Microtrajectories of Affect in the Daily Lives of Youth

first results of the READY-study

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Agenda

1. Introduction
2. Research Design
3. Results
4. Next Steps
5. Conclusion

Adolescence as a critical developmental stage

[1] Crone & Dahl, 2012; [2] Spear, 2009; [3] Casey et al., 2008; [4] Stroud et al., 2009; [5] Pfeifer & Berkman, 2018; [6] Singh, 2024

Adolescence as a critical developmental stage

major biological, hormonal and socio-contextual changes[1,2]

heightened physiological stress response[4]

neuroticism linked to increased regulatory difficulties, especially during adolescence[6]

emotional and behavioral regulation skills are still maturing[3]

increased reactivity and sensitivity to (social) stress[4,5]

[2] Spear, 2009; [7] Gratz et al., 2015; [8] Zimmer-Gembeck & Skinner, 2016; [9] Gross, 2015; [10] Kaurin et al., 2023

- Maladaptive stress regulation is a **transdiagnostic risk factor** [2,7]

→ **Understanding stress responses** in daily life is crucial for **identifying risk and resilience factors** [8]

- Stress/affective processes are **dynamic** and can vary throughout the day [9]
- **Fine temporal resolution** is needed to assess how stress responses unfold in daily life [10]
- **Ecological Momentary Assessment (EMA)** is suited for capturing stress processes in **real-time**

EMA-study with ultra-dense follow-up assessments (microbursts) after stressful events in the daily life of youth.

Research Design

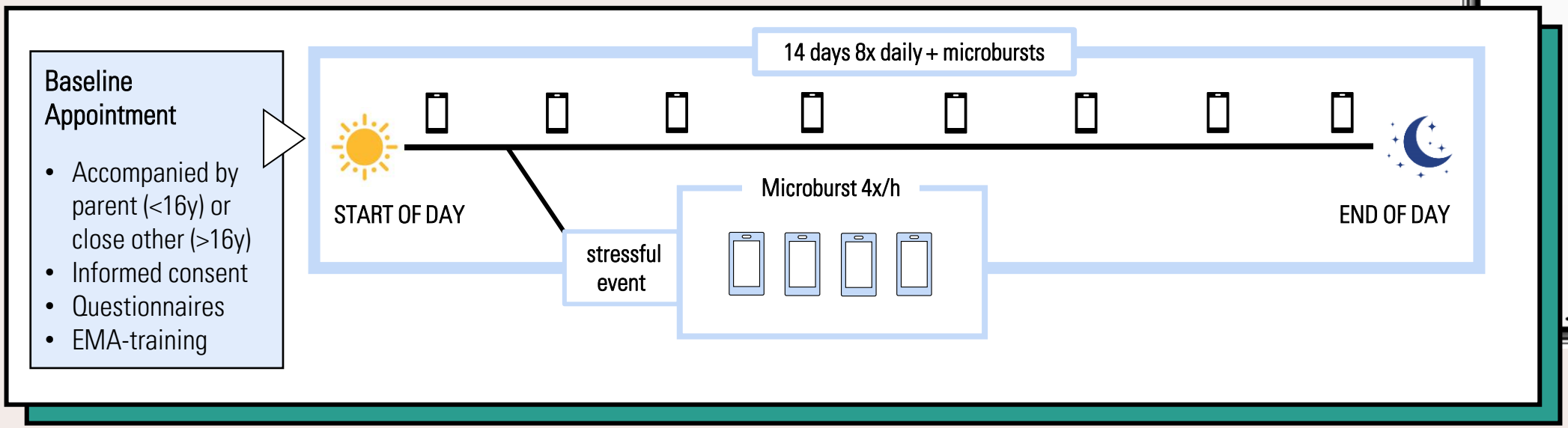
12 – 21 years old

14 days, 8x daily
7:30 – 9:00 /
9:00 – 23:00

60 min time to respond

up to 125€

- have you experienced a stressful event?
- how stressful was this event?
- NA: depressed, irritated, stressed, angry
- PA: happy, satisfied, comfortable



Aims

1

Feasibility

→ how is the protocol **compliance**
- in total?
- in the microbursts?
- among school kids?

2

Extraction

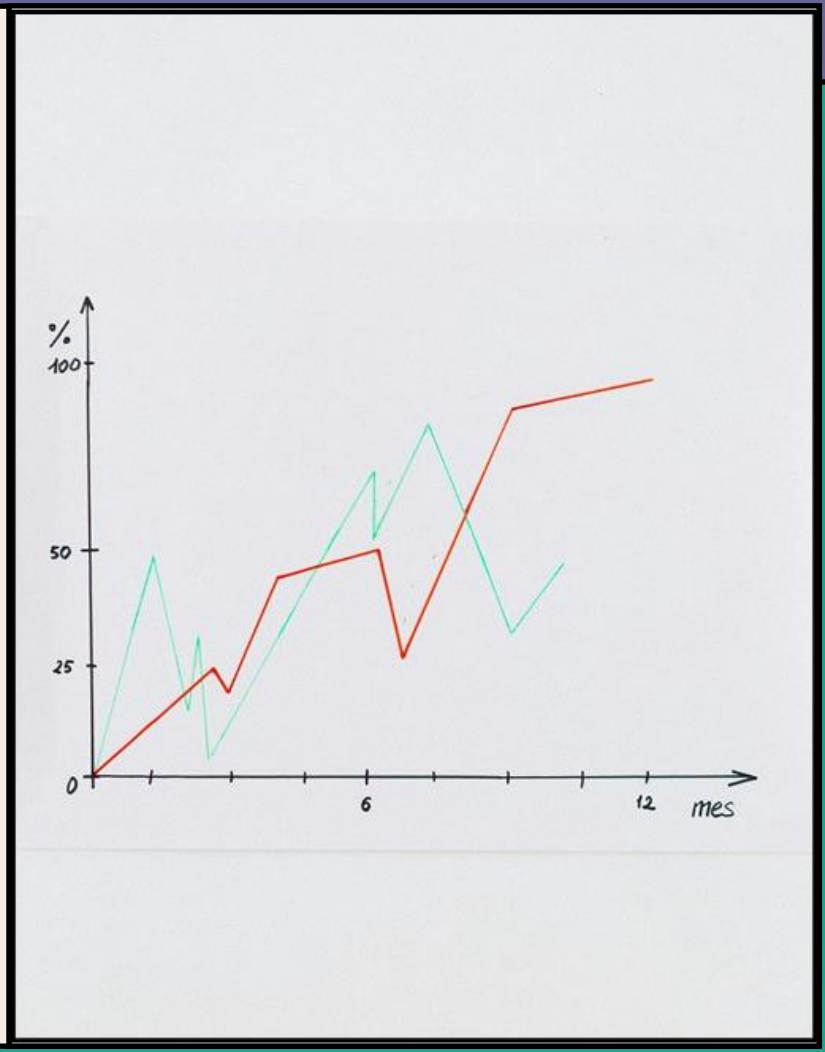
→ how do we **extract timeseries**?
→ is a stress response **visible** when plotting the data?

