

A dense, chaotic scene of muscular, multi-colored figures in a classical painting style. The figures are rendered in various shades of brown, purple, green, and blue, and are depicted in various poses of struggle, pain, and exhaustion. The background is dark and textured, suggesting a cavernous or hellish environment. Overlaid on the scene are several yellow text labels in a bold, sans-serif font, which appear to be related to modern business or academic concepts. The overall composition is highly detailed and expressive, with a strong sense of movement and tension.

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reporting

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Resilience

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What is resilience?

How can we measure it?

Is resilience to chronic and everyday stressors different from resilience to major events?

What do we know about psychological mechanisms?

What do we know about biological mechanisms?

What can we do in FAMILY?

Why you should be in Mainz Sept 25-27?

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Why you should be in Mainz Sept 25-27?

What is resilience?

“Except for the main idea of facing challenges, it is somewhat difficult to guess that all of those definitions concern the same subject.”
(M. Pecillo, 2016)

A (very) brief history of resilience research

Trait

- Hardiness (Kobasa, 1979)
- Ego resiliency (Block and Block, 1980)

Multiple factors

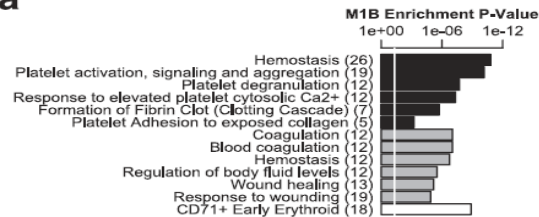
- Various traits, skills, behaviors, beliefs, ...
(Masten & Garmezy, 1985; Werner & Smith, 1989)

Processes

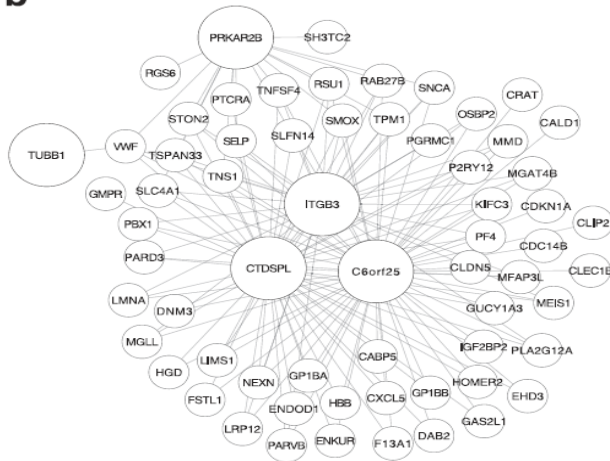
- Person-environment transactions
- Individual change
(Luthar et al., 2000; a.m.o.)

Processes of individual change (adaptation)

a



b

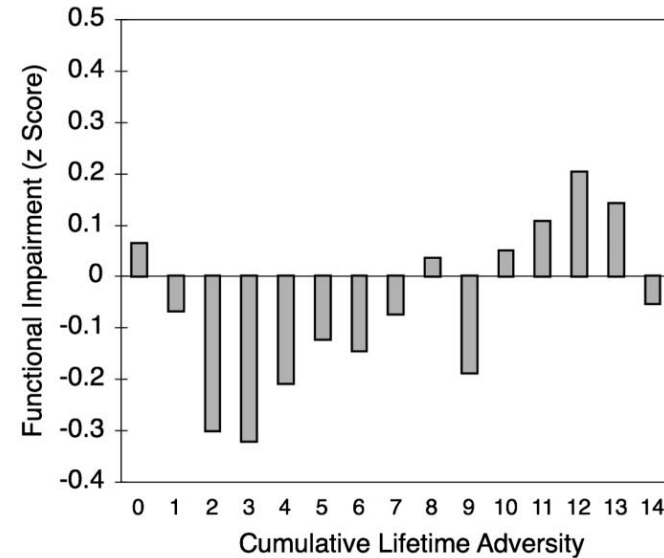


Gene expression

Breen et al., *Mol Psychiatry* 2015

Post-traumatic growth

Johnson and Boals, *Psychol Trauma* 2015



Stress inoculation (steeling effect)

Seery et al., *J Pers Soc Psychol* 2010

Animal models

→ Neural adaptations, causality

A (very) brief history of resilience research

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Processes

- Individual change
- Person-environment transactions
(Luthar et al., 2000; a.m.o.)

Outcome

- Masten & Garmezy, 1985

The reality of resilience research

Person completing Questionnaire: 1
 Birth Year(s) of child(ren) 19__

Your answers are confidential. You will find it helpful to do so. If answering them at another time if you prefer.

Please circle the most accurate answer.

1. I believe that my mother is resilient.
 Definitely True Probably True
2. I believe that my father is resilient.
 Definitely True Probably True
3. When I was little, other people seemed to be resilient.
 Definitely True Probably True
4. I've heard that when people are resilient, they are better off.
 Definitely True Probably True
5. When I was a child, I was resilient.
 Definitely True Probably True
6. When I was a child, I was resilient.
 Definitely True Probably True
7. When I was a child, I was resilient.
 Definitely True Probably True

Resilience Questionnaire

 synergy
 the people - real performance

Please read the statements below, and using the scale: Strongly Disagree to Strongly Agree. Indicate how the statement applies to you.

- 1 I have the knowledge and skills and experience to deal with almost anything.
- 2 I know what's important to me.
- 3 I approach new situations with an open mind.
- 4 When faced with new challenges, I am able to take control.
- 5 When I have a problem, I take time to define the problem.
- 6 I have the capacity to laugh at myself.
- 7 I have a diverse network of good friends.
- 8 I view change as an opportunity.
- 9 I am able to think positively about myself and my life.
- 10 When I look back I can see some clear path that I have made.
- 11 I am able to adjust to changes.
- 12 I start each day by working out what reviewing what has been achieved.
- 13 I perceive the problems and challenges as opportunities.
- 14 I can empathise easily with other people.
- 15 I find it easy to form lasting relationships.
- 16 When an unwelcome change occurs, I am able to deal with it.
- 17 When I face difficult challenges, I am able to deal with them.
- 18 I know what I want and I am able to achieve it.
- 19 I can easily find a way out of a difficult situation.
- 20 I keep a 'to do' list.
- 21 I try to find solutions to my problems.
- 22 During stressful times, I am able to stay calm.

Guilera et al. Health and Quality of Life Outcomes (2015) 11:186
 DOI 10.1186/s12955-015-0259-8

RESEARCH ARTICLE

Assessing resilience in adolescence: The Spanish adaptation of the Adolescent Resilience Questionnaire

Georgina Guilera^{1,2,3*}, Noemí Pereda^{2,3,4}

 HEALTH AND QUALITY OF LIFE OUTCOMES

Open Access

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Abstract

Background: The concept and assessment of resilience in adolescence are not well defined. The Adolescent Resilience Questionnaire (ARQ) is a self-report instrument developed to assess resilience in adolescents (11-17 years old). This study analyzes the psychometric properties of the Spanish adaptation of the ARQ (ARQ-S) in a sample of 1,101 Spanish adolescents (53.5% boys and 46.5% girls), although the instrument needs to be revised for the expected direction and magnitude of the scores.

Methods: This study analyzes the psychometric properties of the ARQ-S in a sample of 1,101 Spanish adolescents (53.5% boys and 46.5% girls), although the instrument needs to be revised for the expected direction and magnitude of the scores.

Results: Results confirm the psychometric properties of the ARQ-S, although the instrument needs to be revised for the expected direction and magnitude of the scores.

Conclusions: The Spanish version of the ARQ (ARQ-S) is a valid and reliable instrument to show resilience in response to adversity in adolescents.

Keywords: Resilience, Adolescence, Resilience, Adolescence

Resumen

Antecedentes: El concepto de resiliencia en la adolescencia no está bien definido. El cuestionario de Resiliencia de los Adolescentes (ARQ) es un instrumento desarrollado para evaluar la resiliencia en adolescentes (11-17 años). Este estudio analiza las propiedades psicométricas de la adaptación española del ARQ (ARQ-S) en una muestra de 1.101 adolescentes españoles (53,5% chicos y 46,5% chicas), aunque el instrumento necesita ser revisado para la dirección y magnitud esperadas de las puntuaciones.

Métodos: Este estudio analiza las propiedades psicométricas de la adaptación española del ARQ (ARQ-S) en una muestra de 1.101 adolescentes españoles (53,5% chicos y 46,5% chicas), aunque el instrumento necesita ser revisado para la dirección y magnitud esperadas de las puntuaciones.

(Continued on next page)

Example questions:

- When I make plans, I follow through with them.
- I usually manage one way or another.
- I am able to depend on myself more than anyone else.
- Keeping interested in things is important to me.
- I can be on my own if I have to.
- I feel proud that I have accomplished things in my life.

Resilience scale

	Disagree (1)	(2)	(3)	(4)	(5)	(6)	Agree (7)
When I make plans, I follow through with them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually manage one way or another.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to depend on myself more than anyone else.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keeping interested in things is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can be on my own if I have to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel proud that I have accomplished things in my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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The resilience framework as a strategy to combat stress-related disorders

Raffael Kalisch^{1,2,3,4*}, Dewleen G. Baker^{5,6}, Ulrike Basten^{4,7}, Marco P. Boks⁸, George A. Bonanno⁹, Eddie Brummelman^{3,10,11}, Andrea Chmitorz^{1,3,12}, Guillén Fernández^{3,13}, Christian J. Fiebach ^{4,7,14}, Isaac Galatzer-Levy¹⁵, Elbert Geuze ^{8,16}, Sergiu Groppa^{1,4,17}, Isabella Helmreich^{1,3,12}, Talma Hendler^{3,18,19}, Erno J. Hermans^{3,13}, Tanja Jovanovic²⁰, Thomas Kubiak^{1,3,21}, Klaus Lieb^{1,3,4,12}, Beat Lutz^{1,4,22}, Marianne B. Müller^{1,4,12}, Ryan J. Murray^{3,23,24,25}, Caroline M. Nievergelt^{5,6}, Andreas Reif ^{3,4,26}, Karin Roelofs^{3,13,27}, Bart P. F. Rutten²⁸, David Sander^{3,24,25}, Anita Schick^{1,2,3}, Oliver Tüscher^{1,3,4,12}, Ilse Van Diest^{3,29}, Anne-Laura van Harmelen^{3,30}, Ilya M. Veer^{3,31}, Eric Vermetten^{16,32,33}, Christiaan H. Vinkers⁸, Tor D. Wager^{34,35}, Henrik Walter^{3,31,36}, Michèle Wessa^{1,3,4,37}, Michael Wibral^{4,38} and Birgit Kleim^{3,39}

If resilience is not a trait, what then?

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human beh

PERSPECTIVE

g/10.1038/s41562-017-0200-8

**Resilience is the maintenance
or quick recovery of mental
health during and after
periods of adversity**

(traumatizing events, challenging life
circumstances or transitions, physical illness...)

Raffael Kalisch^{1,2,3,4*},
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If resilience is not a trait, what then?

**Resilience is the maintenance
or quick recovery of mental
health during and after
periods of adversity**

(traumatizing events, challenging life
circumstances or transitions, physical illness...)

Resilience is NOT ...

- ... any specific process or mechanism leading to the outcome (“resilience processes“, RPs)
- ... any baseline predictor or biomarkers (“resilience factors“, RFs)
- ... just the opposite of risk, or vulnerability

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BUT:

You can ask which RFs predict the outcome or which RPs lead to the outcome

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Outcome-based definition is purely operational and atheoretical
Requires longitudinal studies

What is resilience?

How can we measure it?

Is resilience to chronic and everyday stressors different from resilience to major events?

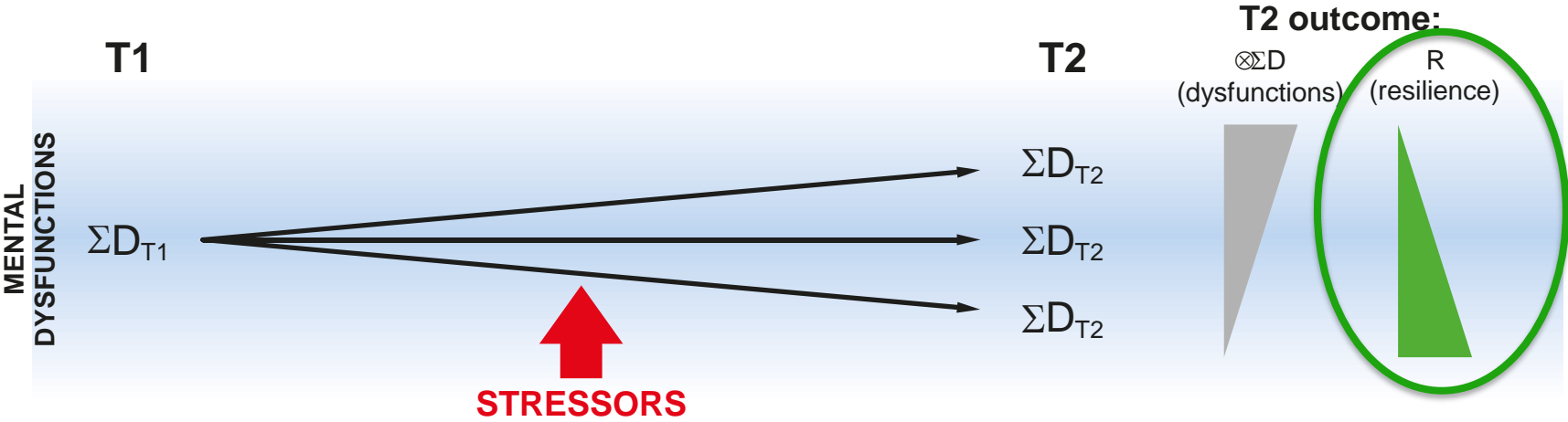
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Why you should be in Mainz Sept 25-27?

Resilience – outcome-based operationalization

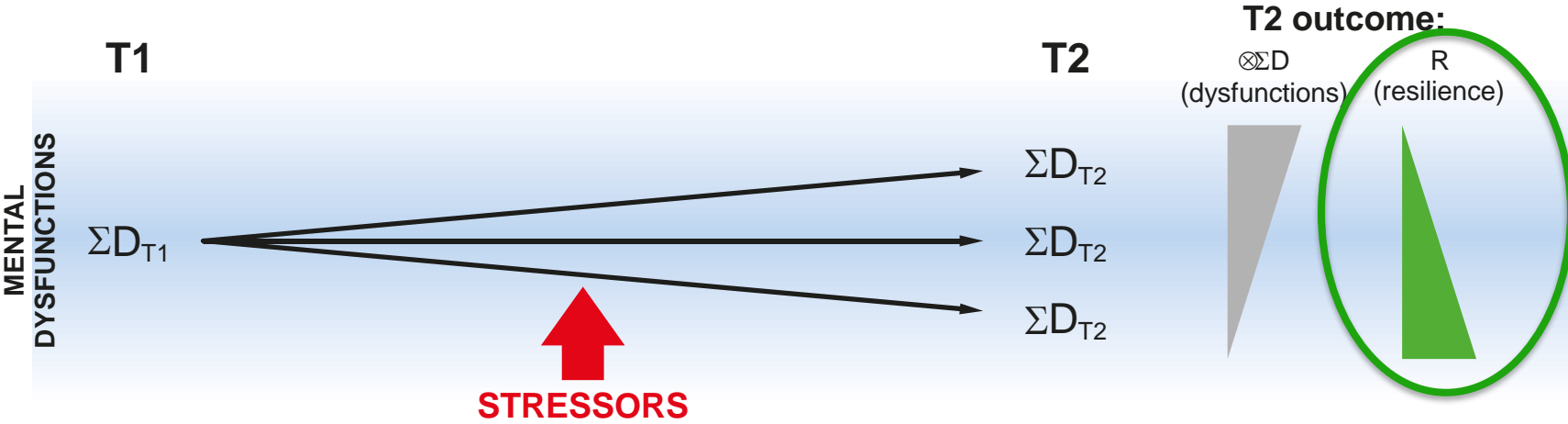


Normalization to stressors!

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Resilience – outcome-based operationalization



Normalization to stressors!

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Problem 2: heterogeneity of stressors

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Problem 2: heterogeneity of stressors

Problem 3: non-randomness of stressors

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Problem 2: heterogeneity of stressors

Problem 3: non-randomness of stressors

Problem 4: individuality of stressors

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Problem 2: heterogeneity of stressors

Problem 3: non-randomness of stressors

Problem 4: individuality of stressors

Problem 5: subjectivity of stressors

What is resilience?

“Except for the main idea of facing challenges, it is somewhat difficult to guess that all of those definitions concern the same subject.”
(M. Pecillo, 2016)

What is resilience?

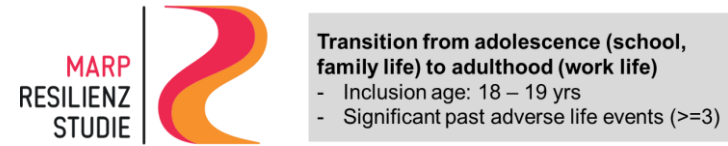
“Except for the main idea of having to quantify challenges, it is somewhat difficult to guess how all of those aspects could be satisfactorily addressed.”

(R. Kalisch, 2023)

Resilience – outcome-based operationalization

Solution 1: take an at-risk population

Resilience – outcome-based operationalization



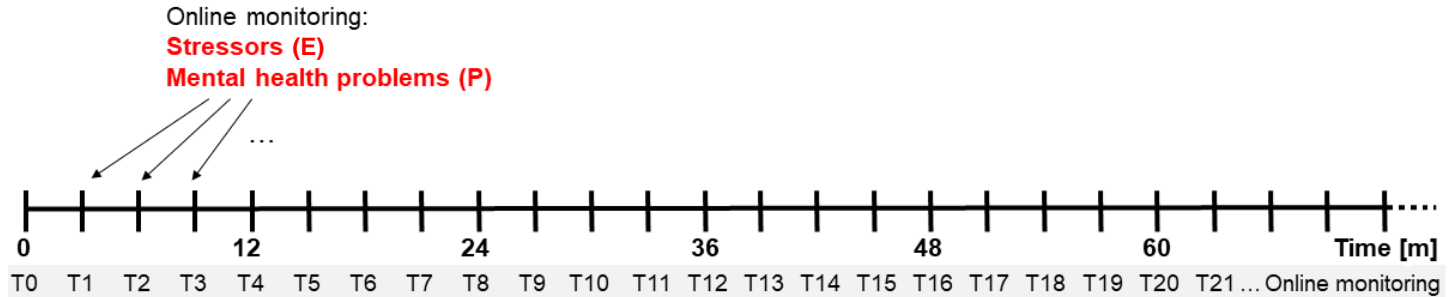
Resilience – outcome-based operationalization

Solution 1: take an at-risk population

Solution 2: frequently monitor stressors and mental health

Resilience – outcome-based operationalization

Frequent Stressor and Health Monitoring paradigm (FRESHMO)

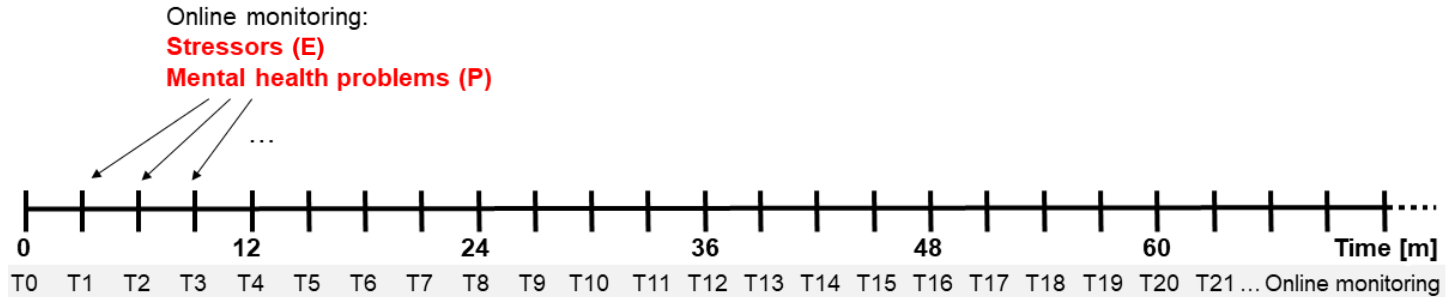


Transition from adolescence (school, family life) to adulthood (work life)

- Inclusion age: 18 – 19 yrs
- Significant past adverse life events (≥ 3)

Resilience – outcome-based operationalization

Frequent Stressor and Health Monitoring paradigm (FRESHMO)



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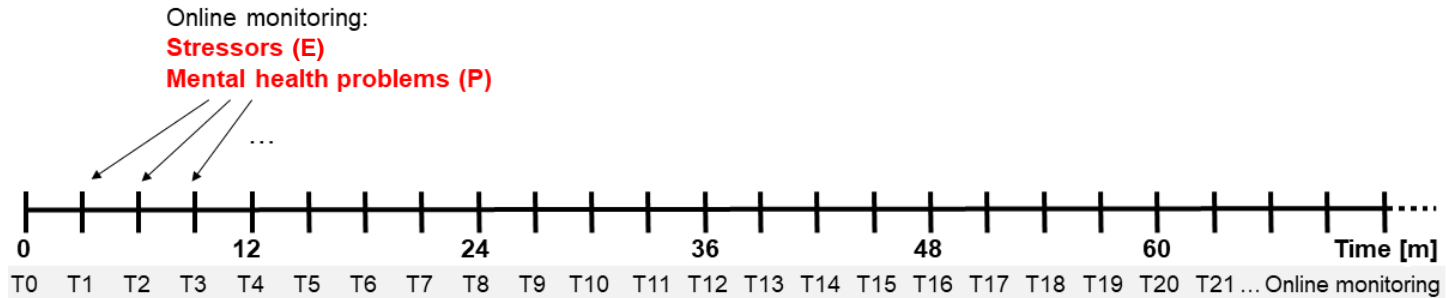
Stressors (E):

Life Events (LE) list

- 27 items
- occurrence in past 3 months?
- how many times?
- severity (appraisal)?

