Unraveling (some of) The Mystery of Borderline Personality Disorder

Have we been barking up the wrong tree?

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History of Borderline Personality Disorder

- Relatively new psychiatric diagnosis
- In 1938, American psychoanalyst Adolph Stern described most of the symptoms that now similar comprise diagnostic criteria of borderline disorder.
- Named the disorder by referring to patients with the symptoms he described as “the border line group.”
- Borderline disorder bordered on, or overlapped with schizophrenia, non-schizophrenic psychoses, and neuroses such as anxiety and depressive disorders
- Otto Kernberg, in the 1960s, proposed that mental disorders were determined by three distinct personality organizations: psychotic, neurotic and “borderline personality.”

Conceptions of Borderline Personality Disorder: The More Recent Past

- "Borderline" still means different things to different people and still tends to be a wastebasket diagnosis and should not be used.
- “The families of the borderline patients were distinguished by the rigid tightness of the marital bond to the exclusion of the attention, support, or protection of the children. This pattern of neglect (by the mother) results in borderline personality in the children.”
- “Mothers of borderlines tended to conceive of their children egocentrically, as need-gratifying objects, rather than as individuals with distinct and evolving personalities.” The “borderlinephrenegenic” mother?
- “The diagnosis of borderline does not exist. These patients can best be considered atypical depressives. Treating the depression successfully resolves most of the symptoms of borderline personality disorder.”
- Clinical description and treatment development
- Pioneering efforts at understanding the neurobiology (Siever et al.)

The High Risk Nature of BPD

- Nearly 10% rate for suicide completion in individuals with BPD
- Of all completed suicides, 9-33% are by individuals with BPD
- Non-Suicidal Self-Injury: Up to 75% of individuals with BPD have cut, burned, hit, or otherwise injured themselves

What is BPD?
DSM IV Criteria

- Frantic efforts to avoid real or imagined abandonment
- Unstable and intense interpersonal relationships
- Identity disturbance: markedly and persistently unstable self-image or sense of self
- Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating).
- Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
- Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours, rarely > few days).
- Chronic feelings of emptiness
- Inappropriate, intense anger or difficulty controlling anger
- Transient paranoid feelings or severe dissociative symptoms

Symptom Clusters in BPD

Factor analytic studies have identified three symptom clusters:

- Disturbed Interpersonal Relatedness – Interpersonal turbulence and identity disturbance
- Behavioral Instability – Impulsivity, Aggression, Self-Injurious and Suicidal Behavior
- Emotional Instability – Emotion Dysregulation, Depressed Mood and Intense Emotional Reactions

Co-Occurring Disorders

- Depression and Dysthymia
- Bipolar disorder
- Substance abuse
- Eating disorders
- Post traumatic stress disorder
- Panic/anxiety disorders
- Attention deficit disorder
- Dissociative Identity Disorder
- Other personality disorders

The Experience of Depression in BPD

TABLE 3. Clinician and Self-Rated Depression Severity by Diagnostic Group and Gender

	MDD/BPD (N = 29) ($M \pm SD$)			MDD (N = 31) ($M \pm SD$)		
	Total	Male	Female	Total	Male	Female
HRSD	21.2 ± 7.2	17.7 ± 7.1	22.8 ± 6.8	22.7 ± 6.8	24.9 ± 7.1	20.9 ± 6.1
BDI	28.1 ± 10.8	28.6 ± 10.7	27.8 ± 11.0	22.5 ± 8.6	20.4 ± 6.5	24.2 ± 9.8

Note. HRSD = Hamilton Rating Scale for Depression; BDI = Beck Depression Inventory.

Stanley & Wilson, 2006

Table 2. Self-Rated Impulsivity and Hostility Measures by Diagnostic Group

Scale	Bipolar II/BPD (N = 15)	Bipolar II Only (N = 15)	MDD/BPD (N = 72)	MDD Only (N = 71)	Total
BIS-11 score, mean ± SD	63.6 ± 12.6	54.1 ± 14.1	58.8 ± 16.5	47.5 ± 15.3	54.2 ± 16.5
BDHI score, mean ± SD	38.9 ± 7.6	29.4 ± 10.2	36.6 ± 11.9	26.0 ± 9.9	31.8 ± 11.8

Abbreviations: BDHI = Buss-Durkee Hostility Inventory; BIS-11 = Barratt Impulsiveness Scale, version 11; BPD = borderline personality disorder; MDD = major depressive disorder.

Table 3. BIS-11 Subscale Scores by Diagnostic Group

Subscale	Bipolar II/BPD (N = 15)	Bipolar II Only (N = 15)	MDD/BPD (N = 72)	MDD Only (N = 71)	Total
Attentional impulsiveness score, mean ± SD	18.9 ± 5.6	16.6 ± 4.8	15.4 ± 5.2	14.5 ± 5.4	15.4 ± 5.4
Motor impulsiveness score, mean ± SD	20.3 ± 5.9	16.9 ± 7.0	18.9 ± 7.0	12.9 ± 6.5	16.4 ± 7.3
Nonplanning impulsiveness score, mean ± SD	24.2 ± 7.8	20.7 ± 6.5	24.5 ± 8.6	20.1 ± 7.5	22.4 ± 8.1

Abbreviations: BIS-11 = Barratt Impulsiveness Scale, version 11; BPD = borderline personality disorder; MDD = major depressive disorder.

