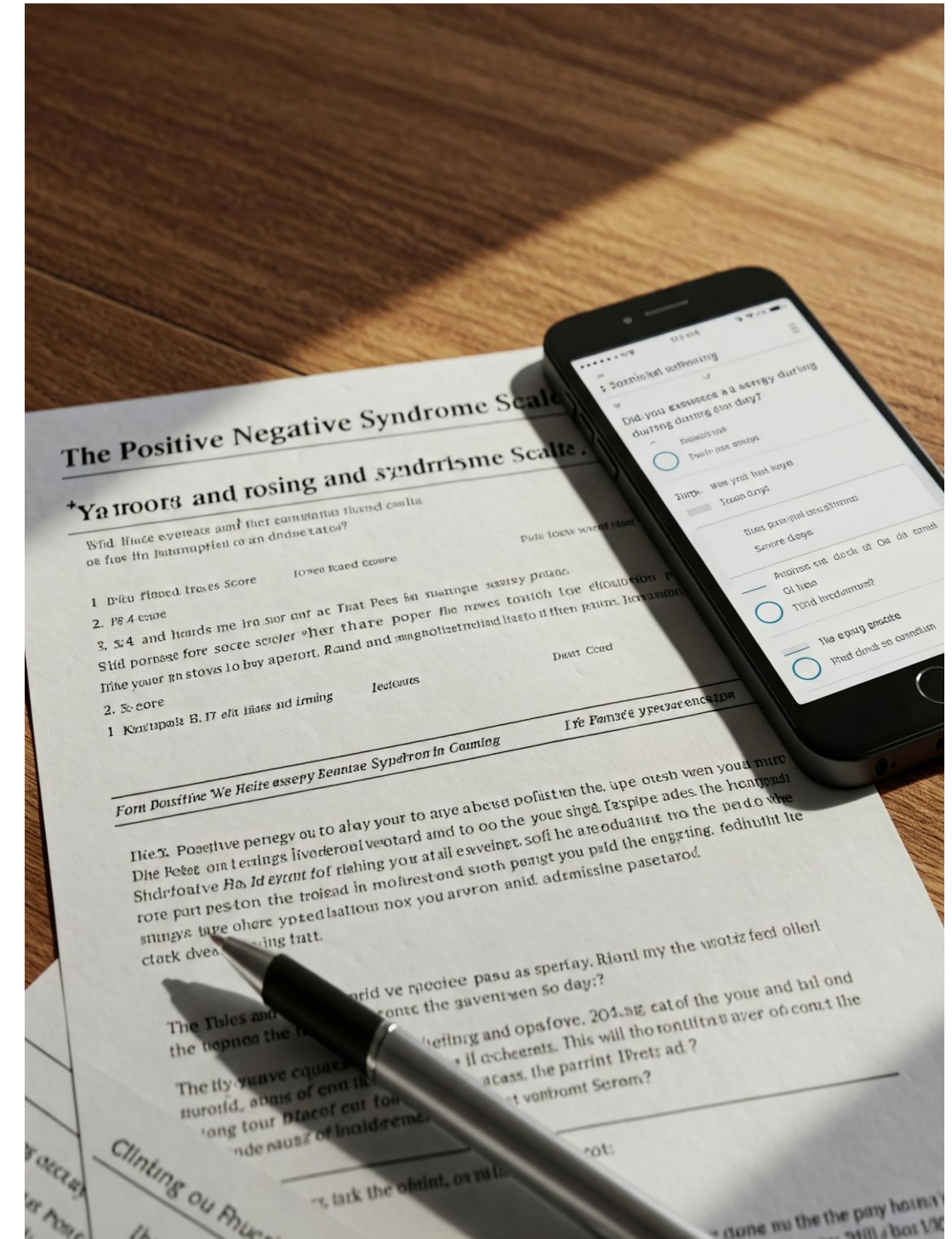# Exploring and Connecting the Within-person Factor Structures of Psychosis-related EMA and Clinician-Rated Symptoms

Daiil Jun

Jeffrey Girard

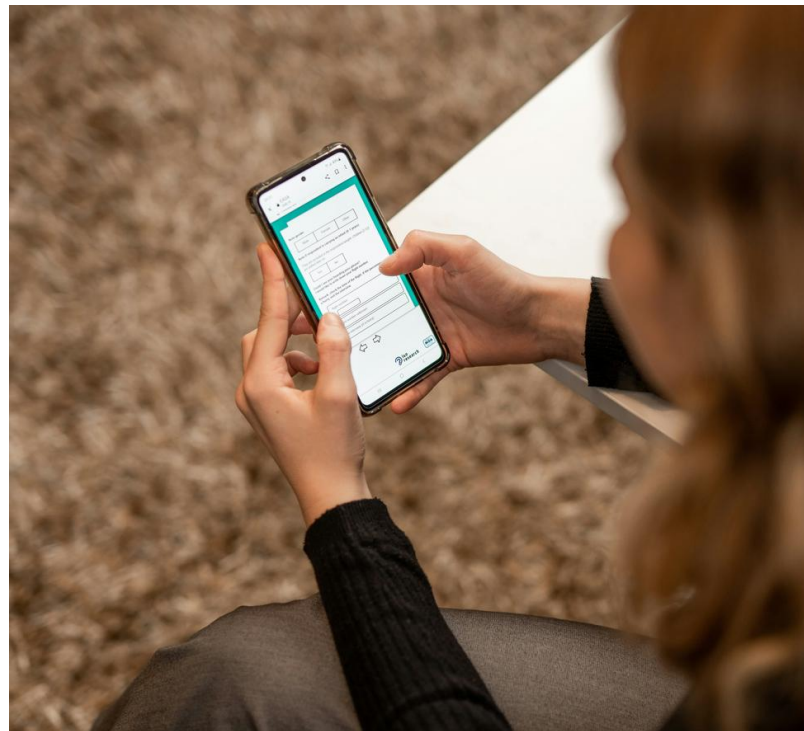Yoonho Chung

Einat Liebenthal

Justin Baker

INTRODUCTION

- **Transdiagnostic** approach to understanding affective and non-affective **psychotic disorders** has emerged

- However, **within-person** factor structure remains under-investigated

- **Daily symptom fluctuations** are important to track in outpatients with psychosis

