



Kristen Munger, Ph.D.

Associate Dean, School of Education

SUNY Oswego

**From Research to Practice: CBT
Intervention in Elementary School
Settings with Students
Experiencing Anxiety**

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**20th Annual Conference
Advancing School Mental Health**

Purpose of the Study



To evaluate the effectiveness of a commercially available emotional intervention for anxiety.



Intervention students were taught Cognitive Behavior Therapy (CBT) strategies from an *Intervention Tool Kit*¹ to help them manage anxiety that may impede their social/emotional functioning.



Post-intervention anxiety levels and classroom behaviors between intervention and waitlist control groups were examined and compared.

¹ Not the actual name of the intervention

Why Research on Childhood Anxiety is Important

Prevalence of Anxiety

- Anxiety disorders are the most frequently diagnosed disorders for elementary school students (Cartwright-Hatton, McNicol, & Doubleday, 2006).
- Anxiety often has a negative impact on children.
 - Correlated with depression, substance abuse, and academic difficulties (Mayer, Van Acker, Lochman, & Gresham, 2009)
 - Also correlated with low self-esteem and difficulties with social interaction (Donovan & Spence, 2000)



School-Based Research

- Research on effective treatments and supports for children with anxiety is essential ***within the context of schools.***
 - Children have the most reliable access to services to help them with issues related to emotional adjustment (Mayer et al., 2009).



Neil and Christiansen (2009)

- Intervention to all students
- Most popular approach- 59% of studies

Universal

1

- Intervention to students known to be at-risk for anxiety
- 30 % of studies

Selected

2

- Intervention to students known to have anxiety
- 11% of studies

Indicated

3

Positive effects of anxiety interventions delivered in schools have been found. Effects depend who is included in the sample, who delivers the intervention, how interventionists are trained, the type of intervention used, how long the intervention lasts, etc.



Description of the Intervention

The *Intervention Tool Kit* used in the study is designed to assist elementary school students by helping them develop coping skills for their anxiety, with or without a formal diagnosis of an anxiety disorder.

The intervention is research-based because of its foundations in CBT, but the intervention itself has never been researched.



Worries of Students



Criteria Used to Select Students

Students were referred for inclusion by a school staff member such as teacher, school psychologist, nurse, or social worker if the students were thought to be experiencing persistent anxiety, worry, or fears.

Additional inclusion criteria:

1. Able to speak and understand English
2. No history of frequent absences
3. Cognitive skills sufficient to understand how to apply strategies
4. Parent/guardian consent and student assent



Description of Total Sample (both waves)

Six schools



- 2nd grade 10 students
- 3rd grade 10 students
- 4th grade 11 students
- 5th grade 3 students

Wave 2

Wave 1

(Data from both waves were aggregated)

Groups



- CBT Intervention Group = 17
- Waitlist Control Group = 12
- (Non-directive Support Group)= 5

Waves 1 & 2

Wave 2 only



Number of female participants: 15



Number of male participants: 19



Two Key Assessments

Screen for Childhood Anxiety Related Emotional Disorders (SCARED) was used to assess self-reported anxiety (Birmaher, Khetarpal, Cully, Brent, & McKenzie, 1995)



Behavior Intervention Monitoring Assessment System (BIMAS-T) was used to assess teacher reported behavior in school (McDougal, Bardos, & Meier, 2011)



The Screen for Childhood Anxiety Related Emotional Disorders (SCARED)

The Screen for Childhood Anxiety Related Emotional Disorders (SCARED) is used with children and adolescents.

- 41 items using a rating scale from 0 to 2 assessing five different forms of anxiety in accordance of DSM-IV criteria (California Evidence-Based Clearinghouse for Children, 2011).

SCARED Total scores were used in the analyses

Sample Items

Panic Disorder

- *When I feel frightened, it is hard to breathe.*

Generalized Anxiety Disorder

- *I worry about other people liking me.*

Separation Anxiety

- *I get scared when I sleep away from home.*

Social Anxiety

- *I feel nervous around people I don't know too well.*

Significant School Avoidance

- *I am scared to go to school.*

The Behavior Intervention Monitoring Assessment System

Teachers complete 34 items on the BIMAS-T Teacher Standard Form (BIMAS-T). There are two main scales and five subscales (items rated on a scale of 0 to 4):

1. **Behavioral Concern** scale measures conduct, **negative affect**, and cognition/attention.
2. **Adaptive** scale measures social and academic functioning.

Negative Affect: “Shows symptoms of depression and/or anxiety. Mood problems may include sadness, negativity, anhedonia, shamefulness, and nervousness. May be tearful. Ideation about hurting self may be present. May be fearful or worry a lot. Feelings may be easily hurt.” (McDougal et al., 2011, p. 32)

During the past week, this student...	Never	Rarely	Sometimes	Often	Very Often
1. shared what he/she was thinking about.	0	1	2	3	4
2. appeared angry.	0	1	2	3	4
3. had trouble paying attention.	0	1	2	3	4
4. followed directions.	0	1	2	3	4
5. appeared sleepy or tired.	0	1	2	3	4
6. was impulsive.	0	1	2	3	4
7. spoke clearly with others.	0	1	2	3	4
8. appeared depressed.	0	1	2	3	4

BIMAS-T Negative Affect scores were used in the analyses

Method – Two Waves Covering November 2013 to May 2014

Random Assignment (per school)	Assessments 1	Intervention	Assessments 2	Intervention	Assessments 3
CBT Intervention Group (both waves)	Preintervention baseline	CBT	Post-intervention	None	Some
Waitlist CBT group (both waves)	Preintervention baseline	None	Second baseline	CBT	Post-intervention
Nondirective support group (2 nd wave only)	Preintervention baseline	Nondirective support	Post-intervention	None	None



Analyses – Total Sample

- Preintervention/postintervention differences *within* groups
- Preintervention/postintervention differences *between* groups

Analyses



Statistical analysis: **Within** Group Comparisons

Preintervention to postintervention comparisons per group:

1. CBT Intervention Pairs	<i>Mean Difference</i>	<i>SD</i>	<i>t</i>	<i>p</i>
BIMAS-T Neg. Affect (n = 14)	-1.71	8.10	.79	.443
SCARED Total (n = 14)	-7.21	7.58	3.56	.003*
2. CBT Waitlist Pairs	<i>Mean Difference</i>	<i>SD</i>	<i>t</i>	<i>p</i>
BIMAS-T Neg. Affect (n = 7)	-7.71	7.65	2.67	.037*
SCARED Total (n = 10)	-6.20	6.89	2.84	.019*
3. Nondirective Support Pairs	<i>Mean Difference</i>	<i>SD</i>	<i>t</i>	<i>p</i>
BIMAS-T Neg. Affect (n = 5)	-7.20	12.66	1.27	.272
SCARED Total (n = 5)	-2.40	6.11	.88	.429



Statistical Analysis: Waitlist Group **Baseline to Baseline**

Paired Samples T-Tests for Waitlist Control Group **Baseline to Baseline** (Preintervention) Comparisons

