Brief Behavioral Therapy for Anxiety and Depression: A Transdiagnostic Approach for Treating Internalizing Problems in Pediatric Settings

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SDSU-UC San Diego JDP in Clinical Psychology
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Disclosure of Potential Conflicts

- The speaker is supported by research grants from the National Institute of Mental Health.

- The program of work described in this talk was supported by grants from the Robert Wood Johnson Foundation, the Klingenstein Third Generation Foundation, the William T. Grant Foundation, and the National Institute of Mental Health.

- Primary outcomes for the BBT trial published in:
  
Rationale

- **Focus on anxiety and depression (transdiagnostic)**
  - Widely prevalent and undertreated
  - High concurrent and longitudinal comorbidity
  - Evidence for shared etiology and intertwined course
  - Evidence for shared response to treatment
  - Conflicting evidence on moderating role of comorbidity

- **Focus on primary care**
  - High access and low stigma
  - Selects for anxious-depressed presentation
  - May reduce ethnic disparities
  - *May select for early trajectory versus treatment resistance*
Prior Studies
Prior Studies

- Manual development
  - Content coding existing manuals
  - Expert surveys
  - Open treatment and training studies
  - *Behavioral* intervention manual developed
Prior Studies

**Manual development**
- Content coding existing manuals
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**Pilot RCT (n=60)**
- BBT versus Usual Care
- Promising results (74% versus 33% response)
- *But*, low uptake of UC services (35%) and low diversity
BBT Trial Design
BBT Trial Design

- **Randomized effectiveness study**
  - Two-site RCT in San Diego (coordinating) and Pittsburgh
  - Brief behavioral therapy (BBT) transdiagnostic protocol
  - Assisted referral to care (ARC) in outpatient mental health
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- **Embedded in primary care practice**
  - Referrals direct from health care providers
  - Assessments and BBT treatment occurred in pediatrics
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- **Target sample**
  - Anxious only, anxious-depressed, depressed only
  - Substantial enrollment of minority youth
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- Target sample
  - Anxious only, anxious-depressed, depressed only
  - Substantial enrollment of minority youth
  - *Moderate impairment (suicidal ideation only)*
Study Aims

- **Clinical effectiveness**
  - Primary outcome global response (CGI-I ≥ 2)
  - Functioning (CGAS)
  - Anxiety severity (PARS)
  - Depression severity (CDRS-R)

- **Moderation**
  - Depression severity
  - Hispanic ethnicity

- **Cost-effectiveness**
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- **Cost-effectiveness**

- **Suicidality**
BBT Treatment Program
BBT Treatment Program

- **Brief and intensive**
  - 8 to 12 sessions with youth and parent (by age)
  - Hands-on activities in session and practice every day

- **Stress management skills (sessions 1-4)**
  - Relaxation and pleasant activities
  - Problem solving skills

- **Graded engagement (sessions 5-8 and 9-12)**
  - Exposure to avoided situations
  - Engagement in activities important for functioning
  - Building rewarding life habits
ARC Comparison Condition
ARC Comparison Condition

- Based on procedures for increasing engagement in outpatient mental health and reducing no-shows

- Initial contact (30 minutes)
  - Information on barriers to care assessed at baseline
  - Referral plan provided at time of randomization reveal
  - Problem solving and education on steps to access care

- Continuing support (10-30 minutes per call)
  - Bi-weekly calls to support service seeking
  - Secondary referrals provided as needed
  - Calls cease when services accessed or end of window
Recruitment
Recruitment

- Recruited from pediatric and family medicine clinics

- **Inclusion criteria**
  - age 8.0 to 16.9
  - probable or full separation anxiety disorder, generalized anxiety disorder, social phobia, major depression, dysthymic disorder, or minor depression
  - lived with a consenting guardian for at least 6 months
  - both youth and participating caretaker spoke English

- **Exclusion criteria**
  - concurrent active treatment for anxiety or depression
  - *current suicidal plan*, bipolar disorder, psychosis, PTSD, substance dependence, current abuse, school placement below second grade, or unstable serious physical illness
CONSORT chart
CONSORT chart

