

**Efficacy of an Acceptance-based Emotion Regulation
Group Therapy for Deliberate Self-Harm among Women
with Borderline Personality Pathology:
Randomized Controlled Trial and 9-month Follow-up**

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Supported by National Institute of Mental Health Grant R34 MH079248 (PI: Gratz)

Deliberate Self-harm (DSH) in BPD

Clinically-important behavior common among patients with BPD

- Occurs among 70-75% of patients with BPD
- Associated with a number of negative consequences
- Implicated in high levels of health care utilization

Few empirically-supported treatments for DSH within BPD

- Short-term treatments for DSH in general are not effective
- Efficacious treatments for DSH in BPD (DBT and MBT) are difficult to implement in many clinical settings due to duration/intensity

Need for clinically-feasible treatments that target DSH within BPD

- Short-term, less intensive, adjunctive
- Target theorized function and underlying mechanisms of DSH

Role of Emotion Dysregulation in DSH

Emotion dysregulation is considered central to DSH

- Theorized to be the central underlying mechanism of DSH
- Associated with DSH in clinical and nonclinical samples
- DSH thought to serve an emotion regulating/avoidant function

Suggests utility of targeting emotion dysregulation to treat DSH

- If emotion dysregulation drives DSH, decreasing emotion dysregulation will decrease the need for DSH

Emotion Regulation Group Therapy for DSH in BPD

Adjunctive group treatment for DSH among women with BPD

- Designed to augment usual treatment in the community by directly targeting DSH and its proposed underlying mechanism

Targets each of the following dimensions of emotion dysregulation

- Awareness, understanding, and acceptance of emotions
- Ability to control behaviors when experiencing negative emotions
- Flexible use of strategies to modulate the intensity/duration of emotional responses, rather than to eliminate emotions entirely
- Willingness to experience distress to pursue meaningful activities

Emotion Regulation Group Therapy (ERGT)

Outline of Weekly Group Content

Week 1	Function of deliberate self-harm behavior
Week 2	Function of emotions
Weeks 3-4	Emotional awareness
Week 5	Primary vs. secondary emotions
Week 6	Clear vs. cloudy emotions
Weeks 7-8	Emotional unwillingness vs. willingness
Week 9	Non-avoidant emotion regulation strategies
Week 10	Impulse control
Weeks 11-12	Valued directions
Weeks 13-14	Commitment to valued actions

Empirical Support for ERGT

Two studies support utility of this ERGT in the treatment of DSH among women with BPD (Gratz & Gunderson, 2006; Gratz & Tull, 2011)

Initial RCT:

- Addition of ERGT to TAU had positive effects on DSH and emotion dysregulation (as well as BPD, depression, and anxiety)
- ERGT+TAU had significant changes over time on all measures

Open trial:

- Significant improvements from pre- to post-treatment in DSH and other self-destructive behaviors, emotion dysregulation/avoidance, BPD, depression, and anxiety, and social/vocational impairment

Purpose of this Study

Primary Aims: Examine the efficacy of this ERGT in a larger RCT and durability of treatment effects over a 9-month follow-up

➤ **Outpatients randomly assigned to receive this ERGT in addition to ongoing outpatient therapy (ERGT + TAU), or to continue with their current outpatient therapy alone for 14 weeks (TAU WL)**

Hypothesis: Addition of ERGT to usual outpatient therapy will have positive effects on DSH and self-destructive behaviors, emotion dysregulation/avoidance, psychiatric symptoms, adaptive functioning

Participant Screening

Inclusion criteria:

- Woman 18 to 60 years of age
- History of repeated DSH, including one episode in past 6 mos.
- Having individual therapist, psychiatrist, or case manager
- Threshold or subthreshold BPD (≥ 3 criteria for BPD on DIPD-IV)

Exclusion criteria:

- Primary psychotic disorder
- Bipolar I disorder
- Current (past month) substance dependence

Demographics of Intent-to-Treat Sample (N = 61)

	<u>ERGT+TAU (n=31)</u>	<u>TAU WL (n=30)</u>
Mean age:	33 years	33 years
Race/ethnic minority:	16.1%	26.7%
Marital status:		
Single	51.7%	56.7%
Married	25.8%	13.3%
Separated/divorced	22.6%	3.0%
Education:		
Less than high school	6.5%	6.7%
High school graduate	54.8%	73.3%
College graduate	25.8%	16.7%
Income:		
< \$20,000	38.7%	57.1%
\$20,000-60,000	32.3%	32.1%
> \$60,000	29.0%	10.7%

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	Separated/divorced	22.6%	3.0%
Education:	Less than high school	6.5%	6.7%
	High school graduate	54.8%	73.3%
	College graduate	25.8%	16.7%
Income:	< \$20,000	38.7%	57.1%
	\$20,000-60,000	32.3%	32.1%
	> \$60,000	29.0%	10.7%

Clinical Characteristics of Intent-to-Treat Sample (N=61)

	<u>ERGT+TAU</u>	<u>TAU WL</u>
Meets criteria for BPD:	90.3%	86.7%
Suicide attempt in lifetime:	58.1%	66.7%
Suicide attempt in past year:	16.1%	20.0%
DSH frequency past 3 months:	35.5 (SD=68.1)	28.4 (SD=39.4)
Past-yr inpatient hospitalization:	12.9%	26.7%
Total hrs/wk of ongoing therapy:	1.2 (SD=1.4)	2.5 (SD=2.6)
Hrs/wk of individual therapy	0.7 (SD=0.4)	1.0 (SD=0.8)
Hrs/wk of group therapy	0.4 (SD=1.3)	0.6 (SD=1.8)
GAF score:	43.4 (SD=24.6)	40.5 (SD=19.8)

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Diagnostic Data for Intent-to-Treat Sample (N=61)

	<u>ERGT+TAU</u>	<u>TAU WL</u>
Lifetime Axis I disorders		
Mood disorder	80.6%	86.7%
Substance use disorder	54.8%	60.0%
Anxiety disorder	74.2%	86.7%
Eating disorder	36.7%	42.9%
Current Axis I disorders		
Mood disorder	41.9%	60.0%
Anxiety disorder	54.8%	70.0%
Eating disorder	16.7%	10.7%
Axis II comorbidity	40.0%	53.3%
Cluster A PD	6.7%	10.0%
Cluster B PD (other than BPD)	13.3%	20.0%
Cluster C PD	36.7%	43.3%

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Lifetime Axis I disorders		
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Substance use disorder	54.8%	60.0%
Anxiety disorder	74.2%	86.7%
Eating disorder	36.7%	42.9%
Current Axis I disorders		
Mood disorder	41.9%	60.0%
Anxiety disorder	54.8%	70.0%
Eating disorder	16.7%	10.7%
Axis II comorbidity		
Cluster A PD	6.7%	10.0%
Cluster B PD (other than BPD)	13.3%	20.0%
Cluster C PD	36.7%	43.3%

Outcome Measures

Deliberate Self-harm and Other Self-destructive Behaviors

Deliberate Self-Harm Inventory (Gratz, 2001)

- DSH Frequency

Self-harm Inventory (Sansone et al., 1998)

- Past-month frequency of numerous self-destructive behaviors

Psychiatric Symptoms

Zanarini Rating Scale for Borderline Personality Disorder (Zanarini, 2003)

- Clinician-administered instrument assessing change in BPD symptoms

Borderline Evaluation of Severity over Time (Pfohl et al., 2009)

- Past-month BPD symptom severity

Beck Depression Inventory–II (Beck et al., 1996)

Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995)

Outcome Measures (continued)

Adaptive Functioning

BPD composite of Inventory of Interpersonal Problems (Lejuez et al., 2003)

Sheehan Disability Scale (Sheehan, 1983)

- Social and vocational impairment due to psychological symptoms

Quality of Life Inventory (Frisch et al., 1992)

- Life satisfaction in areas important to the individual

Emotion Dysregulation/Avoidance

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

Acceptance and Action Questionnaire (Hayes et al., 2004)

- Tendency to avoid unwanted internal experiences, particularly emotions

[All measures administered pre- and post-treatment or –waitlist, and 3- and 9-months post-treatment]

Preliminary Analyses

No significant between-group differences on any demographic, clinical, or diagnostic variable, with the exception of hours/week of TAU

- **Significantly higher among TAU WL vs. ERGT+TAU participants ($t = 2.34, p < .05$)**

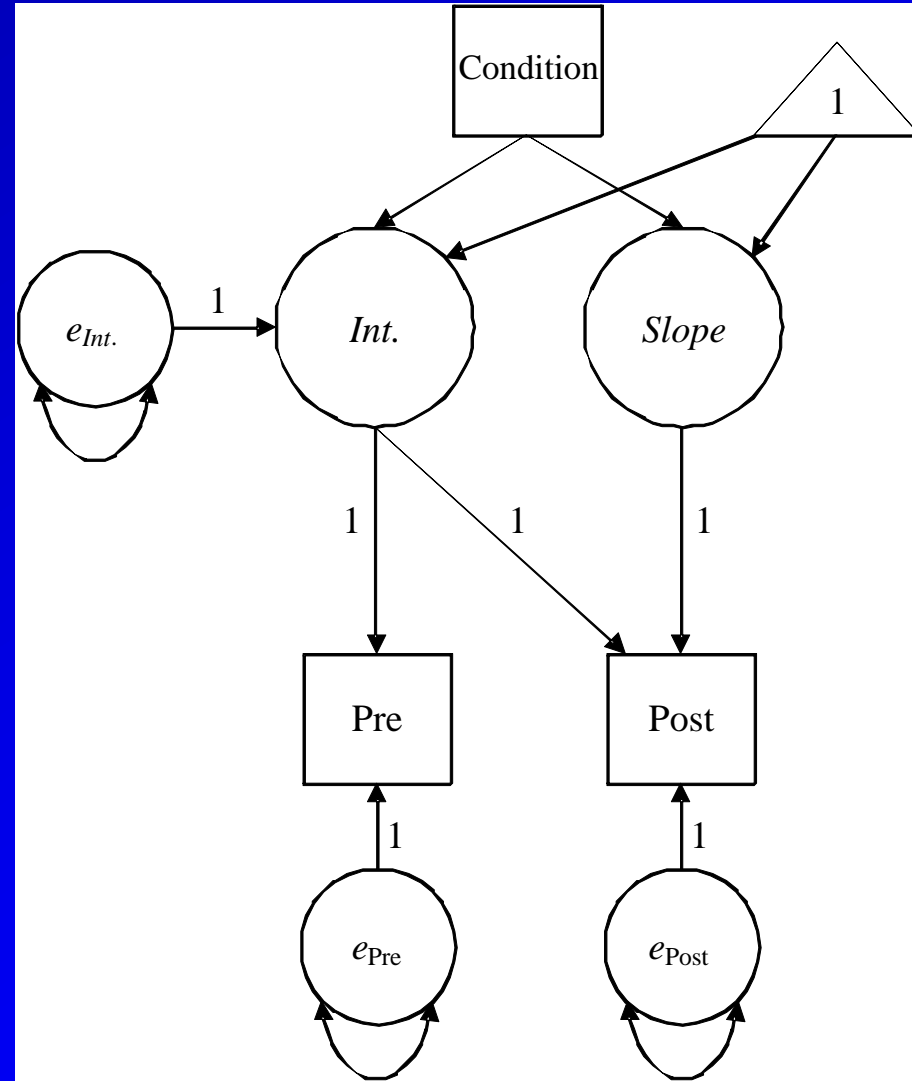
When including the 1.5 hours of treatment time associated with ERGT, no significant differences in overall therapy hours/week ($t = .43, p > .10$)

- **ERGT + TAU = 2.7 hours**
- **TAU WL = 2.5 hours**

RCT Analyses

Latent growth models used to examine treatment effects, with a linear growth structure modeled from pre- to post-values and condition status modeled as influencing latent intercept and slope

- Bayesian approach to growth modeling
- Models fit using Markov chain Monte Carlo routines in *Mplus*
- Multiple imputation strategy for missing data – enables analysis of intent-to-treat (ITT) sample



Results of RCT Analyses

Significant effects of ERGT (with medium to large effect sizes) on:

- **DSH and other self-destructive behaviors**
- **Emotion dysregulation**
- **BPD symptoms on the ZAN-BPD**
- **Depression and stress symptoms on the DASS**
- **Quality of life**

Effects on experiential avoidance and interpersonal functioning approached significance (p s < .10) and were medium-sized