1. Waitlist Pairs (n = 8 & 10)		<i>Mean Difference</i>	<i>SD</i>	<i>t</i>	<i>p</i>
BIMAS-T Neg. (n = 8)	Baseline to baseline	-2.88	7.24	1.12	.299
SCARED Total (n = 10)		- .10	11.04	.029	.978

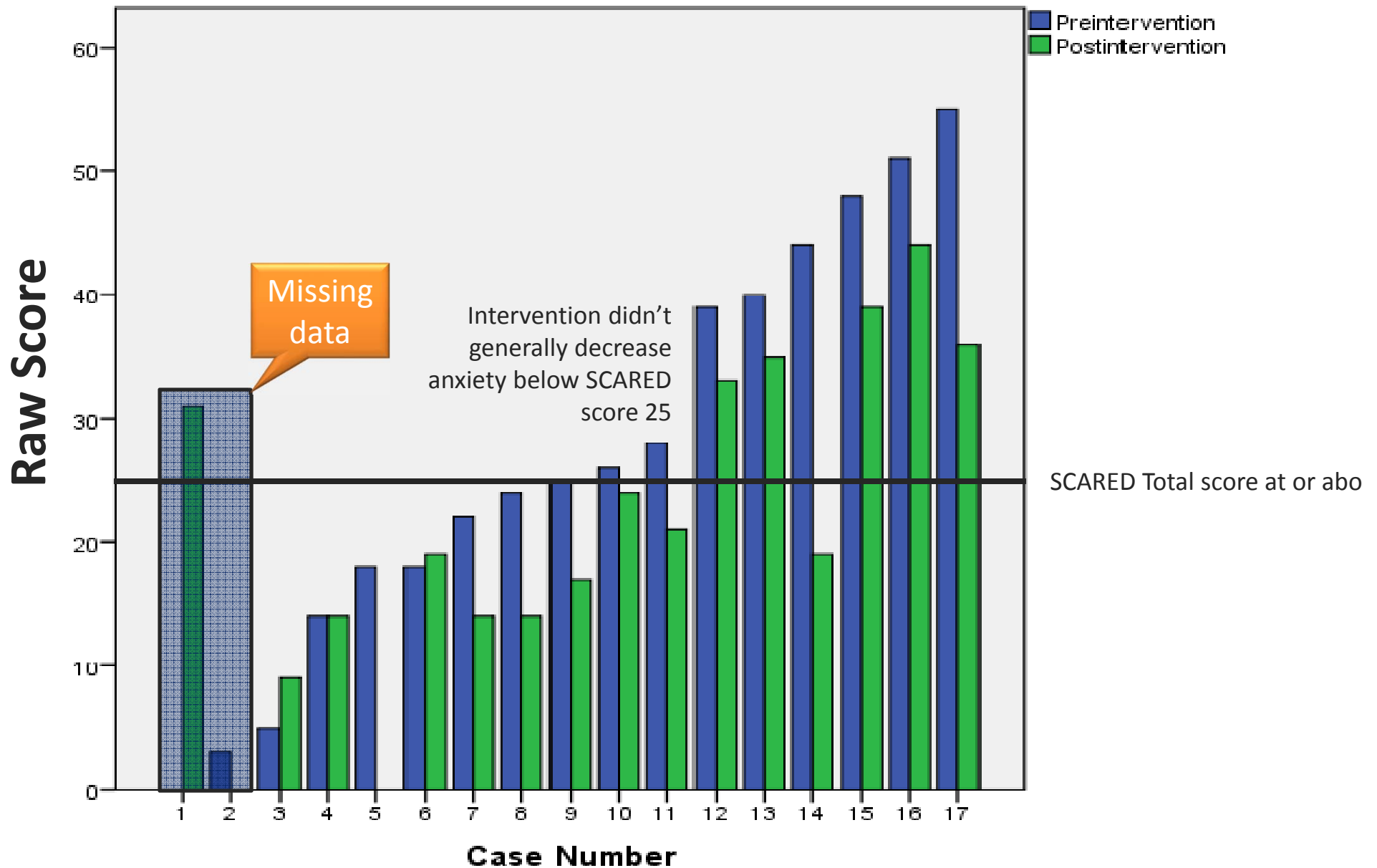
CBT Waitlist: No significant differences in BIMAS-T Negative Affect and SCARED total scores

Recall the effects for this same group after the CBT intervention

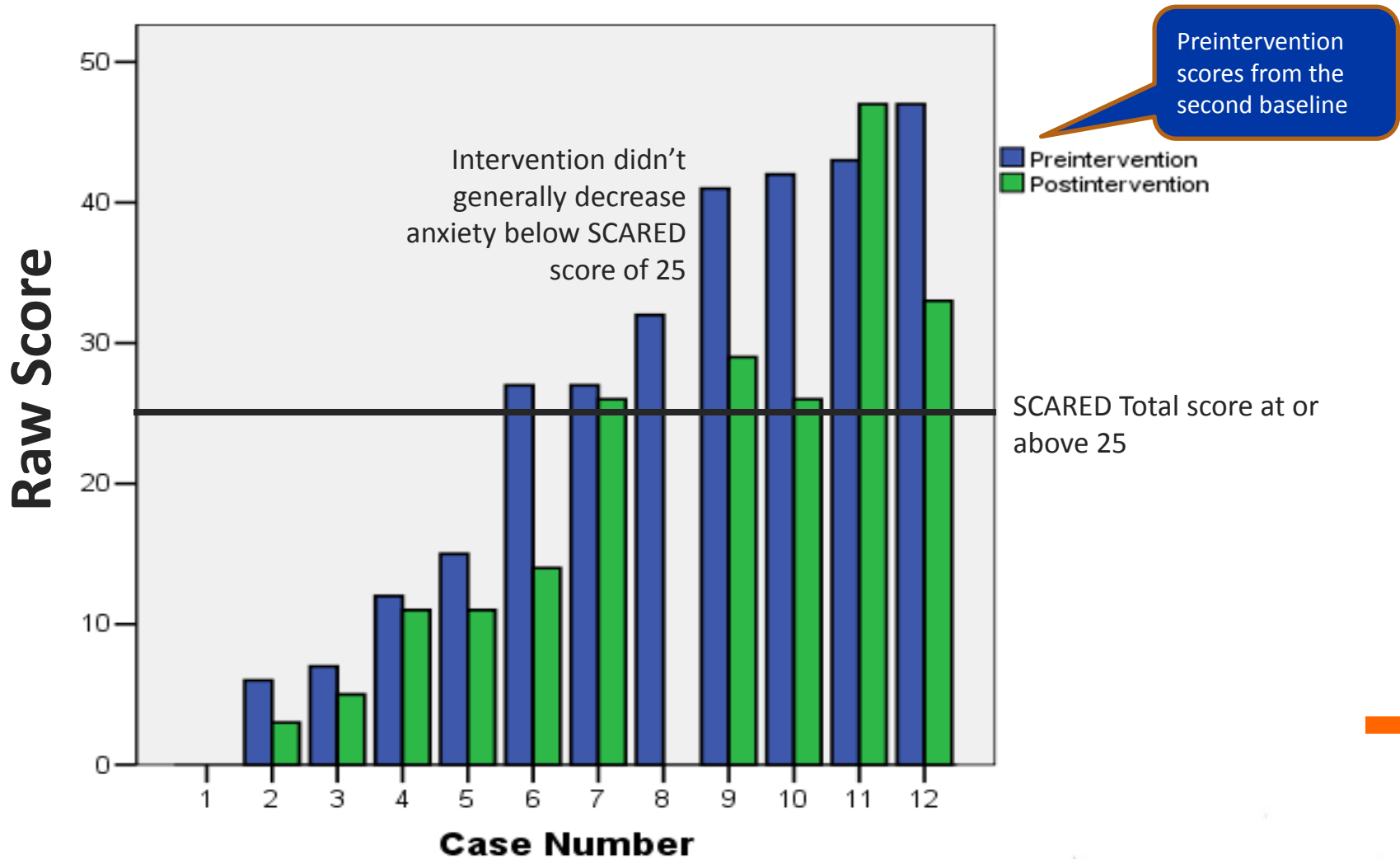
CBT Waitlist Pairs		<i>Mean Difference</i>	<i>SD</i>	<i>t</i>	<i>p</i>
BIMAS-T Neg. Affect (n = 7)	CBT	-7.71	7.65	2.67	.037*
SCARED Total (n = 10)		-6.20	6.89	2.84	.019*



