Ambulatory Assessment of Borderline Personality Disorder Features

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Borderline Personality Disorder?

- Affective instability due to a marked reactivity of mood

- Chronic feelings of emptiness

- Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights).

- Frantic efforts to avoid real or imagined abandonment.

- Unstable and intense interpersonal relationships.

- Identity disturbance

- Impulsivity

- Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior

- Transient, stress-related paranoid ideation or severe dissociative symptoms.

Outline

- What is Ambulatory Assessment?

- AA advantages

- AA methods of data collection

- What can AA tell us?

- What do we know about BPD from AA studies?

- Challenges and Future Directions

What is Ambulatory Assessment?

- **Idiographic in focus** (within individual processes)
- **Characterized by**
  - collection of data in real-world environments;
  - assessments that focus on individuals' current or very recent states or behaviors;
  - assessments that may be event-based, time-based, or randomly-prompted (depending on the research question); and
  - completion of multiple assessments over time.
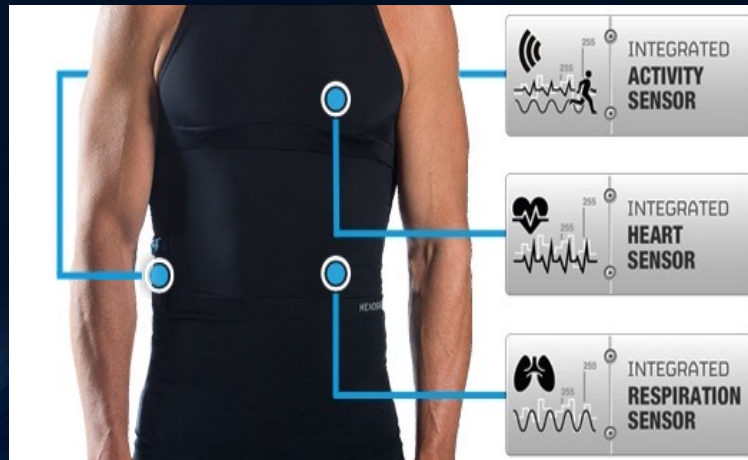
Ambulatory Assessment: Advantages

- Can characterize dynamic psychological processes (emotion, cognitive styles, expectations, behavior patterns, physiological correlates)
- Real-time assessment minimize biases
- Adds a temporal dimension to assessment.
- External validity: study individuals in their daily lives

Ambulatory Assessment: Data collection Methods

- Paper-and-pencil diaries (ESM)
- Electronic diaries: self-report on states, experiences, behaviors (EMA)
- Monitoring of physiological processes (e.g., heart rate, respiration, electro-dermal activity)
- Behaviors or states that are recorded or "observed" by electronic devices (e.g., pill taking, audio recordings, video recordings).

Phone and wireless sensors

Ambulatory Assessment: What can it tell us?

- **Description of Psychopathology and Associated Features**

- **Problematic mood**
  - Depression, anxiety, hostility, mania
  - Mood as dynamic process
 - Mood changes
  - Mood instability

BPD: Distinguishing feature

- **Affective instability:** the experience of going from baseline mood (which may be a general state of negative affectivity) to intense negative affective states.

- States may last hours or a day, and are assumed to be triggered by environmental events (APA, 2013)