Resilience – outcome-based operationalization

Frequent Stressor and Health Monitoring paradigm (FRESHMO)



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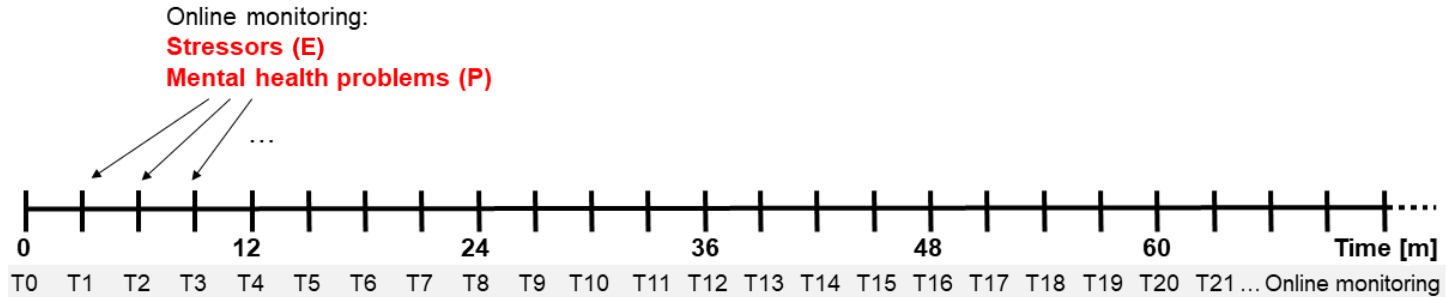
Life Events (LE) list

Daily Hassles (DH) list

- 58 items
- occurrence in past week?
- how many days?
- severity (appraisal)?

Resilience – outcome-based operationalization

Frequent Stressor and Health Monitoring paradigm (FRESHMO)



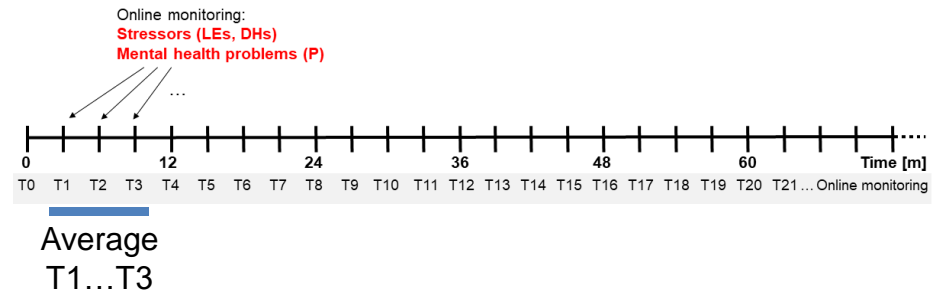
Transition from adolescence (school, family life) to adulthood (work life)

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Stressors (E): **Life Events (LE) list**
 Daily Hassles (DH) list

Mental health (P): **Internalizing symptoms**

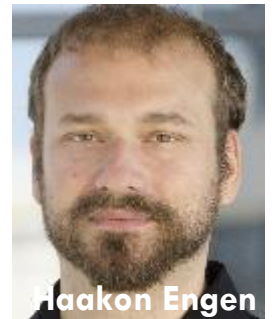
Resilience – outcome-based operationalization



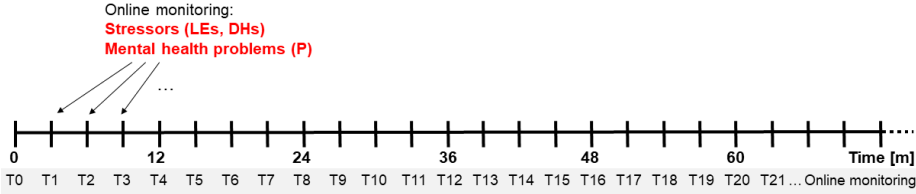
Occurrence of stressors:

$E_{DH} \sim E_{LE}$: $R=0.38$, $p=2e-06$

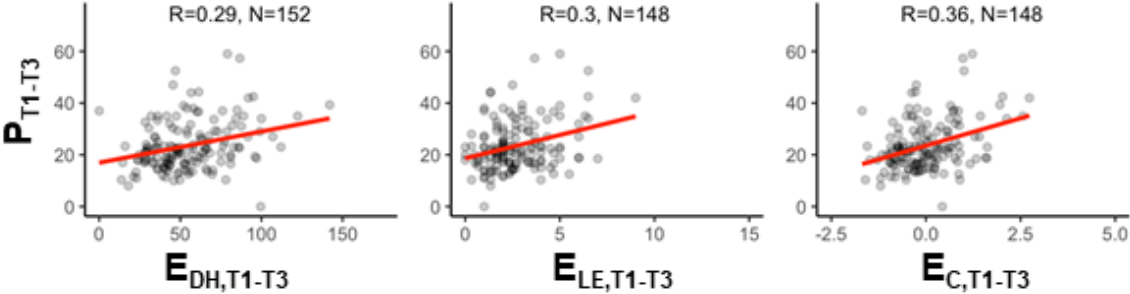
(N=148)



Resilience – outcome-based operationalization



Average
T1...T3



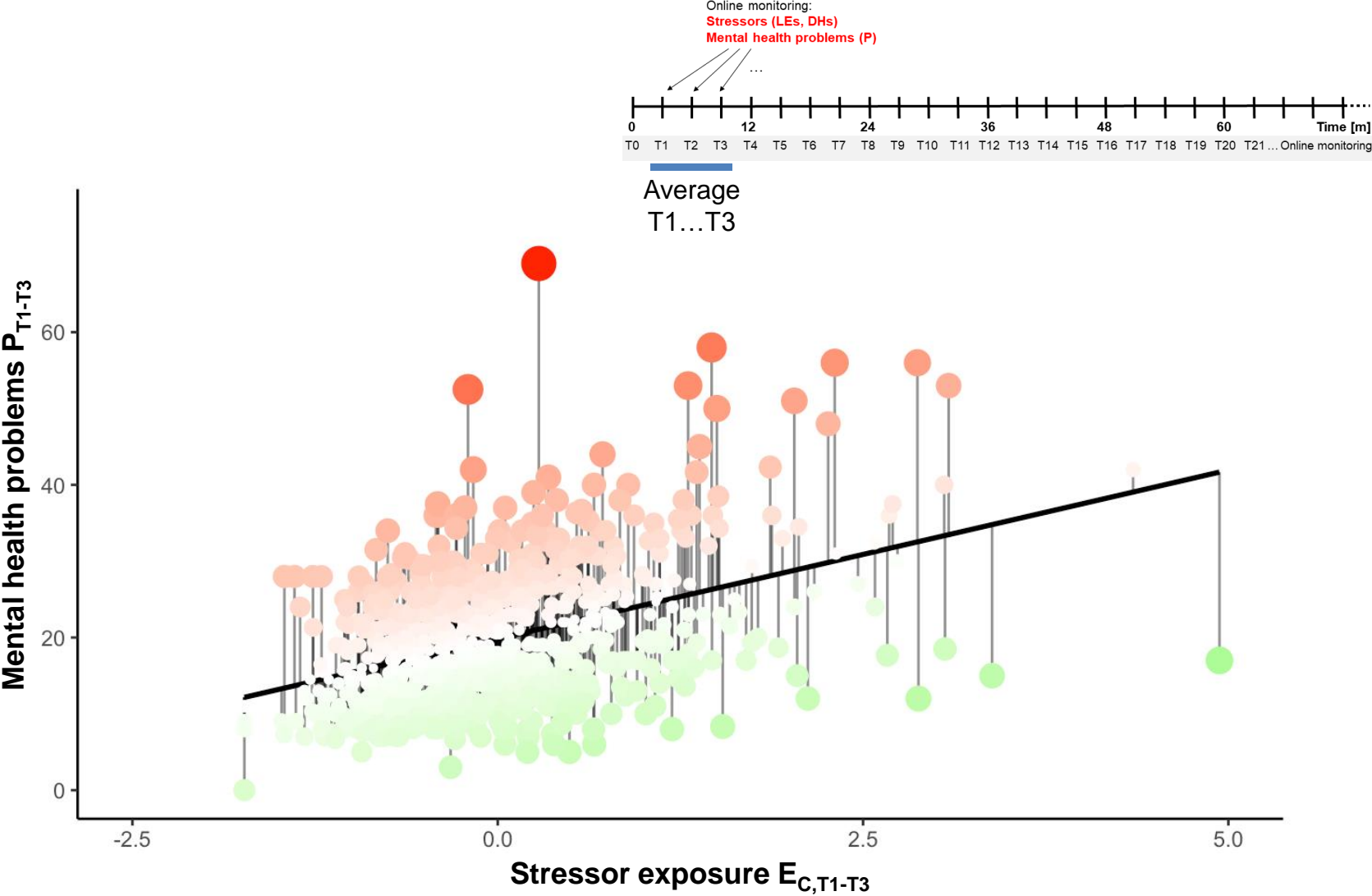
Resilience – outcome-based operationalization

Solution 1: take an at-risk population

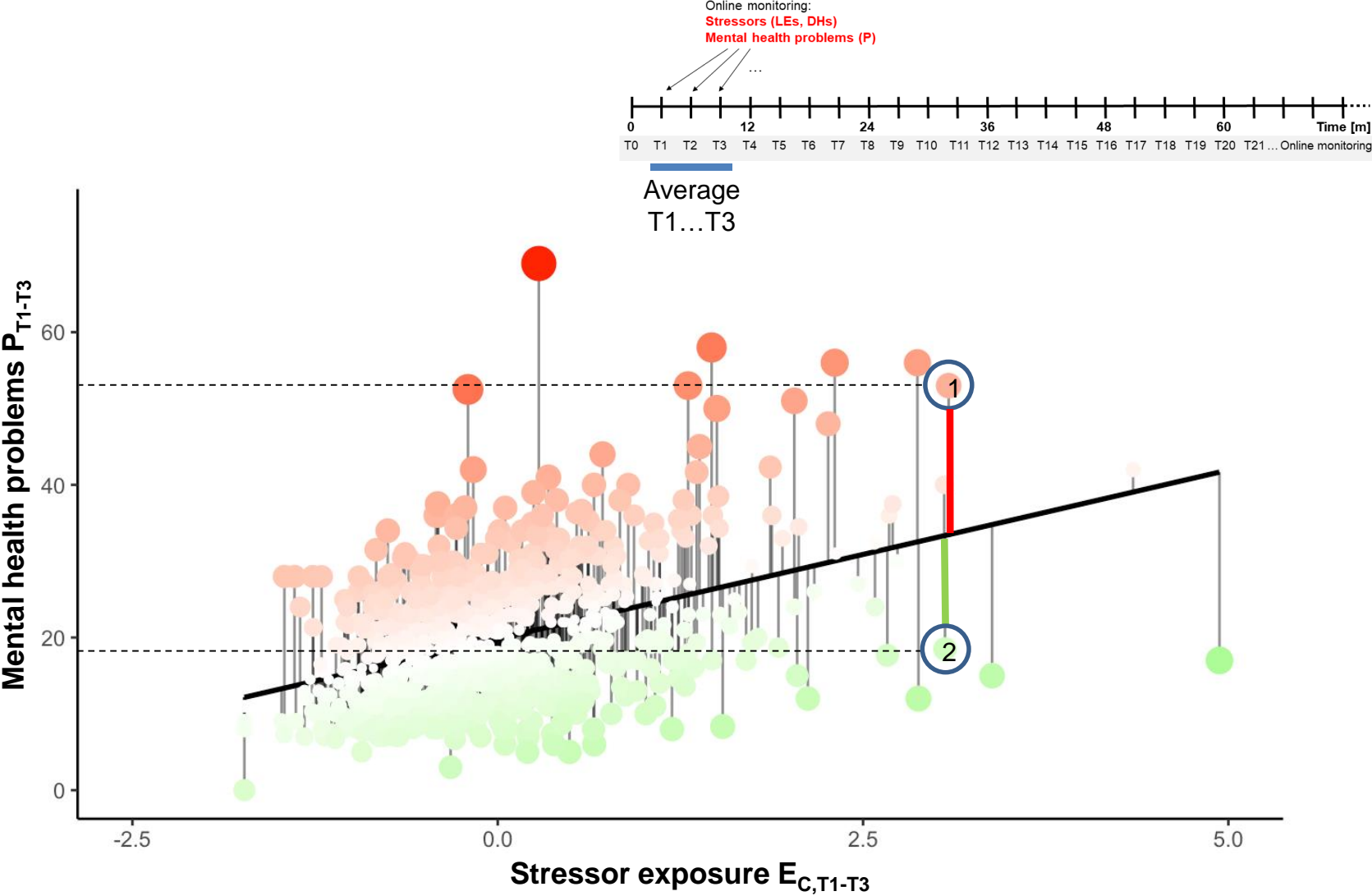
Solution 2: frequently monitor stressors and mental health

Solution 3: express mental health as a function of stressor exposure

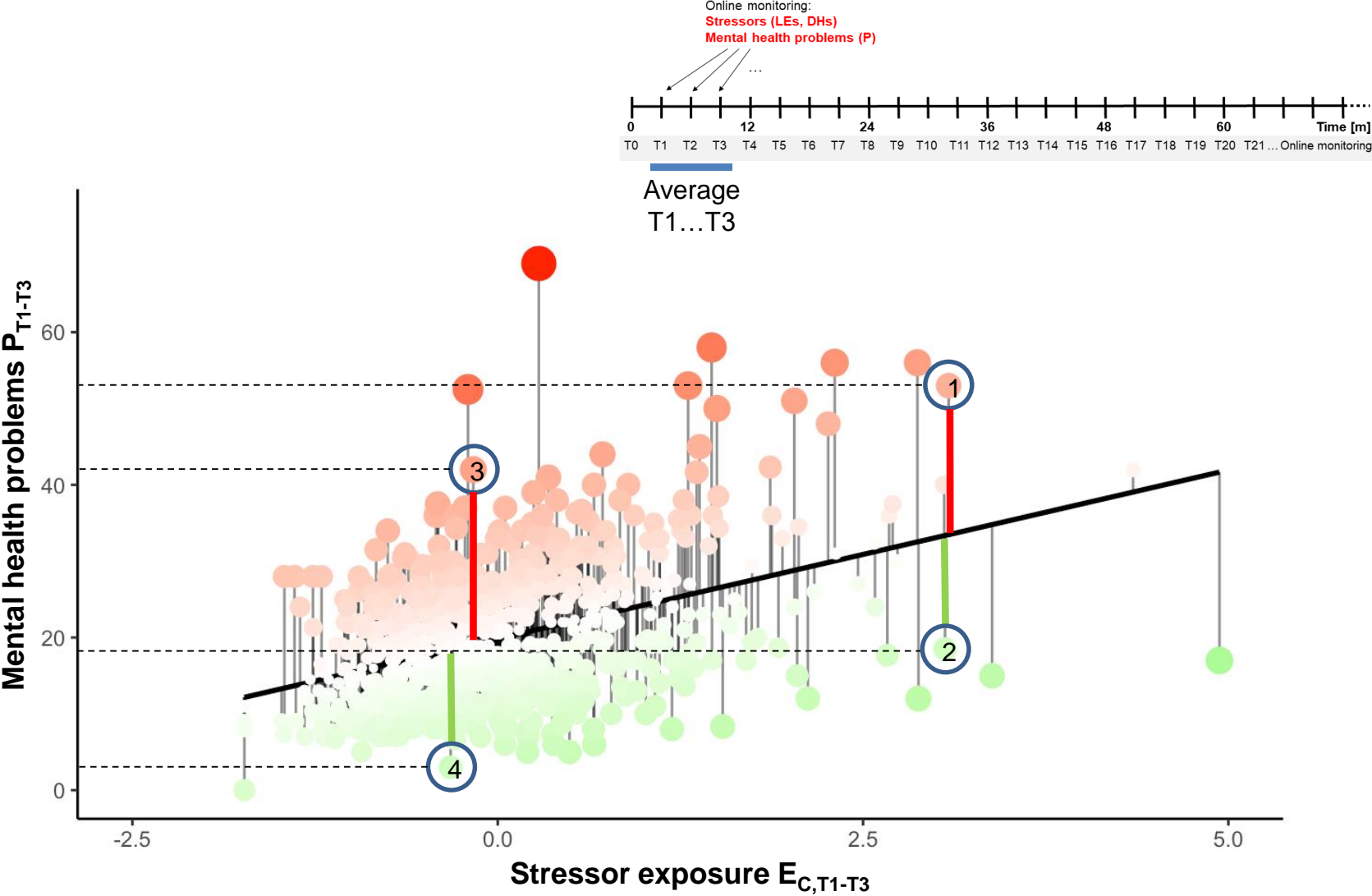
Resilience – outcome-based operationalization



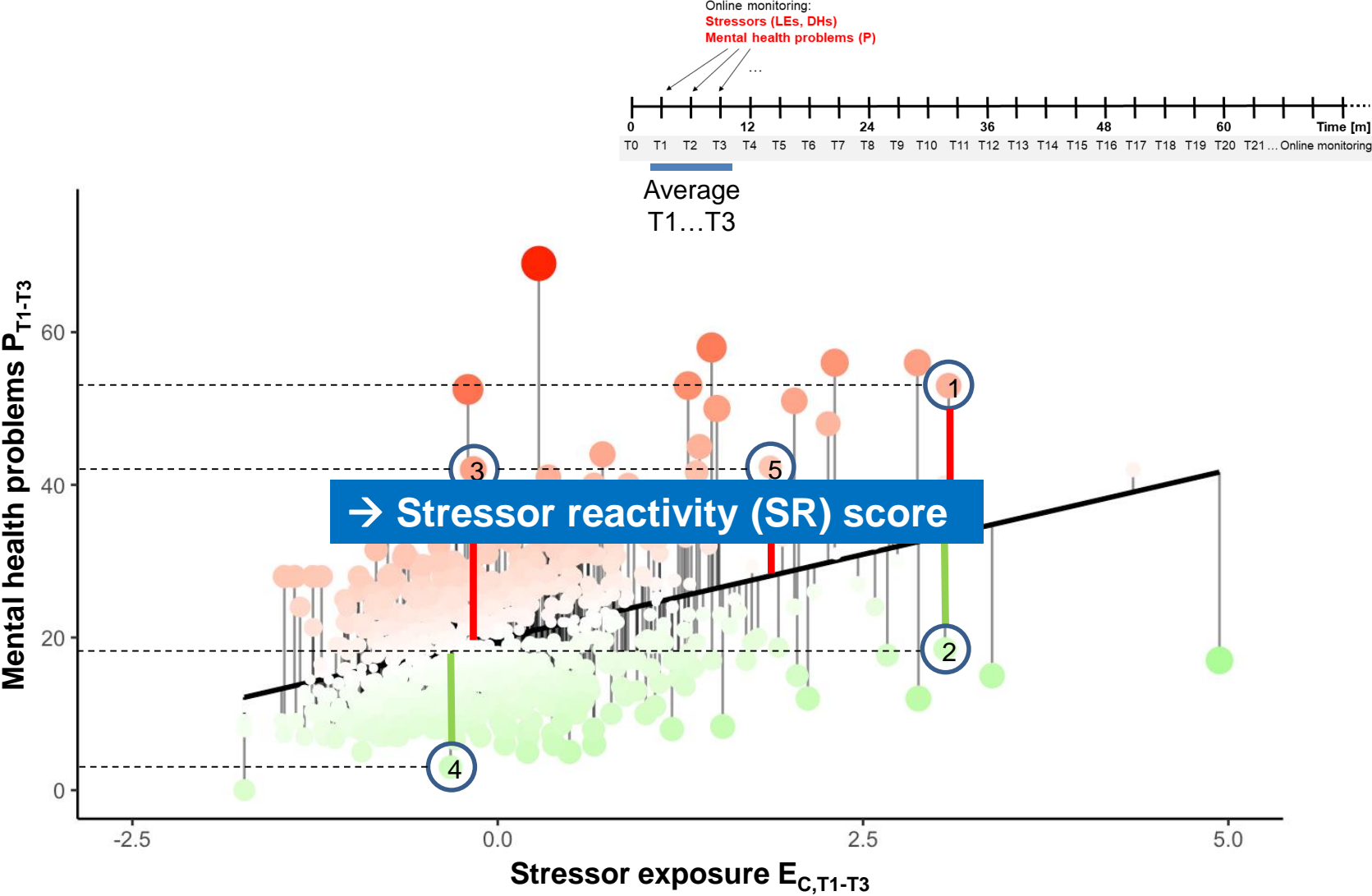
Resilience – outcome-based operationalization