Where do the interpersonal difficulties of individuals with BPD fit in?

- Gunderson (2010) argued for a greater focus on interpersonal dysfunction in understanding borderline personality disorder
- The interpersonal dysfunction of BPD "offers the best discriminators for the diagnosis"
- Mood shifts and self-destructive behaviors in BPD often occur in response to interpersonal triggers

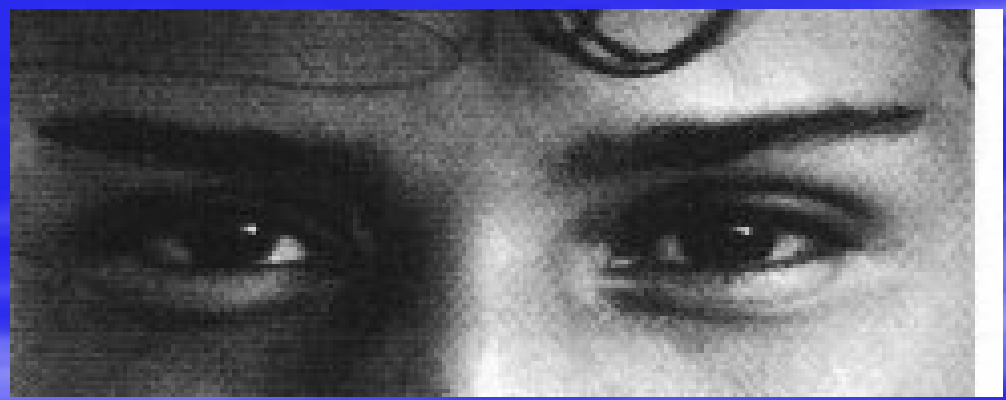
Facial Emotion Recognition

(Fertuck et al, 2010)

- We utilized the Reading the Mind in the Eyes Test to assess sensitivity to facial emotional expression in BPD and Healthy Controls.
- The test presents participants with thirty-six pictures of the area of the face immediately surrounding the eyes.

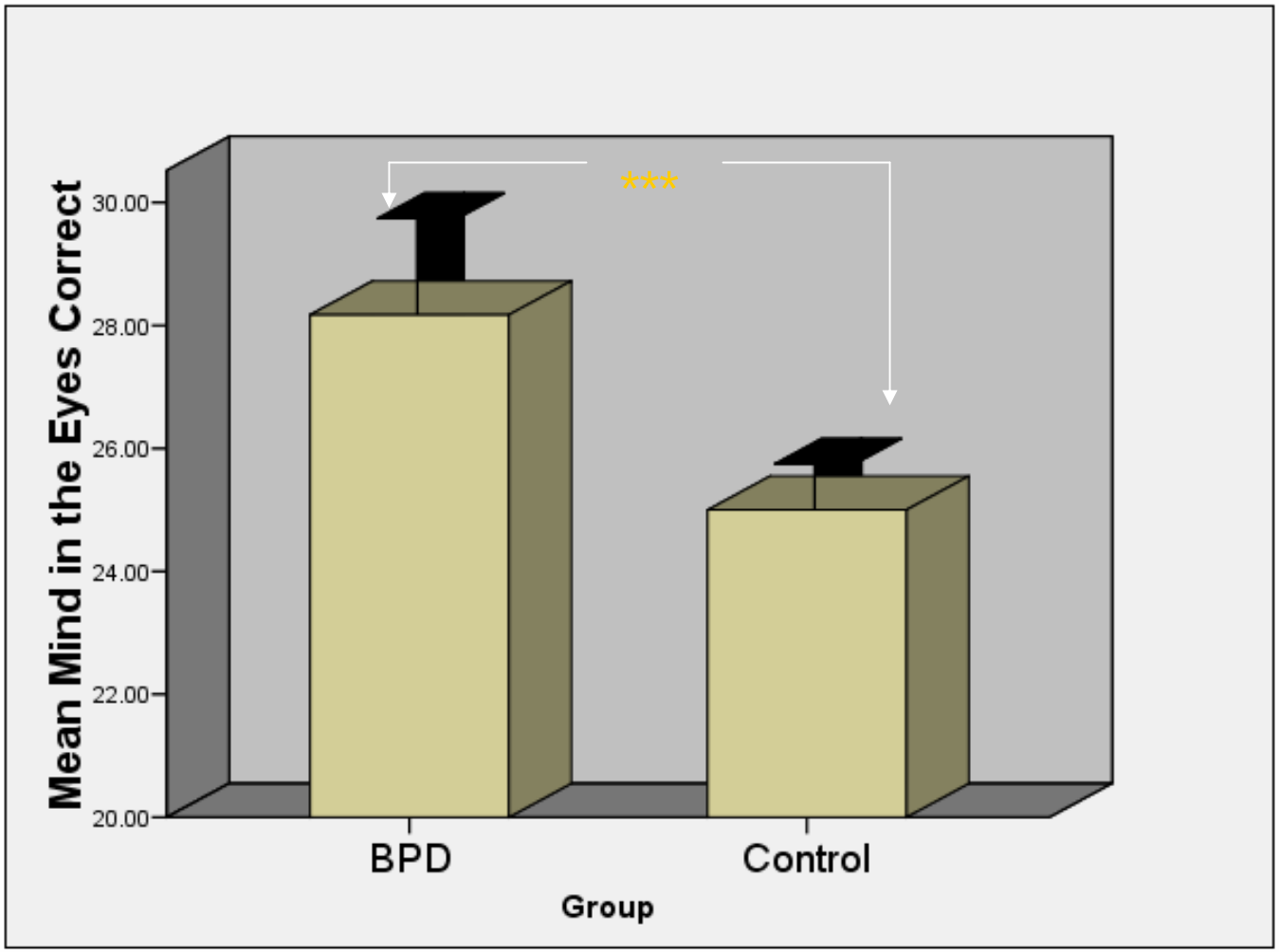
Example of facial stimuli from the Reading the Mind in the Eyes Test

(Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001)



1. Playful
2. Comforting
3. Irritated
4. Bored

Greater Mind in Eyes Accuracy in BPD (N=23) vs. Healthy Controls (N=92)

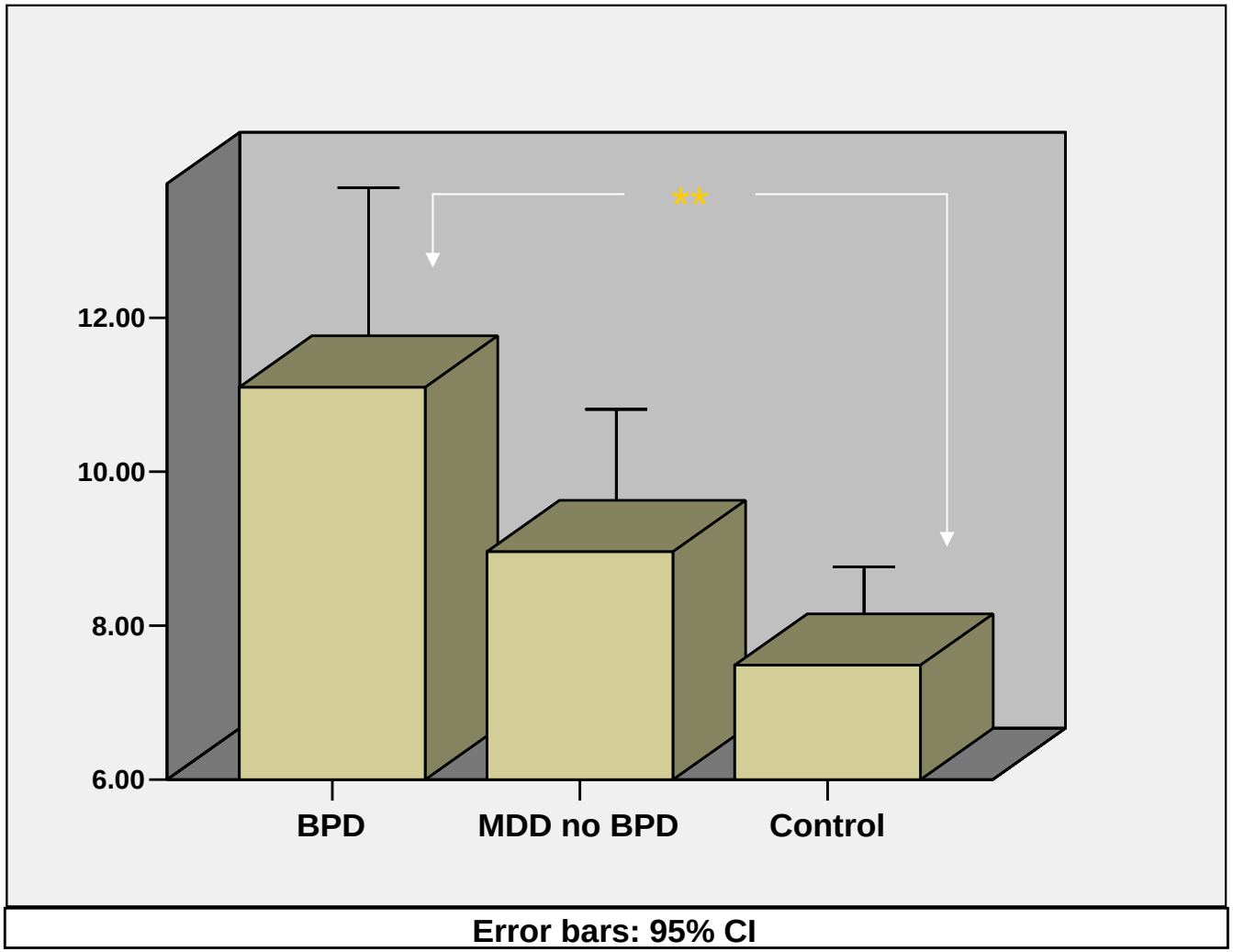


*** = p < .001

Rejection Sensitivity

- The Rejection Sensitivity Questionnaire (RSQ) is a well established and valid self-report measure of anxious expectations of rejection from significant others (Downey & Feldman, 1996)
- We administered the RSQ to three groups and compared their Total RSQ scores

Rejection Sensitivity Scores in BPD (N=25), MDD (N=11), and Healthy Control Groups (N=74)



** = p < .01

Is there an underlying neurobiological deficit for the interpersonal dysfunction of BPD?