3

Analysis (preliminary)

→ does **event intensity** influence stress response?
→ does **neuroticism** influence stress response?

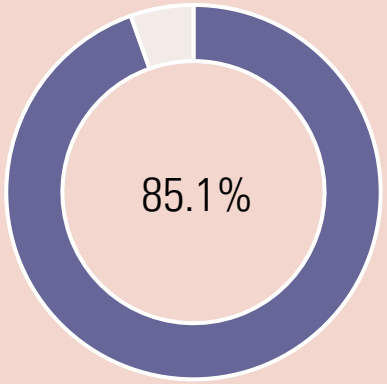
Results



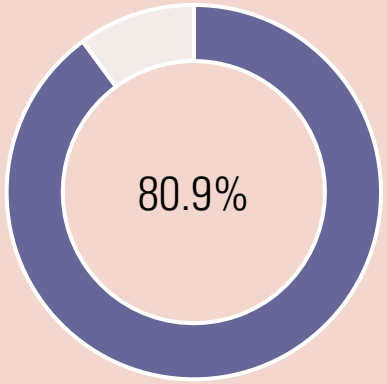
Descriptive statistics of the sample used for analyses

N = 289	M (SD) / N (%)
Gender	
Female	170 (58.9%)
Male	118 (40.8%)
No answer	1 (0.3%)
Age	17.5 (2.62)
Neuroticism	2.94 (0.658)
Compliance Total	84.1 (12.1)
Compliance EMA	85.1 (12.9)
Compliance Bursts	80.9 (14.9)
Number of Bursts	10.9 (11.1)
Country of birth	
Germany	250 (86.5%)
Middle East	13 (4.5%)
Eastern Europe	10 (3.5%)
Western Europe	7 (2.4%)
Asia	4 (1.4%)
Africa	2 (0.7%)
Other	2 (0.7%)