RCT Analyses: Deliberate Self-Harm



Effect of Condition on
Slope

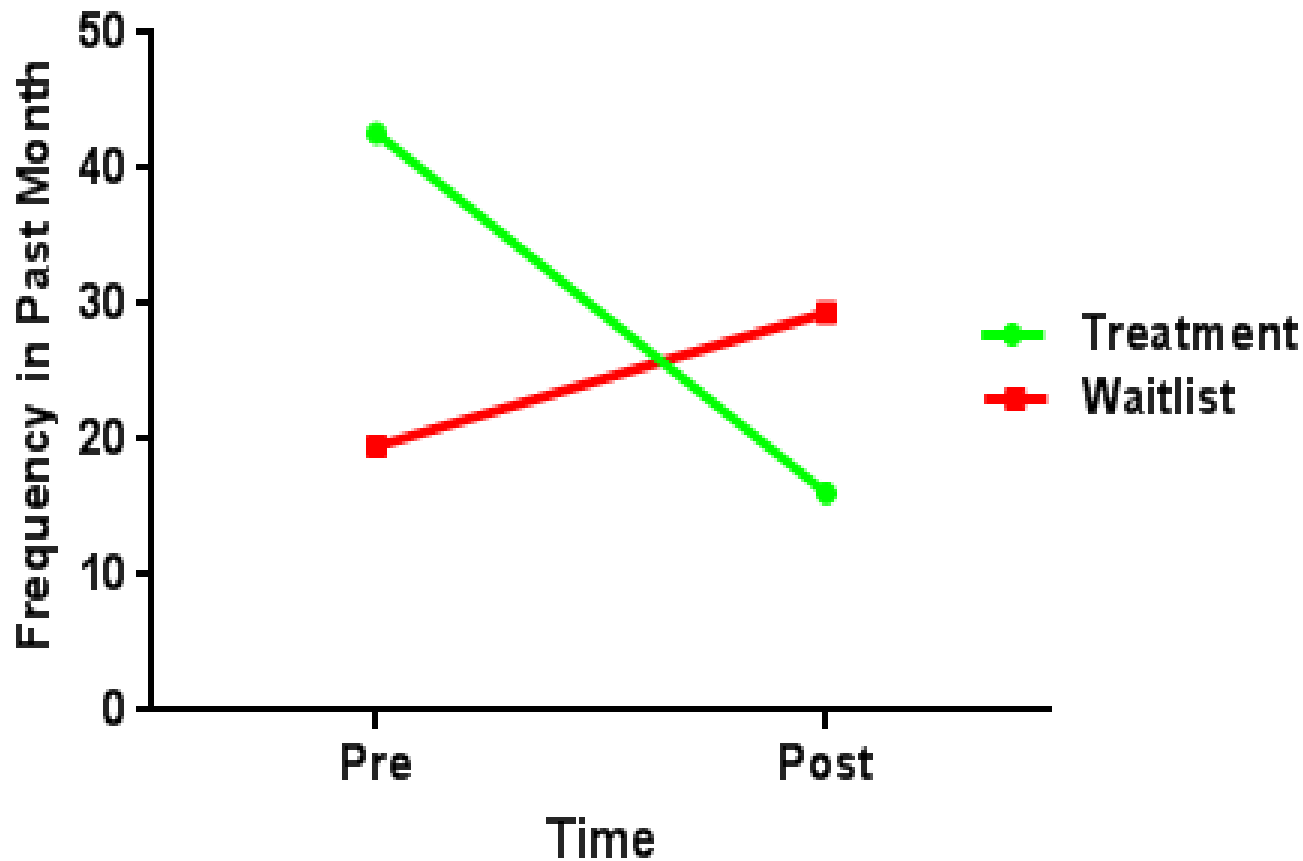
95% CI = -0.70 – -0.15*

Effect size = -0.64

* $p < .05$

RCT Analyses: Self-Destructive Behaviors

Self-Harm Inventory



Effect of Condition on
Slope

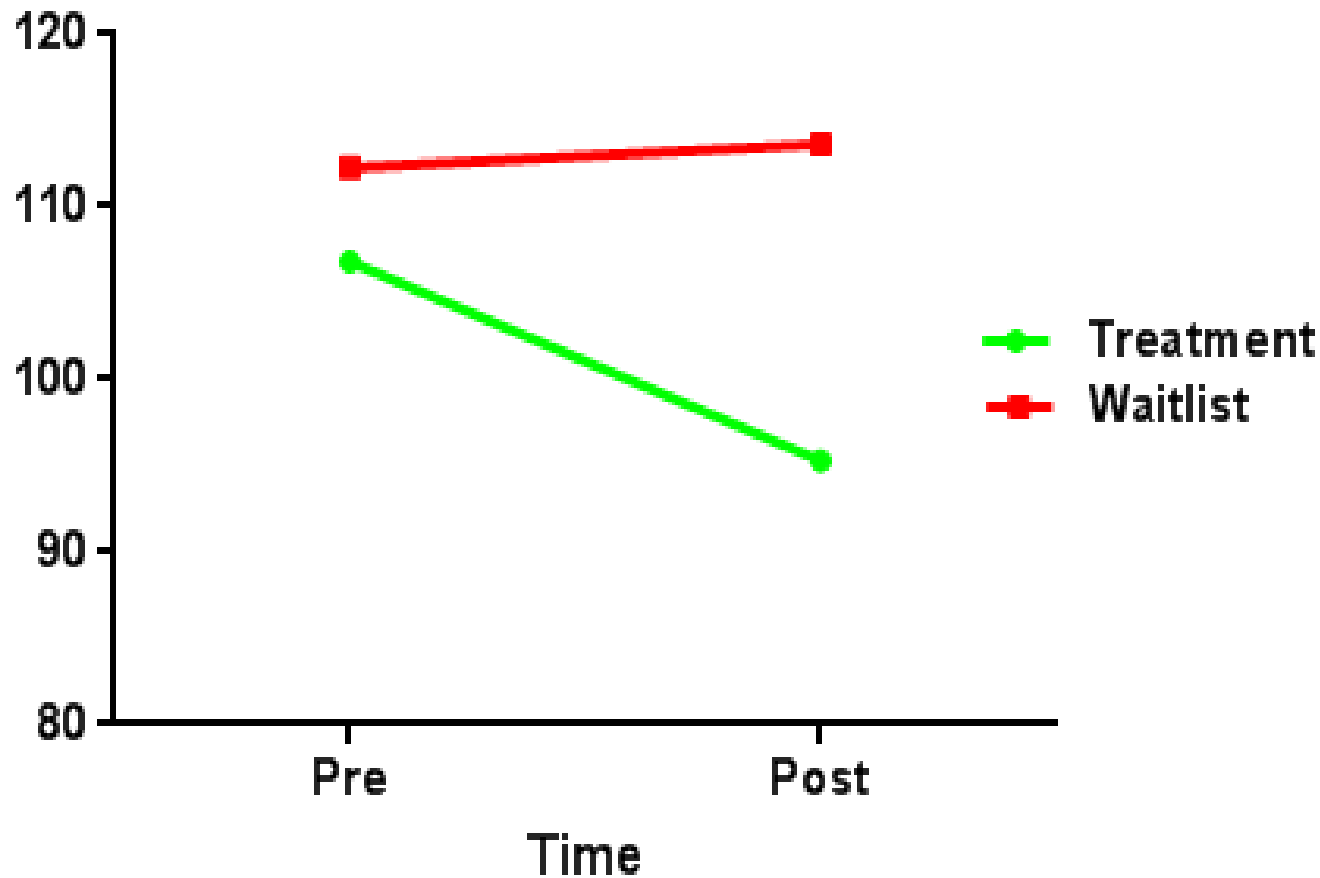
95% CI = -53.01 – -14.97*

Effect size = -0.77

* $p < .05$

RCT Analyses: Emotion Dysregulation

Difficulties in Emotion Regulation Scale



Effect of Condition on
Slope

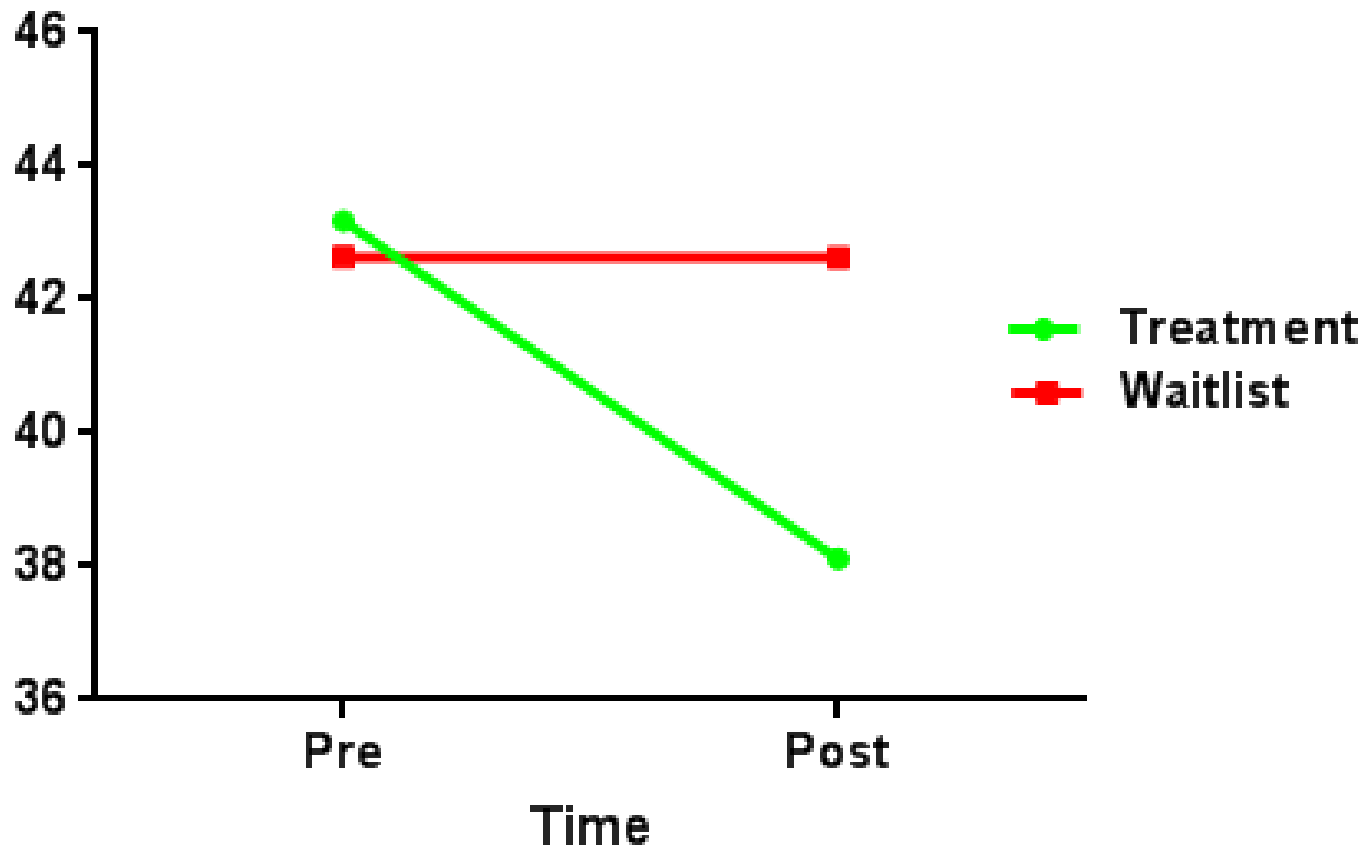
95% CI = -23.18 – -2.91*

Effect size = -0.55

* $p < .05$

RCT Analyses: Experiential Avoidance

Acceptance and Action Questionnaire



Effect of Condition on
Slope

95% CI = -9.11 – 0.08[†]

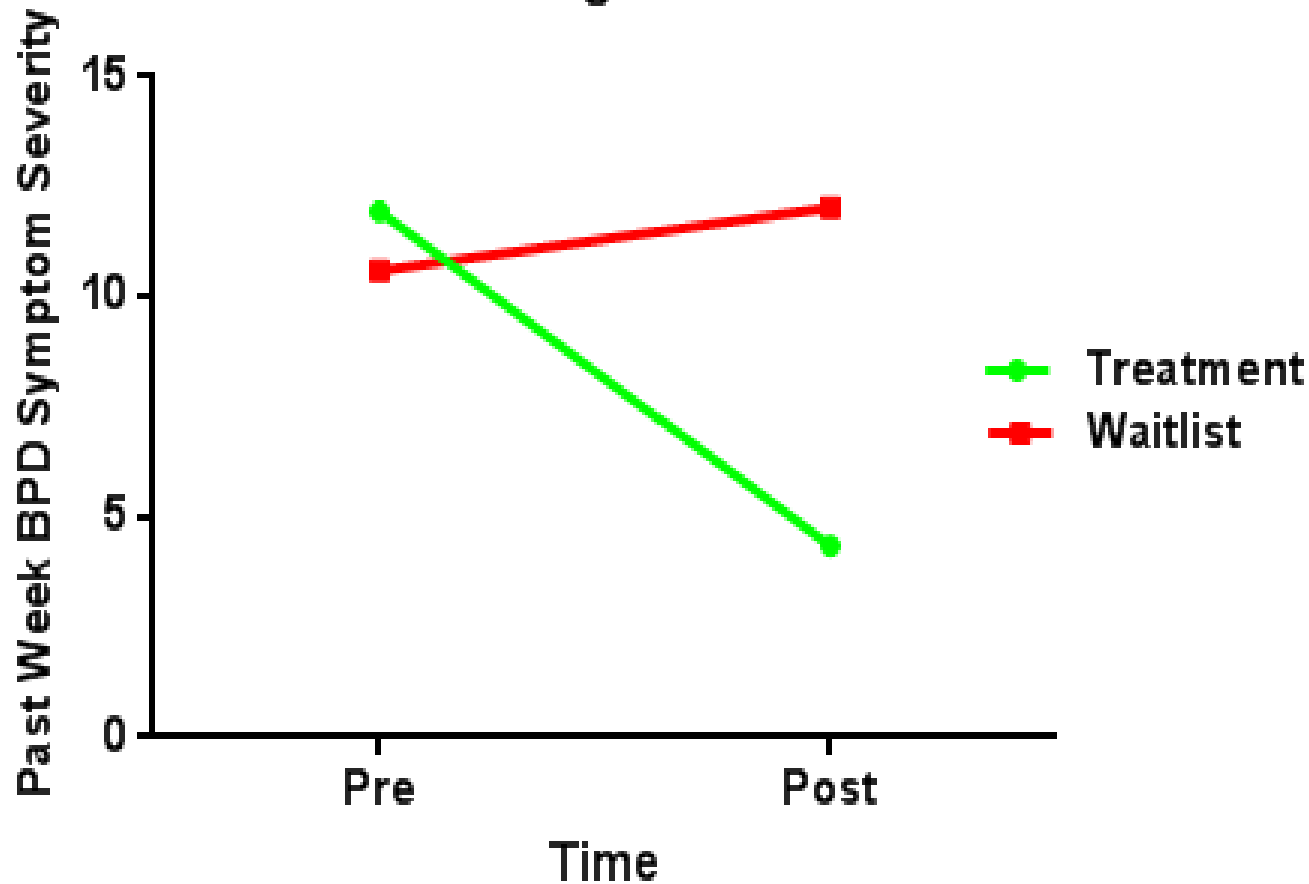
Effect size = -0.71

(medium to large effect)