- We need to do better in our treatments
- Medications are, at best, partially effective—SSRIs, anxiolytics, mood stabilizers, neuroleptics proposed in algorithmic form
- Psychotherapy thought to be the “treatment of choice” but it, too, is only partially effective and is lengthy

Current Treatments Miss the Mark

Can we look to new conceptualizations? What do the opioids do?

- Traditional role in modulating the sensory and affective dimensions of pain
- Reductions in opioid function has been associated with attachment behavior deficits and anxiety-like responses in animal models
- In many species, the soothing and comforting that infants receive from maternal grooming and touching is mediated through the opioid system .
- In human beings, opioids are involved in normal and pathological emotion regulation
- in addition to their more
- Thus, there's reason to think that endogenous opioids facilitate normal social functioning

Evidence for an Opioid deficit model in BPD (Stanley & Siever, 2010; New & Stanley, 2010)

- High rate of opiate abuse in borderline personality disorder
- High rate of borderline personality disorder among patients seeking substance abuse treatment; for instance
- 44.1% of individuals seeking buprenorphine treatment have BPD
- Clinicians have noticed that patients with BPD on low dose opioids report feeling “normal”

Further Evidence for an Opioid Deficit

- Prossin et al. (2010) Imaging study
- Found differences exist between individuals with BPD and comparison subjects in baseline in vivo μ-opioid receptor concentrations
- Differences in BPD in the endogenous opioid system response to a negative emotional challenge.

The Opioids and Self Injury

- Cutting is very common in BPD
- Self injury in BPD is not suicidal but a means to relieve psychic pain
- Many patients report that they do not feel physical pain at the moment when they cut themselves
- Instead, cutting engenders feelings of relief or well-being
- One view of cutting in BPD is that it represents a method of endogenous opioid generation
- In this view, individuals with BPD learn to cut themselves, thereby releasing opioids
- According to this view, cutting is a form of self-medication; an attempt to diminish severe intrapsychic distress

Table 3

CSF metabolite levels for NSSI and non-NSSI groups.

Metabolite	NSSI ($N=14$)	Non-NSSI ($N=15$)	t	p
β-endorphin	91.4 ± 14.1	105.9 ± 19.2	2.18	<0.05
Met-enkephalin	45.7 ± 8.1	58.4 ± 12.1	3.11	<0.01
Dynorphin	20.1 ± 7.9	21.7 ± 7.9	<1	NS
5-HIAA	19.3 ± 9.0	15.1 ± 8.1	1.30	NS
HVA	36.9 ± 17.9	26.8 ± 12.0	1.77	NS

Note. All metabolite concentrations are in ng/ml.

An opioid deficit model of BPD might explain more than their self-injurious behavior

- The endogenous opioid system not only regulates pain but also has an important role in social behavior
- Their extraordinary difficulties in social behavior may also be linked to a preexisting deficit in endogenous opioids.
- This system, through μ-opioid receptors, has been implicated in regulation of emotional and stress responses

Stress Response and BPD

- “[F]unctioning of the HPA axis in BPD is abnormal, with features of dysregulated feedback inhibition, which is at times suppressed…” (Zimmerman &Choi-Kain, 2009)

- Few studies of stress response in BPD (e.g.Simeon et al. 2007)

The Trier Social Stress Test (TSST)

- TSST elicits significant changes in salivary cortisol, cardiovascular parameters, and emotional state.
- Our modification of the TSST (mTSST), is designed to induce less stress than the original version and can be safely and validly utilized in a psychiatric population at high risk for suicide
- An ecologically valid method for assessing social stress reactivity in BPD?

mTSST Sequence

Baseline:

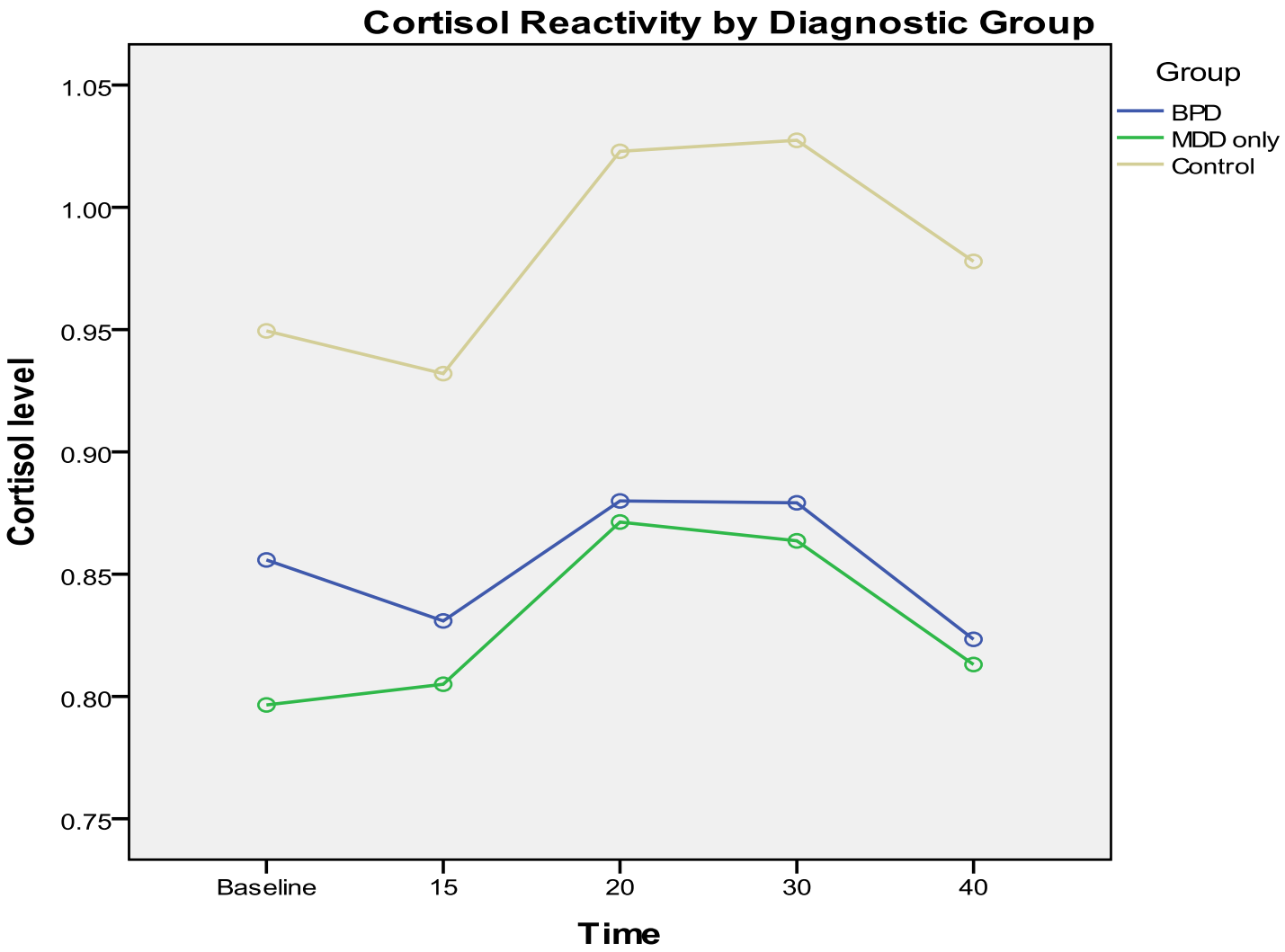
Mood

Cortisol

2o minutes: 4 cortisol, 2 mood ratings

15 minute Stressor: speech and mental arithmetic

Stress Response in BPD



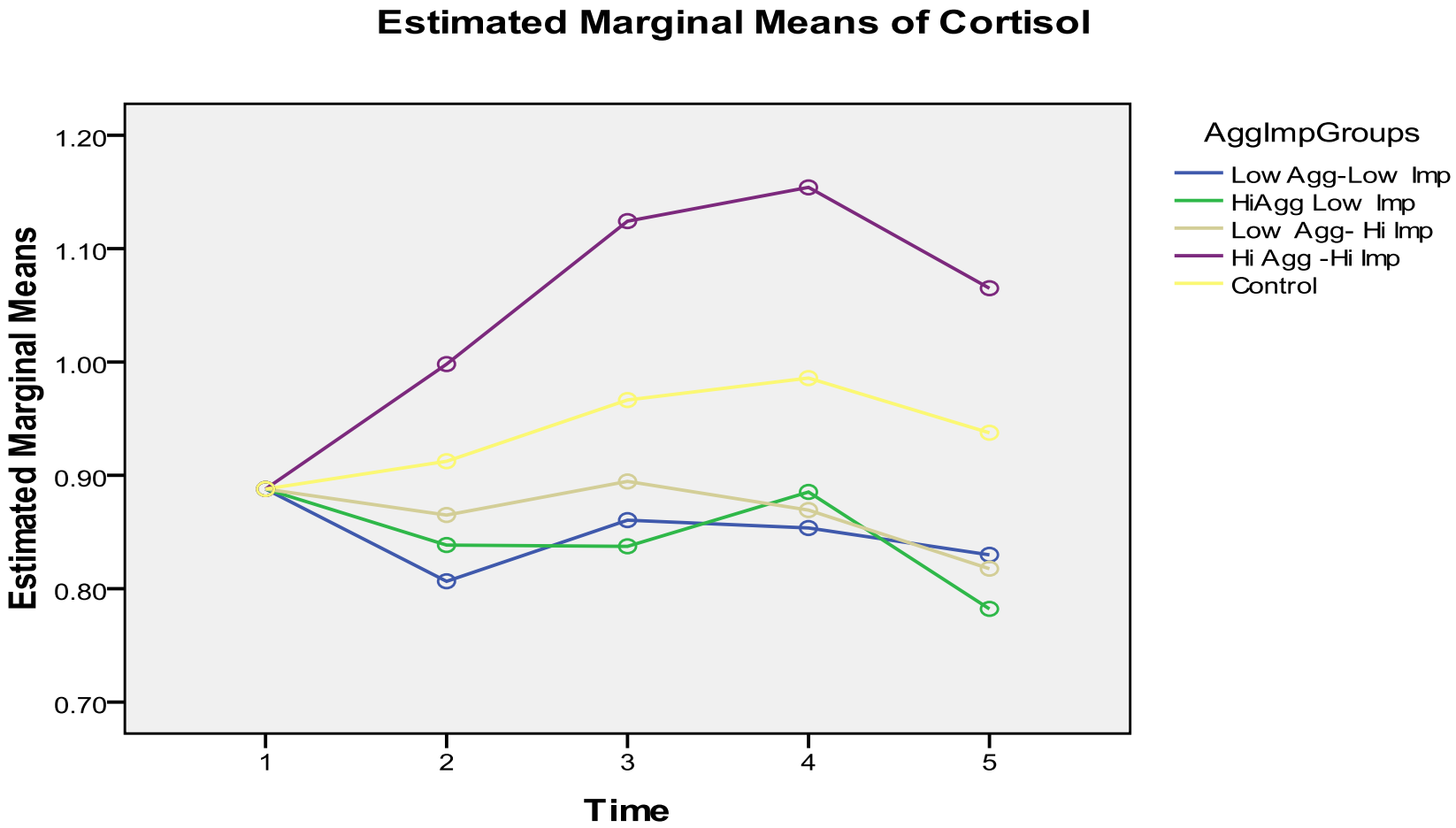