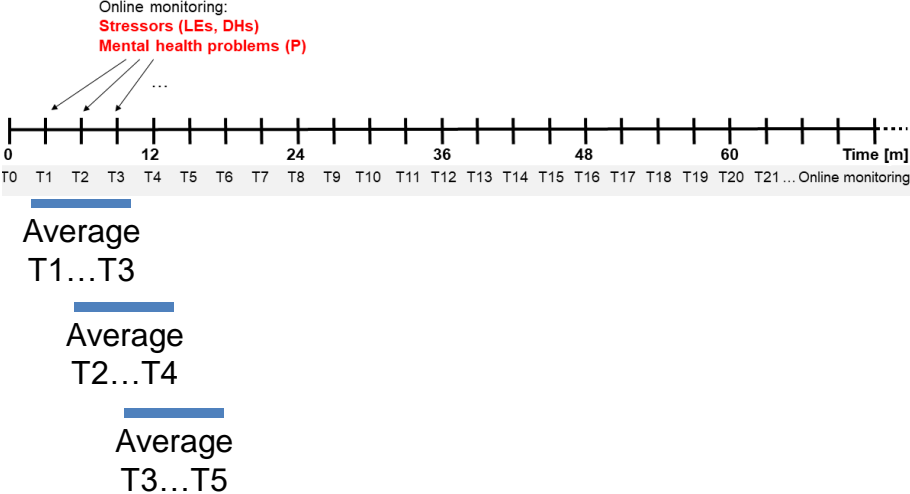
Resilience – outcome-based operationalization



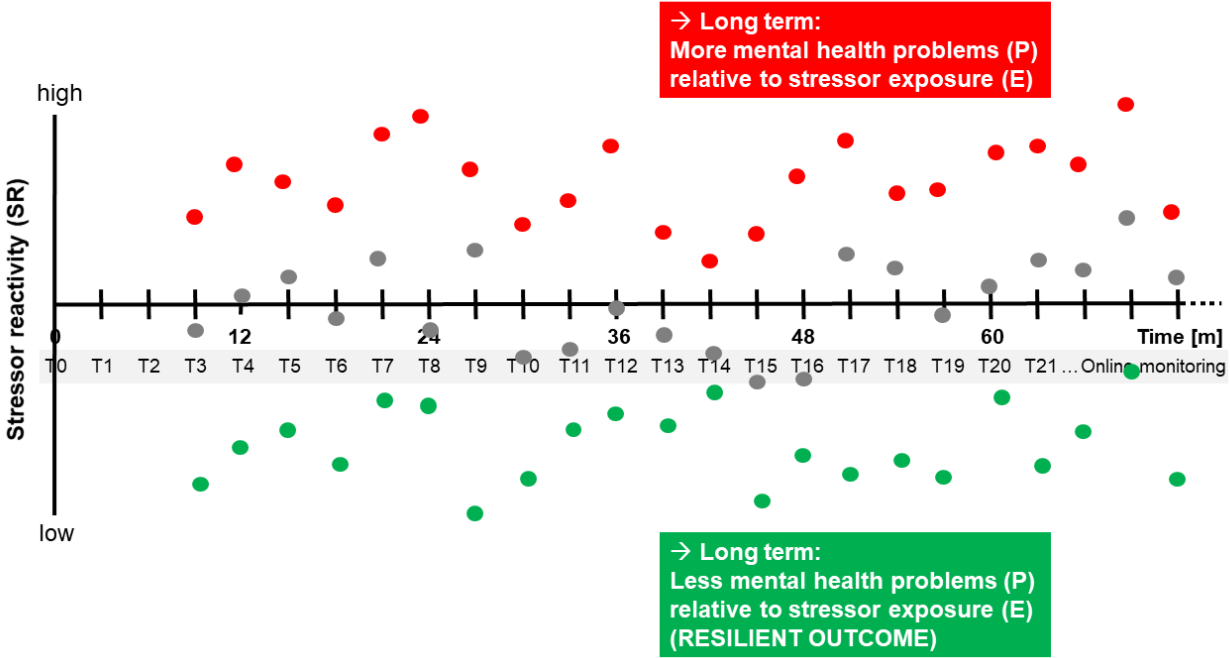
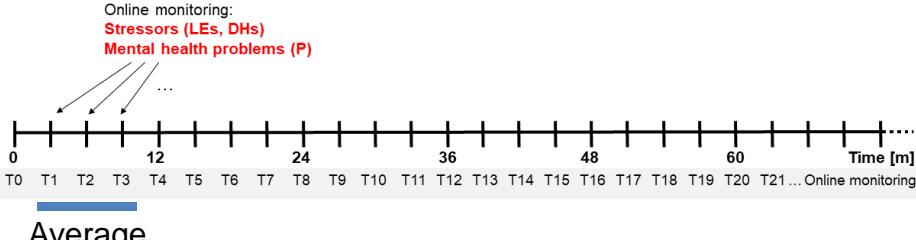
Resilience – outcome-based operationalization



Resilience – stressor reactivity (SR) time course



Resilience – stressor reactivity (SR) time course



Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

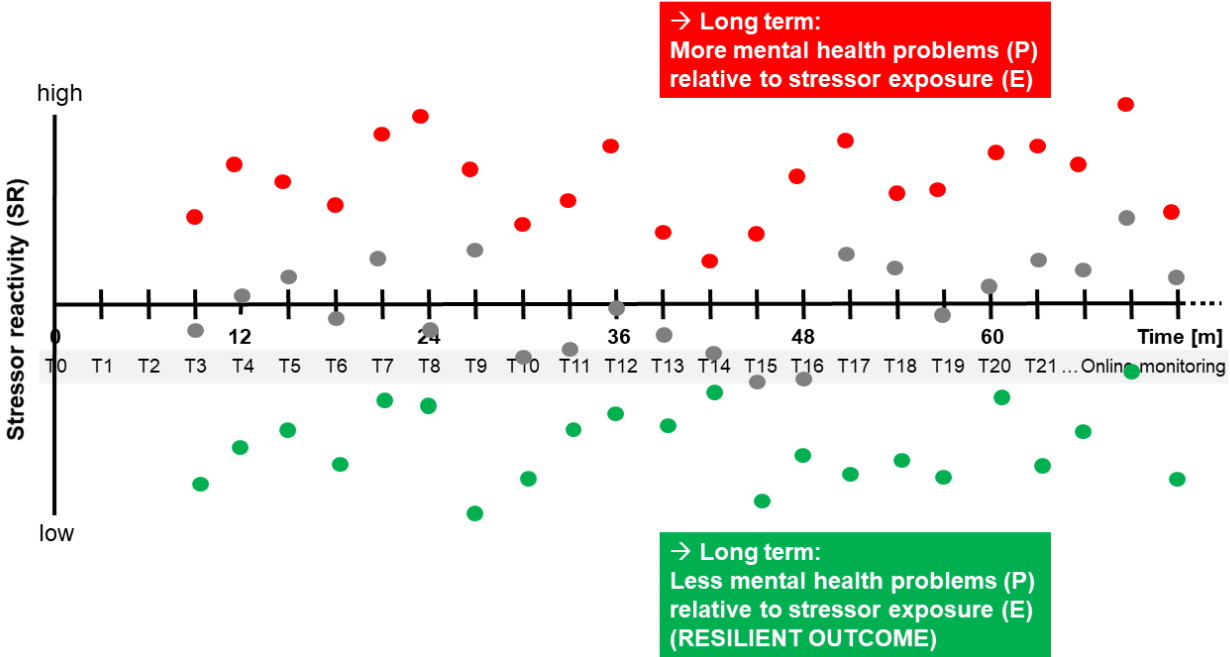
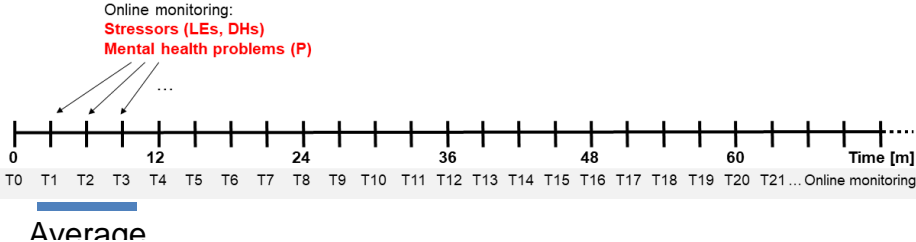
Problem 2: heterogeneity of stressors

Problem 3: non-randomness of stressors

Problem 4: individuality of stressors

Problem 5: subjectivity of stressors

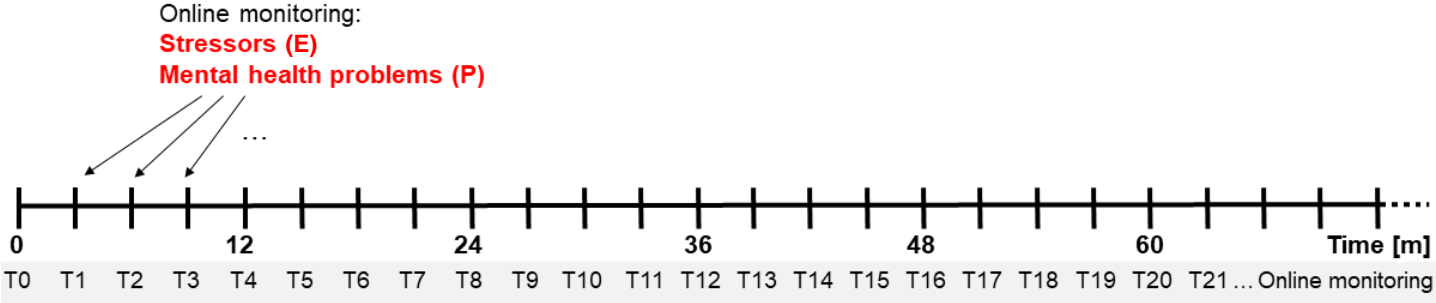
Resilience – stressor reactivity (SR) time course




Resilience – stressor reactivity (SR) time course



Resilience – outcome-based operationalization



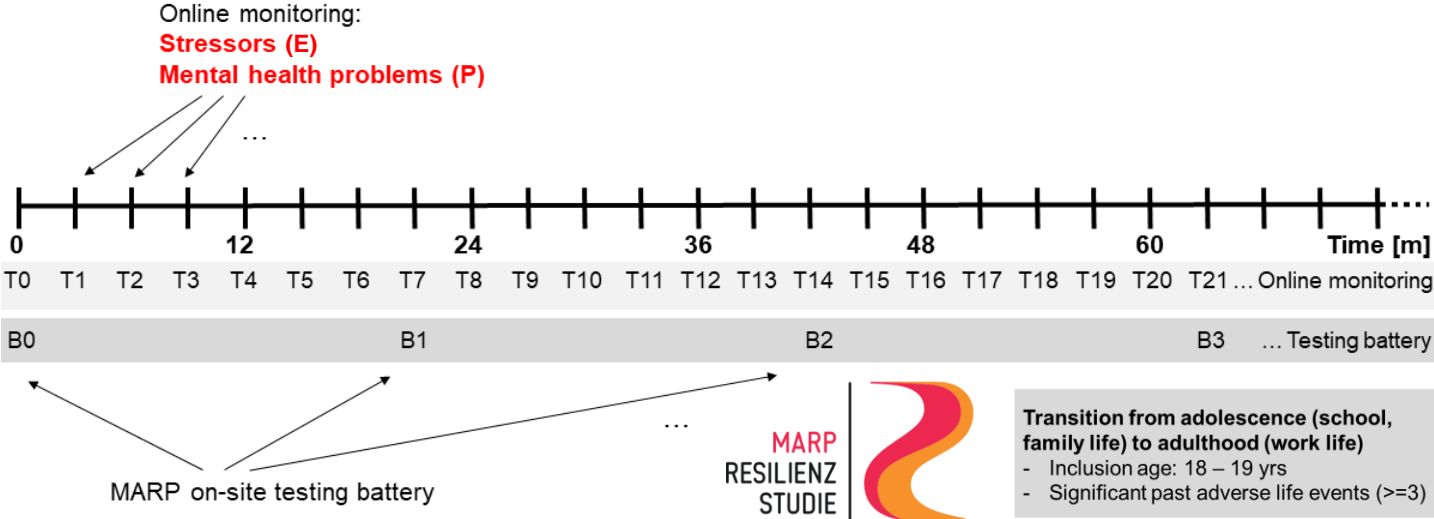
MARP
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STUDIE



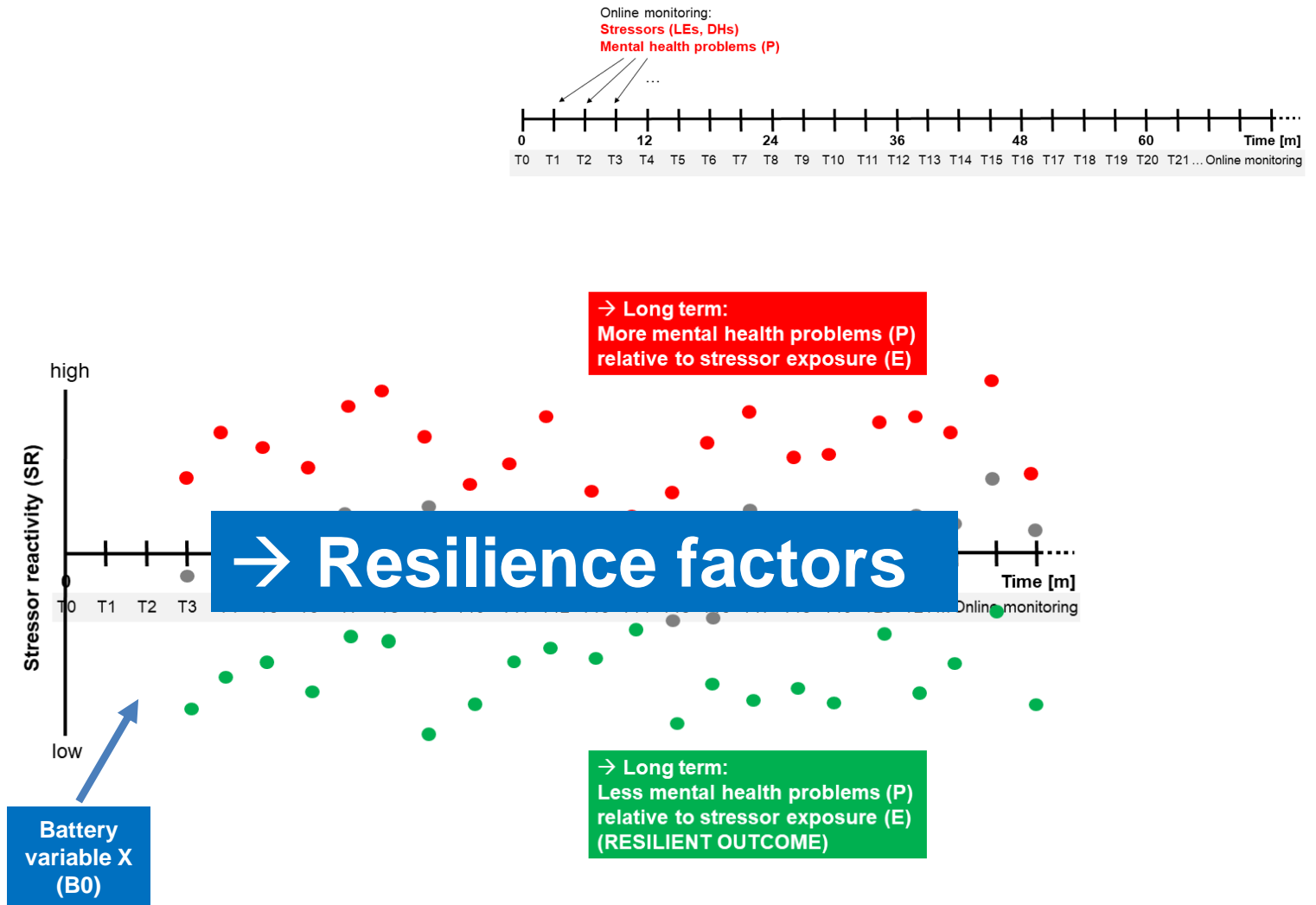
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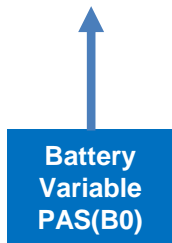
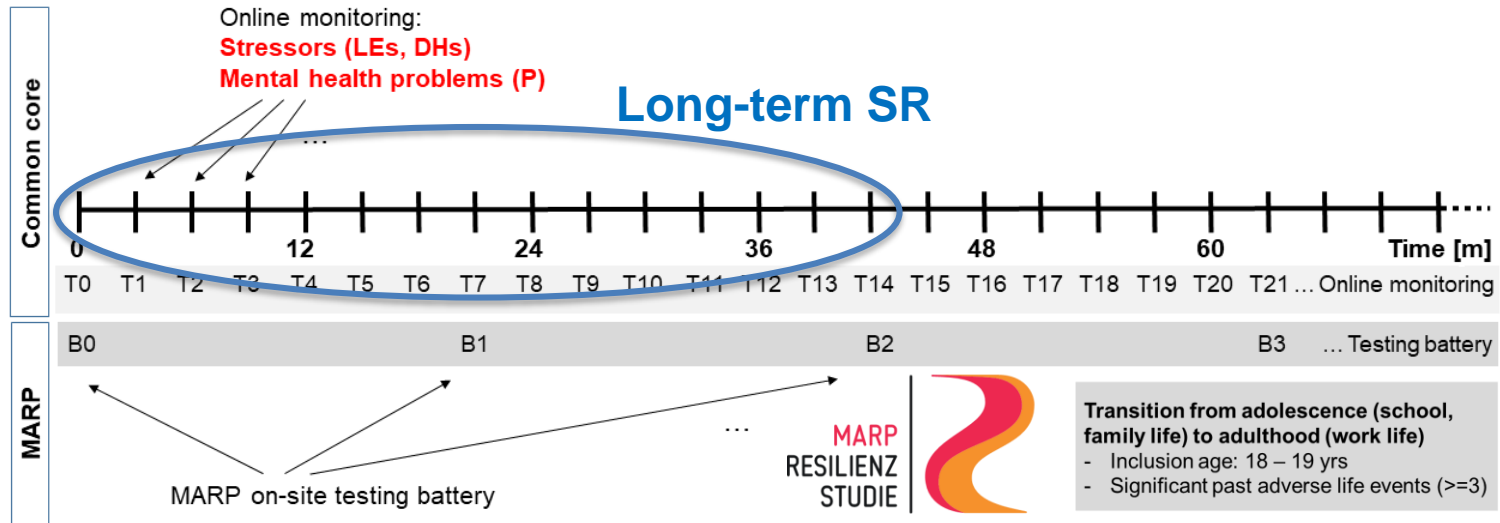
Resilience – outcome-based operationalization



Resilience – stressor reactivity (SR) time course

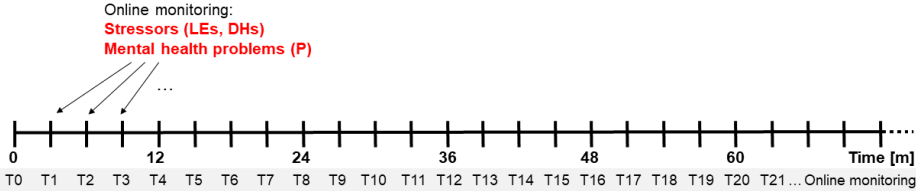


Resilience factor Positive Appraisal Style (PAS)

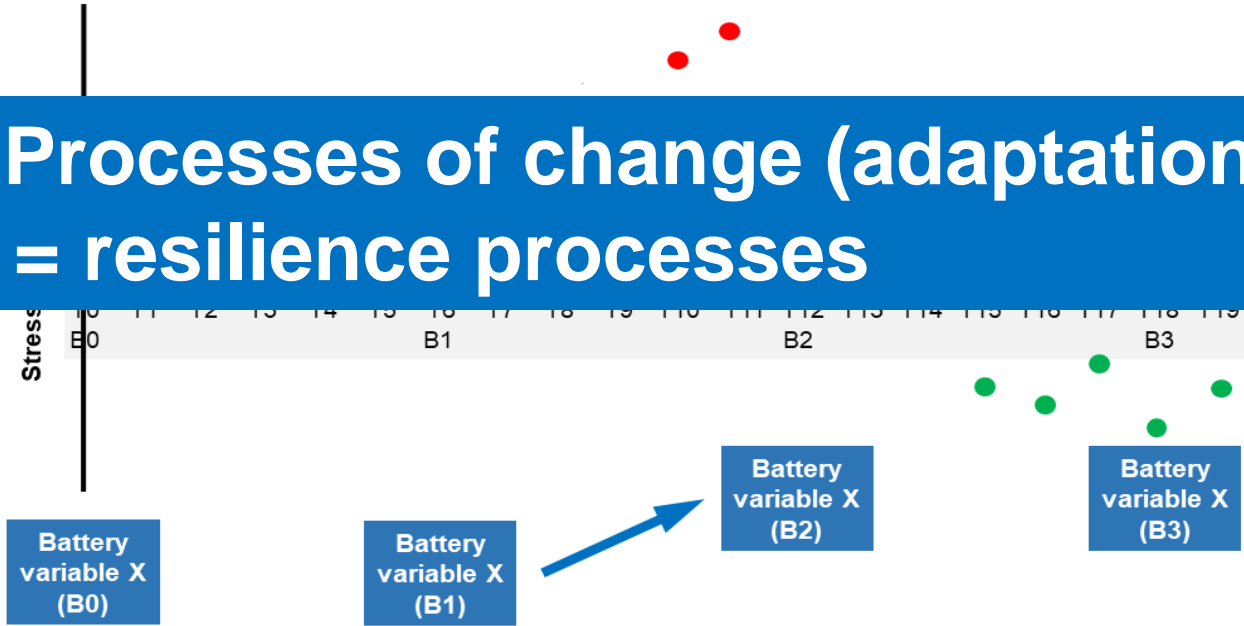


Petri-Romão et al., in prep.