Components of (Affective) Instability

- Larsen (1987)
  - **Amplitude** - how large are the changes?
  - **Frequency** - how often do changes occur?
  - **Temporal Dependency** - how "predictable" are (mood) states from one occasion to another?
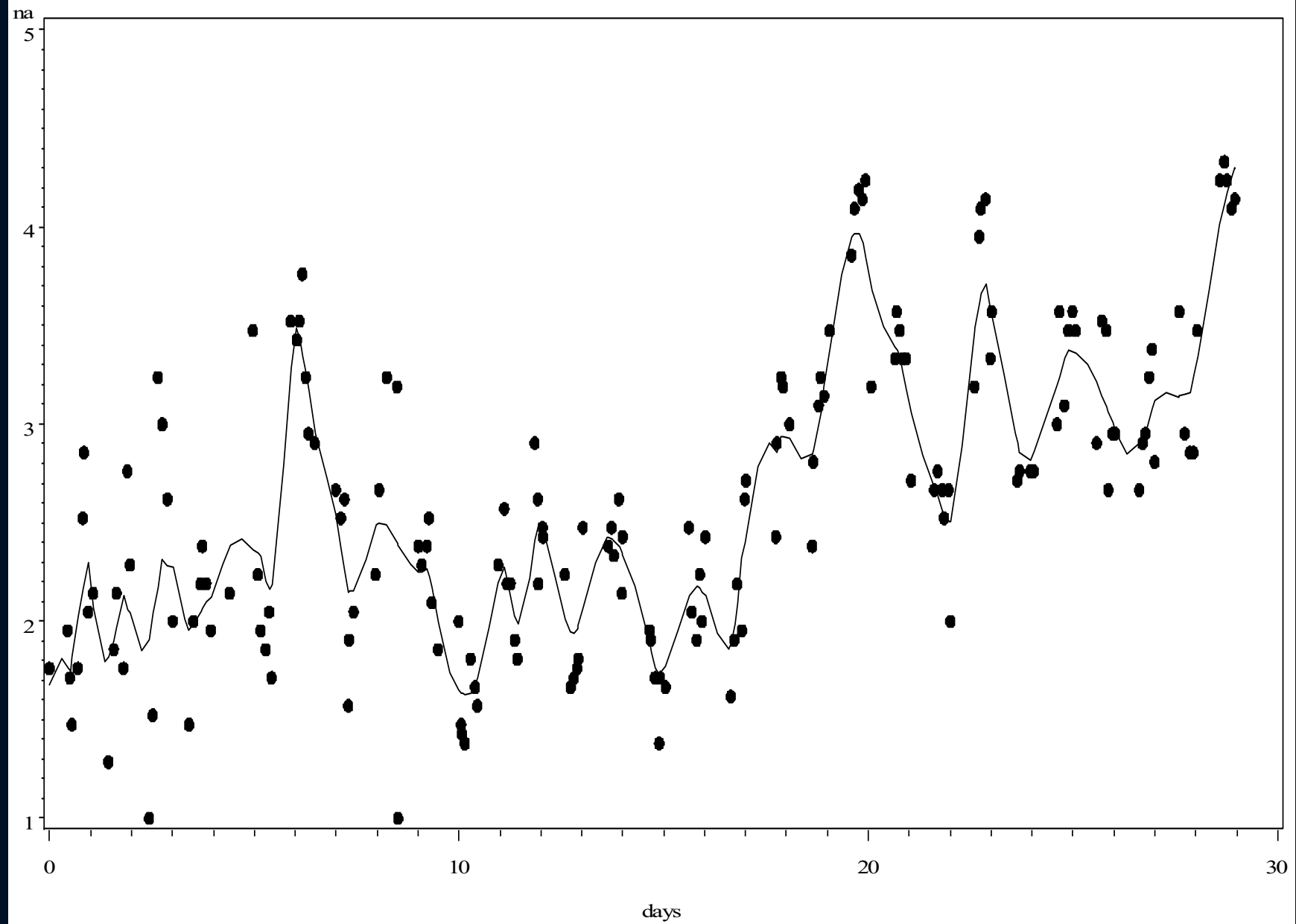
Plots of Individuals' Time Series for SLU Study
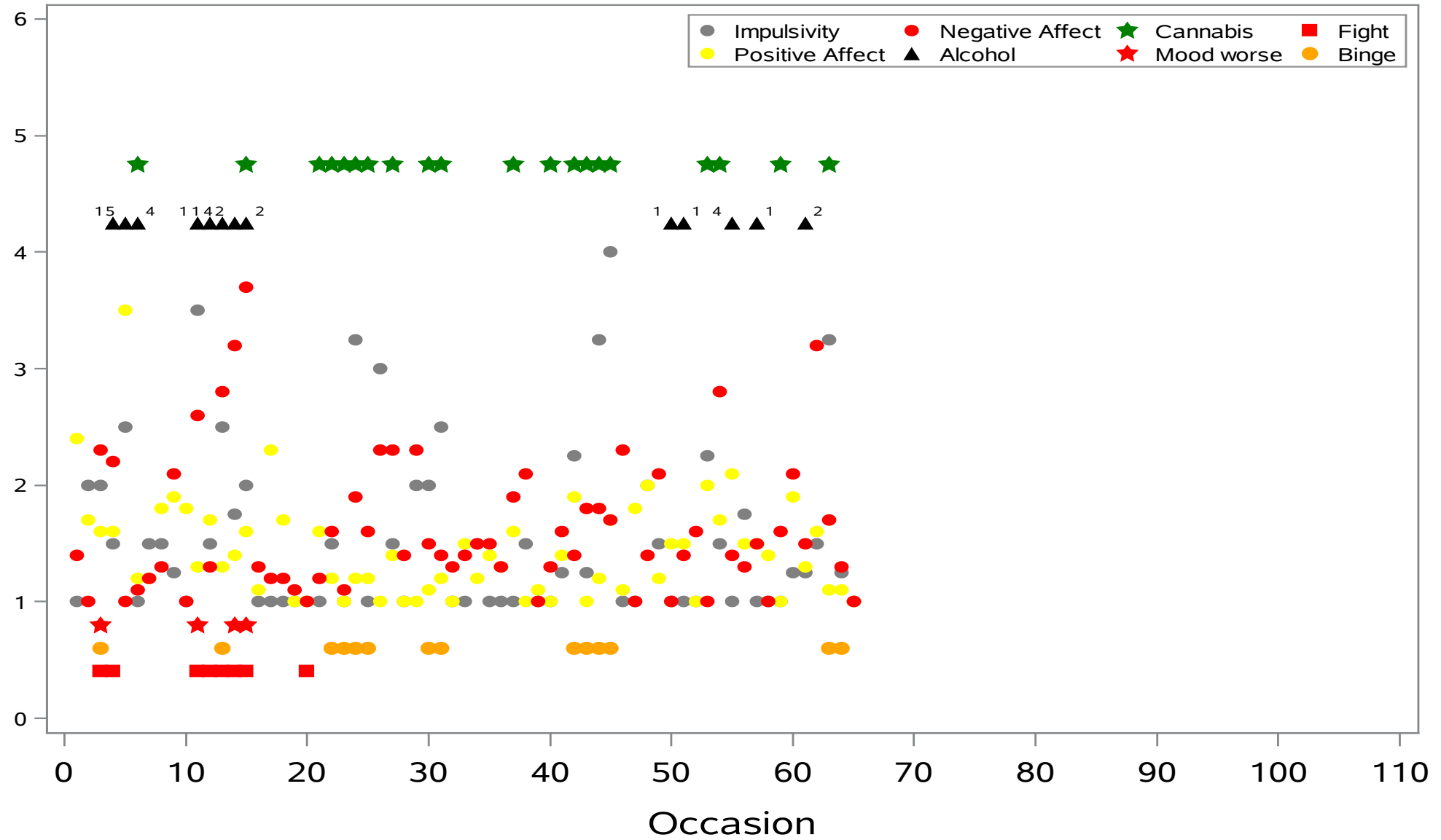identification number=4405
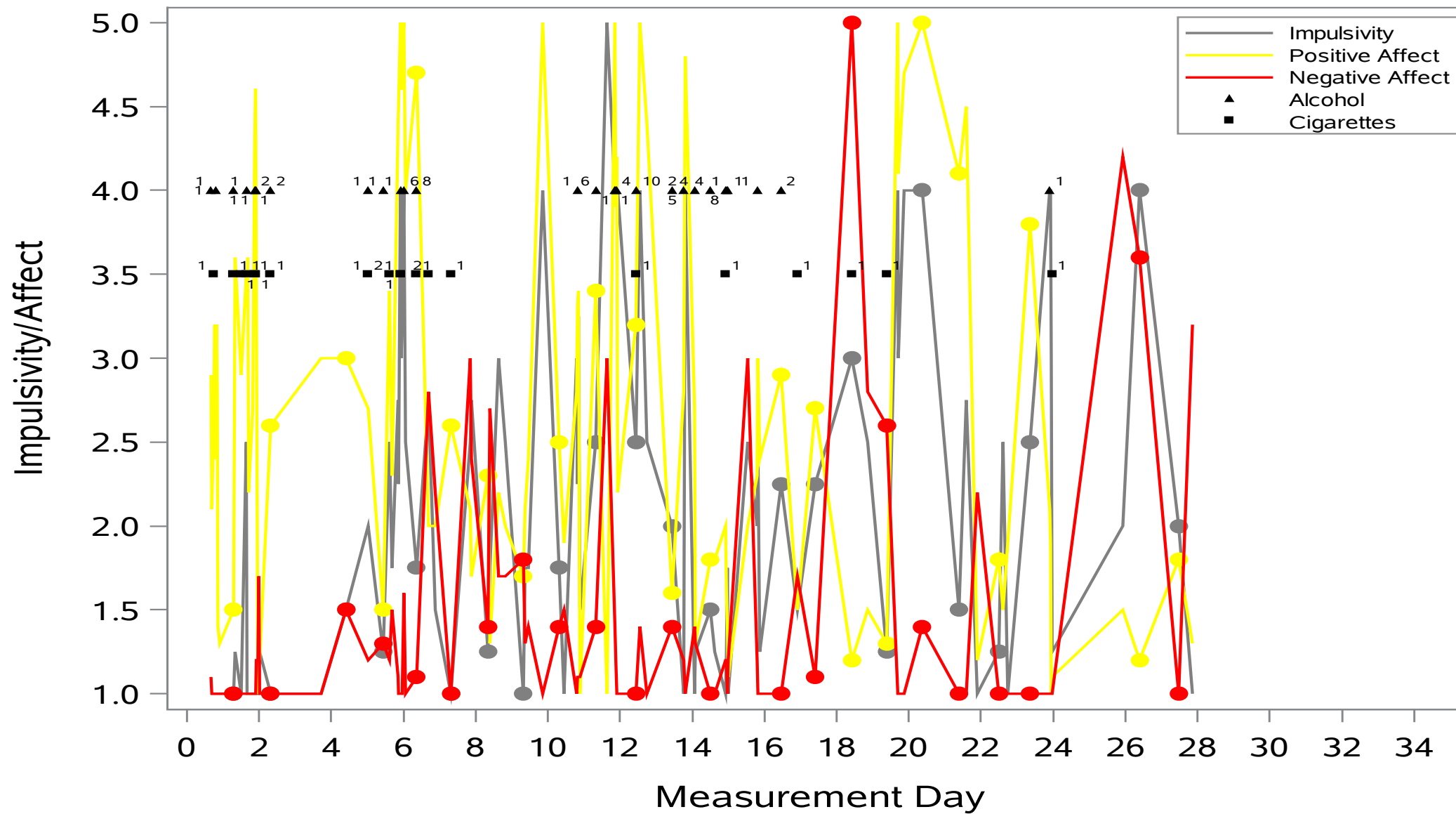
Ambulatory Assessment: What can it tell us?

- **Description of Psychopathology and Associated Features**

- **Problematic behavior** (often discrete events; event-based sampling)
  - Use of alcohol, drugs, nicotine
  - Binge and purge episodes
  - Motoric activity (e.g., bipolar disorder, depression)
  - Drug seeking behavior (GPS)

Plots of Individuals' Time Series for NIMH Study
Patient=1014

Ambulatory Assessment: What can it tell us?

- **Description of Psychopathology and Associated Features**

- **Problematic Cognition/Expectancies/Urges**
  - Rejection sensitivity---interpersonal problems
  - Cravings---addictive behaviors
  - Urges---self-harm behaviors

Why use AA to study Borderline Personality Disorder?

- Affective instability due to a marked reactivity of mood

- Chronic feelings of emptiness

- Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights).

- Frantic efforts to avoid real or imagined abandonment.

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Ambulatory Assessment: Studies of Emotion Dysregulation and BPD

- Emotion dysregulation, affectivity instability, and BPD

- Affect, impulsivity, and substance use

- Interpersonal conflict/rejection/interpersonal sensitivity

EMA Study of Affective Instability

Trull, T. J., Solhan, M. B., Tragesser, S. L., Jahng, S., Wood, P. K., Piasecki, T. M., & Watson, D. (2008). Affective instability: Measuring a core feature of borderline personality disorder with ecological momentary assessment. *Journal of abnormal psychology*, *117*(3), 647-661.

