

**The interplay of emotional and interpersonal
processes in borderline personality disorder**
From Experimental Research to Clinical Practice

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Borderline Personality Disorder

- “...instability of interpersonal relationships, self-image, and affects, and marked impulsivity....”
- Frantic efforts to avoid real or imagined abandonment
- A pattern of unstable and/or intense interpersonal relationships
- Persistent and markedly unstable self-image or sense of self
- Impulsivity in at least two potentially self-damaging areas
- Recurrent self-harming or suicidal behaviors or communications
- Intense, usually brief, mood swings
- Chronic feelings of emptiness
- Inappropriate, intense anger
- Transient, stress-related paranoid ideation or severe dissociation

Domains of Dysfunction in BPD

Interpersonal hypersensitivity

Emotional instability & dysregulation

Impulsivity

BPD & Emotion Dysfunction

Emotional Vulnerability

- Subjective

- More **frequent and intense negative emotions** (Levine et al., 1997; Stiglmayr et al., 2005; Trull et al., 2008)

- More **affective lability** (Trull et al., 2008)

- Objective

- **Brain imaging** (Herpertz et al., 2001; Minzenberg et al., 2007; 2008)

- **Mixed physiological findings: hypo-**
(Herpertz et al., 2000) **or hyper-arousal** (Ebner-Priemer et al., 2005)

BPD & Emotion Dysfunction

Emotion Dysregulation (Gratz & Roemer, 2004)

- **Lack of clarity and awareness of emotions**
(Leible & Snell, 2004; Wolff et al., 2007)
- **Emotional non-acceptance**
(Sauer & Baer, 2009; Yen et al., 2002)
- **Lack of impulse control** (Chapman, Dixon-Gordon et al., 2010; Chapman, Leung, & Lynch, 2008; Coffey et al., 2011; Gratz et al., 2009, Links, 1999)
- **Lack of strategies to modulate emotions**
(Bijttebier & Vertommen, 1999; Rosenthal et al., 2005; Salsman & Linehan, 2012)
- **Unwillingness to experience distress in order to engage in goal-directed behavior**
(Gratz et al., 2006)

BPD & Interpersonal Dysfunction

Multiple areas of dysfunction

- **Conflict in romantic relationships** (Hill et al., 2011)
- **More polarity in relationships** (Coifman et al., 2012)
- **Interpersonal aggression** (Barnow et al., 2009; Lejuez et al., 2003)
- **Interpersonal hypersensitivity** (Ayduk et al., 2008)
- **Deficits in mentalization** (Sharp et al., 2011)
- **Poor social problem solving and decisions**
(e.g., Bray et al., 2007; McMurrin, Duggan, Christopher, & Huband, 2007; Polgar et al., 2014)
- **Interpersonal problems precipitate suicide attempts and self-harm in BPD** (Brodsky et al., 2006)

Developmental Models of BPD

Existing models of BPD emphasize the transaction between interpersonal dysfunction and emotion dysregulation

- **Social Baseline Theory** (Hughes, Crowell, Uyeji & Coan, 2012)
- **Biosocial Theory** (Linehan, 1993)
- **Mentalization-based Model**
(Bateman & Fonagy, 2004; Fonagy & Bateman, 2007)

Are people with high BPD features more emotionally reactive to social rejection?

Chapman, A. L., Walters, K. N., & Dixon-Gordon, K. L. (2014). Emotional reactivity to social rejection and failure among persons with borderline personality features. *Journal of Personality Disorders*.

Emotional Reactivity in BPD

- **There are mixed findings regarding emotional reactivity in BPD** (Rosenthal et al., 2008)
 - **Several studies have found evidence of subjective, and sometimes biological, reactivity** (Limberg et al., 2011; Schmahl et al., 2004)
 - **Other studies find no evidence of reactivity, or reactivity only in some domains**
(e.g., Herpertz et al., 2000; Jacob et al., 2009)
- **Evidence suggests heightened emotional reactivity to rejection-related stimuli** (Limberg et al., 2011)

Hypothesis

- High-BPD group will show heightened emotional reactivity to social rejection, but not academic failure

Participants

- Undergraduates (N = 287) completed a questionnaire of BPD symptoms (Personality Assessment Inventory – Borderline scale; PAI-BOR)
- 70% female, between ages of 18 and 60 years
- Mean age 22.08 (*SD* = 6.68)
- 39% White, 33% Asian/Asian Canadian

Groups

Low BPD

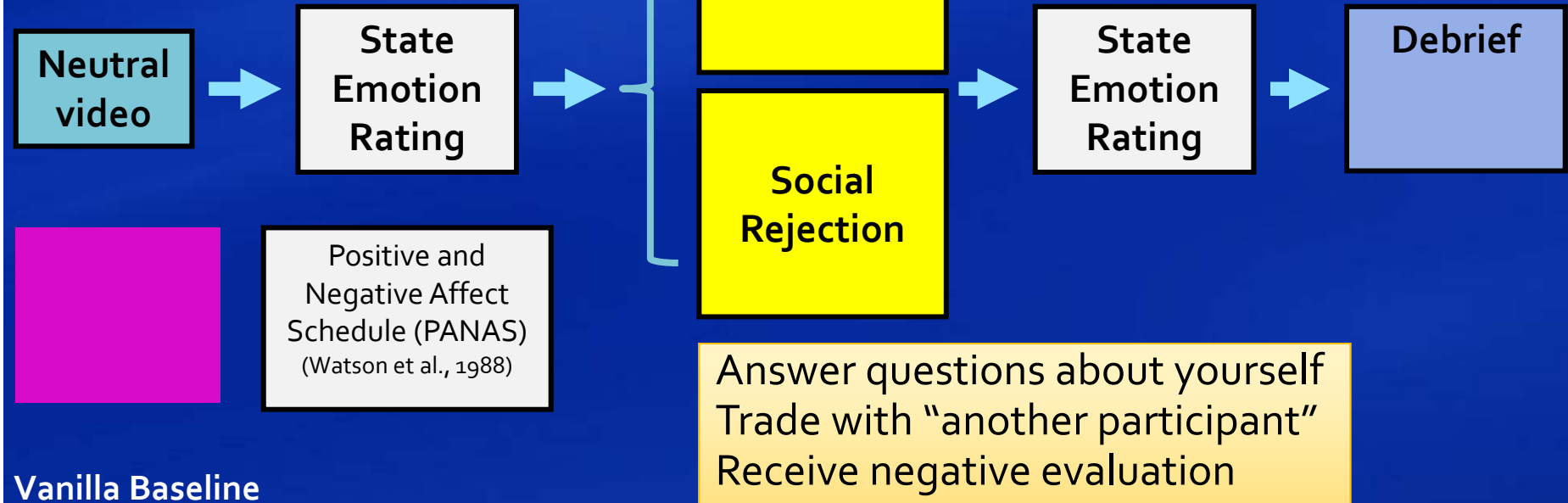
- < 23 on PAI-BOR
- *n* = 44

High BPD

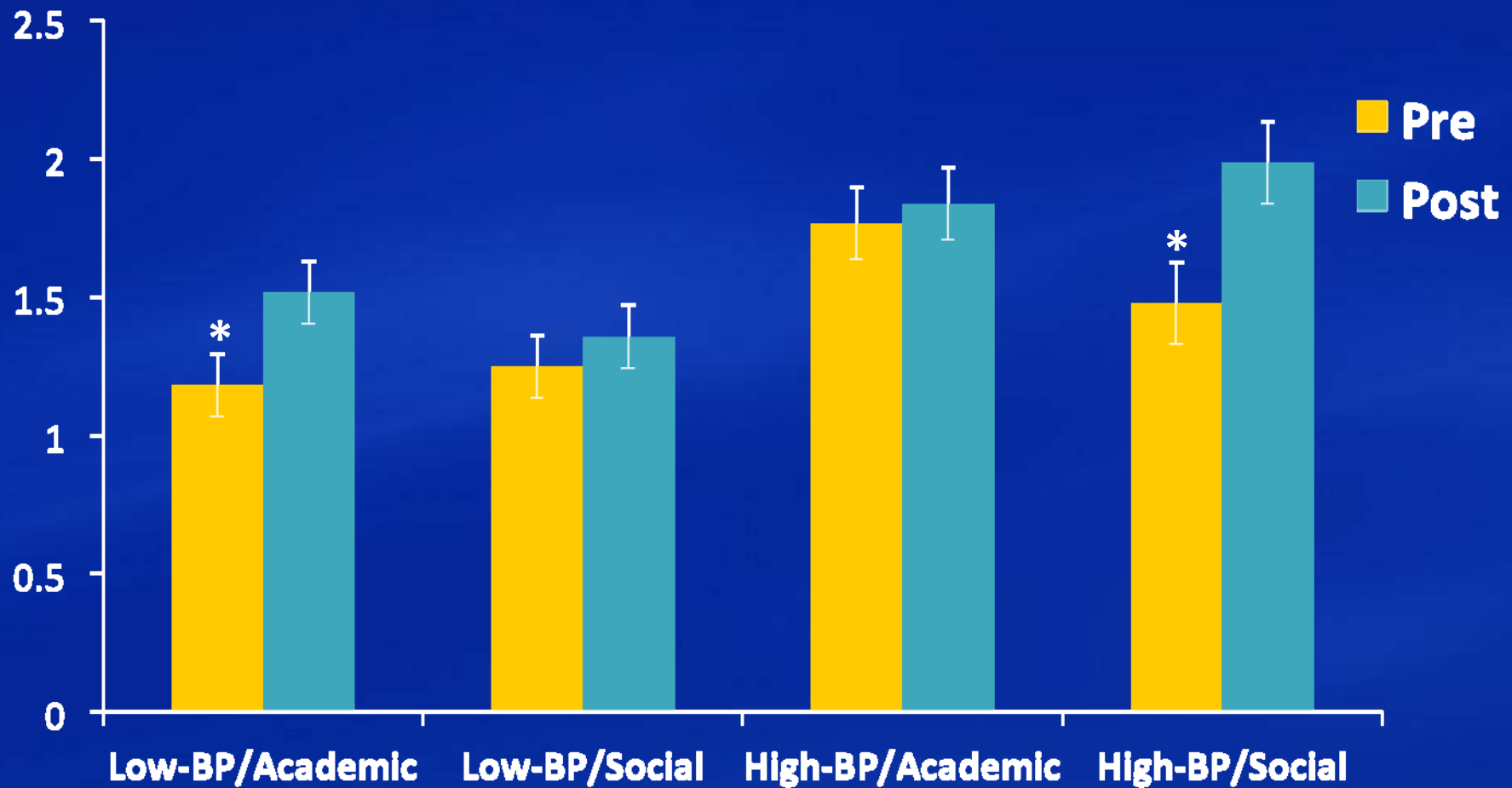
- >38 on PAI-BOR
- *n* = 30

Experimental Design

Write an essay
Trade with "another participant"
Receive negative evaluation



Negative Emotional Reactivity



Group x Condition x Time $F(1, 70) = 6.24^*$, $\eta_p^2 = .08$

Does this emotional reactivity contribute to social problem solving deficits in BPD?

Dixon-Gordon, K. L., Chapman, A. L., Lovasz, N., & Walters, K. N. (2011). Too upset to think: The interplay of borderline personality features, negative emotions, and social problem solving in the laboratory. *Personality Disorders: Theory, Research and Treatment*, 2(4), 243-260.

Social Problem Solving in BPD

Interpersonal difficulties have been associated with deficits in **social problem solving (SPS)**

(Davila, Hammen, Burge, Daley, & Paley, 1996; Metts & Cupach, 1990)

Individuals with BPD...

