Targeting Emotion Regulation in the Treatment of Deliberate Self-Harm among Women with Borderline Personality Pathology: Efficacy of an Acceptance-based Emotion Regulation Group Therapy

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Acknowledgments

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Deliberate Self-harm (DSH) in BPD

Clinically-important behavior common among patients with BPD

- Occurs among 70-75% of patients with BPD
- 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

Gunderson, 2001; Linehan, 1993; Tyrer et al., 2004; Zanarini, 2009

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**

Brown et al., 2002; Chapman et al., 2006; Gratz, 2007; Gratz et al., 2010; Gratz & Roemer, 2008; Gratz & Tull, 2010; Linehan, 1993; Heath et al., 2008; Kleindienst et al., 2008

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

Gratz & Gunderson, 2006; Gratz & Tull, 2011; Gratz & Roemer, 2004

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 in DSH and self-destructive behaviors, emotion dysregulation, BPD, depression, anxiety, social/vocational impairment**

Mechanism of Change in ERGT

Examined mediating role of changes in emotion dysregulation in DSH improvement across two trials of ERGT

- **Open Trial and Initial RCT**

Path models examined if changes in emotion dysregulation mediated changes in DSH for Initial RCT and Open Trial treatment completers

- **Use estimated latent intercept and slope factor scores**
- **Initial RCT controls serve as reference group**
- **Models estimated using maximum likelihood with robust standard errors in M*plus***

Gratz, Levy, & Tull (2012), *Journal of Cognitive Psychotherapy*

Mechanism of Change in ERGT: Results

Results provide support for full mediation across both trials

- **Standardized mediated effect for RCT: -0.45 (*SE* = .21), $p < .05$**
- **Standardized mediated effect for Open Trial: -0.31 (*SE* = .15), $p < .05$**

Support emotion regulation as a mechanism of change in ERGT

- **Changes in emotion dysregulation positively related to changes in DSH**
- **Indirect effect of ERGT on DSH improvement through changes in emotion dysregulation was significant**

Gratz, Levy, & Tull (2012), *Journal of Cognitive Psychotherapy*

Larger RCT: Purpose

Extend findings of initial RCT

- More socio-economically and ethnically diverse patients
- Underserved setting (less intensive TAU)
- Wider range of outcomes
  - DSH and other self-destructive behaviors
  - Emotion dysregulation and experiential avoidance
  - BPD, depression, anxiety, stress
  - Adaptive functioning (i.e., interpersonal functioning, social/vocational impairment, quality of life)

Gratz, Tull, & Levy (under review)

Larger RCT: Aims and Hypotheses

Primary Aims: Examine the efficacy of 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)

Hypotheses: 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)

		ERGT+TAU (n=31)	TAU WL (n=30)
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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	$20,000-60,000	32.3%	32.1%
	> $60,000	29.0%	10.7%

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

	ERGT+TAU	TAU WL
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*=68.4)	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)

	ERGT+TAU	TAU WL
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%

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

	ERGT+TAU	TAU WL
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%

Outcome Measures

Deliberate Self-harm and Other Self-destructive Behaviors

Deliberate Self-Harm Inventory (Gratz, 2001)

- Frequency of DSH over specified time periods

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

- Past-month frequency of self-destructive behaviors (e.g., drug and alcohol abuse, risky sex, disordered eating, suicidal behavior)

Emotion Dysregulation/Avoidance

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

- Level of emotion dysregulation across 6 dimensions

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

- Tendency to avoid unwanted internal experiences (e.g., emotions)

Outcome Measures

Psychiatric Symptoms

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

- Clinician-administered instrument assessing change in BPD symptoms over time

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

- Past-month BPD symptom severity

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

- Current depression symptom severity

Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995)

- Depression, anxiety, and stress symptom severity

Outcome Measures

Adaptive Functioning

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

- Interpersonal problems relevant to BPD

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

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

Preliminary Analyses

Overall treatment dropout rate: 23.5%

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 ($t = 2.34$, $p < .05$)**

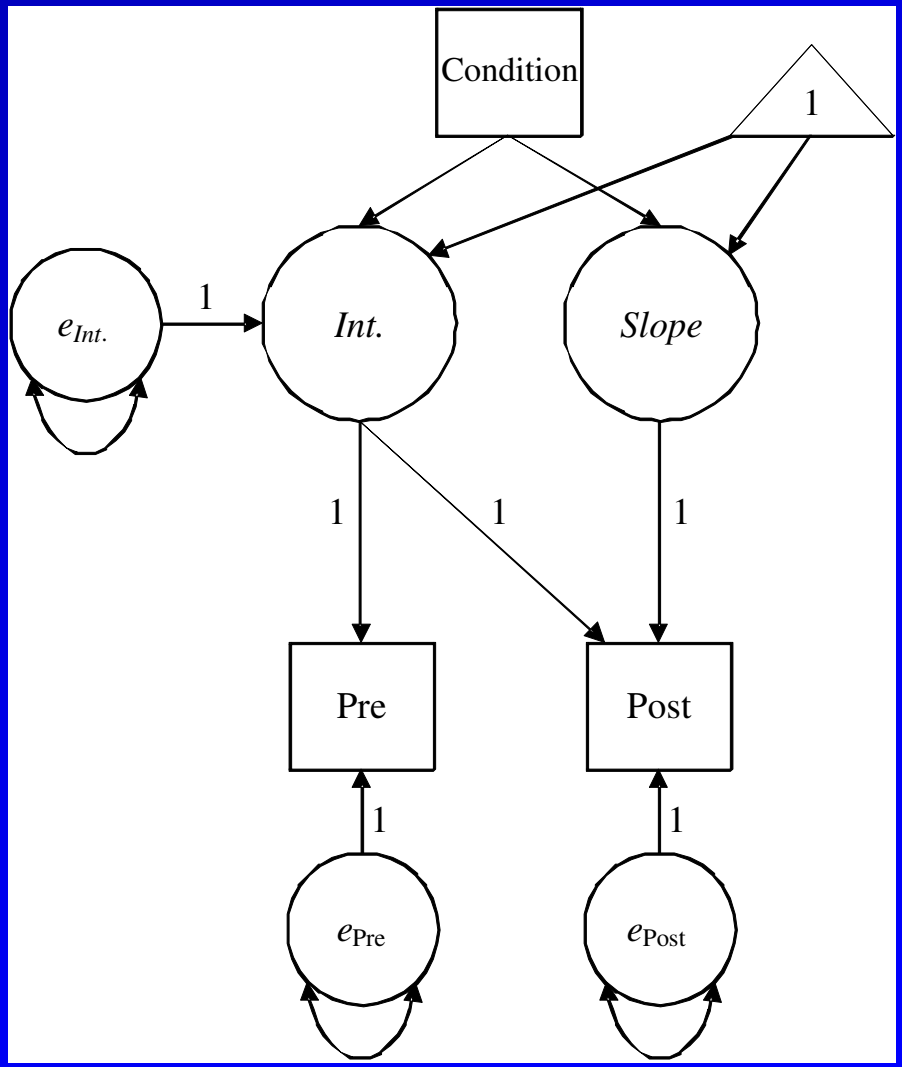
When including the 1.5 hours of treatment time associated with ERGT, no significant differences in overall therapy hours/week ($t = .43$, $p > .10$)

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

RCT Analyses

Latent growth models for TX effects

- Linear growth structure modeled from pre- to post- values
- Condition status modeled as influencing latent intercept and slope
- Bayesian approach to growth modeling
- Models fit using Markov chain Monte Carlo routines in M*plus*
- Multiple imputation strategy for missing data allows use of intent-to-treat sample



Results of RCT Analyses (N = 61)