- 28-day EMA study of BPD outpatients (with affective instability) and outpatients with Major Depression (and no BPD or affective instability)

- Use palm pilots to collect real-time data on mood states, behavior, and life experiences.

- Each subject was randomly prompted six times per day during waking hours.

EMA Study of Affective Instability

- 60 participants
- Average Age=34.98 (12.25)
- BPD n=34; MDD/DYS n= 26
- 88.3% women
- **Current Axis I**: 30-40% GAD, PTSD, Social Phobia; <10% SUD
- Family income: 70% $0-25K
- 63.3% previous psychiatric hospitalization

EMA Study of Affective Instability

Affect Variables of interest:

- PANAS **Negative Affect (NA)**

- PANAS **Positive Affect (PA)**

- PANAS-X NA subscales:
  - **Fear** (6 items)
  - **Hostility** (6 items)
  - **Sadness** (5 items)

EMA Study of Affective Instability

- Prompted at random times during waking hours to complete SIX assessments per day over FOUR weeks (28 days). (~168 prompts)

- **Two key features of the data**: unbalanced in number of observations; randomly spaced time interval between successive assessments. → Multilevel modeling; normalizing time intervals for time series type analysis

EMA Study of Affective Instability

Results

- The two groups of subjects (BPD vs. MDD/DYS) did not differ in MEAN levels of affect

- The variance/variability of ALL affect scores (PA and NA) differed significantly between groups.

EMA Study of Affective Instability

- But, does difference in variance (variability) imply difference in (affective) instability?

Not necessarily.

- Components of temporal instability: <u>amplitude of change, frequency</u> of change

- Variance as a measure of instability: ignores <u>temporal dependency</u> issues

- Alternative measures of instability:
  - Mean Squared Successive Difference (MSSD)
  - Probability of acute change (PAC)
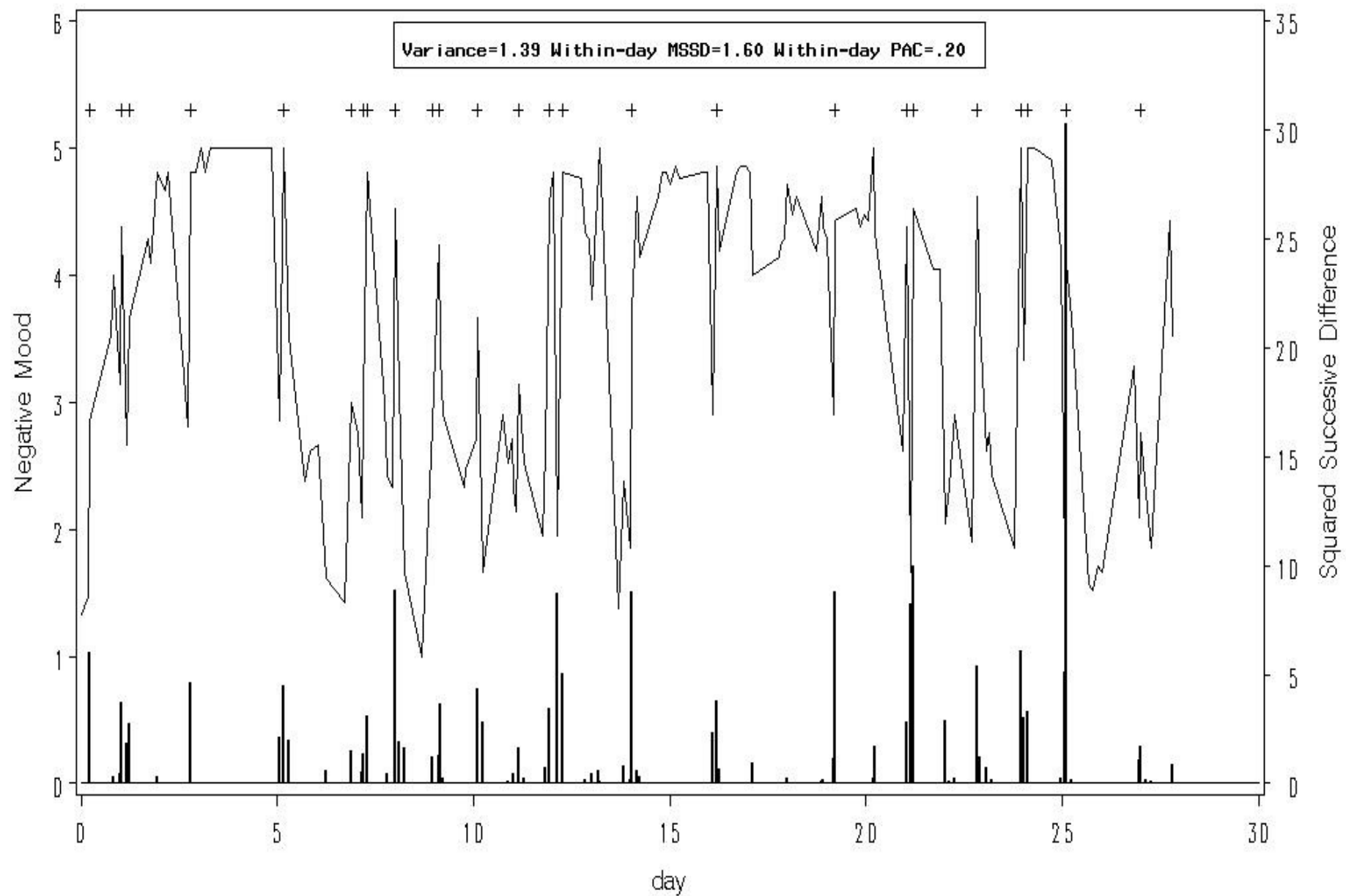
Temporal instability:
Squared Successive Difference

- Generalized Multilevel Model, with gamma distribution and log link, was used to test mean difference in squared successive (SSD) difference for all affects/emotions.

- Using this index, greater instability was found for BPD patients on hostility, fear, and sadness scores.

Temporal instability:
Probability of Acute Change

- Multilevel logistic model was used to compare probability of an acute change in affect in BPD vs. MDD/DYS participants.

- Significant difference was found only for hostility.

Summary of EMA results for Affective Instability

- The variability of affect scores in the BPD subjects appears significantly larger than that of the MDD/DYS subjects

- BPD participants demonstrated more instability in negative mood scores than did the MDD/DYS subjects

- BPD participants demonstrate more large, acute changes in hostility (only) than did the MDD/DYS subjects

Associations of Affective instability with alcohol use

Jahng, S., Solhan, M. B., Tomko, R. L., Wood, P. K., Piasecki, T. M., & Trull, T. J. (2011). Affect and alcohol use: an ecological momentary assessment study of outpatients with borderline personality disorder.

Journal of abnormal psychology, 120(3), 572-.584

BPD and alcohol use

- BPD is highly comorbid with alcohol use disorders (AUDs)
  - 16.9% of those with AUD have BPD
  - 45.1% of those with BPD have AUD
- Attempt to regulate negative emotions?
- Alcohol as positive reinforcer; increase positive mood states?

Affect/Mood and alcohol use

- Mixed findings on relations between negative affect and alcohol use

- More consistent findings regarding positive affect and alcohol use

- Studies have not extensively examined the relations between affective <u>instability/variability</u> and alcohol use.