Genetics of BPD

- Heritability estimates of BPD ranges:
  50 -60%

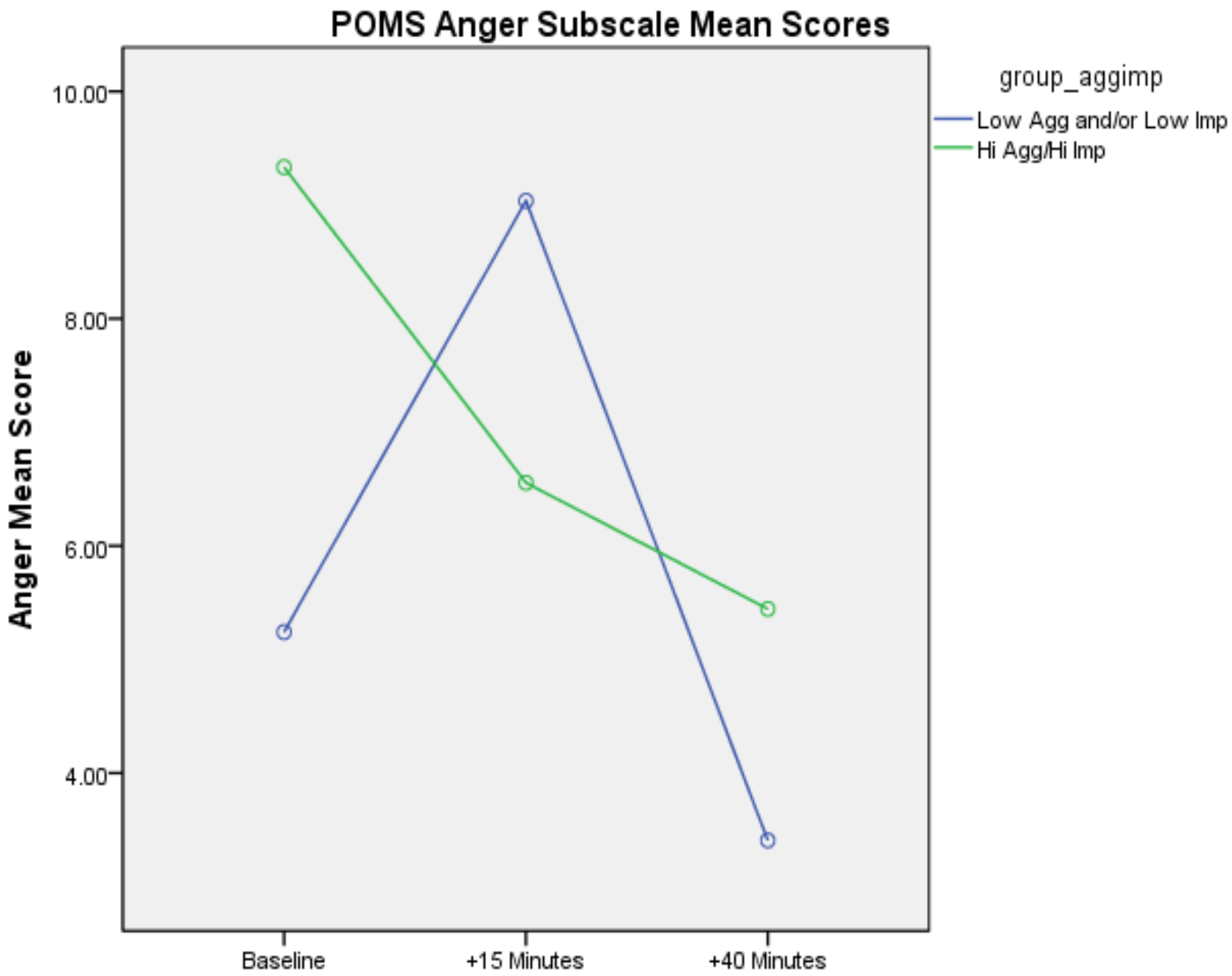
- Consistent with studies on the heritability of personality traits broadly