Resilience – stressor reactivity (SR) time course



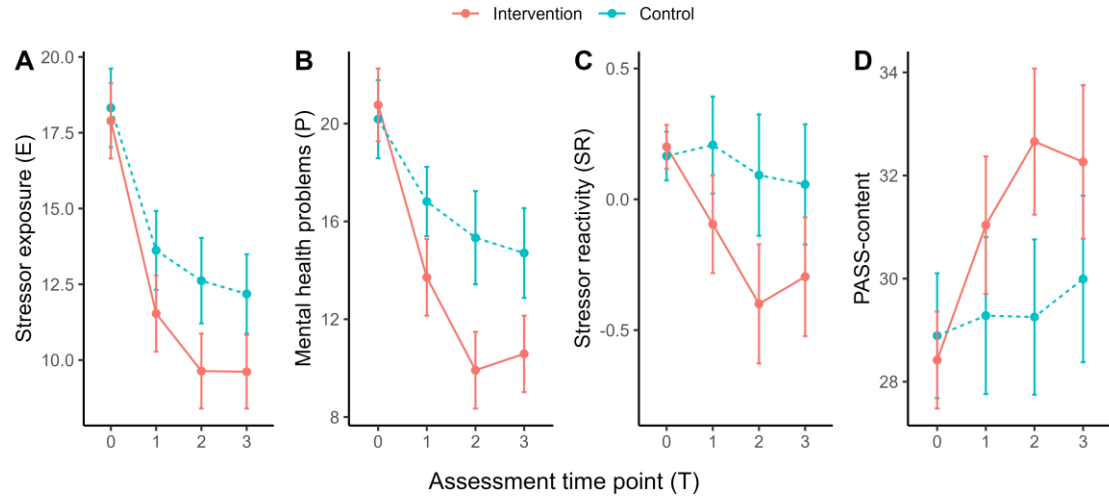
→ Processes of change (adaptation)
= resilience processes



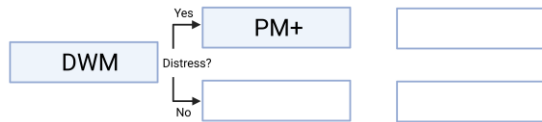
An induced resilience process



WHO Stress management training (stepped care, peer support, digitalized)



Intervention group:



Control group:



Intervention → PAS (T2) → -SR (T3) (47%)

Spanish health care workers during COVID

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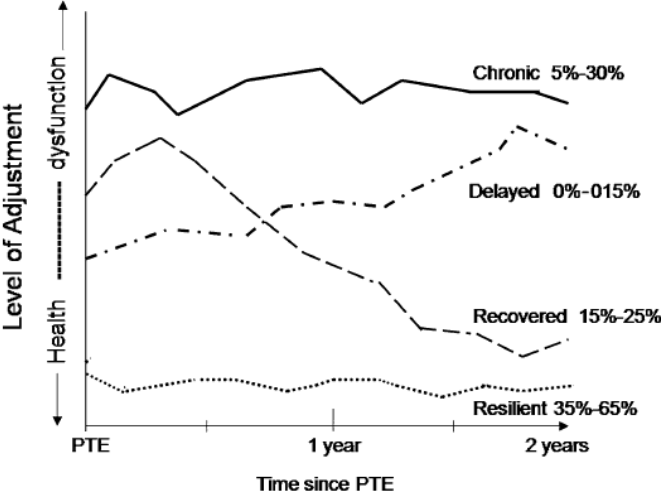
What do we know about psychological mechanisms?

What do we know about biological mechanisms?

What can we do in FAMILY?

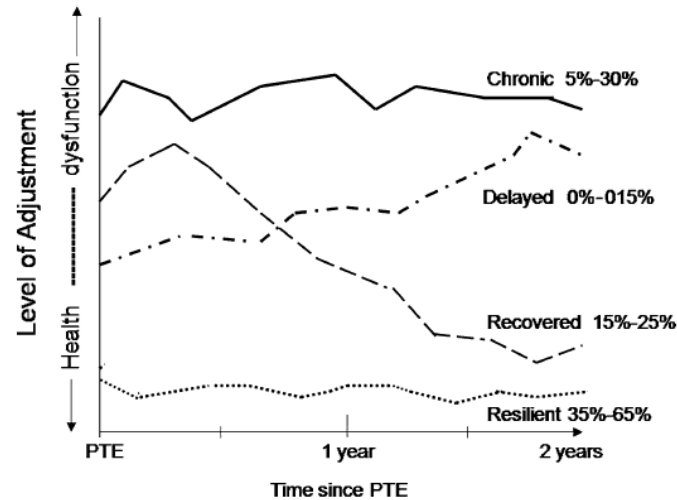
Why you should be in Mainz Sept 25-27?

Resilience to major life events



Bonanno et al., *Annu Rev Clin Psychol* 2011

Resilience to major life events



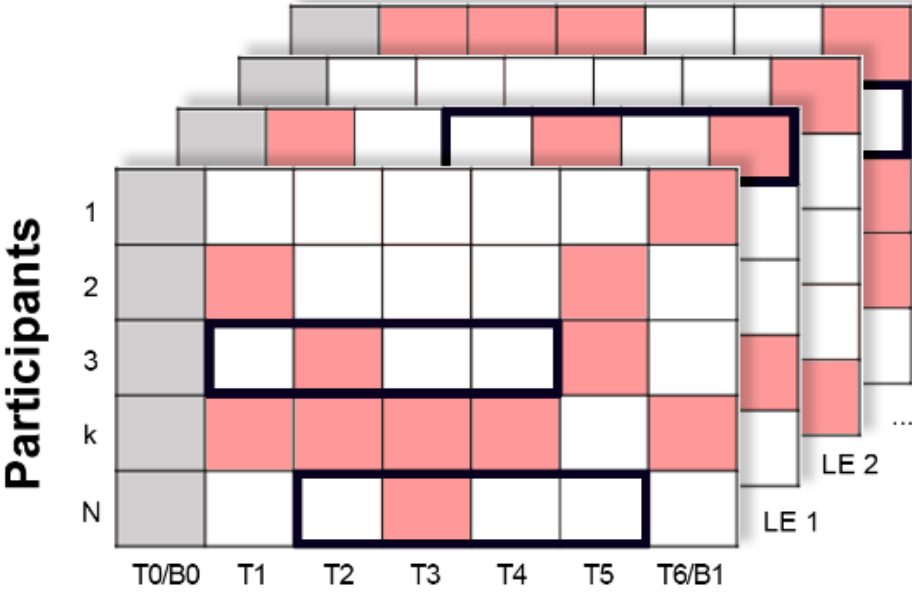
Bonanno et al., *Annu Rev Clin Psychol* 2011

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Resilience to major life events

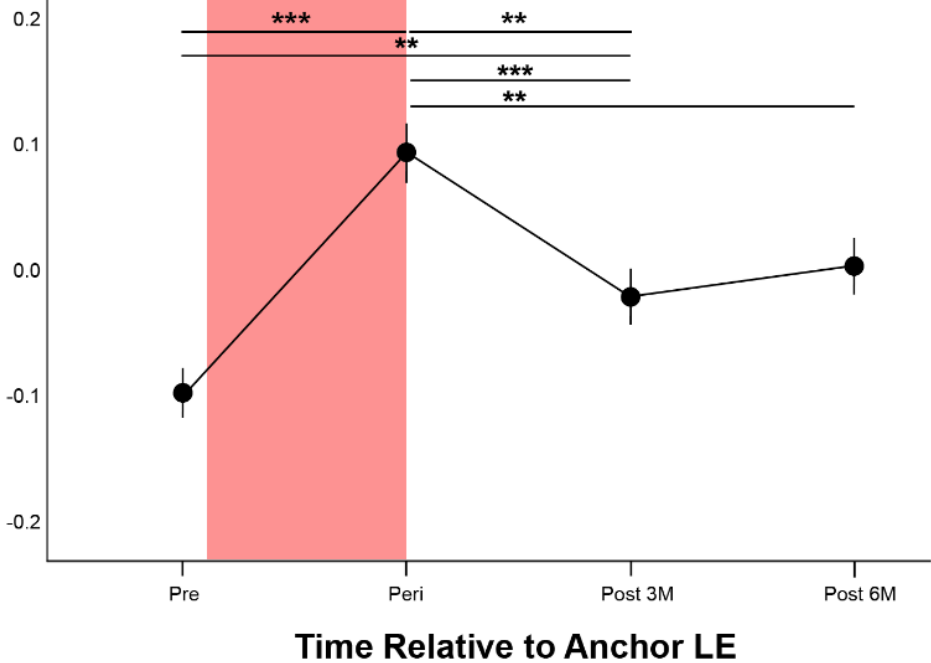
LORA study (Frankfurt, Mainz):



Kira Ahrens

Resilience to major life events

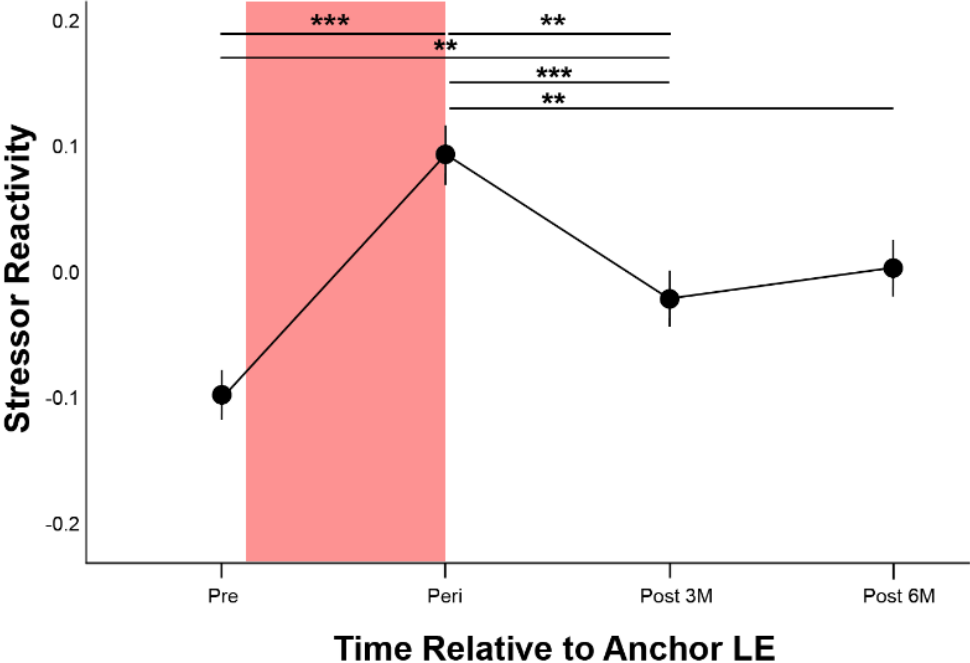
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Kira Ahrens

Resilience to major life events

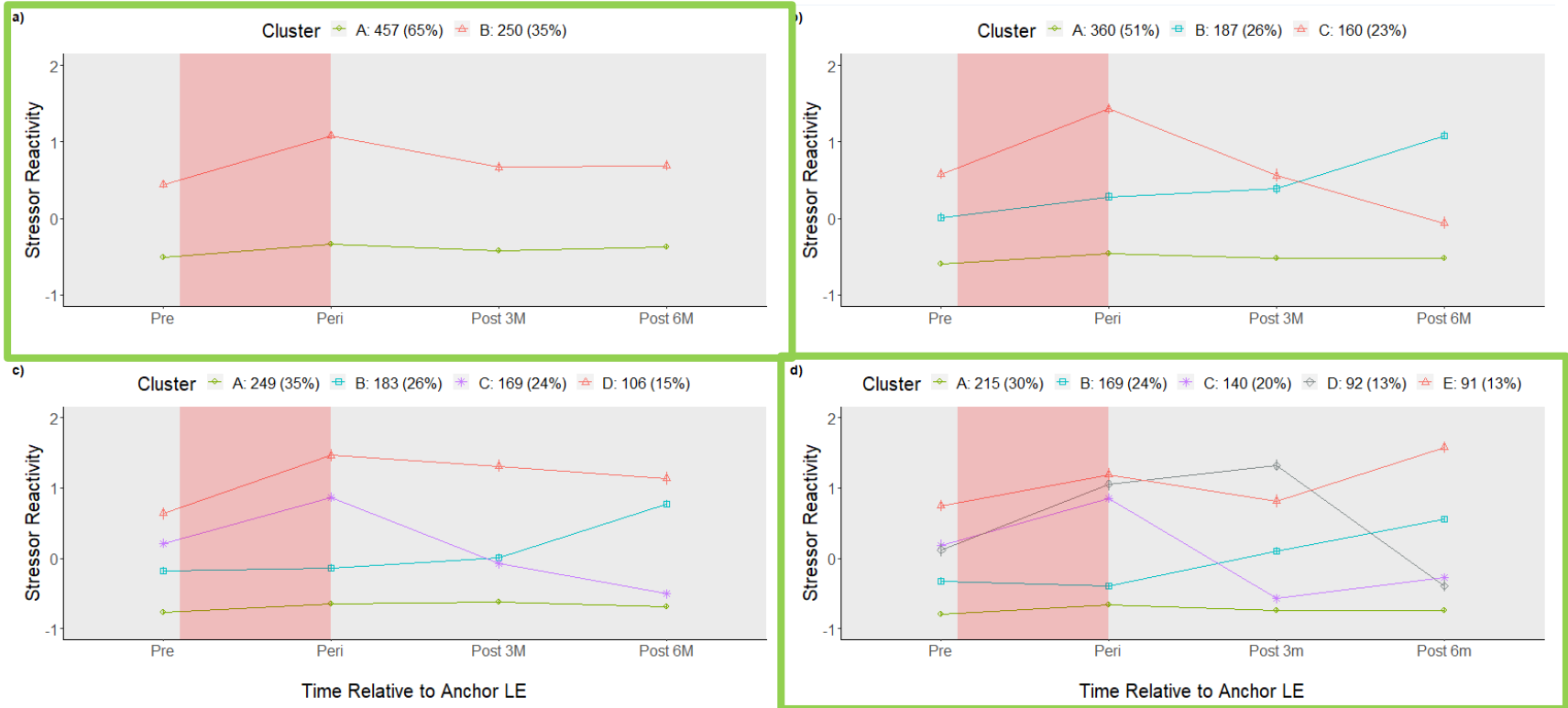
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Kira Ahrens

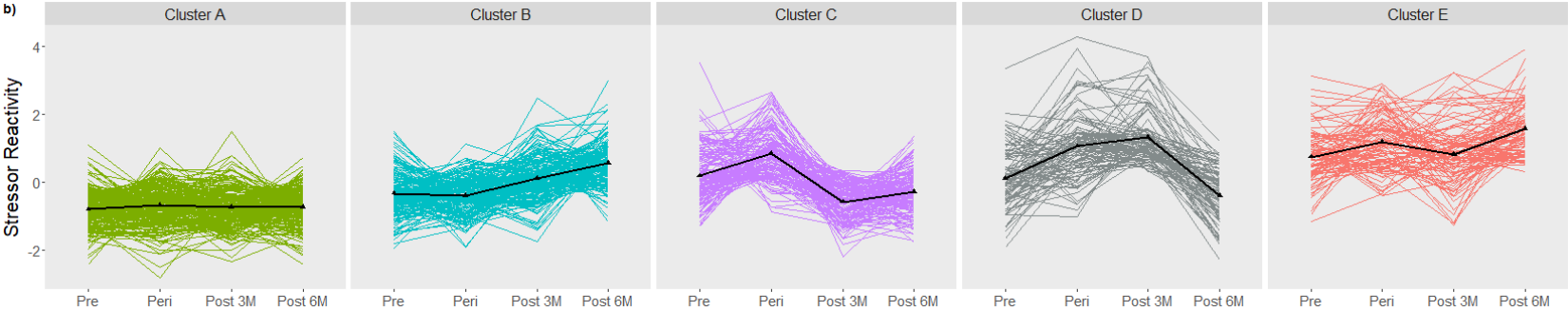
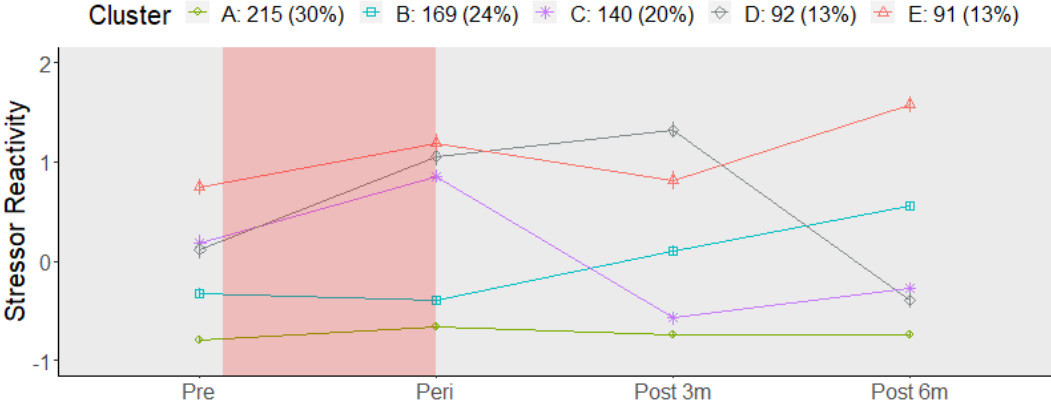
Resilience to major life events