Method

- Ecological Momentary Assessment

- Electronic diary using PDA
  - 6 assessments per day for 28 days (since the last prompt)
  - are nested within days, nested within people→ hierarchical or multilevel structure

- PANAS
  - PA, 10 items
  - NA, 10 items

- Alcohol use
  - alcohol use (0/1), # of drinks (count), alcohol day (0/1)

Demographic Data

- 113 women participants

- Average Age=33.6 (12.04)

- BPD n=74; MDD/DYS n= 39

- 67% single, divorced, or separated

- **Current Diagnoses**: 75% anxiety disorder; 76% mood disorder; 10% substance use disorder

- Family income: 69% $0-25K

- 49% previous psychiatric hospitalization
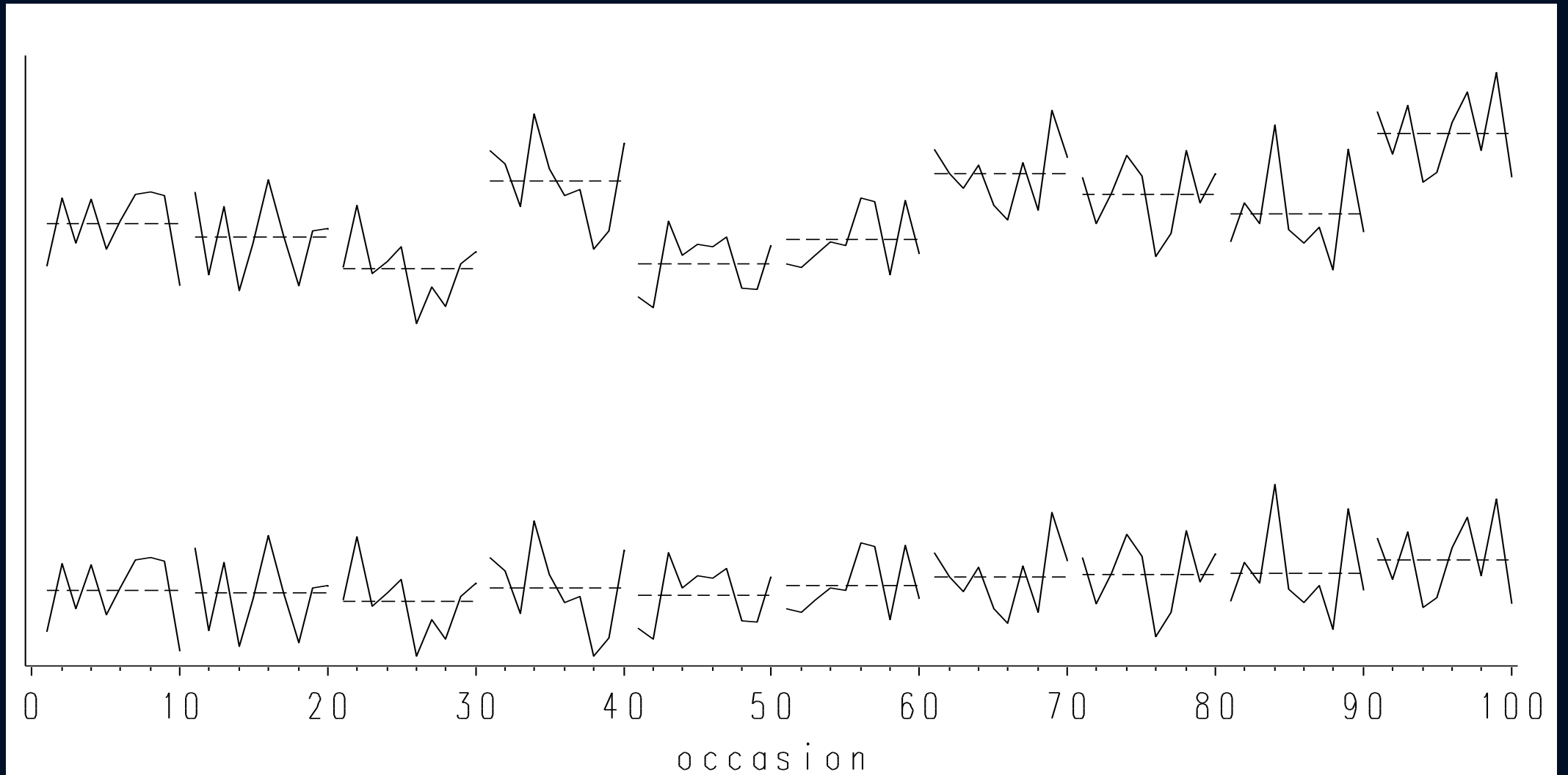
Drinker Status

- BPD n=74
  - 52 drinkers
    - 10% binge drinking days
  - 22 non-drinkers
- MDD/DYS n= 39
  - 25 drinkers
    - 6% binge drinking days
  - 14 non-drinkers

Drinkers vs. Nondrinkers: Mean Affect

- No significant differences in <u>overall level</u> of or as a function of
  - drinking group (yes/no)
  - diagnostic status (BPD/MDD)
  - or their interaction
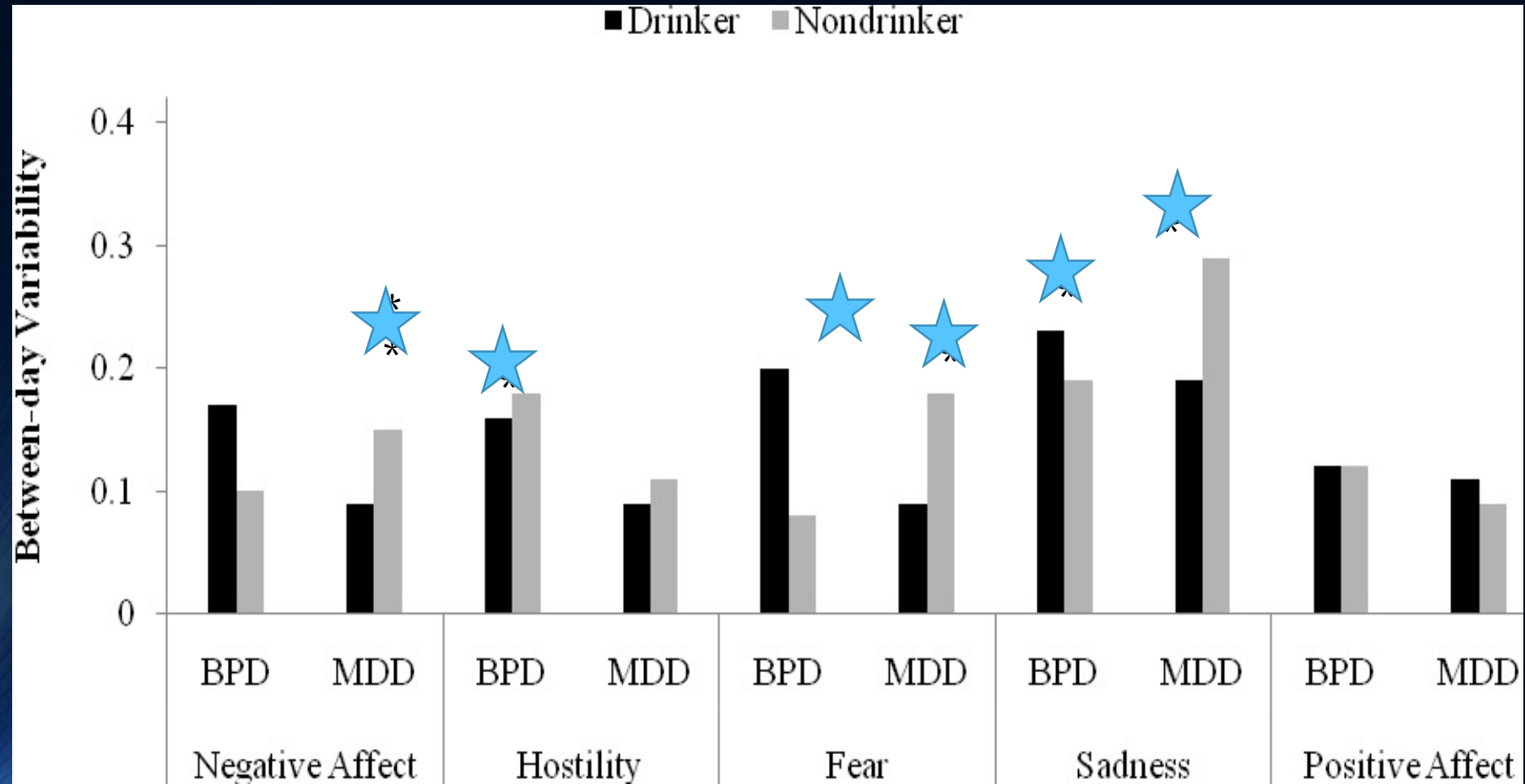
occasion

Drinkers vs. Nondrinkers:
Affect variability, *between day*

- BPD drinkers vs. non-drinkers
  - More variable in day-to-day variability in NA, in fear, and in sadness

- MDD drinkers vs. non-drinkers
  - Less variable in day-to-day variability in NA, in fear, and in sadness

