

Overcoming Barriers to Mindful Eating in Adult Women

Abstract

Objective: The purpose of this study is to evaluate the effectiveness of an intervention designed to improve the knowledge and behaviors related to mindful eating in study participants.

Design: A quasi-experimental study design was used in this experiment.

Methods: Participant knowledge was evaluated by using a pre and post Mindful Eating Questionnaire (28-item self-report validated instrument), the Hunger and Fullness Scale, and qualitative observations. Quantitative data from the Mindful Eating Questionnaire and Hunger and Fullness Scale were compared using a Wilcoxon Signed Ranks Test using IBM SPSS Statistics 26.

Setting: This study was conducted virtually.

Participants: 11 adult women who are followers of Toni Marinucci participated in this study.

Intervention: Participants attended one, 45-minute zoom (virtual) group coaching session each week for a total of 3 weeks.

Results: The coaching calls did not significantly increase knowledge and behavior change. The coaching calls were well received and positive feedback was given. Participants noted that the barriers to implementing mindful eating included time, bad habits, and distraction.

Conclusions and Implications: The three mindful eating group coaching calls were not effective in increasing knowledge and behavior change in regards to awareness, distraction, and overeating.

Introduction

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended.¹ Globally, there has been an increased intake of energy-dense foods that are high in fat and sugars; and a rise in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization which have contributed to the increasing prevalence rates of obesity.¹ This frequently results in cardiovascular diseases (mainly heart disease and stroke), which were the leading cause of death in 2012; diabetes; musculoskeletal disorders (especially osteoarthritis – a highly disabling degenerative disease of the joints) and some cancers (including endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, and colon).¹ Conventional behavioral treatments often fail in long-term weight reduction because dieters struggle to maintain new eating patterns, give in to food cravings, and

consequently regain most of their weight after a year.² In fact, the National Eating Disorders Association reports that 35% of “normal dieters” progress to pathological dieting and that 20-25% of those individuals develop eating disorders.³

As a result, more current approaches moved away from the loss-orientation implicated in calorie-restrictive diets and took several psychological factors that influence overeating into account. Rather than focusing on what to eat and how much to eat, or how to burn calories, the process of eating is addressed.⁴ Mindful eating includes making intentional food choices, increasing awareness of interoceptive cues related to food intake, attending to physical versus psychological cues to eat, and appropriately responding to these cues.⁵ Current research has shown that this practice has been beneficial to control food cravings, portion size, body mass index, and body weight.⁶ Of particular importance is how mindful eating can have a positive impact on awareness, distraction, and overeating.

Mindful eating (i.e., paying attention to our food, on purpose, moment by moment, without judgment) focuses on individuals’ sensual awareness of the food and their experience of the food.⁷ Individuals who practice awareness and decentering become less susceptible to external food cues, stress, unfavorable emotions, or cravings as triggers of food intake, as well as learn to pay undivided attention to the process of eating.⁸ In addition, mindful eating helps to reduce distracted eating and overeating. Multitasking—such as eating while watching television or working on your computer—and distracted or rushed eating can prompt you to eat more, while slowing down and savoring your food can help you control your intake.⁹ Unlike other treatments, mindfulness may address the root causes of overeating, such as cravings, stress, and emotional eating, which make it so difficult to overcome.¹⁰

The Mindful Eating Questionnaire (MEQ) is a reliable tool for the assessment of mindful eating behavior among the general population.¹¹ The MEQ comprises five subscales (awareness, distraction, disinhibition, emotional, and external subscales), the mean of which represents a mindful eating summary.¹¹ The awareness subscale captures the important processes of attending to the tastes, smells, and textures of foods.¹¹ The distraction sub-scale captures the recognition of habit-based eating, such as while multitasking,

that is divorced from the true need to eat.¹¹ Relatedly, the disinhibition, emotional, and external subscales focus on awareness of eating triggers.¹¹ For the purpose of this study, we will refer to this tool as “MEQ”.