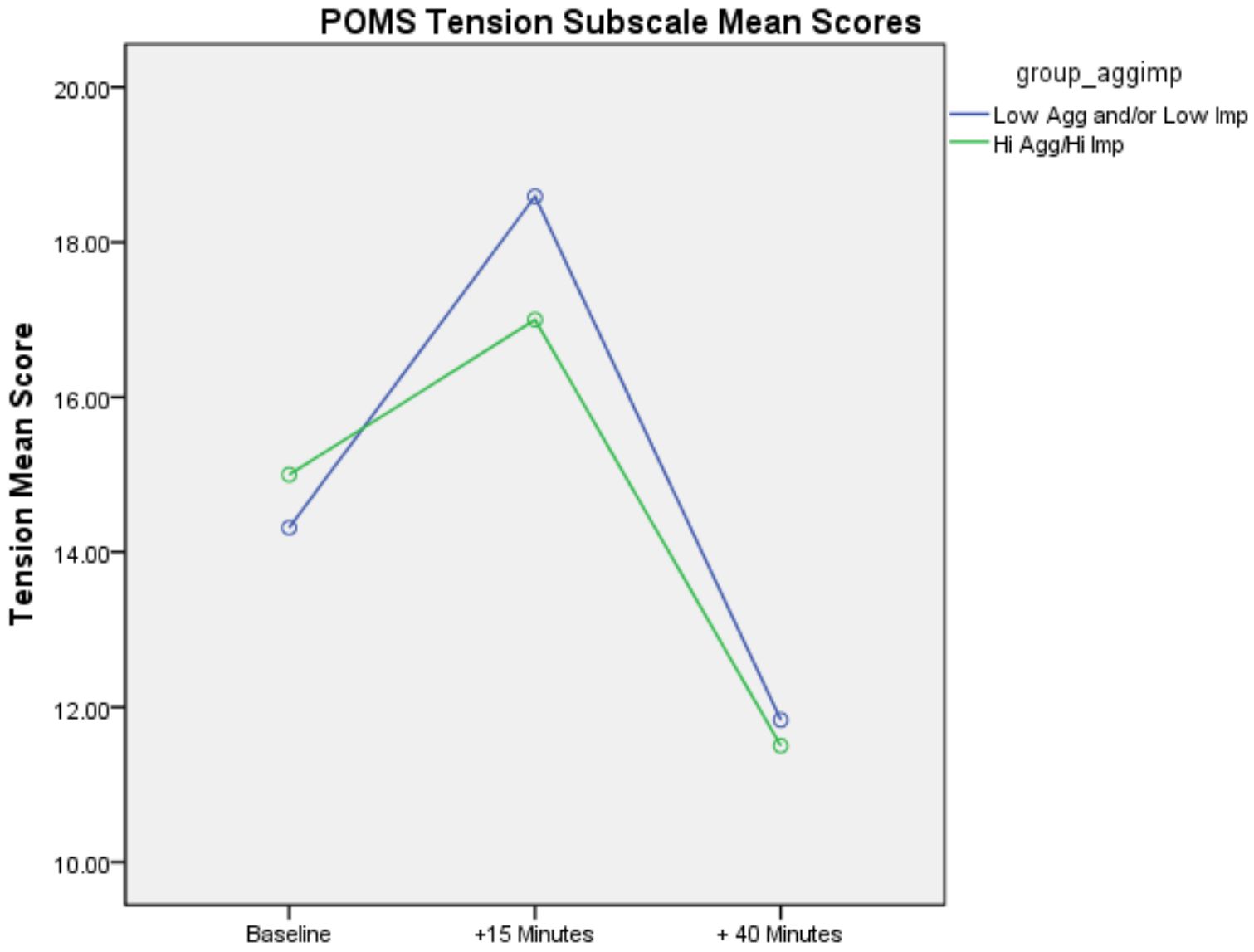
- Prevailing view is that it is the traits or trait clusters, rather than the disorder itself, that is heritable*****