# Between-day variability of affect scores across drinkers and nondrinkers for BPD and MDD/DYS patients

- BPD drinkers vs. non-drinkers

  - <u>More</u> variable in within day variability in NA and in fear

- MDD drinkers vs. non-drinkers

  - <u>More</u> variable in within day variability in sadness, and in PA

Within-day variability of affect scores across drinkers and nondrinkers for BPD and MDD/DYS patients
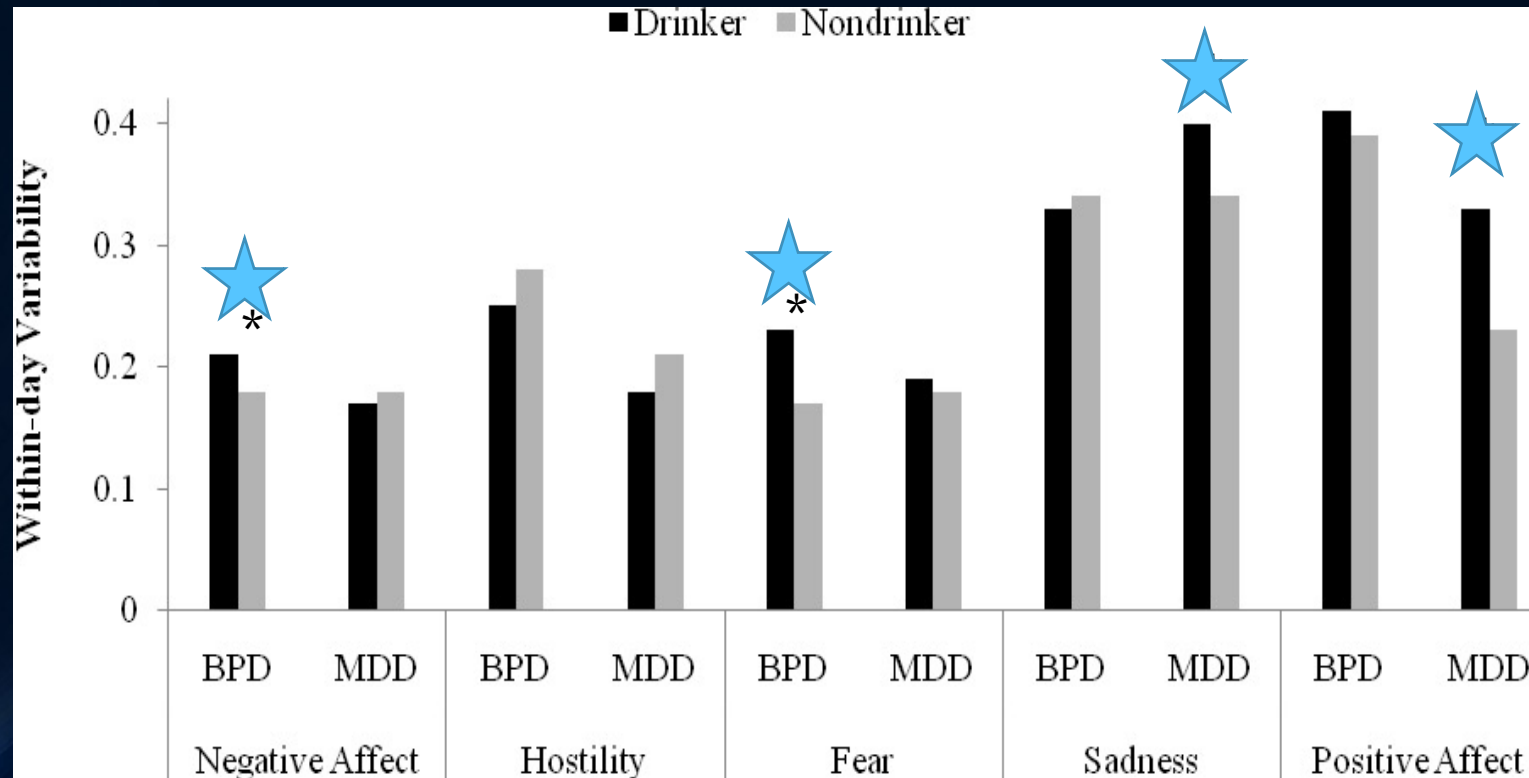
Lagged effects for BPD drinkers

- **Concurrent/same day:** BPD drinkers showed <u>greater</u> within-day affective variability on alcohol days relative to non-alcohol days for all five affect scores

- **Next day:** BPD drinkers showed positive lagged effects of alcohol drink on within-day variability of hostility, fear, and positive affect (<u>day after alcohol day</u>)

Summary of Results

- *Mean levels* of affects did not distinguish between drinkers and non-drinkers, regardless of diagnostic group.

- *Within-person variability in affects*, Including both *between- and within-day variability,* distinguished drinkers from non-drinkers in both diagnostic groups.

Summary of Results:
BPD drinkers

- Mean levels of both NA and PA were positively associated with alcohol use at the *momentary level* for BPD drinkers

- BPD drinkers, in general, were distinguished by larger variability in negative affect scores.

Interpretation

- These findings suggest that in addition to drinking to cope with negative affect, BPD drinkers may also be motivated to drink in order to enhance positive affect.

- Motivations: Affect regulation hypothesis of alcohol use implies that alcohol use is associated with the dysregulation of affect

Cannabis, alcohol, affect, impulsivity

- Trull, T. J., Wycoff, A. M., Lane, S. P., Carpenter, R. W., & Brown, W. C. (**2016**). Cannabis and Alcohol Use, Affect, and Impulsivity in Psychiatric Outpatients' Daily Lives. *Addiction, 111*, 2052-2059.

Cannabis, alcohol, mood, impulsivity

- 81 outpatients with BPD and 50 outpatients with current depressive disorder (DD) carried electronic diaries for 28 days, responding to 6 random prompts per day.

- Each survey contained items related to mood state and substance use.

- Cannabis, alcohol in same model; momentary, daily, person-level; lags

Substance use predicting mood/impulsivity in the Moment

Effect	Impulsivity		Hostility		Positive Affect	
	Estimate	*95% CI*	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Intercept	5.80***	[5.34, 6.26]	1.48***	[1.34, 1.62]	2.33***	[2.17, 2.49]
Occasion level						
Current occasion cannabis use	0.37†	[-0.01, 0.75]	0.09*	[0.01, 0.17]	0.03	[-0.11, 0.17]
Previous occasion cannabis use	-0.08	[-0.34, 0.18]	-0.06	[-0.14, 0.02]	0.01	[-0.09, 0.11]
Current occasion alcohol use	0.24	[-0.06, 0.54]	-0.01	[-0.07, 0.05]	0.14***	[0.08, 0.20]
Previous occasion alcohol use	-0.02	[-0.26, 0.22]	0.00	[-0.06, 0.06]	-0.07†	[-0.15, 0.01]
Day level						
Current day cannabis use	0.71*	[0.05, 1.37]	0.16	[-0.14, 0.46]	0.02	[-0.34, 0.38]
Previous day cannabis use	-0.40	[-1.32, 0.52]	0.08	[-0.46, 0.62]	-0.07	[-0.39, 0.25]
Current day alcohol use	1.15*	[0.17, 2.13]	-0.04	[-0.16, 0.08]	0.36***	[0.18, 0.54]
Previous day alcohol use	0.10	[-0.54, 0.74]	0.13†	[-0.03, 0.29]	-0.22*	[-0.38, -0.06]
Person level						
Degree of cannabis use	0.02	[-1.88, 1.92]	0.83*	[0.17, 1.49]	0.58	[-0.16, 1.32]
Degree of alcohol use	-1.30	[-5.10, 2.50]	-0.05	[-1.25, 1.15]	0.38	[-0.94, 1.70]

Mood/impulsivity predicting substance use in the Moment

Effect	Cannabis		Alcohol	
	OR	*95% CI*	*OR*	*95% CI*
Intercept	0.01***	[0.00, 0.04]	0.09***	[0.06, 0.14]
Occasion level				
Current occasion impulsivity	1.07*	[1.00, 1.13]	1.03	[0.96, 1.09]
Previous occasion impulsivity	1.03	[0.96, 1.11]	0.97	[0.91, 1.04]
Current occasion hostility	1.22*	[1.03, 1.46]	1.17	[0.88, 1.55]
Previous occasion hostility	1.04	[0.85, 1.28]	1.00	[0.75, 1.33]
Current occasion positive affect	1.07	[0.82, 1.39]	1.57***	[1.27, 1.95]
Previous occasion positive affect	1.28***	[1.11, 1.48]	1.31**	[1.10, 1.57]
Day level				
Current day impulsivity	1.02	[0.95, 1.10]	1.08†	[0.99, 1.18]
Previous day impulsivity	1.03	[0.97, 1.09]	0.96	[0.87, 1.06]
Current day hostility	1.11	[0.84, 1.46]	0.85	[0.65, 1.11]
Previous day hostility	0.98	[0.74, 1.30]	0.86	[0.69, 1.07]
Current day positive affect	1.09	[0.87, 1.37]	1.42**	[1.11, 1.83]
Previous day positive affect	1.04	[0.84, 1.28]	0.99	[0.82, 1.19]
Person level				
Degree of impulsivity	0.59†	[0.34, 1.01]	1.04	[0.78, 1.37]
Degree of hostility	6.42**	[2.04, 20.22]	0.59	[0.32, 1.11]
Degree of positive affect	3.40†	[0.92, 12.56]	1.08	[0.68, 1.70]

Summary

In daily life, cannabis and alcohol use are associated with

- increased impulsivity (both),

- Increased hostility (cannabis)

- and increased positive affect (alcohol)

These effects are part of separate processes that operate on different time-scales (i.e. momentary versus daily).