Current research surrounding mindful eating includes the following mindfulness components in their interventions: bodyscan, meditation, mindful breathing, cognitive defusion and acceptance, mindful eating and non-judgement.¹² However, few research studies focus specifically on awareness (mindful awareness of sensory experiences during eating), distraction (not engaging in any other activities while eating to facilitate ability to attend to sight, smell, texture, and taste of food), and overeating.¹² From the needs assessment conducted in October, 2021, we concluded that adult women who are followers of Toni Marinucci struggle with awareness, distraction, and overeating. The purpose of this study was to evaluate the effectiveness of an intervention designed to improve the knowledge and behaviors related to mindful eating in study participants.

Methods

Study Design

A quasi-experimental study design with a pre-test and post-test was used to assess changes in knowledge and behavior change in regards to awareness, distraction, and overeating. Participants attended 3 weekly zoom sessions that included mindfulness-based eating components. The Mindful Eating Questionnaire (28-item self-report instrument) and the Hunger and Fullness scale were both used for the pre-test and post-test. The State University of New York (SUNY) College at Oneonta Institutional Review Board approved all study procedures, and all participants provided informed consent. Participants were enrolled for the intervention for a total of 3 weeks.

Participants, study setting and eligibility criteria

Originally, 17 female participants were recruited. However, 6 failed to complete the informed consent statement, leaving a total of 11 participants. Participants were recruited from Toni Marinucci’s followers on Instagram and through her weekly emailing list. An Instagram story and video was posted on Toni Marinucci’s

Instagram account as well as an email that was sent to her weekly emailing list to advertise the study. The study was advertised as a mindful eating intervention that involved attending 3, 45-minute zoom coaching sessions and completing the Mindful Eating Questionnaire and Hunger and Fullness scale worksheet before the first coaching call and after the last. Only adult women were allowed to participate in this study which was written on the advertisements. Gender was the only information about the participant population that was collected.

Intervention

Participants attended one, 45 minute zoom (virtual) group coaching session each week for a total of 3 weeks. All sessions were led by the graduate student and overseen by the preceptor who is a registered dietitian. Participants received mindfulness training across several domains which particularly focused on awareness, distraction, and overeating. Mindful eating training involved the discussion of mindful eating practices of (1) attending to physical hunger, stomach fullness, and taste satisfaction (sensory-specific satiety), (2) learning how to increase awareness and decrease distraction during mealtimes, and (3) identifying food craving, and emotional and other triggers to eat. The teaching methods that were used were inspired by the adult learning theory and concepts. The participants were not instructed to avoid particular foods. Instead, they were taught to practice savoring and awareness of food tastes and textures, with a particular focus on drawing hedonic value from smaller amounts of highly preferred food, such as sweets. At the end of each group coaching session, participants were provided the powerpoint used during that session as well as a video recording of the session. The programme is described as follows:

Session 1: this session was aimed at motivating home practice and is complemented by an introduction to mindful eating. Observation is an attitude that was developed during this session, allowing participants to connect with their emotions, thoughts and body sensations, moment by moment, to be aware of possible unhealthy eating patterns. The awareness of automatised patterns can give participants the chance to change behavior, making decisions more connected with necessities. The benefits and fundamentals of mindful eating were explained.

Session 2: the objective of this session was to engage senses by noticing colors, smells, sounds, textures, and flavors during mealtimes. This session worked by identifying distractions that can ultimately disconnect one from the eating experience.

Session 3: the objective was to recognize the differences between real hunger signals and other body sensations generated by the environment that trigger the desire to eat. Training at the body consciousness level helps one find the point of balance that allows for eating and enjoying, paying attention to eating, feelings, body sensations, emotions and thoughts.

Materials

Measures used in these analyses were collected from participants before and after the intervention.