Compliance Standard EMA



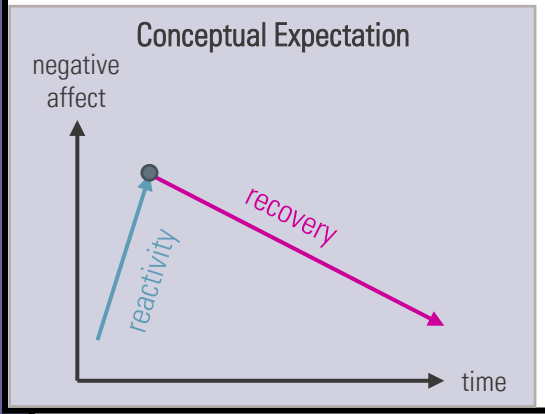
Compliance Microbursts



1 Protocol is feasible, even for school kids during school hours

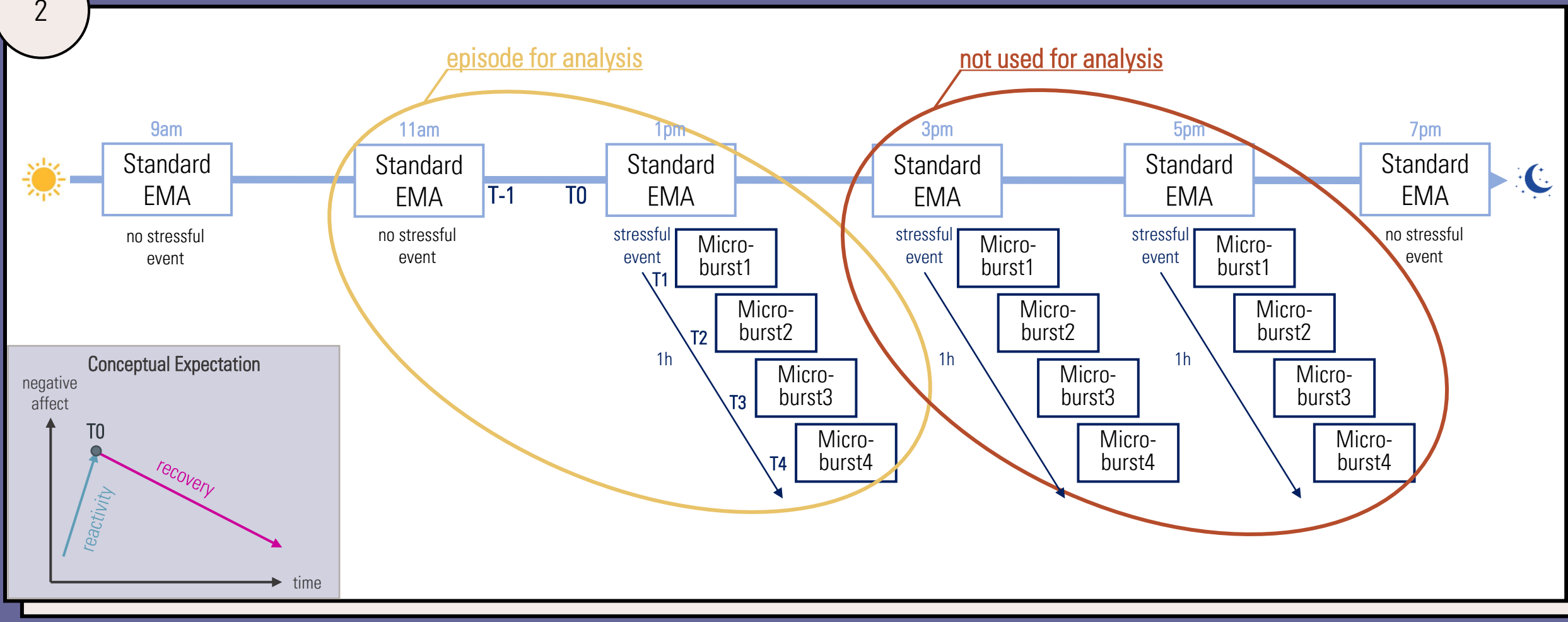
Extraction of Stress Episodes

2



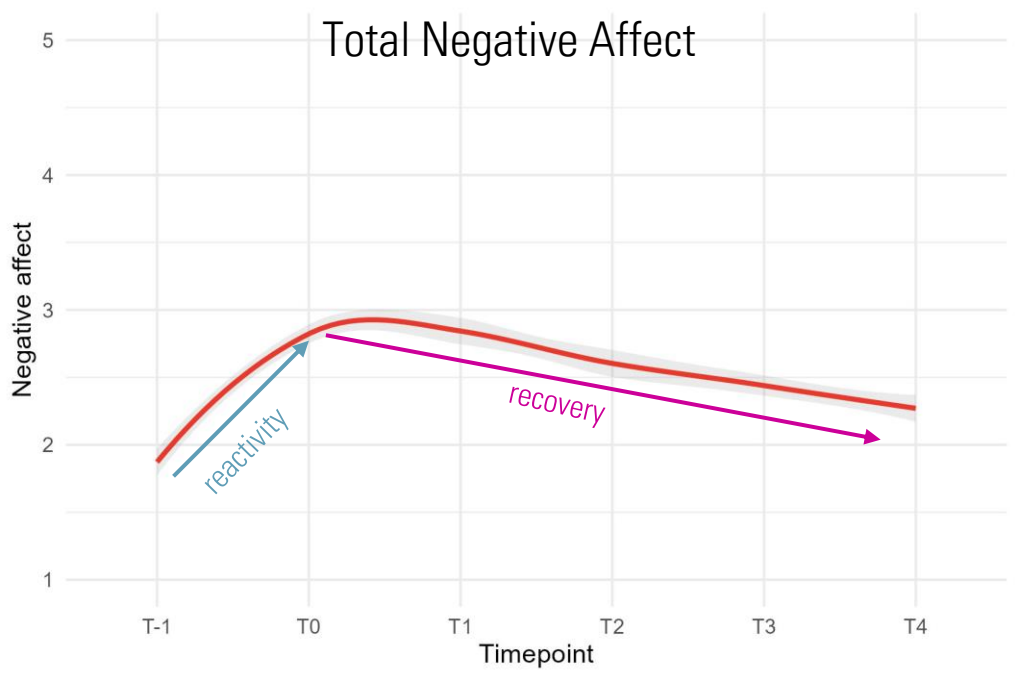
Extraction of Stress Episodes

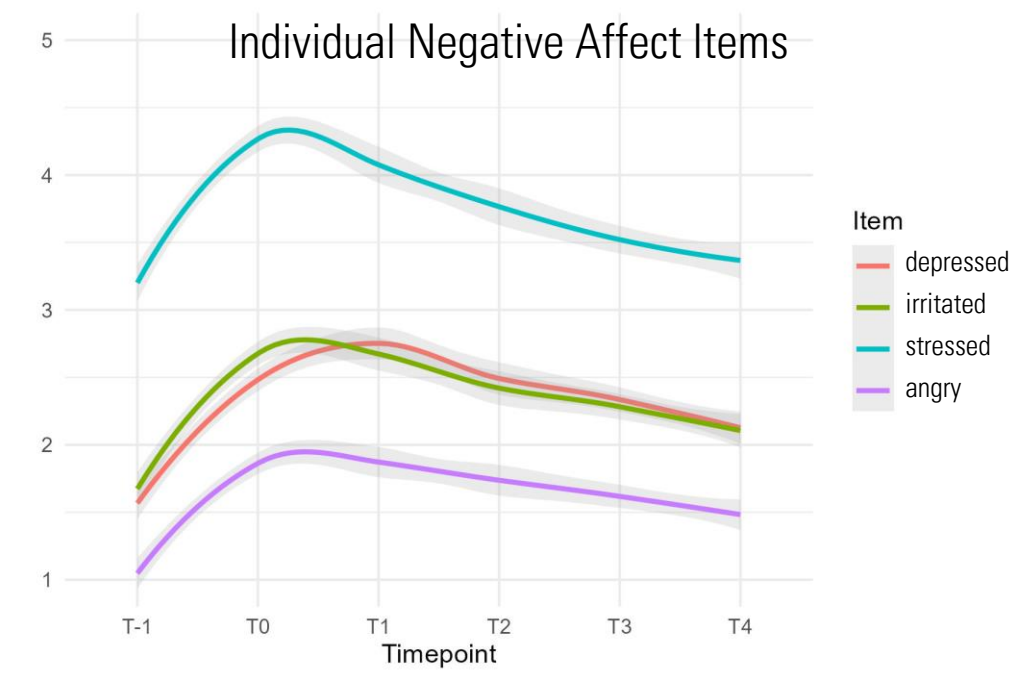
2



2 Extraction methods seems to work, both components visible

Negative Affect



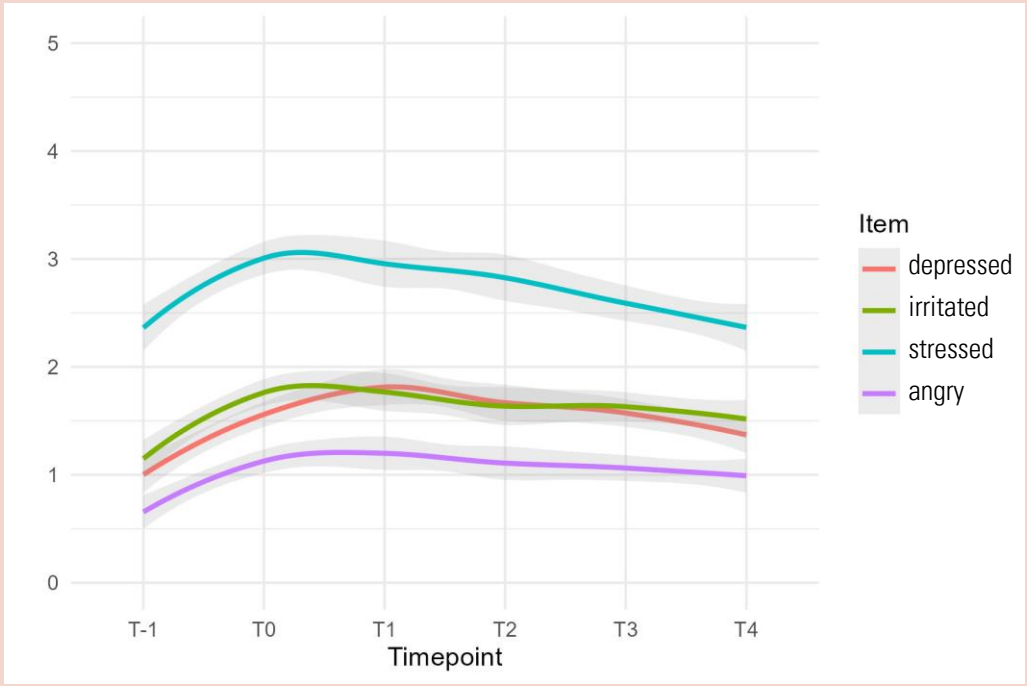