Affect and interpersonal problems

Hepp, J., Lane, S. P., Carpenter, R. W., Niedtfeld, I., Brown, W. C,, & Trull, T. J. (2017). Interpersonal problems and negative affect in Borderline Personality and Depressive Disorder individuals' daily lives. *Clinical Psychological Science, 5,* 470-484.

Affect and interpersonal problems

- Previous research supports the idea that rejection and disagreement serve as environmental stimuli that increase negative affect in BPD

- It remains unclear whether negative affect in turn also increases the probability of experiencing negative interpersonal events

- We measured the associations of rejection and disagreement and three types of negative affect— hostility, sadness, and fear—at the momentary level.

Affect and interpersonal problems

Table 3. Estimates, Standard Errors, and p Values for Rejection and Disagreement Predicting Hostility, Sadness, and Fear in a Multivariate Multilevel Model

| | Hostility | | | | | | Sadness | | | | | | Fear | | | | | |
| | BPD | | | DD | | | BPD | | | DD | | | BPD | | | DD | | |
Predictors	Est.	*SE*	*p*	Est.	*SE*	*p*	Est.	*SE*	*p*	Est.	*SE*	*p*	*Est.*	*SE*	*P*	*Est.*	*SE*	*P*
Mom rej	0.24	0.02	<.001	0.20	0.02	<.001	0.32	0.02	<.001	0.35	0.02	<.001	0.13	0.02	<.001	0.15	0.02	<.001
Day rej	**0.56**	**0.05**	**<.001**	**0.40**	**0.06**	**<.001**	**0.91**	**0.06**	**<.001**	**0.56**	**0.08**	**<.001**	0.39	0.05	<.001	0.40	0.06	<.001
Person rej	1.76	0.38	<.001	1.19	0.47	.012	3.04	0.55	<.001	1.74	0.67	.010	1.36	0.47	.004	1.78	0.57	.002
Mom dis	**0.36**	**0.02**	**<.001**	**0.30**	**0.02**	**<.001**	0.14	0.02	<.001	0.12	0.02	<.001	0.11	0.02	<.001	0.13	0.02	<.001
Day dis	**0.68**	**0.06**	**<.001**	**0.48**	**0.08**	**<.001**	0.12	0.02	.082	0.24	0.09	.008	0.20	0.06	<.001	0.22	0.08	.003
Person dis	–0.00	0.53	.998	0.52	0.71	.470	–1.29	0.76	.092	–1.12	1.02	.273	0.47	0.65	.470	–0.72	0.87	.406

Affect and interpersonal problems

Table 4. Odds Ratios With 95% Confidence Intervals, Standard Errors, and *p* Values for Hostility, Sadness, and Fear, Predicting Rejection and Disagreement in a Multivariate Multilevel Model

| | Rejection | | | | | | | | Disagreement | | | | | | | |
| | BPD | | | | DD | | | | BPD | | | | DD | | | |
Predictors	OR	95% CI	SE	p	OR	95% CI	SE	p	OR	95% CI	SE	p	OR	95% CI	SE	p
Mom host	2.42	[2.06, 2.85]	0.08	< .001	1.96	[1.58, 2.44]	0.11	< .001	4.14	[3.51, 4.88]	0.08	< .001	3.90	[3.09;4.91]	0.12	< .001
Mom sadn	1.97	[1.69, 2.29]	0.08	< .001	2.37	[1.95, 2.89]	0.10	< .001	1.13	[0.97, 1.32]	0.08	.126	1.18	[0.96, 1.45]	0.11	.115
Mom fear	0.93	[0.76, 1.12]	0.10	.425	0.98	[0.76, 1.28]	0.13	.906	**0.88**	**[0.72, 1.06]**	**0.10**	**.185**	**1.32**	**[1.00, 1.73]**	**0.14**	**.048**
Day host	2.12	[1.63, 2.75]	0.13	< .001	1.90	[1.35, 2.68]	0.18	< .001	**3.68**	**[2.89, 4.69]**	**0.12**	**< .001**	**2.19**	**[1.58, 3.03]**	**0.17**	**< .001**
Day sadn	**2.31**	**[1.87, 2.87]**	**0.11**	**< .001**	**1.32**	**[0.98, 1.78]**	**0.15**	**.072**	0.86	[0.70, 1.06]	0.11	.168	0.95	[0.72, 1.25]	0.14	.711
Day fear	**0.65**	**[0.50, 0.86]**	**0.14**	**.002**	**1.75**	**[1.17, 2.61]**	**0.20**	**.006**	**0.70**	**[0.54, 0.90]**	**0.13**	**.005**	**1.39**	**[0.94, 2.04]**	**0.20**	**.100**
Pers host	1.71	[0.53, 5.53]	0.60	.373	3.38	[0.96, 11.87]	0.64	.057	1.98	[0.71, 5.50]	0.52	.189	2.29	[0.78, 6.73]	0.55	.133
Pers sadn	2.19	[1.01, 4.47]	0.39	.048	1.18	[0.56, 2.46]	0.38	.663	0.73	[0.37, 1.43]	0.34	.352	0.76	[0.40, 1.44]	0.32	.401
Pers fear	0.90	[0.38, 2.10]	0.43	.801	1.63	[0.59, 4.45]	0.51	.345	1.33	[0.64, 2.77]	0.37	.450	0.79	[0.33, 1.89]	0.44	.601

Replication

Hepp, J., Lane, S. P., Wycoff, A., & Trull, T. J. (2018). Interpersonal stressors and negative affect in individuals with Borderline Personality Disorder and community adults in daily life: a replication and extension. *Journal of Abnormal Psychology, 127, 183-189.*

- We sought to replicate previous findings, collecting data on hostility, sadness, fear, and rejection or disagreement events from 56 BPD and 60 community control participants for 21 days, 6 times a day.

"Project 6"
Midwestern Alcoholism Research Center (MARC)

- NIAAA study of affect, impulsivity, craving, and alcohol use

- Recruited regular drinkers (2 or more occasions per week)

- BPD group, n=56

- Community drinkers, n=60

- Carried an electronic diary for 21 days

"Project 6"

