Appendices

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Figure A1. Conceptual diagram of mediation analyses.

*In Exploratory Aim 2, disordered eating at the follow-up assessment will replace post-intervention disordered eating as the outcome variable.



Figure A2. Conceptual diagram of moderated mediation analyses.



Figure A3. Statistical diagram of mediation analyses.

Note: Figure depicts a generic mediation model with *k* mediators.



Figure A4. Statistical diagram for moderated mediation analyses.

Note: Figure depicts a generic moderated mediation model with *k* mediators and one moderator.

Appendix B: Coaching Instructions

COACHING INSTRUCTIONS

Who will benefit from using this app?

The **Mindful Eating Coach** is designed to help people who: eat too much or too little, eat when they're not hungry, feel badly about their eating or their weight, worry a lot about food and eating, often think, "I wish I hadn't eaten that," but keep repeating the same patterns, or struggle in other ways with their eating and/or weight. The goal is to help you feel better about your eating choices and to help you maintain a healthy weight.

This app is NOT designed to treat eating disorders. If you are struggling with serious eating and weight problems (like an unhealthy low weight or purging), please see a doctor or mental health professional.

What is mindful eating?

Mindful eating is paying attention to your HUNGER and FULLNESS cues and trying to primarily use those cues to make decisions to start and stop eating. It's doing your best to: not get too hungry or too full, avoid eating when you're not hungry, and enjoy what you do choose to eat.

Mindful eating is distinguishing between hunger and WANTING to eat for other reasons (e.g., being upset, avoiding work, socializing, taste). If you want to eat for other reasons, it's INTENTIONALLY deciding whether it's more effective to eat (e.g., because you'll feel deprived if you don't) or to do something else to meet your needs (e.g., distraction, coping in other ways).

Mindful eating is intentionally choosing foods and amounts that you predict will be "worth it," meaning you will enjoy in the moment and will still feel good about eating it later on.

Mindful eating is being kind to yourself when you make mistakes. It's focusing on taking away lessons so that you make more mindful choices in the future, rather than criticizing yourself or feeling guilty.

Mindful eating is NOT a "diet," a set of "rules," eating "perfectly" all the time, only eating "healthy" foods, or never having a treat.

How to BE MINDFUL

Whenever you <u>want</u> to eat or it's a <u>planned</u> meal or snack, follow these steps to BE MINDFUL when eating . . .

- **B**: **B**reathe in and out pause to tune in to what's going on internally and around you
- **E:** Explore reasons for wanting to eat besides hunger (i.e., food available, emotions)
- **M**: Monitor how hungry you are
- I: Intentionally decide to eat or not eat
- N: Now, recall past lessons think about what will be "worth it" to eat now and later
- **D**: **D**ine slowly and savor your food
- F: Focus on staying tuned in to how your stomach feels while eating
- U: Use moderate fullness as your signal to STOP eating (no matter what you eat)
- L: Learn from the experience, but don't judge! Focus on lessons for improving next time

*Also, "check in" with your appetite and how you feel <u>periodically</u> throughout the day, and especially <u>after eating</u> (e.g., are you hungry and need to eat? how do you feel after that snack? was that meal really "worth it," or would you have enjoyed something else more?)

Why do you need a coach?

Changing mindless eating habits and making mindful eating your new habit initially takes a lot of effort. *That's why you need a coach!* The "Mindful Eating Coach" provides **five coaching tools** that help you coach yourself throughout the day to follow the steps to **BE MINDFUL**.

When you first use the app, use it as long as you need to make mindful eating a habit (this may take from a few weeks to several months). When you feel like you're getting the hang of mindful eating, you can shift to "mental coaching" (or using the coaching tools in your mind, without the app). When old habits show up again (e.g., when you're on vacation or you're stressed), use the app again for a few days or weeks until you get back on track. Then you can return to mental coaching.

Tool #1: COACHING ALERTS

Coaching alerts remind you to coach yourself to BE MINDFUL throughout your day.

We are in the process of adding the alerts into the app. For now, you will set alerts using the "Calendar" app on your iPhone. We'd like for you to set <u>four</u> alerts each day. Please set the first

alert early in the morning to start off your day. Choose the other three alerts from the list below. Set those alerts at times when you have more trouble with your eating.

List of coaching alerts

Set your INTENTION: Be your own mindful eating coach ALL DAY

Alerts to remind you to stay tuned in to appetite cues:

- BREATHE . . . Tune in to how hungry or full your stomach feels
- STAY IN THE GREEN as much as possible
- STAY TUNED IN to your stomach during and after eating
- Use your stomach as your STOP SIGN
- Don't GET STUFFED no matter why you started eating

Alerts to help you decide what and how to eat:

- PLAN AHEAD getting too hungry makes it hard to stop
- Choose foods that feel good BOTH IN THE MOMENT and LATER ON
- REMEMBER how different foods and amounts felt in your body
- FULLY ENJOY what you eat and eat slowly

Alerts to manage urges to eat when not really hungry:

- Notice when you want to eat just because you SEE FOOD
- Notice urges to eat when you're BORED or PROCRASTINATING
- Consider SITTING WITH uncomfortable emotions instead of eating
- TRY DISTRACTION when you have non-hunger urges to eat
- Remember, food DOESN'T FIX uncomfortable emotions

Directions to set a coaching alert

- ✓ Go into the "Calendar" app
- ✓ Click "+" in the top right-hand corner
- ✓ Type the text of the desired alert (where it says "Title")
- Click on "Starts," and scroll to the time you'd like to receive the alert each day (keep the day as "Today")
- ✓ Click on "Repeat" and select "Every Day"
- ✓ Click on "Alert" and select "At time of event"
- ✓ Click "Add" (in top right corner) to set the alert

Tool #2: APPETITE RATINGS

Under **Ratings**, add a new entry for every meal and snack. Check meal or snack, and then rate your hunger and fullness levels BEFORE and AFTER eating. You also have the option to check if

you had a caloric beverage and to add a picture. Try to do your ratings as close to when you eat as possible. If you forget, complete your rating as soon as you remember!



Your goal is to STAY IN THE GREEN (as shown above), meaning . . .

- <u>Eat before</u> you get Too Hungry (to the orange) because when you're too hungry you're likely to eat too fast and too much
- <u>Eat enough</u> so you don't get Too Hungry (to the orange) before you eat again
- <u>Stop before</u> you get Too Full (to the orange)
 - For weight maintenance, stop just before the orange
 - For weight loss, stop <u>slightly earlier</u>
 - \circ $\;$ For weight gain, eat a little $\underline{into\ the\ orange}$
- At the end of the day, look at your whole day of ratings and praise yourself for times when you STAYED IN THE GREEN.

NOTE: Sometimes mindful eating means deciding to eat even though you're not hungry. You might do this: to prevent getting too hungry later (like if you won't have a chance to eat for awhile), to cope with uncomfortable emotions, or to prevent feeling deprived (like if you skip eating cake at a party). This is totally allowed *if it's intentional*. Just make sure to <u>stop before</u> you get to the Too Full orange zone. See an example below:



Tool #3: HOW MINDFUL? RATINGS

After rating your appetite, rate how mindfully you ate. You'll select . . .

- **SUNNY** if you were MOSTLY mindful
- **PARTLY CLOUDY** if you were PARTLY mindful
- **CLOUDY** if you were NOT SO mindful

Tool #4: LESSONS

After the How Mindful? Rating, you'll be asked what lessons you want to take away from that meal or snack. This is an important part of being your own mindful eating coach! An effective coach analyzes the last "game," praises the team for what they did well, and provides feedback for how they can do better next time. So, be your own cheerleader and avoid criticism! Criticism makes you feel bad and makes it difficult to focus on what lessons you need to remember for the future.

If you selected . . .

- **MOSTLY SUNNY**, check off things you did well to eat mindfully.
- **PARTLY COUDY**, select what went well and then any lessons you want to remember for the future.
- **MOSTLY CLOUDY**, check off any lessons you want to remember for the future.
- Select **"My Lessons"** at the bottom to type any personal lessons. These lessons will be saved under the "History" tab (the lessons you check will not). So, type any information here that you want to review or remember later. These might be things like: "One doughnut felt good, but the second wasn't worth it," or "Make sure to eat enough at breakfast so I'm not starving by lunch."

Tool #5: HISTORY

Use the **History** tool to track your improvement, identify new goals, and review your Lessons. Praise yourself for any **green**! This means you were mindful of hunger or fullness. Notice the other colors and use this information to pick GOALS to continue working on. For instance, if you see a lot of **red**, you may want to work on planning ahead to not get so hungry or stopping eating earlier.

Under **My Lessons**, you can review the personal lessons you typed in. Part of mindful eating is pausing to consider both your GOALS and past LESSONS. This helps you stop repeating eating decisions that aren't "worth it," so you less often end up thinking, "I wish I hadn't eaten that!" or "Why did I do that again?"