- Research on **mapping** daily symptom fluctuations onto clinical transdiagnostic symptoms is needed
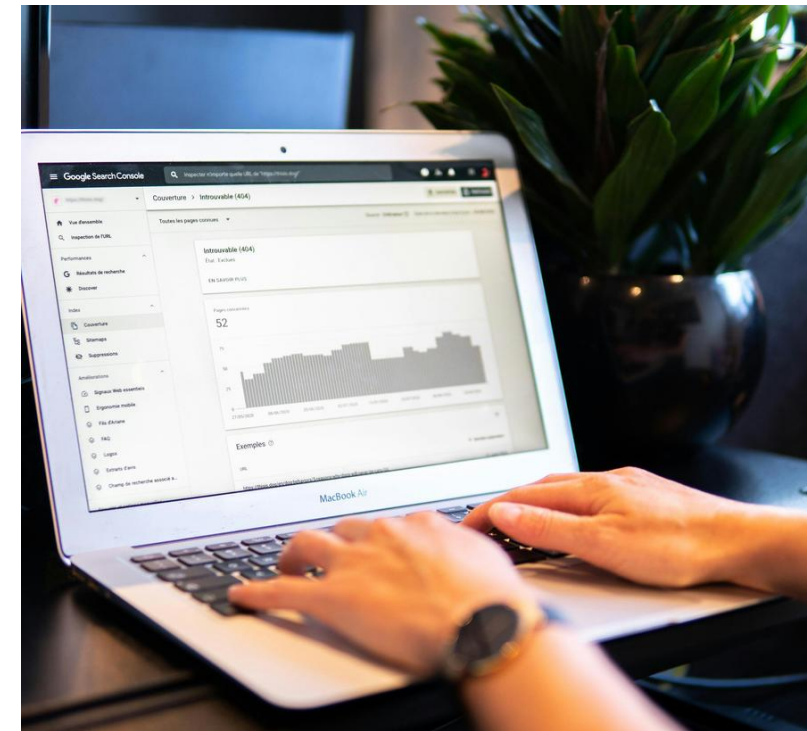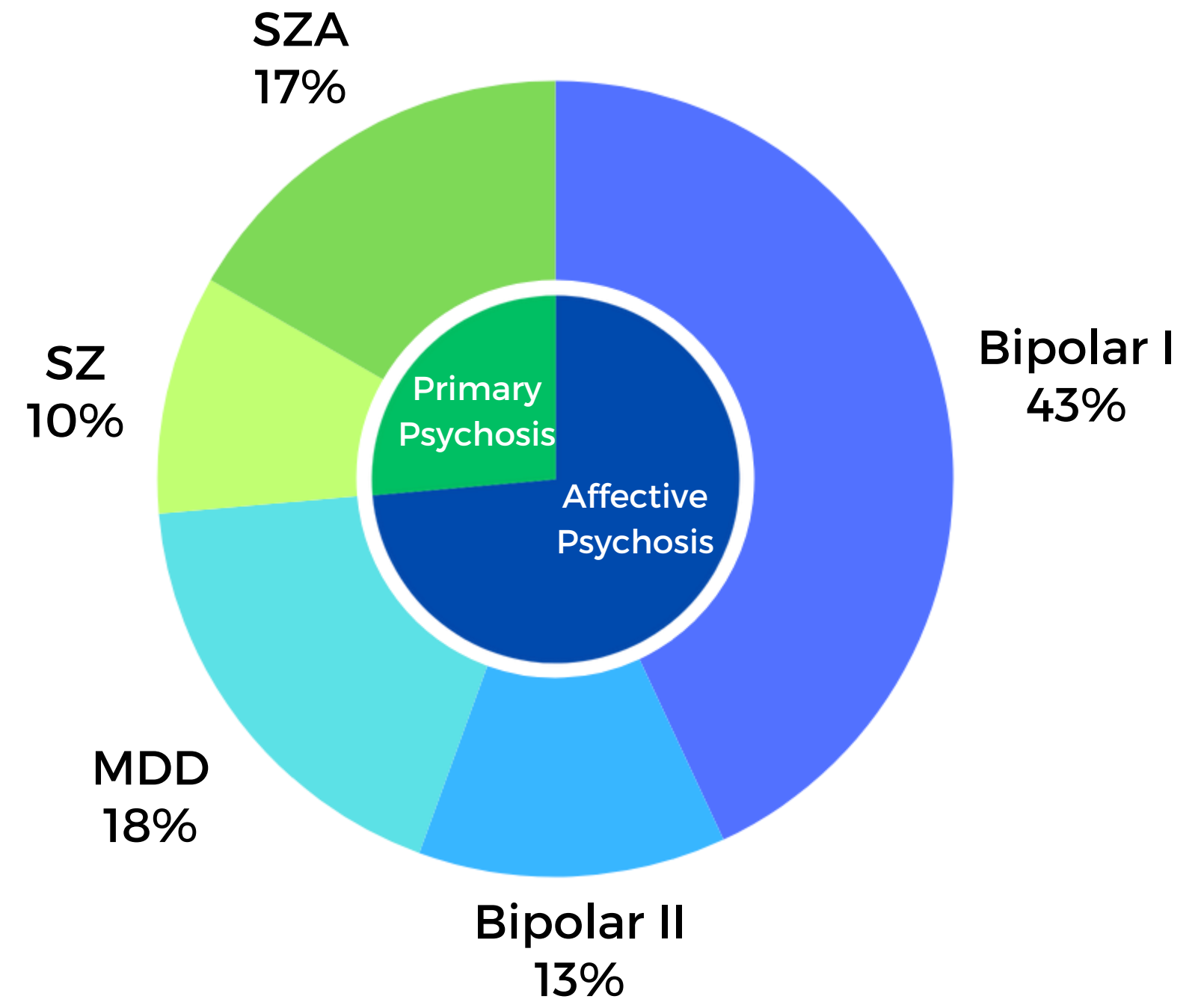
METHODS

Participants
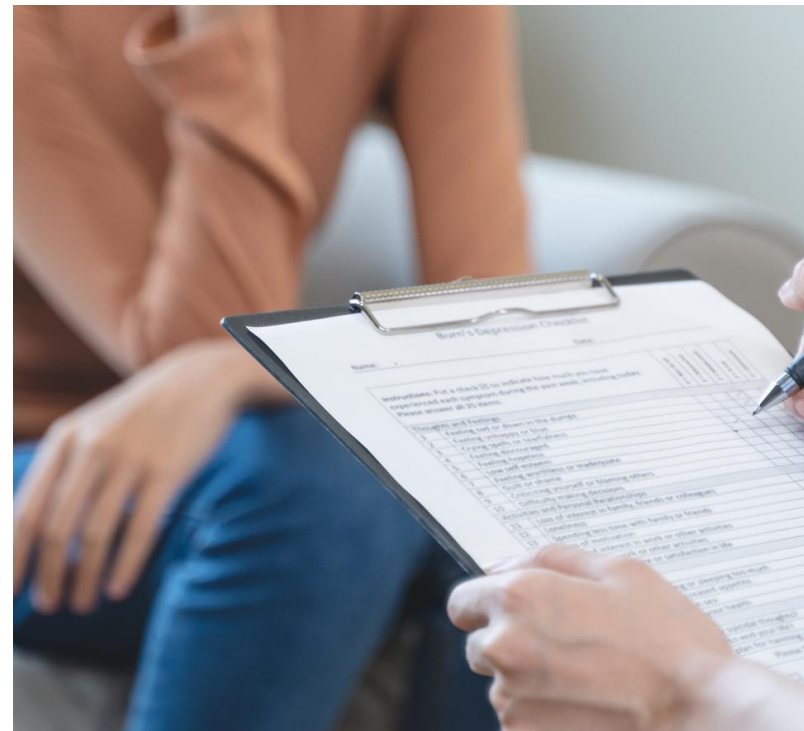
Measures

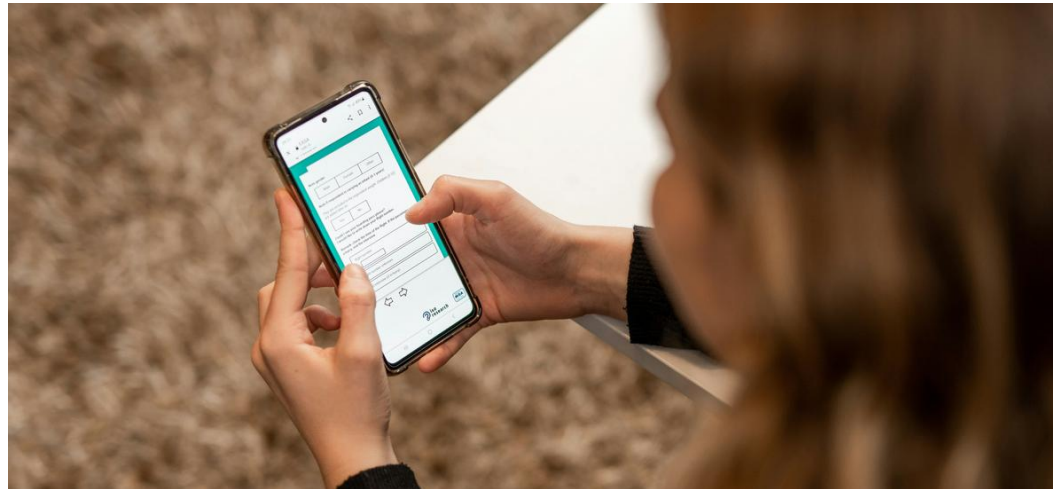Analyses

PARTICIPANTS

Outpatients
with primary or
affective psychosis
($N = 70$)

SZA
17%

Bipolar I
43%

SZ
10%

Primary
Psychosis

Affective
Psychosis

MDD
18%

Bipolar II
13%

MEASURES

Daily Surveys

- Affect (16 items)
- Social (3 items)
- Physical (10 items)
- Stress (2 items)
- Psychosis (3 items)