- Morning report

- Random prompts

- Drinking reports and follow-ups

- Smoking reports

- Self-harm reports and follow-ups

Table 1

Estimates, Standard Errors, and p Values for Group, Rejection, and Disagreement Predicting Hostility, Sadness, and Fear (Simultaneously) in a Multivariate Multilevel Model

| | Hostility | | | | | | | | Sadness | | | | | | | | Fear | | | | | | | |
| | Borderline | | | | Community | | | | Borderline | | | | Community | | | | Borderline | | | | Community | | | |
Predictors	b	β	SE	p	b	β	SE	p	b	β	SE	p	b	β	SE	p	b	β	SE	p	b	β	SE	p
Mom rej	**.24**	**.09**	**.03**	**<.001**	**.12**	**.04**	**.04**	**.004**	**.55**	**.15**	**.03**	**<.001**	**.34**	**.04**	**.09**	**<.001**	.06	.02	.02	.019	.08	.04	.03	.067
Day rej	**.41**	**.10**	**.06**	**<.001**	.35	.08	.10	<.001	**1.25**	**.23**	**.07**	**<.001**	**.80**	**.13**	**.14**	**<.001**	.46	.06	.11	<.001	.20	.10	.05	.037
Person rej	.41	.10	.69	.556	3.72	.54	1.39	.009	2.24	.25	.85	.010	3.12	1.72	.35	.068	.88	.75	.13	.241	3.08	1.51	.45	.044
Mom dis	**.50**	**.19**	**.02**	**<.001**	.32	.12	.03	<.001	.21	.06	.03	<.001	.15	.03	.04	<.001	.07	.02	.03	.003	.04	.04	.02	.259
Day dis	**.84**	**.20**	**.06**	**<.001**	.45	.11	.08	<.001	.30	.05	.08	<.001	.30	.11	.05	.006	.26	.06	.06	<.001	.10	.08	.03	.226
Person dis	.77	.10	.72	.295	.42	.06	1.18	.718	.45	.05	.91	.621	.06	1.46	.01	.965	.78	.79	.11	.324	.68	1.28	.09	.596
BPD group	.19	.41	.07	.004					.32	.52	.08	<.001					.26	.07	.55	<.001				

Note. The model adjusted for lagged hostility, sadness, and fear, and the covariates weekday, weekend, study day, and time since participant awoke. Group was coded Borderline = 0 for the Borderline columns, and community = 0 for the community columns. Significant group differences are highlighted in boldface. SE = standard error; Mom = momentary; rej = rejection; dis = disagreement; BPD = borderline personality disorder.

Table 2

Estimates, Standard Errors, and p Values for Group, Lagged Rejection, and Lagged Disagreement Predicting Hostility, Sadness, and Fear (Simultaneously) in a Multivariate Multilevel Model

| | Hostility | | | | | | | | Sadness | | | | | | | | Fear | | | | | | | |
| | Borderline | | | | Community | | | | Borderline | | | | Community | | | | Borderline | | | | Community | | | |
Predictors	b	β	SE	p	b	β	SE	p	b	β	SE	P	b	β	SE	p	b	β	SE	p	b	β	SE	p
Rej lag	.39	.13	.04	<.001	.14	.05	.07	.030	.79	.21	.04	<.001	.47	.12	.07	<.001	.07	.02	.04	.088	.07	.02	.07	.314
Dis lag	.63	.24	.04	<.001	.42	.16	.06	<.001	.33	.10	.04	<.001	.20	.06	.06	<.001	.13	.05	.04	.001	−.01	.00	.06	.909
Rej diff	.26	.14	.03	<.001	.12	.07	.04	.004	.58	.24	.03	<.001	.36	.15	.04	<.001	.06	.03	.03	.028	.07	.04	.04	.082
Dis diff	.52	.32	.03	<.001	.34	.21	.03	<.001	.23	.11	.03	<.001	.16	.08	.03	<.001	.08	.05	.03	<.001	.03	.02	.03	.430
BPD group	.20	.41	.07	.004					.32	.52	.08	<.001					.26	.55	.07	<.001				

Note. The model adjusted for lagged hostility, sadness, and fear, and the covariates weekday, weekend, study day, and time since participant awoke. Group was coded Borderline = 0 for the Borderline columns, and community = 0 for the community columns. Significant group differences are highlighted in boldface. *SE* = standard error; Rej = rejection; Dis = disagreement; diff = difference score; BPD = borderline personality disorder.

Summary

- Using identical statistical procedures, the positive associations between momentary rejection/disagreement and hostility, sadness, and fear were replicated.

- Again replicating the original study, the rejection– hostility, rejection–sadness, and disagreement– hostility associations were significantly stronger in the BPD group.

- Time-lagged analyses extended the original study, revealing that rejection was associated with subsequent hostility and sadness more strongly in the BPD group, as was disagreement with subsequent hostility and fear.

Current Directions

- Physiology of emotion dysregulation in daily life (RSA, EDA, respiration)
- Risk for Alcohol impaired driving (lab→real world)
- Co-use of Cannabis and Alcohol
- Tracking use of services for SUDs
- Use of wireless sensors to assess alcohol use.
- Quantifying cannabis use and intoxication
- High Intensity Drinking (R01 AA027824)

Concluding thoughts

- Idiographic approach
  - We <u>can</u> study individual processes in emotion dysregulation and its correlates, major features of BPD

- Time
  - Often the missing dimension in research

- Context (e.g., who, where, events)
  - Influential, but often ignored

- Studying people in daily life
  - People often choose their own contexts
  - Intervene in daily life?

Thank you!

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  - AA11998; AA022099; AA022064; MH100359;

- Personality and Emotions Lab

- MU Computer Science Team

- MO-CARE

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Society for Ambulatory Assessment
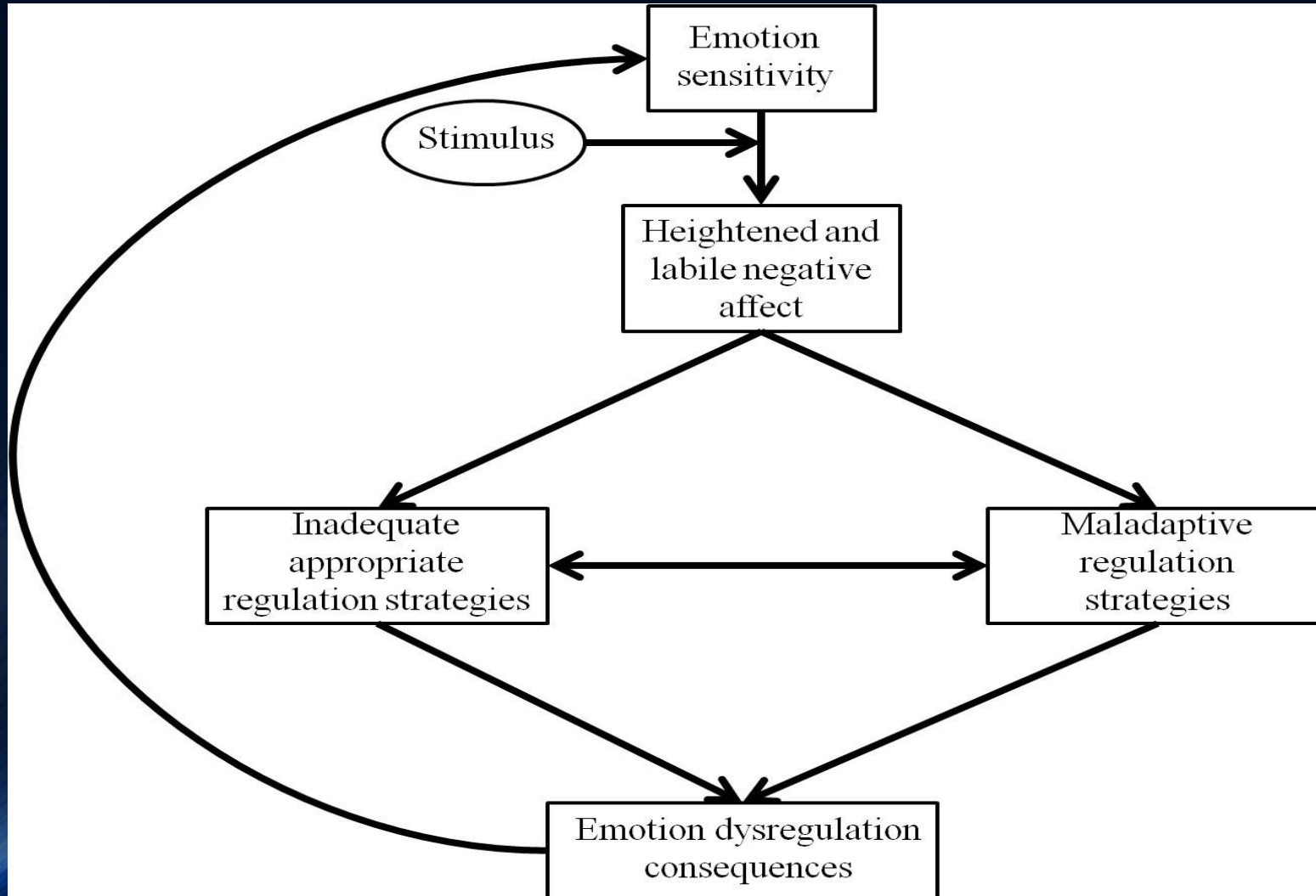

