Acceptance-based behavioral weight loss treatment outperforms behavior therapy: Outcomes of the Mind Your Health Study

Evan Forman, Meghan Butryn, Ross Crosby, Stephanie Manasse, Emily Wyckoff, Stephanie Goldstein, J. Graham Thomas, Adrienne Juarascio
Weight Loss at 1 Year

Only a small minority maintain prescribed calorie and PA levels.

Those who **do** adhere to regimens: sustained weight loss.

The problem: Inadherence
<table>
<thead>
<tr>
<th>Taste Preference</th>
<th>Evolutionary Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>Starvation</td>
</tr>
<tr>
<td>Sugar</td>
<td>Poisoning</td>
</tr>
<tr>
<td>Salt</td>
<td>Dehydration</td>
</tr>
</tbody>
</table>
desire
consumption
Theoretical Model of Obesity

Cues

- Urges/Cravings
- Hunger
- Muscular Fatigue
- Desire for Pleasure

Aversive State

Escape

Mindless Decision Making

Dietary Lapse

Weight Gain

- Boredom
- Sadness
- Anxiety
- Feelings of deprivation
**Model of Successful Intervention**

- **Cues**
  - Hunger
  - Muscular Fatigue
  - Urges/Cravings
  - Desire for Pleasure

- **Aversive State**
  - Boredom
  - Sadness
  - Anxiety
  - Feelings of deprivation

- **Acceptance Willingness**
  - Values Consciousness

- **Mindful Decision Making**
  - Behavioral Commitment

- **Adherence**
  - Weight Control
## Acceptance-Based Behavioral Treatment (ABT)

Drawn primarily from Acceptance and Commitment Therapy

<table>
<thead>
<tr>
<th>Retained from SBT</th>
<th>Subtracted from SBT</th>
<th>Added to SBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutritional education</td>
<td>Distraction and confrontation</td>
<td>Values clarification; ongoing commitment</td>
</tr>
<tr>
<td>Goal setting</td>
<td>Identification of cognitive distortions</td>
<td>Mindfulness training; mindful decision making</td>
</tr>
<tr>
<td>Self-monitoring, stimulus control, etc</td>
<td>Cognitive restructuring</td>
<td>Acceptance of aversive internal states, defusion</td>
</tr>
</tbody>
</table>
Previous research on ABT for weight control

• Analog studies and uncontrolled trials

• Workshop and limited dose studies (e.g., Lillis et al (2009), Katterman et al (2014), & Tapper et al (2009))

• Mind Your Health I
  – Advantage of ABT over SBT moderated by clinician expertise level
  – Susceptibility to internal and external cues as moderators
  – Evidence of psychological acceptance as a mediator of ABT
Rationale for the current study

• Only 1 existing RCT of ABT vs SBT
• Impact of ABT when delivered by experienced clinicians
• Replication of moderating effects
• Revisions to the ABT manual
• Further examination of ABT mediators
Current study

1. Evaluate effectiveness of ABT compared to SBT
2. Examine food-related psychological acceptance and autonomous motivation as mediators of ABT
3. Test whether effectiveness of ABT would be moderated by mood disturbance, responsivity to food cues, and disinhibited eating
Study design

• Group-based BWL intervention
  – Acceptance-based behavioral treatment (ABT) vs. standard behavioral treatment (SBT)
  – 25 sessions, 12 months

<table>
<thead>
<tr>
<th>Month</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Treatment</td>
<td>Weekly</td>
<td>Biweekly</td>
<td>Monthly</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>
Revisions to ABT manual