- **More passive and fewer active solutions**

(Kehrer & Linehan, 1996; Linehan et al., 1987)

- **Fewer active / adaptive solutions**

(Zeigler-Hill & Abraham, 2006)

- **Impulsive or careless problem solving styles**

(McMurrin, Duggan, Christopher, & Huband, 2007)

- **Negative problem orientation** (Bray et al., 2007)

Emotions & Social Problem Solving

SPS deficits may be **emotion-dependent**

- **Negative emotion inductions preceded poor SPS**
(Mitchell & Madigan, 1984)
- **SPS has been associated with levels of dysphoria**
(Heppner & Anderson, 1985)

Hypotheses

- **1:** BPD features would be associated with emotional reactivity to rejection
- **2:** BPD features would be associated with decrements in SPS in response to rejection
- **3:** Emotional reactivity would partially mediate the relationship between BPD features and SPS

Participants

- Undergraduates (N = 287) completed a measure of BPD symptoms (PAI-BOR)
- Female & between ages of 18 and 60 years
- Mean age 21.59 (*SD* = 5.57)
- 44% White, 37% Asian/Asian Canadian

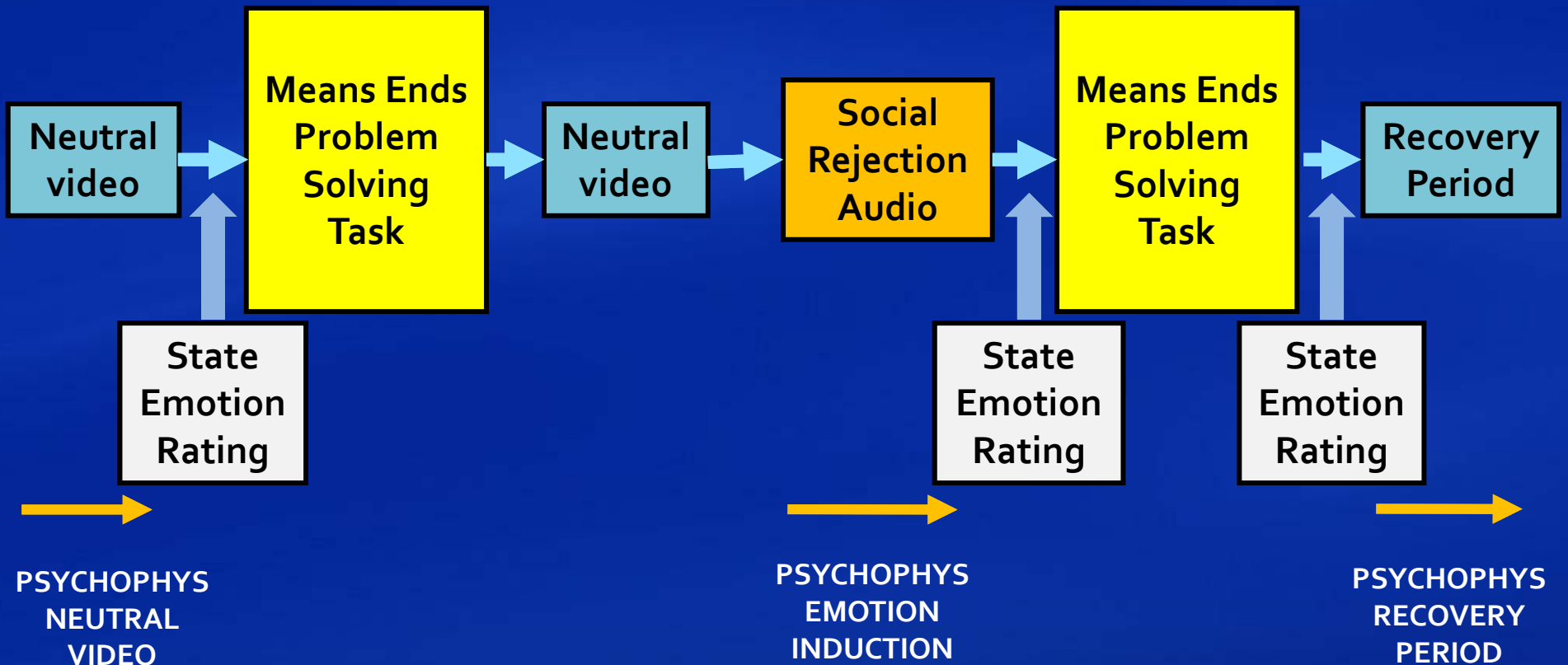
Groups

Low BPD	Mid BPD	High BPD
<ul style="list-style-type: none">• < 23 on PAI-BOR• <i>n</i> = 29	<ul style="list-style-type: none">• 23-38 on PAI-BOR• <i>n</i> = 32	<ul style="list-style-type: none">• > 38 on PAI-BOR• <i>n</i> = 26

Experimental Design

MEPS
Participant to brainstorm the middle of the story, and the quantity and relevance of solutions are coded
Yields three scores
1. relevant/irrelevant (ICC = .93)
2. active/passive (ICC = .91)
3. inappropriate means (ICC = .72)

5 min imaginal audio recording



Measures of Current Emotional State

Measure

PANAS

(Watson et al., 1988)

Skin Conductance Response (SCRs)

Heart Rate Variability (HRV)

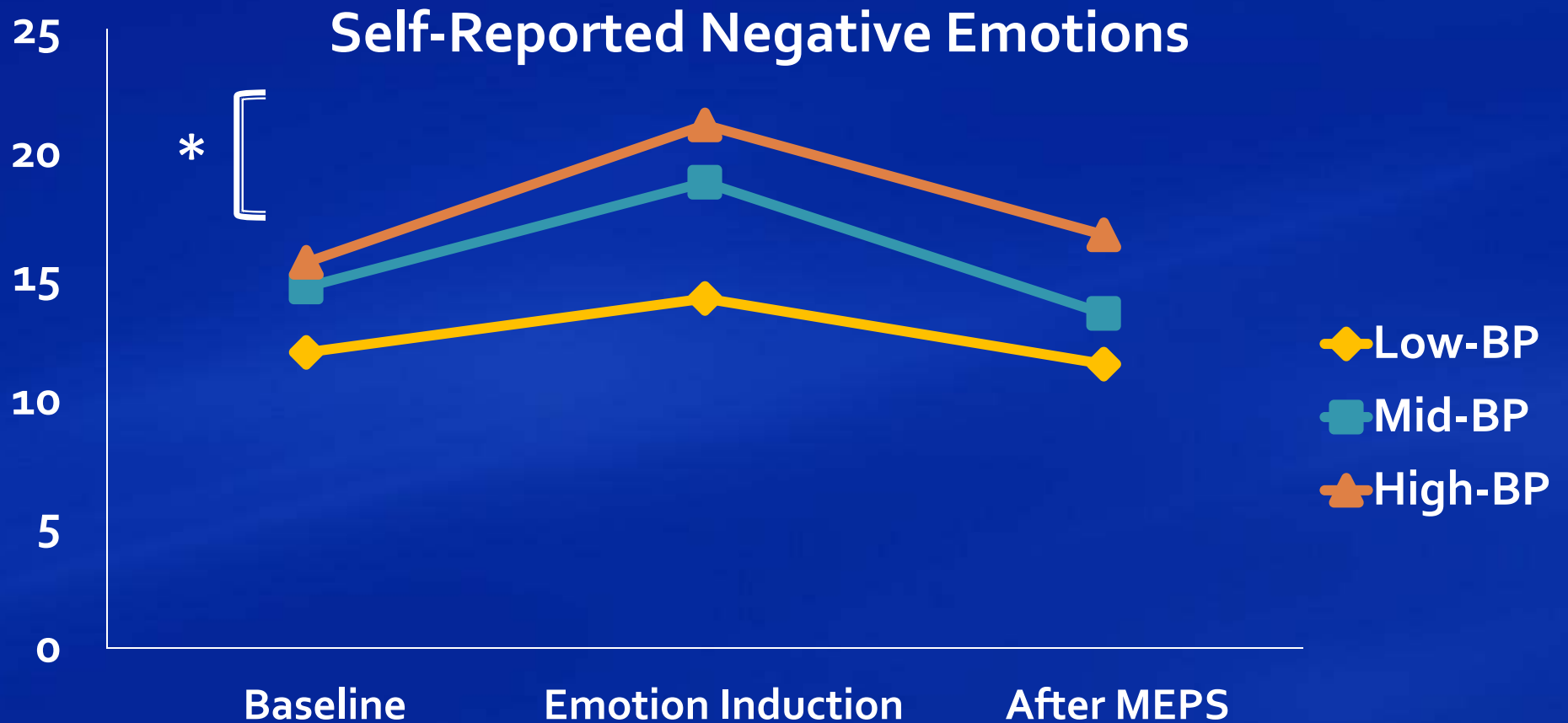
Assesses...