[†] $p < .10$

RCT Analyses: BPD Symptom Severity

Zanarini Rating Scale for BPD



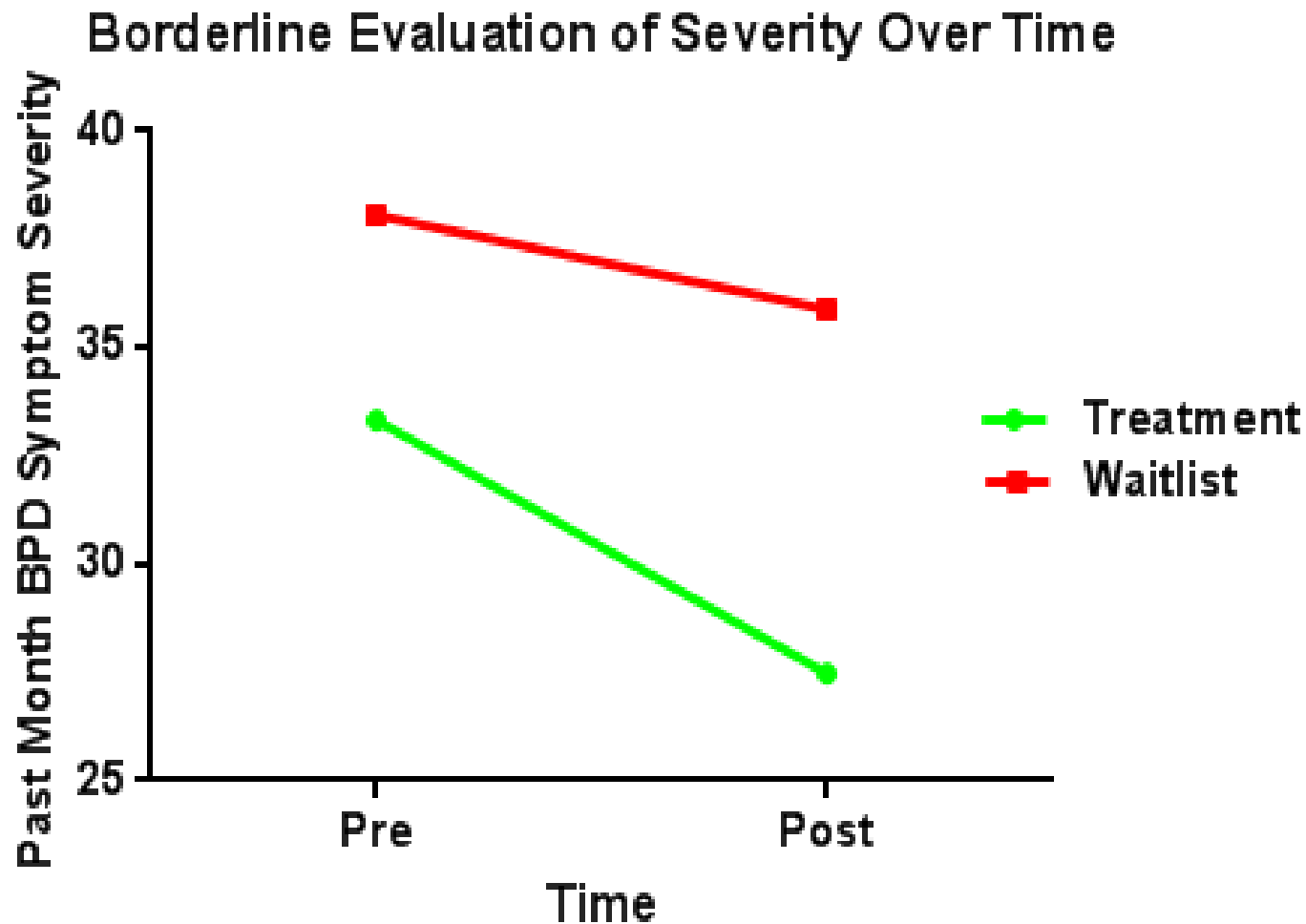
Effect of Condition on
Slope

95% CI = -11.80 – -6.12*

Effect size = -1.20

* $p < .05$

RCT Analyses: BPD Symptom Severity



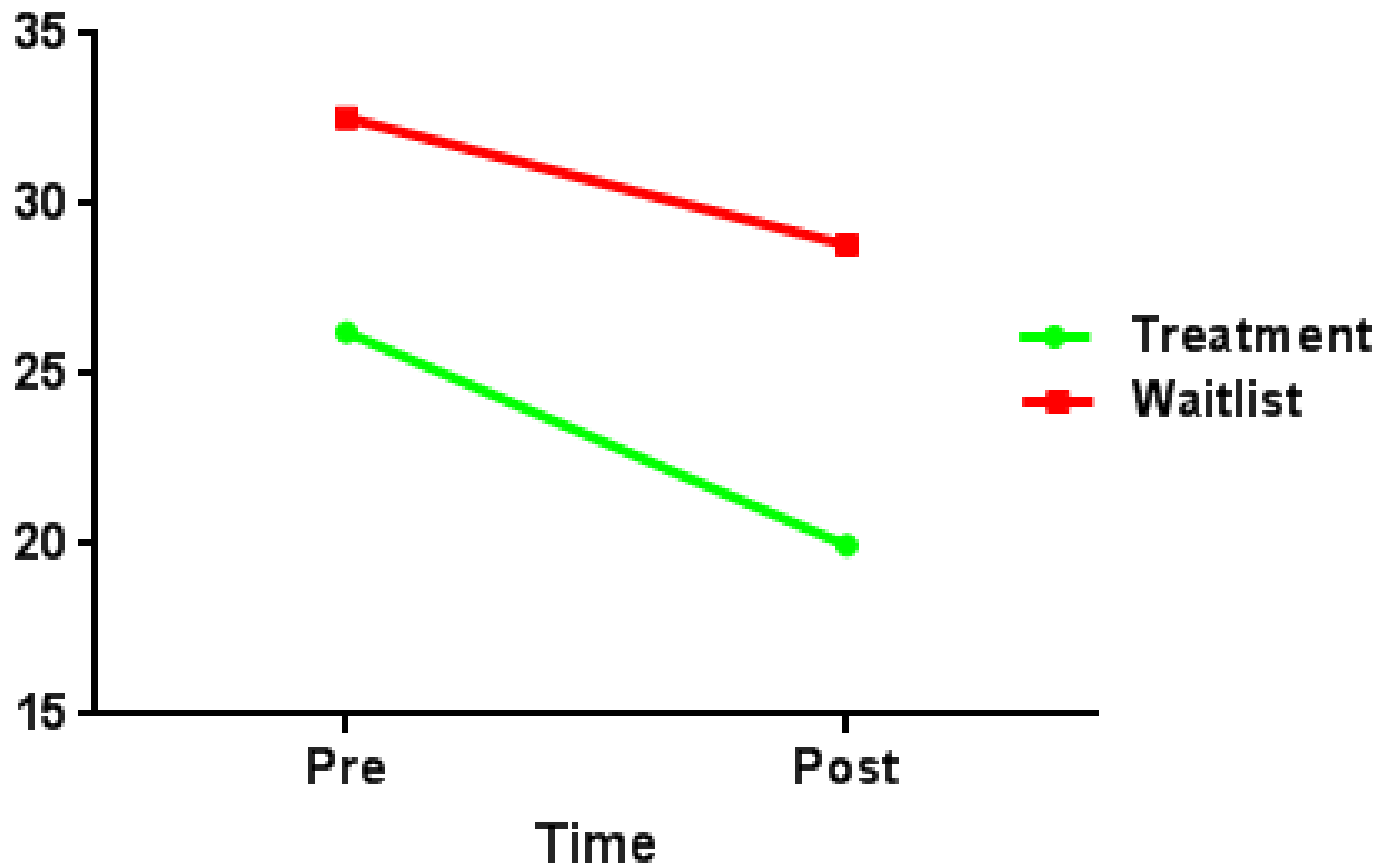
Effect of Condition on
Slope

95% CI = -8.26 – 0.96

Effect size = -0.34

RCT Analyses: Depression Symptom Severity

Beck Depression Inventory

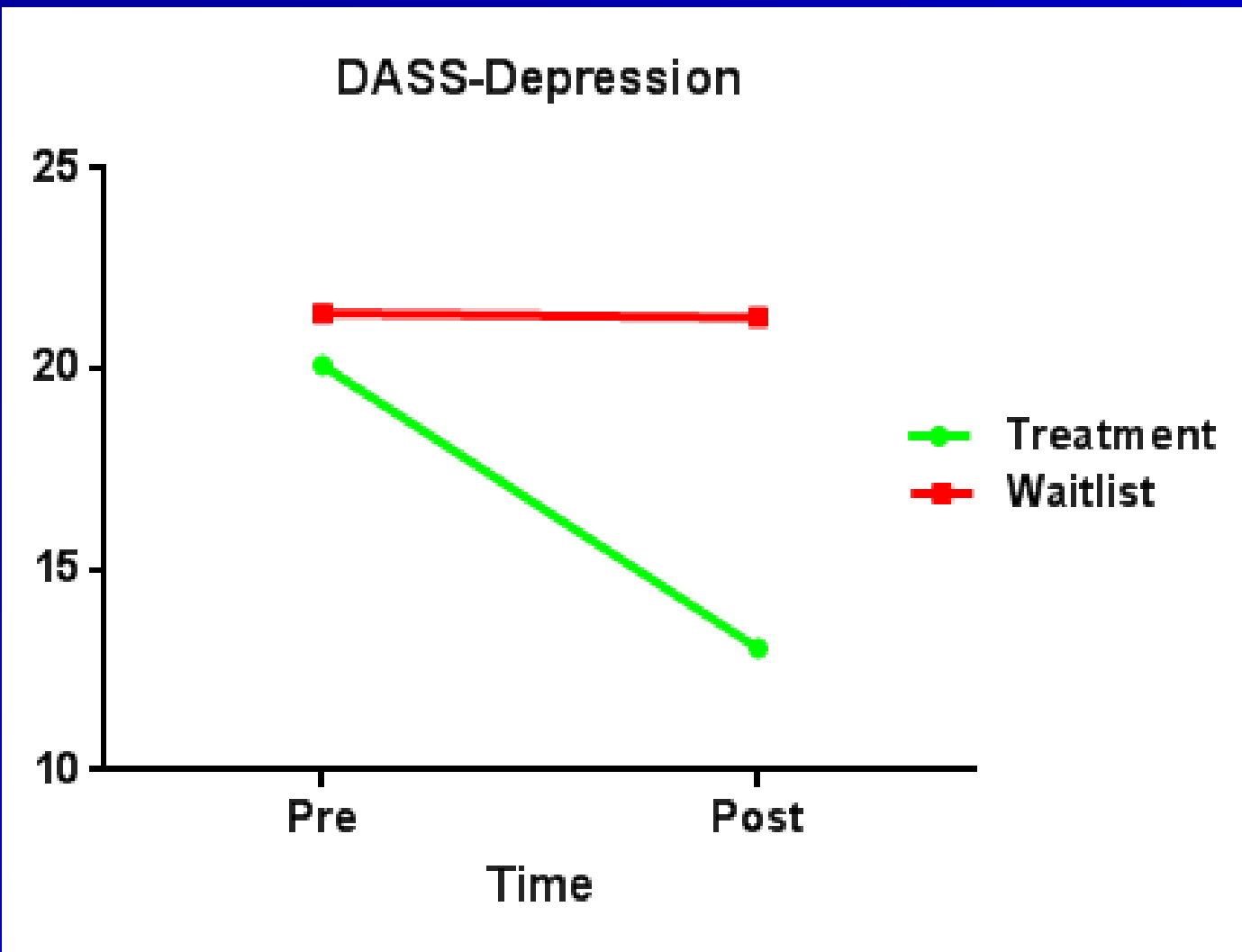


Effect of Condition on
Slope

95% CI = -7.36 – 2.33

Effect size = -0.19

RCT Analyses: Depression Symptom Severity



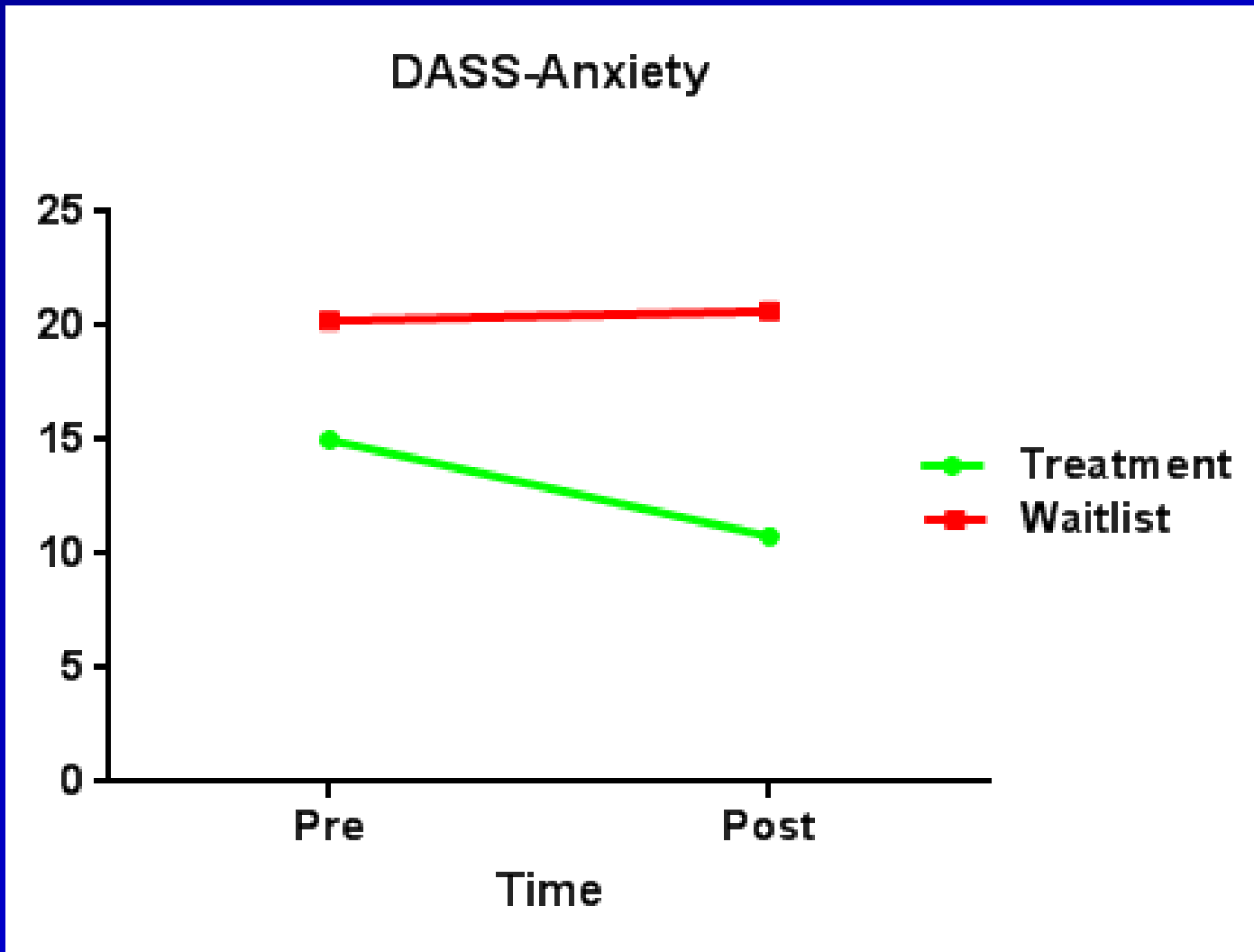
Effect of Condition on
Slope

95% CI = -11.40 – -0.26*

Effect size = -0.51

* $p < .05$

RCT Analyses: Anxiety Symptom Severity

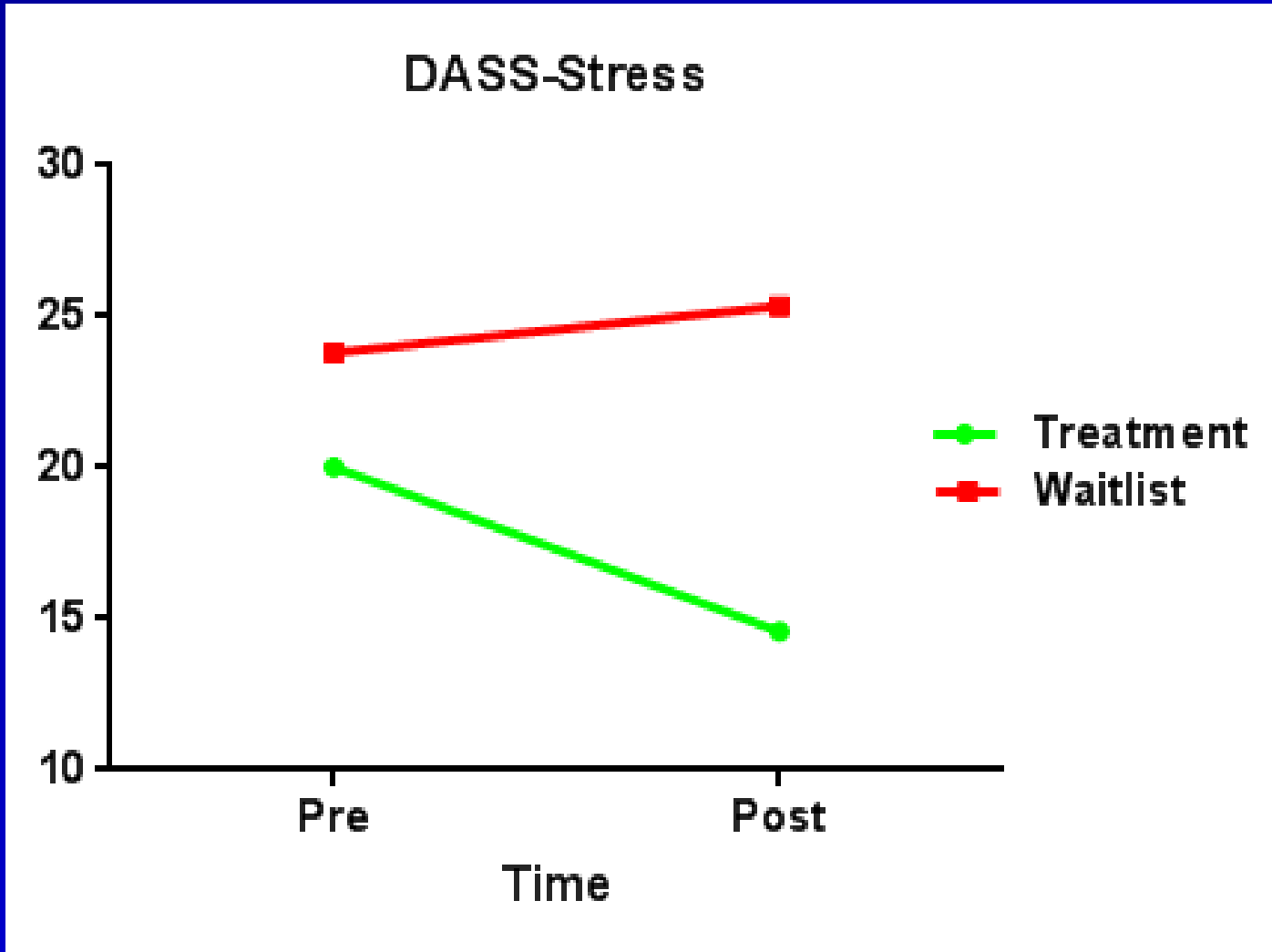


Effect of Condition on
Slope

95% CI = -10.13 – 1.14

Effect size = -0.38

RCT Analyses: Stress Symptom Severity