Resources

For more information about the strategies used in this app, refer to Dr. Linda Craighead's (2006) book: *The Appetite Awareness Workbook: How to Listen to Your Body and Overcome Bingeing, Overeating, and Obsession with Food* from New Harbinger Publications (<u>https://www.newharbinger.com/appetite-awareness-workbook</u>).

Additional handouts to help you as you use the *Mindful Eating Coach* can be found here: <u>http://craigheadlab.weebly.com/mindful-eating-coach-app.html</u>.



Appendix C: Design of Parent Study and Data Collection Schedule

Figure C1. Design and data collection schedule of parent study.

Visit 1	Visit 2	Follow-Up									
Demographics & history Self-reported height/weight <u>Disordered Eating:</u> DIS MAC-R BES	Disordered Eating: DIS MAC-R BES PEWS Proposed Mediators:	Disordered Eating: DIS MAC-R BES PEWS Proposed Mediators:									
PEWS Proposed Mediators: Ratings of eating habits MES	Ratings of eating habits MES FFMQ DERS SCS	Ratings of eating habits MES FFMQ DERS SCS									
FFMQ DERS SCS											
<i>Note</i> : BES = Binge Eating Scale; DERS = Difficulties with Emotion Regulation Scale; DIS = Dietary Intent Scale; FFMQ = Five-Facet Mindfulness Questionnaire; MAC-R = Mizes Anorectic Cognitions Questionnaire – Revised; MES = Mindful Eating Scale; PEWS = Preoccupation with Eating, Weight, and Shape Scale; SCS = Self-Compassion Scale											

Table C1. Schedule of self-report data collection.

Appendix D: Additional Resources



Figure D1. Diagram representing the difference between mindful and mindless eating.

How does mindful eating differ from other weight management approaches?

Mindful eating is a tool that can help you achieve your personal eating and weight goals. However, **mindful eating is probably very different** from other "diets" and approaches to weight management that you may have tried or heard about.

Diets and food plans give you **rules** about what you can and can't eat. Diets can feel **restrictive** and **depriving** – and feel even more restrictive the longer you follow them.

You may be trying this app because you haven't been satisfied with the way you have been managing your weight up to this point. The claims you so often hear about how to lose weight really fast are often exaggerated and don't work. Even people who initially lose weight with traditional diets tend to have a hard time keeping it off because diets are too hard to keep up over the long run. The rules are unrealistic and people feel deprived of foods they enjoy.

So take a chance and try something different! Our strategy is: DON'T TRY HARDER – TRY DIFFERENT!

Mindful eating is very different from traditional diets, and we think it may help you.

Mindful eating provides an alternative to diets and the struggle to count calories, follow food plans, or eat certain foods and avoid others. With mindful eating, you pay close attention to your stomach cues of hunger and fullness, and you use those to guide your eating. You also pay attention both to what you want to eat *in the moment* and to how eating those foods and amounts makes you feel *afterwards*. You use awareness of your body and your reactions to food to decide what and how much to eat.

Unlike traditional diets, mindful eating **doesn't set rules** about the type of food you eat. You can still eat your favorite foods, you just make sure to not eat too much no matter what you eat! Mindful eating is **easier to maintain** in the long run because you aren't following rules. Using awareness of your body to guide your eating feels much **more natural** and **gets easier over time** because it's how we are innately designed to eat.

How can mindful eating help you attain your weight goals?

If your goal is . . .

• **to maintain your current weight**, mindful eating can help you stay at a healthy weight without feeling obsessed with food. You'll notice that when you consistently stop eating before you get too full (no matter what you're eating and how good it tastes!), your weight stays surprisingly stable. Compared to a diet, if you are working to maintain your weight using mindful eating, you are less likely to feel deprived or resentful. This is because you are focused on eating what tastes good to *you* and feels good in *your* body—rather than what other people are eating, what you "should" eat, or what other people think you should be eating. Making eating decisions is also less stressful when you rely on *your own* experience instead of rules and ideas about what is "good" or "bad" or what other people think about what you are eating. Over time, you will gain confidence that you can trust yourself to make mindful eating decisions most of the time. You gain confidence that you can trust yourself to make mindful eating decisions most of the time, and are compassionate with yourself when you make mistakes. You focus on learning what to do differently next time.

• weight loss (and you aren't aiming for an unhealthy low weight), mindful eating can help you lose weight without feeling *too* restricted. To lose weight with mindful eating, you may not be able to eat everything you want (or at least not as much as you'd like!), but you don't have to go hungry or feel deprived of your favorite foods! With mindful eating, you learn to give up the eating that you know will **not feel "worth it"** later on (e.g., food that doesn't taste that good anyways, foods that don't fill you up adequately, food that doesn't make you feel better emotionally, or doesn't make your body feel that great). Mindful eating is more flexible and also more forgiving than a diet, and that helps you to stick with it long enough to lose weight! After an eating episode that wasn't very mindful, you don't think "I blew it!" and say "What the heck?!" and give up on your weight goal. You are compassionate with yourself rather than self-critical and you focus on figuring out what you need to do to eat more mindfully the next time you eat. The emphasis on self-compassion and learning (but not judging) keeps you motivated so you can make progress towards your weight goals. The problem for most people is not that they can't restrict/diet for a few days or even weeks, but that they can't keep up the effort long enough to see results. Some people can't diet long enough to even lose much weight, and others lose weight but can't keep up the effort so they regain what they lost.

weight gain, mindful eating can help you achieve and then maintain your goal weight in a way that is healthy and helps you feel in control of the weight gain process. Feeling in control helps reduce your worries that you may gain too much weight or gain too quickly. With mindful eating, you will learn to trust your body to help you achieve a weight that is healthy for you. You'll gain weight slowly by becoming more aware of your hunger, honoring it (rather than ignoring it), and committing to eat enough to meet your body's needs. To gain weight with mindful eating, aim to eat a little past what you consider moderate fullness. This will help you learn to tolerate normal levels of fullness. Mindful eating also helps you become more comfortable eating and enjoying a wider range of foods by reducing your worries about not being able to stop eating those foods. As you practice mindful eating you realize that you can eat and can stop at moderate fullness—no matter what you're eating. You start feeling safe eating foods you used to enjoy but have stopped eating. Overall, mindful eating helps you gain confidence in your ability to eat in a healthy way that you can feel good about! (Note: If you are not able to gain weight with mindful eating, you may need to start by consulting a dietician and following a meal plan to initiate weight gain. Then later, when you feel ready, you can transition to mindful eating.)

How to Adapt your Coaching Strategies to Address YOUR PERSONAL Eating and Weight Goals

How to work on being MORE MINDFUL of HUNGER (i.e., don't ignore your hunger)												
Eat before you get <u>TOO</u> HUNGRY:	Eat as much as <u>YOUR BODY NEEDS</u> :											
Set relevant COACHING ALERTS	Set relevant COACHING ALERTS											
• Commit to eating when MODERATELY HUNGRY instead of putting	Commit to eating until MODERATELY FULL											
off eating until very hungry	• Focus on F, U, and L of BE MINDFUL											
• Focus on M and L of BE MINDFUL	 Focus on staying tuned in while eating 											
 Monitor your hunger periodically <u>throughout</u> the day 	 Use moderate fullness as your signal to STOP (and don't stop 											
o Learn from your experiences; record & review your LESSONS	before!)											
(e.g., what leads you to get too hungry, negative consequences of getting	 Learn from your experiences; record & review your LESSONS 											
too hungry)	(e.g., what leads you to restrict, negative consequences of undereating)											
• Address what motivates ignoring hunger	• Address what motivates restriction											
(e.g., getting too busy, rigid rules about eating, body image dissatisfaction,	(e.g., rigid rules about eating, body image dissatisfaction, perfectionism,											
• Plan ahead and problem-solve to prevent getting too hungry	• Plan ahead and problem-solve to prevent restriction											
(e.g., pack a snack)	(e.g., eating with others who can hold you accountable to eating enough)											
How to work on being MC												
now to work on being me												
Consider other options when you're <u>NOT</u> HUNGRY:	Stop BEFORE you get <u>TOO</u> FULL or <u>STUFFED</u> :											
Set relevant COACHING ALERTS	Set relevant COACHING ALERTS											
• Commit to considering doing other things for urges to eat when	Commit to stopping as soon as MODERATELY FULL											
not hungry (e.g., riding out the urge, distraction)	• Focus on F, U, and L of BE MINDFUL											
• Focus on E, M, I, and L of BE MINDFUL	 Focus on staying tuned in while eating 											
 Explore non-hunger reasons for wanting to eat 	 Use moderate fullness as your signal to STOP 											
 Monitor your hunger level 	(challenge beliefs that eating more will make you feel better)											
 Intentionally decide whether to eat – or not eat 	 Learn from your experiences, but don't judge or feel guilty- 											
 Learn from your experiences; record & review your LESSONS 	instead focus on LESSONS (e.g., what leads to overeating, remember											
(e.g., what leads you to eat when not hungry, negative consequences of	past uncomfortable fullness to motivate stopping earlier in, instruct											
Plan about and problem-solve to prevent eating when not	l eat any more)											
hungry (e.g. limit snarks available)	• Plan ahead and problem-solve to prevent overeating											

Figure D2. Diagram with instructions on adapting use of the app to personal goals.