CBT Intervention SCARED Total Pre/Postintervention



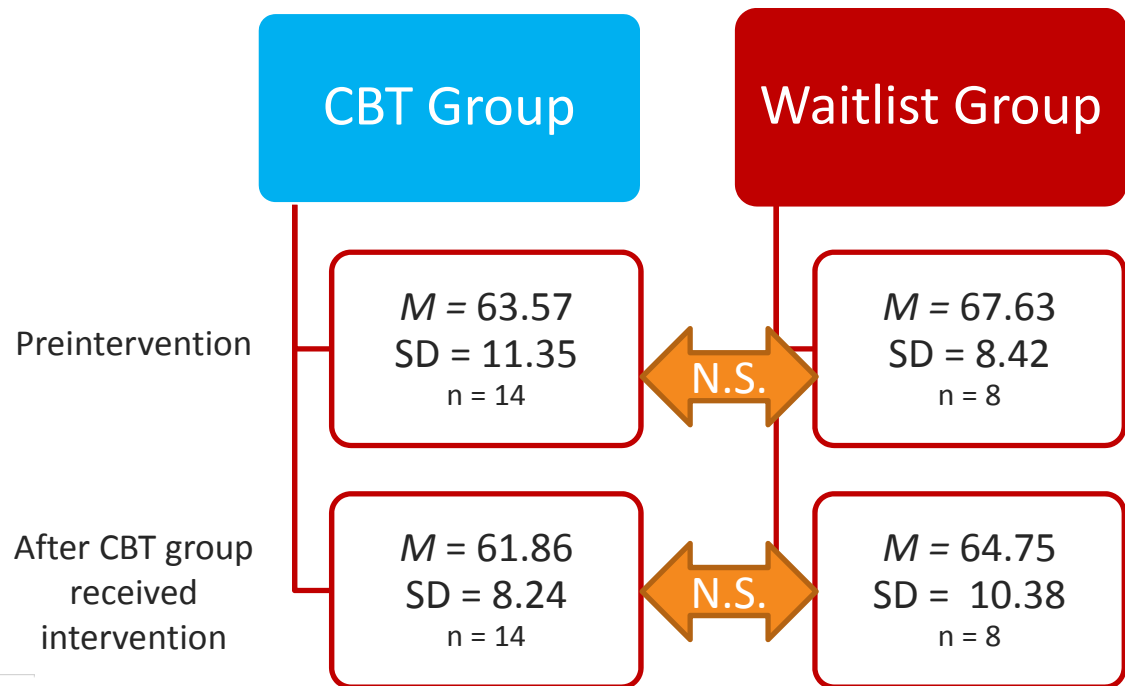
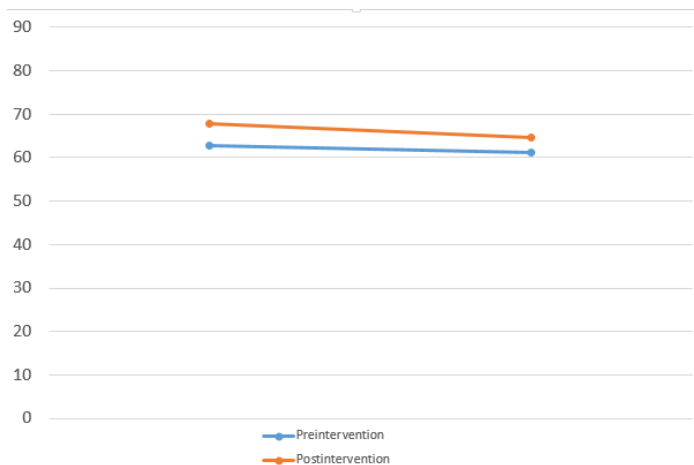
CBT Waitlist Group SCARED Total Pre/Postintervention