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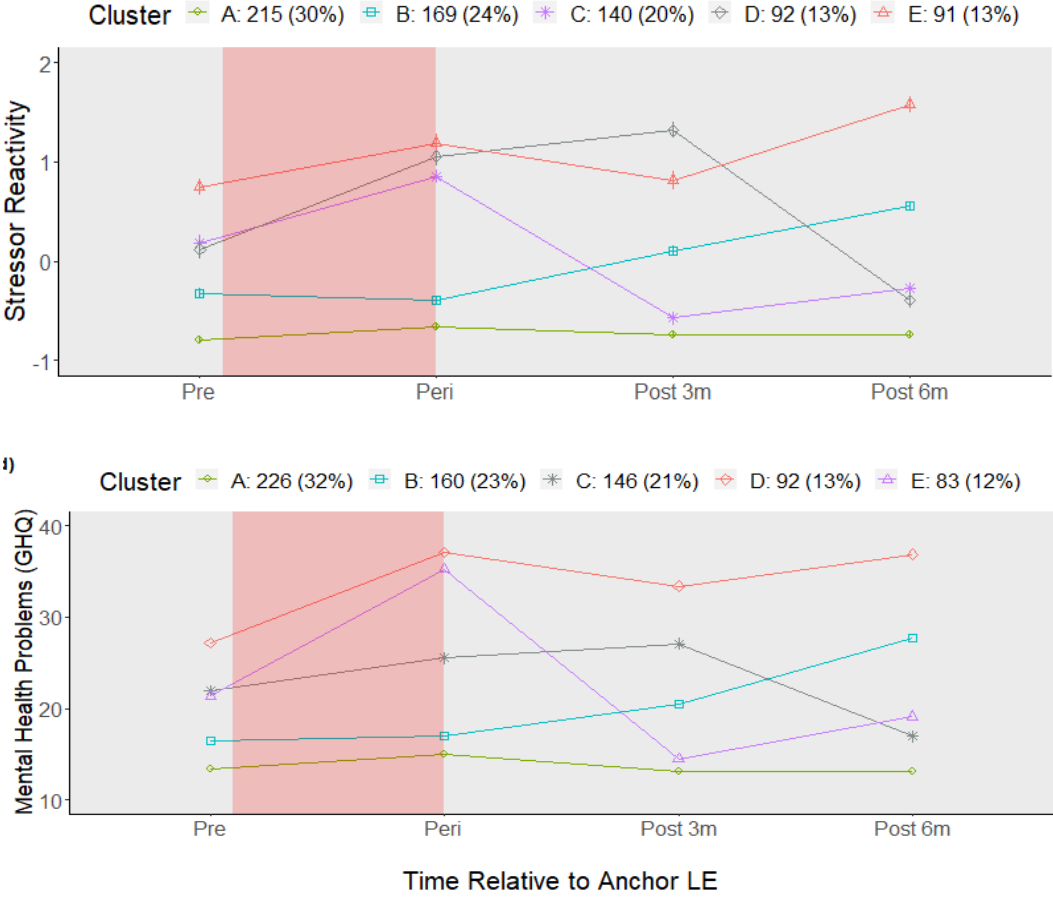
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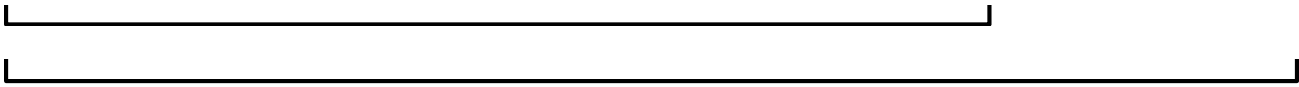
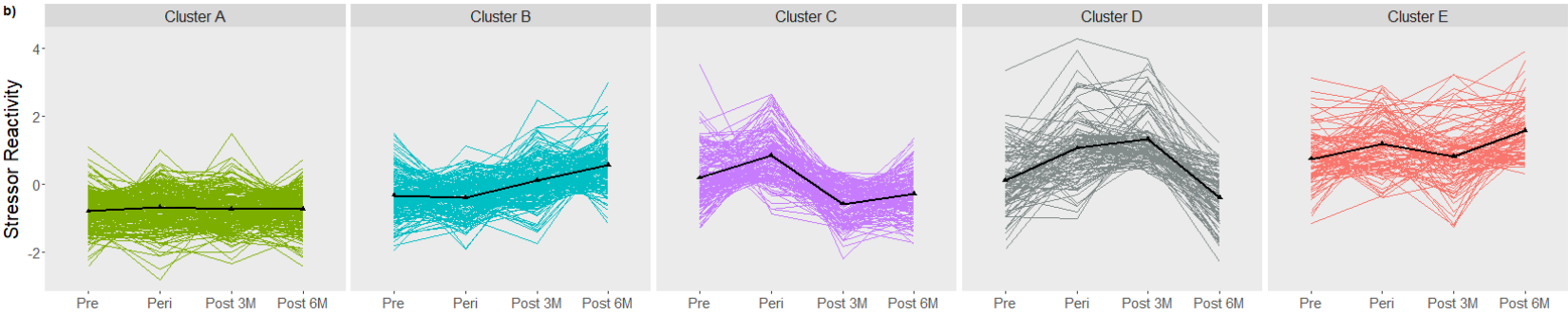
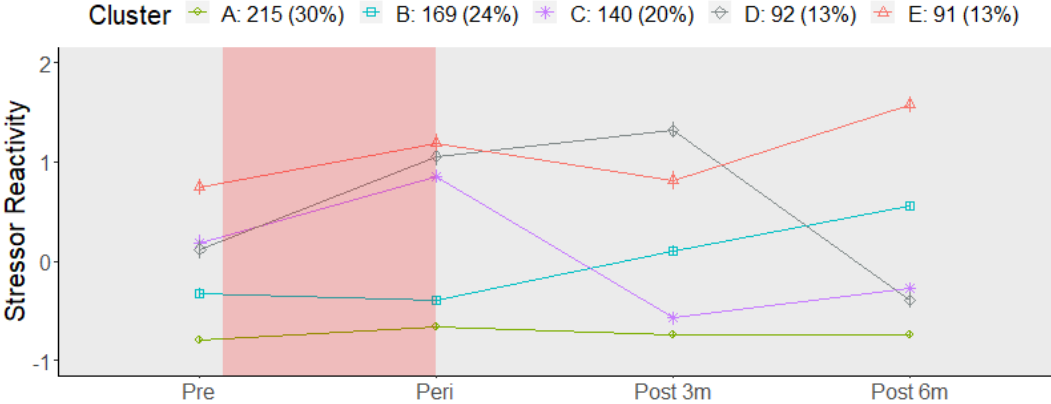
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Resilience to major life events

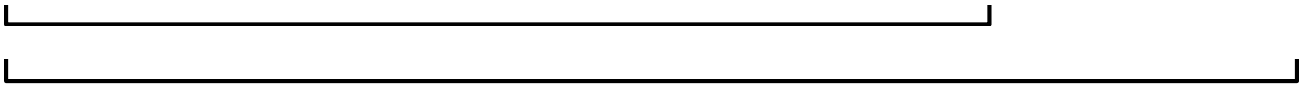
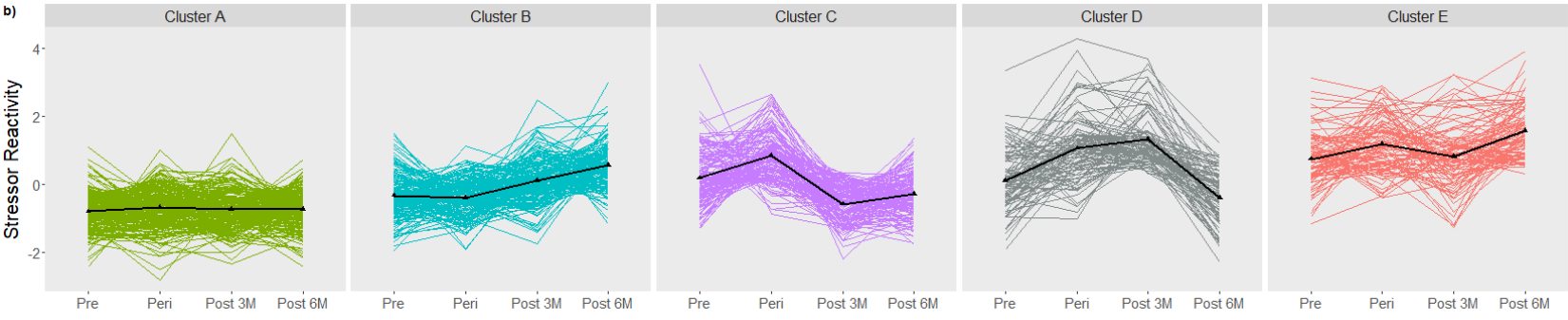
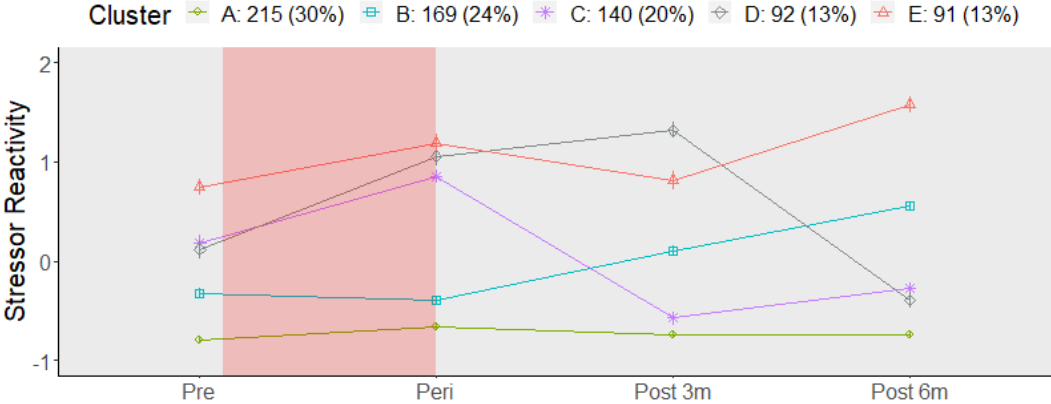
LORA study (Frankfurt, Mainz):



SOC (B0)

Resilience to major life events

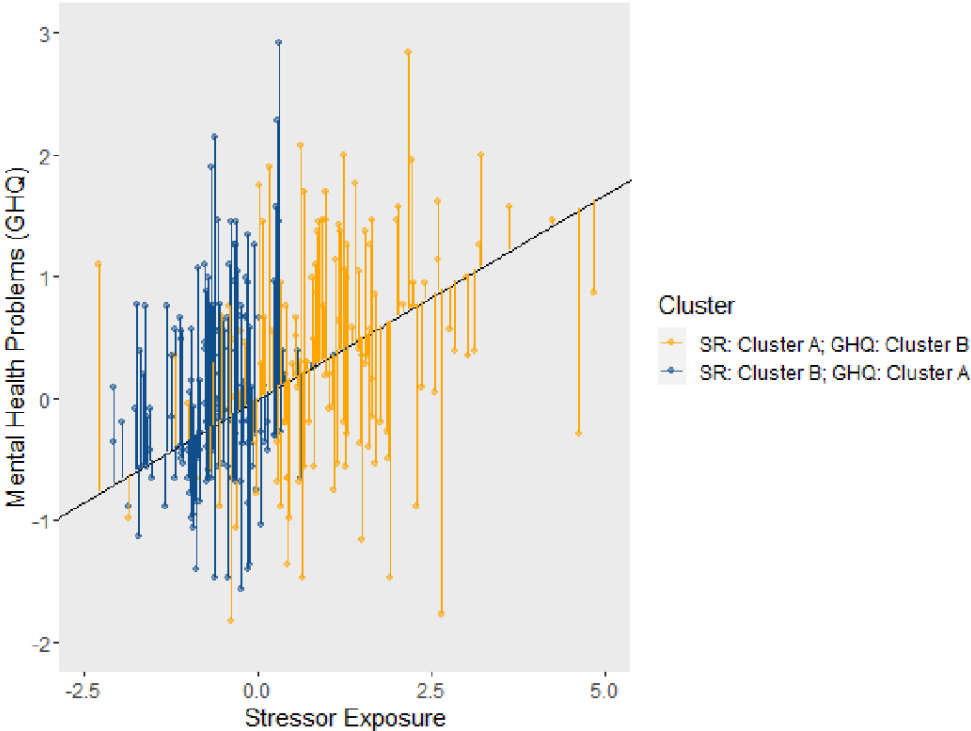
LORA study (Frankfurt, Mainz):



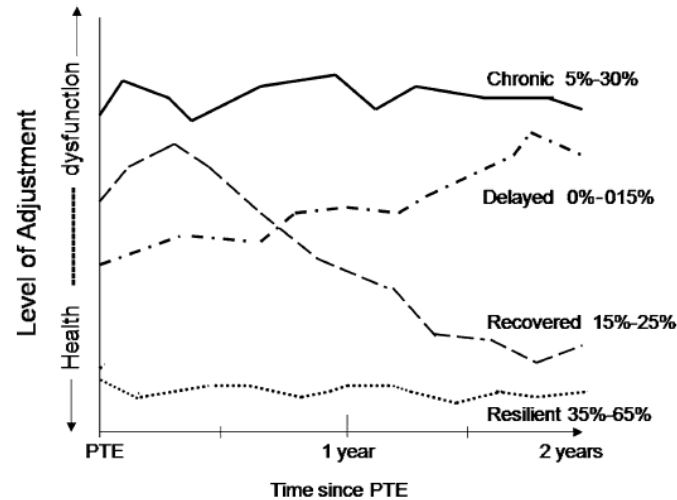
Diagnosis (later)

Resilience to major life events

LORA study (Frankfurt, Mainz):



Resilience to major life events



Bonanno et al., *Annu Rev Clin Psychol* 2011

Low symptoms because less adversity?

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- Correcting for “background” stressors abolishes gender effects on resilience (Lowe et al., 2021)

Resilience – outcome-based operationalization

Problem 1: unpredictability of stressors

Problem 2: heterogeneity of stressors

Problem 3: non-randomness of stressors

Problem 4: individuality of stressors

Problem 5: subjectivity of stressors

Resilience – outcome-based operationalization

Solution 1: take an at-risk population

Solution 2: frequently monitor stressors and mental health

Solution 3: express mental health as a function of stressor exposure

Resilience – outcome-based operationalization

Possibility 1: identify resilience factors

Possibility 2: identify resilience processes

Possibility 3: quantify resilience to life events

Possibility 4: quantify effects of resilience interventions

What is resilience?

How can we measure it?

Is resilience to chronic and everyday stressors different from resilience to major events?

What do we know about psychological mechanisms?

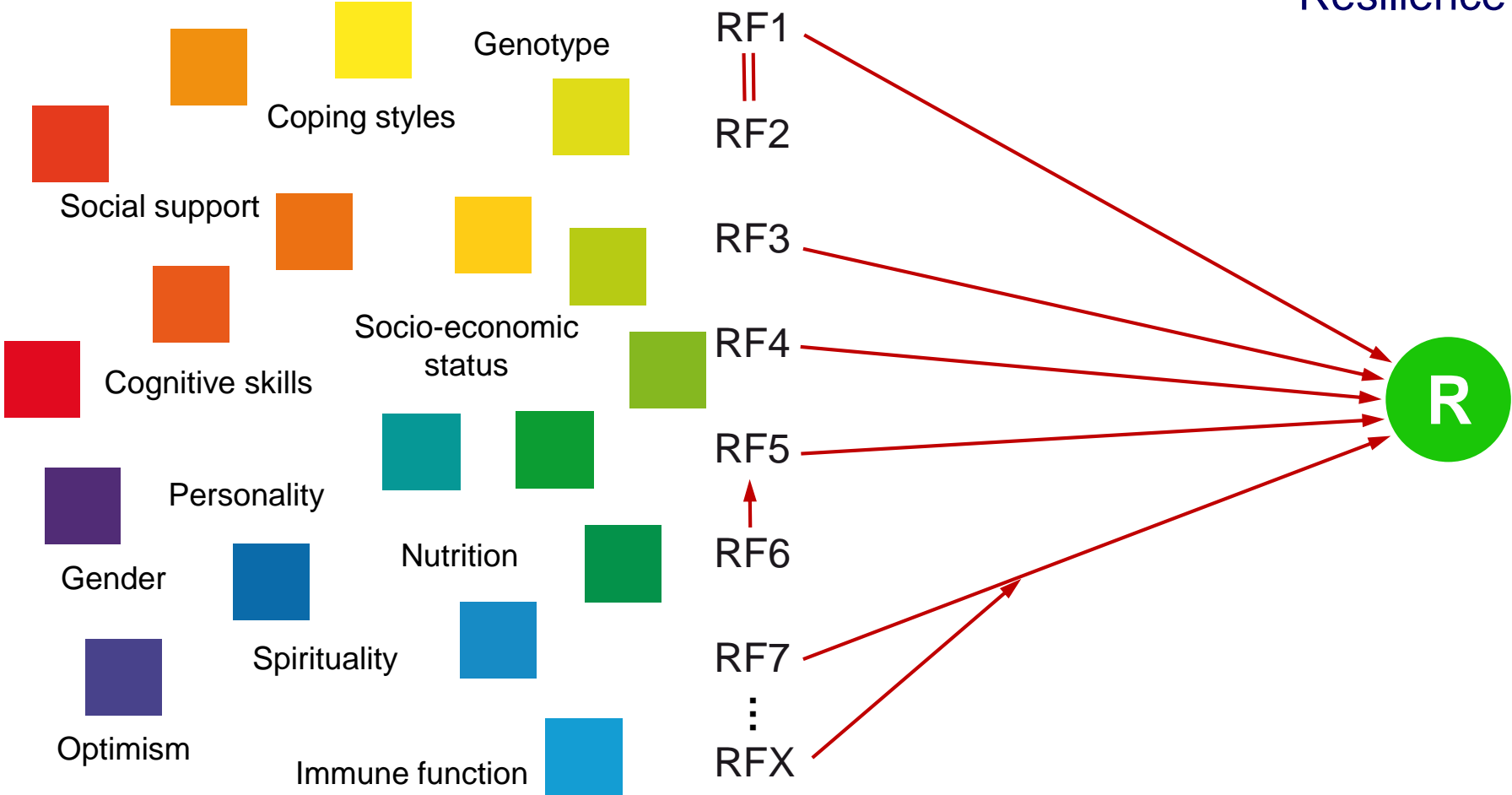
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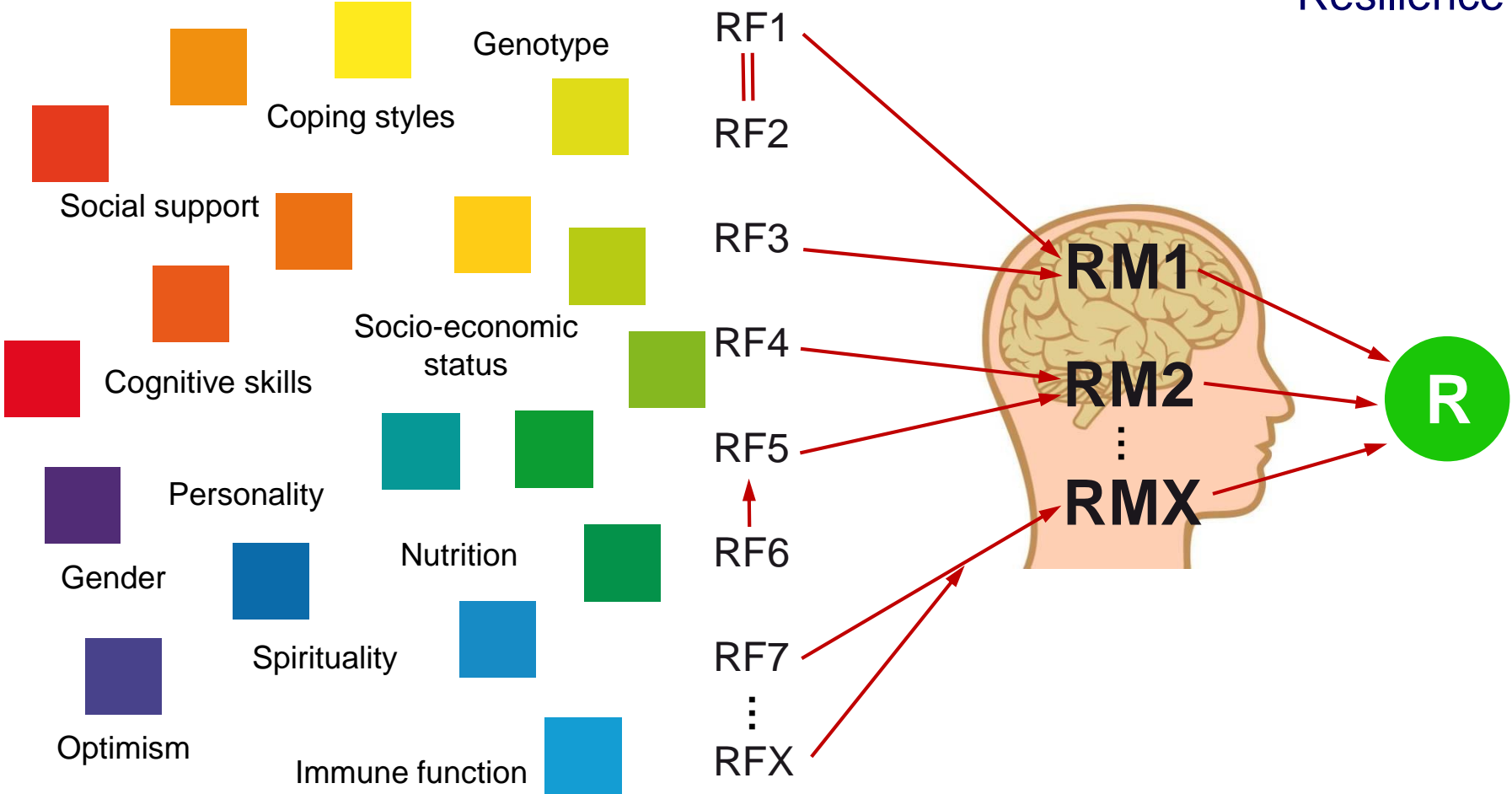
From many resilience factors to ...