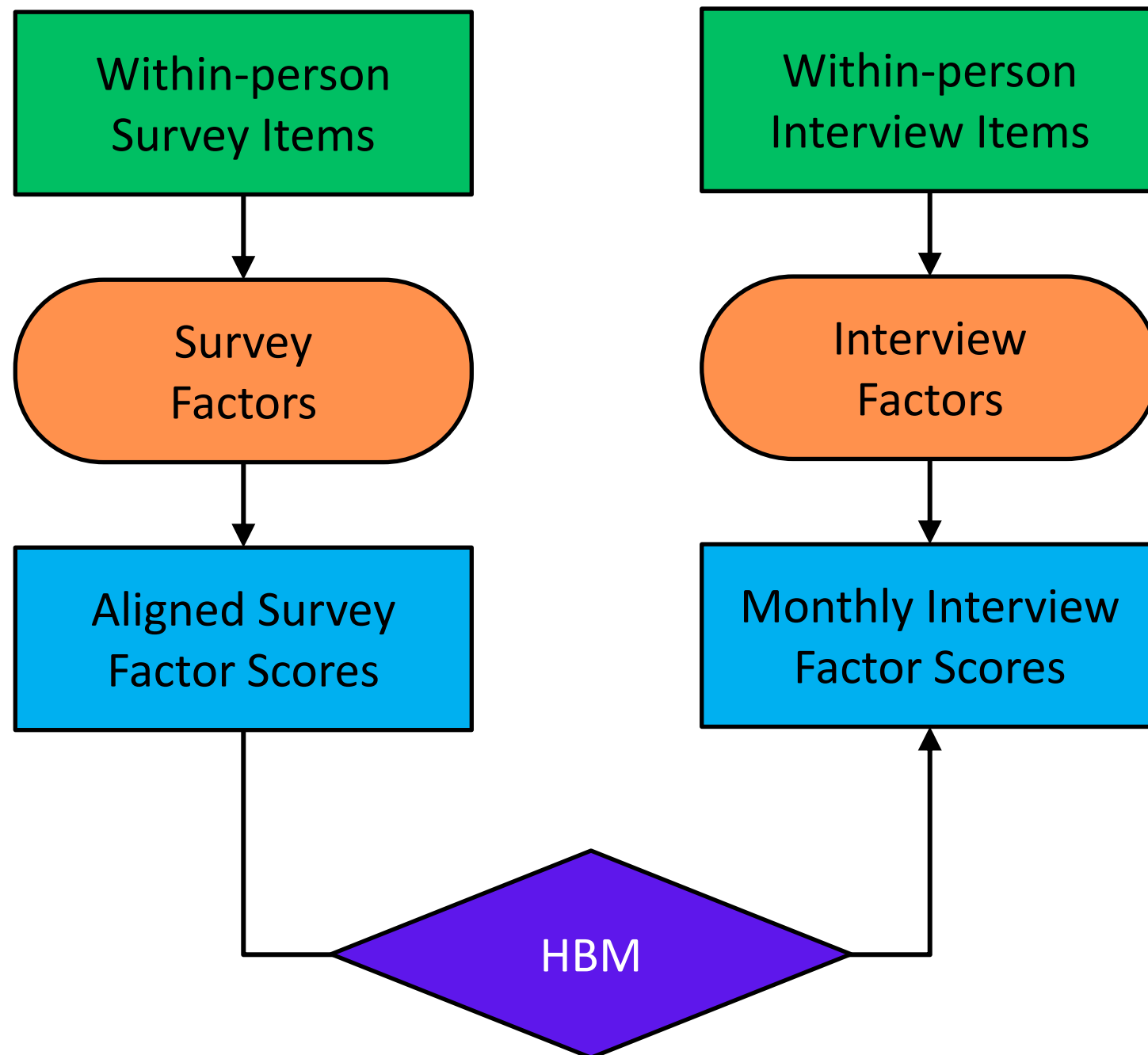Total Surveys = 31,869
Per Person IQR = 146 - 557

Monthly Interviews

- PANSS Positive (7 items)
- PANSS Negative (8 items)
- PANSS General (16 items)
- MADRS Depress. (10 items)
- YMRS Mania (11 items)

Total Interviews = 911
Per Person IQR = 8 - 20

ANALYSES

1 Decompose variance in items into between-person means and within-person deviations

2 Run factor analyses for daily surveys and monthly interviews at the within-person level
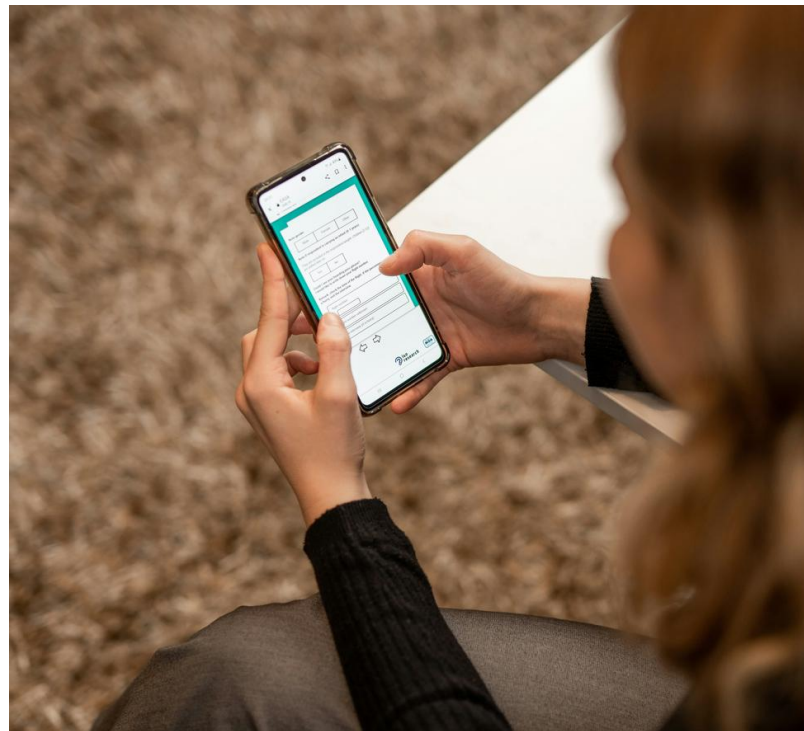
3 Align factor score estimates by calculating survey averages within the 3, 7, and 14 days preceding each interview

4 Run Hierarchical Bayesian Models to regress interview factor scores on the aligned survey factor scores
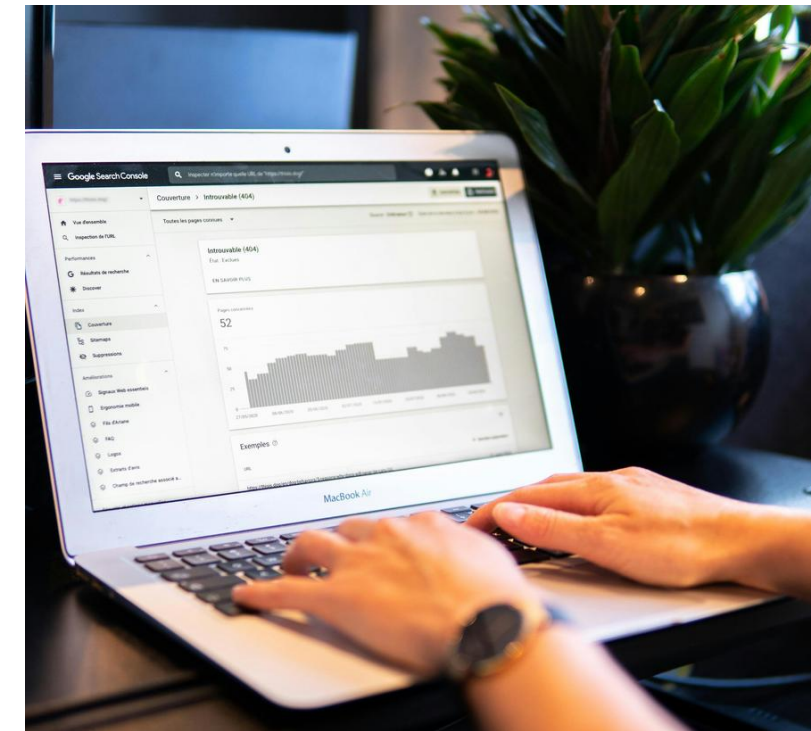
R E S U L T S

Survey Factors

Interview Factors

Bayesian Regression

Survey Factor Structure

Anxious Stress	Negative Arousal	Distress	Irritability	Positive Activation	Social Activity
+ Stressed + Anxious − Happy[C] − Manage Stress[C]	+ Heart Racing + Breathing	+ Lonely[C] + Ashamed + Upset + Afraid	+ Irritable + Hostile	+ Happy[C] + Manage Stress[C] + Energetic + Alert + Inspired + Determined + Outgoing[C]	+ Outgoing[C] + Social − Lonely[C]