BIMAS-T Neg. Affect Scores: *Between Groups Comparison*

c

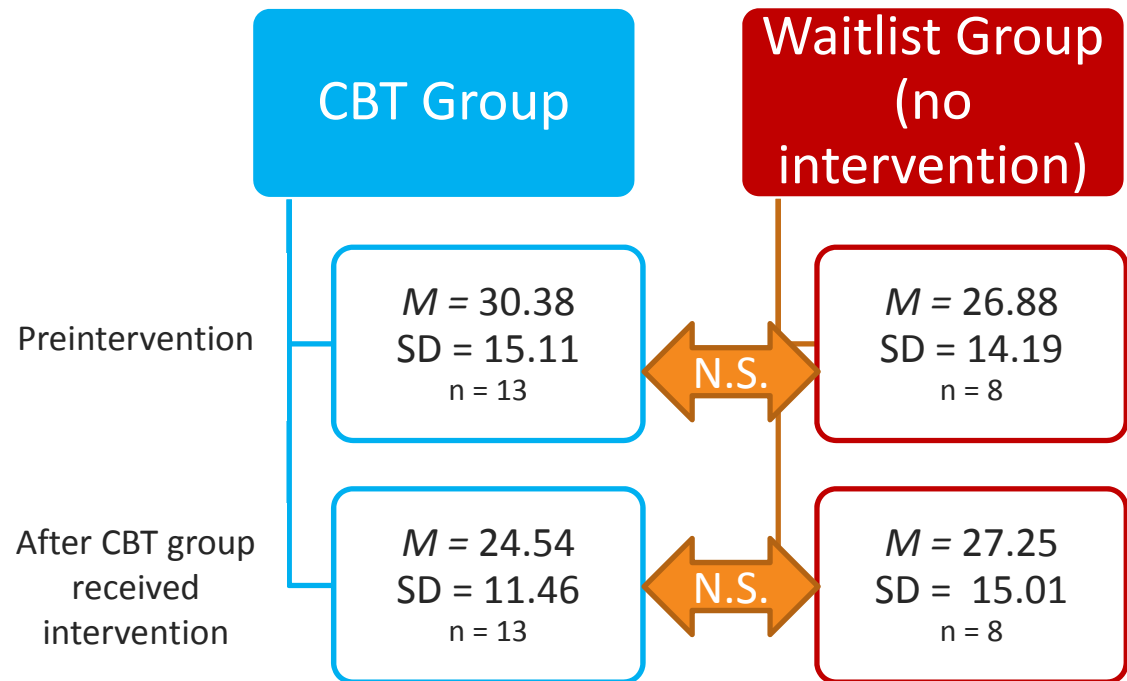
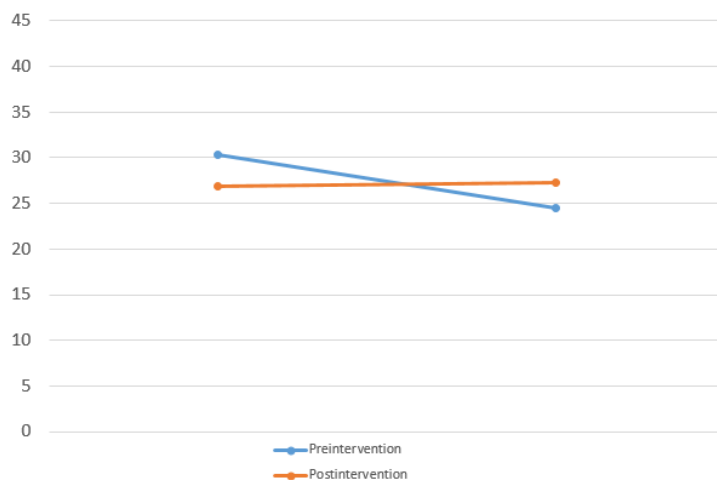
No significant effect
for the intervention
when BIMAS-T
pretest scores held
constant
(R^2 change = .001)



Note. BIMAS-T = Behavior Intervention Monitoring Assessment System

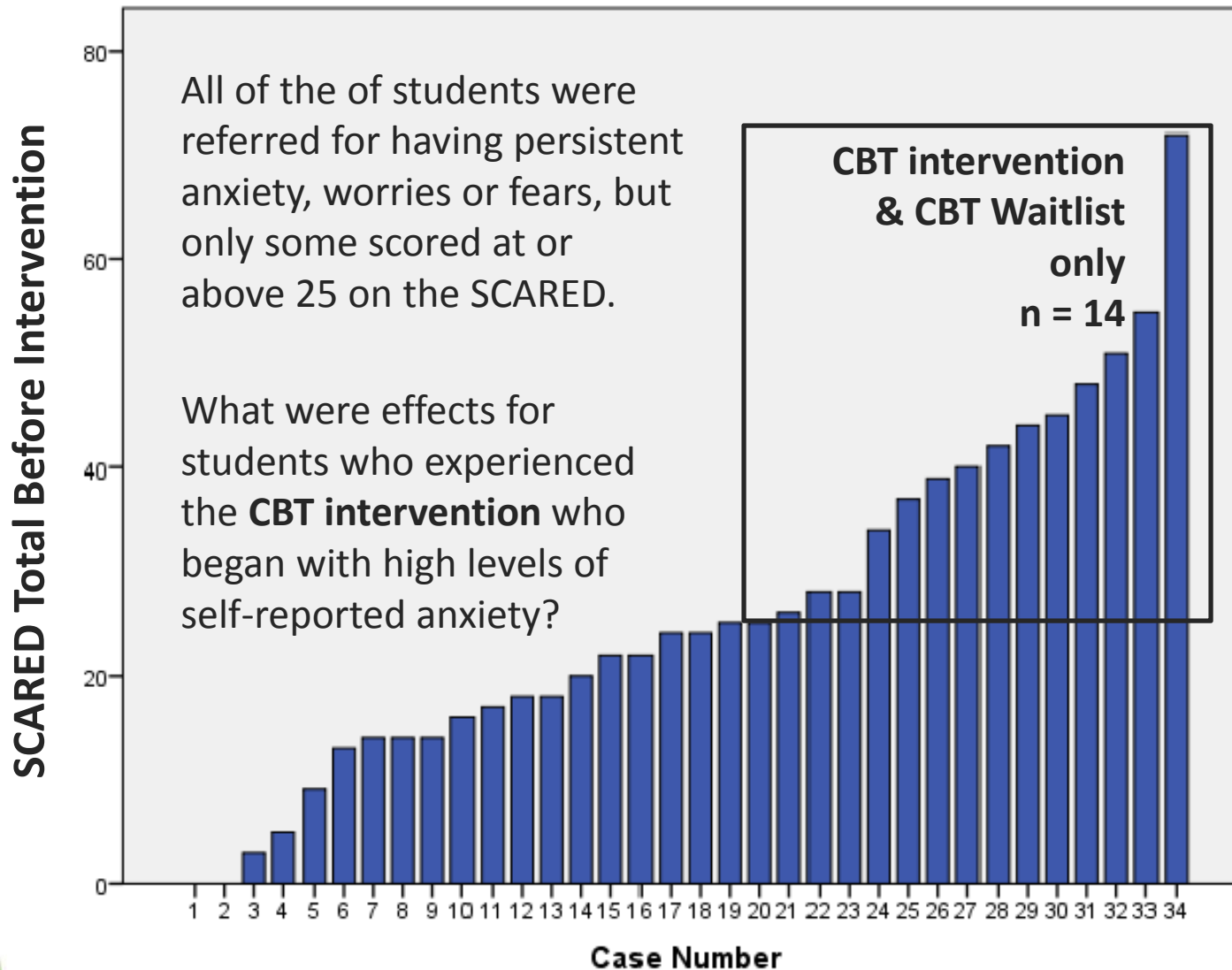
SCARED Total Scores: *Between Groups* Comparison

No significant effect
for the intervention
when SCARED Total
pretest scores held
constant
(R^2 change = .045)



Note. SCARED = Screen for Child Anxiety Related Disorders

Clinical Sample



Clinical Sample Who Received the CBT Intervention

14 Students

- CBT intervention Group = 9
- Waitlist Control Group = 5

Grade levels

- 2nd grade 3 students
- 3rd grade 2 students
- 4th grade 6 students
- 5th grade 3 students