Outcome:
Resilience



From many resilience factors to a few mediating mechanisms

Outcome:
Resilience



Excursus: appraisal theory

(Arnold, Lazarus, Frijda, Scherer, ...; Moors, *Cogn Emot* 2009)

Situation → Appraisal → Emotional response

- Evaluation of a stimulus in terms of its emotional-motivational significance
(relevance to goals/needs)
- Causal in generating an emotional response
(determines type and shape of emotional response)
- Context dependent
- SUBJECTIVE
- Multiple appraisal criteria/dimensions
- Heterogeneous processes, non-conscious/conscious, quick/effortful
- Continuous, iterative

Towards a mechanistic theory

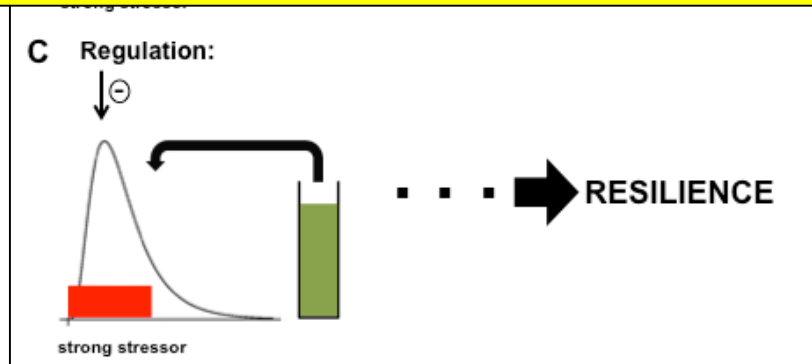
Stress reaction (anger, fear, anxiety, sadness, ...):



Reaction to a threat to one's goals/needs

Three appraisal dimensions:

- Probability
- Magnitude/costs
- Coping potential



Towards a mechanistic theory

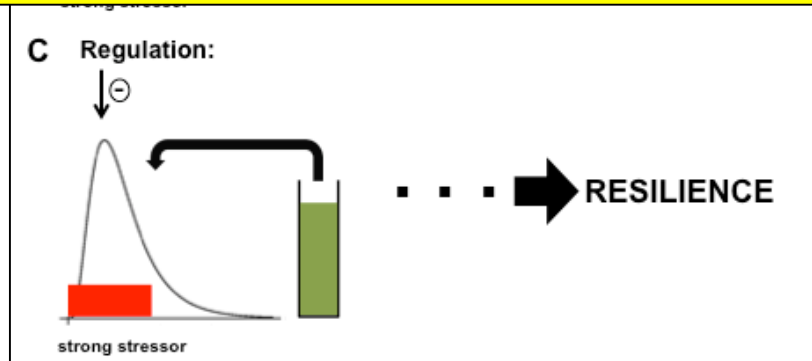
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- Probability – *pessimism vs. optimism*
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- Coping potential – *helplessness vs. self-assurance*

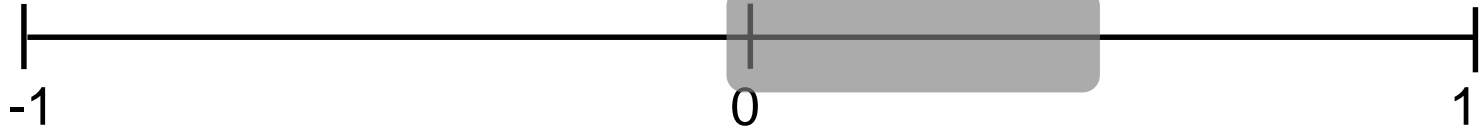


Towards a mechanistic theory

extremely
unrealistically
aversive

realistic

extremely
unrealistically
appetitive



Towards a mechanistic theory

extremely
unrealistically
aversive

-1

realistic

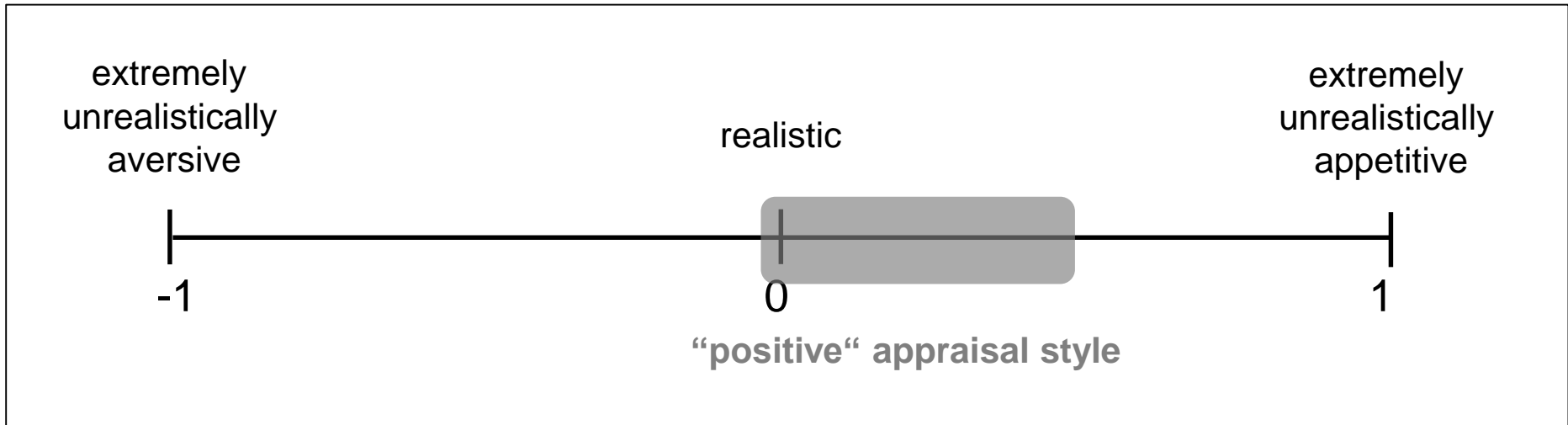
0

extremely
unrealistically
appetitive

1

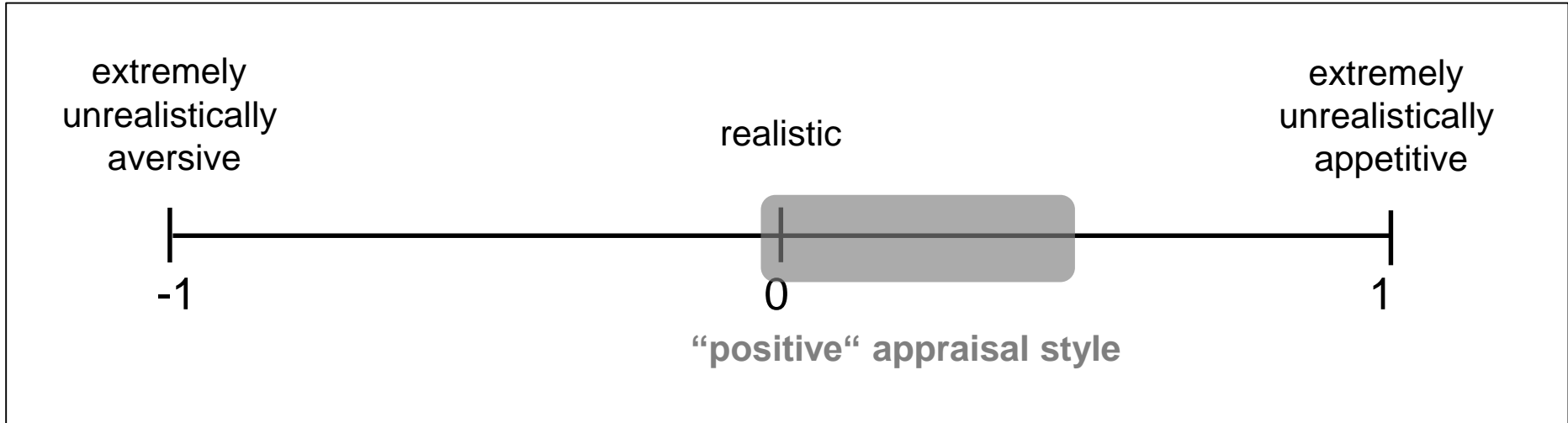
“positive“ appraisal style

Towards a mechanistic theory



→ **Positive appraisal style theory of resilience (PASTOR)**

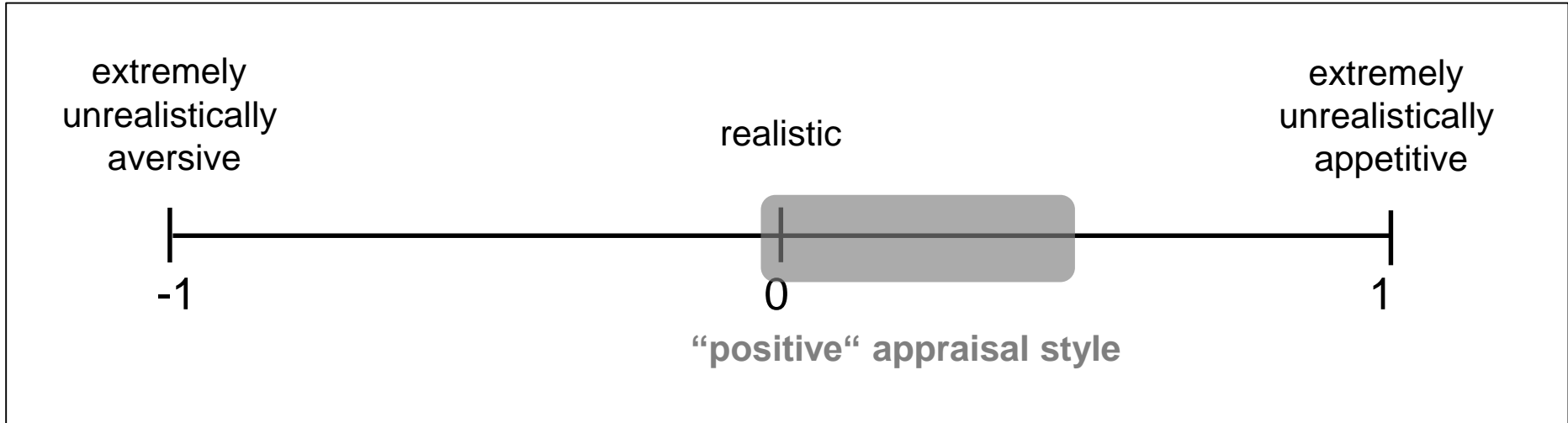
Towards a mechanistic theory



→ Positive appraisal style theory of resilience (PASTOR)

- "Style": stable, but **malleable (not a trait)**, protective over many instances of stressor exposure, you have it or you learn it

Towards a mechanistic theory



→ Positive appraisal style theory of resilience (PASTOR)

- “Style”: stable, but **malleable (not a trait)**, protective over many instances of stressor exposure, you have it or you learn it
- **Average values** on the three appraisal dimensions over longer time periods (appraisal CONTENTS)

Towards a mechanistic theory

extremely
unrealistically
aversive

-1

realistic

0

extremely
unrealistically
appetitive

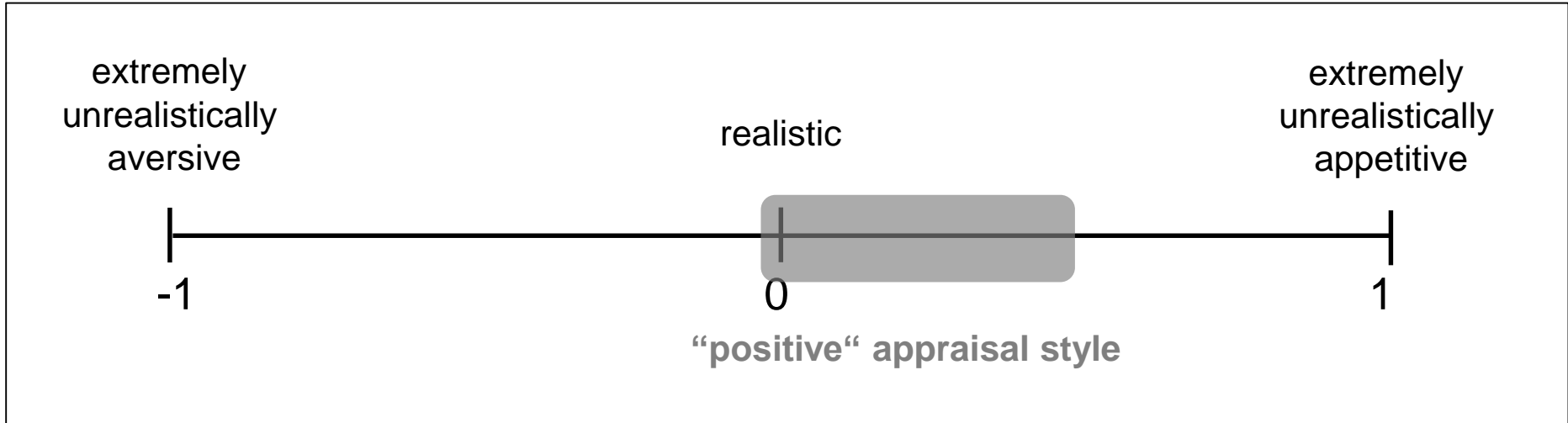
1

“positive“ appraisal style

→ Positive appraisal style theory of resilience (PASTOR)

- “Style”: stable, but **malleable (not a trait)**, protective over many instances of stressor exposure, you have it or you learn it
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- **Optimizes stress response regulation** (quicker recovery) → better resilience

Towards a mechanistic theory



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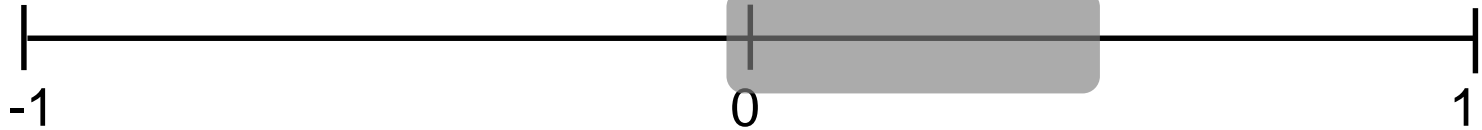
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- **Mediates the effects of other RFs** on resilience (e.g., social support, genetics, brain functions, ...)

Towards a mechanistic theory

extremely
unrealistically
aversive

realistic

extremely
unrealistically
appetitive



→ Positive appraisal style theory of resilience (PASTOR)

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- **Optimizes stress response regulation** (quicker recovery) → better resilience
- **Mediates the effects of other RFs** on resilience (e.g., social support, genetics, brain functions, ...)
- Partly determined by ind. diff. in life history, partly by efficiency of neural processes generating positive appraisals

Positive Appraisal Style (PAS) Task

... under development

Positive Appraisal Style (PAS) Scale

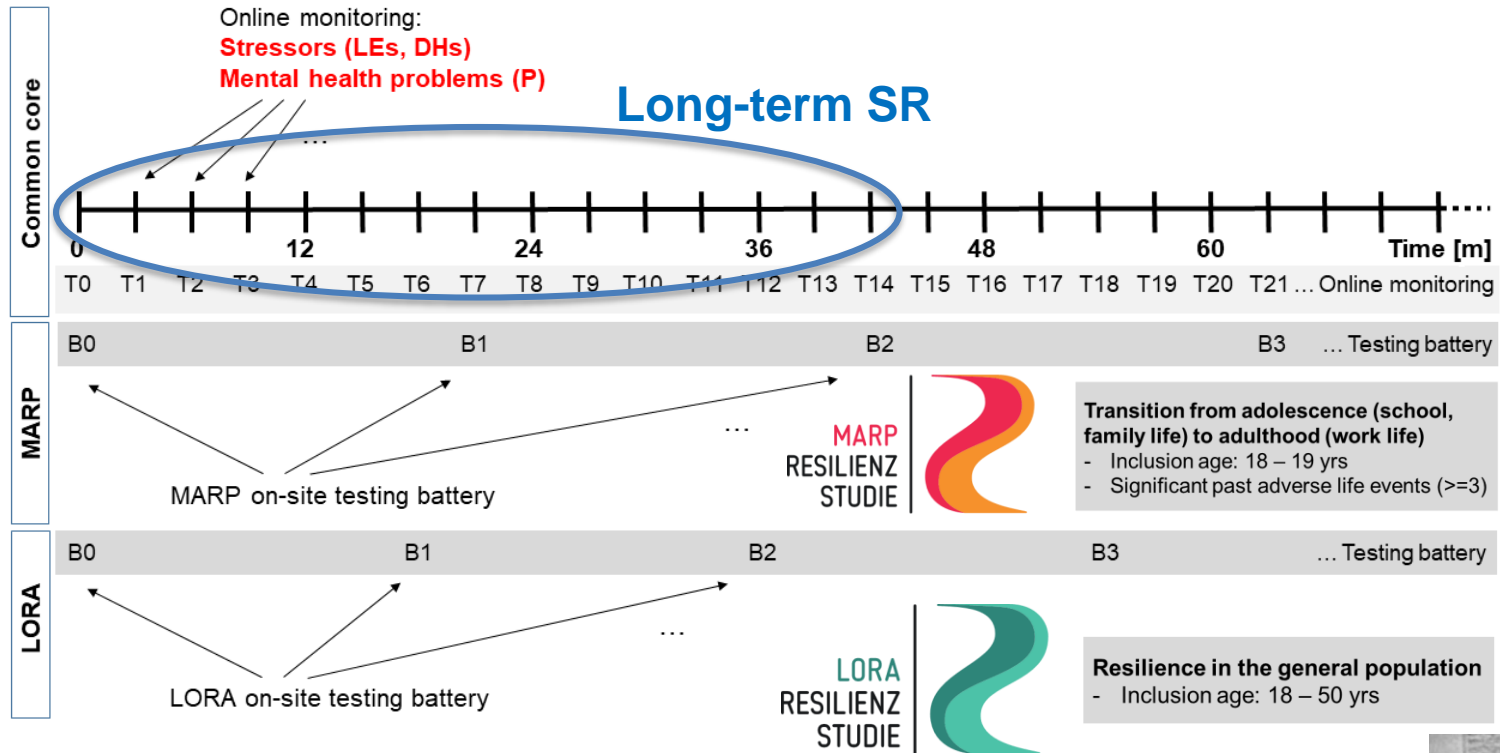
Please think about how you usually act in difficult, uncertain, burdening, stressful or critical situations and what you usually feel and think. Please indicate if the statements below are valid never, sometimes, often or most of the times. There are no right or wrong answers.

1 = never, 2 = sometimes, 3 = often, 4 = almost always

PASS-content_1	I think that every difficult situation will end eventually.
PASS-content_2	I think that I can deal successfully even with even the worst situation.
PASS-content_3	I think that even bad things have a meaning.
PASS-content_4	I think that you should not be rattled by small things.
PASS-content_5	I think that it is better to assume a good ending if you don't know what is coming.
PASS-content_6	I tend to see things rather optimistically.
PASS-content_7	I think that there is a solution for every problem.
PASS-content_8	I think that things will get better if you sit through them.
PASS-content_9	I think that life is wonderful after all.
PASS-content_10	I try to see things realistically, like they are.
PASS-content_11	I think that you shouldn't make mountains out of molehills.
PASS-content_12	For my goals and my ideals, I accept inconvenience.
PASS-content_13	I think that I somehow always manage to get what I need.
PASS-content_14	I think that things that initially seem bad often turn out well in the end.