Negative emotional state

Skin conductance responses associated with emotional arousal

Beat to beat variability, associated with parasympathetic activation

Emotional Reactivity

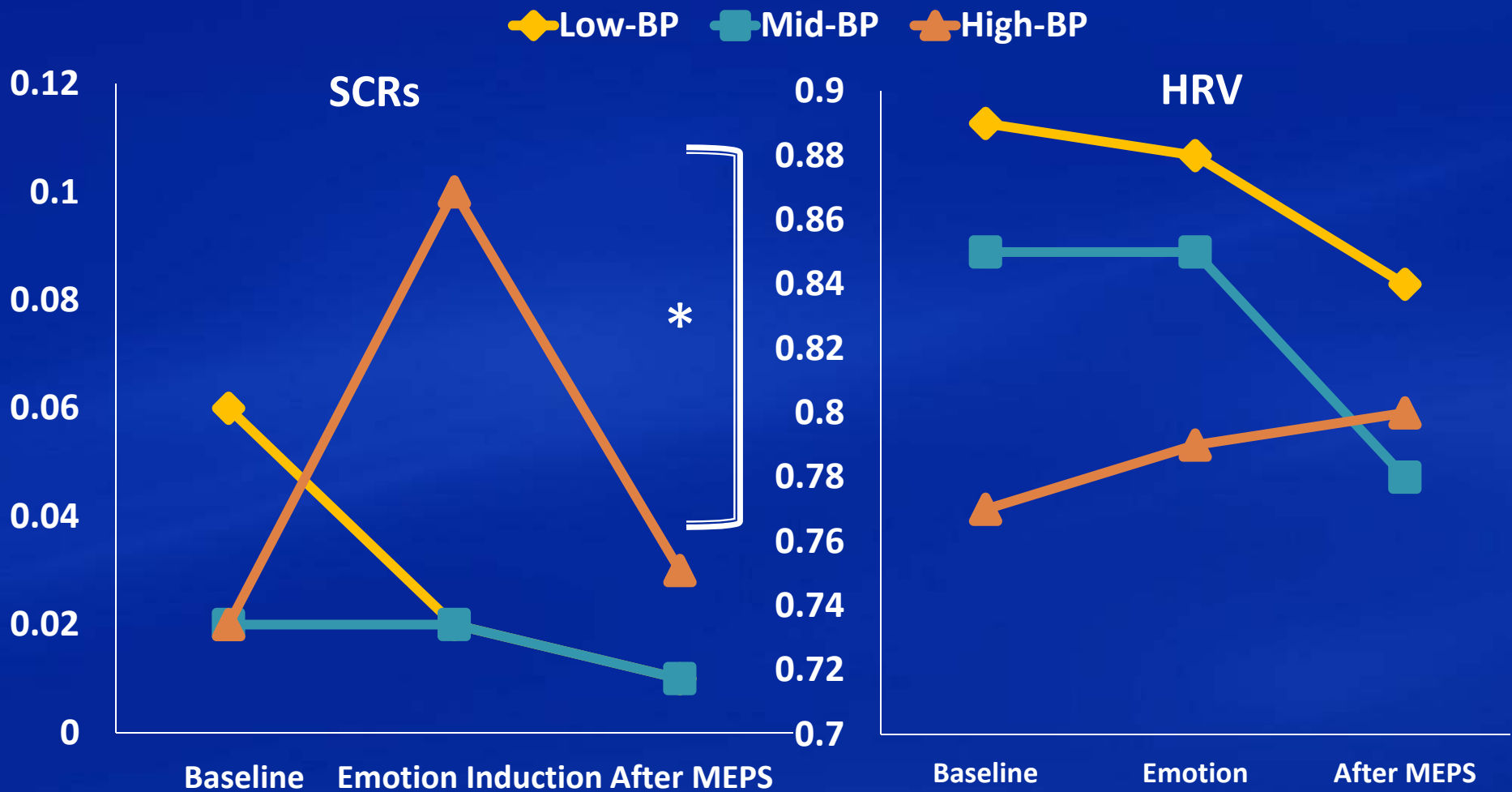


Time $F(2, 81) = 26.87^{***}, \eta_p^2 = .40$

Group $F(2, 82) = 10.17^{***}, \eta_p^2 = .20$

Group x Time $F(4, 164) = 2.72^*, \eta_p^2 = .06$

Emotional Reactivity



Time $F(2, 62) = 2.52^*, \eta_p^2 = .10$

Group $F(2, 62) = 2.52^*, \eta_p^2 = .10$

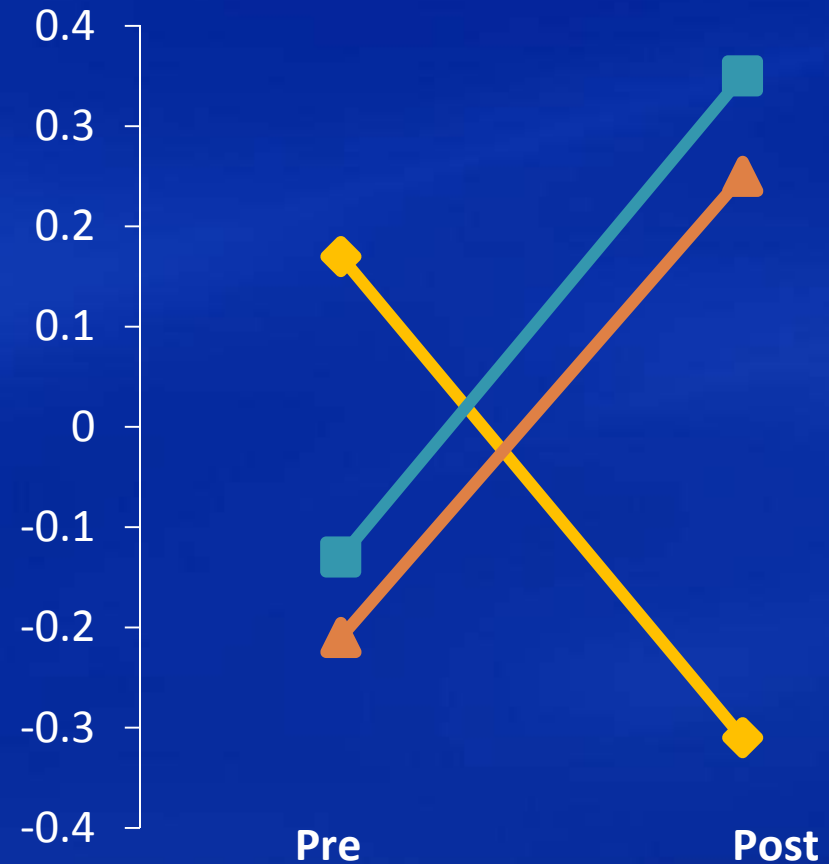
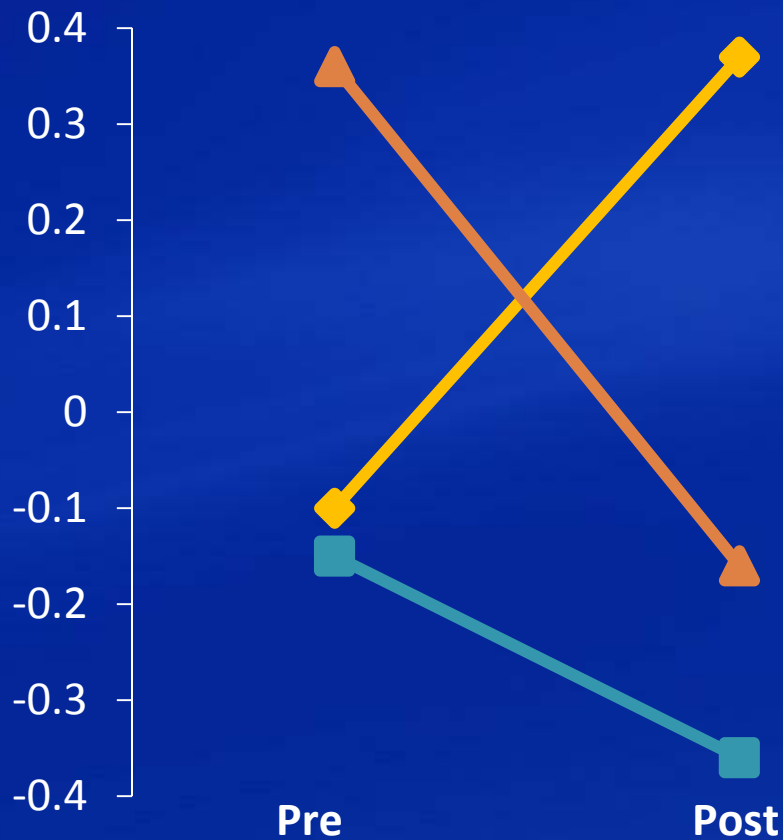
All p 's > .45

Social Problem Solving Strategies

Relevant

Inappropriate

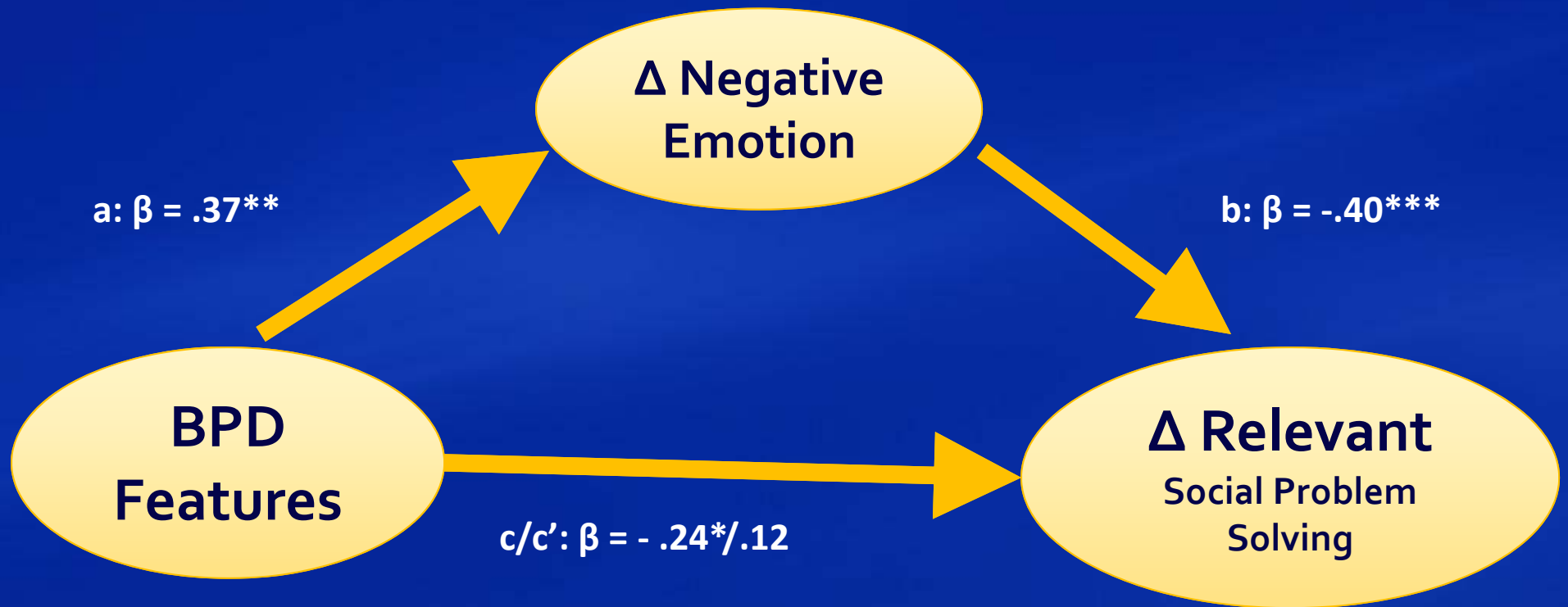
Low-BP Mid-BP High-BP



Group x Time $F(2, 75) = 5.85^{**}, \eta_p^2 = .14$

Group x Time $F(2, 75) = 3.70^*, \eta_p^2 = .08$

Emotional Reactivity as a Mediator



Implications

Conclusions

- Heightened reactivity to social stimuli in high-BPD samples
- This emotional reactivity impairs social problem solving in high-BPD samples

Next steps

- Emotional reactivity vs. emotion regulation
- BPD samples

Do emotion regulation difficulties contribute to responses to social rejection in BPD?

Dixon-Gordon, K. L., Gratz, K. L., Breetz, A., & Tull, M. T. (2013). A laboratory-based examination of responses to social rejection in borderline personality disorder: The mediating role of emotion dysregulation. *Journal of Personality Disorders, 27*, 157-171.

Emotional and Interpersonal Dysfunction

Emotion regulation

- **Theorized to transact with interpersonal functioning** (e.g., Gunderson & Lyons-Ruth, 2008; Linehan, 1993)
- **Linked to better social functioning** (Lopes et al., 2005)
- **Buffers from relational conflict** (Gyurak & Ayduk, 2008)
- **Partially accounts for mentalization deficits in BPD** (Sharp et al., 2011)
 - **Emotion dysregulation may deplete resources necessary for effective interpersonal functioning** (Baumeister et al., 1998)

Aims

- **1: Examine effects of BPD on emotional responses to social rejection**
- **2: Examine effects of BPD on cognitive responses to social rejection**
- **3: Explore whether emotion dysregulation mediates the relationship between BPD and responses to social rejection**

Participants

- Mean age 25 ($SD = 10.50$)
- 63% female
- 45% White, 25% African American

Groups

BPD

- 5+ BPD sx
- No current SUD, psychosis, or mood episode
- $n = 53$

Control

- ≤ 3 BPD sx
- No current SUD, psychosis, or mood episode
- $n = 34$

Measures

Trait Measures

Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004)

State Measures

PANAS

(Watson et al., 1988)

Distress Composite from the PANAS

(Watson et al., 1988)

Cognitive Responses to Rejection

(Williams et al., 2000)

Assesses...