Number of female participants: 10



Number of male participants: 4

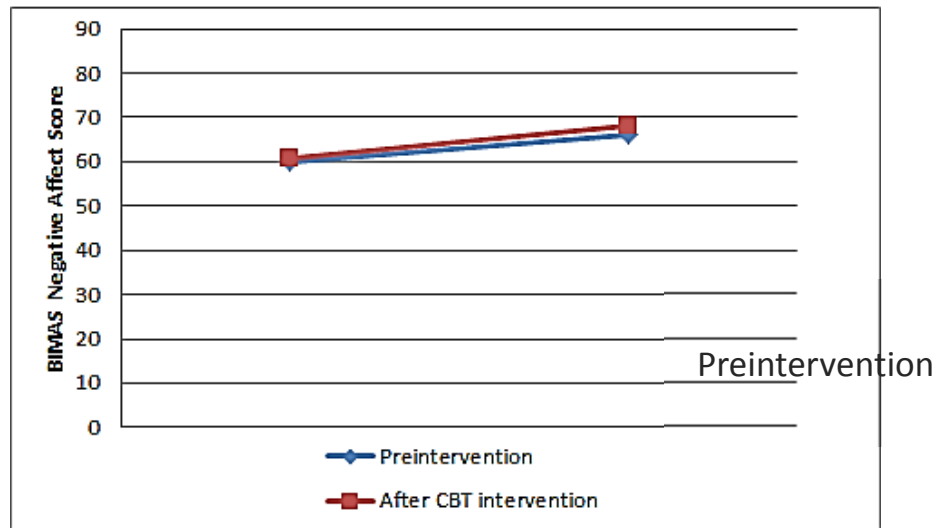
Consistently high
anxiety, fears, and
worries

Interesting to note: When adults referred students, the number of girls was 15 and boys was 19.

An exploration of gender showed boys scored consistently higher on all BIMAS-T behavioral concern scales, and girls scored consistently higher on all SCARED Scales.



BIMAS-T Neg. Affect Scores: Clinical Sample



C

After CBT group
received
intervention

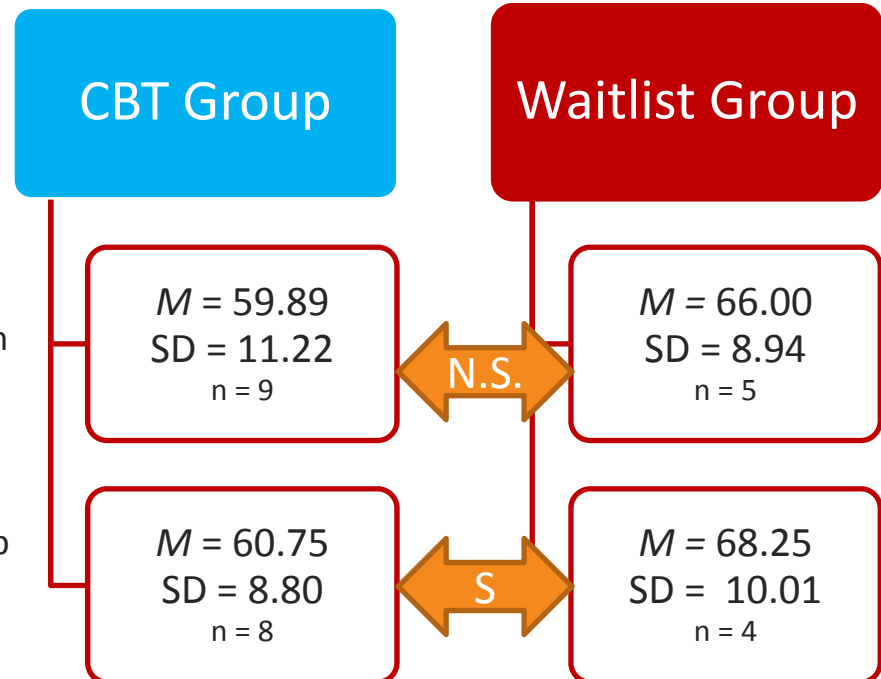
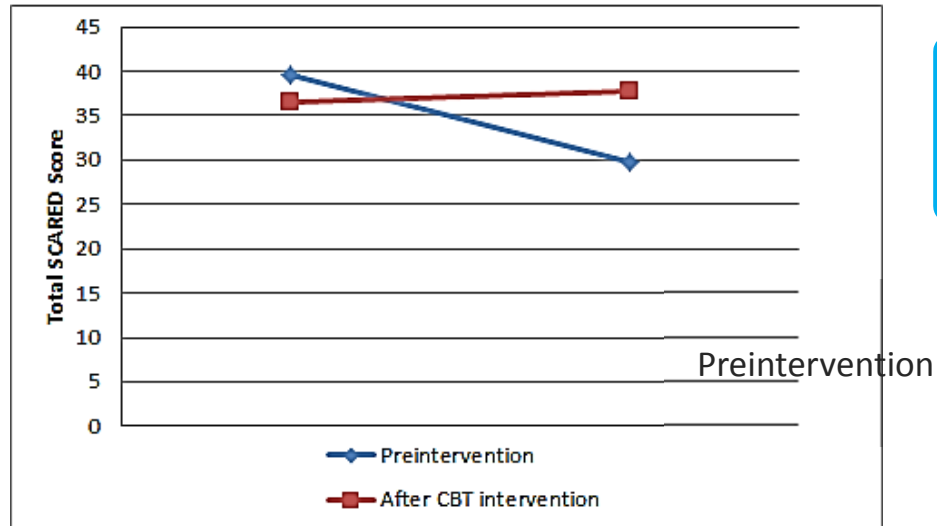


Table 1. Regression of BIMAS-T Negative Affect Scores and Intervention Group onto Postintervention BIMAS-T Negative Affect Scores ($n = 12$)

Model	<i>R</i>	<i>R</i> ²	<i>SEE</i>	<i>R</i> ² change	<i>p</i>
1. BIMAS-T Negative Affect Score	.79	.62	6.14	.62	.002
2. Intervention Group	.80	.64	6.32	.02	.538

Total SCARED Scores: Clinical Sample



After CBT group
received
intervention

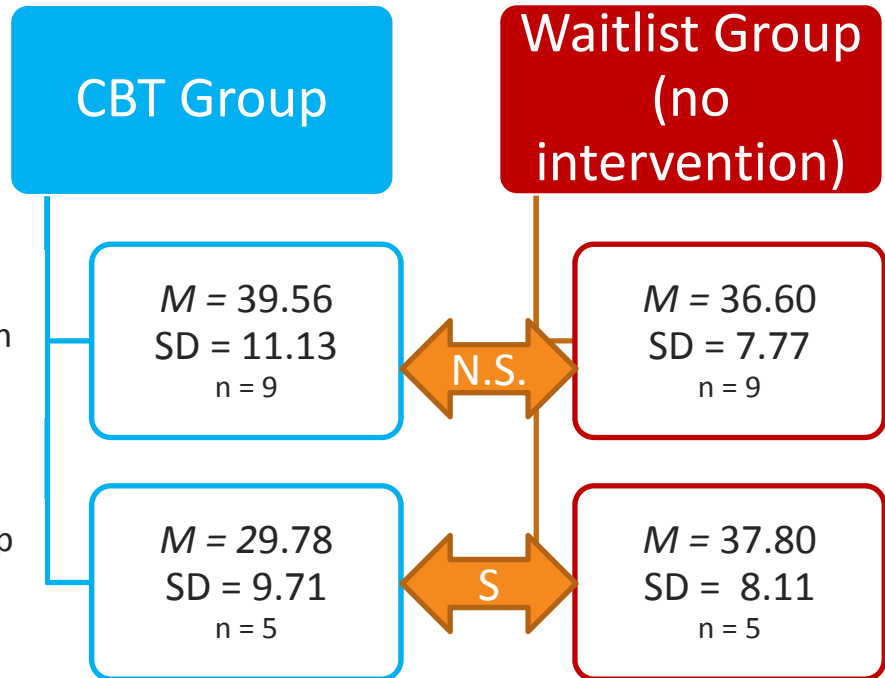


Table 1. Regression of SCARED Total Pretest Scores and Intervention Group onto Postintervention SCARED Total Scores ($n = 14$)