681 Children referred
  163 Excluded
    85 Declined to participate
    75 Unable to contact
    3 Other
  518 Assessed for eligibility via phone screen
    121 Excluded
      94 Did not meet criteria
      9 Already receiving services
      8 Insufficient symptoms
      6 Declined to participate
      3 Unable to contact
      1 Other
  397 Eligible for baseline
    107 Declined to participate
    290 Completed baseline assessment
      105 Excluded
        101 Did not meet criteria
        4 Declined to participate
  185 Randomized
    95 Randomized to BBT
      86 Completed treatment
      6 Did not complete treatment
    90 Randomized to ARC
      79 Completed treatment
      11 Did not complete treatment
    3 Withdrew from study
      Week-16 Follow-up
        88 Completed evaluation
        7 Did not complete evaluation
      95 Included in analysis
    90 Included in analysis
      Week-16 Follow-up
        71 Completed evaluation
        19 Did not complete evaluation
      90 Included in analysis

27% of referred randomized
# Baseline demographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>ARC</th>
<th>BBT</th>
<th>test</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>185</td>
<td>90</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth age, M (SD)</td>
<td>11.3 (2.6)</td>
<td>11.3 (2.7)</td>
<td>11.3 (2.4)</td>
<td>t=0.10</td>
<td>183</td>
<td>.92</td>
</tr>
<tr>
<td>Youth gender, N (% female)</td>
<td>107 (57.8)</td>
<td>53 (58.9)</td>
<td>54 (56.8)</td>
<td>χ²=0.08</td>
<td>1</td>
<td>.78</td>
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<tr>
<td>Youth race, N (% Caucasian)</td>
<td>144 (77.8)</td>
<td>73 (81.1)</td>
<td>71 (74.7)</td>
<td>χ²=1.09</td>
<td>1</td>
<td>.30</td>
</tr>
<tr>
<td>Youth ethnicity, N (% Hispanic)</td>
<td>38 (20.7)</td>
<td>20 (22.5)</td>
<td>18 (18.9)</td>
<td>χ²=0.35</td>
<td>1</td>
<td>.56</td>
</tr>
<tr>
<td>Living with both bio parents, N (% Yes)</td>
<td>125 (67.6)</td>
<td>58 (64.4)</td>
<td>67 (70.5)</td>
<td>χ²=0.78</td>
<td>1</td>
<td>.38</td>
</tr>
<tr>
<td>Parent at least college graduate, N (% Yes)</td>
<td>116 (63.7)</td>
<td>55 (61.8)</td>
<td>61 (65.6)</td>
<td>χ²=0.28</td>
<td>1</td>
<td>.60</td>
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<tr>
<td>Site, N (% San Diego)</td>
<td>96 (51.9)</td>
<td>47 (52.2)</td>
<td>49 (51.6)</td>
<td>χ²=0.01</td>
<td>1</td>
<td>.93</td>
</tr>
<tr>
<td>Family monthly income ($K), Mdn (range)</td>
<td>4.4 (0-21)</td>
<td>4.4 (0-18)</td>
<td>4.2 (0.6-21)</td>
<td>z=-0.33</td>
<td>-</td>
<td>.74</td>
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</table>
### Baseline clinical characteristics

<table>
<thead>
<tr>
<th></th>
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<td></td>
<td></td>
</tr>
<tr>
<td>Clinically significant depression, N (% Yes)</td>
<td>71 (38.4)</td>
<td>35 (38.9)</td>
<td>36 (37.9)</td>
<td>$\chi^2=0.02$</td>
<td>1</td>
<td>.89</td>
</tr>
<tr>
<td>CDRS-R, M (SD)</td>
<td>32.9 (12.6)</td>
<td>33.7 (12.5)</td>
<td>32.2 (12.6)</td>
<td>$t=0.84$</td>
<td>182</td>
<td>.40</td>
</tr>
<tr>
<td>CGI-S, M (SD)</td>
<td>4.2 (0.8)</td>
<td>4.1 (0.8)</td>
<td>4.2 (0.8)</td>
<td>$t=-0.95$</td>
<td>183</td>
<td>.34</td>
</tr>
<tr>
<td>CGAS, M (SD)</td>
<td>56.1 (6.5)</td>
<td>56.4 (7.1)</td>
<td>55.9 (6.5)</td>
<td>$t=0.56$</td>
<td>183</td>
<td>.58</td>
</tr>
<tr>
<td>PARS, M (SD)</td>
<td>14.9 (5.2)</td>
<td>14.4 (5.1)</td>
<td>15.3 (5.3)</td>
<td>$t=-1.10$</td>
<td>183</td>
<td>.27</td>
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90% BBT received minimum dose
82% ARC connected to services

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88 Completed evaluation
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86% retained

86% retained

Week-16 Follow-up
  71 Completed evaluation
  19 Did not complete evaluation

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Analytic Plan

- **Intent-to-treat**
  - Unadjusted ITT analyses presented
  - Multiple imputation with chained equations for missing data produced equivalent results