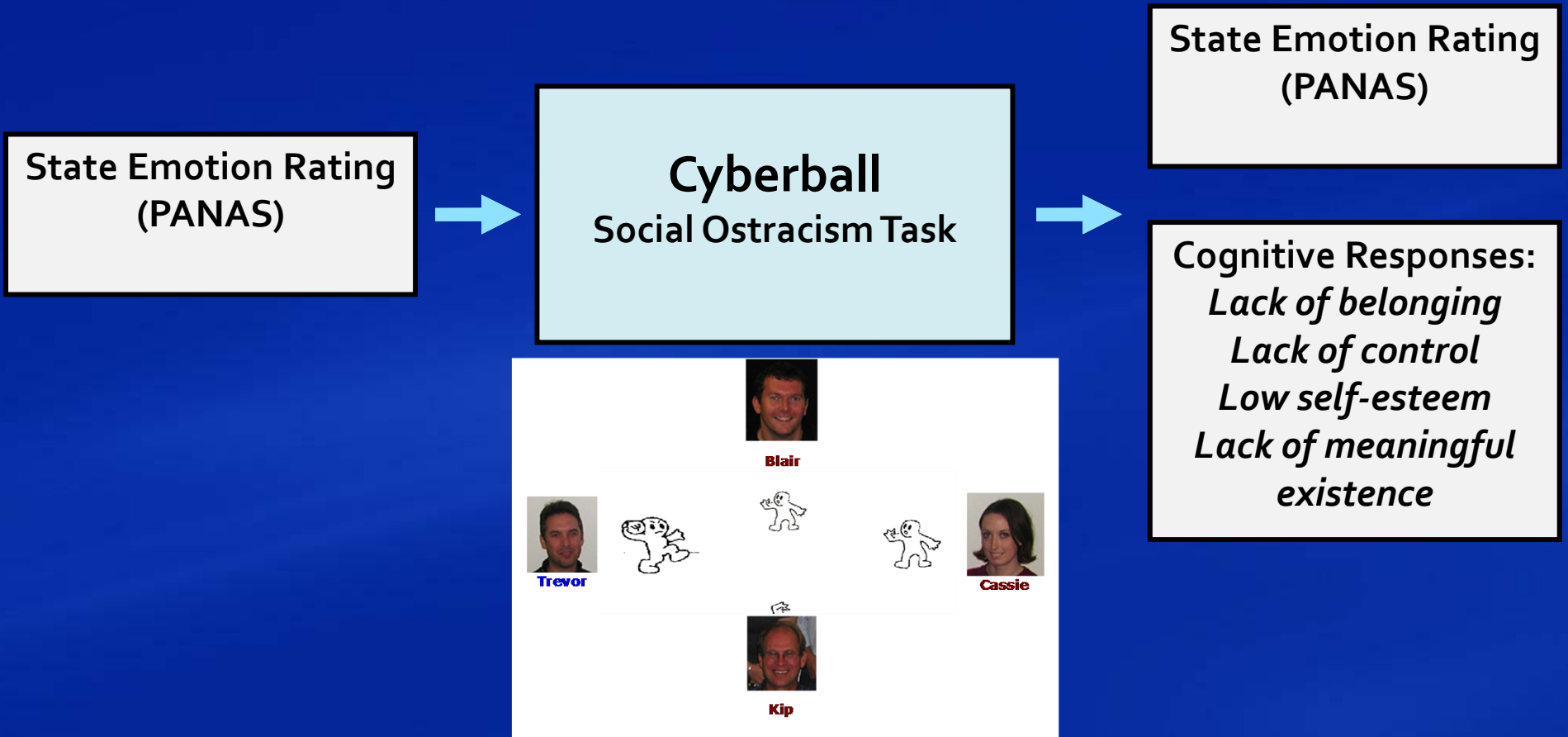
Emotion dysregulation

Negative affect

“Distress” & “Upset”

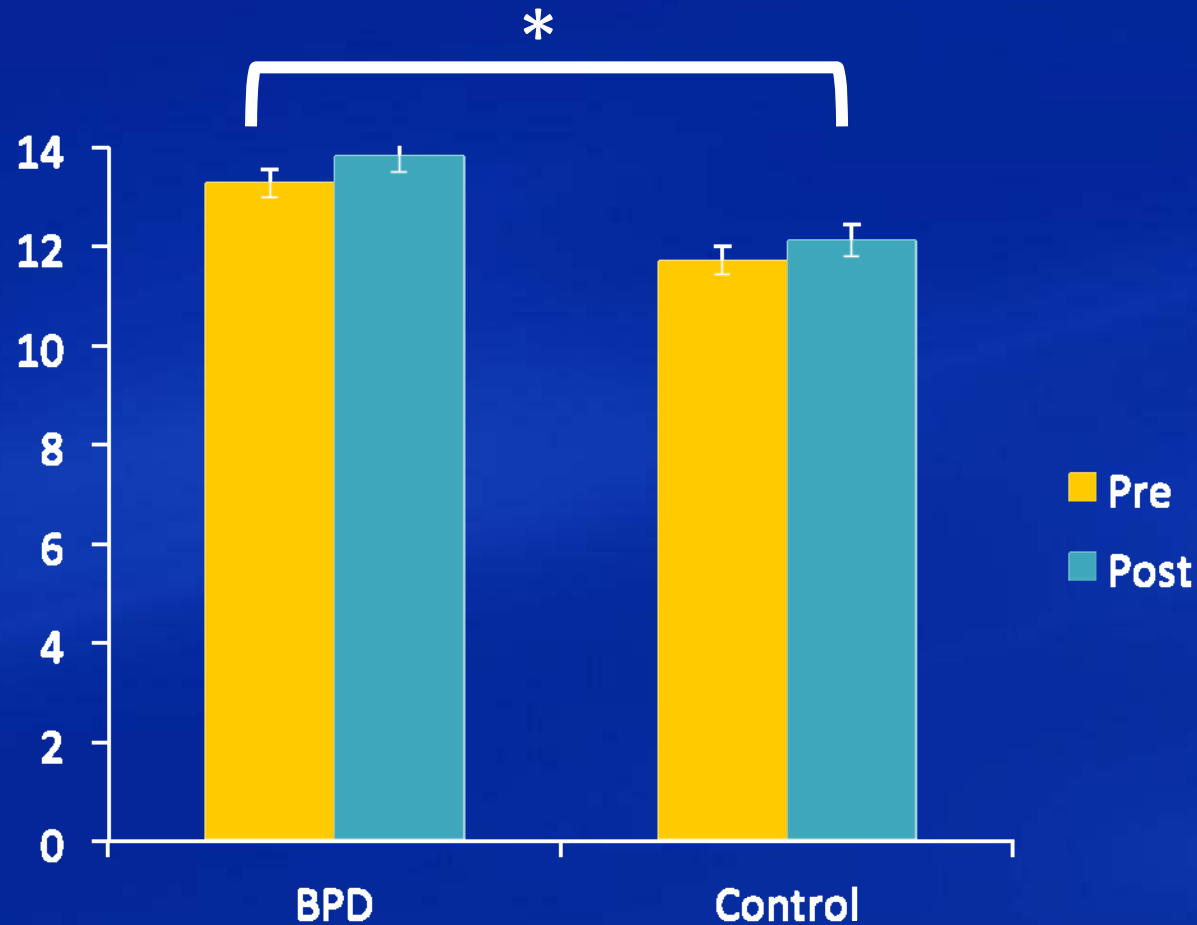
- Lack of belonging
 - Lack of control
 - Low self-esteem
 - Lack of meaningful existence
-

Experimental Design



- Told they are playing with 3 "other participants"
- After receiving a toss from each player, participant is "ostracized"
- Continues for 30 ball tosses (~5 min)