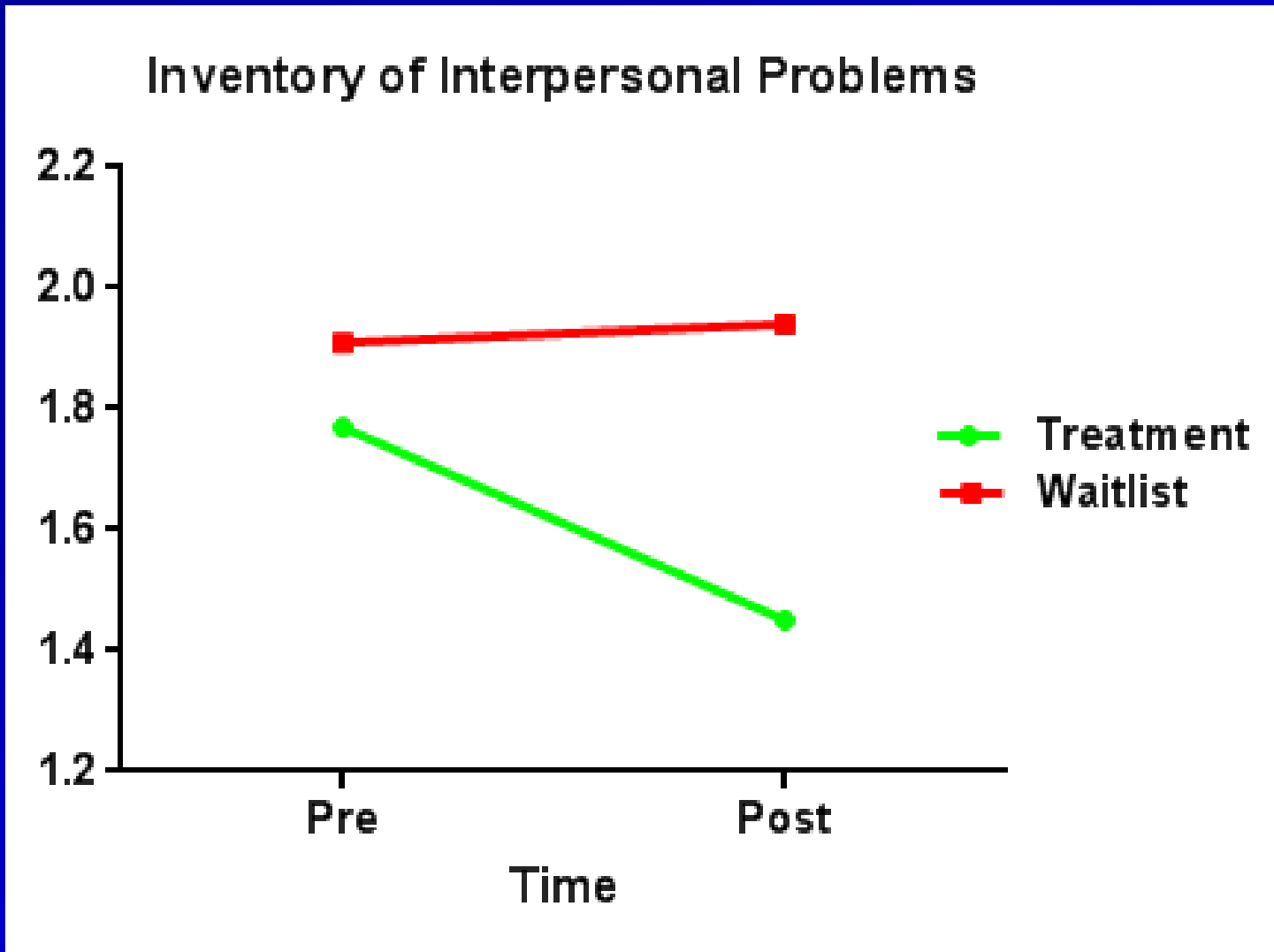
Effect of Condition on
Slope

95% CI = -11.27 – -2.52*

Effect size = -0.60

* $p < .05$

RCT Analyses: BPD-Relevant Interpersonal Problems



Effect of Condition on
Slope

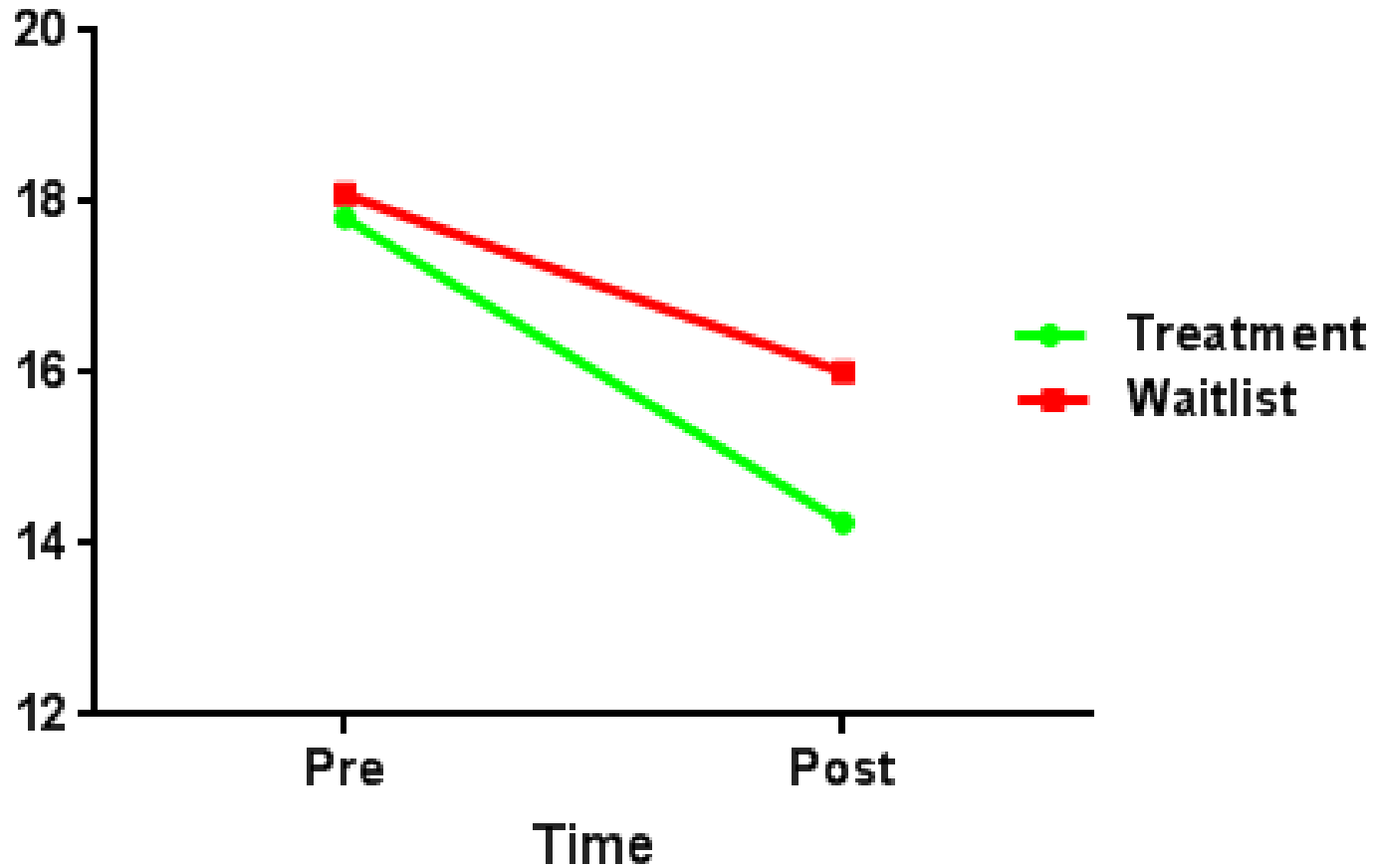
95% CI = -0.71 – 0.01[†]

Effect size = -0.48
(medium effect)

[†] $p < .10$

RCT Analyses: Social and Vocational Impairment

Sheehan Disability Scale



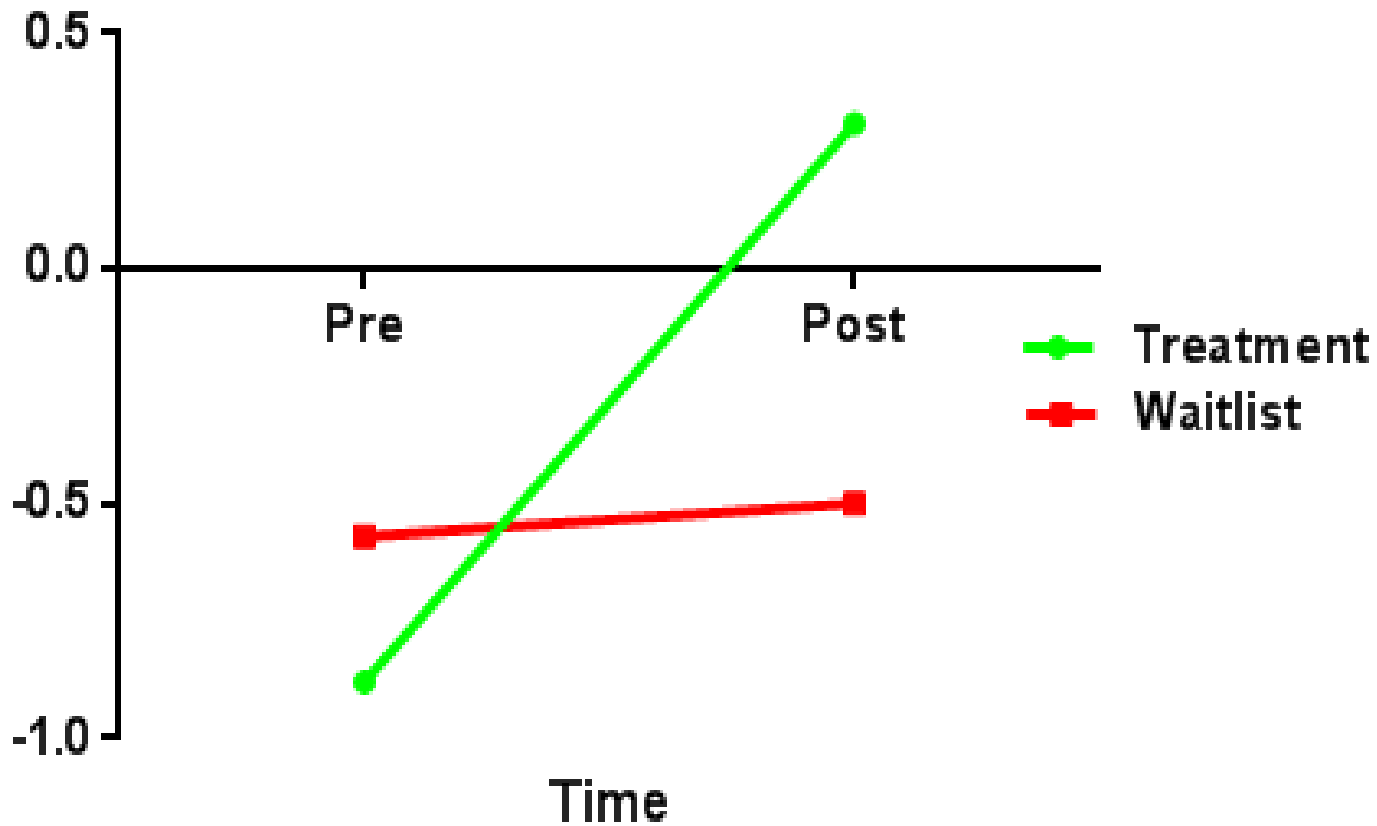
Effect of Condition on
Slope

95% CI = -6.70– 3.22

Effect size = -0.16

RCT Analyses: Quality of Life

Quality of Life Inventory



Effect of Condition on
Slope

95% CI = 0.14 – 2.10*

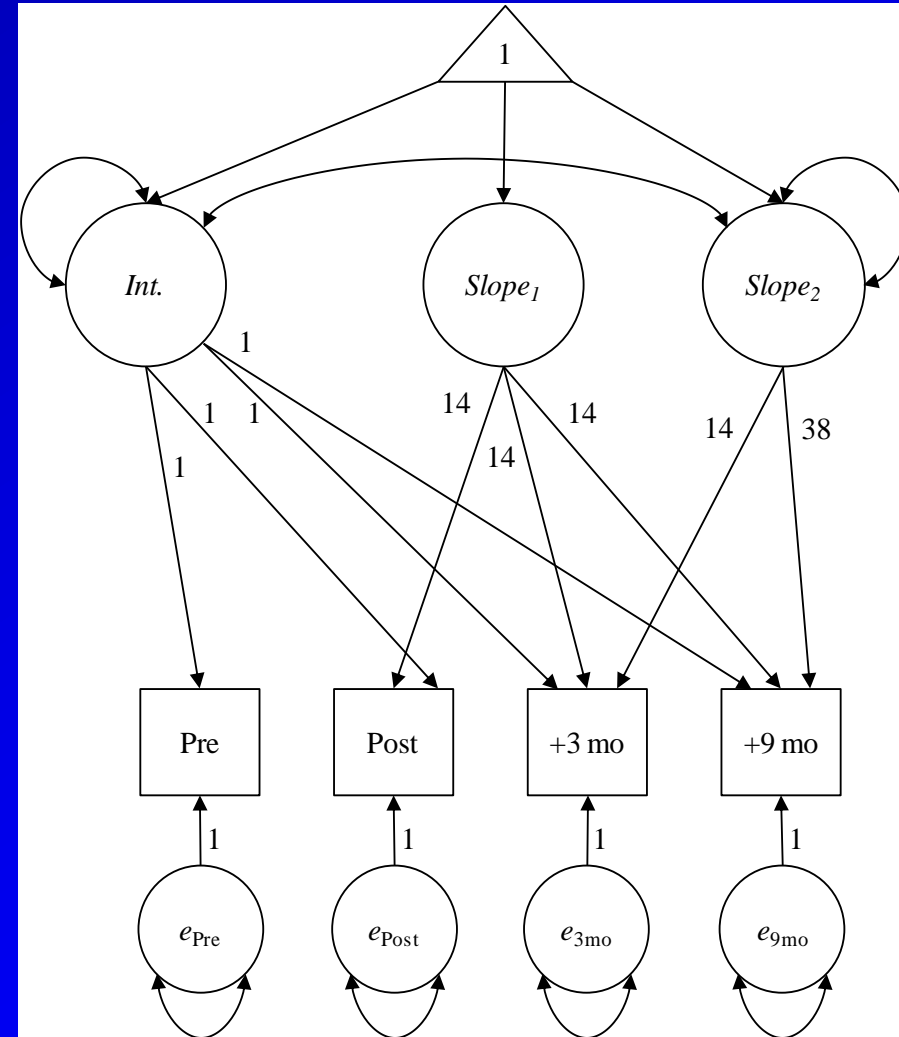
Effect size = 0.52

****p < .05***

Analyses of Maintenance of Treatment Gains

Piecewise linear growth models were used to model changes in outcome measures across treatment and follow-up periods for all participants who began ERGT (n=51)