Model Fit: RMSEA = .044, SRMR = .028, CFI = .956
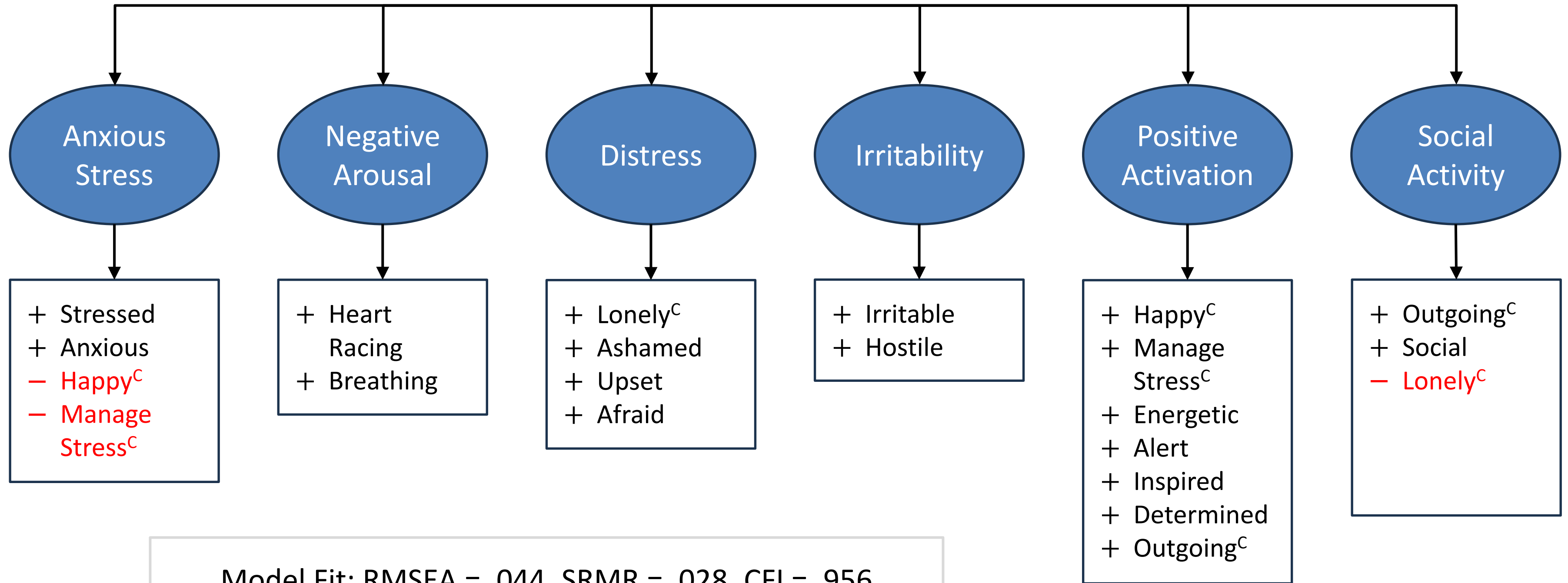
Interview Factor Structure
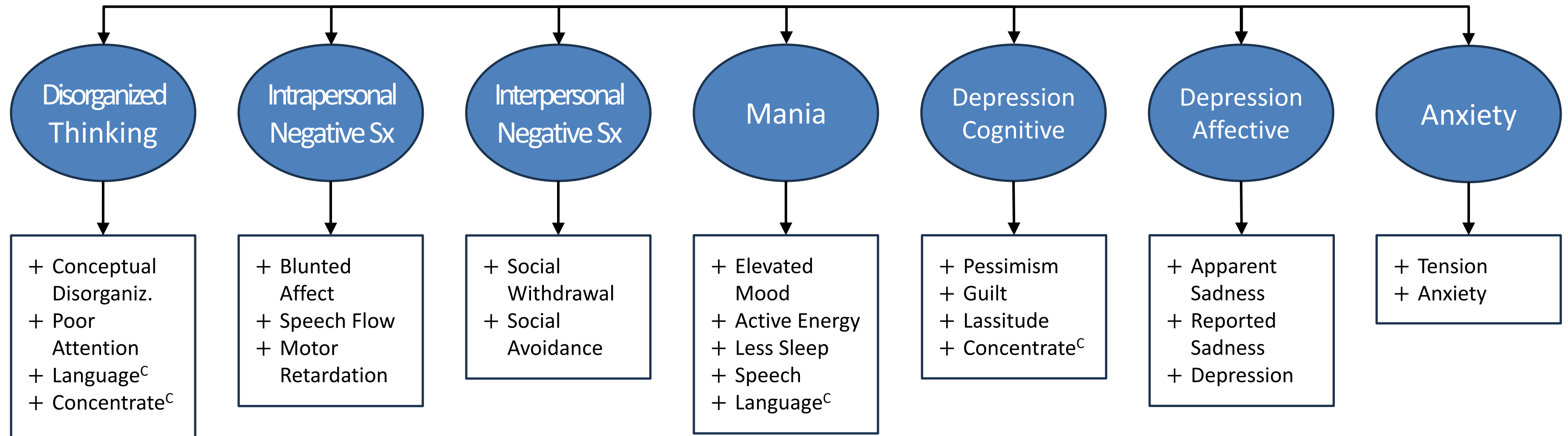
Model Fit: RMSEA = .043, SRMR = .044, CFI = .949

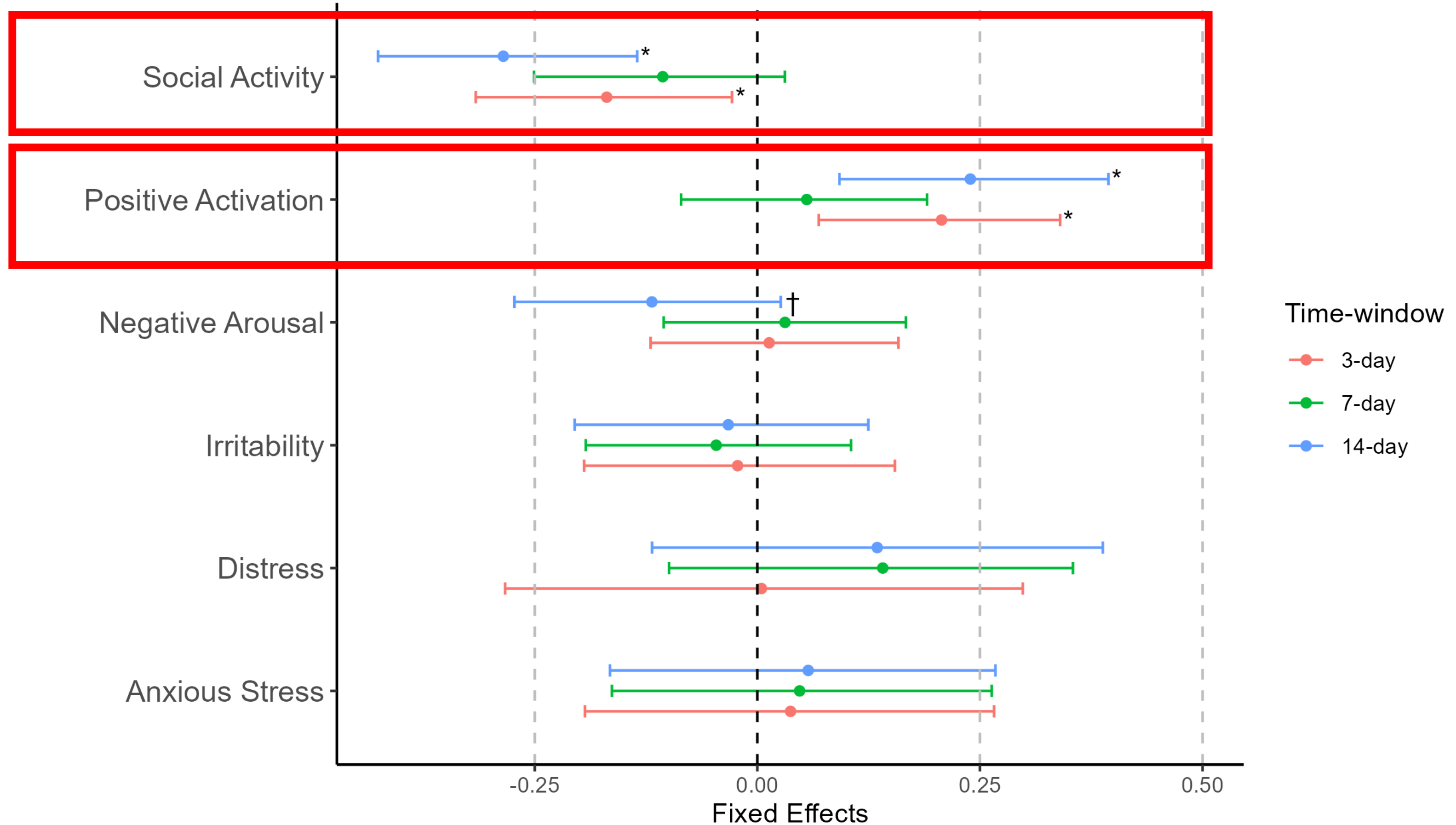Bayesian MLM Predicting Clinical Disorganized Thinking Factor