Negative Emotional Responses



Overall effect of Time

$t = 1.67^*$

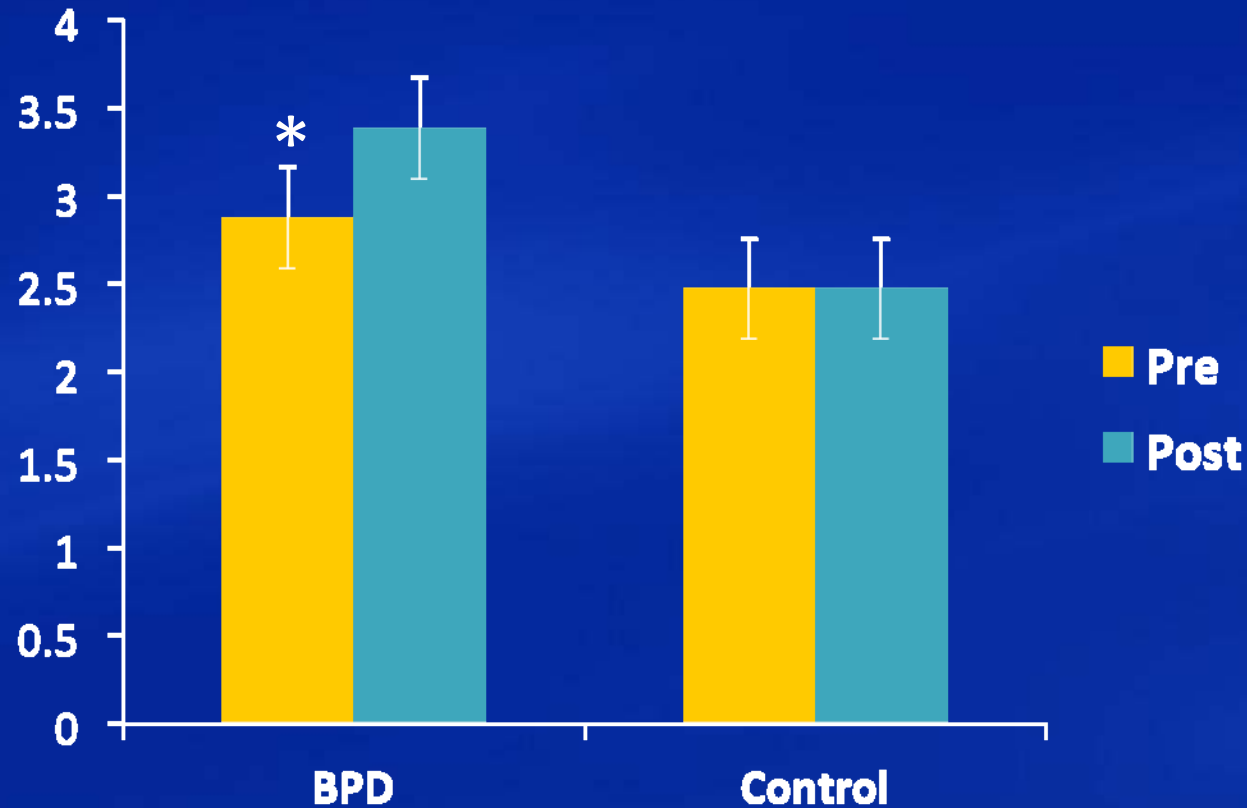
Overall effect of Group

$F_s > 7.00^*$

Group Differences in Reactivity

$F = 1.33, ns$

Distress Composite Responses



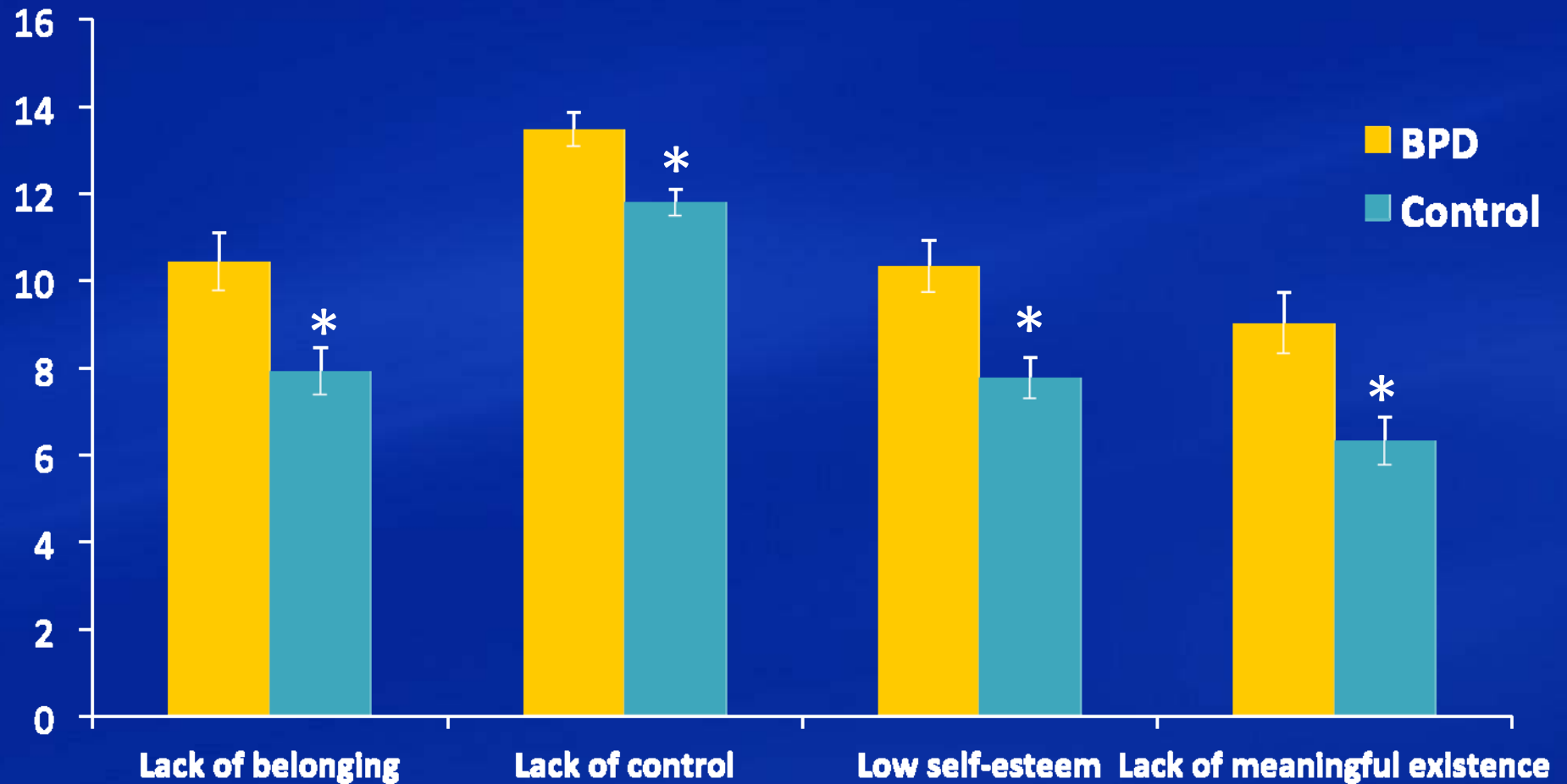
Overall effect of Time

$t = 2.23^*$

Group Differences in Reactivity

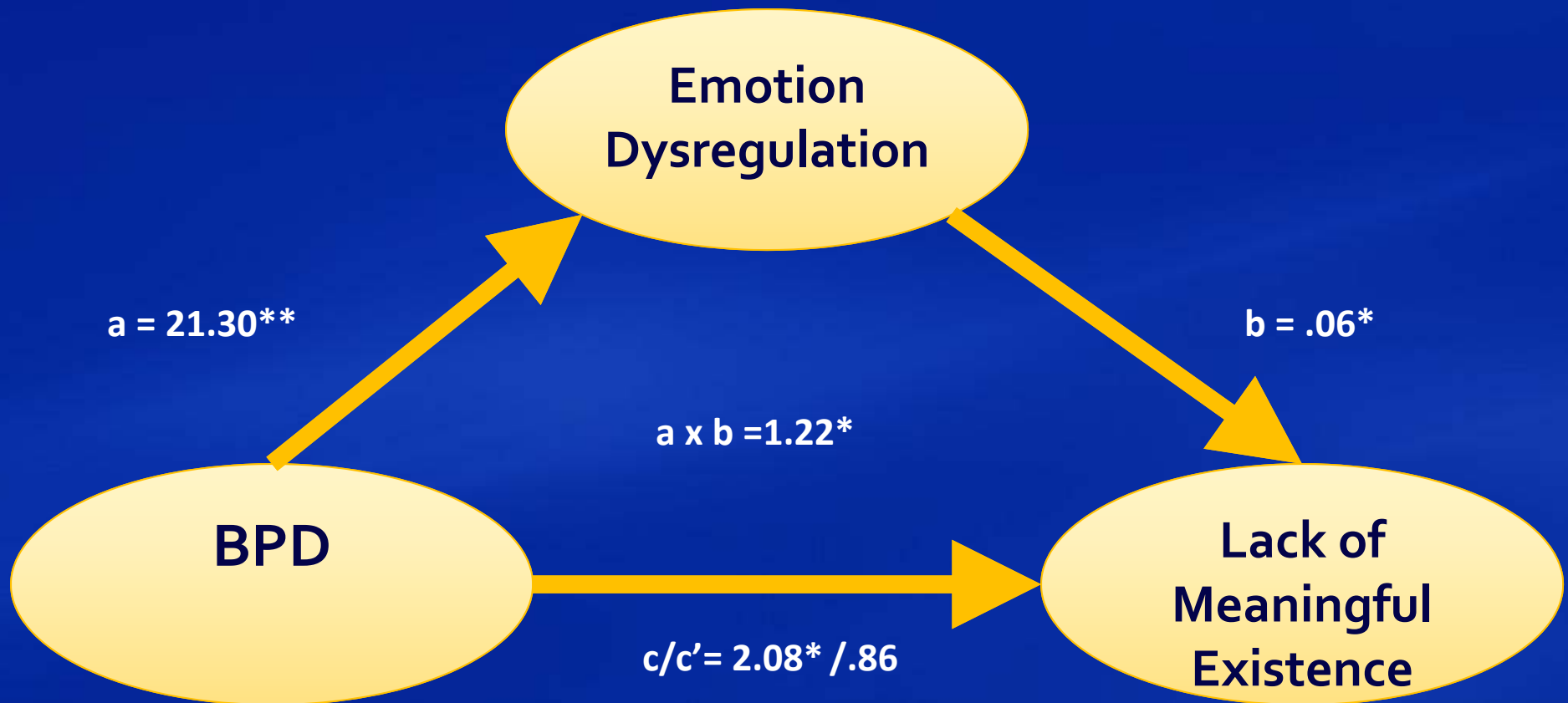
$F = 11.36^*, \eta_p^2 = .12$

Cognitive Responses

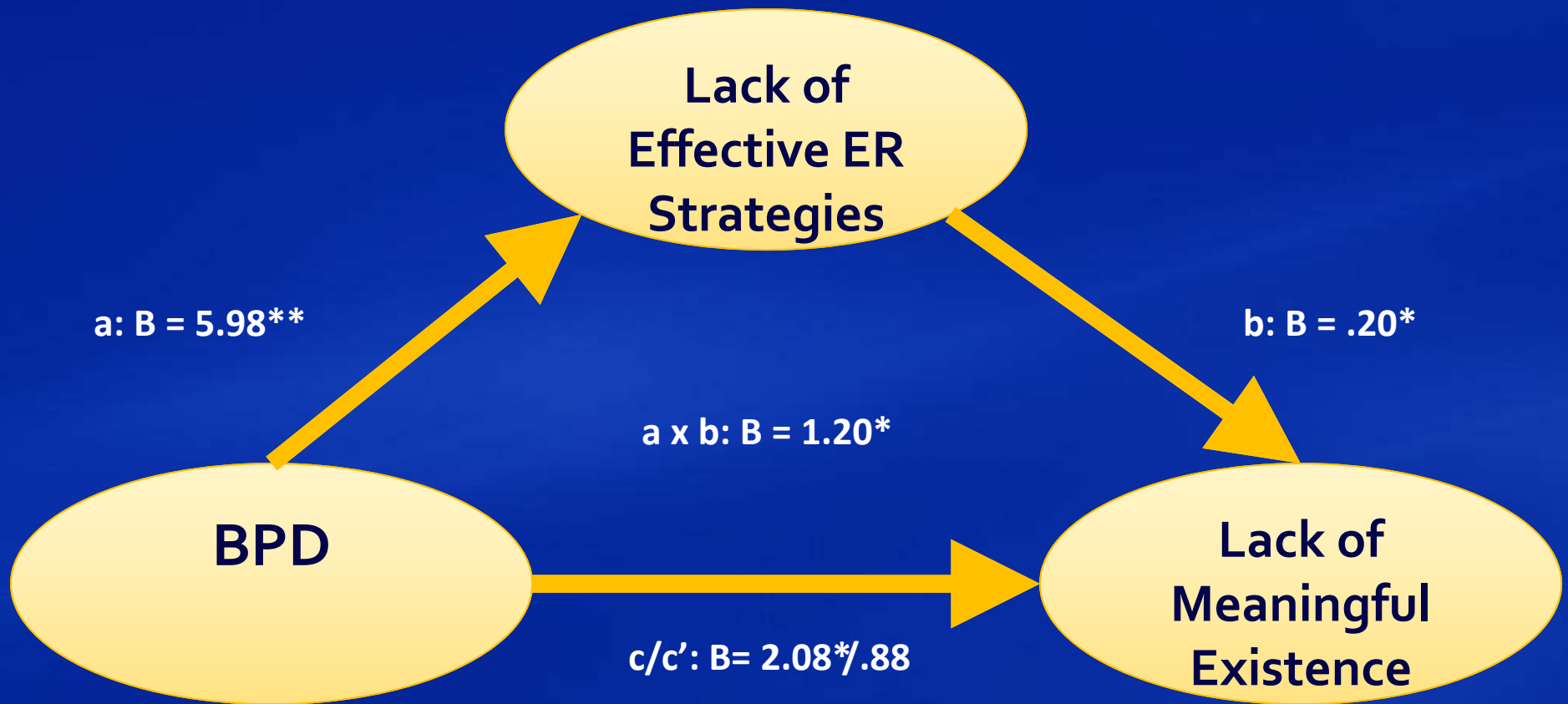


$F_s = 3.83-11.11^*$, $\eta_p^2s = .04-.12$

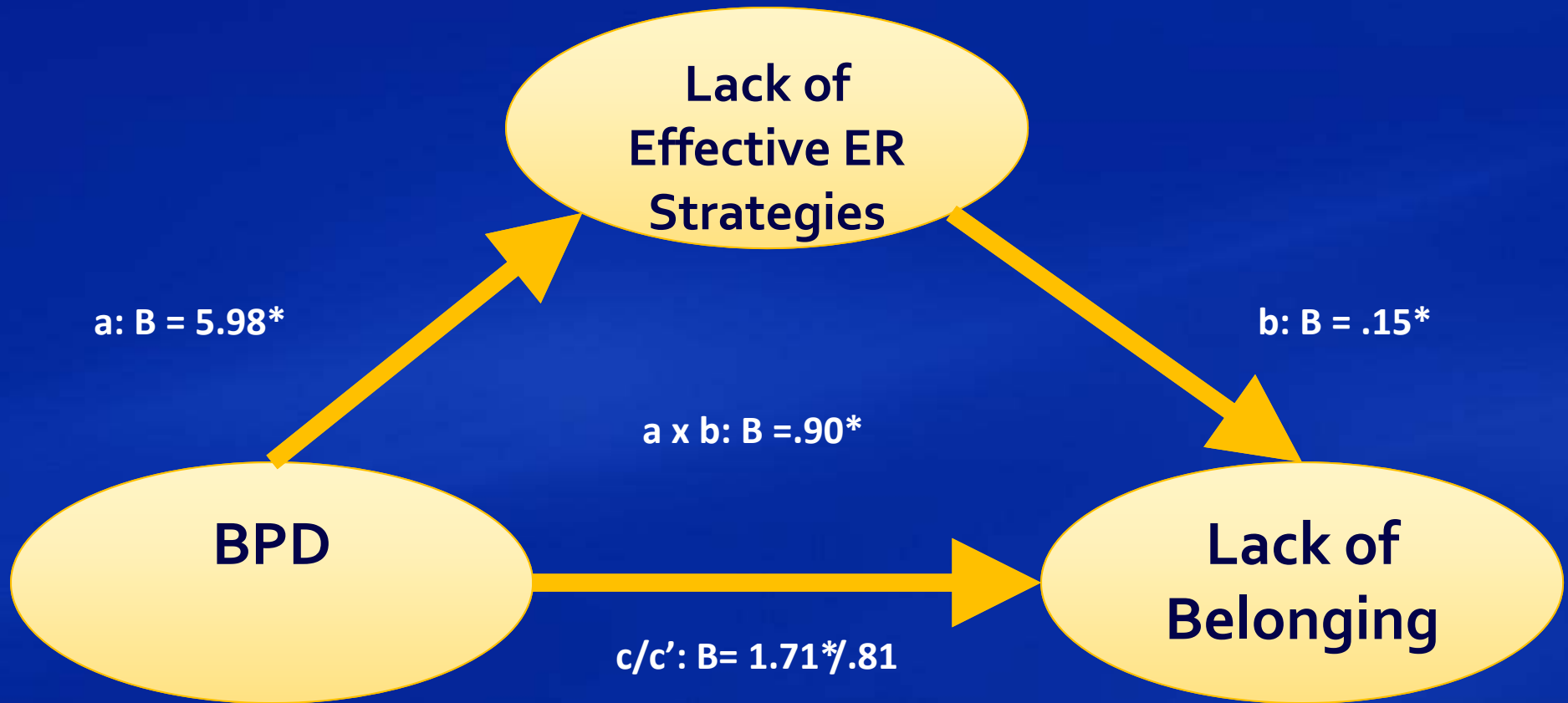
Emotion Dysregulation as a Mediator



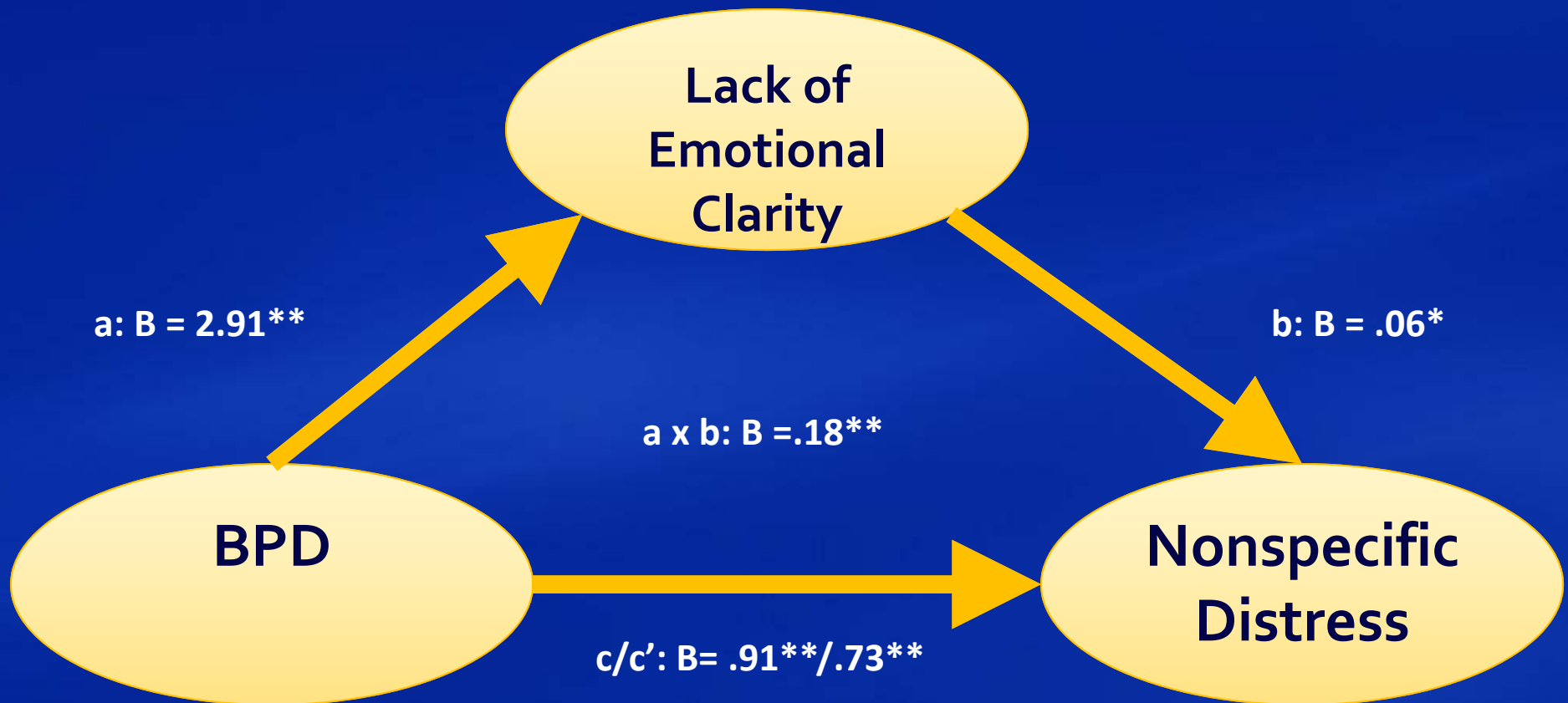
Emotion Dysregulation as a Mediator



Emotion Dysregulation as a Mediator



Emotion Dysregulation as a Mediator



Implications

Emotion dysregulation may contribute to responses to interpersonal stressors in BPD

- Lack of emotional clarity may actually contribute to the heightened distress
- Lack of emotion modulation strategies may lead to some of the cognitive responses to interpersonal triggers

Suggests a pathway by which to enhance emotional and interpersonal functioning

- Emotional clarity and emotion regulation strategies may reduce ineffective responses to interpersonal triggers in BPD

Implications of Laboratory Studies

- Individuals with BPD are especially emotionally reactive to social rejection stimuli
 - Such emotional reactivity in BPD may contribute to state-dependent interpersonal deficits
 - Emotion dysregulation may account for the relationship between BPD and maladaptive responses to interpersonal triggers
- Suggests a need for better emotion regulation skills

Does emotion regulation skills training enhance interpersonal functioning in BPD? A pilot study