Timepoints: T-1 = last prompt before stress event | T0 = report of stress event | T1 - T4 = +15 min increments since event

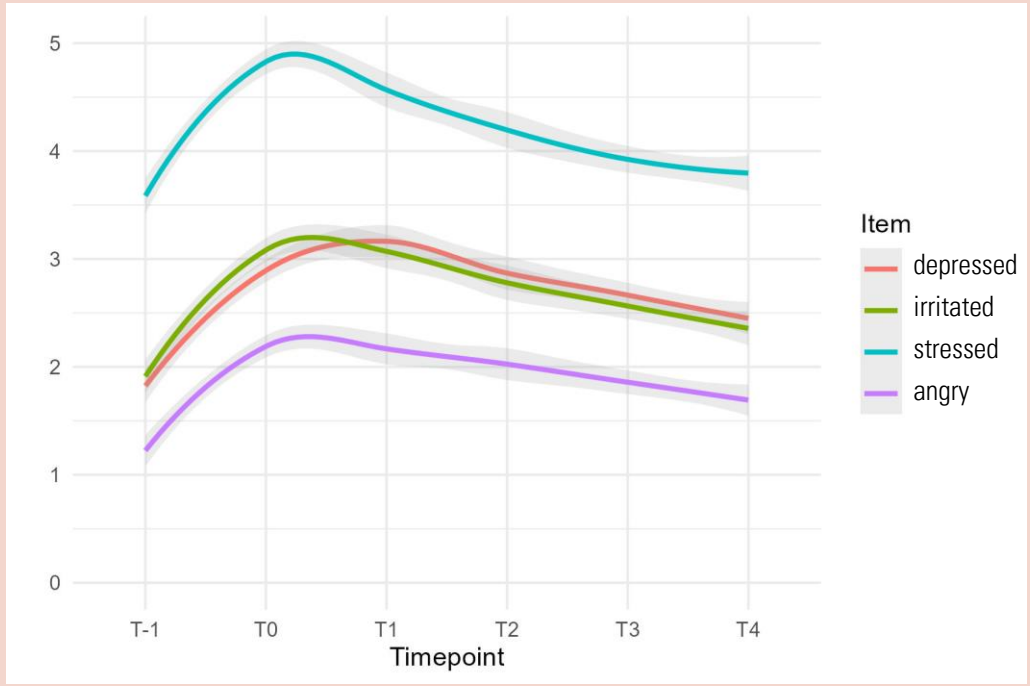
3 situational influencing factor

Negative Affect

Low Intensity Stress Event (0-5 stressful)



High Intensity Stress Event (6-10 stressful)



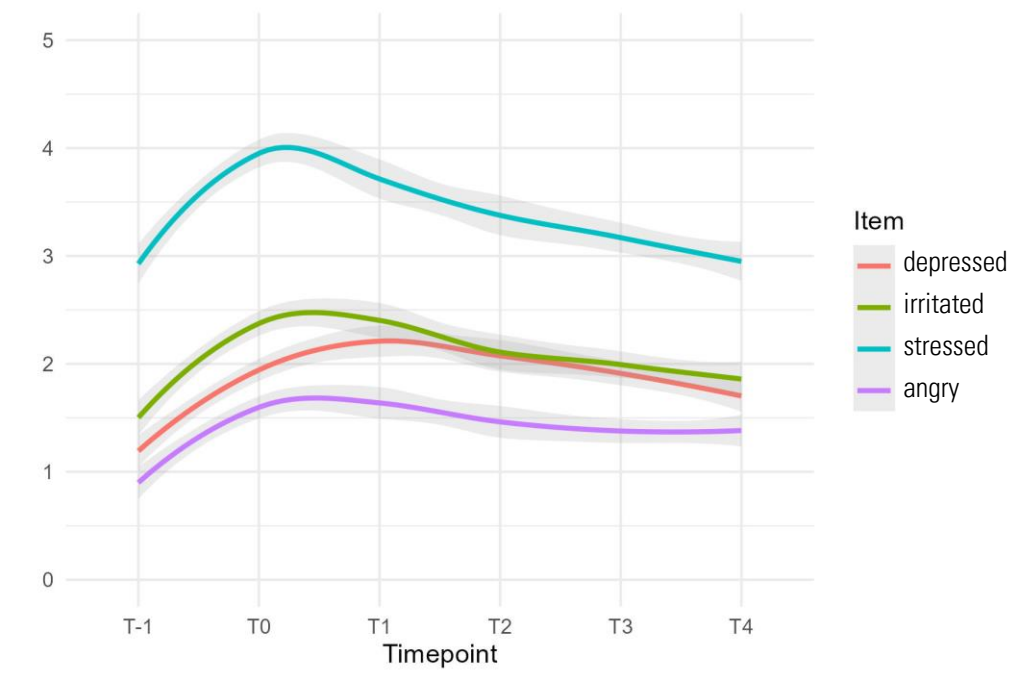
Timepoints: T-1 = last prompt before stress event | T0 = report of stress event | T1 - T4 = +15 min increments since event