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

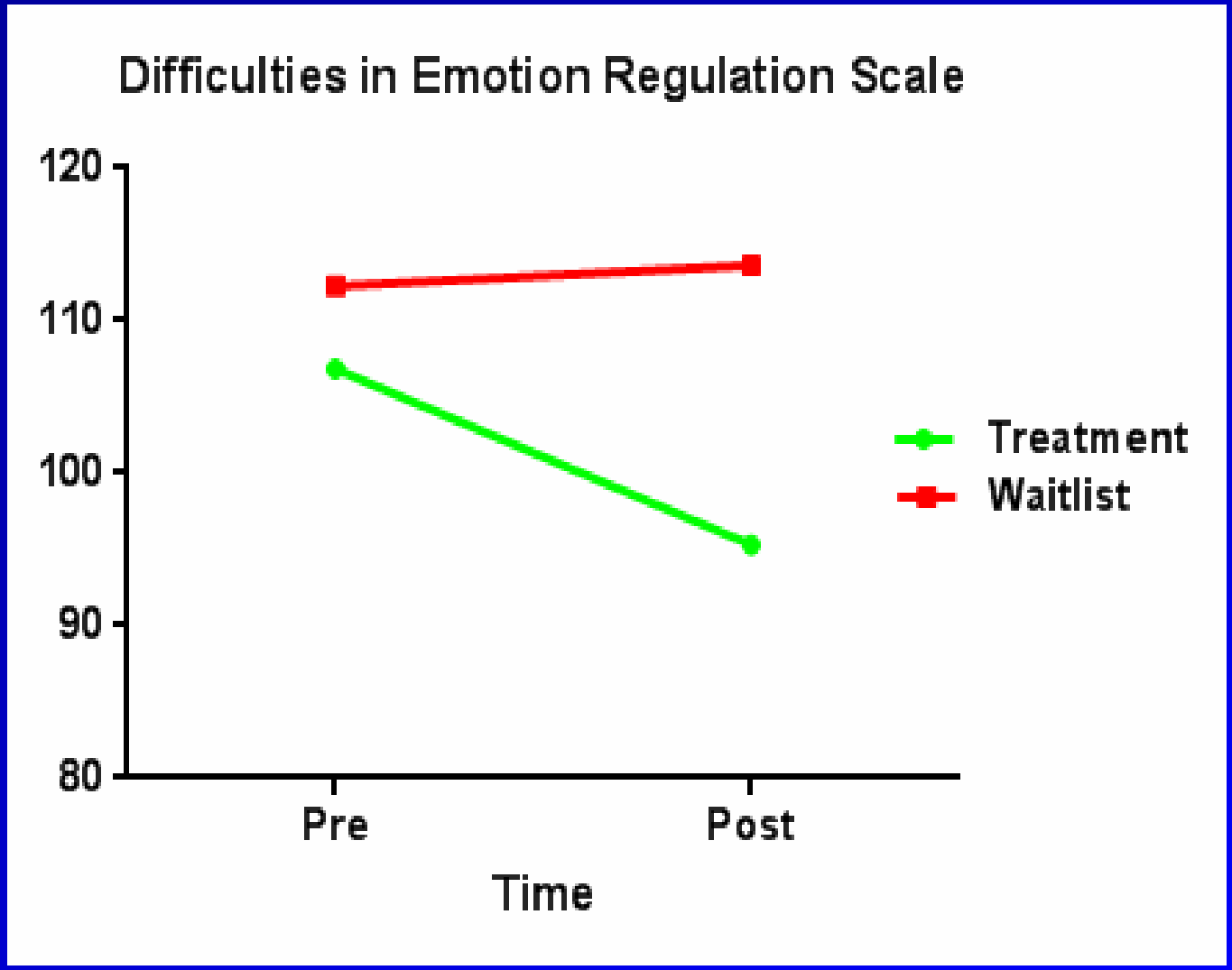
Effect of Condition on *Slope*

95% CI = -53.01 – -14.97*

***Effect size* = -0.77**

***p < .05**

RCT Analyses: Emotion Dysregulation



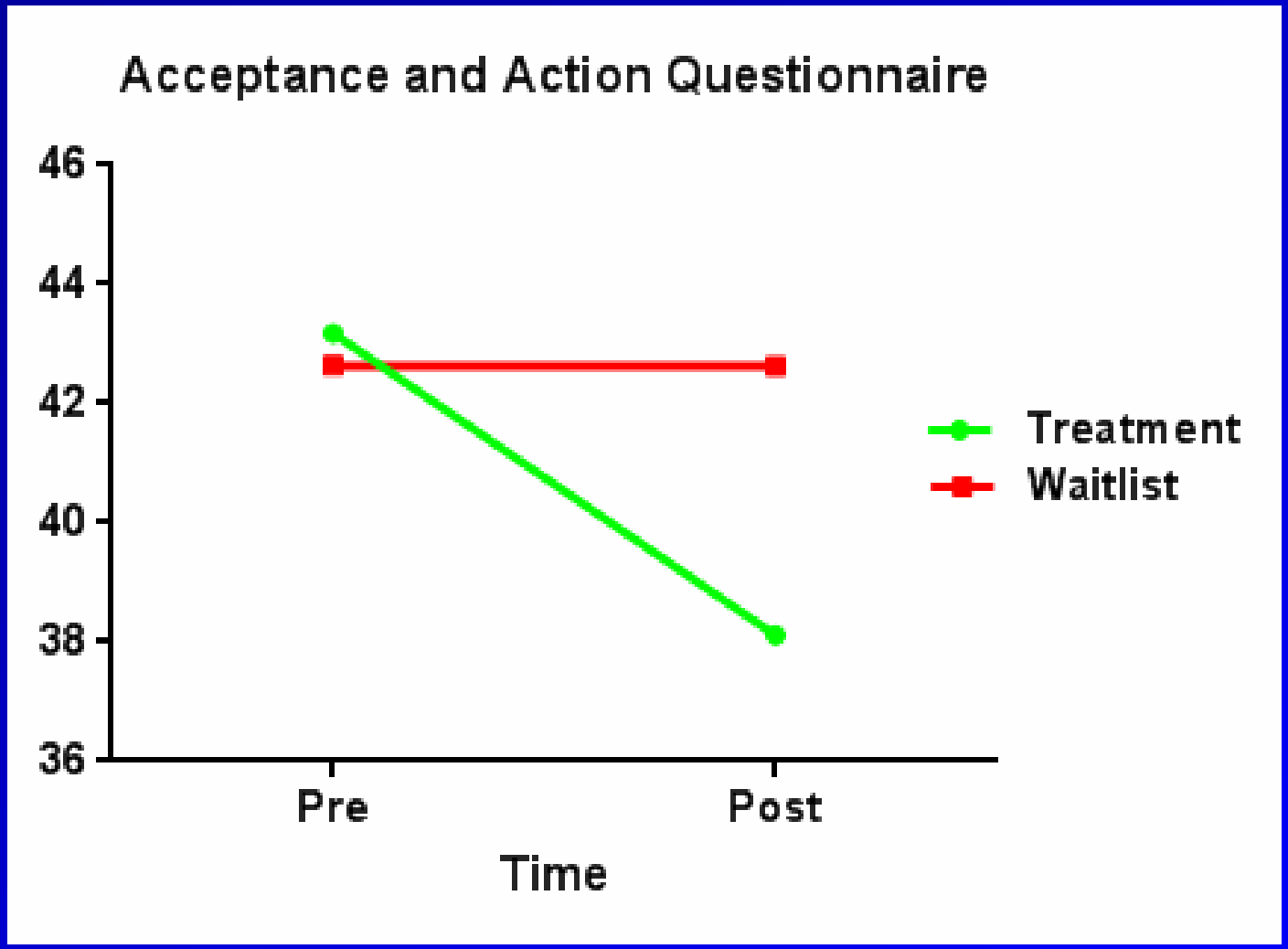
Effect of Condition on *Slope*

95% CI = -23.18 – -2.91*

***Effect size* = -0.55**

***p < .05**

RCT Analyses: Experiential Avoidance



Effect of Condition on *Slope*

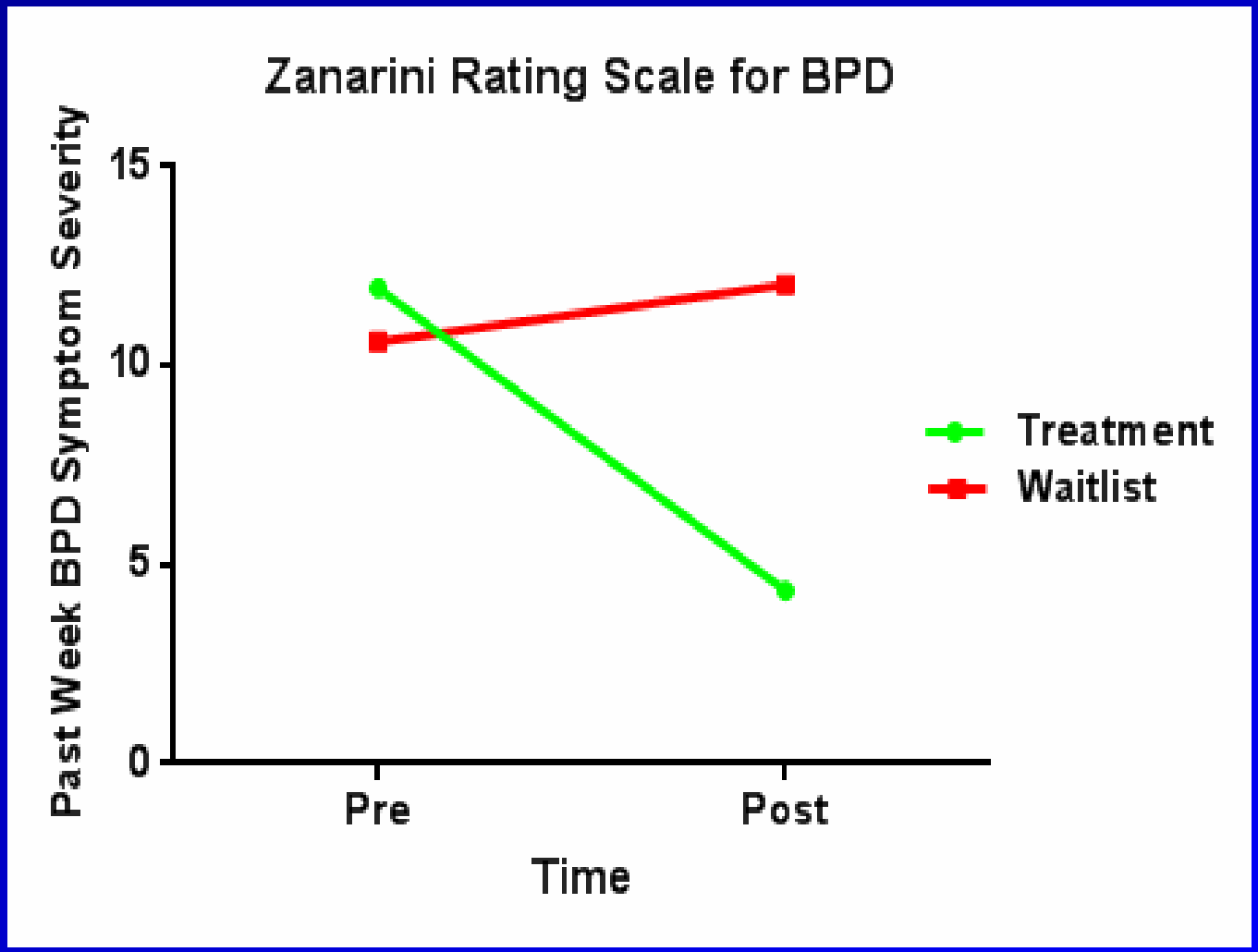
95% CI = -9.11 – 0.08†

***Effect size* = -0.71**

(medium to large effect)