An Example of Self-Coaching

Below is an example of how a young woman ("Jessica") used the app one day to coach herself to eat mindfully (i.e., what she might do and say). The **GOALS** of this woman were to reduce the following mindless eating habits:

- 1. Getting too hungry before eating (i.e., not being mindful of hunger)
- 2. Two types of **eating when not hungry** (i.e., not being mindful of fullness):
 - a. Emotional eating (eating when bored)
 - b. External eating (eating when studying, when others offer her food)

As you will see below, the young woman in this example set **COACHING ALERTS** on the app that were relevant to her personal eating goals. She also strategically timed the alerts so that she would receive particular prompts at times when she predicted they would be most helpful to her. For instance, she

set the alert: "*NOTICE URGES TO EAT WHEN YOU'RE BORED OR PROCRASTINATING*" at 10 pm because she has trouble resisting urges to eat when she's bored and working in the library late at night.

This script also shows which of the steps to BE MINDFUL this young woman used throughout her day to coach herself to eat mindfully.

Key to fonts and pictures used in the example:

Quotes in this font = what she says to coach herself to eat mindfully



<u>9:00 am</u>: Jessica wakes up and sees the alert above. Time to set my mindful eating goals for today. My goals are to not get too hungry before eating and to resist urges to eat for external or emotional reasons. To help me meet these goals, I'm going to stick to my regular eating schedule and then if I want to eat outside of meal and snack times, I am going to think about whether I'm really hungry or want to eat for non-hunger reasons.

<u>9:30 am</u>: Jessica **B**reathes in and out and **M**onitors her hunger. I'm not really hungry, but I know when I skip breakfast I am starving by lunchtime, so I better eat to moderate fullness so I don't get too hungry before lunch. Jessica **I**ntentionally decides to eat and, **N**ow, she recalls past lessons of what will be "worth it" both now and later. What would feel good to eat? I think the usual—a small bowl of cereal—would taste good and hold me over.



Jessica eats breakfast and follows the rest of the steps to *BE MINDFUL*. She completes her Appetite Ratings after eating – and she praises herself for staying in the green! For her How Mindful? Rating, Jessica feels like she ate mostly mindfully, so she selects the Mostly Sunny icon. For what went well, Jessica selects "*Planned ahead so wasn't too hungry,*" "Made an intentional and balanced decision to eat," and "Accurately predicted what would be 'worth it' to eat."

<u>30 min after breakfast</u>: Yes, I still feel good – moderately full, but not too full. I needed to eat, and my typical breakfast was a good choice.

12:00 pm: WHEN YOU GET TOO HUNGRY IT'S HARD TO EAT MINDFULLY.

That reminds me – I should check in with my hunger . . . Jessica *Breathes* in and out and *Monitors* her hunger level I'm at about a 3 on the rating scale, so I think it's best to go ahead and eat. Sometimes I wait to eat lunch until 1 or 2 pm, and I know that when I wait I get too hungry and I eat too quickly and too much. She *Intentionally* decides to eat and, *Now*, she recalls past lessons of what will be "worth it" both now and later. I think a generous-sized salad with chicken and a bunch of vegetables I like would taste good and still feel good later on. I remember feeling good the last time I ate that. And a wheat roll with it would help me feel satisfied and full until my afternoon snack. That way I get some protein, veggies, fiber, and a taste I like.

12:15 pm: Jessica eats her lunch and follows the rest of the steps to *BE MINDFUL*. She rates her appetite as a 3 before eating and a 5.5 after eating. Way to go, you made really mindful choices! And eating at noon rather than waiting was the right call! For her How Mindful? Rating, Jessica selects the Mostly Sunny icon because she feels like she ate very mindfully. For what went well, she chooses: "I predicted accurately what would feel good afterwards," "Ate slowly and enjoyed my food," and "Stayed tuned in so was able to stop in the green."

<u>30 min after lunch</u>: That lunch worked – I feel comfortable and not too full. And I think having the roll helped me feel more satisfied than just the salad.

2:30 pm: In her dorm, a friend offers Jessica some cookies she made. Jessica's tempted to eat them. She *Breathes* in and out, *Explores* non-hunger reasons she wanting to eat, and *Monitors* her hunger. I'm not really hungry, so I probably don't need this cookie. I just want to eat because the food's there and it looks so yummy. I have a protein bar waiting for me in my dorm room for an afternoon snack. It's not quite as tasty as a cookie, but it's still sweet and chocolate-y. I know from the past that a protein bar keeps my energy up better and keeps me full longer than a cookie. Jessica *Intentionally* decides not to eat the cookie and to wait to eat until her planned afternoon snack. 4:00 pm: Jessica eats her planned afternoon snack and follows the steps to **BE MINDFUL**. She rates her appetite level as a 3.5 before eating and a 4.5 after. Jessica rates herself as eating partly mindfully (the Partly Sunny/Cloudy icon) because she feels like she wasn't totally tuned in while she was eating. She was checking her email and talking to a friend while she was eating, so she didn't totally savor her food. For what went well, Jessica selects: "Accurately predicted what would be 'worth it' to eat." For lessons to remember next time, she chooses: "When I eat fast and don't enjoy my food, I don't feel as satisfied." At the bottom, she types in a personal lesson: "A protein bar is a good afternoon snack because it satisfies my sweet tooth, while also keeping me full and keeping up my

energy."

<u>30 min after snack</u>: I feel really good after the protein bar. I feel satisfied and my stomach feels just full, but not so full that I won't be hungry for dinner later.

<u>5:00 pm</u>: *DISTRACT YOURSELF WHEN YOU HAVE NON-HUNGER URGES TO EAT*. Nighttime is usually when I the most problems eating when not hungry. This is a good reminder that I don't have to eat when I have these urges. If I just distract myself, I'll forget I even wanted to eat. Tonight I think I'll try talking to a friend if I really want to eat but I'm not hungry.

7:00 pm: Jessica has dinner (as planned) at a restaurant with friends. She *Breathes* in and out and *Monitors* her hunger. I feel moderately hungry. My afternoon snack helped me to not get too hungry before dinner so I can make mindful food choices at dinner and not eat too quickly or too much. During dinner, I want to work on talking to my friends and focusing on the conversation, but also checking-in with my stomach periodically as I eat to make sure I don't go past moderate fullness. *Now*, Jessica recalls past lessons and thinks about what would feel good to eat both now and later? I really love the burgers at this restaurant, but they come with fries. I remember last time that when I ate the burger and all the fries it tasted great at the time, but my stomach didn't feel so great later on. I think what would be best this time would be to substitute the fries with a side of broccoli.



Jessica eats dinner and follows the rest of the steps to *BE MINDFUL*. After dinner, she rates her appetite level before eating as a 2 (she got a little bit too hungry because the food take awhile to come out!) and after as a 5.5. Eating the burger with a side of broccoli helped me to not get too full. That's something I should remember in the future when I order a burger. Jessica rates herself as being mostly mindful (the Mostly Sunny icon) and, for what went well, she chooses: *"Accurately predicted what would be 'worth it' to eat"* and *"Stayed tuned in so was able to stop in the green."* She also types in: *"Order side of broccoli with burger instead of fries."*

<u>30 min after dinner</u>: My stomach definitely feels much better now after eating the broccoli instead of fries.



<u>10:00 pm</u>: NOTICE URGES TO EAT WHEN YOU'RE BORED OR PROCRASTINATING. That reminds me that at the library tonight I need to be mindful of urges to eat just because I'm studying and bored. If I'm not really hungry, I want to think about what would be most effective for me to do—to eat a little something or to distract myself until the urge goes away.

11:00 pm: Jessica's in the library studying. I'm bored and tired and I just don't want to do this. Maybe a brownie from the library coffee shop would make studying not as miserable. She *Breathes, Explores* possible non-hunger reasons for wanting to eat, and *Monitors* her hunger. I'm not hungry, I know I'm just bored and studying. But I really want one of their brownies. I'll just have one so I don't feel deprived. Jessica Intentionally chooses to eat because she thinks that might be most effective in this instance because she really really wants a brownie.