Dixon-Gordon, K. L., Chapman, A. L., & Turner, B. J. (under review). A preliminary investigation of the specificity of effects of dialectical behavior therapy emotion regulation skills training.

Supported by the American Group Psychotherapy Foundation

Emotion Dysregulation

- Emotion dysregulation is a key mechanism in BPD
- DBT skills training alone has yielded benefits for patients with BPD (e.g., Harley, Baity, Blais, & Jacobo, 2007)
- Limited research on the actual effects of ER skills on emotional processes or aspects of emotion regulation specifically

Aims

To examine whether DBT Emotion Regulation skills training has unique effects on emotion dysregulation, compared with DBT Interpersonal Effectiveness and a Control Group, and also if it has wider ranging effects on other relevant outcomes.

Hypotheses

- **1: DBT ER would lead to better emotion regulation and less emotional reactivity**
 - *Self-report*
 - *Psychophysiology*
- **2: DBT ER would lead to better interpersonal effectiveness**
 - *Self-report*
 - *Behavioral task*

Treatment Conditions

DBT Emotion Regulation (ER)	DBT Interpersonal Effectiveness (IE)	Attention-Placebo Activities Group (AG)
Model of Emotions	Identifying Relationship Priorities	Psycho-education
Changing Emotions (Problem Solving)	Making Requests (DEAR MAN)	Expressing Emotions
Changing Emotions (Opposite Action)	Strengthening Relationships (GIVE) & Values-Consistent Behavior (FAST)	Medication and Mood
Decreasing Emotional Vulnerability (ABC)	Intensity for Asking/Saying No	Using Diet to Alter Mood
Decreasing Emotional Vulnerability (PLEASE)	Building New Relationships/Ending Destructive Relationships	Using Exercise to Alter Mood
Mindfulness of Current Emotions	Balancing Extremes & Using Validation	Dealing with Stigma

Participants

- Mean age 33.74 ($SD = 11.70$)
- Female, age 19-60
- 57% White, 11% Asian/Asian Canadian
- Stratified by age/BPD severity and randomized