- Bayesian approach to growth modeling
- Due to unequal intervals between assessments, DSH frequencies were scaled to be the frequency of DSH per 14 weeks
- Models capture linear change during treatment ($Slope_1$) and from post-treatment to 9-month follow-up ($Slope_2$)



Results: Maintenance of Treatment Gains

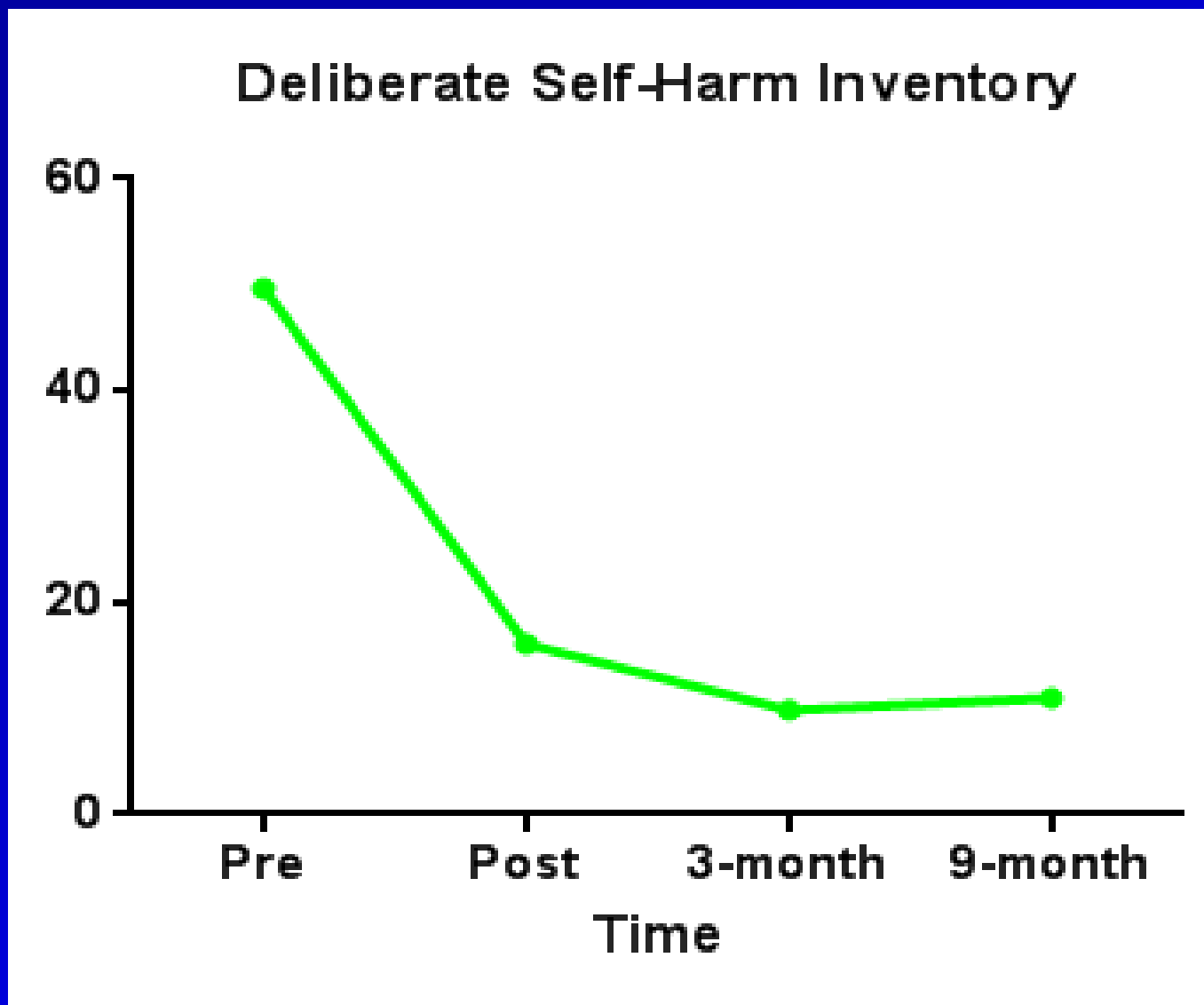
Across all participants who began ERGT, significant improvements from pre- to post-treatment on all outcome measures

All gains maintained or further improved upon at 9-month follow-up

- **Additional significant improvements from post-treatment to 9-month follow-up for**
 - **DSH**
 - **Emotion dysregulation**
 - **Experiential avoidance**
 - **BPD symptoms on the BEST**
 - **Quality of life**

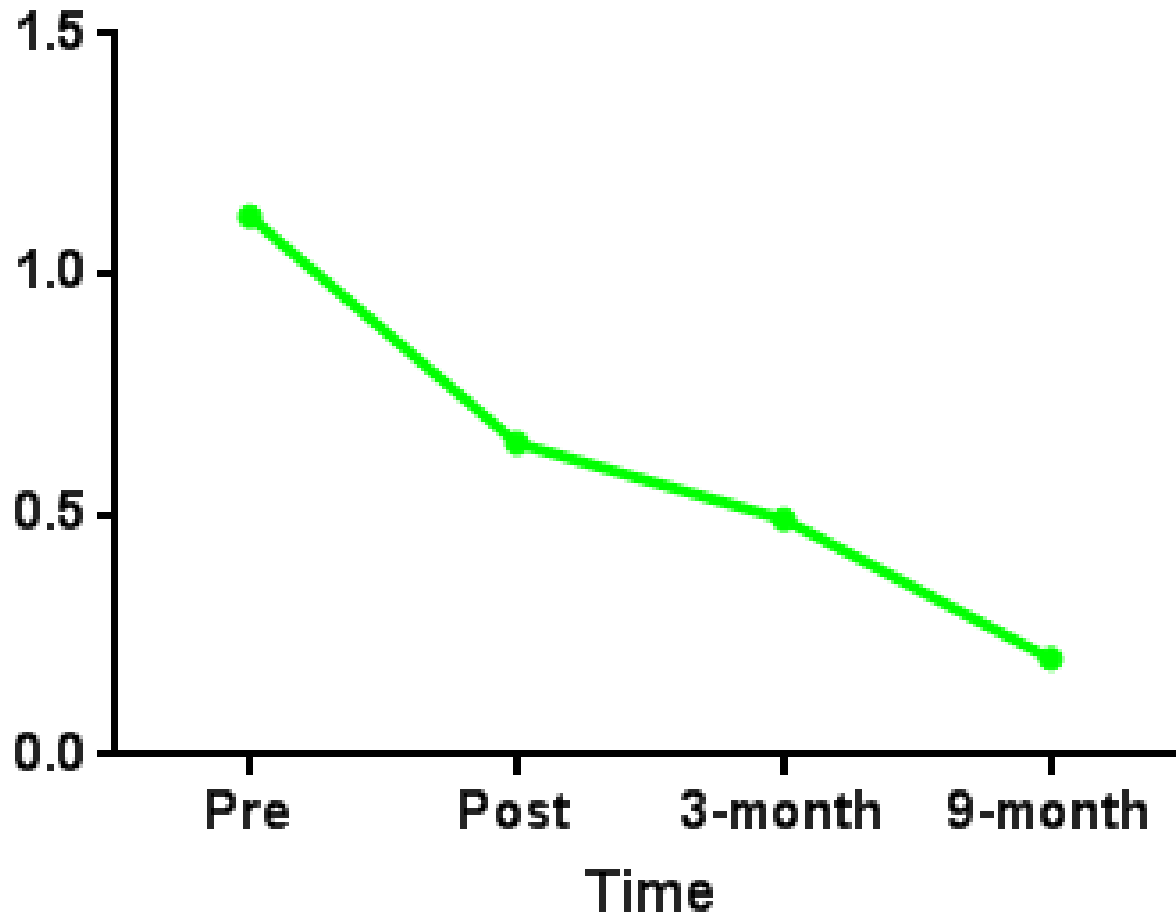
- **No significant changes from post-treatment through 9-month follow-up on any other measure**

Results: Deliberate Self-Harm (Observed Means)



Results: Deliberate Self-Harm

Deliberate Self-Harm Inventory (Transformed)