Jessica eats the whole brownie and follows the rest of the steps to *BE MINDFUL*. When she does her Appetite Ratings, she rates her hunger level before eating as a 4.5 and her fullness level after as a 6.5. I am wayy too full. Next time, eating just half of the brownie would feel better. Or maybe I could bring a couple Hershey's Kisses with me to the library to satisfy my chocolate cravings when I'm bored, or I could try talking to my friends to ride out the urge. For How Mindful?, she selects that she ate Not So Mindfully (Mostly Cloudy icon) and for lessons to remember she selects: "Don't repeat foods or amounts that are not 'worth it'" and she types a personal lesson at the bottom: "Eating the whole brownie at the library was too much. Next time, try half, bring Hershey's Kisses, or talk to friends at the library."

 \checkmark

<u>30 min after snack</u>: I feel a little uncomfortable and I don't really think the brownie was worth it. I know it's not helpful to feel guilty or criticize myself. Instead I'm going to focus on how I can eat more mindfully next time. I'm going to remember how uncomfortable I feel right now to motivate me to not eat the whole brownie next time. Or maybe I will try bringing a small chocolate protein bar so I have something to look forward to when I take a break from studying. That would be something that would satisfy my chocolate craving, and I would feel ok about after eating.



Appendix E: App Screenshots

Cancel
Ratings

Cancel
Ratings

Meal
Image: Constraint of the second seco

Figure E1. Home page with appetite and mindfulness rating from today.

Figure E2. Ratings tab where appetite and mindfulness ratings are made.

	100/201
Lessons	Save
went well:	
d get too hungr	у
re got too full	
bod	
edicted what wo to eat	buld
type in here)	
n how the food ta njoy it!	astes and
	Lessons went well: d get too hungr re got too full bod edicted what we to eat type in here) n how the food ta ijoy it!

Figure E3. List of lessons for "sunny" episodes.

Figure E4. List of lessons for "cloudy" episodes.



Figure E5. List of all personal lessons.

Figure E6. Pie chart of appetite ratings before eating for the past week.



Figure E7. Pie chart of appetite ratings after eating for the past week.



Figure E8. Bar graph of appetite ratings before eating for the past 6 weeks.



Figure E9. Bar graph of appetite ratings after eating for the past 6 weeks.



Figure E10. Bar graph of mindfulness ratings for the past 6 weeks.

Appendix F: Descriptions of All Models

Please note that only significant associations are discussed here.

Aim 1: Mediating effects of the intervention-specific variables

Model 1.1 examined the mediating effects of total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between preintervention binge eating on post-intervention binge eating (both represented by the BES total score; see Appendix G Table G1). The overall model was statistically significant (F[4, 151]=56.029, p=.000, R²=.598), as was the direct effect of pre-intervention binge eating on post-intervention binge eating (c'=0.655, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.553 to 0.757), indicating that higher levels of binge eating prior to the intervention were associated with higher levels of binge eating after the intervention.

Model 1.1: Mediating effects of the intervention-specific mediators on binge eating.

The path from pre-intervention binge eating to the total number of app entries was statistically significant (a_1 =0.489, p=.025), indicating that higher levels of binge eating symptoms were associated with a greater number of app entries during the course of the intervention. The path from the residualized change in mindful eating to post-intervention binge eating was also statistically significant (b_2 =-2.189, p=.000), suggesting that increases in self-reported mindful eating were associated with decreases in binge eating. There were no statistically significant associations between either pre- or post-intervention binge eating and residualized change in self-compassion.

None of the indirect paths were statistically significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 1.2: Mediating effects of the intervention-specific mediators on preoccupation with eating and weight. Model 1.2 examined the mediating effects of total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between pre-intervention preoccupation with eating and weight on post-intervention preoccupation (both represented by the PEWS preoccupation score; see Appendix G Table G2). The overall model was statistically significant (F[4, 165]=28.356, p=.000, R²=.424), as was the direct effect of pre-intervention preoccupation on post-intervention preoccupation (c'=0.521, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.403 to 0.639), indicating that higher levels of preoccupation prior to the intervention were associated with higher levels of preoccupation after the intervention.

The relationships between pre- and post-intervention preoccupation with eating and weight and the total number of app entries were statistically significant, such that individuals with higher levels of pre-intervention preoccupation with eating and weight made more app entries (a_1 =3.670, p=.004) and they also reported higher levels of post-intervention preoccupation with eating and weight (b_1 =0.009, p=023). The bias-corrected bootstrap confidence interval for the indirect effect (a_1b_1 =0.031) based on 10,000 bootstrap samples was entirely above zero (.005 to .077), confirming mediation of the direct effect through this indirect path.

The paths from residualized change in mindful eating to post-intervention preoccupation was statistically significant (b_2 =-0.327, p=.001), indicating that increases in self-reported mindful eating over the course of the intervention were associated with decreases in preoccupation after the intervention. The indirect paths through change in mindful eating and

change in self-compassion were not significant (all CI's included zero), indicating that there was no mediation of the direct effect through the proposed mediators.

Model 1.3: Mediating effects of the intervention-specific mediators on dysfunctional cognitions. Model 1.3 examined the mediating effects of the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between pre-intervention dysfunctional cognitions and post-intervention dysfunctional cognitions (both represented by the total score on the MAC-R; see Appendix G Table G3). The overall model was statistically significant (F[4, 154]=68.106, p=.000, R²=.639), as was the direct effect of pre-intervention dysfunctional cognitions on post-intervention dysfunctional cognitions (c'=0.756, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.662 to 0.850), indicating that higher levels of dysfunctional cognitions prior to the intervention were associated with higher levels of preoccupation after the intervention.

The relationship between residualized change in mindful eating and post-intervention dysfunctional cognitions was statistically significant (b_2 =-1.614, p=.021), suggesting that increases in self-reported mindful eating over the course of the intervention were associated with decreases in dysfunctional cognitions at the end of the intervention. Similarly, the relationship between residualized change in self-compassion and post-intervention dysfunctional cognitions was statistically significant (b_3 =-1.520, p=.029), suggesting that increases in self-compassion over the course of the intervention dysfunctional cognitions at the end of the intervention dysfunctional cognitions was statistically significant (b_3 =-1.520, p=.029), suggesting that increases in self-compassion over the course of the intervention were associated with decreases in dysfunctional cognitions at the end of the intervention.

None of the indirect paths were statistically significant (all CI's included zero), indicating that there was no mediation of the direct effect through the proposed mediators.

Aim 2: Mediating effects of the theoretically-relevant variables

Model 2.1: Mediating effects of the theoretically-relevant mediators on binge eating. Model 2.1 examined the mediating effects of residualized change in emotion regulation and residualized change in trait mindfulness on the relationship between pre- and post-intervention binge eating (see Appendix G Table G4). The overall model was statistically significant (F[3, 161]=60.642, p=.000, R²=.531), as was the direct effect of pre- on post-intervention binge eating (c '=0.682, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.577 to 0.788), thus indicating that higher levels of binge eating prior to the intervention were associated with higher levels of binge eating after the intervention.

None of the indirect paths through the proposed mediators were statistically significant. The bias-corrected bootstrap CIs for the indirect effects through change in emotion regulation and change in trait mindfulness included zero, thus indicating that there was no mediation of the direct effect through the proposed mediators.

Model 2.2: Mediating effects of the theoretically-derived mediators on

preoccupation with eating and weight. Model 2.2 examined the mediating effects of residualized change in emotion regulation and residualized change in trait mindfulness on the relationship between pre- and post-intervention preoccupation with eating and weight (see Appendix G Table G5). The overall model was statistically significant (F[3, 163]=30.962, p=.000, R²=.363), as was the direct effect of pre-intervention preoccupation on post-intervention preoccupation (c'=0.552, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.435 to 0.669), thus indicating that higher

levels of preoccupation prior to the intervention were associated with higher levels of preoccupation after the intervention.

None of the indirect paths through the proposed mediators were statistically significant. The bias-corrected bootstrap CIs for the indirect effects through change in emotion regulation and change in trait mindfulness included zero, thus indicating that there was no mediation of the direct effect through the proposed mediators.

Model 2.3: Mediating effects of the theoretically-relevant mediators on

dysfunctional cognitions. Model 2.3 examined the mediating effects of residualized change emotion regulation and residualized change in trait mindfulness on the relationship between preand post-intervention dysfunctional cognitions (see Appendix G Table G6). The overall model was statistically significant (F[3, 164]=92.050, p=.000, R²=.627), as was the direct effect of preintervention dysfunctional cognitions on post-intervention dysfunctional cognitions (c '=0.749, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.657 to 0.840), thus indicating that higher levels of dysfunctional cognitions prior to the intervention were associated with higher levels of dysfunctional cognitions after the intervention.