†$p < .10$

RCT Analyses: BPD Symptom Severity



Effect of Condition on

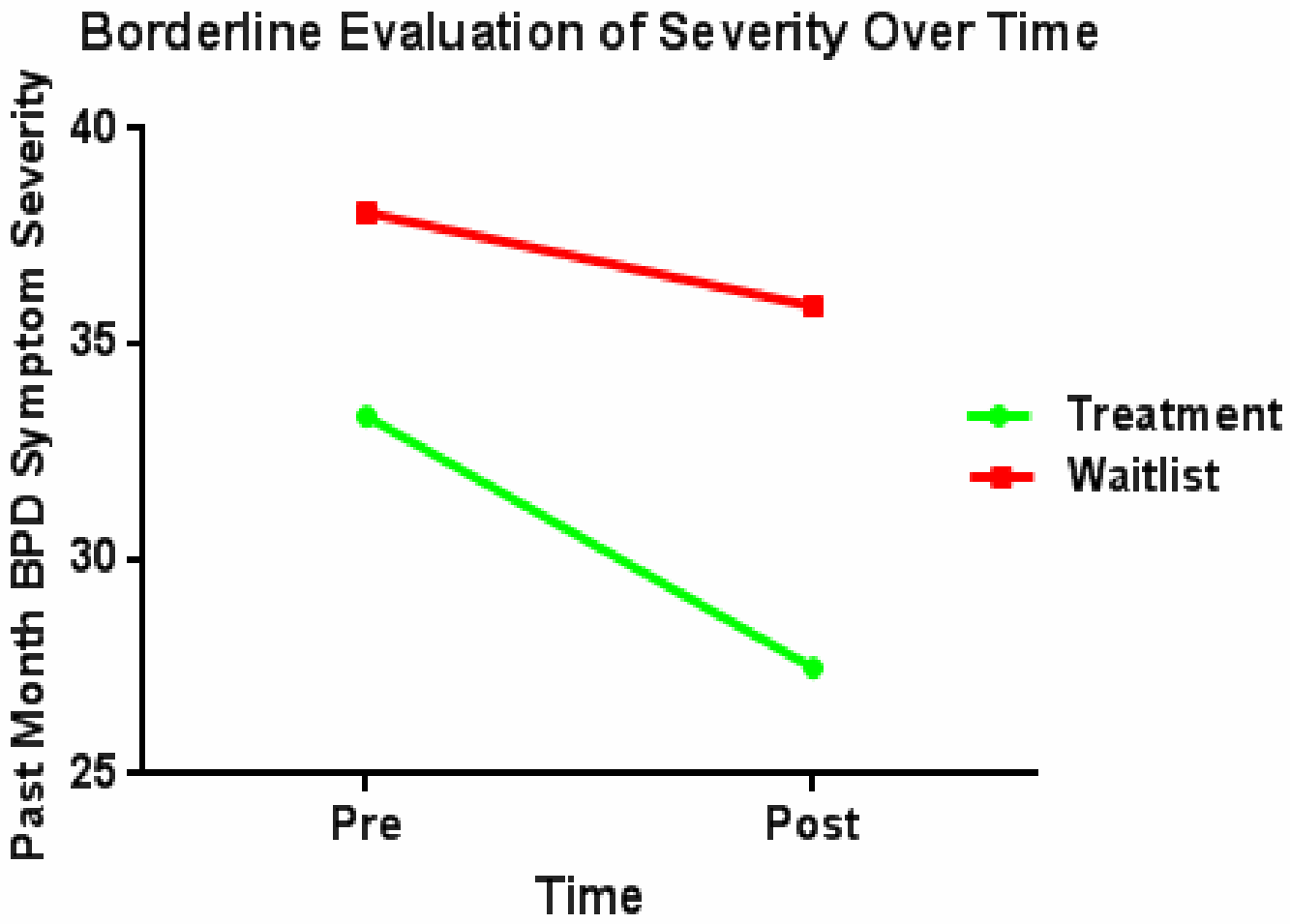
Slope

95% CI = -11.80 – -6.12*

***Effect size* = -1.20**

***p < .05**

RCT Analyses: BPD Symptom Severity



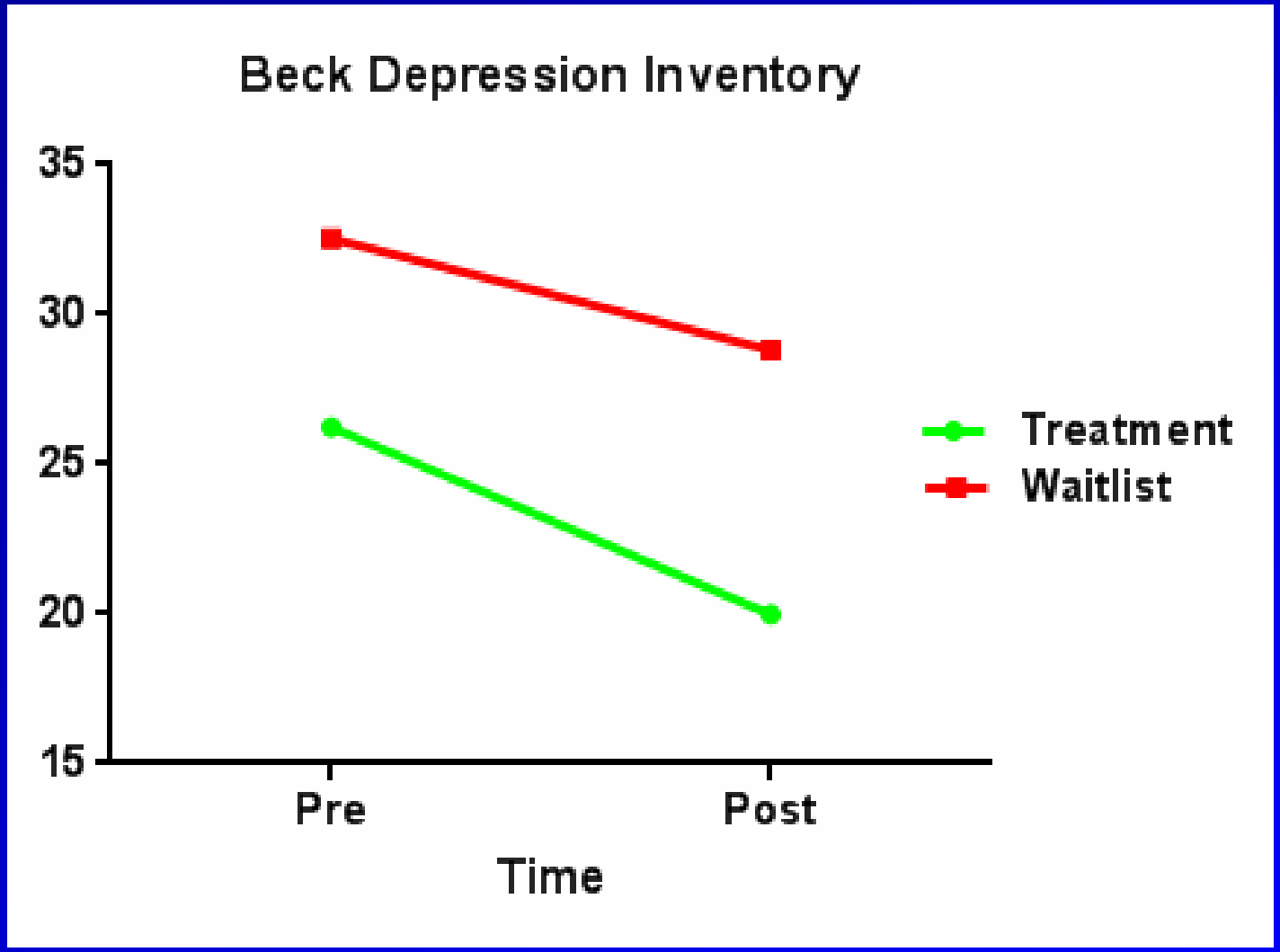
Effect of Condition on

Slope

95% CI = -8.26 – 0.96

***Effect size* = -0.34**

RCT Analyses: Depression Symptom Severity

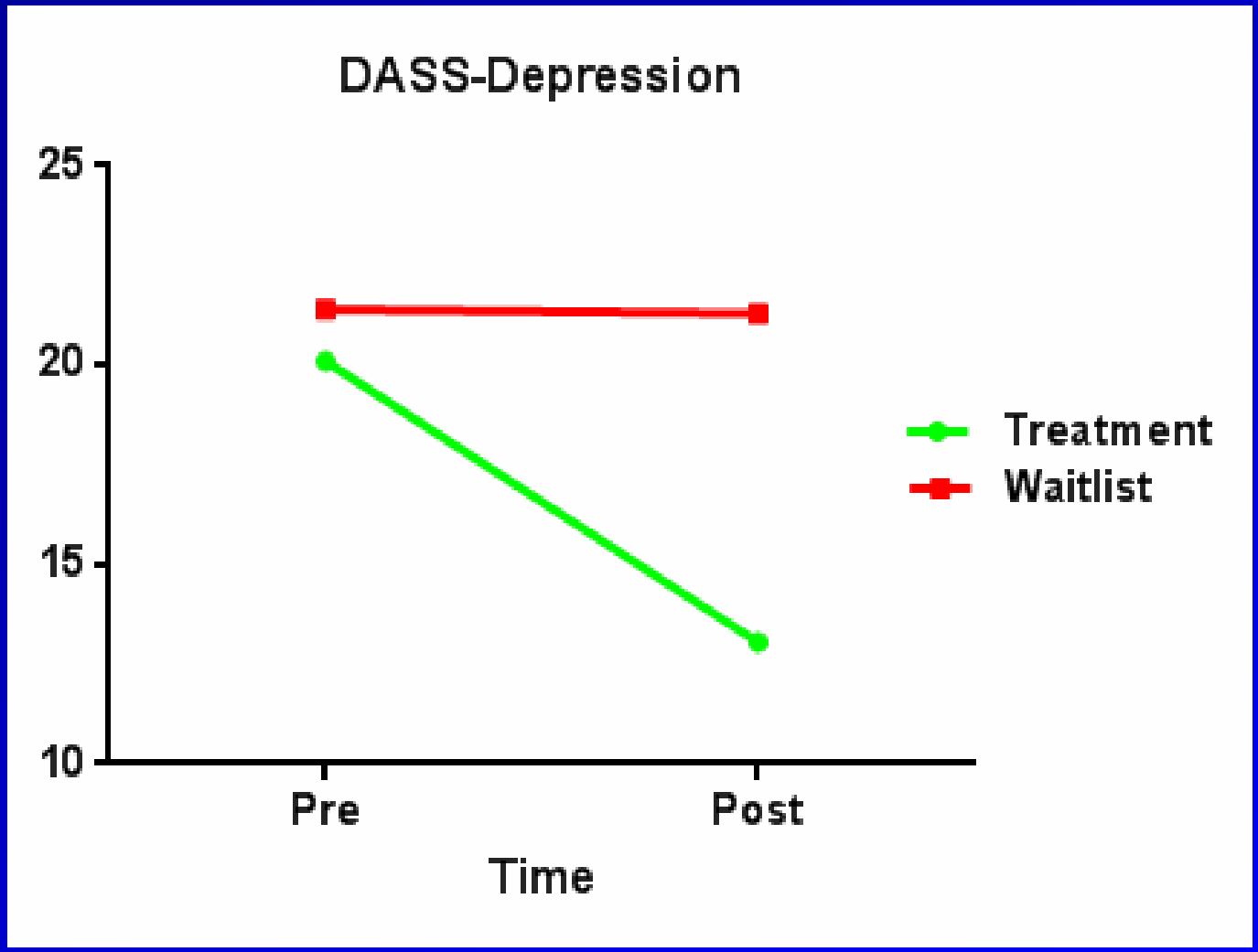


Effect of Condition on *Slope*

95% CI = -7.36 – 2.33

***Effect size* = -0.19**

RCT Analyses: Depression Symptom Severity



Effect of Condition on

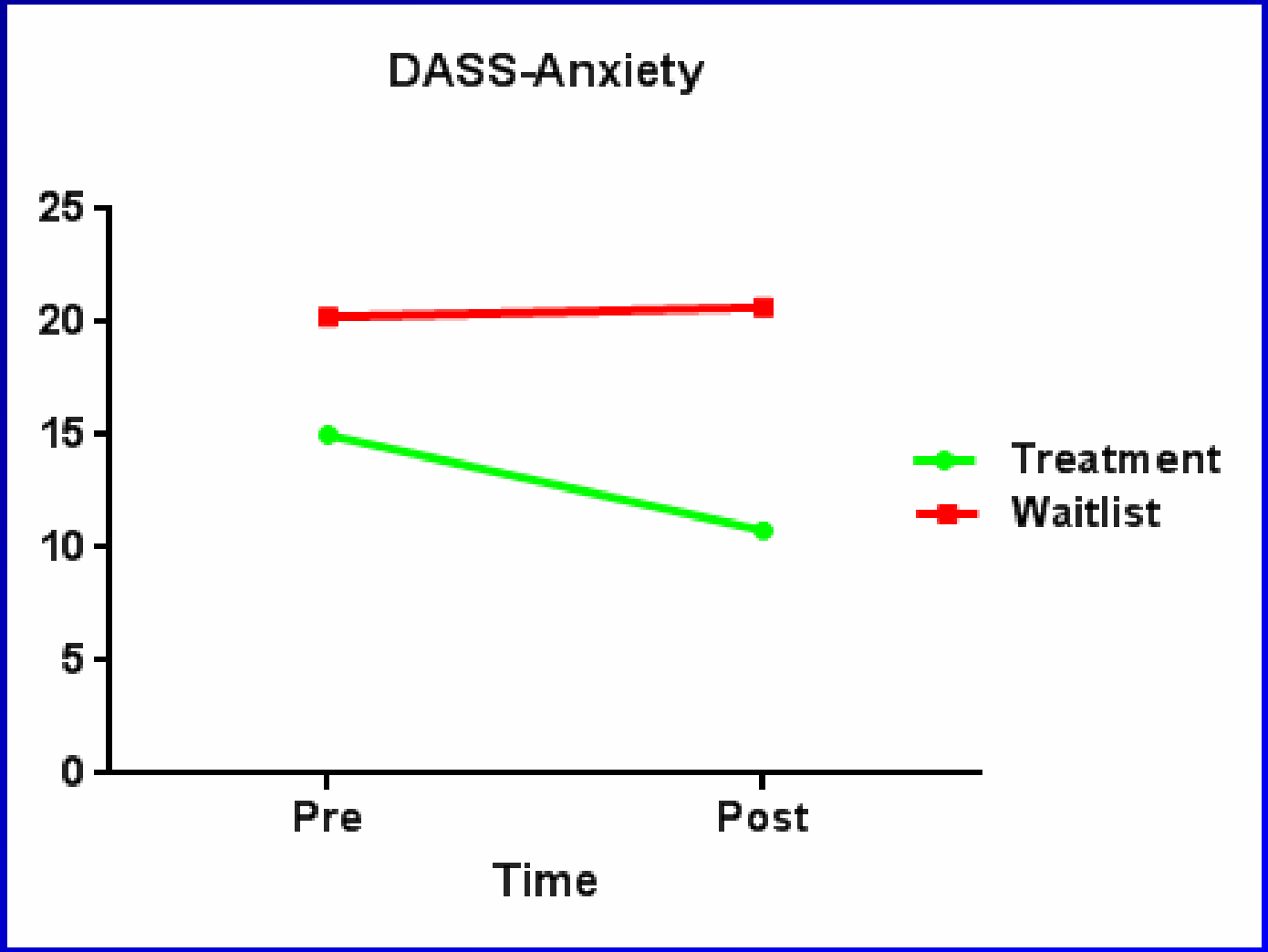
Slope

95% CI = -11.40 – -0.26*

***Effect size* = -0.51**

***$p < .05$**

RCT Analyses: Anxiety Symptom Severity



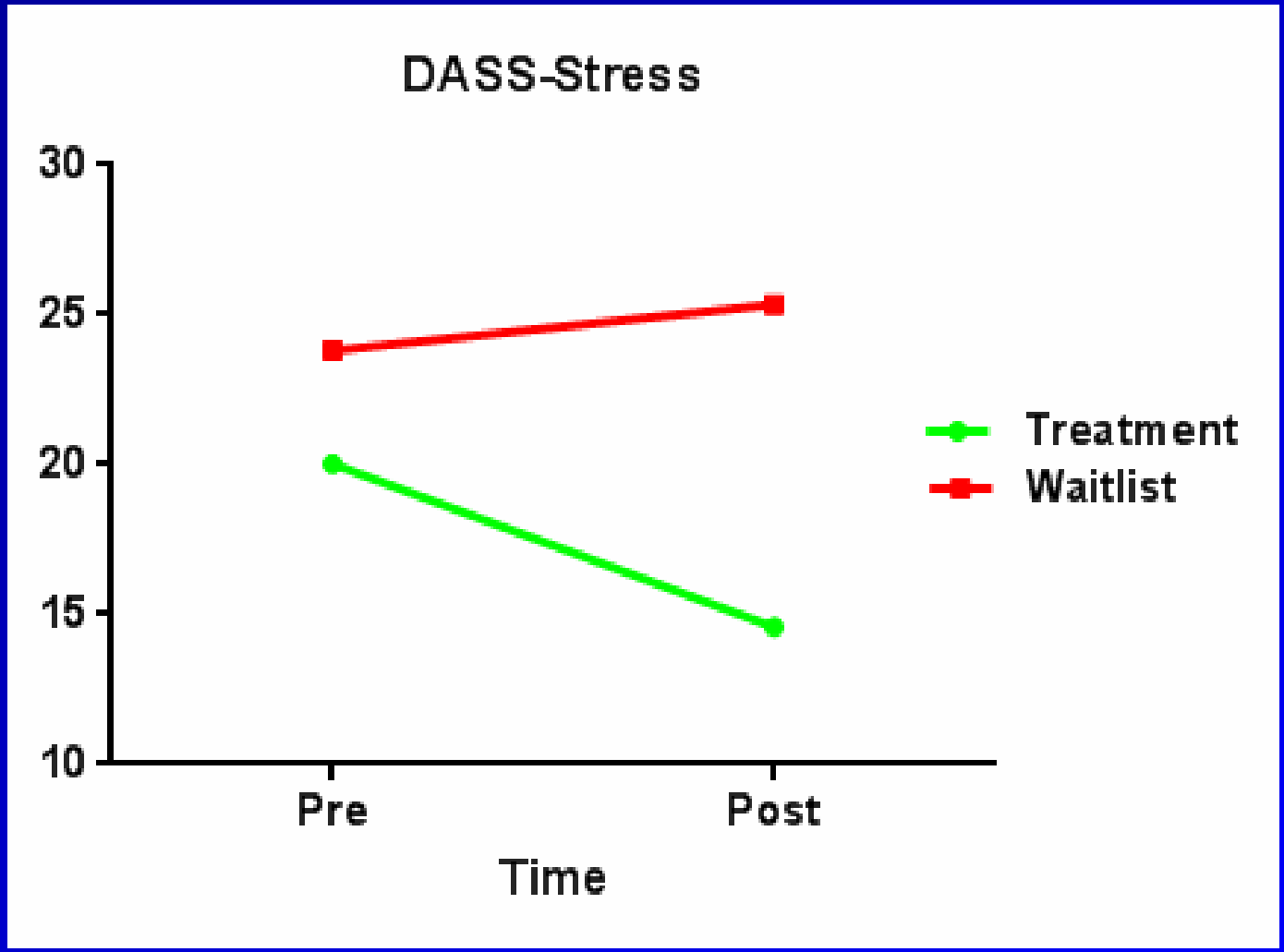
Effect of Condition on

Slope

95% CI = -10.13 – 1.14

***Effect size* = -0.38**

RCT Analyses: Stress Symptom Severity