Groups

Emotion Regulation

- 5+ BPD sx
- No mania/psychotic disorder
- $n = 7$

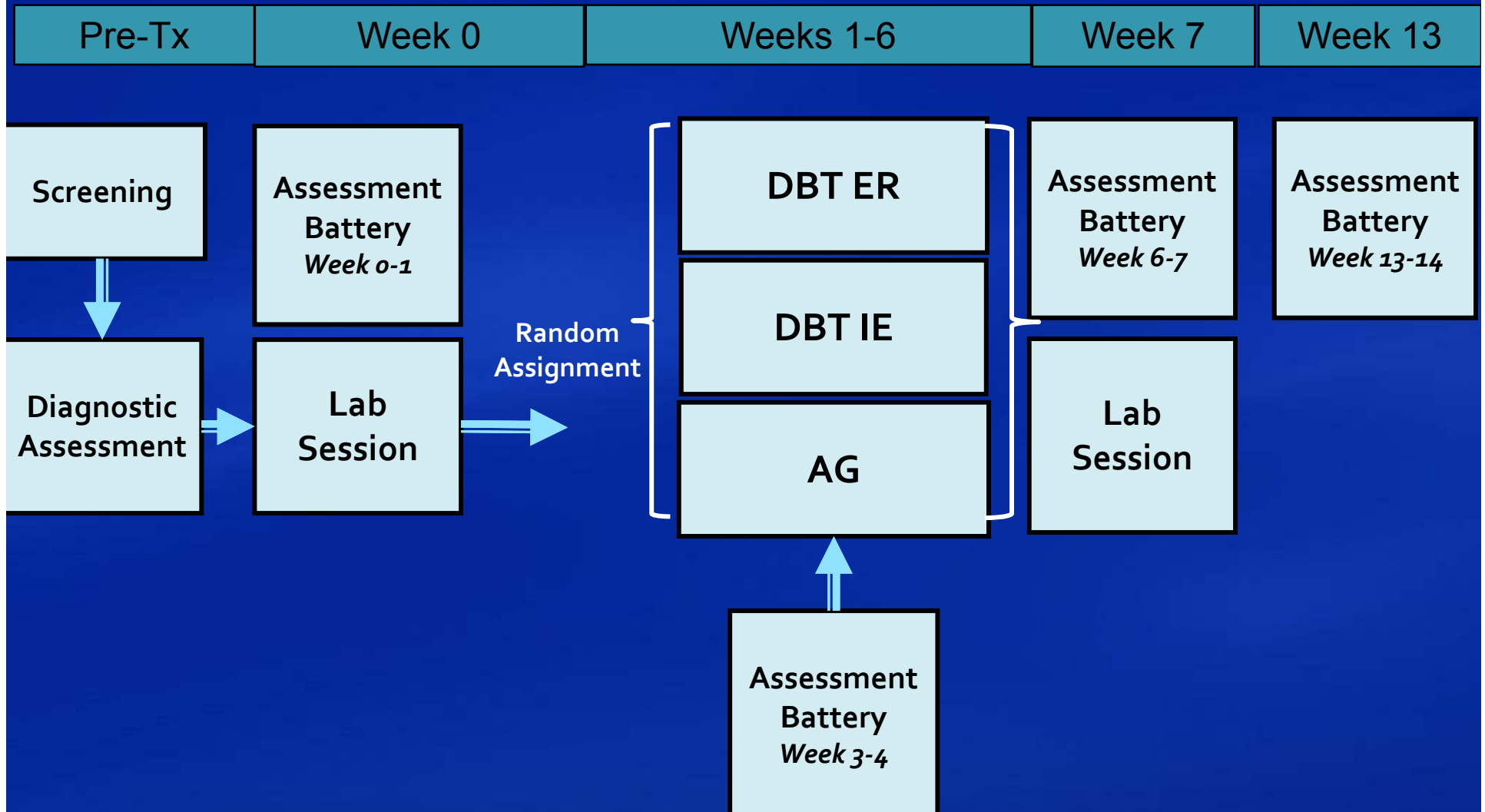
Interpersonal Effectiveness

- 5+ BPD sx
- No mania/psychotic disorder
- $n = 6$

Activities Group

- 5+ BPD sx
- No mania/psychotic disorder
- $n = 6$

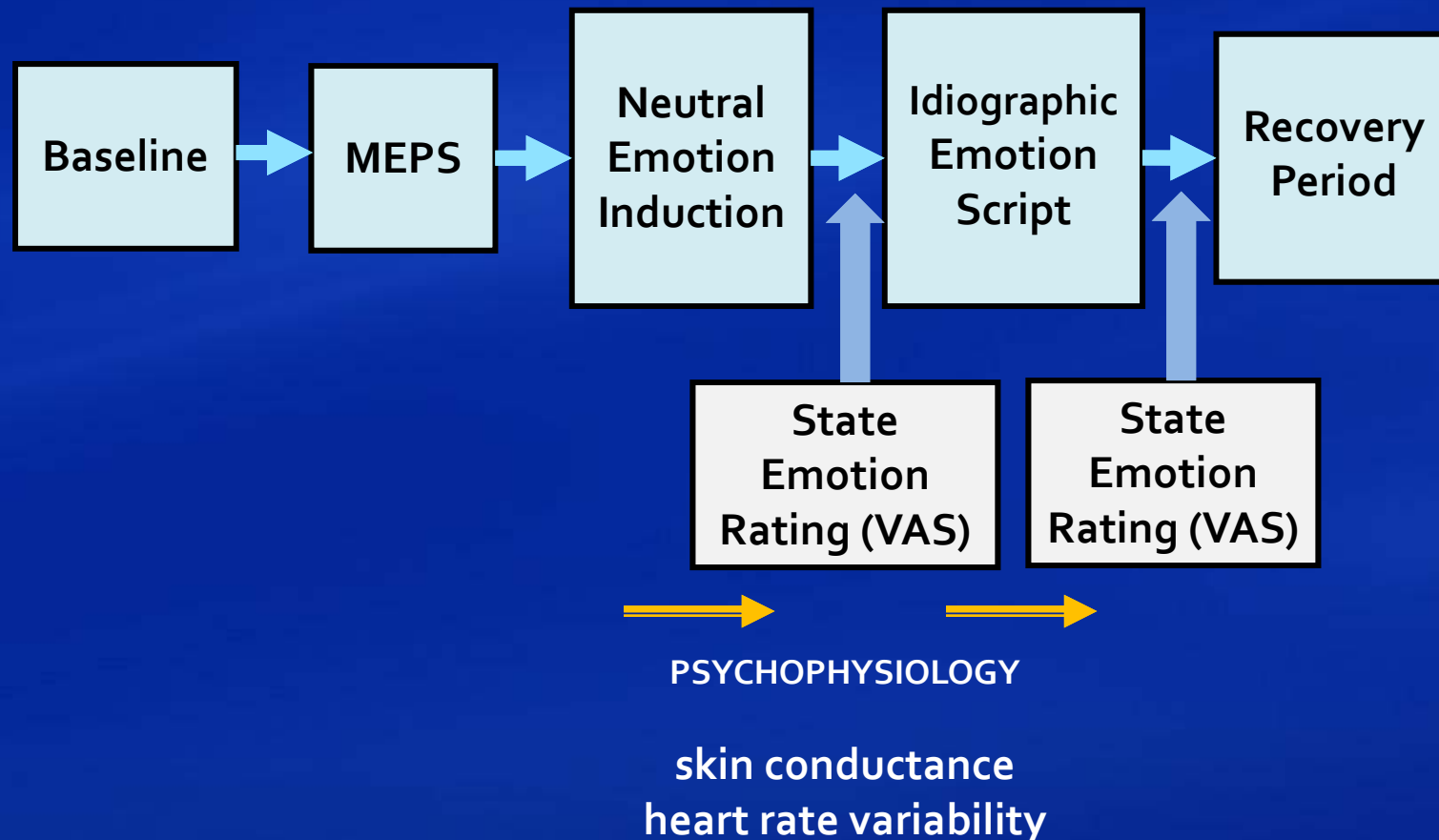
Timeline



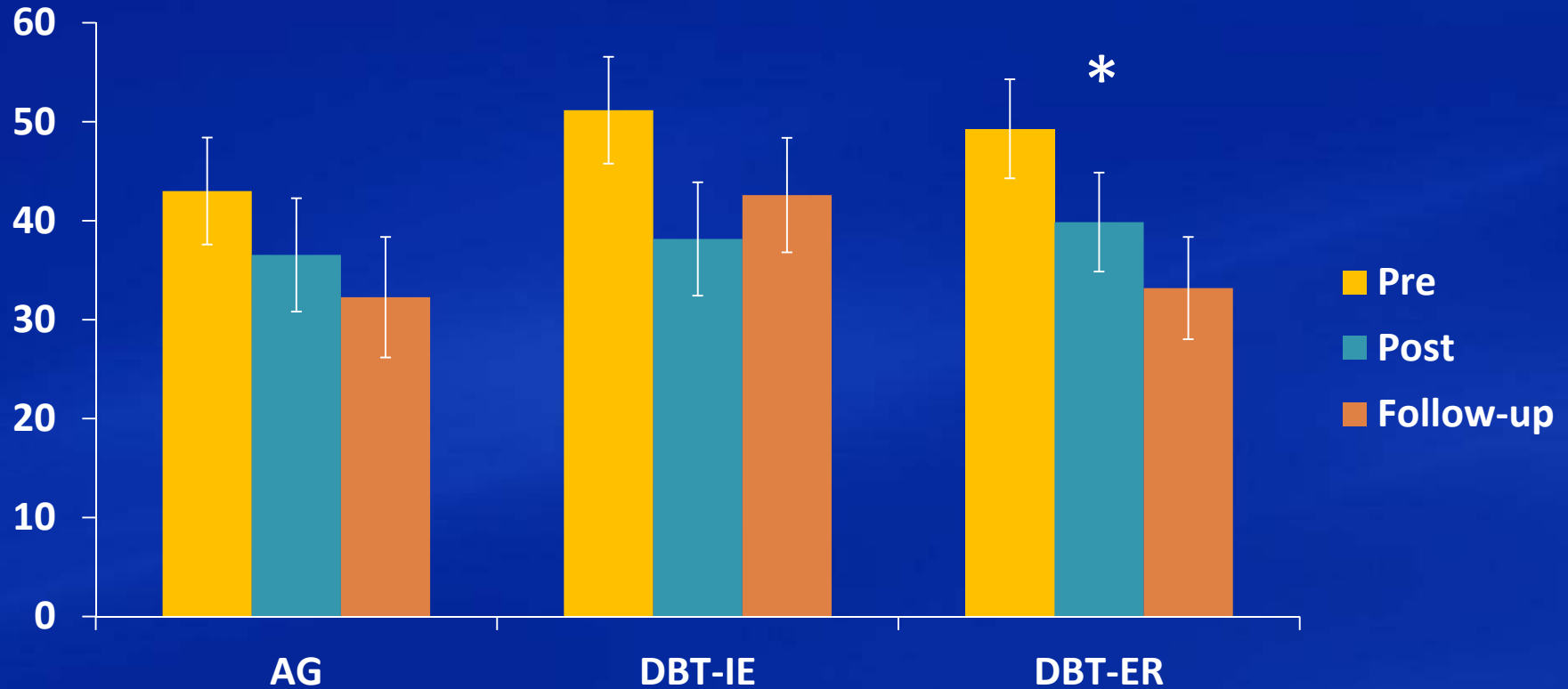
Experimental Design – Lab Session

ICCs .72-.93.