3

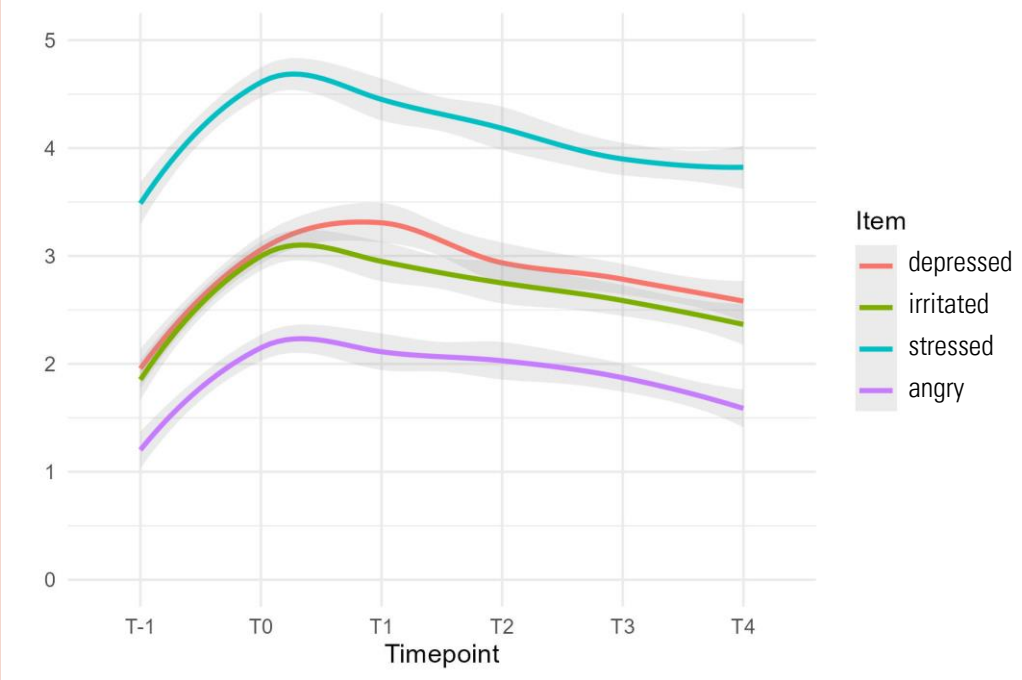
personal influencing factor

Negative Affect

Low Neuroticism (≤ mean)



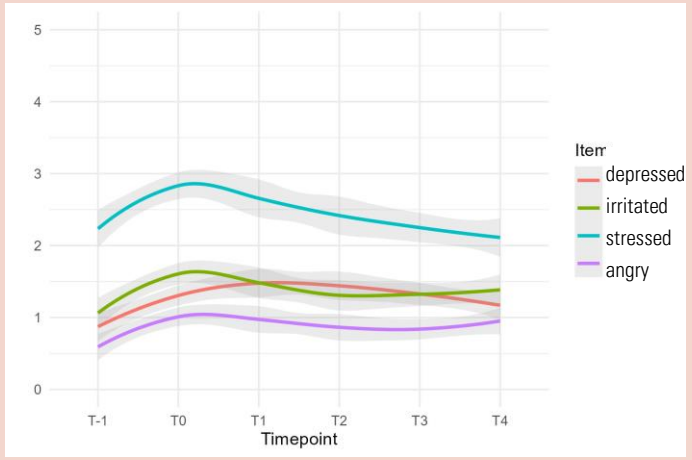
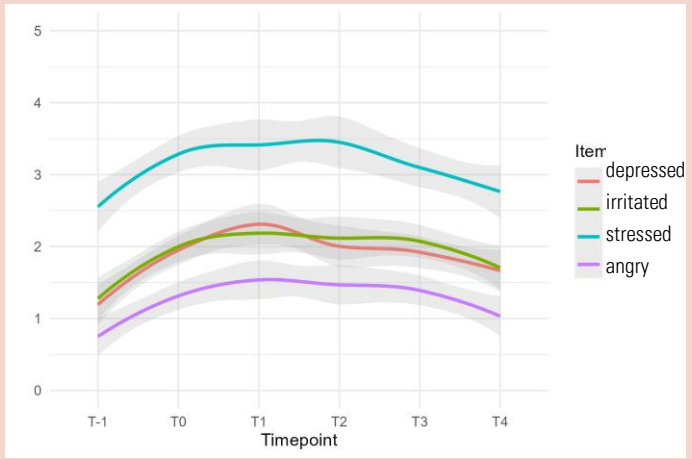
High Neuroticism (> mean)



Timepoints: T-1 = last prompt before stress event | T0 = report of stress event | T1 - T4 = +15 min increments since event

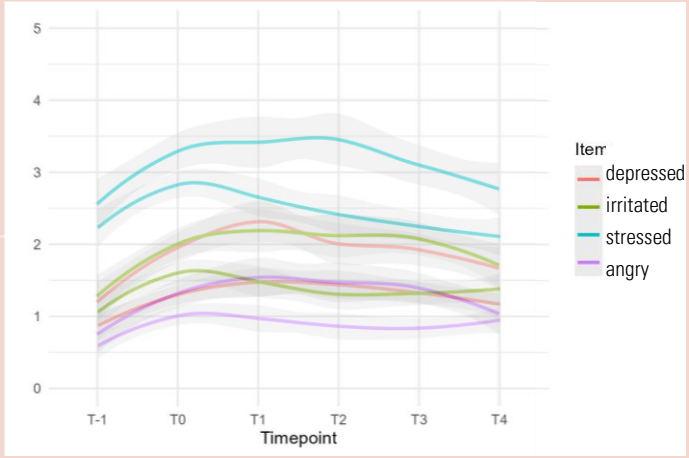
3 situational and personal influencing factors

Negative Affect: Event Intensity x Neuroticism

	Low Intensity Stress Event	High Intensity Stress Event
Low Neuroticism		
High Neuroticism		

3 situational and personal influencing factors

Negative Affect: Event Intensity x Neuroticism

	Low Intensity Stress Event	High Intensity Stress Event
Low Neuroticism		
High Neuroticism		