The relationship between change in emotion regulation and post-intervention dysfunctional cognitions was statistically significant ($b_2=2.552$, p=.001), indicating that increased emotion regulation (i.e., decreases in emotion dysregulation) over the course of the intervention was associated with decreases in dysfunctional cognitions.

None of the indirect paths through the proposed mediators were statistically significant. The bias-corrected bootstrap CIs for the indirect effects through change in emotion regulation and change in trait mindfulness included zero, thus indicating that there was no mediation of the direct effect through the proposed mediators.

Exploratory Aim 1: Conditional Effects of BMI

Model 3.1a: Conditional direct and indirect effects of BMI and the interventionspecific mediators on binge eating. Model 3.1a examined the moderating effects of BMI on the indirect effects of pre- on post-intervention binge eating through the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion (see Appendix G Table G7). The overall model was statistically significant (F[6, 128]=39.952, p=.000, R²=.652), as was the direct effect of pre-intervention binge eating on post-intervention binge eating (c_1 '=-2.050, p=.018). The relationship between residualized change in mindful eating and post-intervention binge eating remained significant (b_2 =-2.411, p=.000).

The interactions between lnBMI and pre-intervention binge eating did not significantly predict the total number of app entries (p=.743), the residualized change in mindful eating (p=.690), or the residualized change in self-compassion (p=.818). However, it did predict post-intervention binge eating (c_3 '=0.826, p=.002); that is, lnBMI moderated the direct effect of pre-intervention binge eating on post-intervention binge eating. Probing of the interaction indicated that the direct effect of pre- on post- intervention binge eating increased with lnBMI.

Model 3.2a: Conditional direct and indirect effects of BMI and the interventionspecific mediators on preoccupation with eating and weight. Model 3.2a examined the moderating effects of BMI on the indirect effects of pre- on post-intervention preoccupation with eating and weight through the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion (see Appendix G Table G8). The overall model was statistically significant (F[6, 131]=16.793, p=.000, R²=.435). The relationship between residualized change in mindful eating and post-intervention preoccupation remained statistically significant (b_2 =-0.362, p=.000). However, the relationship between the total number of app entries and pre- (a_1 =0.131, p=.996) and post-intervention preoccupation (b_1 =0.006, p=.120) were no longer statistically significant. The direct effect of pre-intervention preoccupation on post-intervention preoccupation was also no longer statistically significant (c_1 '=-0.445, p=.684).

The interactions between lnBMI and pre-intervention preoccupation did not significantly predict the total number of app entries (p=.916), the residualized change in mindful eating (p=.830), the residualized change in self-compassion (p=.452), or post-intervention preoccupation (p=.423). Thus, lnBMI did not moderate the direct effect of pre-intervention preoccupation on post-intervention preoccupation or the indirect effects through the total number of app entries, the residualized change in mindful eating, or the residualized change in self-compassion.

Model 3.3a: Conditional direct and indirect effects of BMI and the interventionspecific mediators on dysfunctional cognitions. Model 3.3a examined the moderating effects of BMI on the indirect effects of pre- on post-intervention dysfunctional cognitions through the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion (see Appendix G Table G9). The overall model was statistically significant (F[6, 131]=34.496, p=.000, R²=.612). The relationships between both residualized change in mindful eating and post-intervention dysfunctional cognitions (b_2 =-1.772, p=.019) and between residualized change in self-compassion and post-intervention dysfunctional cognitions (b_3 =-1.723, p=.022) remained statistically significant. However, the direct effect of pre-intervention dysfunctional cognitions on post-intervention dysfunctional cognitions was no longer statistically significant (p=.756). The interactions between lnBMI and pre-intervention dysfunctional cognitions did not significantly predict the total number of app entries (p=.916), the residualized change in mindful eating (p=.830), the residualized change in self-compassion (p=.452), or post-intervention dysfunctional cognitions (p=.423). Thus, lnBMI did not moderate the direct effect of pre-intervention dysfunctional cognitions on post-intervention dysfunctional cognitions or the indirect effects through the total number of app entries, the residualized change in mindful eating, or the residualized change in self-compassion.

Model 3.1b: Conditional direct and indirect effects of BMI and the theoreticallyrelevant mediators on binge eating. Model 3.1b examined the moderating effects of BMI on the indirect effects of pre- on post-intervention binge eating through residualized change in emotion regulation and residualized change in trait mindfulness (see Appendix G Table G10). The overall model was statistically significant (F[5, 135]=34.735, p=.000, R²=.563), as was the direct effect of pre-intervention binge eating on post-intervention binge eating (c_1 '=-2.082, p=.030).

The interactions between lnBMI and pre-intervention binge eating did not significantly predict the residualized change in emotion regulation (p=.997) or the residualized change in trait mindfulness (p=.346). However, it did predict post-intervention binge eating (c_3 '=0.840, p=.005); that is, lnBMI again moderated the direct effect of pre-intervention binge eating on post-intervention binge eating. Probing of the interaction indicated that the direct effect of pre-on post- intervention binge eating again increased with lnBMI.

Model 3.2b: Conditional direct and indirect effects of BMI and the theoreticallyrelevant mediators on preoccupation with eating and weight. Model 3.2b examined the moderating effects of BMI on the indirect effects of pre- on post-intervention preoccupation with eating and weight through residualized change in emotion regulation and residualized change in trait mindfulness (see Appendix G Table G11). The overall model was statistically significant (F[5, 137]=15.475, p=.000, R²=.361). However, the direct effect of pre-intervention preoccupation on post-intervention preoccupation was no longer statistically significant (p=.768).

The interactions between lnBMI and pre-intervention preoccupation did not significantly predict the residualized change in emotion regulation (p=.468), the residualized change in trait mindfulness (p=.687), or post-intervention preoccupation (p=.696). Thus, lnBMI did not moderate the direct effect of pre-intervention preoccupation on post-intervention preoccupation or the indirect effects through the residualized change in emotion regulation or the residualized change in trait change in trait mindfulness.

Model 3.3b: Conditional direct and indirect effects of BMI and the theoreticallyrelevant mediators on dysfunctional cognitions. Model 3.3b examined the moderating effects of BMI on the indirect effects of pre- on post-intervention dysfunctional cognitions through residualized change in emotion regulation and residualized change in trait mindfulness (see Appendix G Table G12). The overall model was statistically significant (F[5, 138]=42.146, p=.000, R²=.604). The relationship between residualized change in emotion regulation and postintervention dysfunctional cognitions remained statistically significant (b_1 =2.749, p=.001). However, the direct effect of pre-intervention dysfunctional cognitions on post-intervention dysfunctional cognitions was no longer statistically significant (p=.739).

The interactions between lnBMI and pre-intervention dysfunctional cognitions did not significantly predict the residualized change in emotion regulation (p=.468), the residualized change in trait mindfulness (p=.687), or post-intervention dysfunctional cognitions (p=.696).

Thus, lnBMI did not moderate the direct effect of pre-intervention dysfunctional cognitions on post-intervention dysfunctional cognitions or the indirect effects through the residualized change in emotion regulation or the residualized change in trait mindfulness.

Exploratory Aim 2: Mediating Effects of the Intervention-Specific and the Theoretically-Relevant Mediators on Short-Term Maintenance

Model 4.1a: Mediating effects of the intervention-specific mediators on binge eating. Model 4.1a examined the mediating effects of the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between pre-intervention binge eating and binge eating at the follow-up assessment (see Appendix G Table G13). The overall model was statistically significant (F[4, 71]=35.138, p=.000, R²=.664), as was the direct effect of pre-intervention binge eating at follow-up (c'=0.801, p=.000). The bias-corrected bootstrap CI based on 10,000 bootstrap samples for the direct effect did not include zero (0.656 to 0.947), indicating that higher levels of binge eating at follow-up.

The relationship between the residualized change in mindful eating and binge eating at follow-up remained statistically significant (b_2 =-1.447, p=.019), indicating that increases in mindful eating over the course of the intervention were associated with decreases in binge eating at follow-up. The path from pre-intervention binge eating to the total number of app entries was no longer statistically significant (p=.464).

None of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 4.2a: Mediating effects of the intervention-specific mediators on

preoccupation with eating and weight. Model 4.2a examined the mediating effects of the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between pre-intervention preoccupation with eating and weight and preoccupation at the follow-up assessment (see Appendix G Table G14). The overall model was statistically significant (F[4, 72]=14.656, p=.000, R²=.449), as was the direct effect of pre-intervention preoccupation on preoccupation at follow-up (c '=0.544, p=.000).

The relationships between pre-intervention preoccupation and the total number of app entries was no longer statistically significant (p=.278), nor was the relationship between the total number of app entries and preoccupation at follow-up (p=.851). The relationship between residualized change in mindful eating and preoccupation at follow-up remained statistically significant (b_2 =-0.414, p=.001), suggesting that increases in mindful eating over the course of the intervention were associated with decreased levels of preoccupation at follow-up.