Model	<i>R</i>	<i>R</i> ²	<i>SEE</i>	<i>R</i> ² change	<i>p</i>
1. SCARED Pretest Total Score	.46	.21	8.99	.21	.102
2. Intervention Group	.67	.44	7.87	.24	.054

Correlations Among SCARED and BIMAS-T Scores

Total Sample – Preintervention Scores

No SCARED scores were significantly correlated with BIMAS-T scores

- Range = $-.001$ to $-.317$ BIMAS-T Negative Affect and SCARED Social Anxiety

Clinical Sample – Preintervention Scores

No SCARED scores were significantly correlated with BIMAS-T scores

- Range = $-.023$ to $-.297$ BIMAS-T Negative Affect and SCARED Generalized Anxiety



Classification Accuracy

	SCARED at/above 25	SCARED below 25	
BIMAS-T at/above 65	6 (a) HIT (19%)	10 (b) False positive (31%)	16
BIMAS-T below 65	12 (c) False negative 38%	4 (d) True negative 13%	16
		Total	32

Sensitivity: high BIMAS-T & high SCARED ($a/a+b$) = .38

Specificity: low BIMAS-T & low SCARED ($d/c+d$) = .25

Total classification accuracy: hits + true negatives ($a+d/\text{total}$) = 31.25%



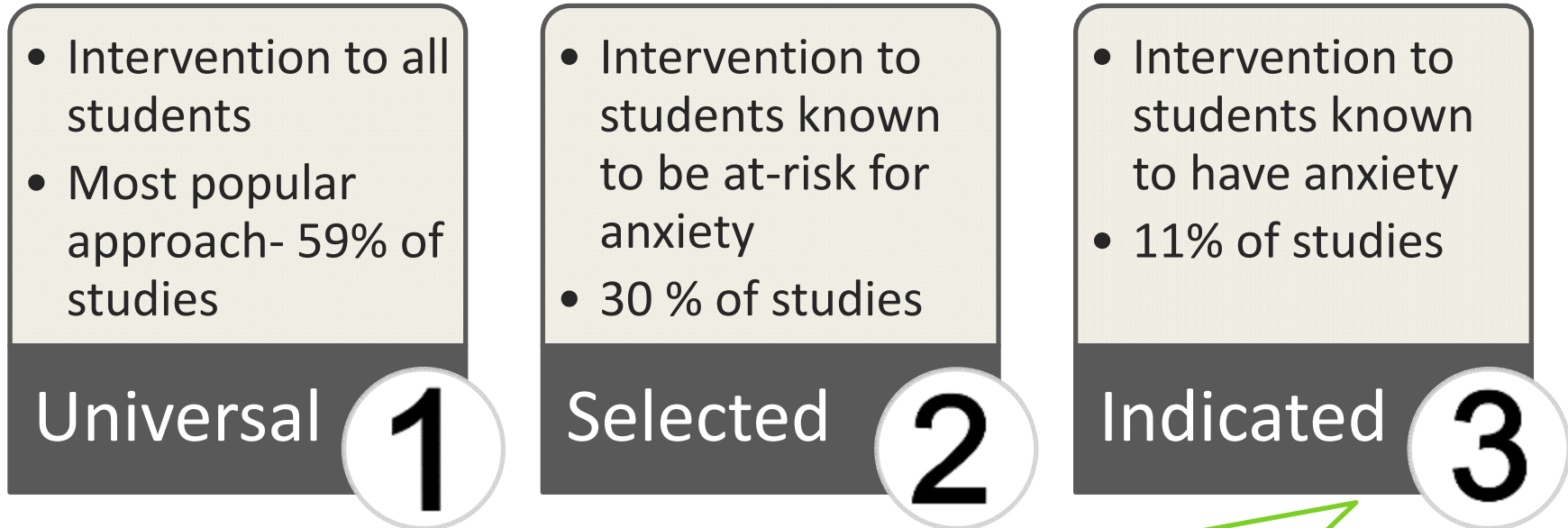
Summary and Interpretation of Main Findings

- Adult selection of students with high levels of anxiety, worries, or fears
- Intervention effects were detected on the SCARED **within** CBT and Waitlist groups but not **between** the groups - effects only approached statistical significance for the clinical sample
- Visualized intervention effects for single cases readily apparent
- The BIMAS-T Negative Affect Scale generally did not detect intervention effects (and were not significantly correlated with SCARED scores)



Neil and Christiansen (2009)

A useful framework to classify and examine anxiety intervention studies



Students with the highest levels of self-reported anxiety benefitted from the intervention, which may help with CBT intervention decisions related to selection of participants and resource allocation.

Limitations

- Low power; only trends were detectable
- Low power prevented adequate moderator variable analyses (gender, grade level, race/ethnicity), as well as interaction effects
- Lower than expected participation plus teachers not consistently completing scales
- Lack of follow-up data prevented the detection of maintenance effects
- BIMAS-T Negative Affect items and operationalization of anxiety
- Internal validity issues, such as expectancy effects
- Anxiety research in schools is difficult in an era of accountability testing!