Resilience factor Positive Appraisal Style (PAS)



N=132
EV=19%

N=1034
EV=13%

Battery Variable PAS(B0)

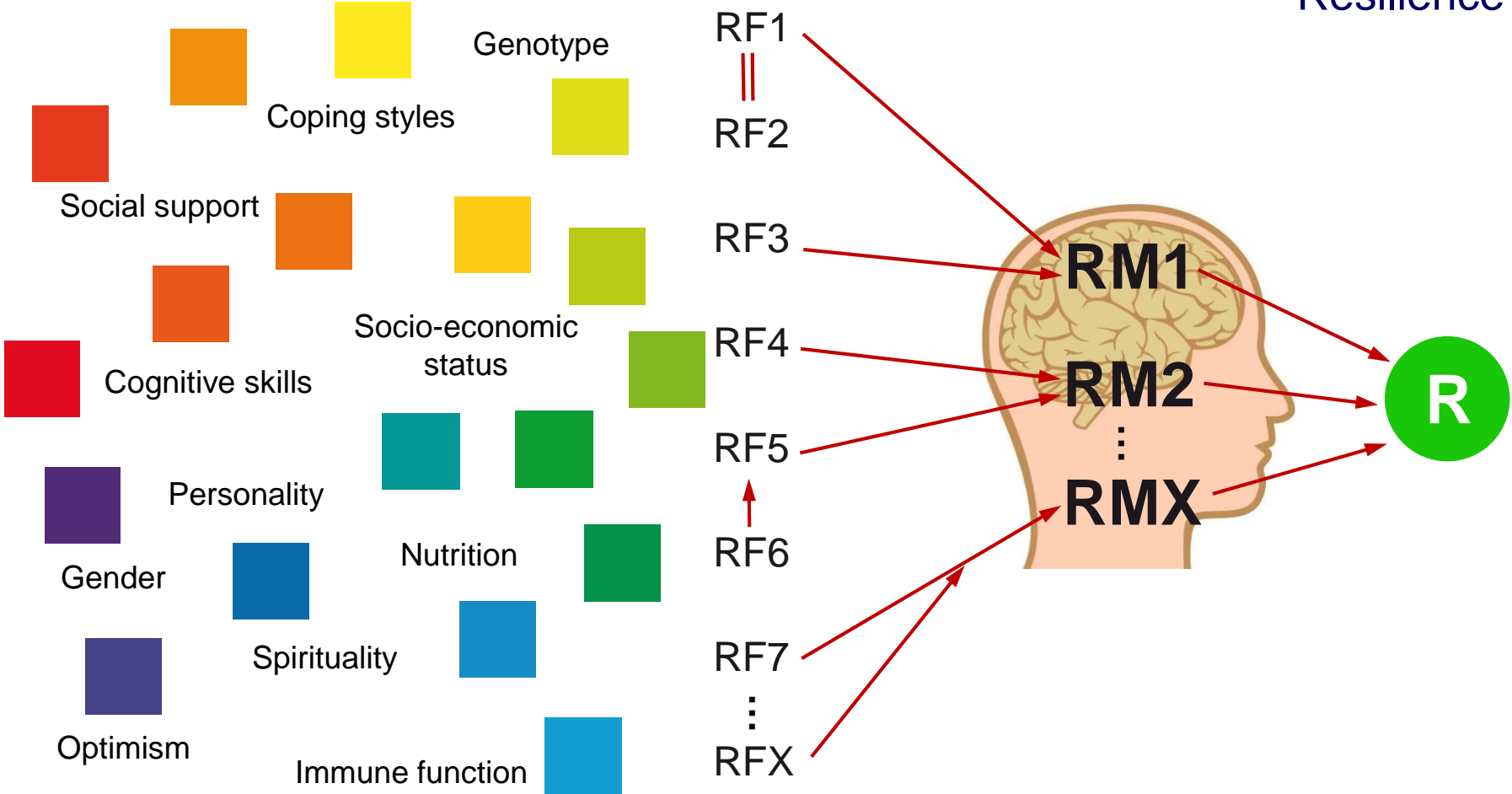
Mediations:
Social support → PAS → -SR
PAS → Good stress recovery → -SR



Petri-Romão et al., in prep.

From many resilience factors to a few mediating mechanisms

Outcome:
Resilience



Towards a mechanistic theory

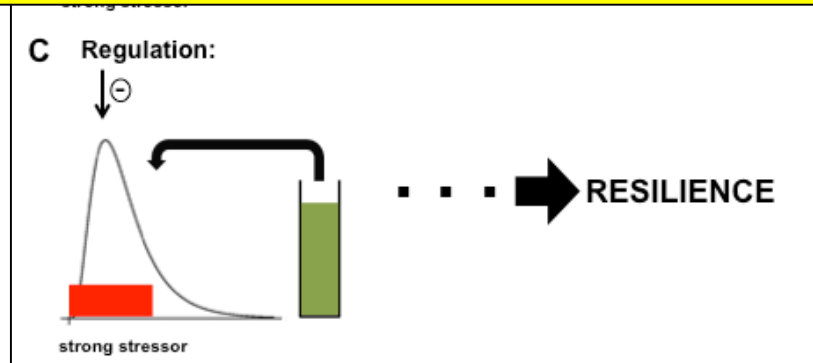
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- Coping potential – *helplessness vs. self-assurance*



Resilience factor Positive Appraisal Style (PAS)

Association:
PAS → -SR

& Mediations:
Social support → PAS → -SR
PAS → Good stress recovery → -SR

Veer et al. *Translational Psychiatry* (2021) 11:67
<https://doi.org/10.1038/s41398-020-01150-4>

Translational Psychiatry

ARTICLE

Open Access

Psycho-social factors associated with mental resilience in the Corona lockdown

Ilya M. Veer¹, Antje Riepenhausen^{1,2}, Matthias Zerban³, Carolin Wackerhagen¹, Lara M. C. Puhlmann^{4,5}, Haakon Engen^{3,6}, Göran Köber^{7,8}, Sophie A. Bögemann⁹, Jeroen Weermeijer¹⁰, Aleksandra Ušćilko¹¹, Netali Mor^{12,13}, Marta A. Marciniak^{14,15}, Adrian Dahl Askelund⁶, Abbas Al-Kamel¹⁶, Sarah Ayash¹⁷, Giulia Barsuola¹⁷, Vaida Bartkute-Norkuniene¹⁸, Simone Battaglia¹⁹, Yaryna Bobko²⁰, Sven Bölte^{21,22,23}, Paolo Cardone⁴, Edita Chvojková²⁴, Kaja Damjanović²⁵, Joana De Calheiros Velozo¹⁰, Lena de Thurah¹⁰, Yacila I. Deza-Araujo^{26,27}, Annika Dimitrov¹, Kinga Farkas^{28,29}, Clémence Feller³⁰, Mary Gazea³¹, Donya Gilan^{4,32}, Vedrana Gnjidić³³, Michal Hajduk^{34,35,36}, Anu P. Hiekkaranta¹⁰, Live S. Hofgaard³⁷, Laura Ilén³⁰, Zuzana Kasanova³⁸, Mohsen Khanpour³⁹, Bobo Hi Po Lau⁴⁰, Dionne B. Le

JMIR MENTAL HEALTH

Bögemann et al

Original Paper

Psychological Resilience Factors and Their Association With Weekly Stressor Reactivity During the COVID-19 Outbreak in Europe: Prospective Longitudinal Study

Sophie A Bögemann^{1*}, MSc; Lara M C Puhlmann^{2,3*}, PhD; Carolin Wackerhagen^{4*}, PhD; Matthias Zerban^{5*}, MSc; Antje Riepenhausen^{4,6}, PhD; Göran Köber^{7,8}, PhD; Kenneth S L Yuen^{2,5}, PhD; Shakoore Pooseli⁸, PhD; Marta A Marciniak^{9,10}, PhD; Zala Reppmann⁴, MSc; Aleksandra Ušćilko¹¹, MSc; Jeroen Weermeijer¹², MSc; Dionne B Lenferink¹, MSc; Julian Mituniewicz¹¹, MSc; Natalia Robak¹³, BSc; Nina C Donner¹⁴, PhD; Merijn Mestdaghi¹⁵, PhD; Stijn Verdonek¹⁵, PhD; Rolf van Dick¹⁶, PhD; Birgit Kleim^{9,10}, PhD; Klaus Lieb^{2,17}, MD, PhD; Judith M C van Leeuwen¹, PhD; Dorota Kobylirska¹¹, PhD; Inez Myin-Germeys^{12*}, PhD; Henrik Walter^{4,6*}, MD, PhD; Oliver Tüscher^{2,17,18*}, MD, PhD; Emo J Hermans^{1*}, PhD; Ilya M Veer^{4,19*}, PhD; Raffael Kalisch^{2,5*}, PhD

npj | parkinson's disease

Article

Published in partnership with the Parkinson's Foundation



<https://doi.org/10.1038/s41531-024-00692-4>

Predictors of stress resilience in Parkinson's disease and associations with symptom progression

Anouk van der Bastiaan R. Blc | frontiers | Frontiers in Psychology

Check for updates

TYPE Original Research
PUBLISHED 18 December 2023
DOI 10.3389/fpsyg.2023.1272199

Check for updates

OPEN ACCESS

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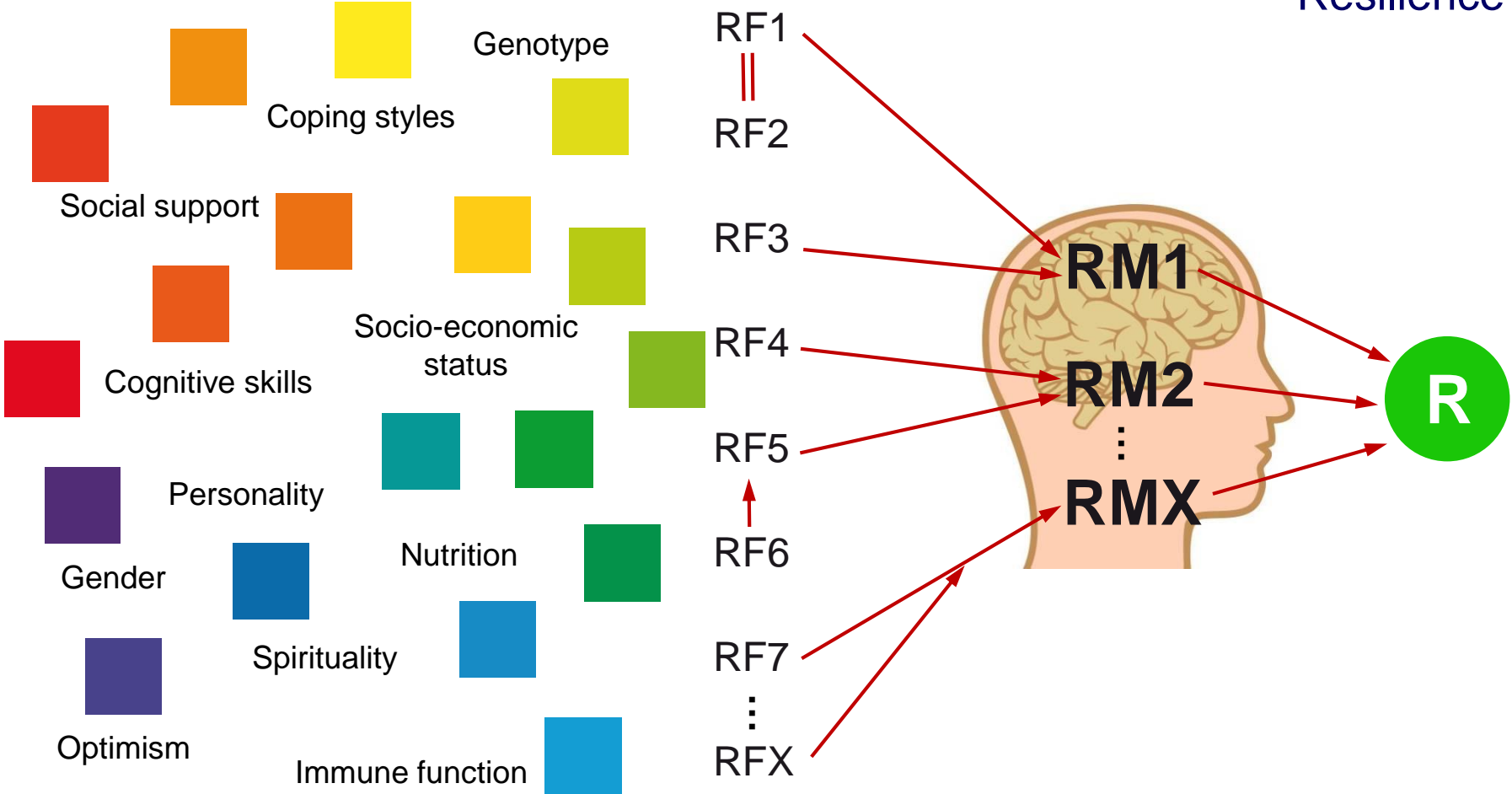
*These authors share first authorship

What helps the helpers? Resilience and risk factors for general and profession-specific mental health problems in psychotherapists during the COVID-19 pandemic

Matthias Zerban^{1,*}, Lara Marie Christine Puhlmann^{2,3*}, Dana Lassri^{4,5}, Peter Fonagy^{4,6}, P. Read Montague⁷, Natalia Kiselnikova⁸, Nicolas Lorenzini⁴, Alex Desatnik^{4,9}, Raffael Kalisch^{1,2} and Tobias Nolte^{4,6}

From many resilience factors to a few mediating mechanisms

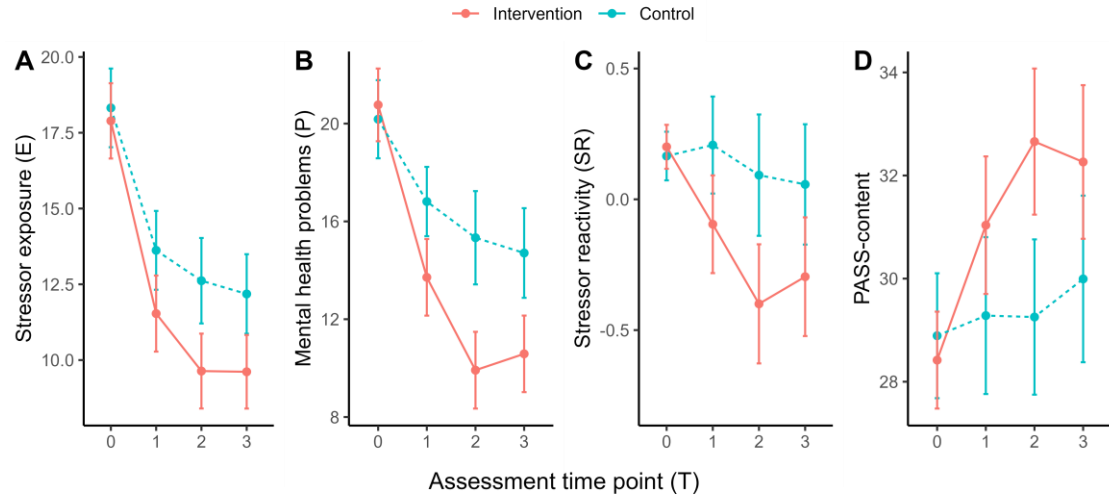
Outcome:
Resilience



Resilience factor Positive Appraisal Style (PAS)



WHO Stress management training (stepped care, peer support, digitalized)



Intervention group:



Control group:



T0 Week 1 n=232 T1 Week 7 n=201 T2 Week 13 n=174 T3 Week 21 n=184

Intervention → PAS (T2) → -SR (T3) (47%)

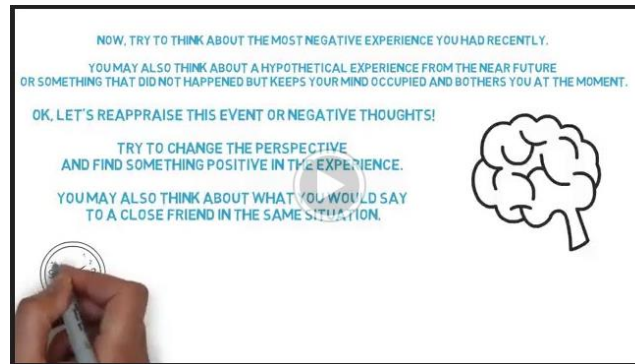
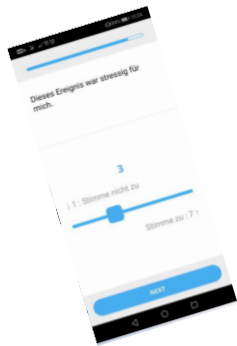
3 more RCTs ongoing

Spanish health care workers during COVID

Targeted enhancement of PAS



Smartphone app to specifically train positive (re)appraisal



<https://dynamore-project.eu/our-studies/reapp/>

Marciniak et al., in prep.

App → PAS?
App → PAS → -SR?

Bögemann et al. BMC Psychology (2023) 11:245
<https://doi.org/10.1186/s40359-023-01249-5>

BMC Psychology

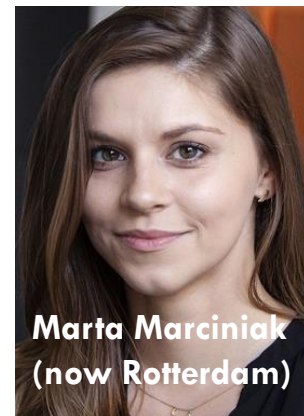
STUDY PROTOCOL

Open Access



Investigating two mobile just-in-time adaptive interventions to foster psychological resilience: research protocol of the DynaM-INT study

S. A. Bögemann^{1*}, A. Riepenhausen^{2,3†}, L. M. C. Puhmann^{4,5†}, S. Bar⁶, E. J. C. Hermens¹, J. Mituniewicz², Z. C. Reppmann², A. Uščlko⁷, J. M. C. van Leeuwen¹, C. Wackerhagen², K. S. L. Yuen^{4,8}, M. Zerban⁹, J. Weermeijer⁹, M. A. Marciniak^{10,11}, N. Mor^{6,12}, A. van Kraaij¹³, G. Köber^{14,15}, S. Pooseh¹⁵, P. Koval¹⁶, A. Arias-Vásquez¹, H. Binder^{14,15}, W. De Raedt¹⁷, B. Kleim^{10,11}, I. Myin-Germeyns⁹, K. Roelofs^{18,19}, J. Timmer^{15,20,21}, O. Tüscher^{4,22}, T. Hendler^{6,12,23,24†}, D. Kobylińska²¹, I. M. Veer^{25†}, R. Kalisch^{4,8†}, E. J. Hermans^{1†} and H. Walter^{2,3†}



Marta Marciniak
(now Rotterdam)

What is resilience?

How can we measure it?

Is resilience to chronic and everyday stressors different from resilience to major events?

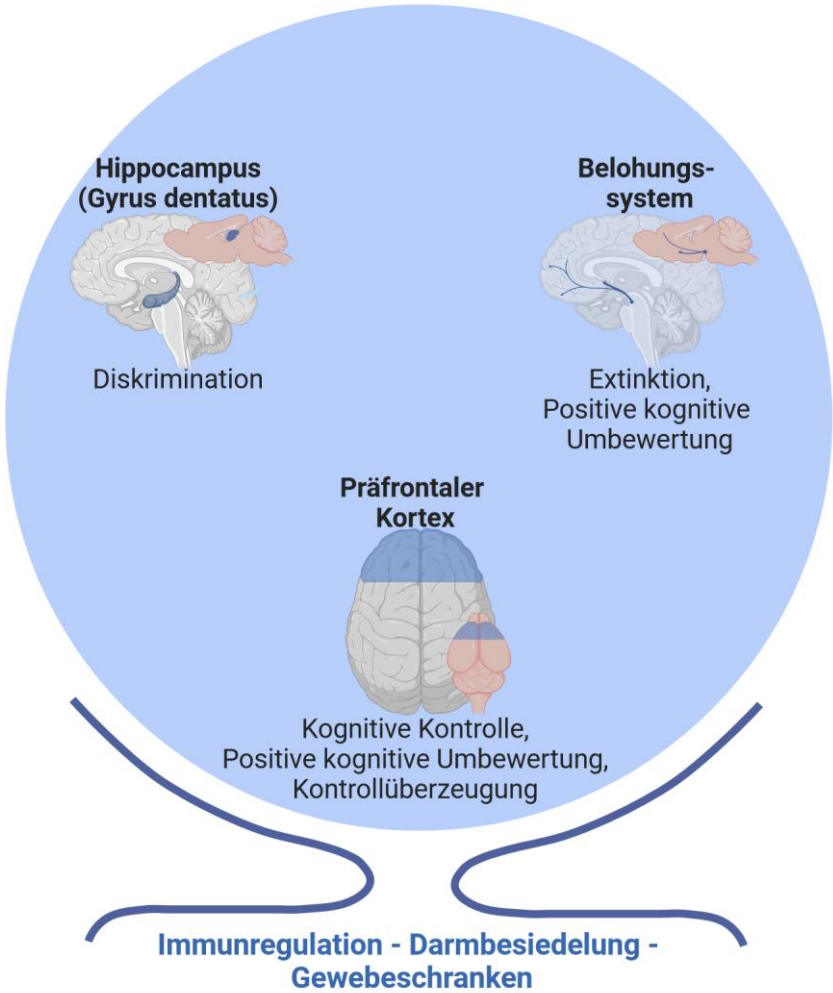
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What do we know about biological mechanisms?