None of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 4.3a: Mediating effects of the intervention-specific mediators on

dysfunctional cognitions. Model 4.3a examined the mediating effects of the total number of app entries, residualized change in mindful eating, and residualized change in self-compassion on the relationship between pre-intervention dysfunctional cognitions and dysfunctional cognitions at follow-up (see Appendix G Table G15). The overall model was statistically significant (F[4, 71]=29.345, p=.000, R²=.623), as was the direct effect of pre-intervention dysfunctional cognitions at follow-up (*c*'=0.704, *p*=.000).

The relationship between the residualized change in mindful eating and dysfunctional cognitions at follow-up was no longer statistically significant (p=.267). However, the relationship between the residualized change in self-compassion and dysfunctional cognitions at follow-up remained statistically significant (b_3 =-2.021, p=.039), suggesting that increases in self-compassion over the course of the intervention were associated with decreased dysfunctional cognitions at follow-up.

None of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 4.1b: Mediating effects of the theoretically-relevant variables on binge eating.

Model 4.1b examined the mediating effects of the residualized change in emotion regulation and residualized change in trait mindfulness on the relationship between pre-intervention binge eating and binge eating at follow-up (see Appendix G Table G16). The overall model was statistically significant (F[3, 74]=41.580, p=.000, R²=.628), as was the direct effect of pre-intervention binge eating on binge eating at follow-up (c'=0.769, p=.000).

The relationship between pre-intervention binge eating and residualized change in trait mindfulness during the intervention period was statistically significant (a_2 =-0.030, p=.037), suggesting that individuals with lower levels of binge eating at baseline demonstrated greater improvements in trait mindfulness over the course of the intervention.

Neither of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 4.2b: Mediating effects of the theoretically-relevant variables on preoccupation with eating and weight. Model 4.2b examined the mediating effects of the residualized change in emotion regulation and residualized change in trait mindfulness on the relationship between pre-intervention preoccupation with eating and weight and preoccupation at follow-up (see Appendix G Table G17). The overall model was statistically significant (F[3, 75]=12.936, p=.000, R²=.341), as was the direct effect of pre-intervention preoccupation on preoccupation at follow-up (c'=0.535, p=.000).

Neither of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

Model 4.3b: Mediating effects of the theoretically-relevant variables on

dysfunctional cognitions. Model 4.3b examined the mediating effects of the residualized change in emotion regulation and residualized change in trait mindfulness on the relationship between pre-intervention dysfunctional cognitions and dysfunctional cognitions at follow-up (see Appendix G Table G18). The overall model was statistically significant (F[3, 74]=36.485, p=.000, R²=.597), as was the direct effect of pre-intervention preoccupation on preoccupation at follow-up (*c*'=0.692, *p*=.000).

The relationship between pre-intervention dysfunctional cognitions and residualized change in trait mindfulness approached significance (a_2 =-0.016, p=.052); the directionality of the effect suggests that higher levels of dysfunctional cognitions at baseline were associated with decreased changes in trait mindfulness.

Neither of the indirect paths were significant (all CI's included zero) indicating that there was no mediation of the direct effect through the proposed mediators.

			Consequent Ma																
		ntries)		(Cha to	M ₂ ange in ital scor	MES e)		(Ch t	<i>M</i> ₃ ange ir otal sco	i SCS ire)		γ (Post-int. BES total score)							
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		
Model 1.1	X (Pre-int. BES total score)	a 1	.489	.216	.025	a2	015	.010	.158	a 3	010	.010	.318	<i>c</i> '	.655	.052	.000		
	<i>M</i> 1 (Total # app entries)													b 1	.015	.019	.456		
	M₂ (Change in MES total score)													b 2	-2.189	.420	.000		
	M₃ (Change in SCS total score)													<i>b</i> ₃	110	.420	.794		
	Constant	і _{М1}	46.159 3.536 .000	.000	i _{M2}	.215	.169	.206	і _{М3}	.166	.169	.325	i y	1.449	1.199	.229			
	R ² =.032 F(1, 154)=5.109 <i>p</i> =.025				109	R ² =.013 F(1, 154)=2.015 <i>p</i> =.158					R ² =.006 F(1, 154)=1.003 p=.318					R ² =.598 F(4, 151)=56.029 <i>p</i> =.000			

Table G1. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in binge eating (*n*=156).

			Consequent V															
			M ₁ (Total # app entries) Coeff. SE p				M ₂ (Change in MES total score)					M₃ ange in otal sco	sCS re)		Y (Post-int. PEWS total score) Coeff. SE p			
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р	
Model 1.2	X (Pre-int. PEWS total score)	<i>a</i> 1	3.670	1.270	.004	a ₂	014	.062	.827	a 3	.015	.062	.807	<i>c</i> '	.521	.060	.000	
	<i>M</i> 1 (Total # app entries)												b 1		.009	.004	.023	
	<i>M</i> ₂ (Change in MES total score)													b ₂	327	.081	.001	
	<i>M</i> ₃ (Change in SCS total score)													b 3	.022	.080	.784	
	Constant	і _{М1}	39.867	4.777	.000	i _{M2}	<i>i</i> _{M2} .041 .233 .860			і _{мз} 027 .234 .910					.626	.263	.019	
			F(1 <i>,</i>	R ² =.051 157)=8.3 <i>p</i> =.004	348		R ² =.000 F(1, 157)=.048 <i>p</i> =.827				R ² =.000 F(1, 157)=.060 <i>p</i> =.807					R ² =.424 F(4, 154)=28.356 <i>p</i> =.000		

Table G2. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in preoccupation with eating and weight (*n*=159).

			Consequent V																
			(Total	M ₁ # app er	ntries)	M ₂ (Change in MES total score)					(Ch te	M₃ ange in otal sco	i SCS ire)		Y (Post-int. MAC total score)				
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		
Model 1.3	X (Pre-int. MAC total score)	<i>a</i> ₁	077	.124	.532	a ₂	005	.006	.415	a 3	.004	.006	.483	<i>c</i> '	.756	.048	.000		
	<i>M</i> 1 (Total # app entries)													b 1	.033	.031	.296		
	<i>M</i> ₂ (Change in MES total score)													b ₂	-1.614	.693	.021		
	M₃ (Change in SCS total score)													b 3	-1.520	.689	.029		
	Constant	і _{М1}	58.026	8.458	.000	і _{М2}	і _{м2} .315.40		.434	і _{М3}	251	.404	94 .536 <i>і _Ү</i>		11.969	3.689	.001		
			R ² =.003 F(1, 157)=.393 <i>p</i> =.532				R ² =.004 F(1, 157)=.668 <i>p</i> =.415					R ² =.003 F(1, 157)=.494 <i>p</i> =.483					R ² =.639 F(4, 154)=68.105 <i>p</i> =.000		

Table G3. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in dysfunctional cognitions (*n*=159).

				Consequent M1 M2 Y													
			(Cha to	<i>M</i> ₁ nge in D tal score	ers e)		(Chai to	FMQ e)		(γ Post-int. total sco	. BES ore)					
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р				
Model 2.1	X (Pre-int. BES total score)	<i>a</i> ₁	.011	.010	.300	a 2	013	.010	.206	<i>C</i> '	.682	.053	.000				
	<i>M</i> ¹ (Change in DERS total score) <i>M</i> ² (Change in FFMQ total score)		<i>M</i> 1 (Change in DERS total score)									b 1	.650	.462	.161		
										b 2	767	.465	.101				
	Constant	і _{М1}	149	.166	.370	і _{М2}	.183	.165	.268	іү	1.802	.865	.039				
			R ² =.007 F(1, 163)=1.083 <i>p</i> =.300				F(1,	.611		R ² =.531 F(3, 161)=27.160 <i>p</i> =.000							

Table G4. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in binge eating (*n*=165).

			(Cha to	<i>M</i> ₁ nge in D tal score	ERS e)		(Chai to	<i>M</i> ₂ nge in F tal scor	FMQ e)		Y (Post-int. PEWS total score)				
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		
Model 2.2	X (Pre-int. PEWS total score)	<i>a</i> ₁	.043	.060	.479	a ₂	026	.061	.670	<i>c</i> '	.552	.059	.000		
	<i>M</i> ¹ (Change in DERS total score)									<i>b</i> 1	.078	.087	.369		
	M ₂ (Change in FFMQ total score) Constant i _{M1}									b2	091	.087	.294		
			150	.227	.511	і _{М2}	.092	.227	.687	іү	.970	.222	.000		
			F(1,	R ² =.003 165)=.5 <i>p</i> =.479	603		F(1,	R ² =.001 165)=. <i>p</i> =.670	183	R ² =.363 F(3, 163)=30.962 <i>p</i> =.000					

Table G5. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in preoccupation with eating and weight (*n*=167).