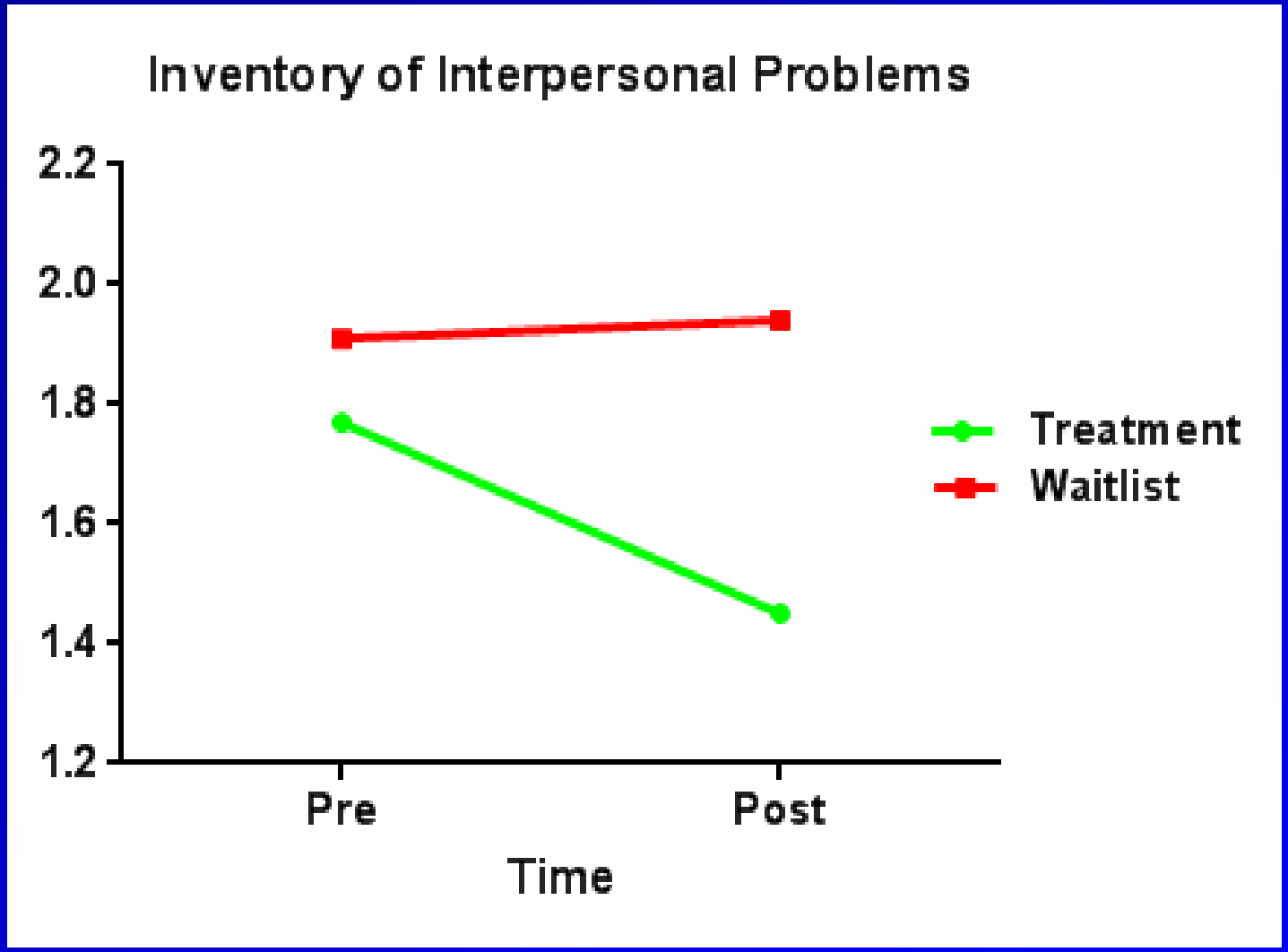
Effect of Condition on *Slope*

95% CI = -11.27 – -2.52*

***Effect size* = -0.60**

***p < .05**

RCT Analyses: BPD-Relevant Interpersonal Problems



Effect of Condition on *Slope*

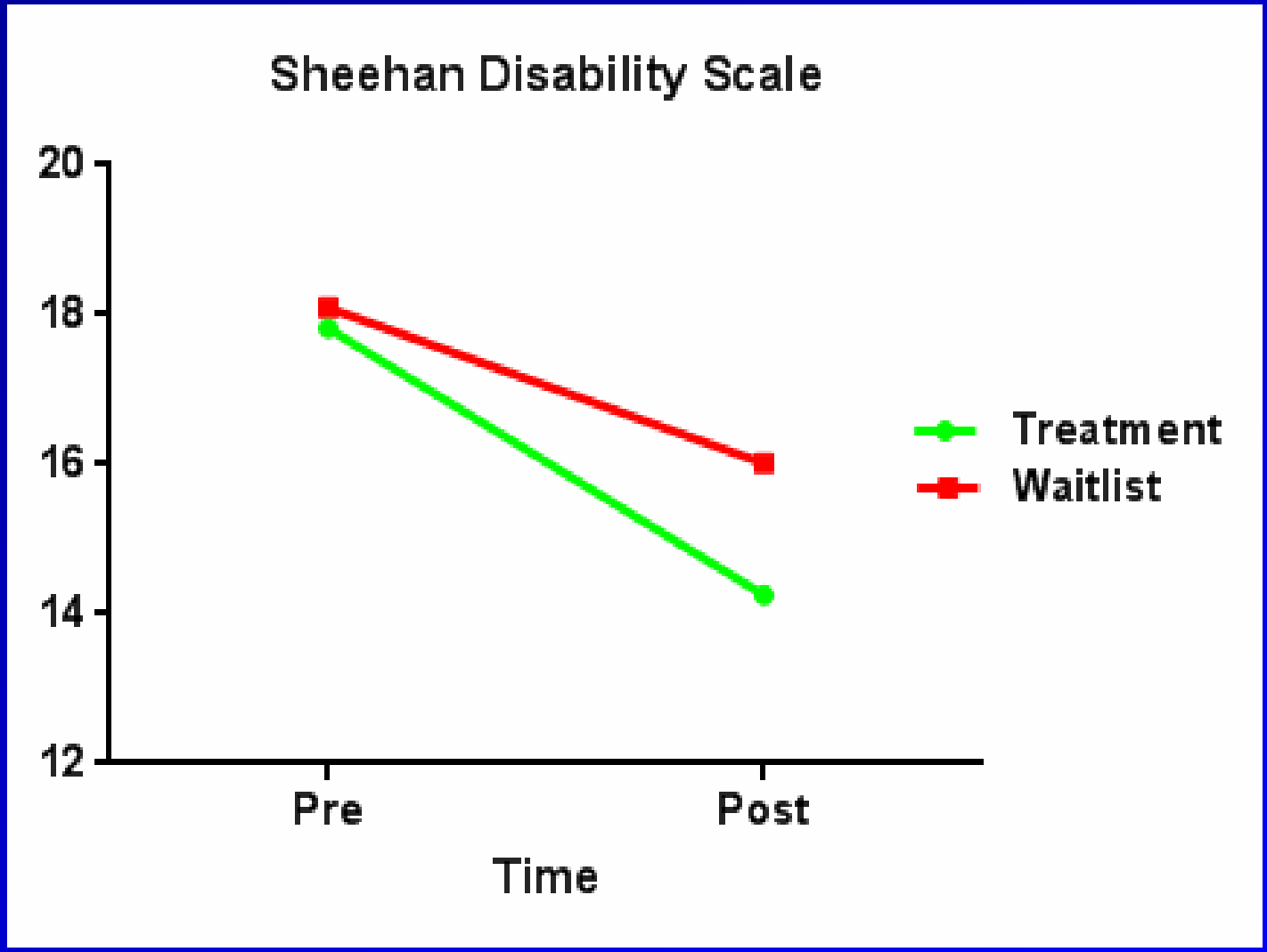
95% CI = -0.71 – 0.01†

***Effect size* = -0.48**

(medium effect)

†$p < .10$

RCT Analyses: Social and Vocational Impairment



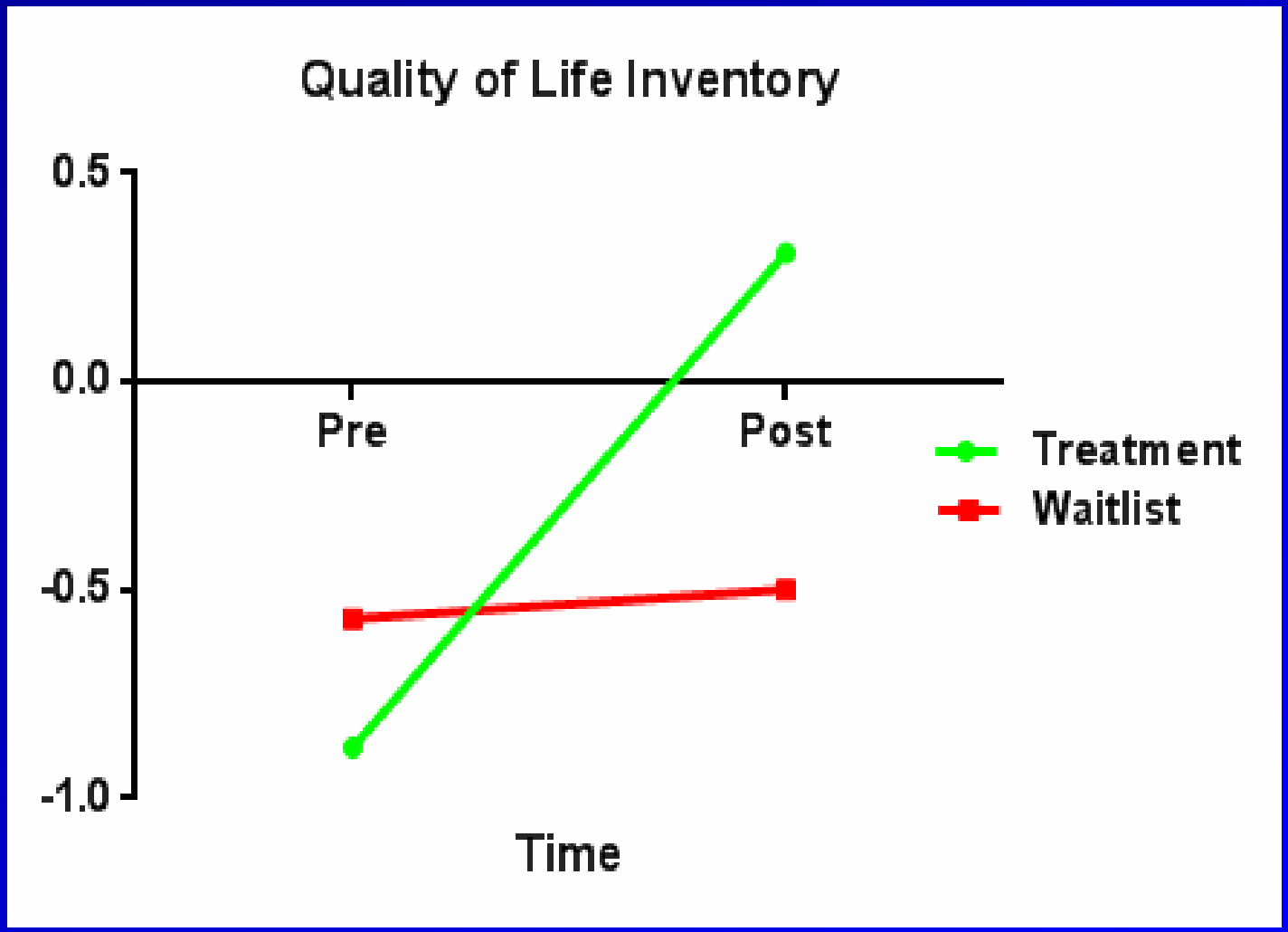
Effect of Condition on

Slope

95% CI = -6.70– 3.22

***Effect size* = -0.16**

RCT Analyses: Quality of Life



Effect of Condition on

Slope

95% CI = 0.14 – 2.10*

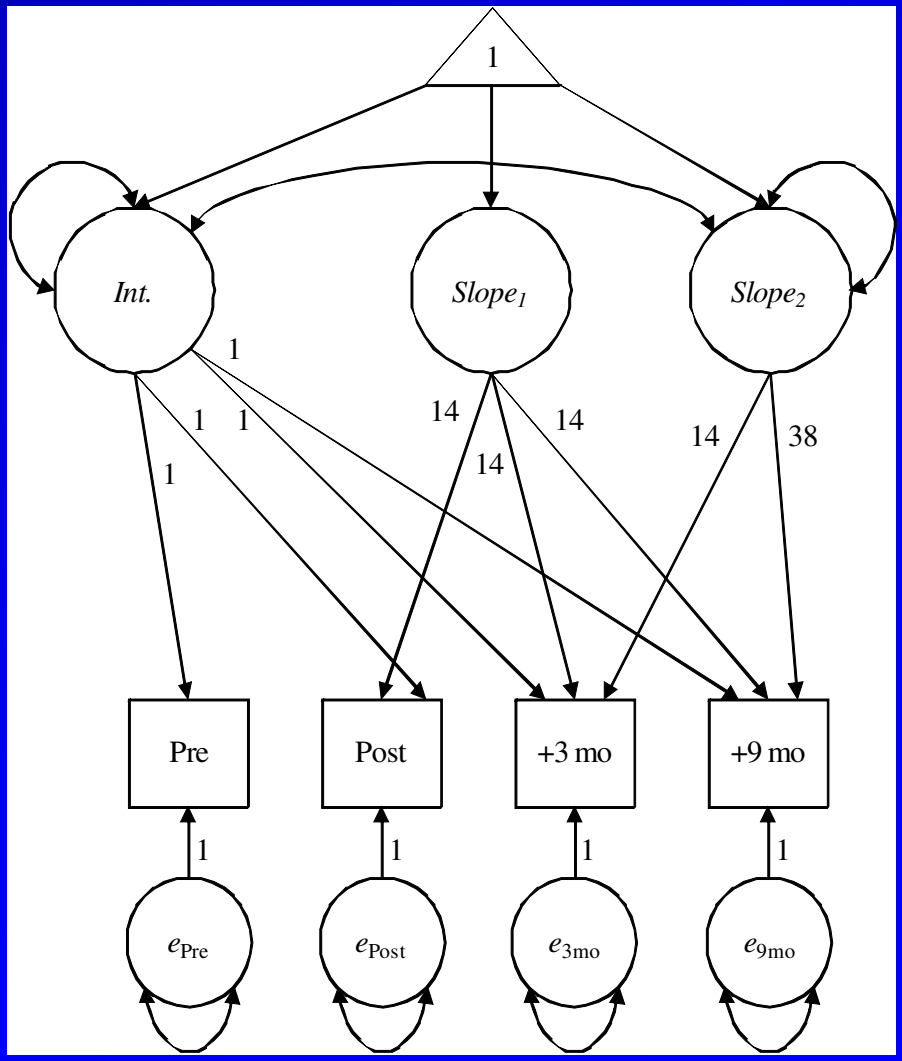
***Effect size* = 0.52**

***$p < .05$**

Analyses of Maintenance of Treatment Gains

Piecewise linear growth models used to model changes in outcomes 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 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*$_2$)**