Bayesian MLM Predicting Clinical Intrapersonal Negative Symptom Factor
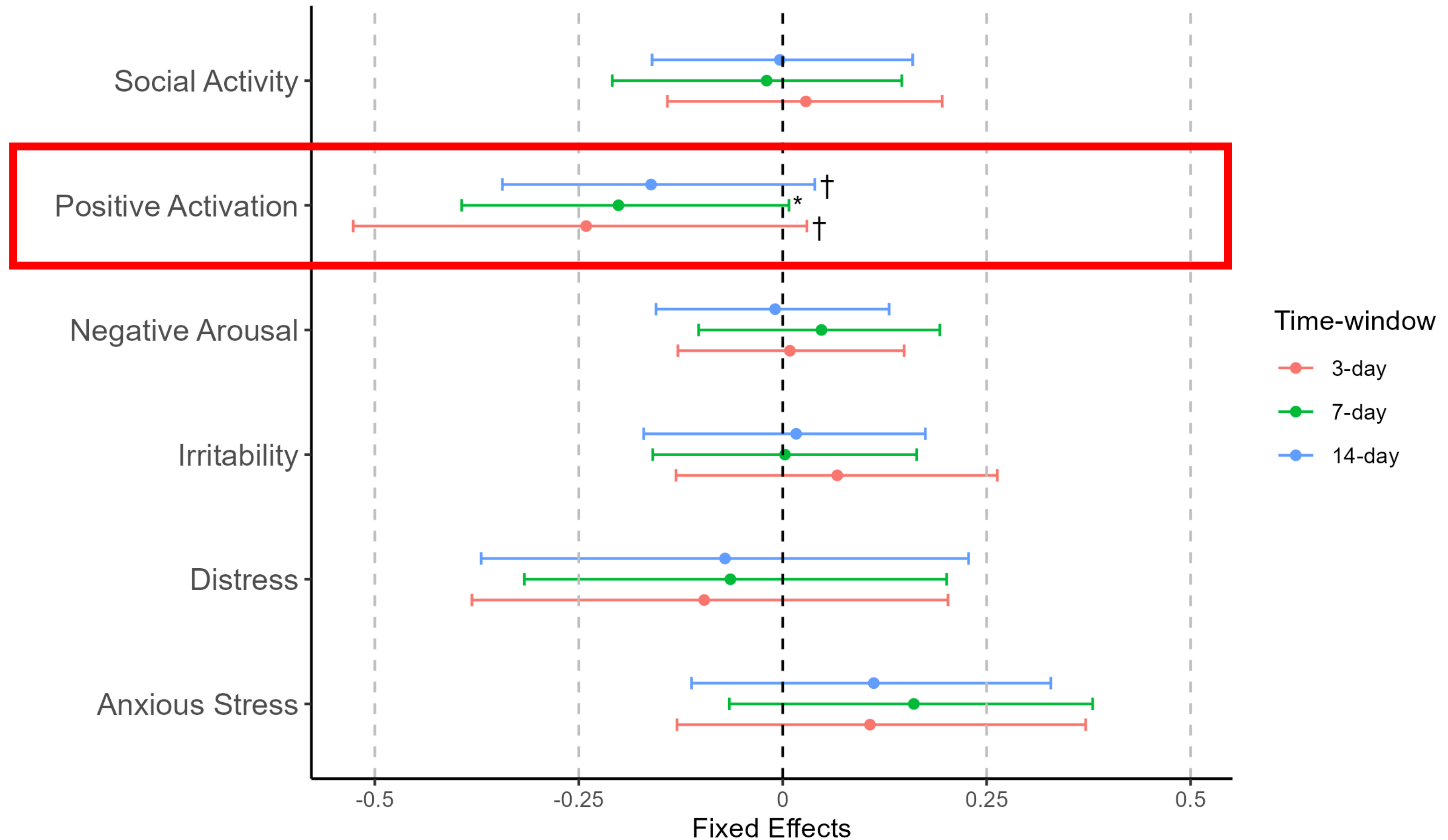
Bayesian MLM Predicting Clinical Interpersonal Negative Symptom Factor
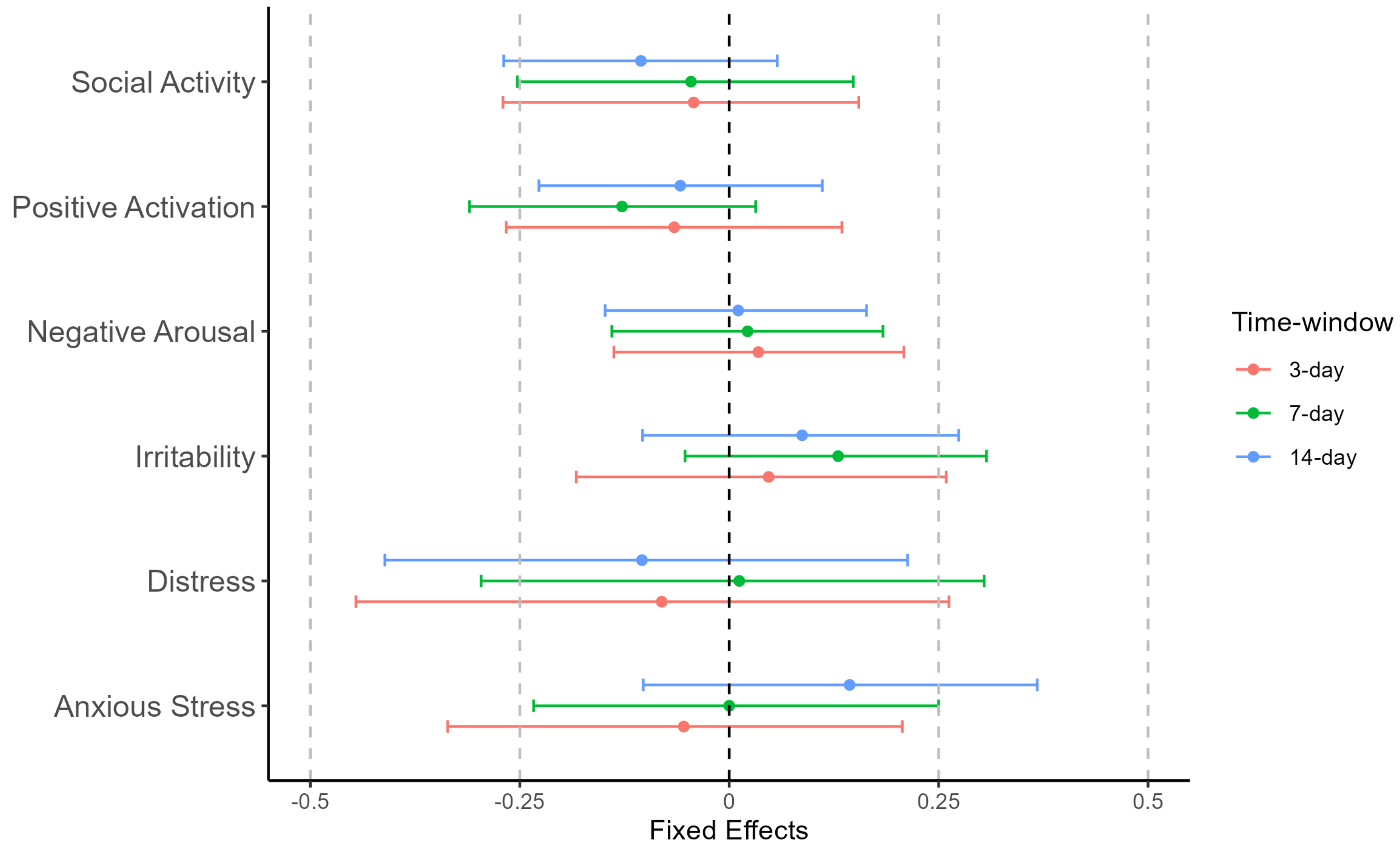