							C	onsequ	ient				
			(Cha to	<i>M</i> ₁ nge in D tal score	PERS e)		(Chai to	<i>M</i> ₂ nge in F tal scor	FMQ e)		(P	γ ost-int. Γ total sco	MAC re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 2.3	X (Pre-int. MAC total score)	<i>a</i> ₁	001	.006	.828	a ₂	007	.006	.226	<i>c</i> '	.749	.046	.000
	<i>M</i> ₁ (Change in DERS total score)									b 1	2.552	.724	.001
	<i>M</i> ₂ (Change in FFMQ total score)									<i>b</i> 2	.133	.727	.856
	Constant	і _{М1}	.083	.387	.831 <i>i</i> _{M2}		_{M2} .459 .386 .		.235 <i>i _Y</i>		14.199	3.186	.000
		R ² =.000 F(1, 166)=.047 <i>p</i> =.828					F(1,	R ² =.008 166)=1 <i>p</i> =.226	R ² =.627 F(3, 164)=92.050 <i>p</i> =.000				

Table G6. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in dysfunctional cognitions (*n*=168).

		Consequent																		
			M_1 (Total # app entries)			M ₂ (Change in MES total score)					(Ch tơ	M₃ ange in S otal scor	SCS e)		γ (Post-int. BES total score)					
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р			
Model 3.1a	X (Pre-int. BES total score)	a _{1.1}	1.695	3.894	.664	a _{1.2}	.061	.188	.746	a _{1.3}	.036	.186	.848	C 1'	-2.050	.853	.018			
	M_1 (Total # app entries)													b 1	.016	.019	.415			
	<i>M</i> ₂ (Change in MES total score)												b 2	-2.411	.422	.000				
	M₃ (Change in SCS total score)				 3.894 .890									b 3	124	.422	.769			
	W (BMI)	a _{2.1}	1.695	3.894		a _{2.2}	.562	.914	.540	a 2.3	114	.907	.900	C2'	-4.440	.416	.288			
	XW (Interaction)	a 3.1	399	1.211	211 .743 a		023	.058	.690	a 3.3	013	.058	.818	C₃′	.826	.264	.002			
	Constant	і _{М1}	38.896	.896 59.888 .517 <i>i</i>			-1.552	2.885	.592	і _{мз} .536 2.863.852 і					16.372	13.160	.216			
			R ² =.023 F(3, 131)=1.042 <i>p</i> =.377				R ² =.013 F(3, 131)=.552 <i>p</i> =.646					R ² =.008 F(3, 131)=.372 <i>p</i> =.773					R ² =.652 F(6, 128)=39.952 <i>p</i> =.000			

Table G7. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in binge eating with moderating effects of BMI (*n*=135).

			Consequent															
			(Total	<i>M</i> ₁ I # app en	M ₂ (Change in MES total score)					(Ch to	M₃ ange in S otal scor	SCS e)		Y (Post-int. PEWS total score)				
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р	
Model 3.2a	X (Pre-int. PEWS total score)	a _{1.1}	.131	24.106	.005	a _{1.2}	285	1.175	.809	a _{1.3}	.920	1.173	.434	<i>C</i> ₁ '	449	1.092	.684	
	<i>M</i> 1 (Total # app entries)													b 1	.006	.004	.120	
	M₂ (Change in MES total score)													b 2	362	.085	.000	
	M₃ (Change in SCS total score)													b 3	.062	.085	.468	
	W (BMI)	a _{2.1}	-3.992	27.877	.886	a _{2.2}	187	1.359	.891	a _{2.3}	.495	1.356	.716	C2'	.442	1.260	.726	
	XW (Interaction)	a _{3.1}	.794	7.507	.916	a _{3.2}	.079	.366	.830	a _{3.3}	275	.365	.452	C3'	.273	.340	.423	
	Constant	і _{М1}	55.923	88.510	.529	529 i _{M2}	.734	4.314	.865	і _{М3}	-1.631	4.305	.705	i _Y	333	4.004	.934	
			F(3)	R ² =.028 , 134)=1.2 <i>p</i> =.283	83	R ² =.002 F(3, 134)=.093 <i>p</i> =.964				R ² =.012 F(3, 134)=.539 <i>p</i> =.657					R ² =.435 F(6, 131)=16.793 <i>p</i> =.000			

Table G8. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in preoccupation with eating and weight with moderating effects of BMI (*n*=138).

									Cor	nseque	nt						
			(Tota	M ₁ # app entr	ies)		(Ch to	M ₂ ange in N otal score	MES e)		(Ch to	M₃ ange in S otal score	SCS e)		(Post-i	γ nt. MAC-R score)	total
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 3.3a	X (Pre-int. MAC-R total score)	<i>a</i> _{1.1}	-1.883	2.450	.444	a _{1.2}	015	.118	.900	a _{1.3}	.089	.118	.451	<i>C</i> ₁ '	.300	.962	.756
	<i>M</i> 1 (Total # app entries)													b 1	.023	.034	.508
	<i>M</i> ₂ (Change in MES total score)													b 2	-1.772	.746	.019
	M₃ (Change in SCS total score)													b₃	-1.723	.743	.022
	W (BMI)	a _{2.1}	-30.628	52.094	.558	a _{2.2}	089	2.515	.972	a _{2.3}	1.329	2.513	.598	C2'	-6.874	20.414	.737
	XW (Interaction)	a _{3.1}	.549	.763	.473	a _{3.2}	.003	.037	.934	a _{3.3}	027	.037	.470	C3′	.124	.300	.680
	Constant	і м1	158.881	166.261	.341	і м2	.644	8.025	.936	і мз	-4.421	8.020	.582	İ y	38.342	65.295	.558
			F(3	R ² =.011 8, 134)=.509 <i>p</i> =.677)		F(3,	R ² =.027 , 155)=1. <i>p</i> =.236	430		F(3	R ² =.012 , 134)=.5 <i>p</i> =.661	33		F(6,	R ² =.612 131)=34.4 <i>p</i> =.000	96

Table G9. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of change in dysfunctional cognitions with moderating effects of BMI (*n*=138).

								Consequ	ent				
			(Chai toi	<i>M</i> ₁ nge in DE tal score)	ERS)		(Chang	M2 e in FFM score)	Q total			γ (Post-int. total scor	BES re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 3.1b	X (Pre-int. BES total score)	<i>a</i> _{1.1}	.010	.185	.957	<i>a</i> _{1.2}	.150	.179	.404	с'	-2.082	.949	.030
	<i>M</i> ¹ (Change in DERS total score)									b 1	.644	.497	.198
	<i>M</i> ₂ (Change in FFMQ total score)									b2	897	.512	.082
	<i>W</i> (BMI)	a _{2.1}	.431	.898	.633	a _{2.2}	.386	.873	.659	C2'	-5.838	4.618	.208
	XW (Interaction)	a _{3.1}	.000	.057	.997	a _{3.2}	053	.056	.346	C₃'	.840	.296	.005
	Constant	<i>і _{М1}</i>	-1.501	2.838	.598	і м2	959	2.759	.729	і ү	21.293	14.587	.147
			F F(3 <i>,</i>	R ² =.015 137)=.71 p=.547	11		F(3,	R ² =.038 , 137)=1.3 <i>p</i> =.145	826		F(5	R ² =.563 5, 135)=36 <i>p</i> =.000	3 4.735

Table G10. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in binge eating with moderating effects of BMI (*n*=141).

							(Conseque	ent				
			(Char tot	M ₁ nge in DE tal score)	RS		(Chang	<i>M</i> ₂ e in FFM score)	Q total		(γ Post-int. P total sco	eWS re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 3.2b	X (Pre-int. PEWS total score)	<i>a</i> _{1.1}	195	1.139	.864	<i>a</i> _{1.2}	176	1.126	.876	с'	335	1.134	.768
	<i>M</i> ¹ (Change in DERS total score)									b 1	.050	.096	.607
	<i>M</i> ₂ (Change in FFMQ total score)									b 2	134	.097	.167
	W (BMI)	a _{2.1}	.295	1.318	.823	a _{2.2}	634	1.303	.627	C2'	.363	1.313	.782
	XW (Interaction)	a _{3.1}	.069	.355	.846	a _{3.2}	.038	.351	.913	C₃'	.244	.353	.491
	Constant	і м1	-1.032	4.185	.806	і м2	2.206	4.135	.595	і ү	.178	4.168	.966
			F F(3, /	R ² =.014 139)=.64 p=.585	19		F(3	R ² =.018 , 139)=.8 <i>p</i> =.461	65		F	R ² =.37 (5, 137)=1 <i>p</i> =.000	1 5.475)

Table G11. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in preoccupation with eating and weight with moderating effects of BMI (*n*=143).