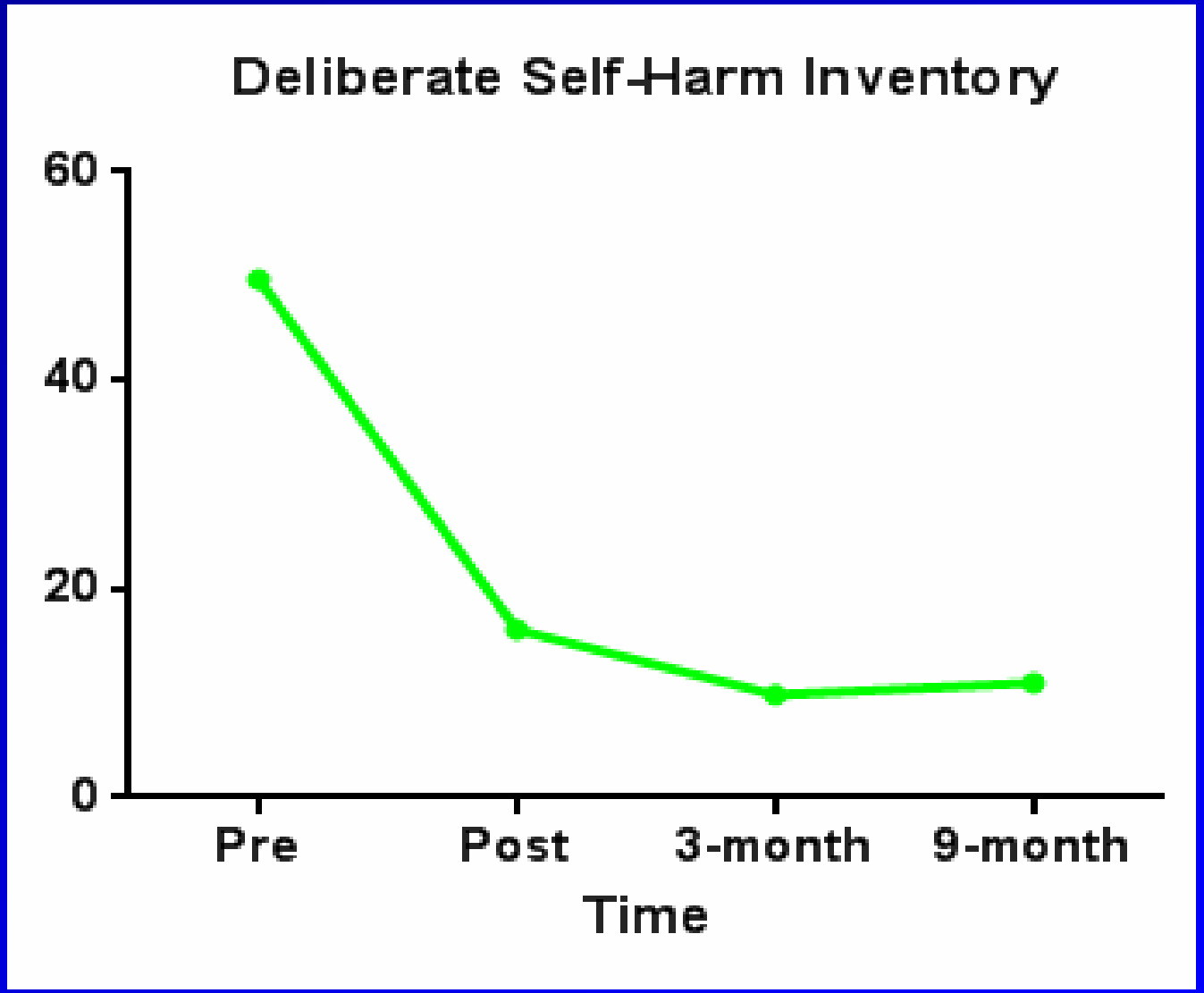
Results: Maintenance of Treatment Gains (n = 51)

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

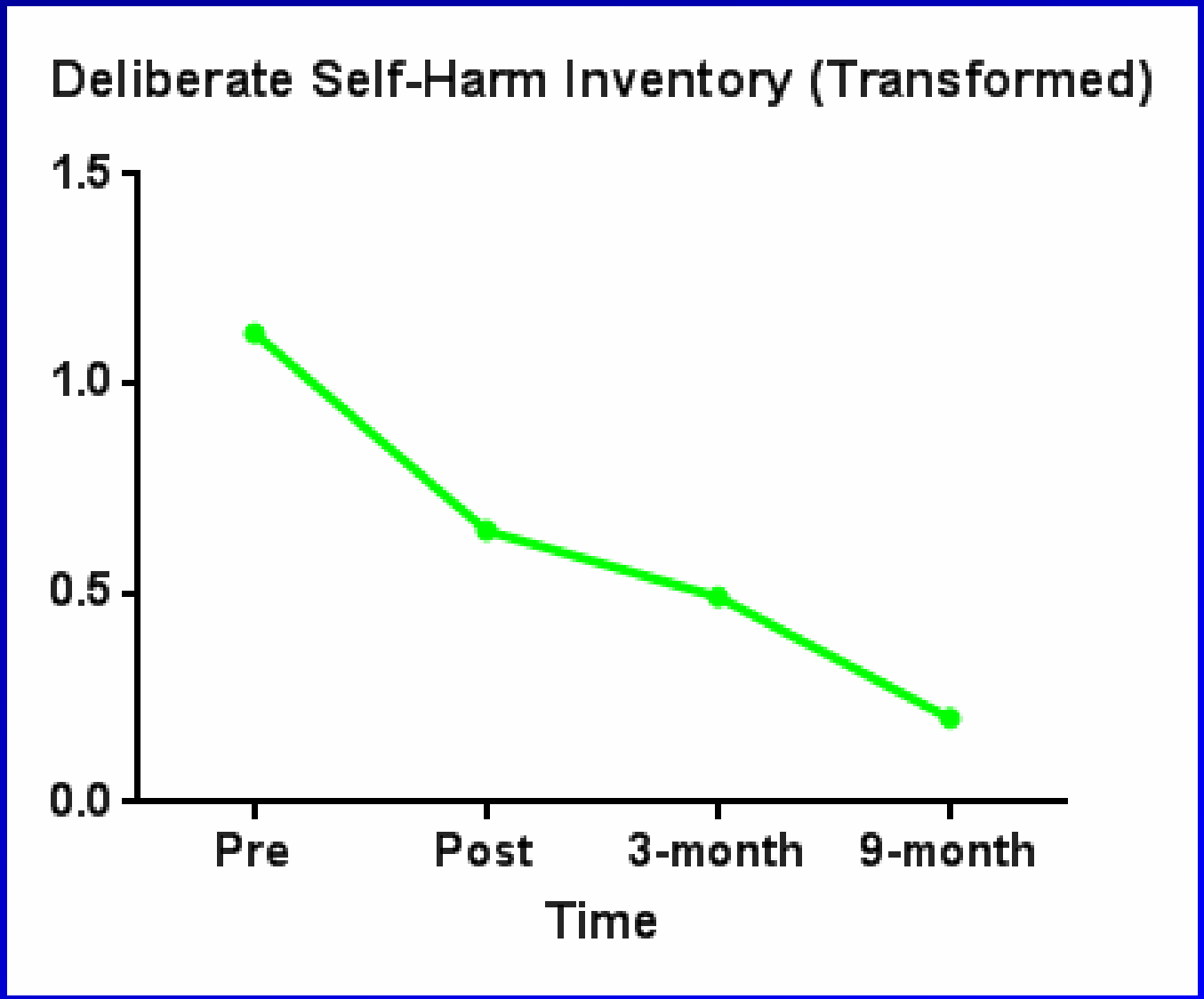
All gains maintained or further improved upon at 9-month follow-up

