - **Multiple settings**
    - Family, school, community, neighbourhood, services
  - **Multilevel approach**
    - Environmental, social, psychological, neuroendocrine, immune system, epigenetic and genetic factors
  - Focus on both **risk and protective** factors as well as **adaptive and maladaptive** outcomes
  - **Longitudinal design**
BIOPATH Study

- Main research questions:
  - How do experiences affect children’s well-being?
  - Why are some children more or less affected than others?

Diagram:
- Environmental Risk & Protective Factors
- War Exposure & Displacement
- DNA Methylation
- Genes
- Psychological and Biological Outcomes
  - Baseline
    - Maladaptive (Risk)
    - Adaptive (Resilience)
  - 12 Month Follow-Up
    - Maladaptive (Risk)
    - Adaptive (Resilience)
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Thank you for your attention!

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