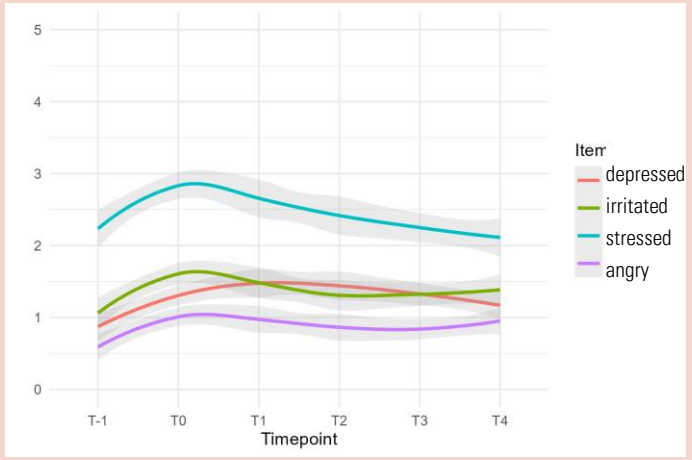
3 situational and personal influencing factors

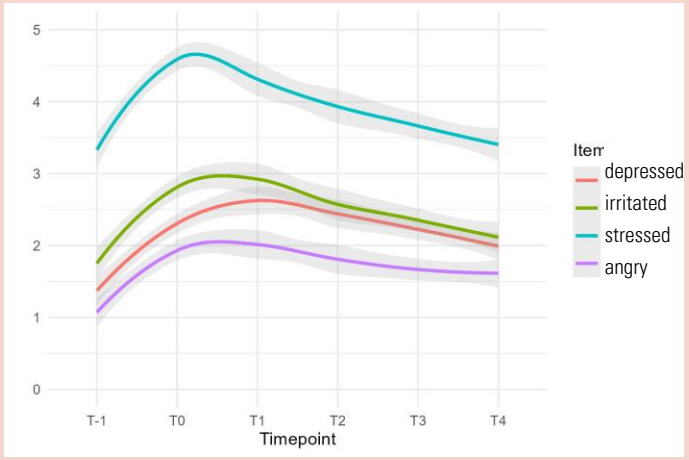
Negative Affect: Event Intensity x Neuroticism

Low Intensity Stress Event

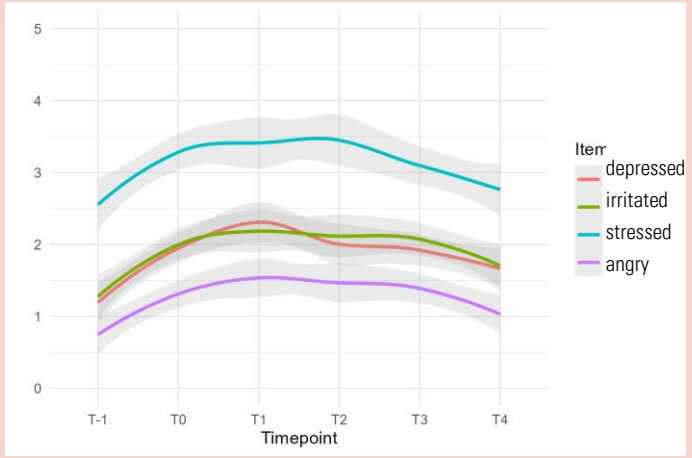
High Intensity Stress Event

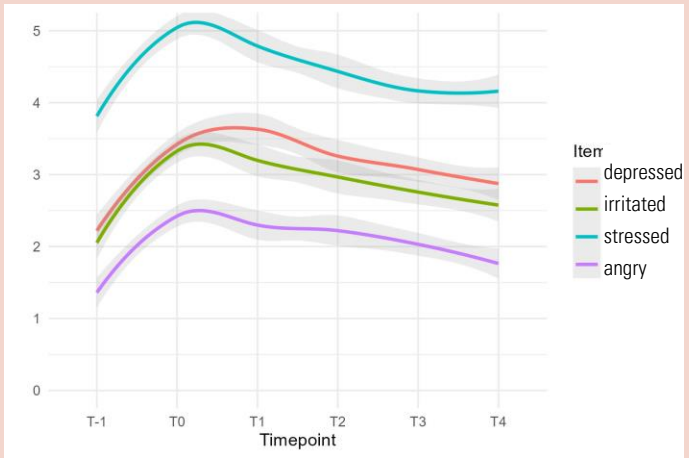
Low Neuroticism





High Neuroticism





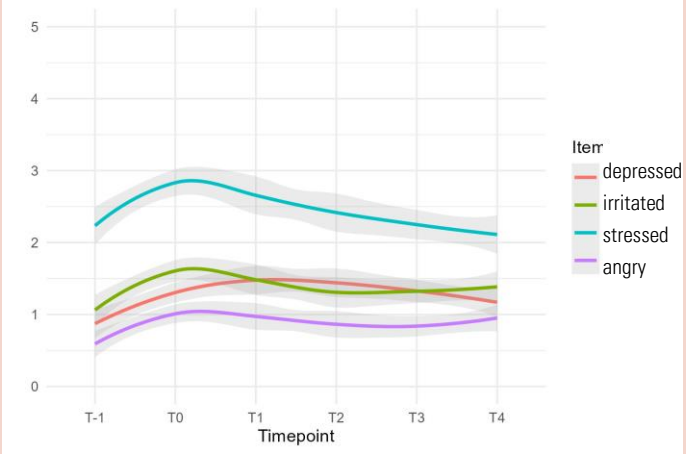
3 situational and personal influencing factors

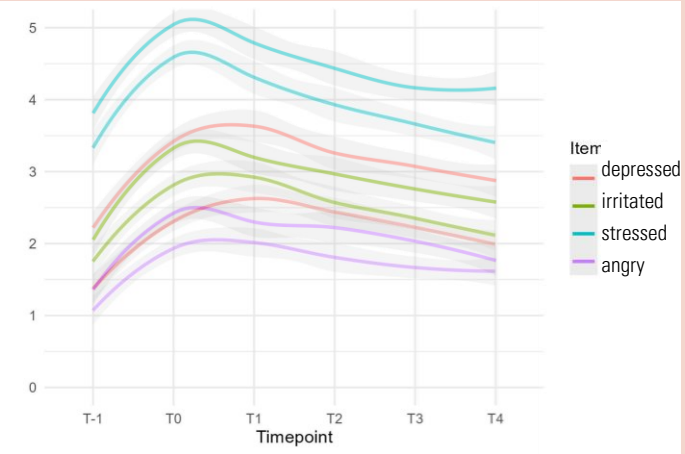
Negative Affect: Event Intensity x Neuroticism