Slope₁

95% CI = -0.05 – -0.02*

Effect size = -0.68

Slope₂

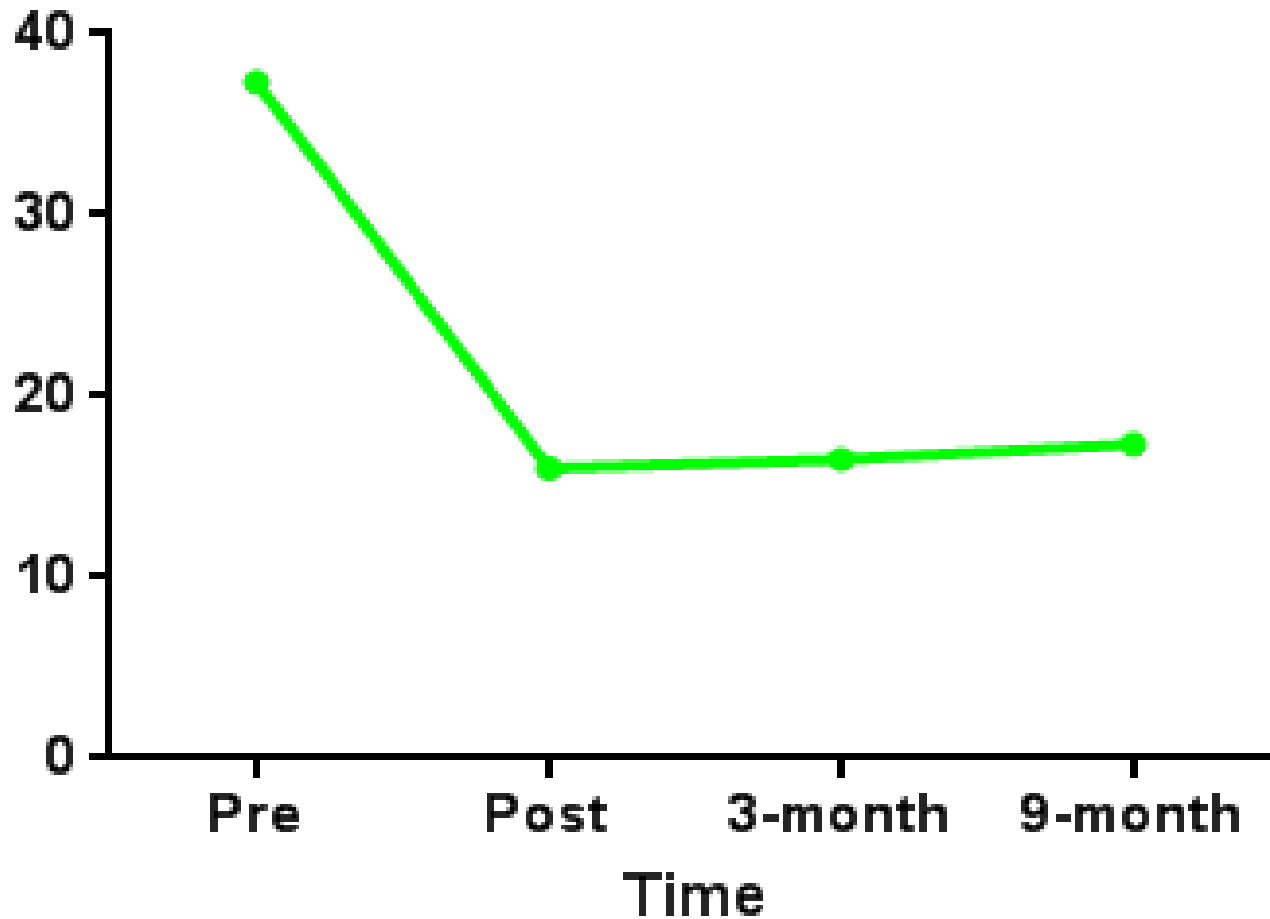
95% CI = -0.02 – -0.01*

Effect size = -1.36

****p* < .05**

Results: Self-Destructive Behaviors

Self-Harm Inventory



*Slope*₁

95% CI = -2.63 – -0.45*

Effect size = -0.34

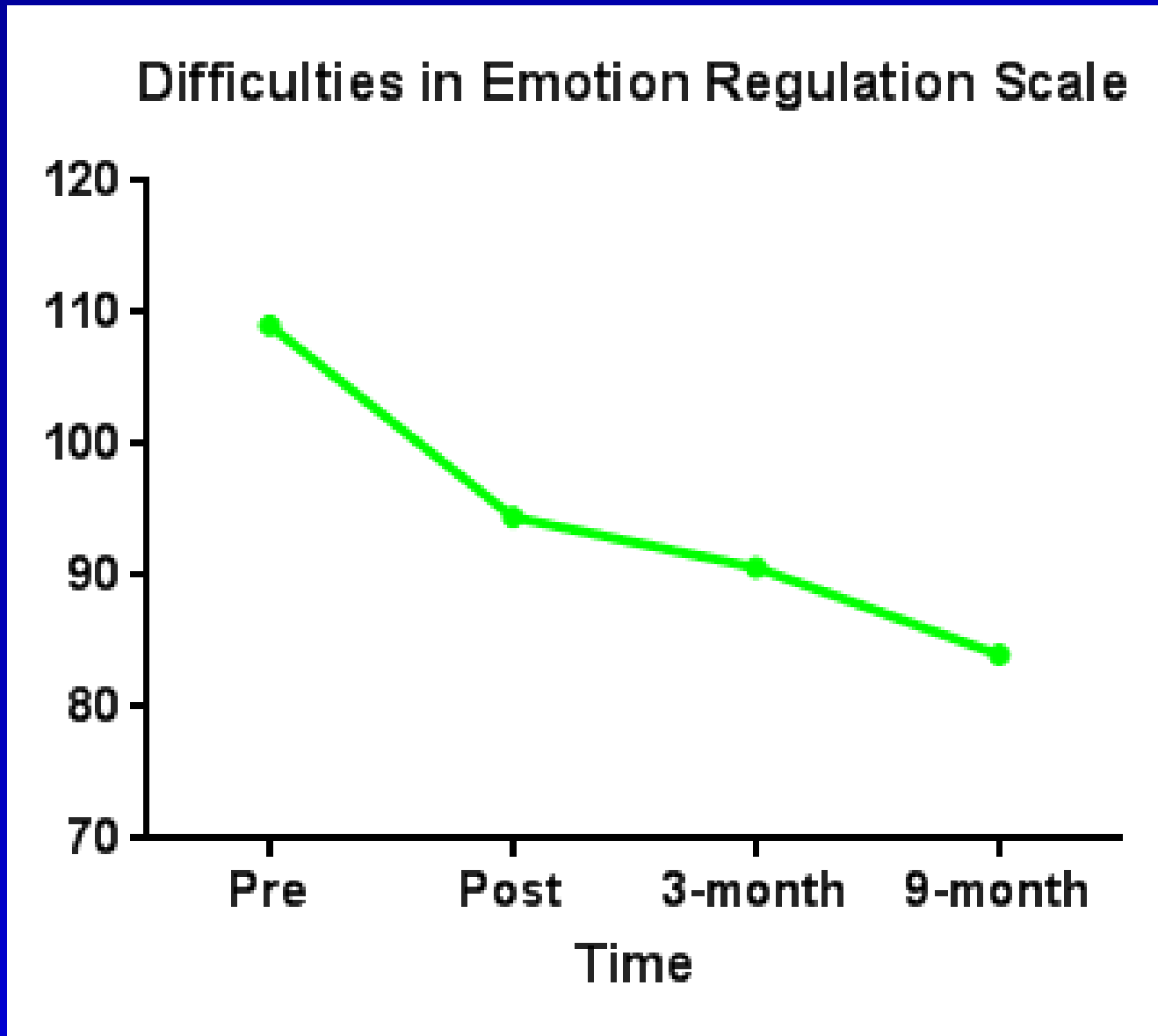
*Slope*₂

95% CI = -0.21 – 0.28

Effect size = -0.31

**p* < .05

Results: Emotion Dysregulation



Slope₁

95% CI = -1.40 – -0.67*

Effect size = -0.67

Slope₂

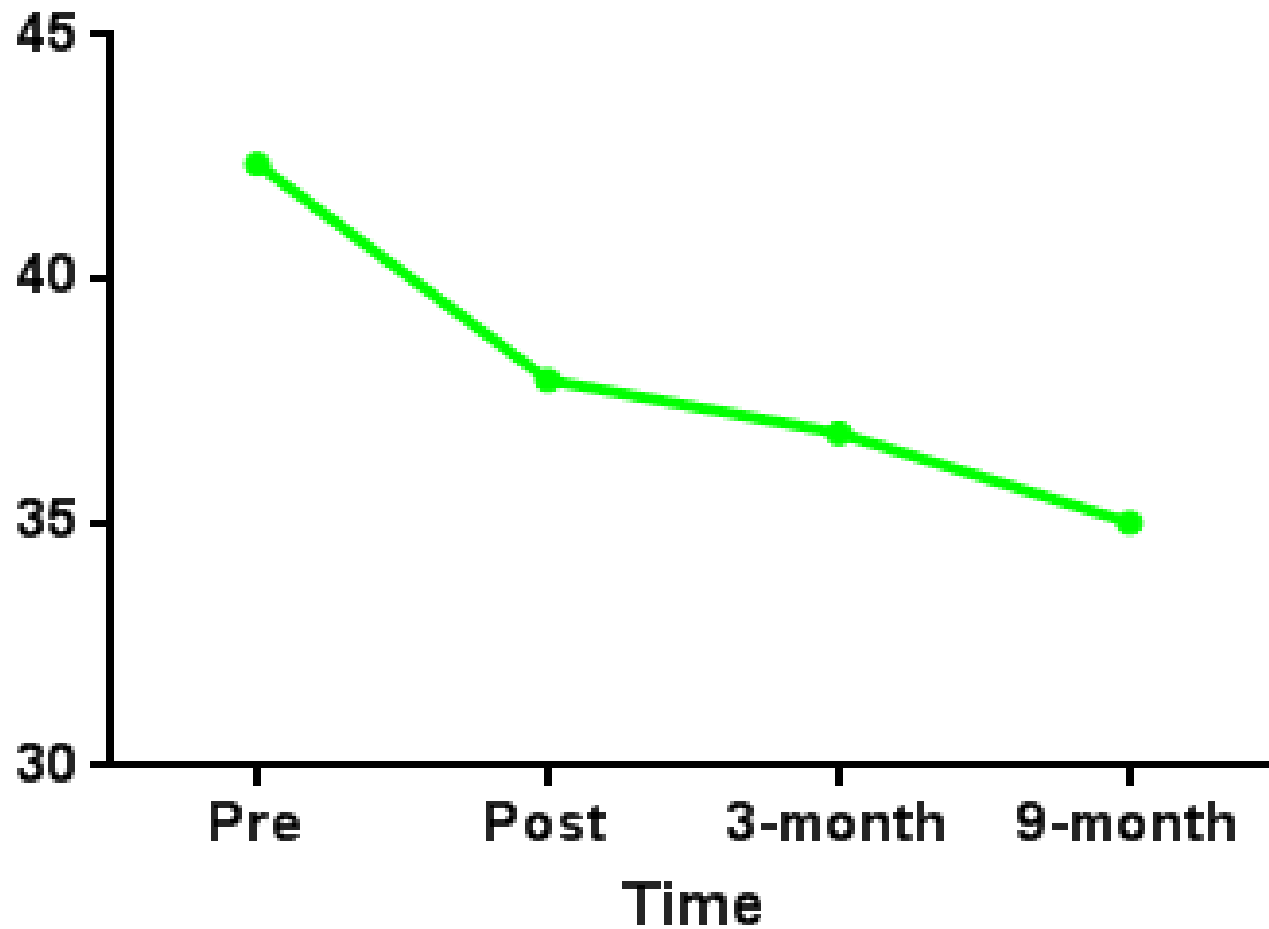
95% CI = -0.46 – -0.08*

Effect size = -1.15

****p* < .05**

Results: Experiential Avoidance

Acceptance and Action Questionnaire



Slope₁

95% CI = -0.47 – -0.18*

Effect size = -0.59

Slope₂

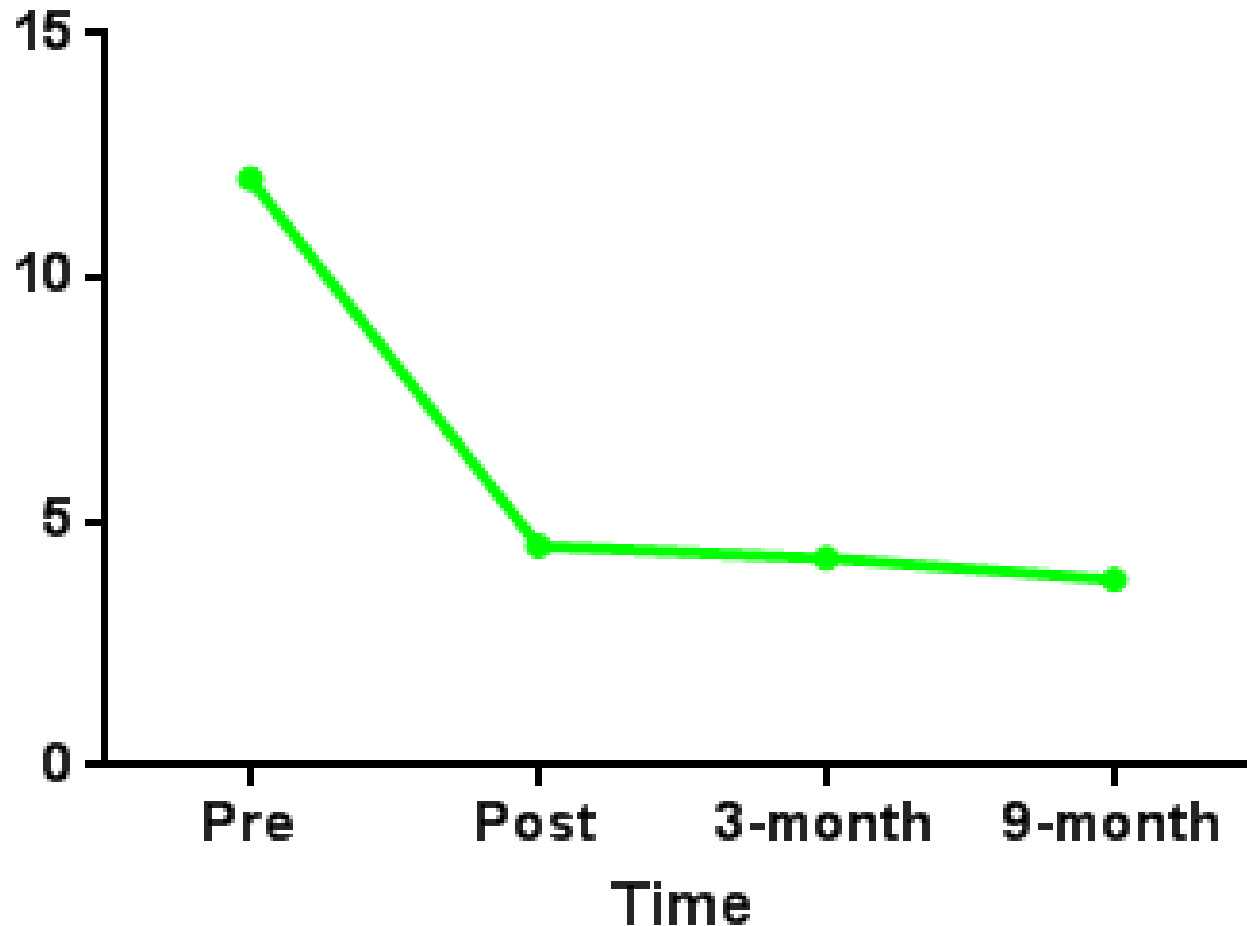
95% CI = -0.14 – -0.01*

Effect size = -0.98

****p* < .05**

Results: BPD Symptom Severity

Zanarini Rating Scale for BPD



Slope₁

95% CI = -0.66 – -0.40*

Effect size = -0.99

Slope₂

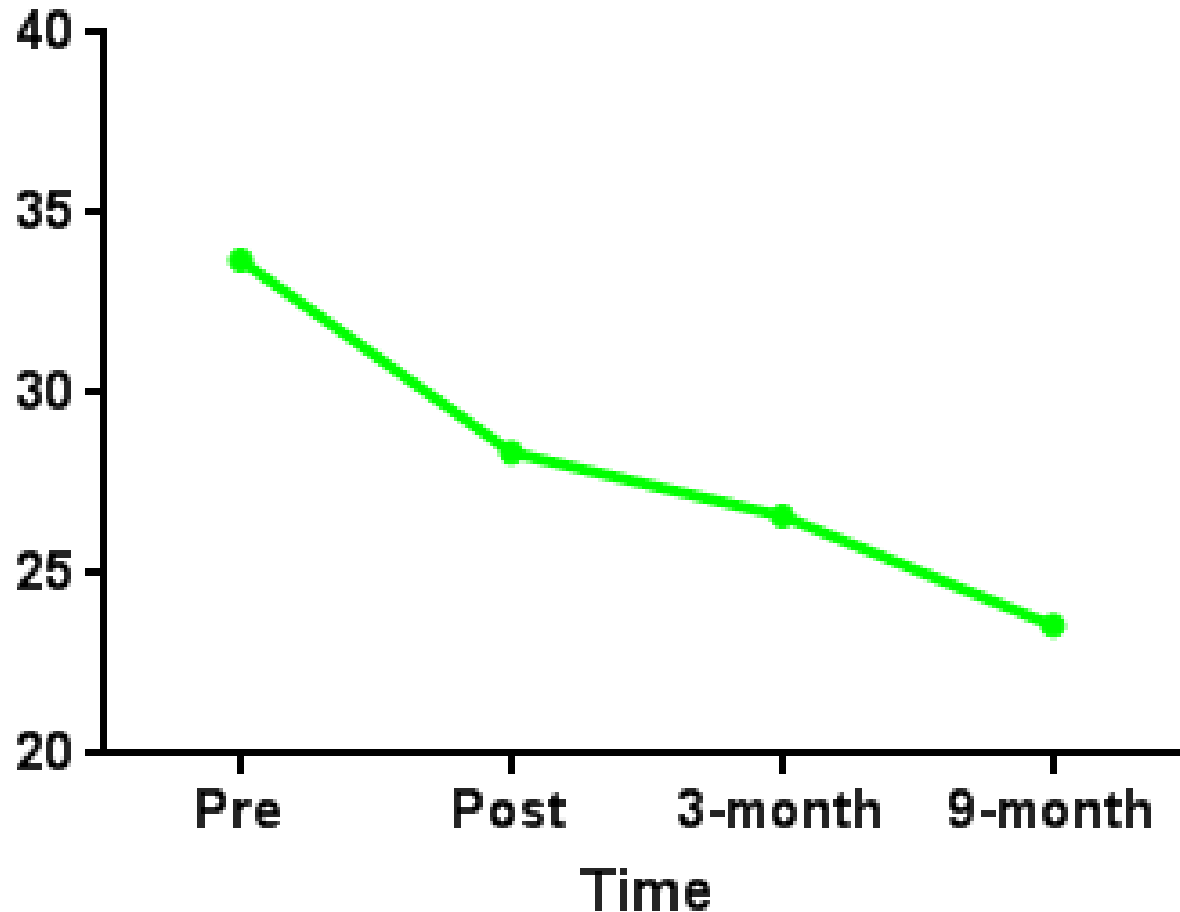
95% CI = -0.05 – 0.02

Effect size = -1.08

****p* < .05**

Results: BPD Symptom Severity

Borderline Evaluation of Severity Over Time



Slope₁

95% CI = -0.56 – -0.21*

Effect size = -0.51

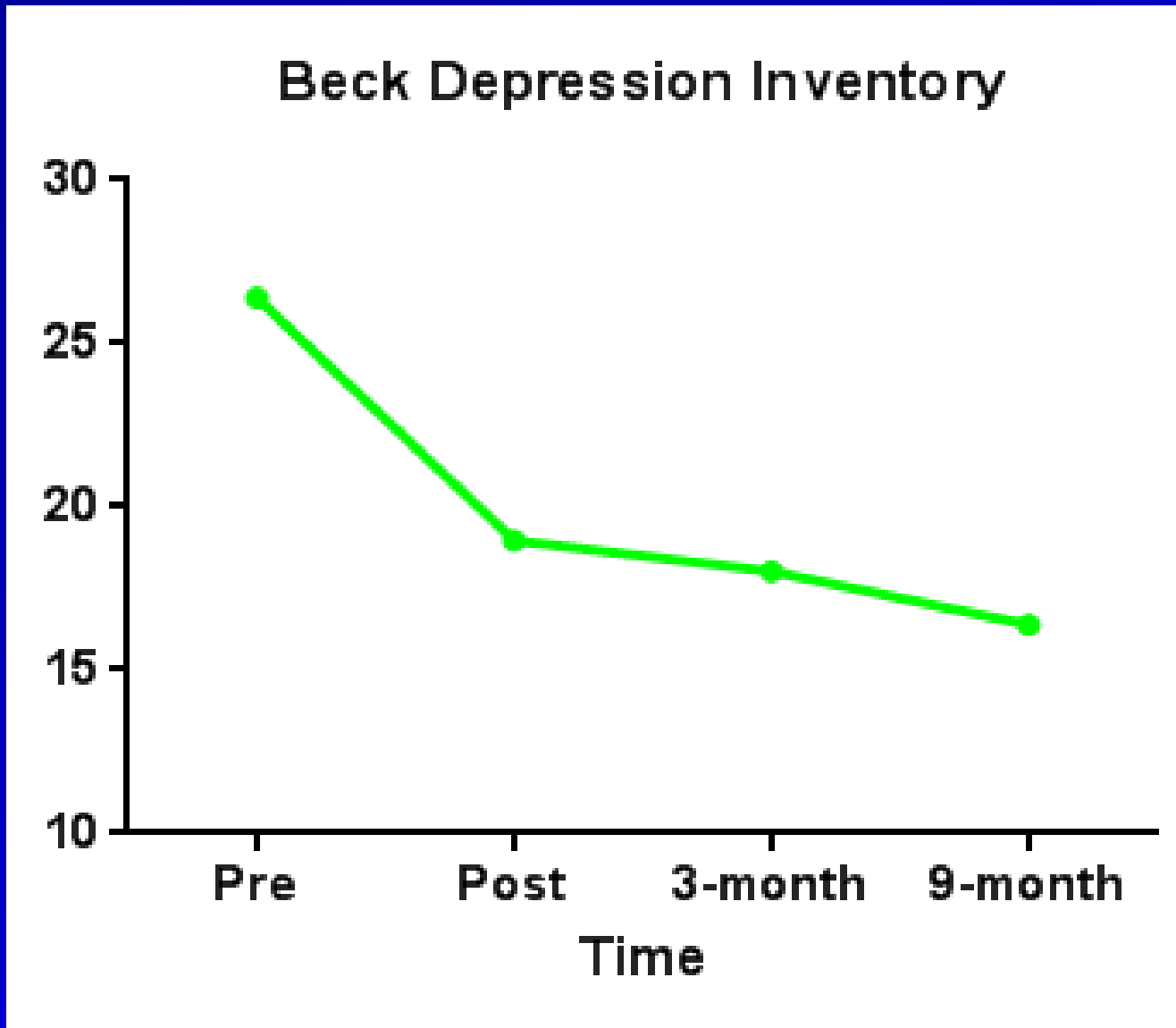
Slope₂

95% CI = -0.22 – -0.03*

Effect size = -0.96

****p* < .05**

Results: Depression Symptom Severity



Slope₁

95% CI = -0.73 – -0.33*

Effect size = -0.58

Slope₂

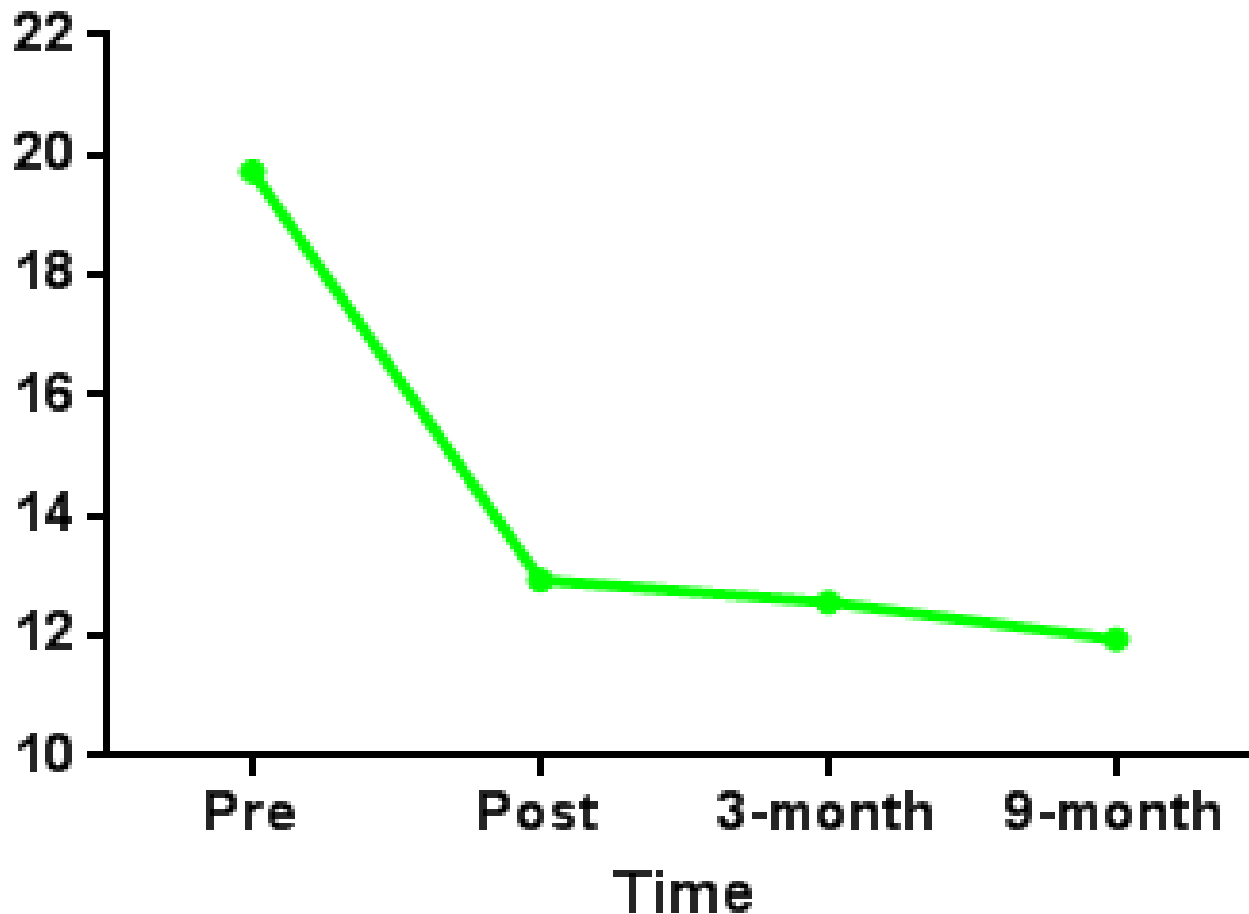
95% CI = -0.17 – 0.03

Effect size = -0.78

****p* < .05**

Results: Depression Symptom Severity

DASS-Depression



Slope₁

95% CI = -0.68 – -0.33*

Effect size = -0.53

Slope₂

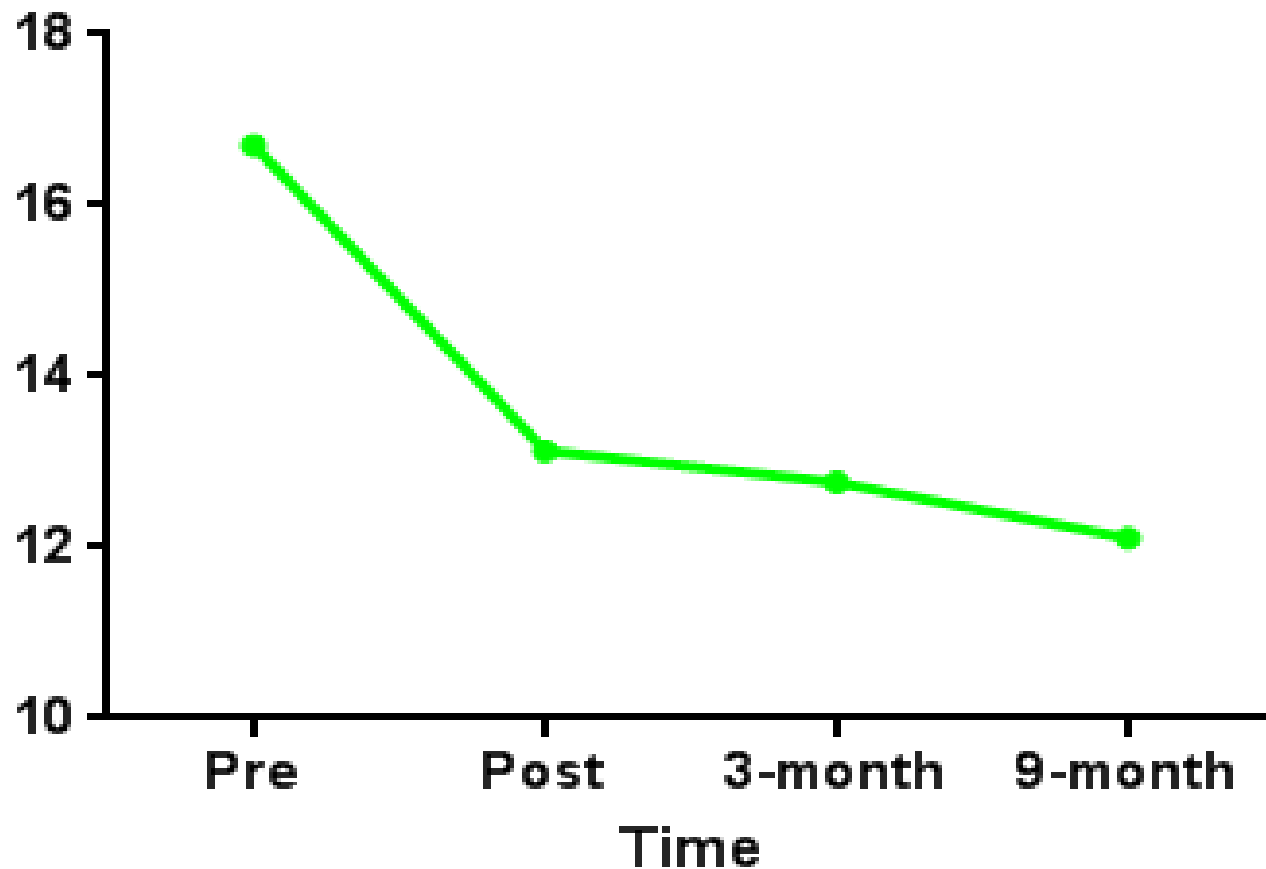
95% CI = -0.11 – 0.06

Effect size = -0.61

****p* < .05**

Results: Anxiety Symptom Severity

DASS-Anxiety



Slope₁

95% CI = -0.43 – -0.11*

Effect size = -0.29

Slope₂

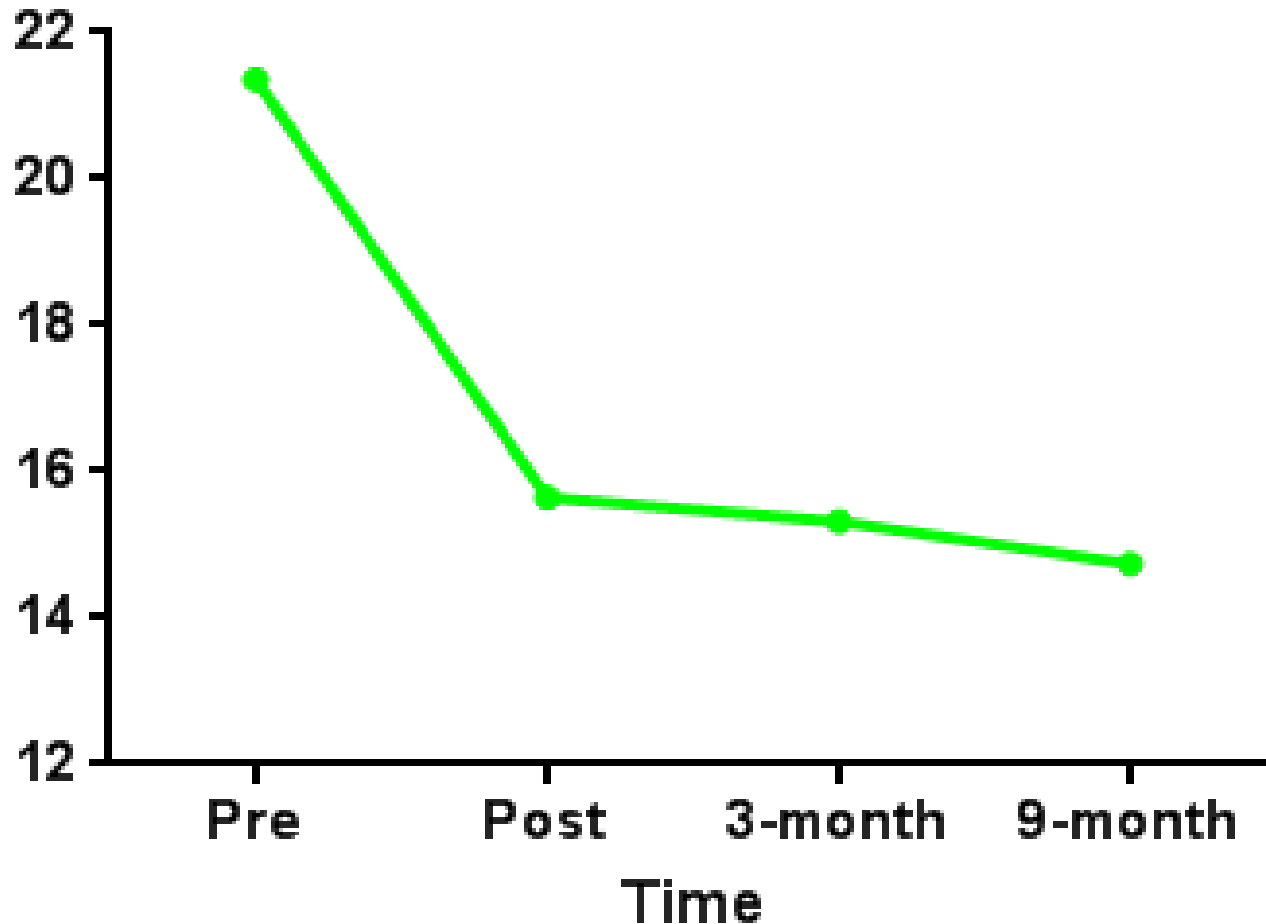
95% CI = -0.11 – 0.05

Effect size = -0.38

****p* < .05**

Results: Stress Symptom Severity

DASS-Stress