- **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



***Slope*$_1$**

95% CI = -0.05 – -0.02*

Effect size = -0.68

***Slope*$_2$**

95% CI = -0.02 – -0.01*

Effect size = -1.36

***$p < .05$**

Results: Self-Destructive Behaviors

Slope$_1$

95% CI = -2.63 – -0.45*

Effect size = -0.34

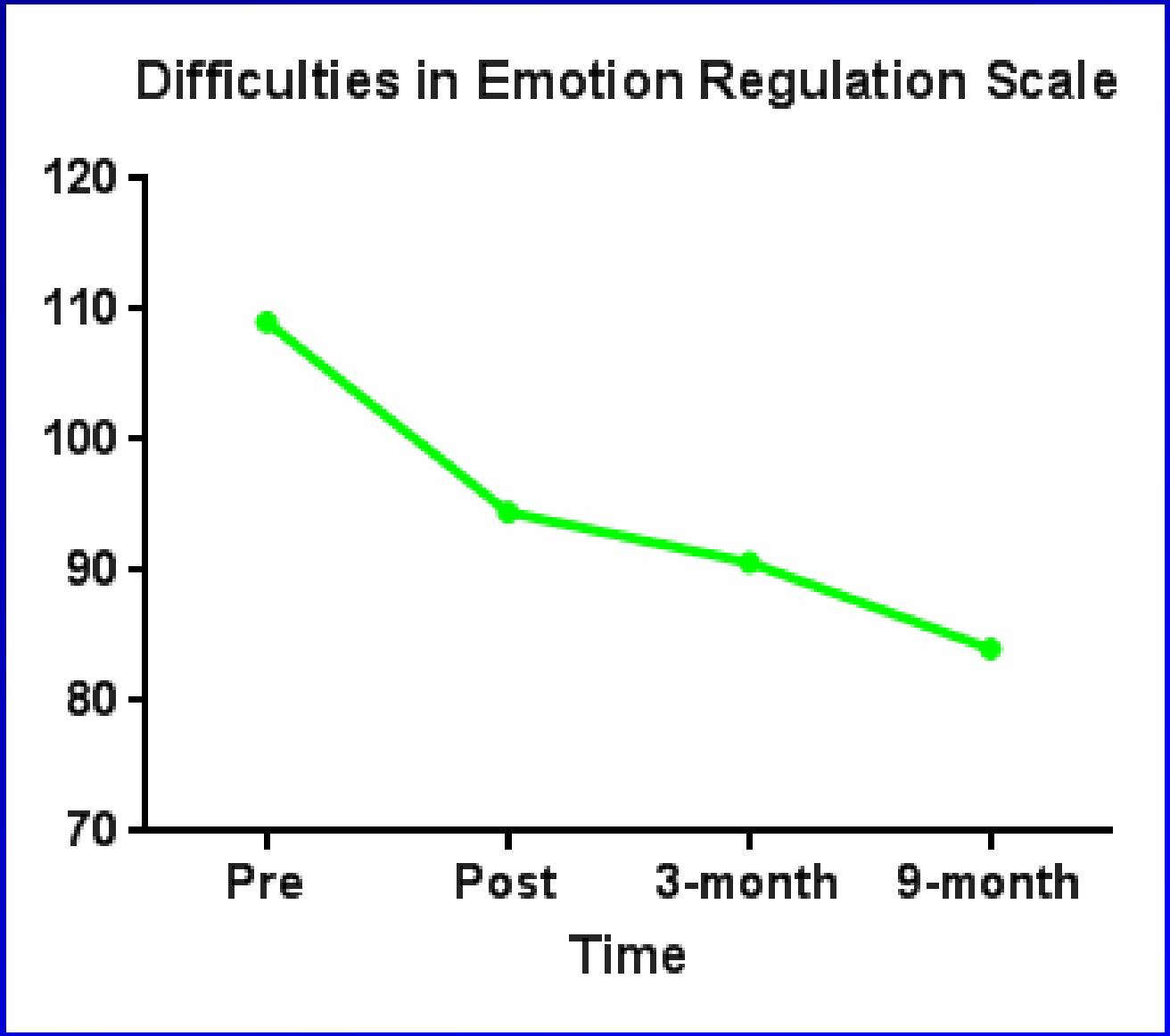
Slope$_2$

95% CI = -0.21 – 0.28

Effect size = -0.31

*$p < .05$

Results: Emotion Dysregulation



Slope$_1$

95% CI = -1.40 – -0.67*

Effect size = -0.67

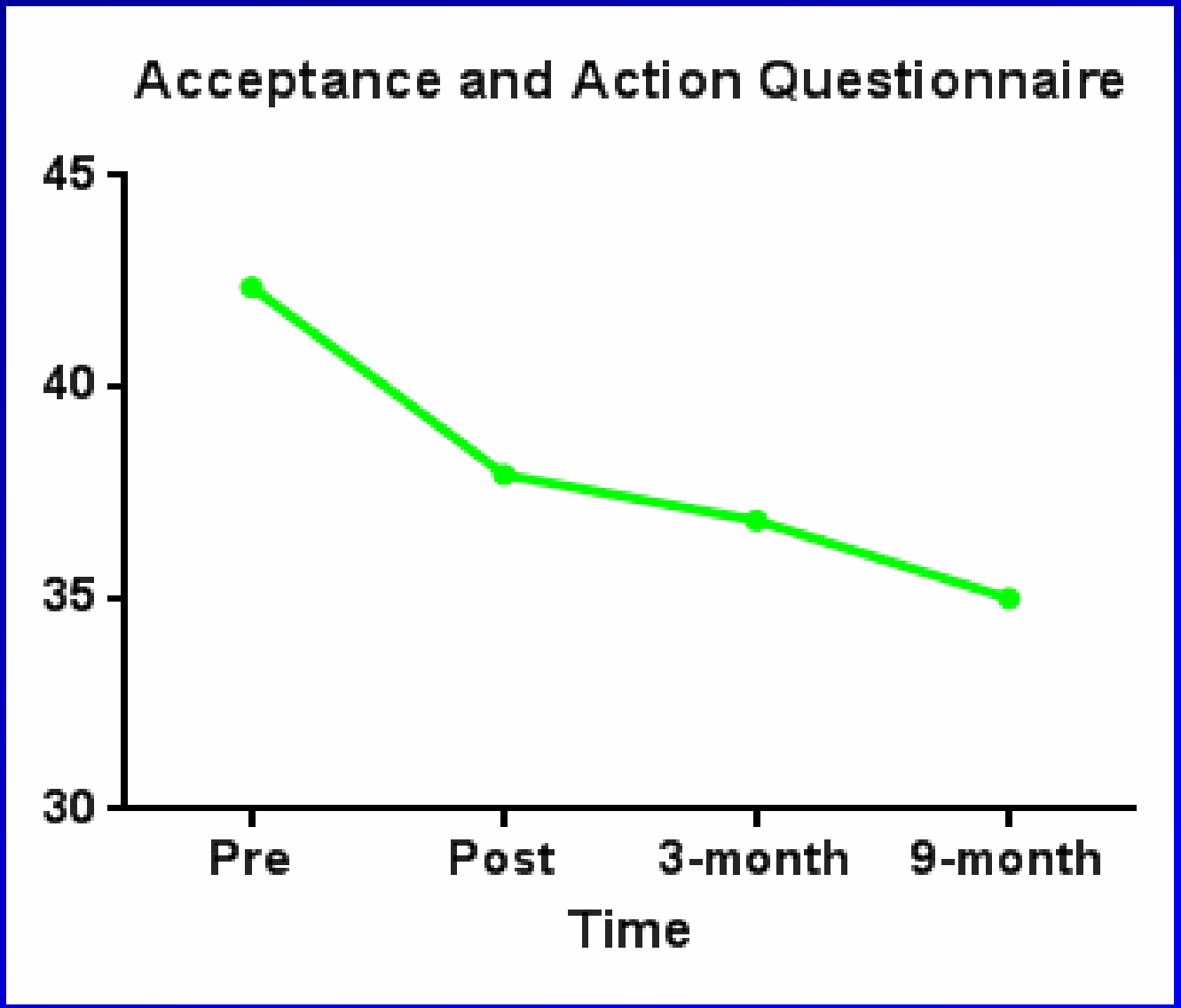
Slope$_2$

95% CI = -0.46 – -0.08*

Effect size = -1.15

***$p < .05$**

Results: Experiential Avoidance



Slope$_1$

95% CI = -0.47 – -0.18*

Effect size = -0.59

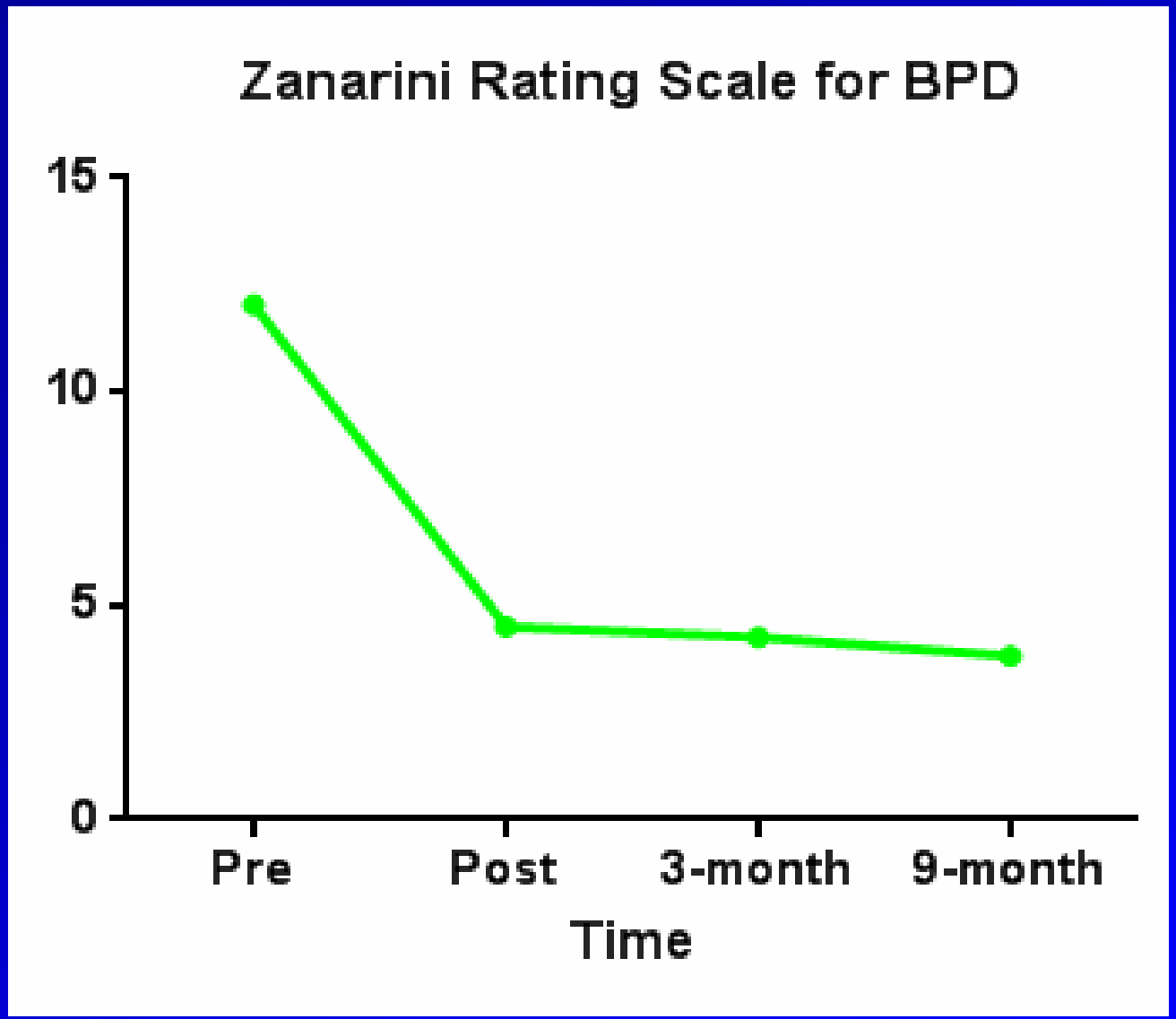
Slope$_2$

95% CI = -0.14 – -0.01*

Effect size = -0.98

**p* < .05

Results: BPD Symptom Severity



***Slope*$_1$**

95% CI = -0.66 – -0.40*

Effect size = -0.99

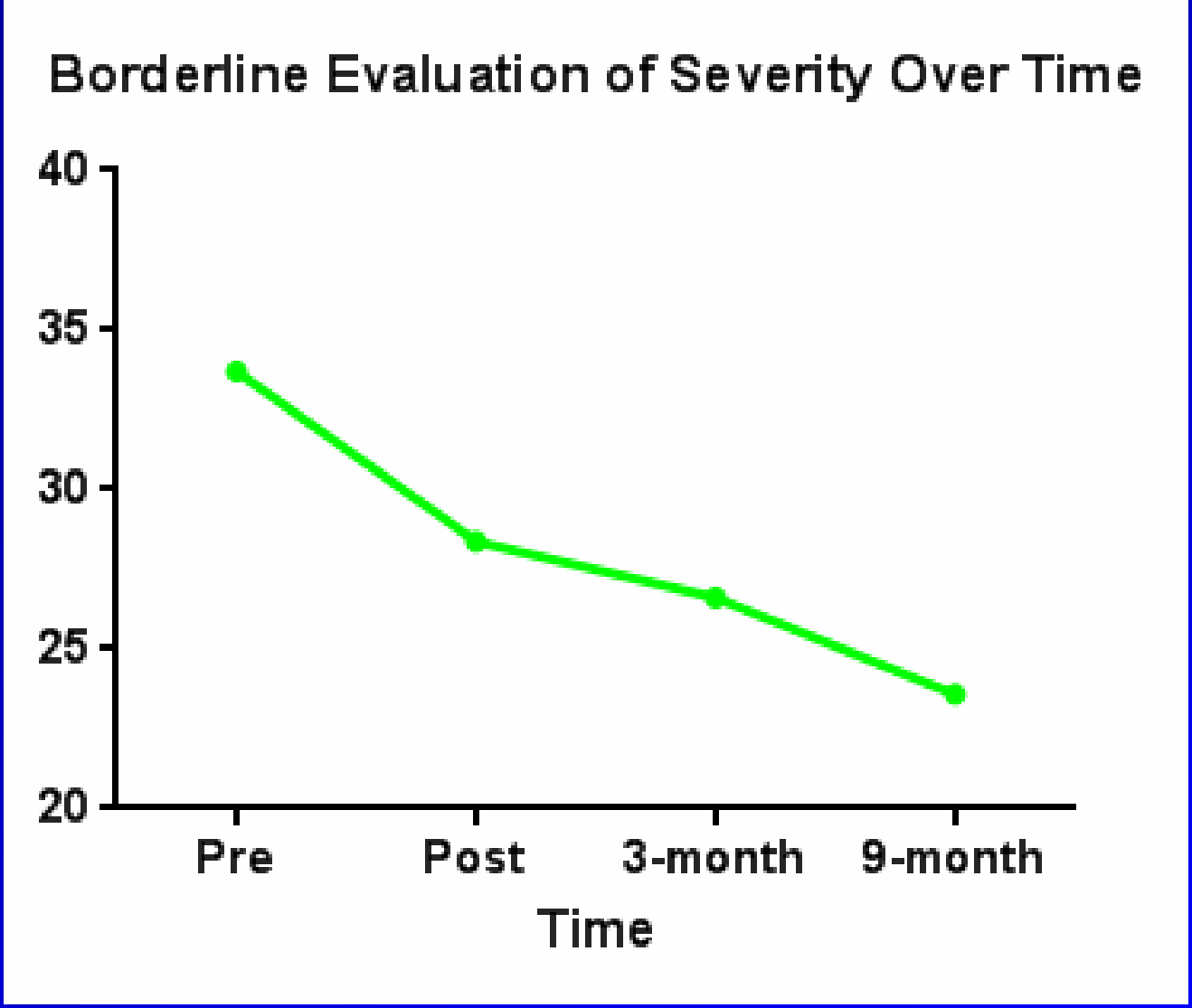
***Slope*$_2$**

95% CI = -0.05 – 0.02

Effect size = -1.08

***$p < .05$**

Results: BPD Symptom Severity



Slope$_1$

95% CI = -0.56 – -0.21*

Effect size = -0.51

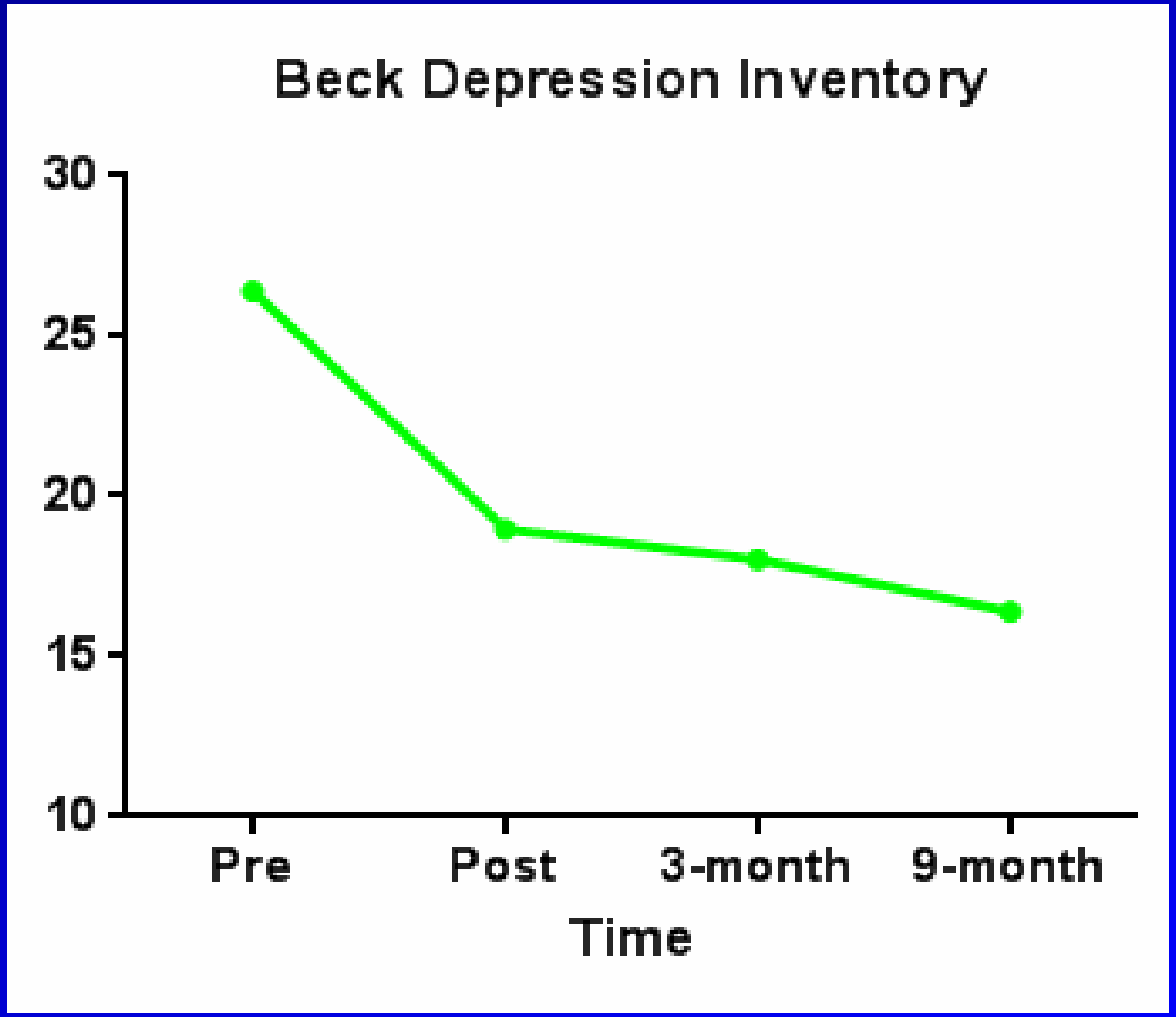
Slope$_2$

95% CI = -0.22 – -0.03*

Effect size = -0.96

*$p < .05$

Results: Depression Symptom Severity



Slope$_1$

95% CI = -0.73 – -0.33*

Effect size = -0.58

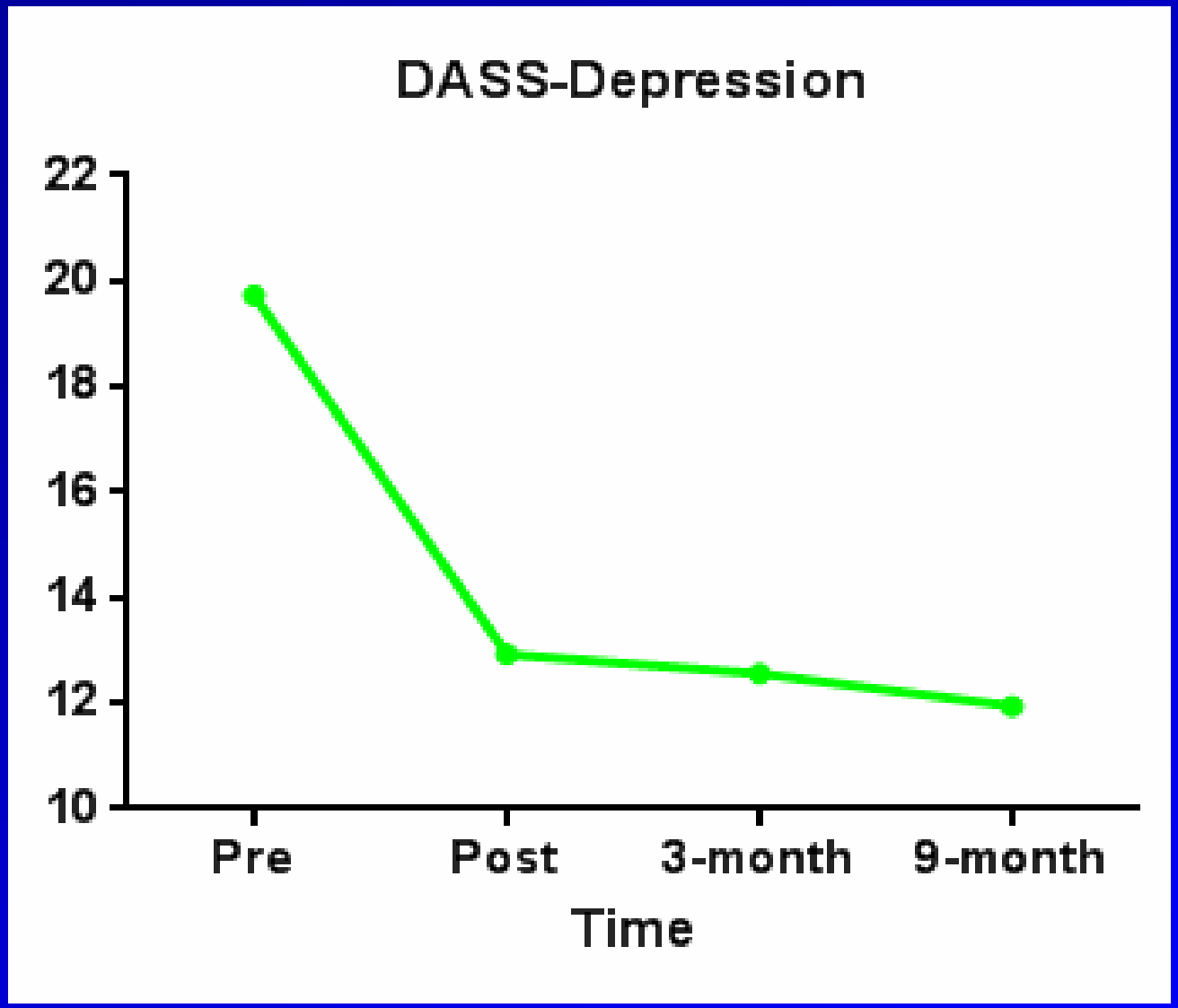
Slope$_2$

95% CI = -0.17 – 0.03