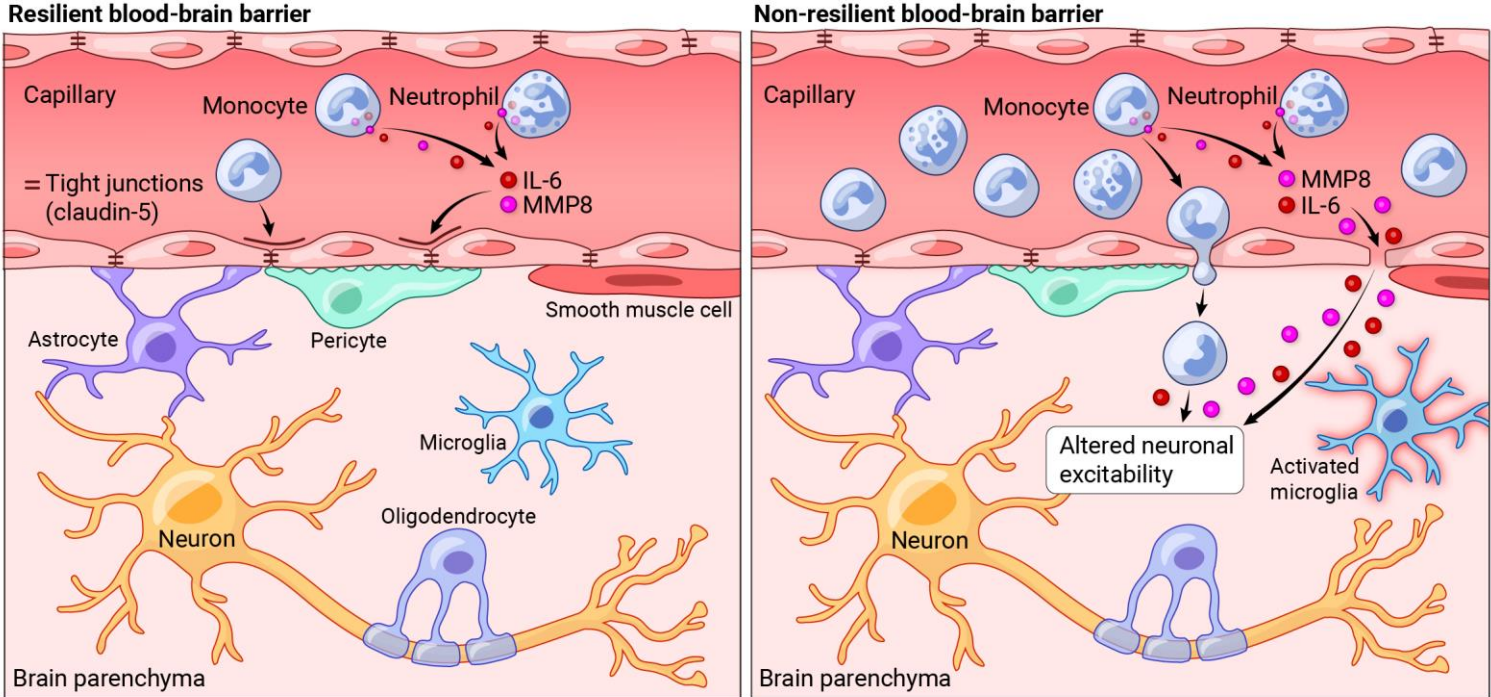
What can we do in FAMILY?

Why you should be in Mainz Sept 25-27?

Biological resilience factors: Brain

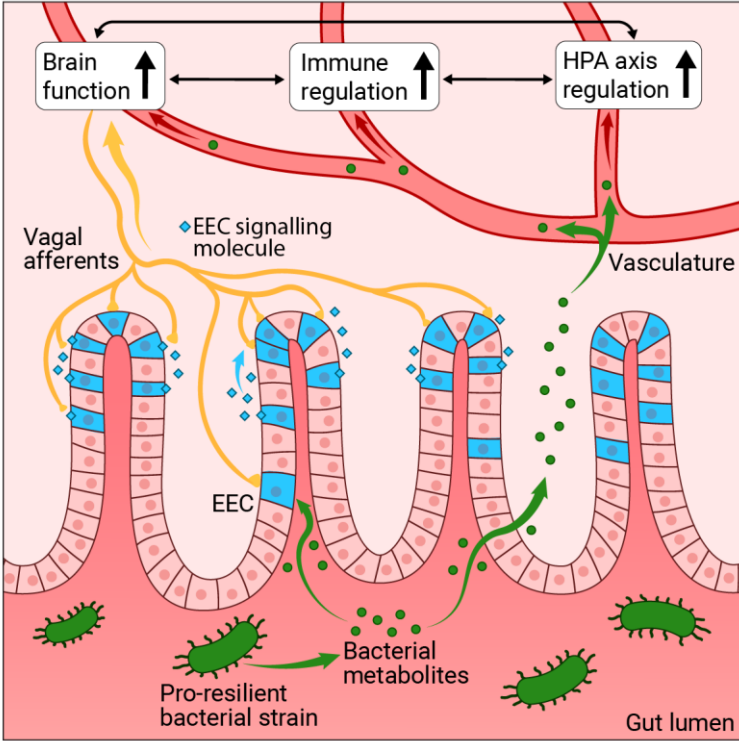


Biological resilience factors: Body



L Armstrong-Davies ©2023 Mount Sinai Health Systems

Biological resilience factors: Body



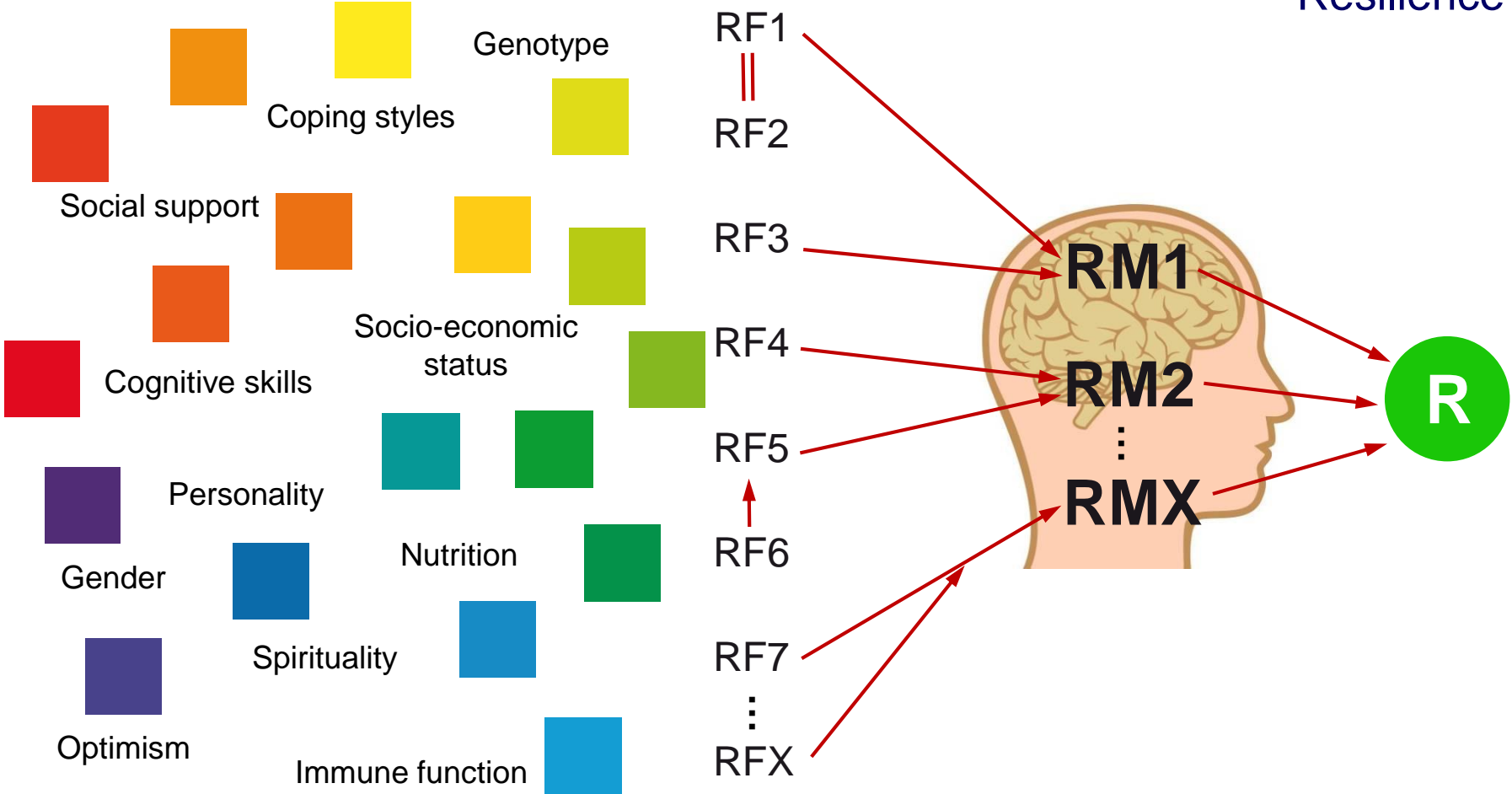
L Armstrong-Davies ©2023 Mount Sinai Health Systems

Biological resilience factors: Genetics, epigenetics, miRNAs, ...: ?

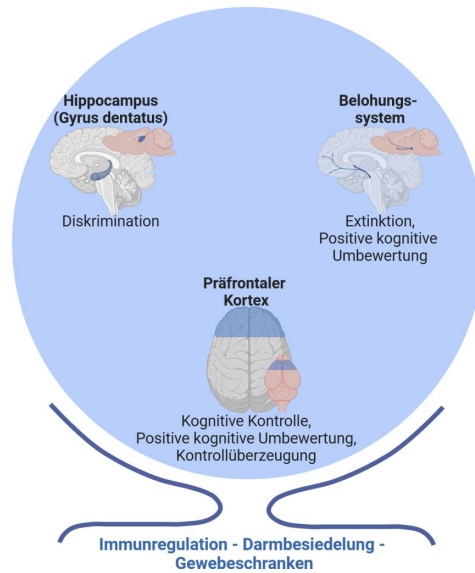
(some very early findings on proteome and microbiome)

From many resilience factors to a few mediating mechanisms

Outcome:
Resilience



Integration biology – psychology:



→ PAS → -SR?

What is resilience?

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What can we do in FAMILY?

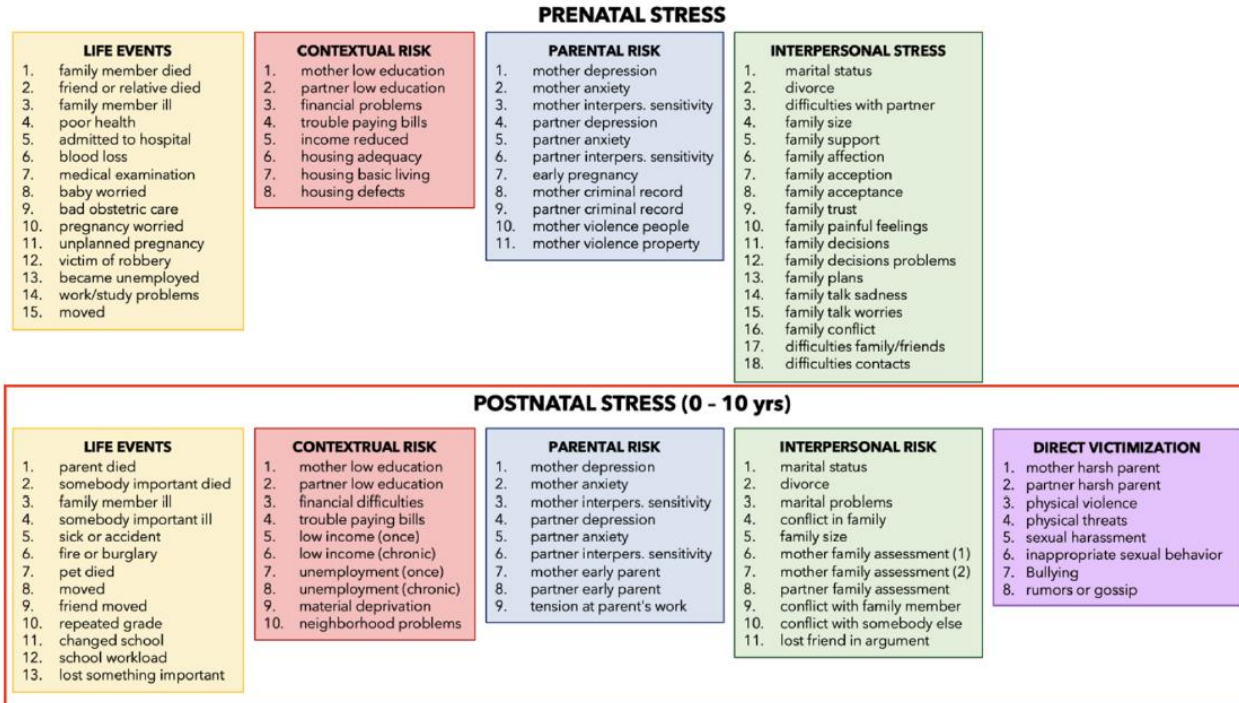
Why you should be in Mainz Sept 25-27?

Resilience in FAMILY

GenR and ALSPAC Wiki (GitHub):

Cecil et al. (2014, ALSPAC), Rijlaarsdam et al. (2016, Gen R), Defina et al. (2024, ALSPAC+GenR)

Factor analysis:

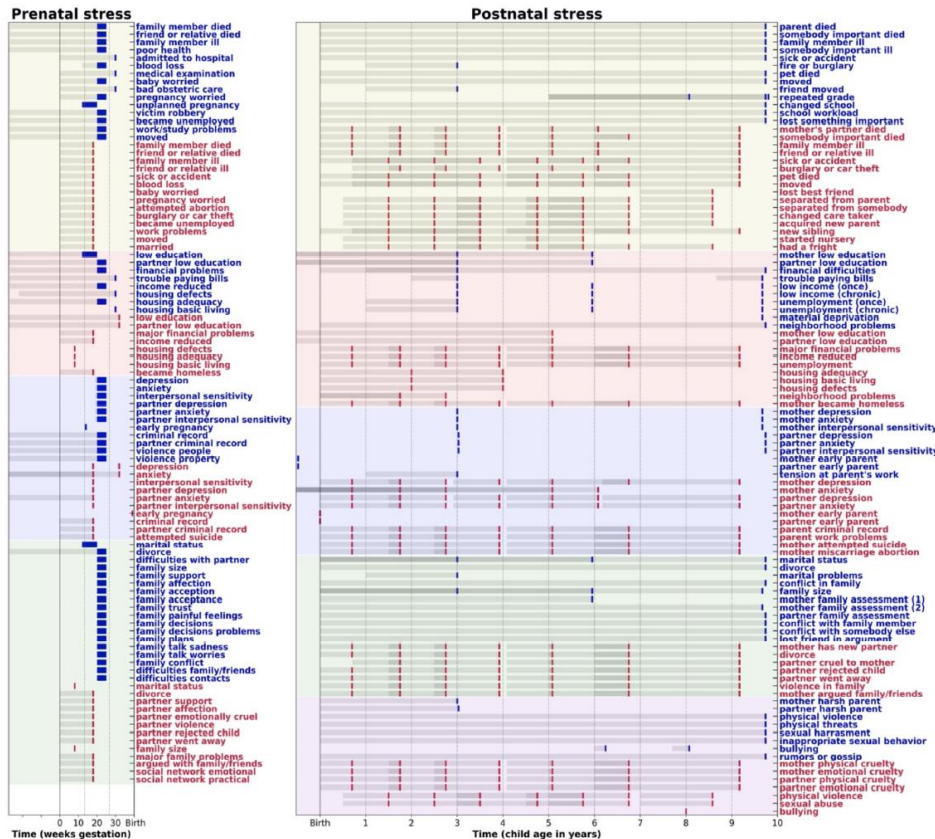


- Pre- and postnatal sum scores correlated: continuity of risk
- Commonly explain variance in adolescent internalizing symptoms

Resilience in FAMILY

GenR and ALSPAC Wiki (GitHub):

Cecil et al. (2014, ALSPAC), Rijlaarsdam et al. (2016, Gen R), Defina et al. (2024, ALSPAC+GenR)



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Resilience in FAMILY

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Table S11 - Domain contribution analysis (internalizing and adiposity)

Effect	Generation R					ALSPAC				
	Internalizing (R ² = .12)					Internalizing (R ² = .08)				
	Estimate	SE	Statistic	Df	P	Estimate	SE	Statistic	Df	P
(Intercept)	-1.32	0.71	-1.85	262.3	.065	-2.81	1.37	-2.06	130.0	.042
Prenatal life events	0.54	0.18	2.99	473.7	.003	0.02	0.14	0.13	451.9	.897
Prenatal contextual risk	0.18	0.12	1.51	196.4	.132	0.02	0.10	0.19	567.5	.849
Prenatal parental risk	0.61	0.21	2.90	358.9	.004	0.58	0.13	4.63	146.8	<.001
Prenatal interpersonal risk	0.27	0.14	1.93	446.8	.055	0.04	0.15	0.26	285.8	.796
Postnatal life events	0.56	0.13	4.25	380.8	<.001	0.08	0.03	2.73	355.8	.007
Postnatal contextual risk	0.14	0.12	1.15	181.6	.250	0.09	0.04	2.27	279.4	.024
Postnatal parental risk	0.88	0.16	5.41	153.1	<.001	0.22	0.03	7.20	168.4	<.001
Postnatal interpersonal risk	0.67	0.15	4.56	334.0	<.001	0.00	0.03	-0.14	239.3	.892
Postnatal direct victimization	0.76	0.14	5.34	351.6	<.001	0.26	0.07	3.79	143.6	<.001
Female sex	0.13	0.03	3.76	436.3	<.001	0.23	0.02	9.65	431.0	<.001
Age	0.05	0.05	0.89	260.8	.373	0.16	0.10	1.60	132.1	.111
Ethnicity	0.12	0.04	2.85	579.8	.004	0.01	0.07	0.10	254.6	.923
Maternal BMI	0.01	0.00	2.23	211.2	.027	0.01	0.00	2.01	389.3	.045
Maternal smoking	-0.06	0.02	-2.56	335.1	.011	0.00	0.02	0.22	277.8	.823
Maternal alcohol c.	-0.01	0.02	-0.67	447.4	.501	-0.07	0.02	-3.90	402.9	<.001

- Pre- and postnatal sum scores correlated: continuity of risk
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Resilience in FAMILY

Outcome:

1. In GenR & ALSPAC: Can we isolate a transgenerational psychosocial stressor/risk component? (parental pre- and post-natal exposure?)
2. Can we residualize adult mental health problems (int, ext) on this factor (tgSR)?
3. IF NOT: use general SR only within participants with familial high risk

Predictor:

1. Can we establish a parental psychosocial resilience factor (tgRF; e.g., parental warmth):
parRF → - tgSR
2. IF NOT: test offspring psychosocial RF (early childhood): offRF → -tgSR

Biology:

- | | |
|-----------------------------|-----------------------------|
| a) parBIOL → - tgSR | c) offBIOL → - tgSR* |
| b) parBIOL → parRF → - tgSR | d) parRF → offBIOL → - tgSR |

PAS: Can we get it some adult offspring?

parRF → offBIOL → PAS → - tgSR

*some hypotheses (e.g., rsfMRI from current adult work)

Resilience in FAMILY

Side notes:

Resilience to single major life events (SR trajectories)

What is resilience?

How can we measure it?

Is resilience to chronic and everyday stressors different from resilience to major events?

What do we know about psychological mechanisms?

What do we know about biological mechanisms?

What can we do in FAMILY?

Why you should be in Mainz Sept 25-27?

#resilience2024

10th International Symposium on Resilience Research

September 25-27, Mainz, Germany

& Satellite Methods Workshop, Sept 24

& ECS formats

lir-mainz.de/symposium-2024

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a.m.o.

Thank you!