Stress Response in Highly Reactive Aggressive Individuals

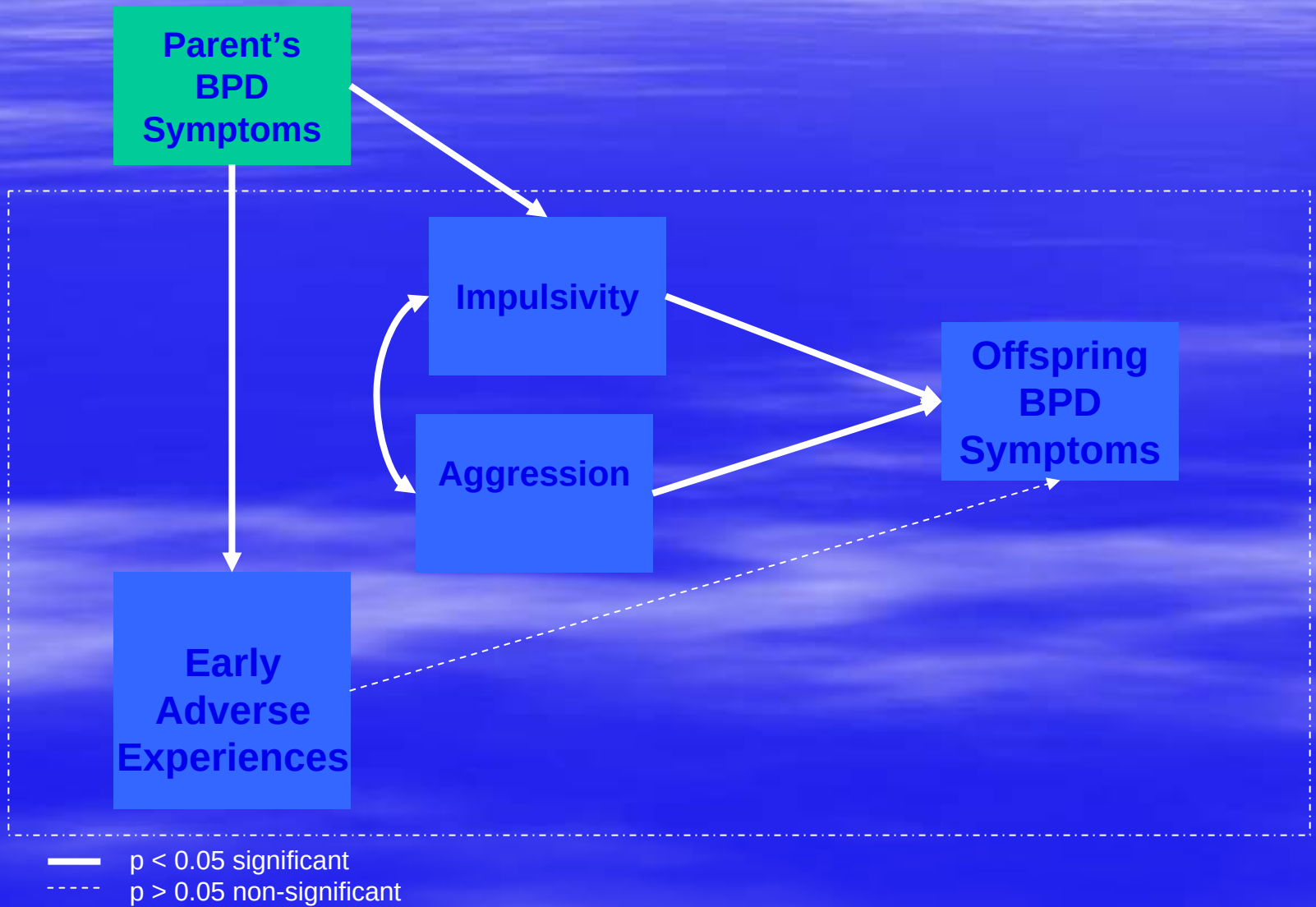


Covariates appearing in the model are evaluated at the following values: Baseline = .8880


POMS Anger Subscale Mean Scores
Anger Mean Score
10.00
8.00
6.00
4.00
Baseline
+15 Minutes
+40 Minutes
group_aggimp
Low Agg and/or Low Imp
Hi Agg/Hi Imp


POMS Tension Subscale Mean Scores
Tension Mean Score
20.00
18.00
16.00
14.00
12.00
10.00
Baseline
+15 Minutes
+ 40 Minutes
group_aggimp
Low Agg and/or Low Imp
Hi Agg/Hi Imp

Intergenerational Transmission of BPD



Conclusions

- We’ve just begun to improve our understanding of BPD
- We can do better in our treatment approaches
- We should consider different neurobiological approaches to BPD
- We should consider more in depth study of the components (e.g. reactive aggression, emotion dysregulation
- Tie the neurobiological approaches to these constructs.

Thank you