							(Conseque	ent				
			(Chai toi	<i>M</i> ₁ nge in DE tal score)	ERS		(Chang	M₂ e in FFM score)	Q total		(F	γ Post-int. P total scor	EWS re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 3.3b	X (Pre-int. MAC-R total score)	<i>a</i> _{1.1}	080	.114	.483	<i>a</i> _{1.2}	.035	.112	.756	с'	.320	.960	.739
	<i>M</i> ¹ (Change in DERS total score)									b 1	2.749	.806	.001
	<i>M</i> ₂ (Change in FFMQ total score)									b 2	.121	.821	.884
	W (BMI)	a _{2.1}	-1.206	2.430	.621	a _{2.2}	.535	2.385	.823	C2'	-7.085	20.402	.729
	XW (Interaction)	a _{3.1}	.026	.036	.468	a _{3.2}	014	.035	.687	C3'	.117	.300	.696
	Constant	і м1	3.676	7.755	.636	і м2	-1.025	7.612	.893	і ү	40.042	65.103	.540
			F F(3,	R ² =.017 140)=.82 p=.482	26		F(3 <i>,</i>	R ² =.034 140)=1.0 <i>p</i> =.180	654		F(!	R ² =.604 5, 138)=42 <i>p</i> =.000	l 2.146

Table G12. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of change in dysfunctional cognitions with moderating effects of BMI (*n*=144).

									Cor	nseque	nt						
			(Total	M ₁ # app er	ntries)		(Cha to	<i>M</i> ₂ inge in tal scor	MES œ)		(Ch to	M₃ ange in otal sco	SCS re)		(Fol to	γ low-up E tal score	BES e)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 4.1a	X (Pre-int. BES total score)	<i>a</i> 1	.231	.313	.464	a ₂	010	.015	.492	a 3	011	.015	.485	<i>c</i> '	.802	.073	.000
	M_1 (Total # app entries)													<i>b</i> 1	.017	.027	.523
	<i>M</i> ₂ (Change in MES total score)													b ₂	-1.447	.605	.019
	<i>M</i> ₃ (Change in SCS total score)													b 3	687	.583	.243
	Constant	і _{м1}	53.027	4.963	.000	i _{M2}	.200	.232	.391	і _{М3}	.156	.240	.518	і ү	-1.081	1.830	.557
			F(1	R ² =.007 L, 74)=.54 <i>p</i> =.464	43		F(1	R ² =.006 , 74)=.5 <i>p</i> =.464	5 543		F(2	R ² =.00 L, 74)=. <i>p</i> =.485	7 494 5		F(4,	R ² =.664 71)=35.1 <i>p</i> =.000	138

Table G13. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of maintenance in binge eating (*n*=76).

									Cor	nseque	ent						
			(Total	M ₁ # app en	ntries)		(Cha to	<i>M</i> ₂ inge in tal scor	MES e)		(Ch to	M₃ ange in otal sco	SCS re)		(Post-i	Y int. PEW score)	S total
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 4.2a	X (Pre-int. PEWS total score)	<i>a</i> 1	2.031	1.860	.278	a ₂	.012	.088	.892	a 3	.036	.091	.688	<i>c</i> '	.544	.082	.000
	<i>M</i> 1 (Total # app entries)													<i>b</i> 1	.001	.005	.851
	<i>M</i> ₂ (Change in MES total score)													b ₂	414	.113	.001
	<i>M</i> ₃ (Change in SCS total score)													b ₃	.014	.109	.897
	Constant	і _{М1}	48.958	7.119	.000	i _{M2}	.016	.335	.963	і _{М3}	135	.348	.698	i y	.810	.400	.046
			F(1	R ² =.051 , 75)=1.1 <i>p</i> =.278	.92		F(1	R ² =.000 , 75)=.0 <i>p</i> =.892))18		F(2	R ² =.002 L, 75)=. <i>p</i> =.688	2 162 8		F(4 <i>,</i>	R ² =.449 72)=14. <i>p</i> =.000	656

Table G14. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of maintenance in preoccupation with eating and weight (*n*=77).

									Con	sequei	nt						
			(Tota	M ₁ I # app er	ntries)		(Cha to	<i>M</i> ₂ ange in tal scor	MES œ)		(Ch te	M₃ lange in otal sco	i SCS vre)		(Post-i	γ nt. MAC score)	total
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 4.3a	X (Pre-int. MAC total score)	<i>a</i> 1	010	.176	.563	a ₂	005	.008	.576	a 3	.004	.009	.678	<i>c</i> '	.704	.068	.000
	<i>M</i> ¹ (Total # app entries)													b 1	.006	.045	.899
	<i>M</i> ₂ (Change in MES total score)													<i>b</i> ₂	-1.125	1.006	.267
	M₃ (Change in SCS total score)													b 3	-2.021	.959	.039
	Constant	і м1	63.123	11.988	.000	i _{M2}	.352	.556	.529	і _{М3}	242	.582	.678	i _Y	14.383	5.374	.009
			F(R ² =.005 (1, 74)=.33 <i>p</i> =.563	38		F(1	R ² =.004 ., 74)=.3 <i>p</i> =.576	816		F(R ² =.003 1, 74)=. <i>p</i> =.679	3 172)		F(4,	R ² =.623 71)=29.3 <i>p</i> =.000	345

Table G15. Regression coefficients, standard errors, and model summary information for analyses examining intervention-specific mediators of maintenance in dysfunctional cognitions (*n*=76).

							С	onsequ	ent				
			(Cha to	M ₁ nge in D tal score	PERS e)		(Chai to	<i>M</i> ₂ nge in F tal scor	FMQ e)		(γ Post-int. total sco	BES re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 4.1b	X (Pre-int. BES total score)	<i>a</i> 1	.018	.015	.241	a 2	030	.014	.037	<i>C</i> '	.769	.076	.000
	<i>M</i> 1 (Change in DERS total score)									<i>b</i> 1	.787	.644	.225
	M₂ (Change in FFMQ total score)									b 2	853	.699	.226
	Constant	і _{М1}	241	.239	.315	і _{М2}	.457	.220	.041	іү	.415	1.199	.730
			F(1,	R ² =.018 , 76)=1.3 <i>p</i> =.241	398		F(1,	R ² =.56 , 76)=4. <i>p</i> =.037	493		F(R ² =.5316 3, 74)=42 <i>p</i> =.000	528 1.580)

Table G16. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of maintenance in binge eating (n=78).

							C	onsequ	ent				
			(Cha to	<i>M</i> ₁ nge in D tal score	ERS e)		(Chai to	<i>M</i> ₂ nge in F tal scor	FMQ e)		(P	γ ost-int.∣ total sco	PEWS ore)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	p
Model 4.2b	X (Pre-int. PEWS total score)	<i>a</i> ₁	.056	.092	.543	a ₂	086	.087	.362	<i>c</i> '	.535	.088	.000
	<i>M</i> ₁ (Change in DERS total score)									<i>b</i> 1	.081	.125	.520
	M₂ (Change in FFMQ total score)									b2	.009	.131	.946
	Constant	і _{М1}	197	.352	.578	і _{м2}	.341	.335	.312	іү	.865	.337	.012
			ا F(1	R ² =.005 , 77)=.3 ⁻ p=.543	74		F(1	R ² =.013 ., 77)=.9 <i>p</i> =.326	976		F(R ² =.34 3, 75)=1 <i>p</i> =.00	1 2.936 0

Table G17. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of maintenance in preoccupation with eating and weight (n=79).

							C	onsequ	ent				
			(Cha to	<i>M</i> ₁ nge in D tal score	ERS e)		(Chai to	<i>M</i> ₂ nge in F tal scor	FMQ e)		(P	γ ost-int. I cotal sco	MAC re)
	Antecedent		Coeff.	SE	р		Coeff.	SE	р		Coeff.	SE	р
Model 4.3b	X (Pre-int. MAC total score)	<i>a</i> ₁	.005	.009	.563	<i>a</i> ₂	016	.008	.052	<i>c</i> '	.692	.070	.000
	<i>M</i> ¹ (Change in DERS total score)									<i>b</i> 1	1.193	1.053	.261
	M₂ (Change in FFMQ total score)									b2	370	1.116	.741
	Constant	i _{M1}	302	.579	.603	і _{М2}	1.076	.546	.052	i y	15.409	4.756	.002
			F(1	R ² =.004 , 76)=.33 <i>p</i> =.563	37		F(1,	R ² =.049 76)=3.9 <i>p</i> =.052	914		F(3	R ² =.59 8, 74)=36 <i>p</i> =.000	6 5.485)

Table G18. Regression coefficients, standard errors, and model summary information for analyses examining theoretical mediators of maintenance in dysfunctional cognitions (*n*=78).