Future Research

- Larger samples of “indicated” (confirmed anxiety) students
- Compare length and intensity of intervention to determine whether anxiety can be reduced to non-clinical levels for students who have the highest baseline anxiety
- Professional development (PD) for school personnel (particularly teachers) about what anxiety looks like for students in schools
- Further exploration of the use of change sensitive instruments like the BIMAS
- Tighter methods and incentives to ensure completion of scales
- Single subject experimental design and further analysis of students who do not respond to CBT intervention



References

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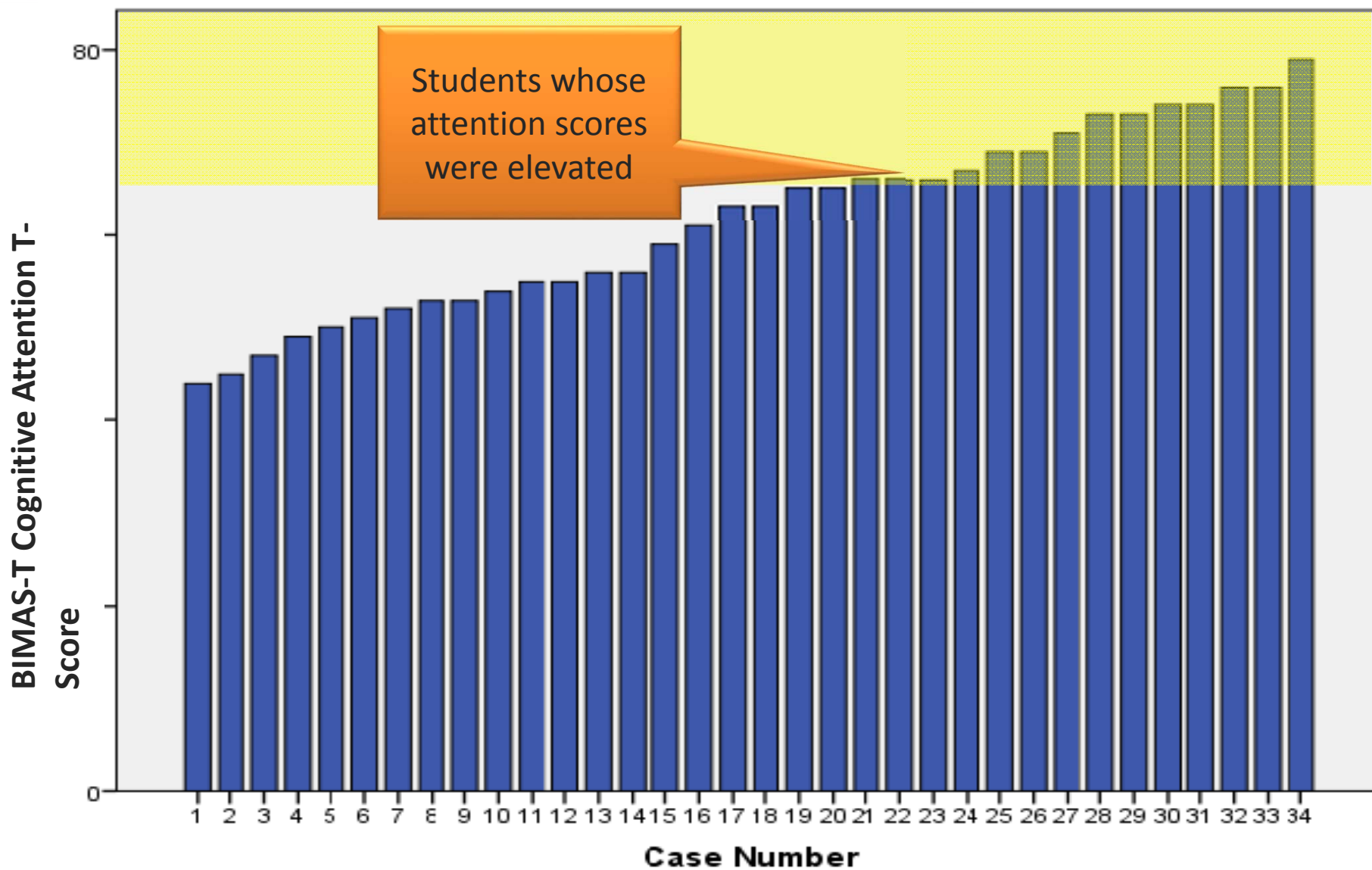
Comments and Questions

Contact: kristen.munger@oswego.edu





BIMAS-T Cognitive Attention Preintervention T-Scores



School: _____

Group Leader: _____

Start time: _____

Session no.: _____

End time: _____

Group Size: _____

STRATEGIES TAUGHT: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

W = Present for whole session; A or P = Absent or only present for part of session (note minutes absent); 1-7 rating of the student's average level engagement in the session

STUDENT NAME	W	A or P	Minutes absent	1 - 7 Rating
1				
2				
3				
4				
5				
6				

Checklist

Check if completed

Include session comments here:

1. Take attendance
2. Welcome students back to group.
3. Review session agreement about taking turns, confidentiality, etc.
4. Hand out kits and review previously presented strategies.
5. Ask students to share strategies they practiced, where they tried them, and what the result was.
6. Ask if there are any questions about the previously taught strategies (answer, as needed).
7. Present new strategies (hand out strategies).
8. Practice new strategies.
9. Provide direction for use of strategies outside of the session.
10. Discuss next meeting time and what it will look like.
11. Explicitly end session.
12. Collect kits.



Treatment Fidelity Checklist for CBT Study: Spring 2013

Instructions: Complete this checklist by indicating yes (Y), no (N), or not applicable (N/A) whether the practicum student enacted the listed session events and/or whether the students were following the practicum student's instructions, were on-task, etc.

Date:

Session number:

Observer:

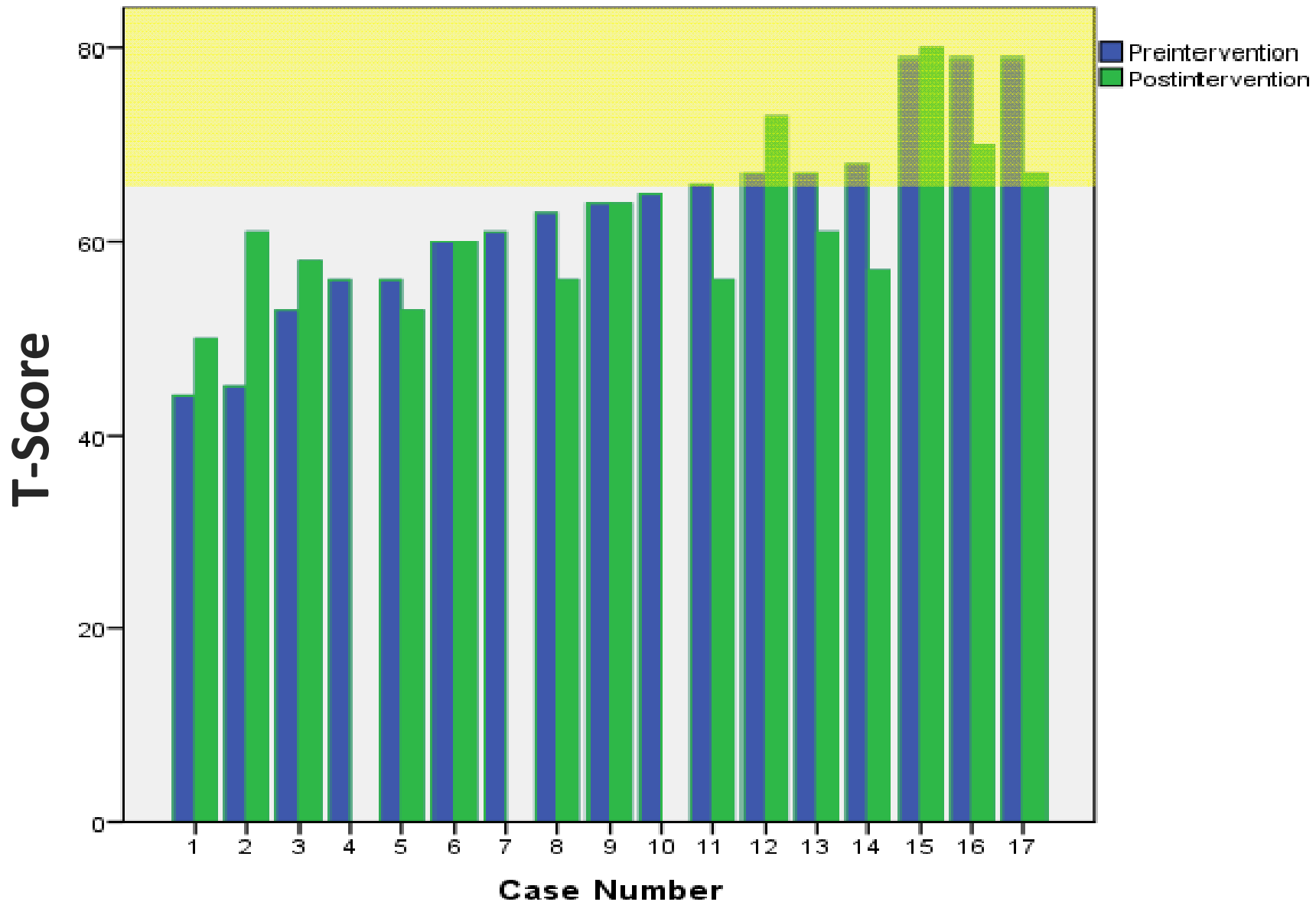
***PRACTICUM STUDENT: _____

Session events	Y, N, N/A	COMMENTS
1 All participants are able to see practicum student.		
2 Session started on time (within five minutes of planned start).		
3 Practicum student has session manual with him/her.		
4 Practicum student uses session manual, as needed.		
5 Practicum student welcomes students.		
6 Practicum student record attendance.		
7 Practicum student reviews session agreement about taking turns, confidentiality, etc.		
8 Practicum student reviews previously presented strategies.		
9 Practicum student asks students to share strategies they practiced.		
10 Practicum student presents three to four new strategies (hands out strategies for kits).		
11 Practicum student models and encourages students to practice new strategies in session.		
12 Practicum student provides direction for use of strategies outside of session.		
13 Practicum student discusses next meeting time and how many sessions are left.		
14 Practicum student explicitly ends session.		
15 Practicum student follows recommended sequence of steps.		
16 Practicum student encourages student participation.		
17 Practicum student reads all print to students and/or has good readers read aloud.		
18 Session lasts at least 30 minutes in length and is no longer than 40 minutes.		
19 Students put cards in their kits.		
20 Students are on task (specify if not and why in comments section).		

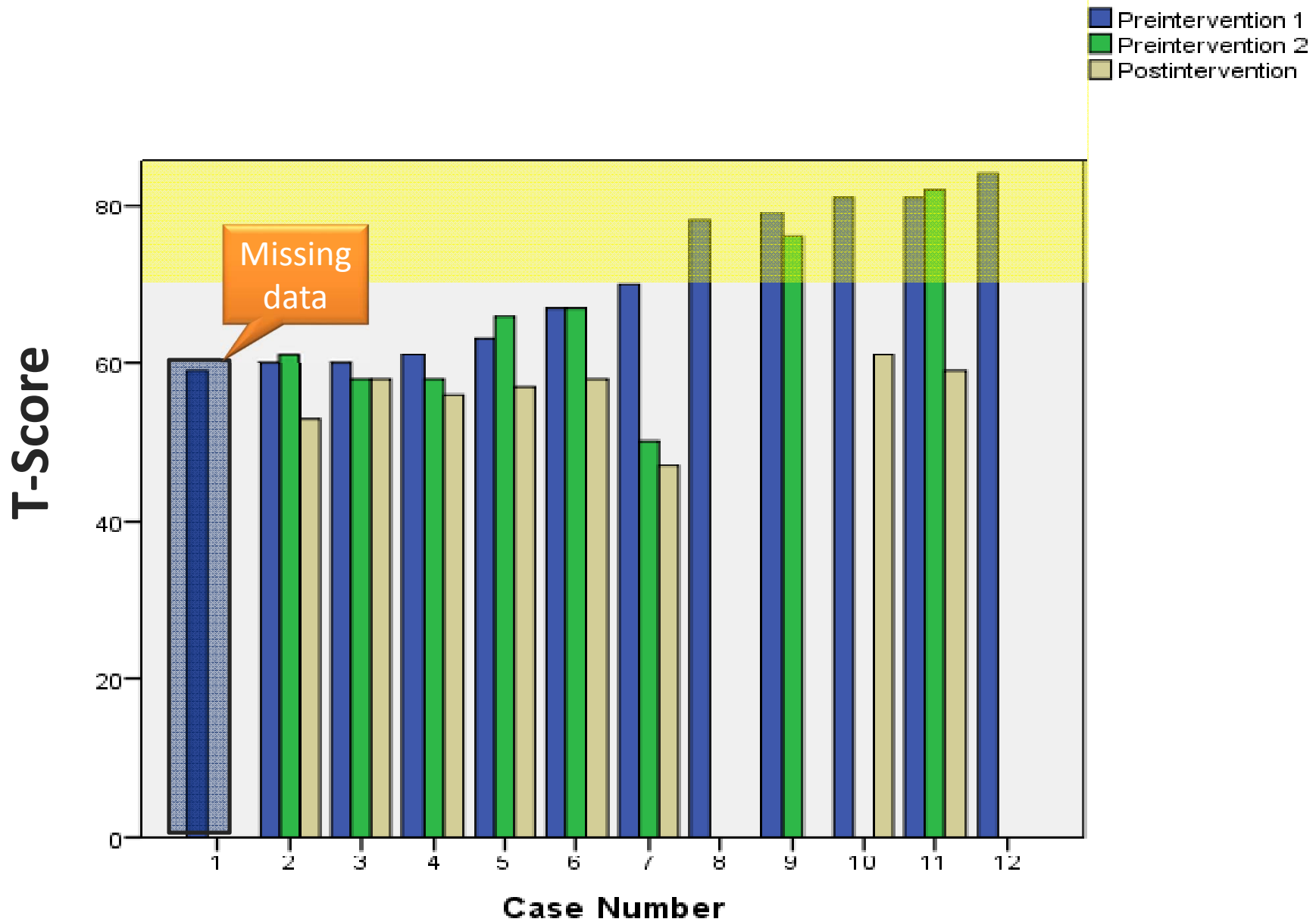
Additional Notes:



CBT 1 intervention Group BIMAS-T Neg. Affect Pre-/Postintervention



CBT Waitlist Group BIMAS-T Neg. Affect Pre-/Pre-/Postintervention



Nondirective Support Group BIMAS-T Neg. Affect Pre-/Postintervention