- Society for Ambulatory Assessment

- http://www.saa2009.org/

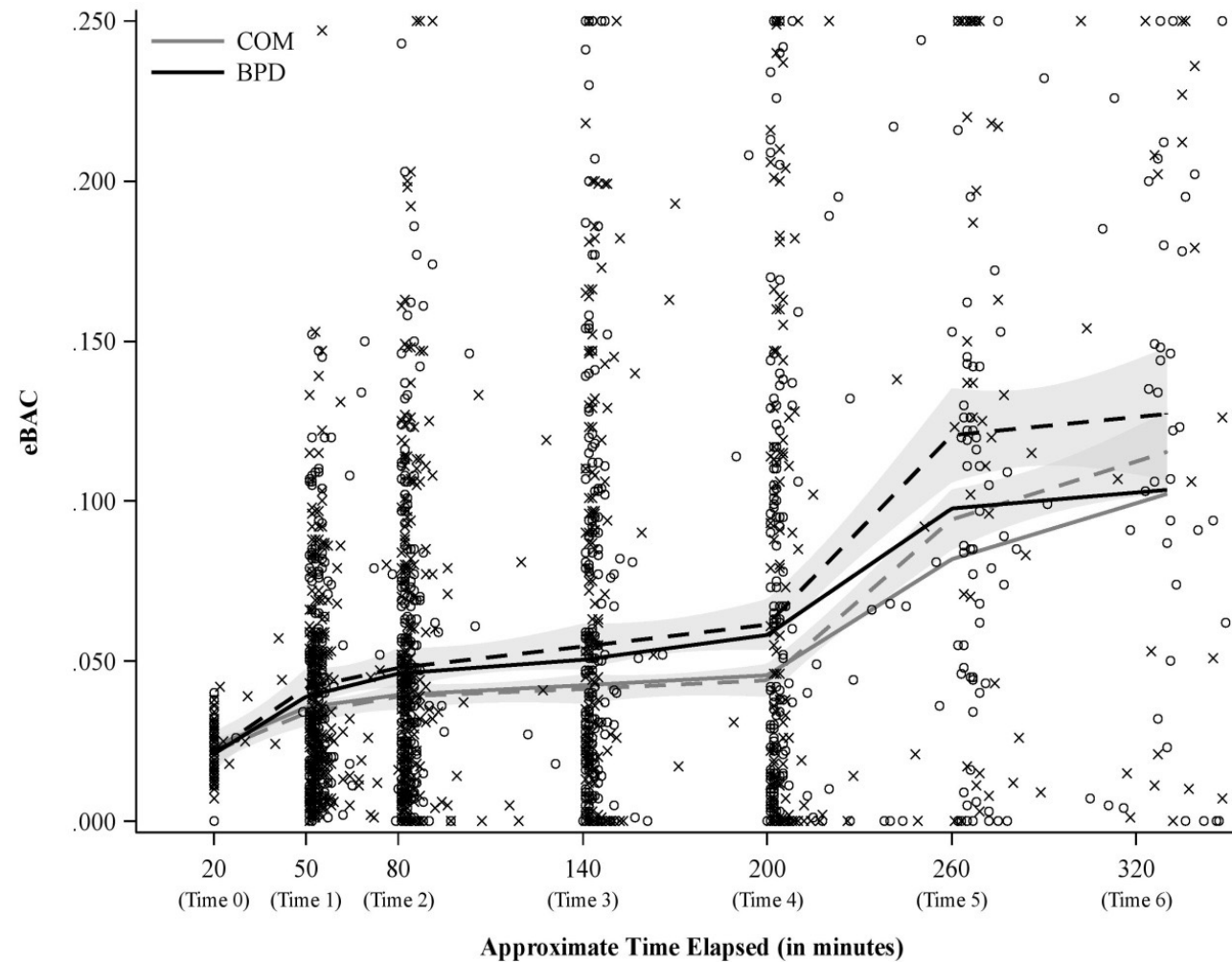Contact information:

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Model of Emotion Dysregulation
(Carpenter & Trull, 2013)
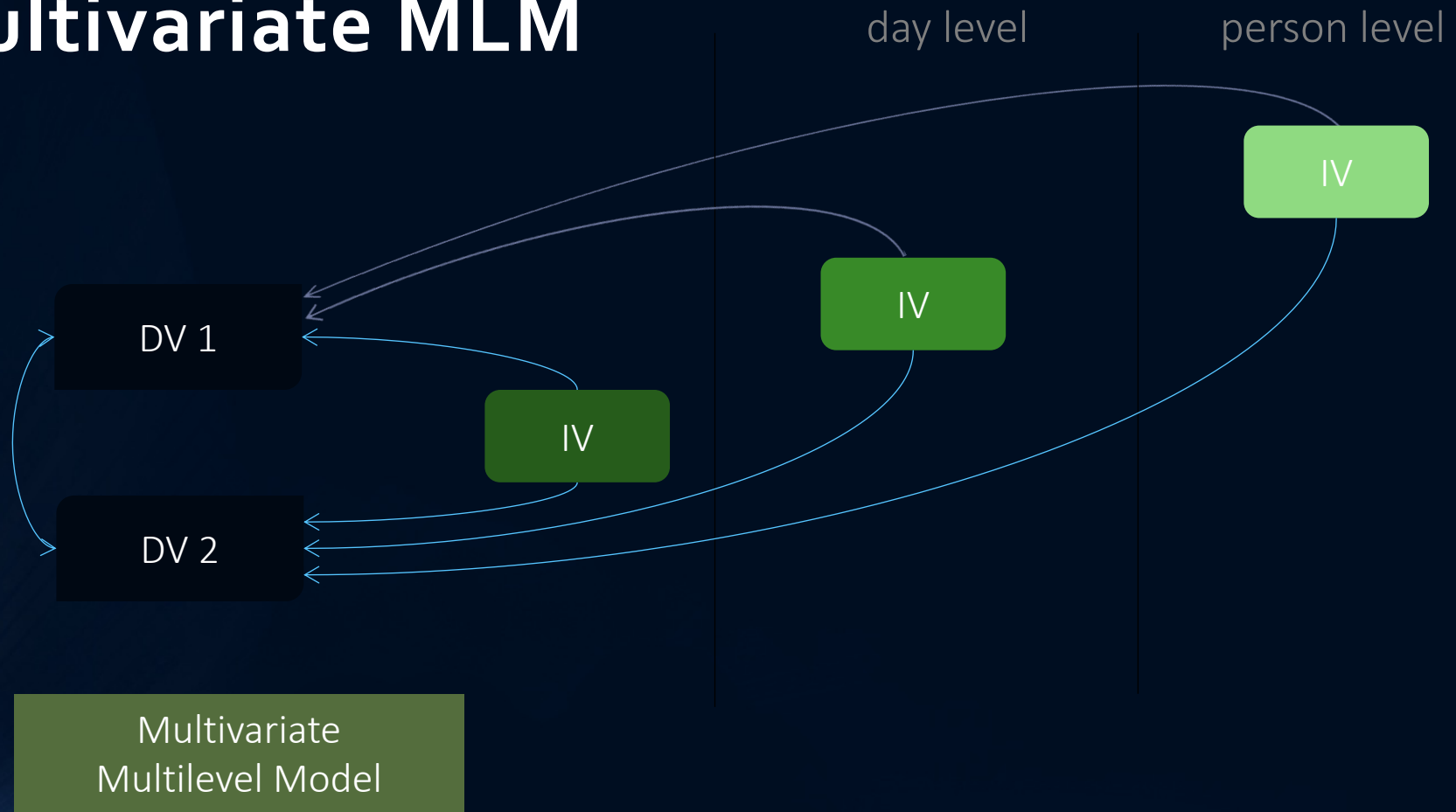
eBAC by time elapsed by Group

Take home message(s)

- Idiographic approach
  - We <u>can</u> study individual processes

- Time
  - Often the missing dimension in research

- Context
  - Influential, but often ignored

- Studying people in daily life
  - People often choose their own contexts
  - Intervene in daily life

- Advanced quantitative techniques
  - Big data

Discussion

- What to measure?

- How to measure it?

  - Items

  - Sampling strategy

- Incorporate physiology?

- Length of assessment period?

Data pipeline