Low Intensity Stress Event

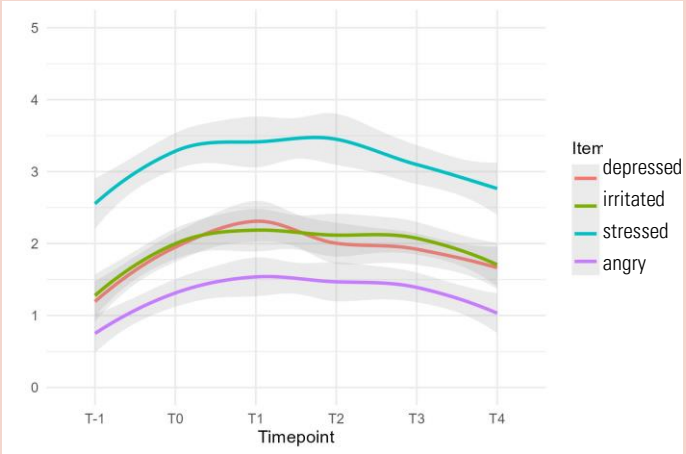
High Intensity Stress Event

Low Neuroticism





High Neuroticism



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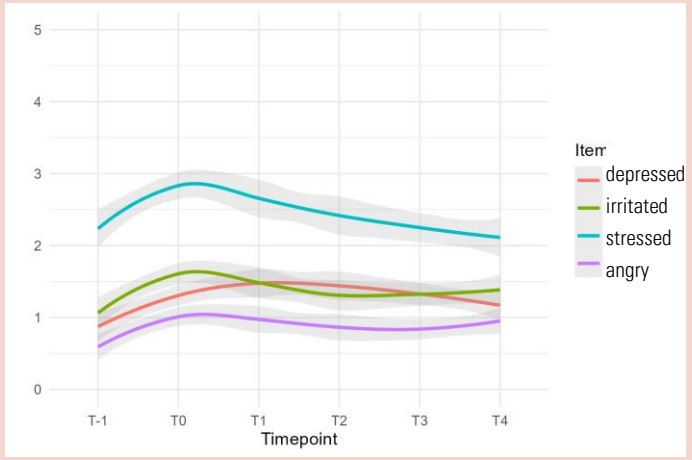
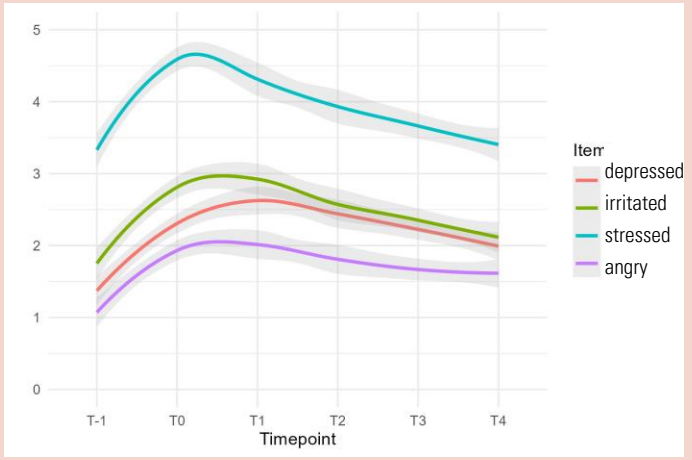
Negative Affect: Event Intensity x Neuroticism