Effect size = -0.78

*$p < .05$

Results: Depression Symptom Severity



Slope$_1$

95% CI = -0.68 – -0.33*

Effect size = -0.53

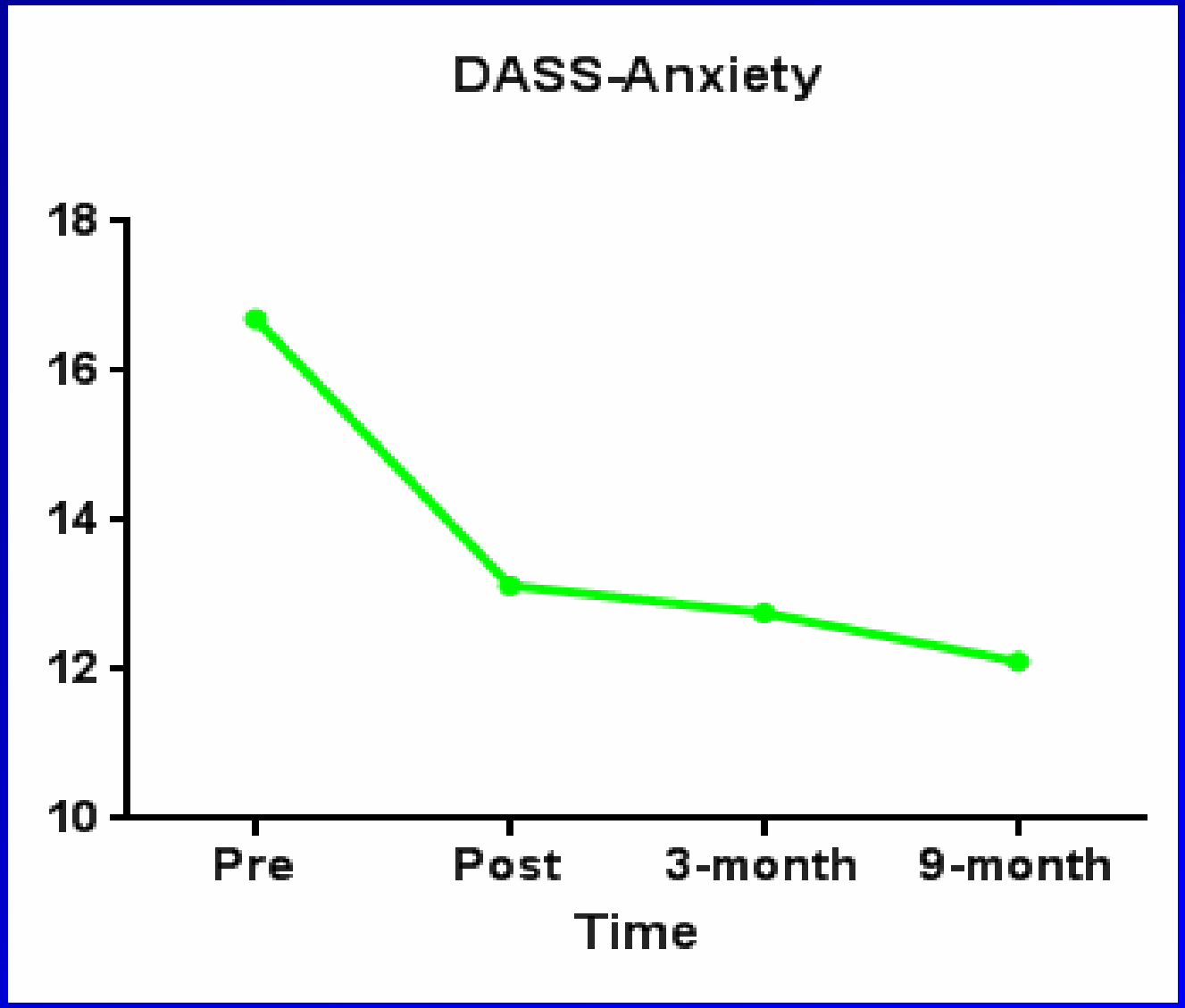
Slope$_2$

95% CI = -0.11 – 0.06

Effect size = -0.61

*$p < .05$

Results: Anxiety Symptom Severity



***Slope*$_1$**

95% CI = -0.43 – -0.11*

Effect size = -0.29

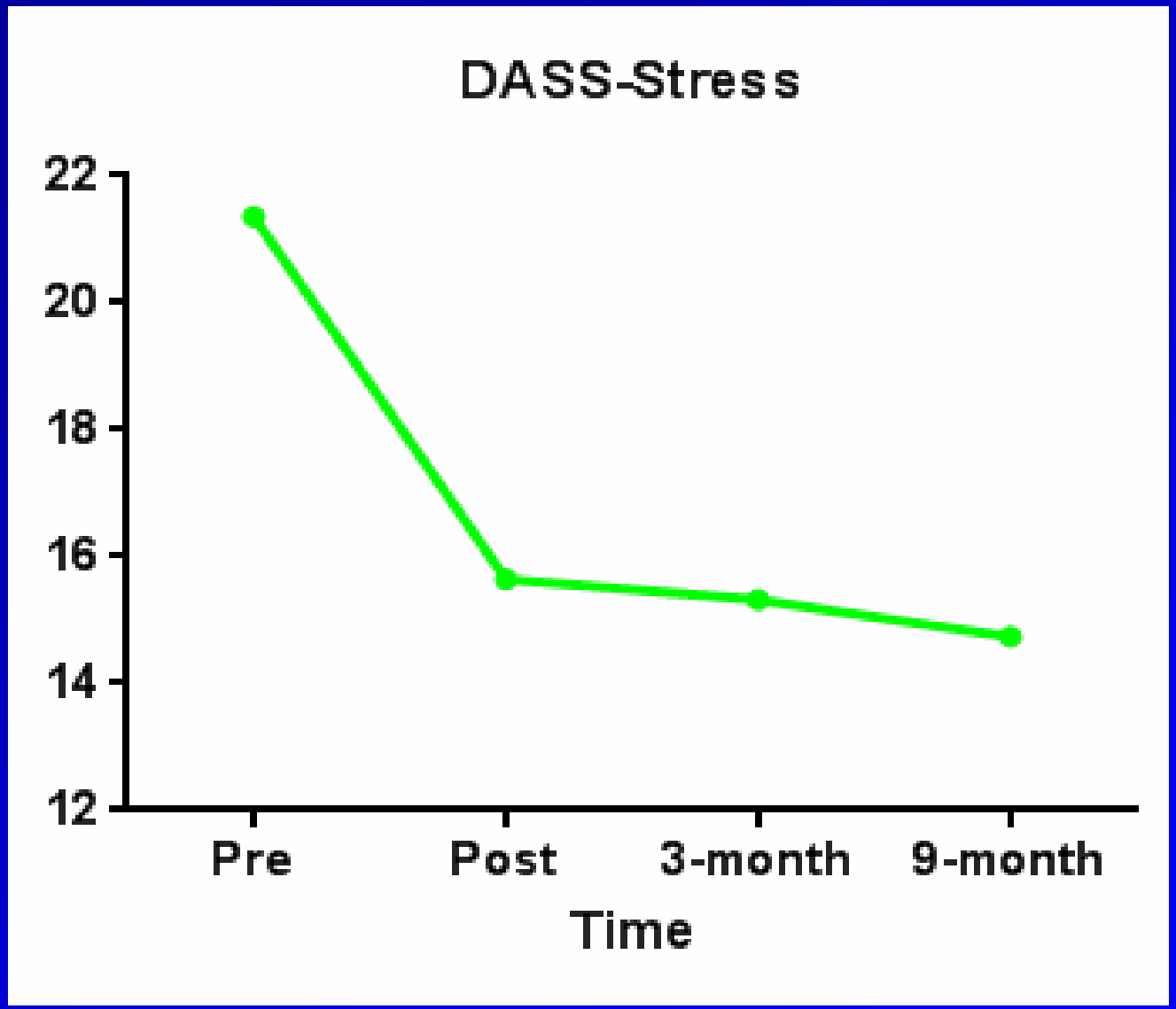
***Slope*$_2$**

95% CI = -0.11 – 0.05

Effect size = -0.38

***$p < .05$**

Results: Stress Symptom Severity



Slope$_1$

95% CI = -0.58 – -0.27*

Effect size = -0.52

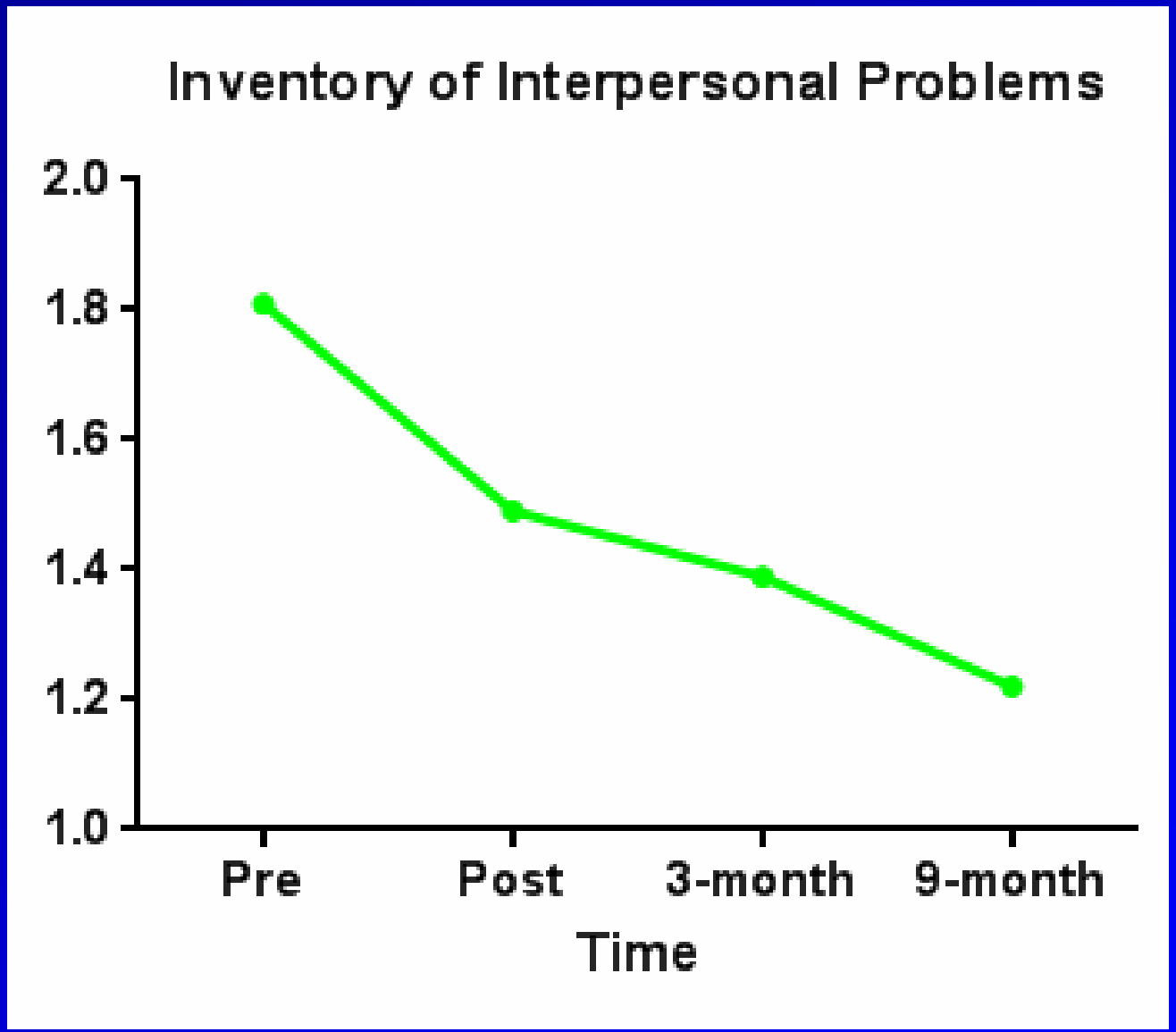
Slope$_2$

95% CI = -0.11 – 0.06

Effect size = -0.61

*$p < .05$

Results: BPD-Relevant Interpersonal Problems



***Slope*$_1$**

95% CI = -0.04 – -0.01*

Effect size = -0.46

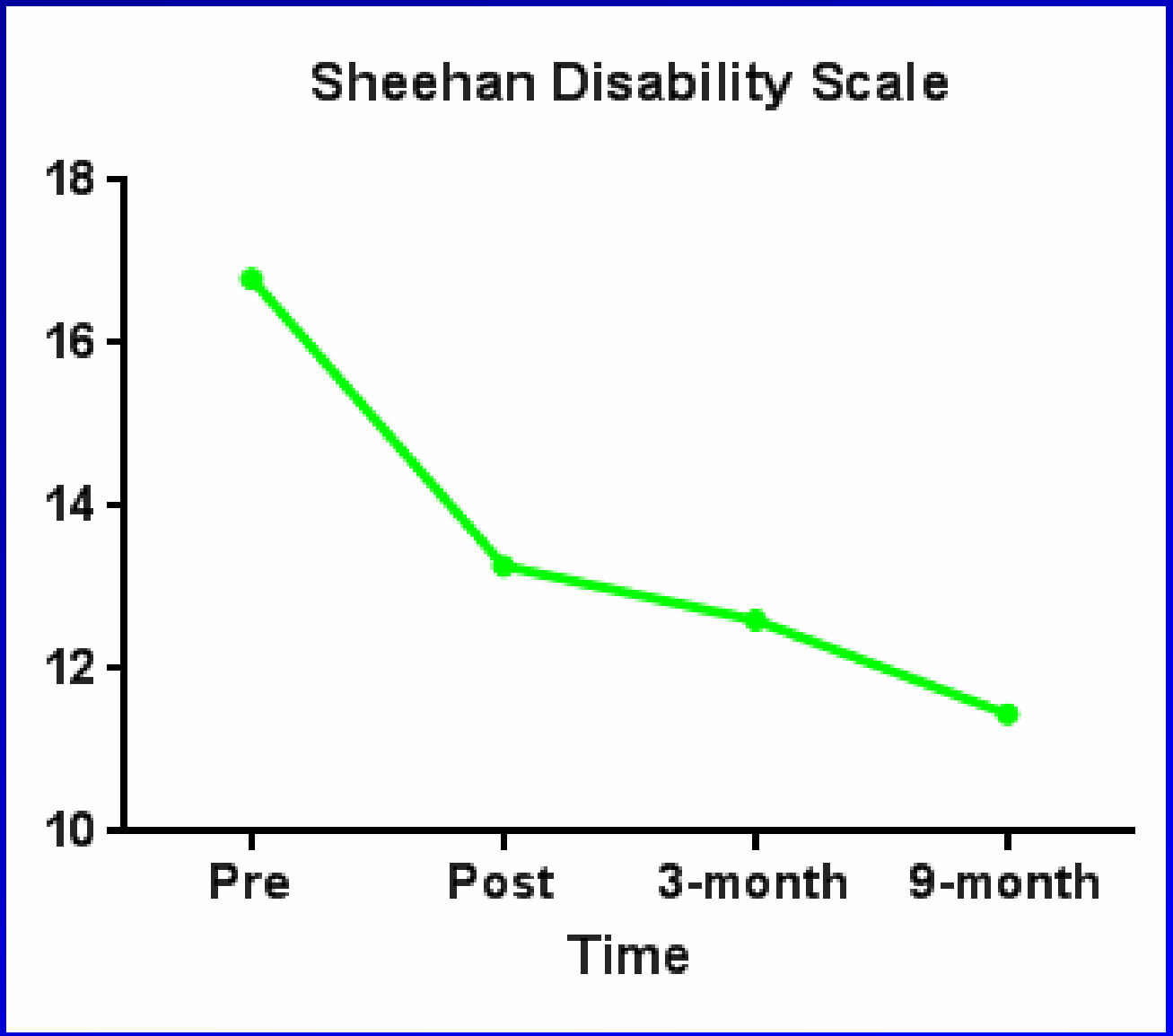
***Slope*$_2$**

95% CI = -0.01 – 0.00

Effect size = -0.83

***$p < .05$**

Results: Social and Vocational Impairment



***Slope*$_1$**

95% CI = -0.42 – -0.06*

Effect size = -0.41

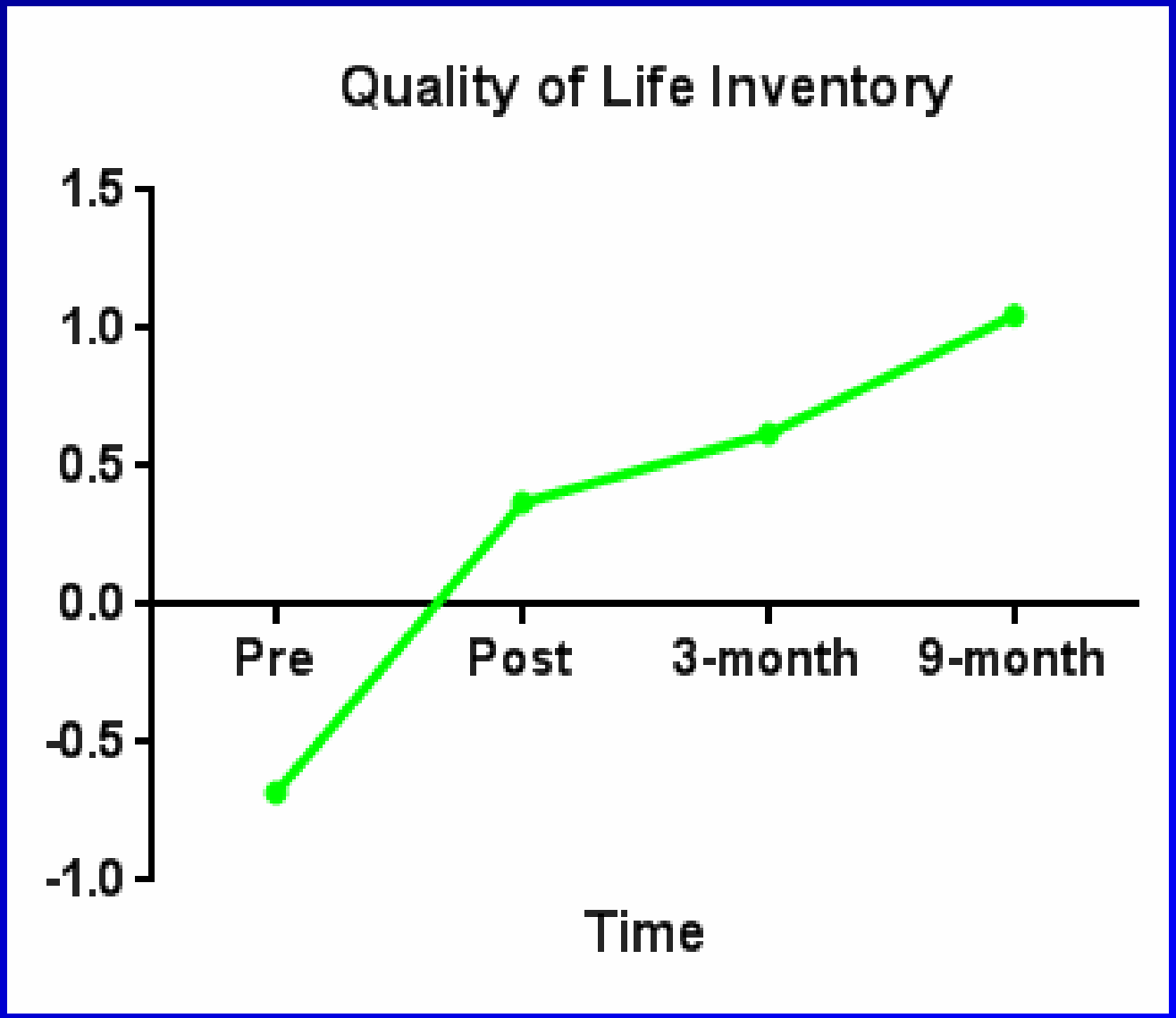
***Slope*$_2$**

95% CI = -0.13 – 0.04

Effect size = -0.62

***$p < .05$**

Results: Quality of Life



***Slope*$_1$**

95% CI = 0.04 – 0.12*

Effect size = 0.44

***Slope*$_2$**

95% CI = 0.00 – 0.04*

Effect size = 0.72

***$p < .05$**

Clinical Significance of Treatment Effects in Completers

Examined across all treatment completers (n = 39)

Criteria: Participants must report a statistically reliable improvement in symptoms and reach normative levels of functioning

Clinical Significance of Treatment Effects (n = 39)

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

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Clinical Significance of Treatment Effects (n = 39)

Deliberate self-harm and other self-destructive behaviors:

- **Change from pre- to post-treatment**
  - **>50% of participants showed reduction of >70%**

Deliberate self-harm:

- **Abstinence rates**
  - **51% abstinent during last 2 months of treatment**
  - **56% abstinent throughout entire follow-up period**

Conclusions

Findings support 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

Findings support 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/avoidance, BPD symptoms, quality of life)

Suggests utility of adding this brief 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 with BPD

- Findings may not generalize to youth, men, or individuals without BPD
- Studies needed to examine the utility of ERGT in these populations

Exclusive reliance on interview-based and self-report measures

- Need objective measures of emotional and interpersonal dysregulation

Examine emotion regulation as the mechanism of change in ERGT

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

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