1. Relevant Active
2. Relevant Passive
3. Irrelevant
4. Positive Self Regulation
5. Inappropriate



BPD Symptoms



Group x Time $F = 1.77$

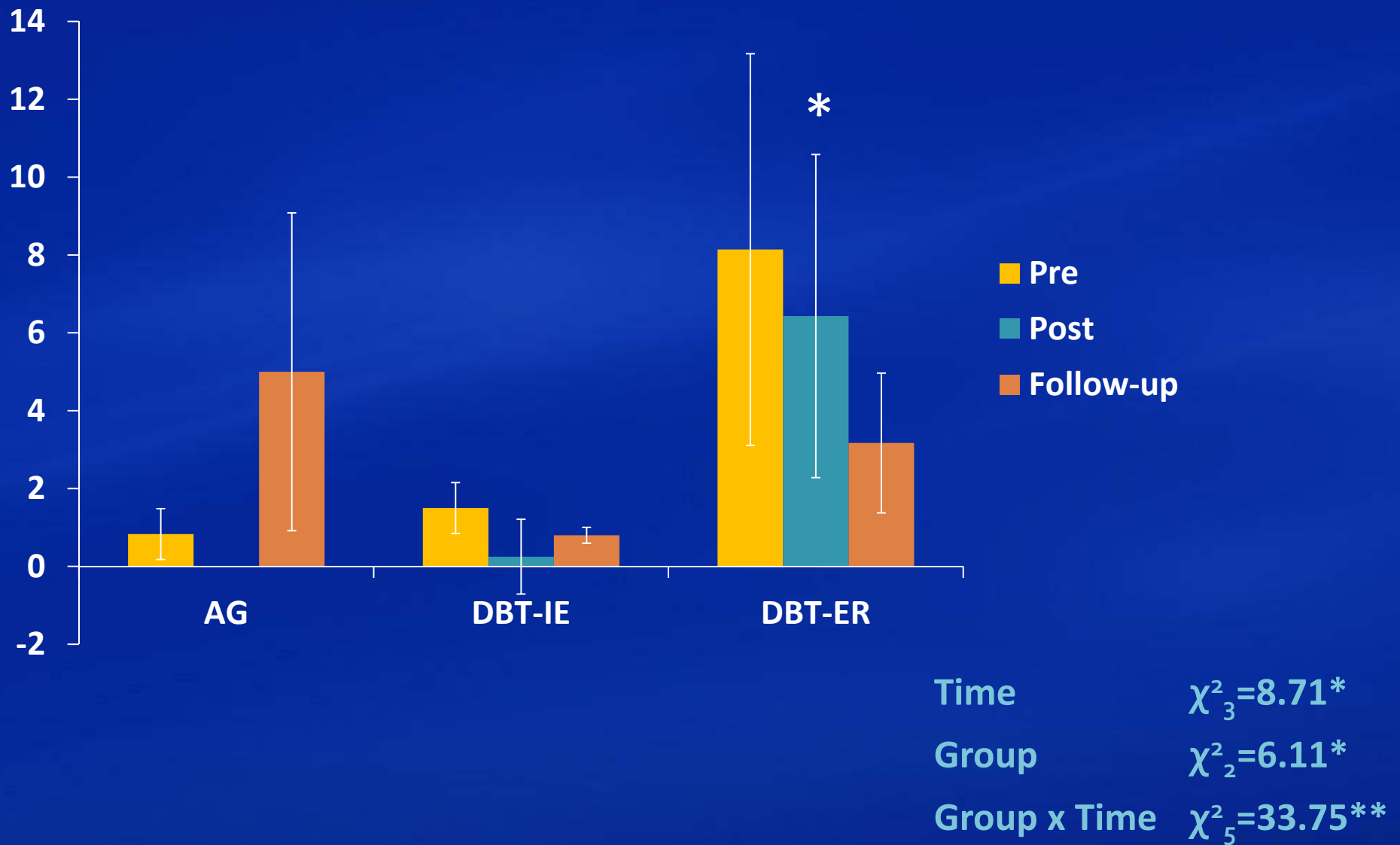
Univariate tests of Time

AG $F = 2.66$

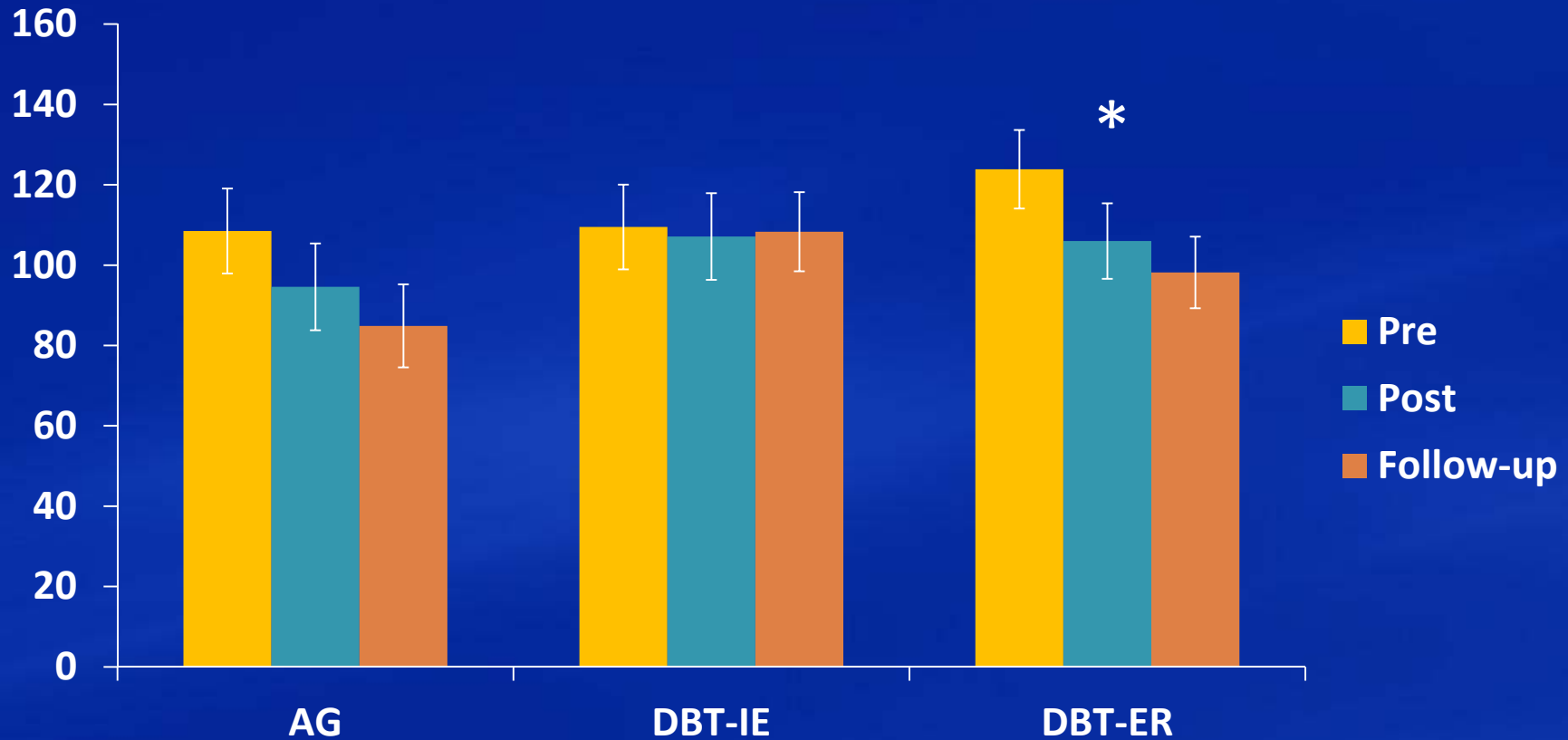
DBT-IE $F = 2.66$

DBT-ER $F = 3.89^*$

Self-harm on the DSHI



Difficulties in Emotion Regulation Scale



Group x Time $F = .85$

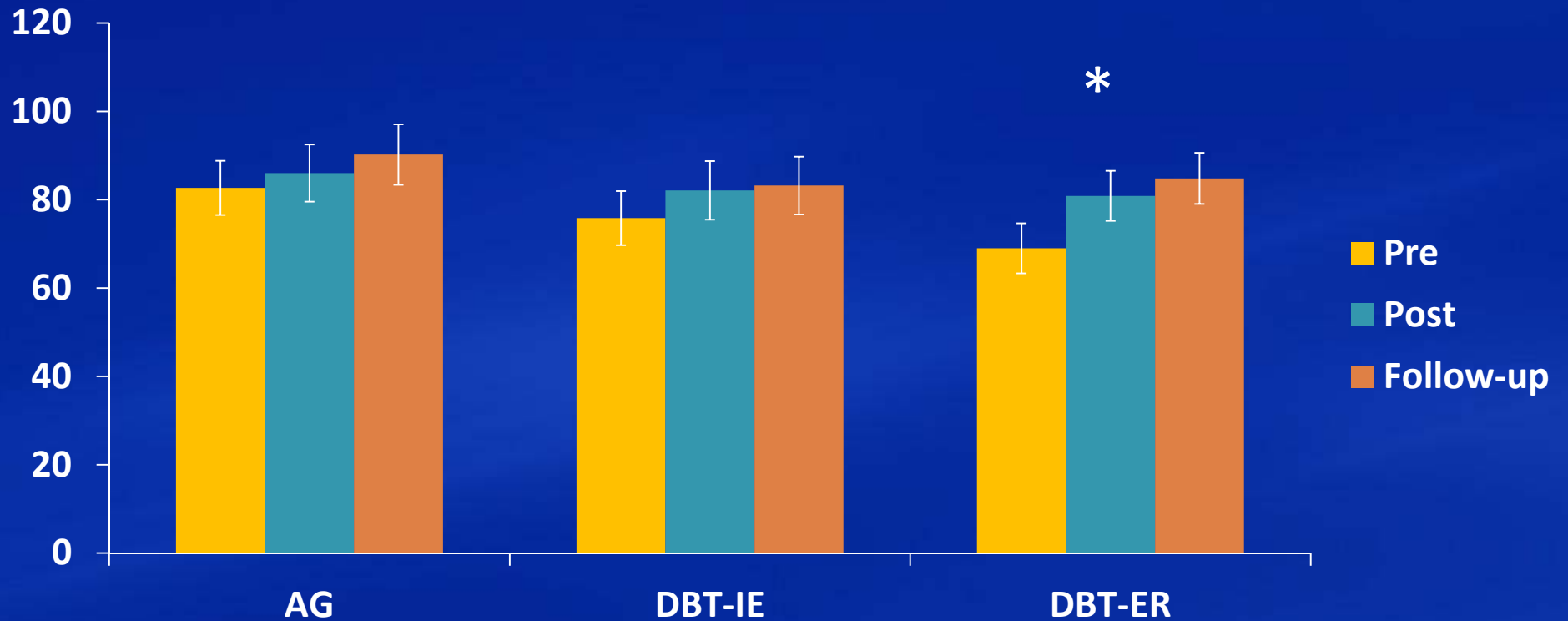
Univariate tests of Time

AG $F = 2.16$

DBT-IE $F = .17$

DBT-ER $F = 4.22^*$

Social Problem Solving Inventory



Group x Time $F = .36$

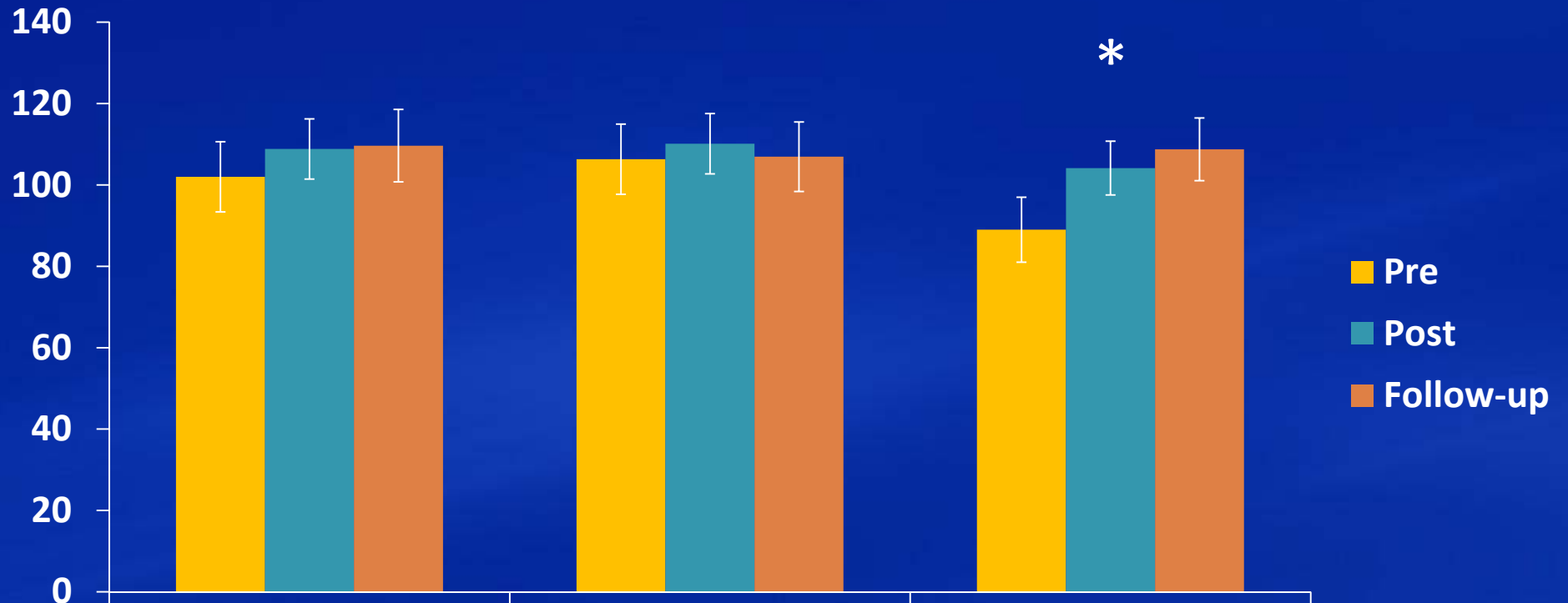
Univariate tests of Time

AG $F = .48$

DBT-IE $F = 1.13$

DBT-ER $F = 4.24^*$

Mindfulness



AG

DBT-IE

DBT-ER

Group x Time $F = 2.95^*$

Univariate tests of Time

AG $F = 1.61$

DBT-IE $F = 2.31$

DBT-ER $F = 6.81^{**}$

Self-Reported Reactivity in the Lab



Group x Time $F = 1.55$

Univariate tests of Time

AG $F = .79$

DBT-IE $F = 2.66$

DBT-ER $F = 8.10^*$

Means-Ends Problem Solving



Active

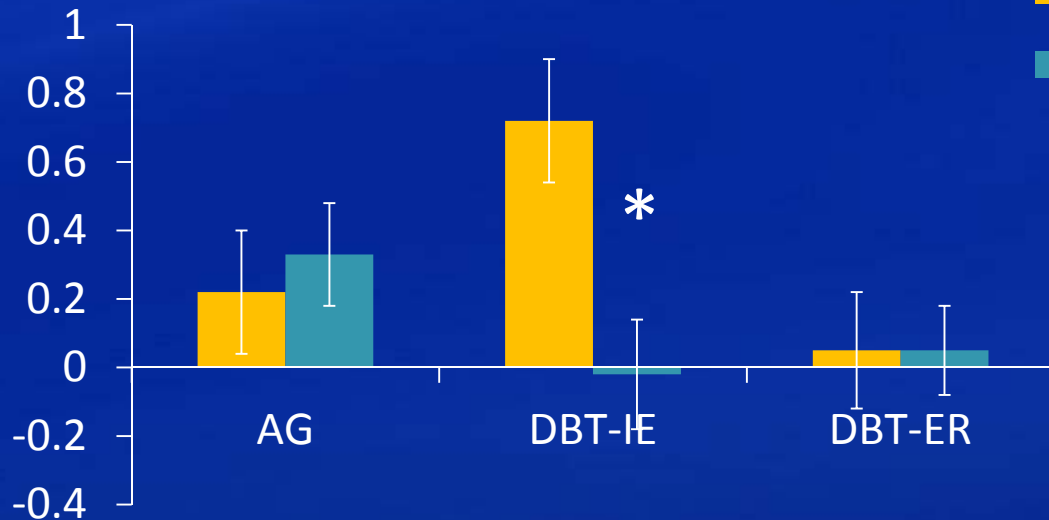
Group x Time $F = 1.93$

Univariate tests of Time

AG $F = .07$

DBT-IE $F = .79$

DBT-ER $F = 7.12^*$



Inappropriate

Group x Time $F = 4.58^*$

Univariate tests of Time

AG $F = .24$

DBT-IE $F = 11.17^{**}$

DBT-ER $F = .00$

Implications

Conclusions

- Possible for patients to benefit from 6 weeks of DBT ER skills training
- ER skills seem to target ER deficits
- ER skills training could have broader ranging impacts than other skills modules

Future steps

- Larger scale study
- May other skills modules be more efficacious if ER skills are taught first?

General Conclusions

Interpersonal and emotional dysfunction in BPD are linked

- High BPD features are associated with heightened reactivity to social (not non-social) stressors
- Social problem solving problems in BPD only emerged under conditions of distress
- Emotion regulation difficulties lead to some emotional and cognitive responses to social rejection
- DBT emotion regulation skills improves emotion regulation domains, and results in relatively more improvement in NSSI and mindfulness

Future steps

- Examine social consequences of emotion regulation strategies in BPD
- Replicate and extend work examining DBT skills modules to provide targeted and briefer treatments

Thanks

Mentors and Collaborators

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- Personality and Emotion Research and Treatment Lab at UMC

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