- **Clinical effectiveness**
  - Outcomes across anxiety and depression
  - Outcomes by domain of psychopathology

- **Moderators**
  - Clinically significant depression at baseline
  - Hispanic ethnicity

- **Suicidality**
Clinical response
primary outcome

Percent response (CGI-I ≥ 2)

Total sample

BBT
ARC
Clinical response
*primary outcome*

Percent response (CGI-I ≥ 2)

![Bar graph showing clinical response comparison between BBT and ARC groups. The graph indicates a higher percentage of response in the BBT group compared to the ARC group.](chart.png)
Functioning

- **BBT superior**
  - Faster rate
  - Week 16 $d = 0.58$

- **Site effects**
  - San Diego superior
  - Main effect of BBT significant at both sites
  - Only site effect in analyses of outcomes

*NOTE: Error bars represent 95% confidence intervals*
Outcome by domain of psychopathology

- Doubly multivariate analyses
  - BBT superior in joint outcome model
  - Effects driven by change in anxiety severity (panel a)

NOTE: Error bars represent 95% confidence intervals
Moderation by depression status

Percent response (CGI-I ≥ 2)

- **Total sample**
- **Significant depression**
- **Anxious only**

- **BBT**
- **ARC**
Moderation by depression status

interaction not significant

Percent response (CGI-I $\geq$ 2)

- **Total sample**
- **Significant depression**
- **Anxious only**

- **BBT**
- **ARC**
Moderation by depression status

interaction not significant

Percent response (CGI-I ≥ 2)

Total sample

Significant depression

Anxious only

BBT

ARC
Moderation by Hispanic ethnicity

Percent response (CGI-I ≥ 2)

- Total sample
- Non-hispanic
- Hispanic

Legend:
- BBT
- ARC
Moderation by Hispanic ethnicity

*significant interaction*

Percent response (CGI-I ≥ 2)

- Total sample
- Non-hispanic
- Hispanic

[Graph showing percent response for BBT and ARC in total sample, non-hispanic, and Hispanic groups]
Moderation by Hispanic ethnicity *significant interaction*

Percent response (CGI-I ≥ 2)

- **Total sample**
  - BBT: 60%
  - ARC: 40%

- **Non-hispanic**
  - BBT: 50%
  - ARC: 30%

- **Hispanic**
  - BBT: 80%
  - ARC: 20%
Suicidality and Morbid Ideation
Suicidality and Morbid Ideation

- Sample low in serious suicidality by design
  - Suicidality with plan excluded at baseline
  - 7% endorse SI on KSADS
  - 9% endorse SI on CDRS-R

- Rates of morbid ideation higher
  - 22% endorse recurrent thoughts of death on KSADS
  - 17% endorse morbid ideation on CDRS-R
Suicidality and Morbid Ideation

- **Outcome models**
  - No significant effects on SI
  - BBT superior to ARC in reducing MI on CDRS-R
Suicidality and Morbid Ideation

- **Outcome models**
  - No significant effects on SI
  - BBT superior to ARC in reducing MI on CDRS-R

- ** Predictor models**
  - SI predicted poorer response across arms
  - Effects consistent with both KSADS and CDRS-R items
  - No significant effects for morbid ideation
Suicidality and Morbid Ideation

- **Outcome models**
  - No significant effects on SI
  - BBT superior to ARC in reducing MI on CDRS-R

- **Predictor models**
  - SI predicted poorer response across arms
  - Effects consistent with both KSADS and CDRS-R
  - No significant effects for morbid ideation

- **Moderator models**
  - No significant moderation of response
  - BBT remained superior to ARC in presence of SI and MI
Discussion
Discussion

- **BBT clinically effective**
  - Superior overall clinical response and functioning
  - Specific effects on anxiety severity

- **Depression effects less clear**
  - BBT effects not moderated by depression at baseline or by suicidal or morbid ideation
  - BBT effects on *morbid ideation*, but no significant effect on depression symptom severity
  - May be improving overall functioning of anxious-depressed youths, primarily through change in anxiety

- **Promise for reducing ethnic disparities**
  - Positive moderation by Hispanic ethnicity
  - Anxious / depressed symptom ratio varies by ethnicity
Acknowledgements

Major collaborators and supports

- Dr. David Brent (PI) Pittsburgh site
- Pittsburgh data management and trial infrastructure
- San Diego clinical development team
- Primary care research networks and funding programs

BBT trial registration

- clinicaltrial.gov identifier NCT01147614

Many thanks to our families and pediatric partners!