Bayesian MLM Predicting Clinical Mania Factor
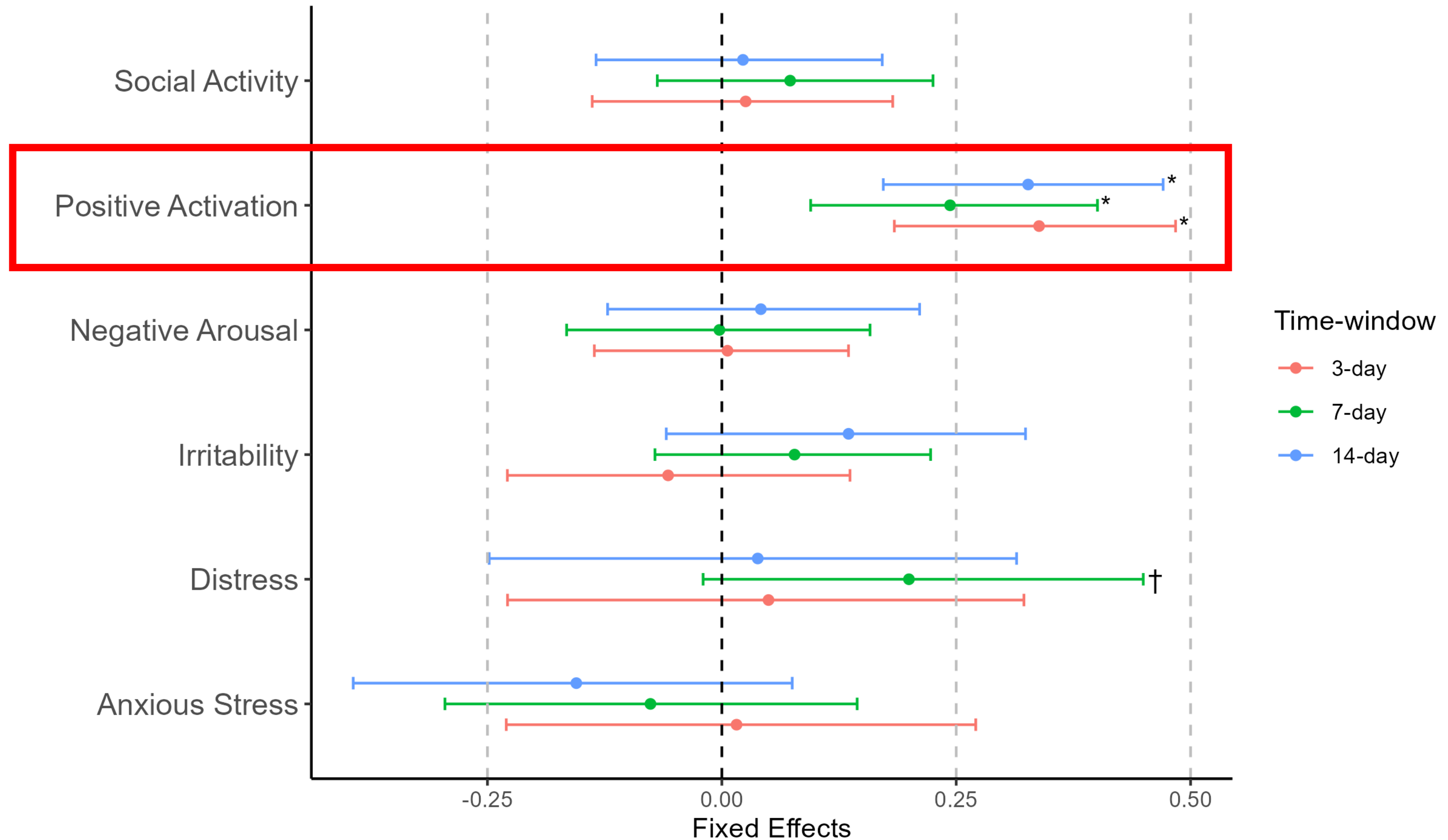
Bayesian MLM Predicting Clinical Cognitive Depression Factor
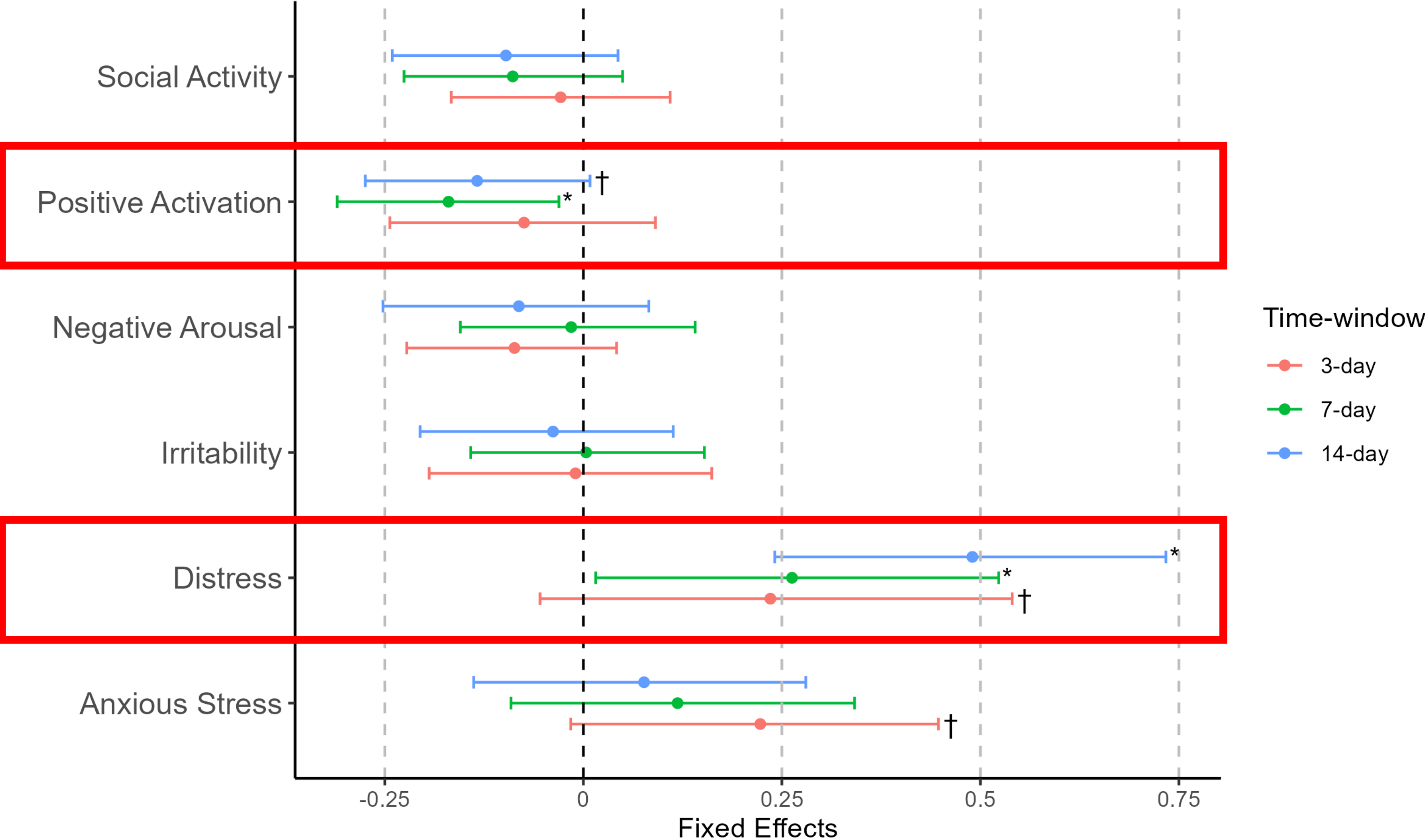
Bayesian MLM Predicting Clinical Affective Depression Factor