• “Control what you can, accept what you can’t” framework
• Tighter integration of ABT skills with standard behavioral components
• Greater emphasis on willingness to experience loss of pleasure/comfort
• De-emphasis on acceptance of aversive internal experiences
## Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mediators</strong></td>
<td></td>
</tr>
<tr>
<td>Food-related psychological acceptance</td>
<td>Food Craving Acceptance and Action Questionnaire (FAAQ)</td>
</tr>
<tr>
<td>Autonomous motivation</td>
<td>Treatment Self-Regulation Questionnaire (TSRQ)</td>
</tr>
<tr>
<td><strong>Moderators</strong></td>
<td></td>
</tr>
<tr>
<td>Mood disturbance</td>
<td>Beck Depression Inventory-II (BDI-II)</td>
</tr>
<tr>
<td>Responsivity to food cues</td>
<td>Power of Food Scale (PFS)</td>
</tr>
<tr>
<td>Disinhibited eating</td>
<td>Disinhibition subscale of the Eating Inventory (EI-D)</td>
</tr>
</tbody>
</table>
## Participants

<table>
<thead>
<tr>
<th></th>
<th>Full sample (n=190)</th>
<th>ABT (n=100)</th>
<th>SBT (n=90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>51.64 (10.04)</td>
<td>51.61 (9.97)</td>
<td>51.67 (10.16)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>36.93 (5.81)</td>
<td>36.50 (5.41)</td>
<td>37.40 (6.22)</td>
</tr>
<tr>
<td>Gender</td>
<td>82.1% female</td>
<td>82.0% female</td>
<td>82.2% female</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>29.5% Non-white</td>
<td>30.0% Non-white</td>
<td>28.9% Non-white</td>
</tr>
</tbody>
</table>

Demographics were equivalent between groups at baseline
Results
Percent weight change by treatment condition

Baseline
Mid-treatment
Post-treatment

$\text{SBT}$: $-9.8\%$
$\text{ABT}$: $-13.3\%$

$b=3.44$ SE$=1.21$ $p = .005$
Session-by-session weight change by treatment condition

$b=0.003$, $SE=.001$, $p=.01$

Condition x time (quadratic) interaction: SBT showing a shallower trajectory of weight loss compared to ABT, with upward deflection (weight regain) by 12-months, while ABT maintained weight losses through 12 months.
Percentage of participants who reached 10% weight loss

Wald $\chi^2=4.37$, $p=.04$, OR=.54
Both variables significantly mediate the \textit{superior} effect of ABT

<table>
<thead>
<tr>
<th>Variable</th>
<th>$b_{\text{indirect}}$</th>
<th>SE</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological acceptance of food-related urges and cravings</td>
<td>1.55</td>
<td>.55</td>
<td>2.65, 7.81</td>
</tr>
<tr>
<td>Autonomous motivation</td>
<td>0.47</td>
<td>.33</td>
<td>0.03, 1.37</td>
</tr>
</tbody>
</table>
Moderation

None of the variables significantly moderate the superiority of ABT over SBT

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological acceptance of food-related urges and cravings</td>
<td>-0.18</td>
<td>0.19</td>
<td>.28</td>
</tr>
<tr>
<td>Autonomous motivation</td>
<td>-0.02</td>
<td>0.09</td>
<td>.58</td>
</tr>
<tr>
<td>Disinhibited eating</td>
<td>-0.48</td>
<td>0.49</td>
<td>.69</td>
</tr>
</tbody>
</table>
Summary/Conclusions

• Integrating acceptance, mindful decision-making and valued commitment strategies into behavioral treatment appears to produce:
  – Greater weight loss at one year
    • Divergence at week/session 15. (ABT providing skills that enable maintenance of behaviors when meetings less frequent?)
  – Greater proportion reaching a 10% weight loss

• Important differences from “mindfulness—based” weight loss treatments
Summary/Conclusions

• Psychological acceptance and autonomous motivation mediate superiority of ABT

• No replication of moderation effects

• More robust effects across entire sample possibly due to
  – Modifications to treatment protocol
  – Clinicians had behavioral weight loss experience
Strengths

• Gold standard comparison
• Sample size

Limitations

• Mechanisms
• Longer-term effects unknown
Future directions

- Fuller understanding of mechanisms of action
- Objective measurement of mediators
- Dismantling study
- Long-term follow-up
Acknowledgments

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• Co-Investigators: Meghan Butryn, Ross Crosby, Graham Thomas

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• Participants and group leaders

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