Low Intensity Stress Event

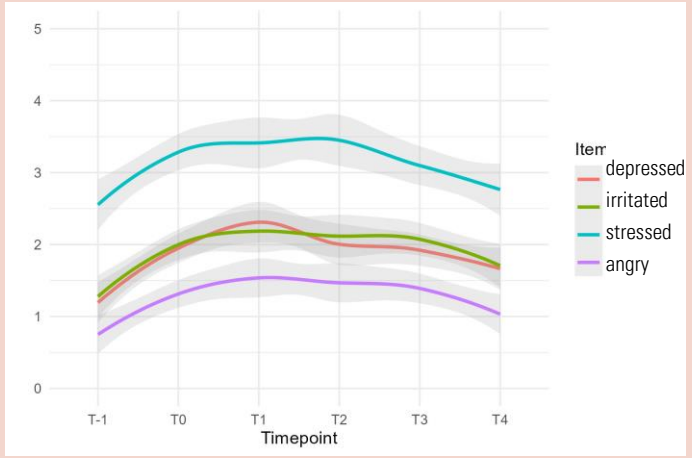
High Intensity Stress Event

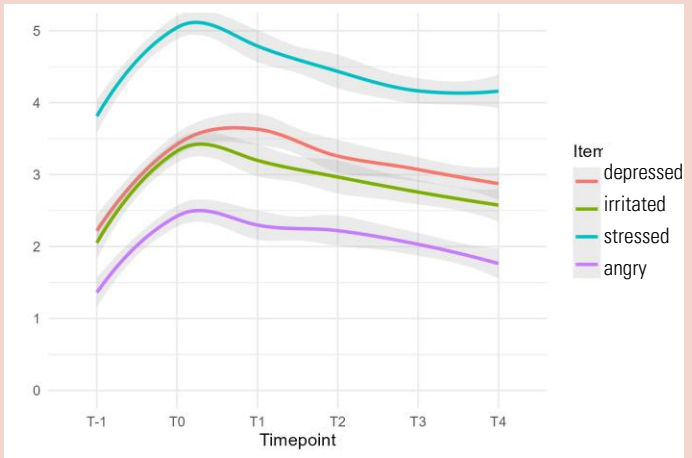
Low Neuroticism





High Neuroticism





Negative Affect in the Stress Episodes of 6 Participants

Timepoints

T-1 = last prompt before stress event

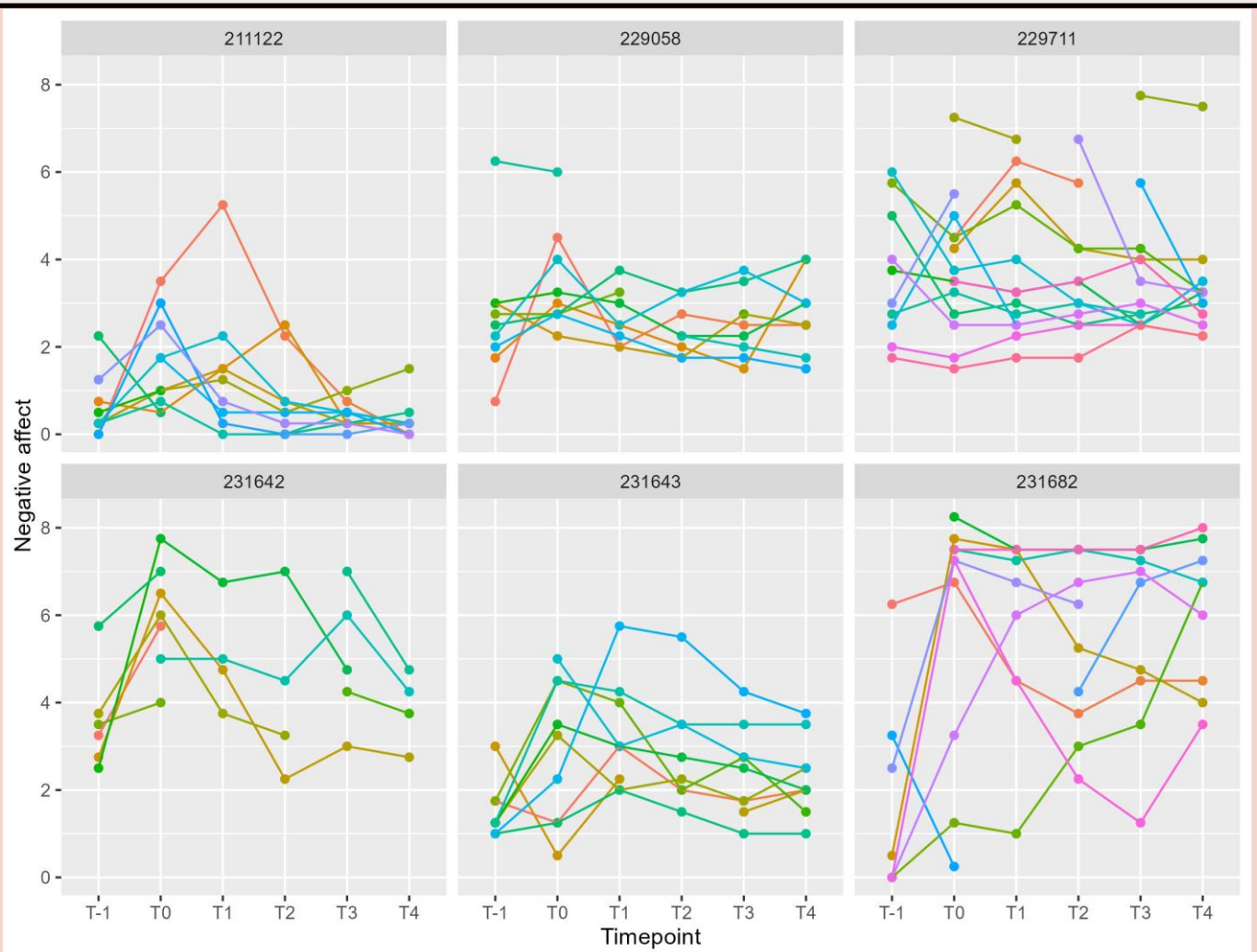
T0 = report of stress event

T1 = +15 min since event

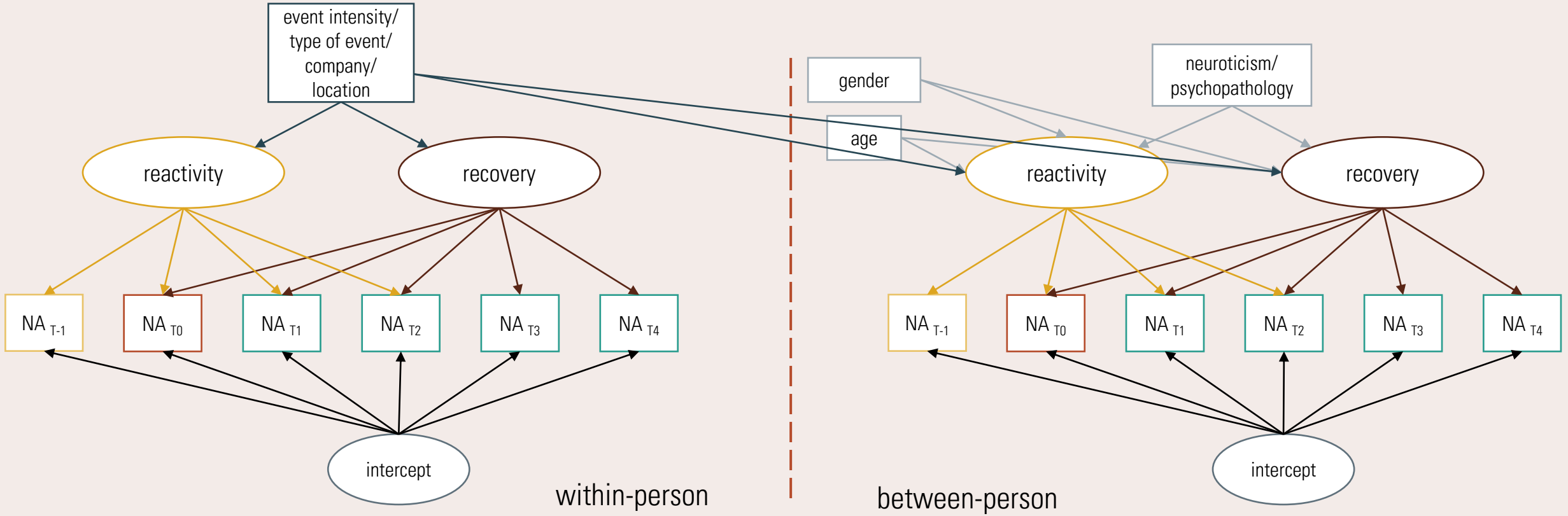
T2 = +30 min since event

T3 = +45 min since event

T4 = +60 min since event



Multilevel Growth Curve Model



Conclusion

Conclusion

1. Microburst EMA **protocol is feasible** for adolescents, also during school hours.
2. Two components (**reactivity and recovery**) visible in short-term stress response with extraction method.
3. **Event intensity** and personality traits (e.g., **neuroticism**) apparently influence the stress response.

→ Such findings help identify risk and resilience factors in stress regulation.

→ Such insights can inform targeted (JITAI-) interventions to promote mental health and prevent psychopathology.

Thank you!

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Slides, Preregistration
and Contact

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