Time-window
- 3-day
- 7-day
- 14-day

2025

HiTOP CONFERENCE
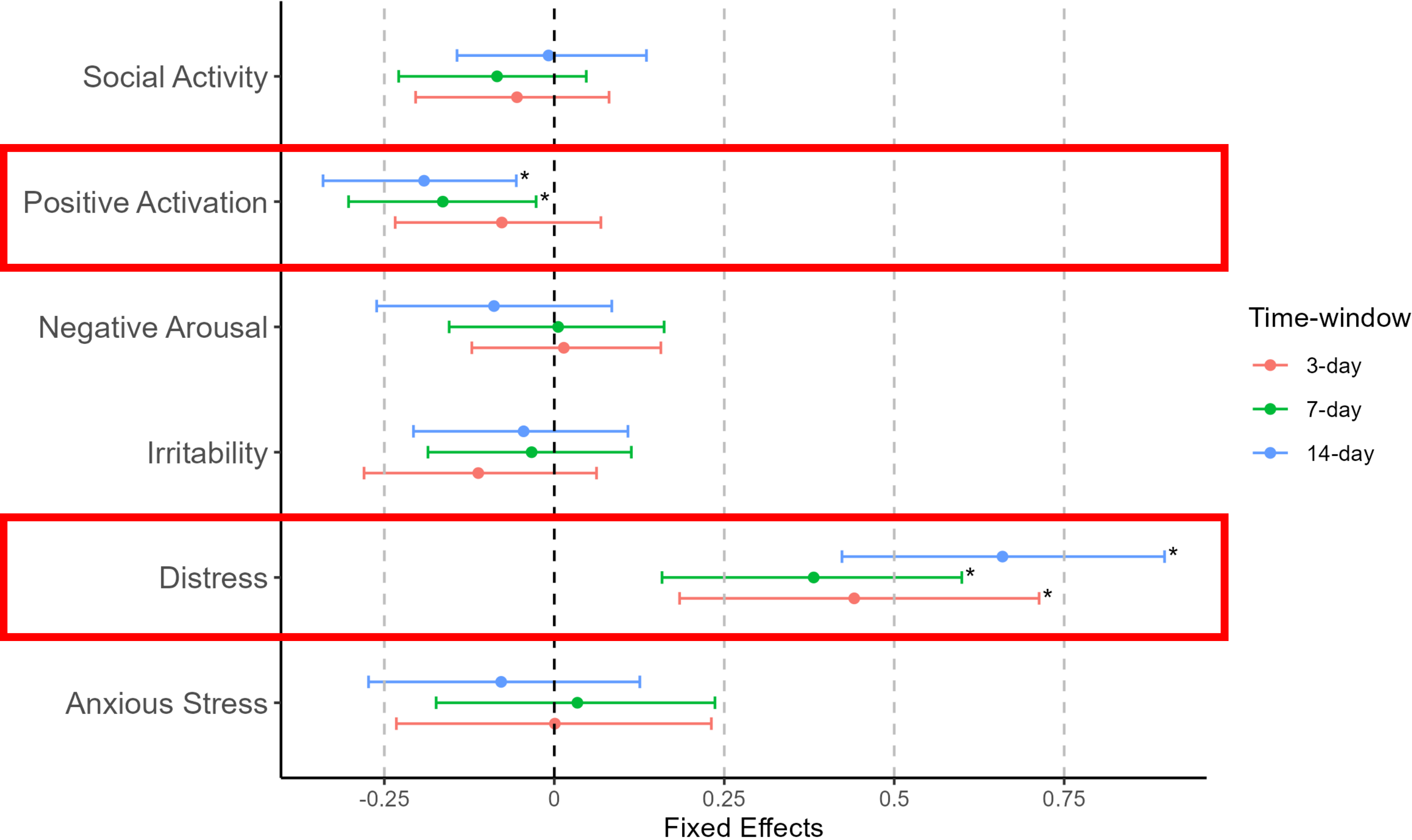
Bayesian MLM Predicting Clinical Anxiety Factor

Fixed Effects

Time-window
- 3-day
- 7-day
- 14-day

2025

H i T O P   C O N F E R E N C E
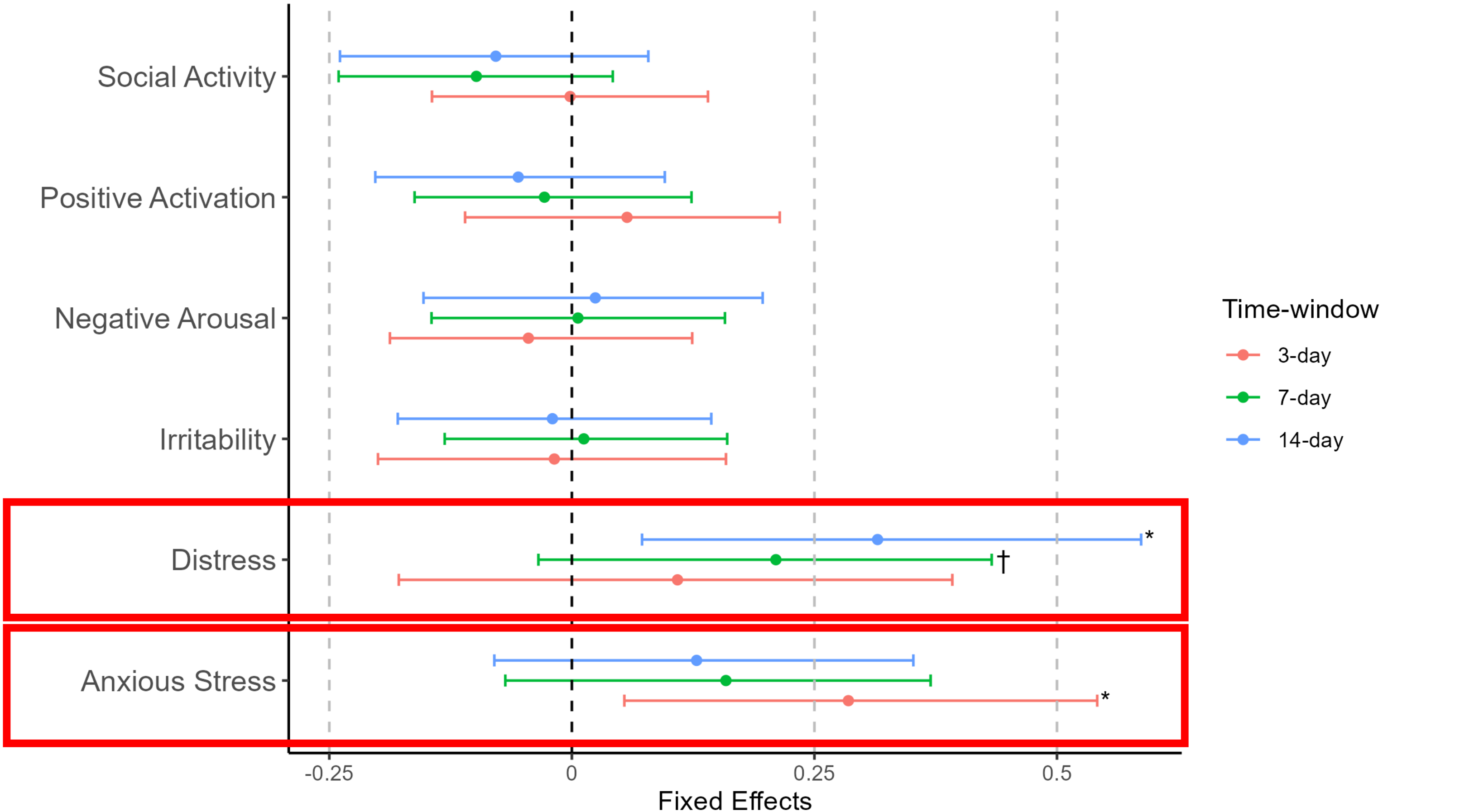
Trend of Bayesian Marginal R² across Different Time-window