Slope₁

95% CI = -0.58 – -0.27*

Effect size = -0.52

Slope₂

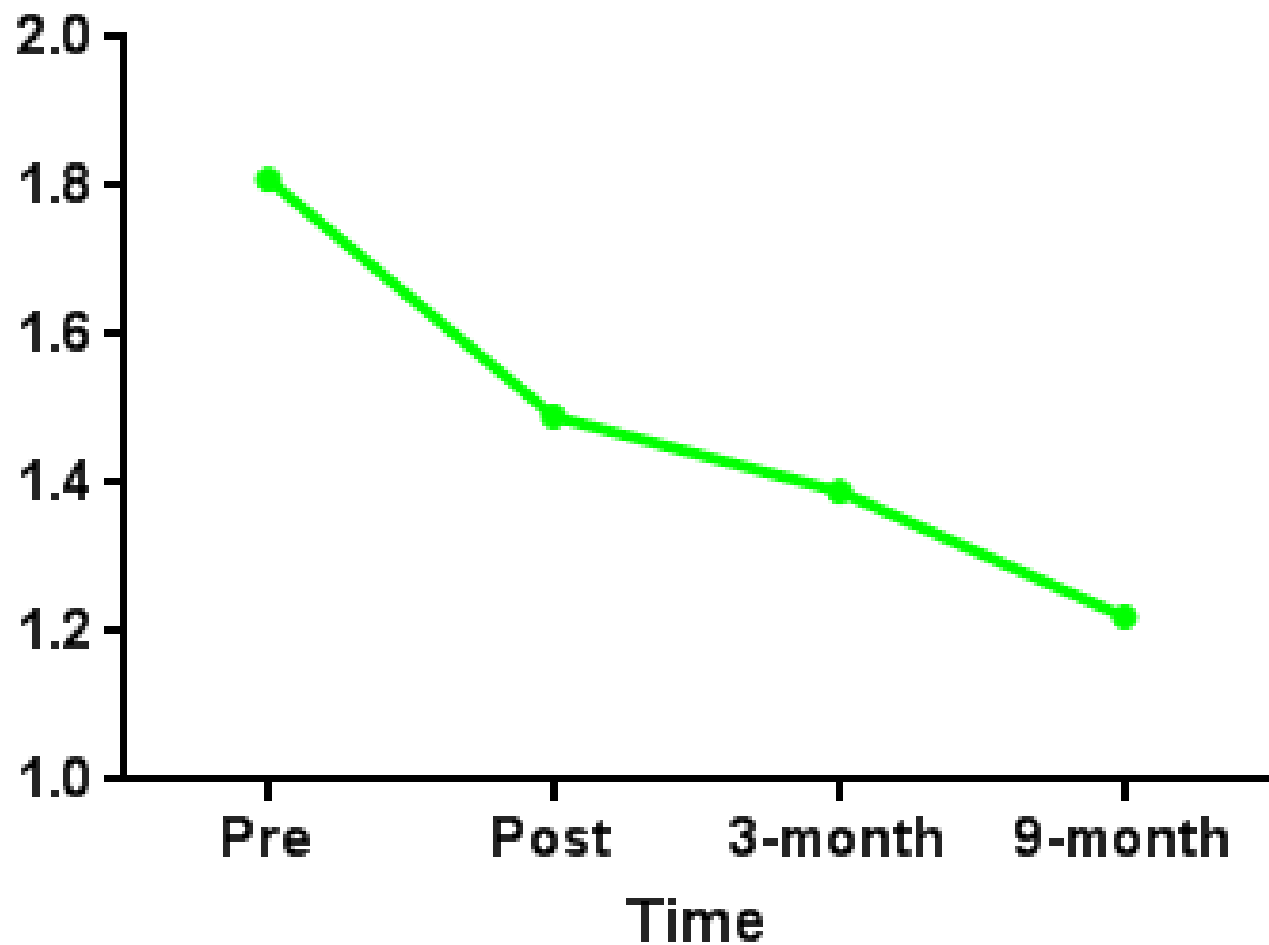
95% CI = -0.11 – 0.06

Effect size = -0.61

****p* < .05**

Results: BPD-Relevant Interpersonal Problems

Inventory of Interpersonal Problems



Slope₁

95% CI = -0.04 – -0.01*

Effect size = -0.46

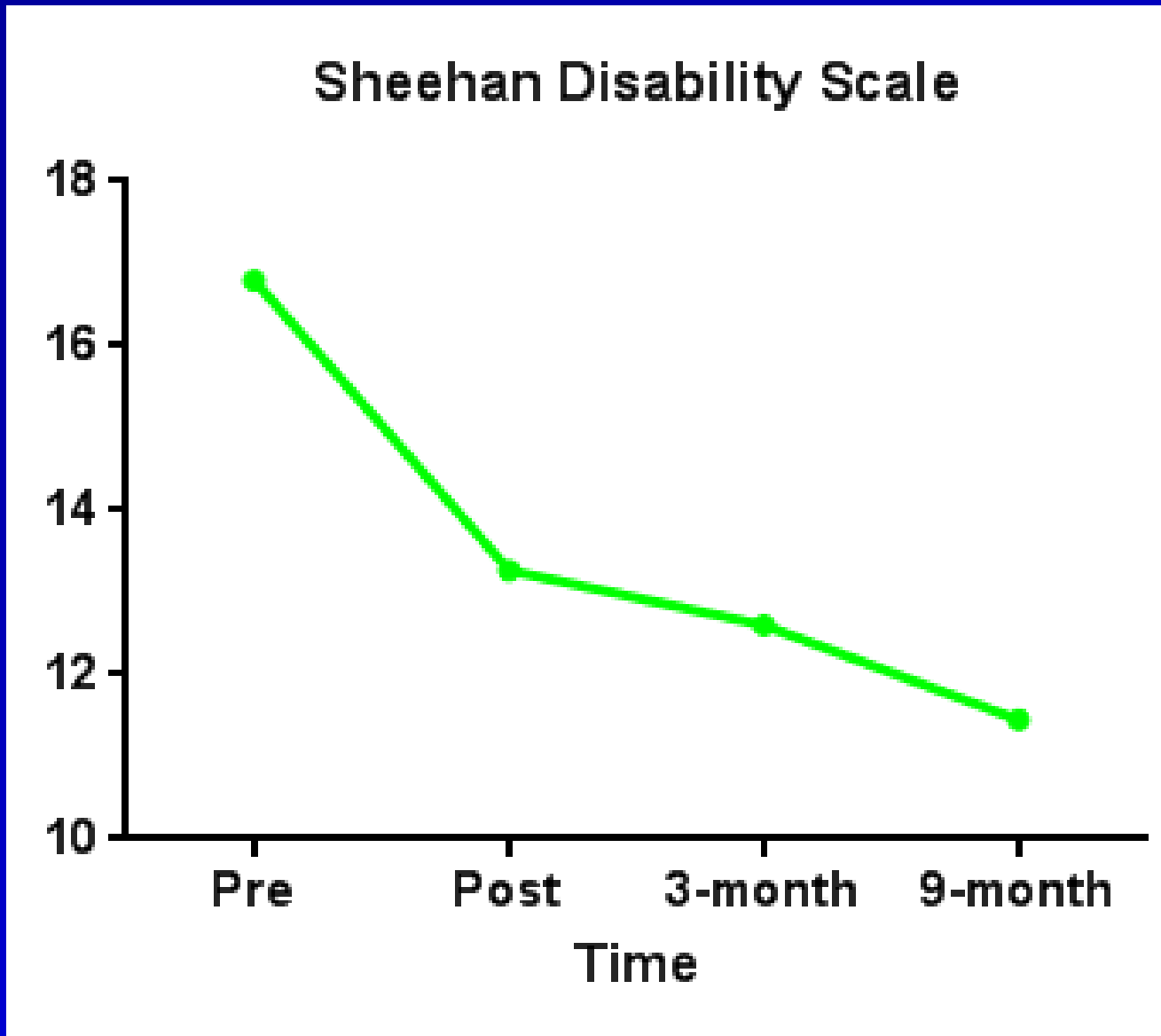
Slope₂

95% CI = -0.01 – 0.00

Effect size = -0.83

****p* < .05**

Results: Social and Vocational Impairment



Slope₁

95% CI = -0.42 – -0.06*

Effect size = -0.41

Slope₂

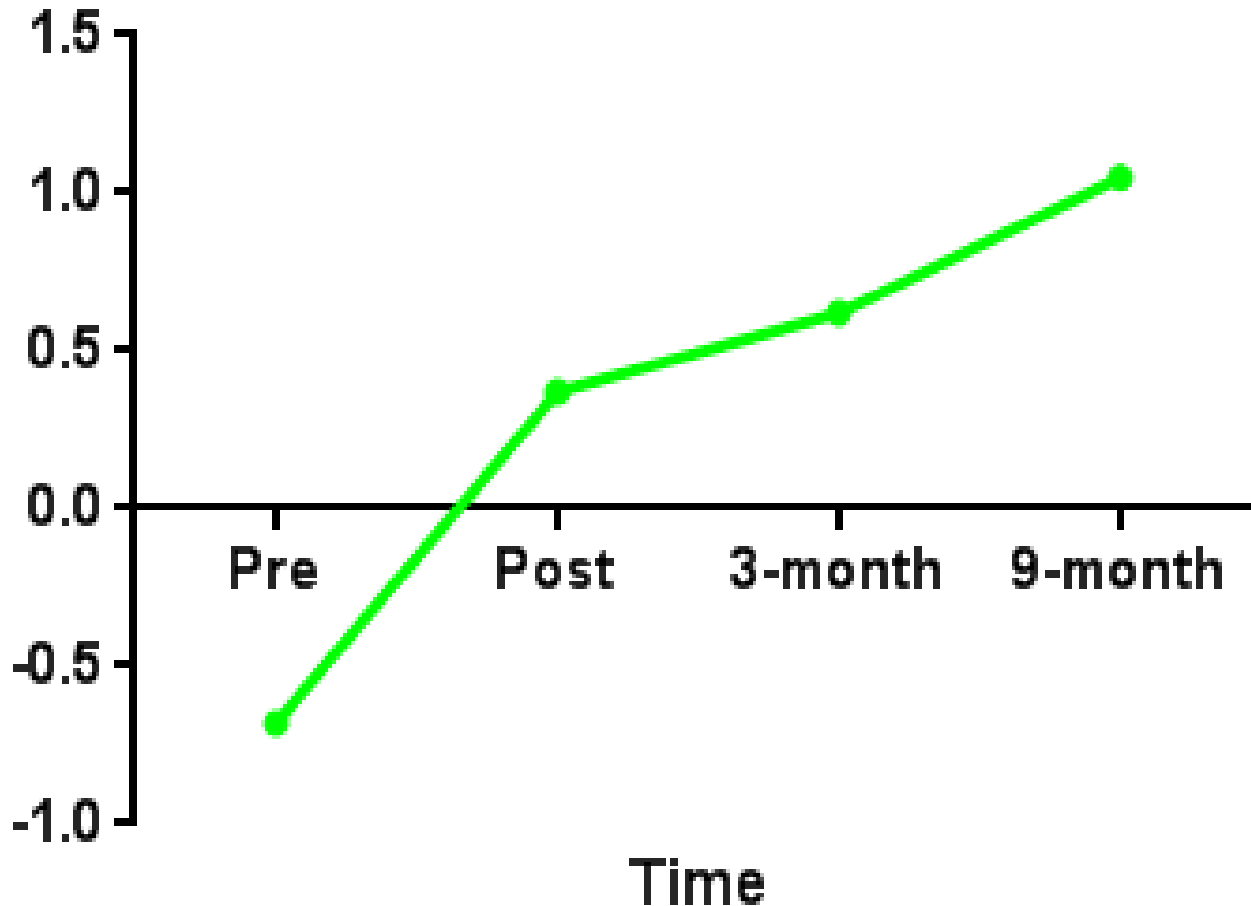
95% CI = -0.13 – 0.04

Effect size = -0.62

****p* < .05**

Results: Quality of Life

Quality of Life Inventory



Slope₁

95% CI = 0.04 – 0.12*

Effect size = 0.44

Slope₂

95% CI = 0.00 – 0.04*

Effect size = 0.72

****p* < .05**

Clinical Significance of Treatment Effects

Outcome	Post-treatment			9-month Follow-up		
	% Reliable Improve	% Normal Function	% Both Criteria	% Reliable Improve	% Normal Function	% Both criteria
Mediators						
Emotion Dysregulation	33.3	69.2	30.8	55.3	68.4	50.0
Experiential Avoidance	42.1	68.4	39.5	55.3	78.9	50.0
Psychiatric Symptoms						
BPD Symptom (ZANBPD)	50.0	86.8	44.7	52.8	91.7	47.2
BPD Symptom (BEST)	29.7	78.4	27.0	52.6	86.8	50.0
BDI-II Depression	27.0	56.8	16.2	52.6	68.4	42.1
DASS Depression	23.7	55.3	10.5	39.5	65.8	26.3
DASS Anxiety	23.7	39.5	5.2	26.3	55.3	15.8
DASS Stress	31.6	57.9	18.4	34.2	60.5	28.9
Adaptive Functioning						
Interpersonal functioning	34.2	76.3	34.2	44.7	92.1	42.1
Social/Voc. Impairment	32.4	36.8	13.5	32.4	39.5	23.5
Quality of Life	36.1	38.9	16.7	44.7	47.4	28.9

Clinical Significance of Treatment Effects

Outcome	Post-treatment			9-month Follow-up		
	% Reliable Improve	% Normal Function	% Both Criteria	% Reliable Improve	% Normal Function	% Both criteria
Mediators						
Emotion Dysregulation	33.3	69.2	30.8	55.3	68.4	50.0
Experiential Avoidance	42.1	68.4	39.5	55.3	78.9	50.0
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Self-destructive behavior:

- Change from pre- to post-treatment
 - 55% showed reduction of $> 75\%$
 - 66% showed reduction of $\geq 50\%$
- Change from pre-treatment to 9-month follow-up
 - 53% showed reduction of $> 80\%$
 - 70% showed reduction of $> 50\%$

Deliberate self-harm:

- Change from pre- to post-treatment
 - 54% showed reduction of $> 70\%$
 - 77% showed reduction of $\geq 40\%$
- Abstinence rates
 - 51% abstinent during last 2 months of treatment
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Conclusions

Provides support for the efficacy of this adjunctive ERGT for DSH in BPD

- Significant treatment effects on DSH and self-destructive behaviors, emotion dysregulation, BPD, depression, and stress, and quality of life

Provides support for the durability of treatment gains

- All treatment gains maintained or improved upon at 9-month follow-up
- Continued improvements after treatment in main outcomes of interest
 - DSH
 - Emotion dysregulation and experiential avoidance
 - BPD symptoms
 - Quality of life

Suggests utility of adding this short-term group to TAU in the community

- Does not require match to specific form of individual therapy
- Was the primary treatment for 43% of participants in this trial

Limitations/Future Directions

Exclusive focus on women

- Findings may not be generalizable to men
- Protocol may need to be modified to be effective for men

Exclusive reliance on interview-based and self-report measures

- Need objective measures of emotional and interpersonal dysregulation

Examine emotion regulation as a mechanism of change in this treatment

- Mediating role of changes in emotion dysregulation in improvements in DSH and other outcomes (BPD, depression, self-destructive behaviors)
 - All linked to emotion dysregulation

Examine other mechanisms of change in this treatment

- Enhancement of mentalization (Bateman & Fonagy, 2004)
- Acceptance of internal experiences (Hayes, Orsillo, & Roemer, 2010)

Comments and Questions