EMA factor scores predicting Clinical factor scores
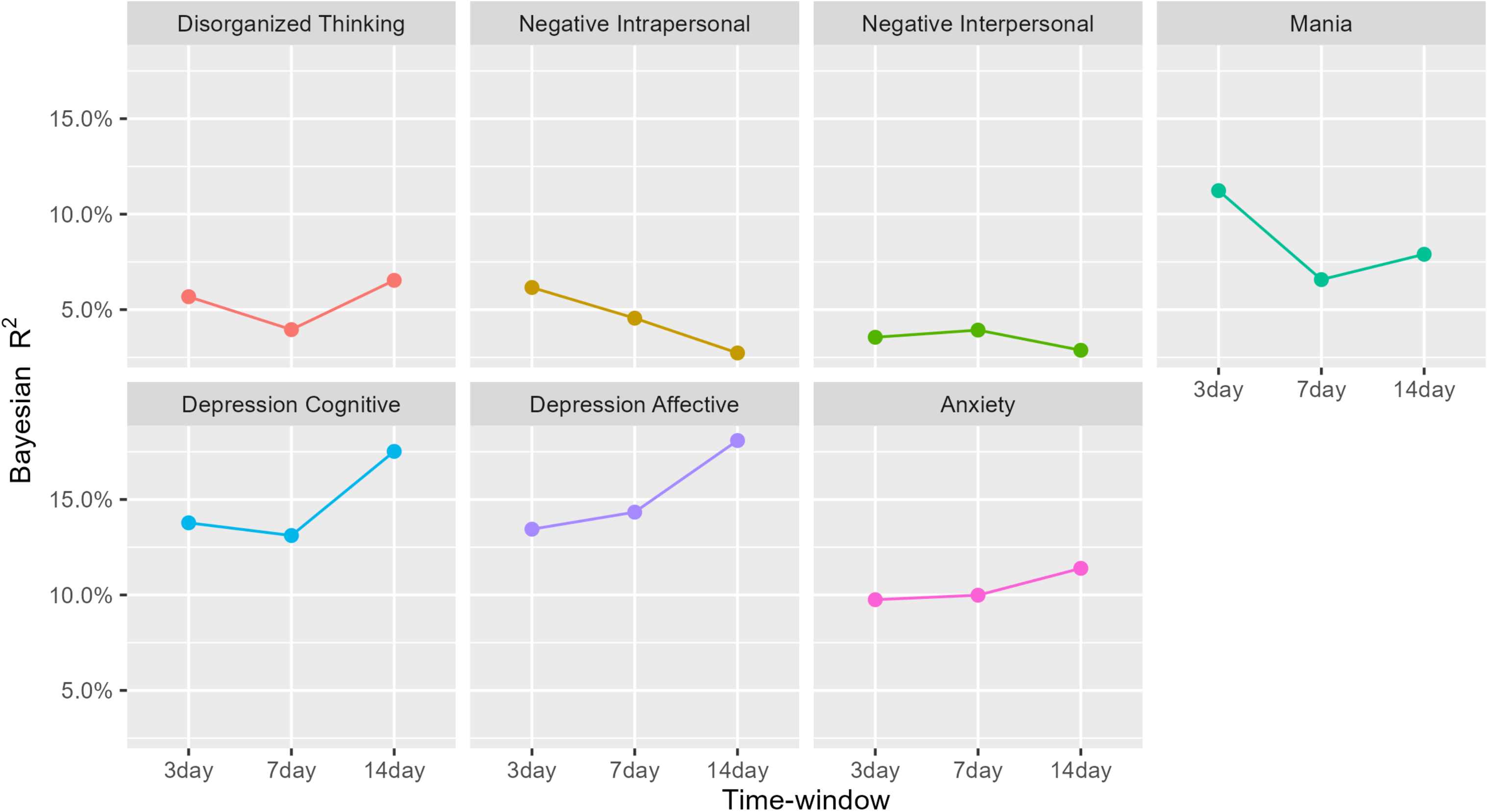
Within-person Interview Factors

Mania

Disorganized Thinking

Intrapersonal Negative Symptom

Interpersonal Negative Symptom

Cognitive Depression

Affective Depression

Anxiety

Meta-analytic HiTOP model Ringwald, W. R., Forbes, M. K., & Wright, A. G. C. (2023)

Internalizing

Externalizing

Internalizing — .93

Psychosis — .49

Externalizing — .98

Internalizing — .97 — .41

Detachment — .64

Thought Disorder — .90

Antagonism — .76

Disinhibition — .73

Somatoform

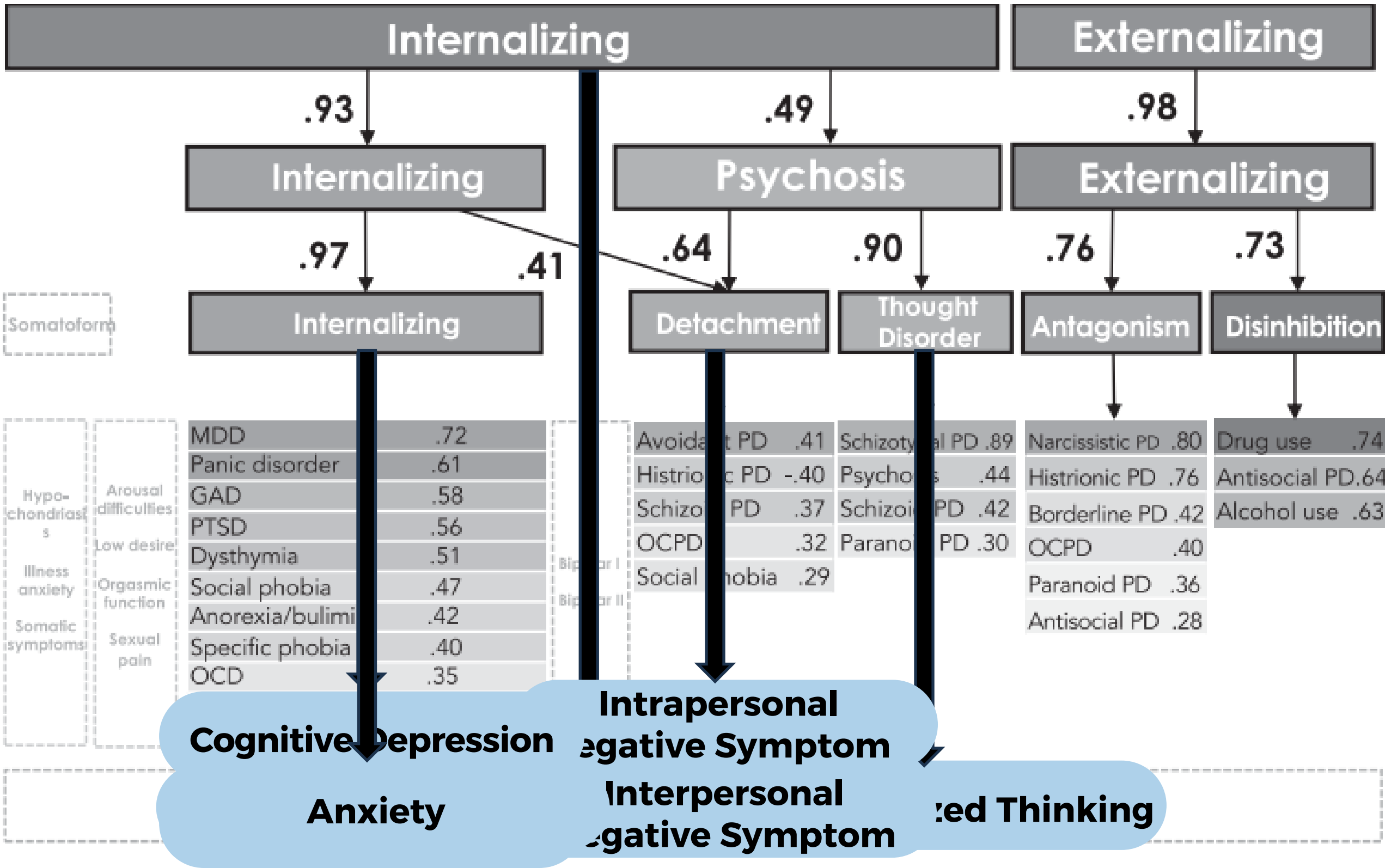| MDD	.72
Panic disorder	.61
GAD	.58
PTSD	.56
Dysthymia	.51
Social phobia	.47
Anorexia/bulimia	.42
Specific phobia	.40
OCD	.35

Hypo-chondriasis

Illness anxiety

Somatic symptoms

Arousal difficulties

Low desire

Orgasmic function

Sexual pain

Bipolar I

Bipolar II

Avoidant PD	.41
Histrionic PD	-.40
Schizoid PD	.37
OCPD	.32
Social phobia	.29

Schizotypal PD	.89
Psychosis	.44
Schizoid PD	.42
Paranoid PD	.30

Narcissistic PD	.80
Histrionic PD	.76
Borderline PD	.42
OCPD	.40
Paranoid PD	.36
Antisocial PD	.28

Drug use	.74
Antisocial PD	.64
Alcohol use	.63

Cognitive Depression

Anxiety

Intrapersonal Negative Symptom

Interpersonal Negative Symptom

Disorganized Thinking

Conclusions

- Daily survey factors predicted transdiagnostic symptom changes

- The predictive performance varies across different symptoms depending on time-windows

- Daily positive activation has differential relationships with transdiagnostic symptom factors

THANK YOU! QUESTIONS?

Special Thanks to:
- The Functional Neuroimaging & Bioinformatics Lab at McLean Hospital (Dr. Baker's Lab)
- Jeffrey Girard (University of Kansas)

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