Participants completed the 28-item Mindful Eating Questionnaire, which was developed to assess mindful eating in the general population and is a previously validated tool.¹³ The MEQ comprises five subscales (awareness, distraction, disinhibition, emotional, and external subscales), the mean of which represents a mindful eating summary. Scale developers posited these subscales as assessing key mindfulness skills in the context of eating.¹³ The awareness sub-scale captures the important processes of attending to the tastes, smells, and textures of foods.¹³ The distraction sub-scale captures the recognition of habit-based eating, such as while multitasking, that is divorced from the true need to eat.¹³ Relatedly, the disinhibition, emotional, and external subscales focus on awareness of eating triggers. Likert scale response options range from 1 (never/rarely) to 4 (usually/always), with higher scores reflecting greater mindful eating.¹³

Participants completed the hunger and fullness scale worksheet that was created by the graduate student and was provided before and after the intervention. The hunger and fullness worksheet asked the participants to rate their hunger and fullness for breakfast, lunch, and dinner for one day.¹⁴ The hunger and fullness scale describes different levels or varying degrees of hunger and fullness on a scale from 1 (extremely hungry) to 10 (extremely full). It is a tool that can be used to help identify hunger and fullness cues, or to help identify when to start or stop eating.¹⁴

Data Analysis

The Mindful Eating Questionnaire was scored for each participant using the previously validated scoring system. Specific questions within the MEQ represent a specific subscale which includes awareness, distraction, disinhibition, emotional, and external subscales. The score of each subset equals the sum divided by the numbers of items answered. The score within each subset was taken from all participants and the subsets' averages were compared. Higher scores on the mindful eating questionnaire overall, and within each category, has been associated with higher BMI and signifies less mindful eating. Overall MEQ scores taken before the intervention were compared to the MEQ scores taken after the intervention using the Wilcoxon Signed-Rank Test and were displayed using tables and graphs using IBM SPSS Statistics 26.

The hunger and fullness scale was collected from each participant and the rankings from a scale of 1 (extremely hungry) to 10 (extremely full) for each meal was compared using the Wilcoxon Signed-Rank Test before the intervention with the rankings after the intervention. The results of the data were displayed using tables and graphs using IBM SPSS Statistics 26. A p-value <0.05 was considered significant.

Results

Participants

Of 11 participants enrolled in the Mindful Eating Study, 11 completed the Mindful Eating Questionnaire (MEQ) pre-intervention (100%), and 4 completed the MEQ post-intervention (36%). In addition, 6 participants completed the Hunger and Fullness Scale pre-intervention (54%), and 4 participants completed the Hunger and Fullness Scale post-intervention (36%). All participants were female and no other demographic characteristics were obtained. Overall meeting attendance was low, in that 4 participants attended the first coaching call (36%), 3 participants attended the second coaching call (27%), and 1 participant attended the third coaching call (0.9%). Each coaching session was recorded and all participants received a link to view the recording after each call. Therefore, those who weren't able to attend a specific coaching call or any coaching calls were not excluded from the study.

Perceptions of Mindful Eating

Key themes related to mindful eating progress that emerged from the short answer section within the MEQ along with supporting quotes are presented in **Table 1** for the pre-intervention and **Table 2** for the post-intervention. Important sub themes included: Opinion of mindful eating, benefits of mindful eating, barriers to implementing mindful eating principles and topics participants would like to learn regarding mindful eating. The post-intervention MEQ included additional short-answer questions and important sub themes which included: Favorite experience/moment of the group coaching calls, what we could improve on, and topics participants wish we would have covered but didn't.

Many participants' assumptions on what mindful eating was involved awareness, slowing down during their meals, and being present during mealtimes. Although all participants had a diverse background knowledge about mindful eating, all participants seemed to have a good understanding of the basics of mindful eating. Perceived benefits of mindful eating included listening to hunger and fullness cues, eating less calories overall, and improved digestion. Perceived barriers of implementing mindful eating included having habits that are hard to break, distraction, and time. Many participants stated that they have busy schedules due to their occupation such as being a nurse or teacher. Lastly, Participants stated wanting to learn more about emotional eating. Post-intervention, an improvement was seen in terms of participants' opinions on what mindful eating is which is shown in **Table 2**. Participants' answers were more specific and accurate. Additionally, most participants included what was learned in the intervention in the response.

Mindful Eating Questionnaire

Participants were asked to fill out a Mindful Eating Questionnaire that included thirty multiple choice questions. Participant score results for each category are given pre-intervention and post-intervention, **Supplemental Table 1** and **Supplemental Table 2**, respectively. The Questionnaire results were broken down into 5 categories: awareness, distraction, disinhibition, emotional response, and external cues. According to **Supplemental Table 1**, the average score of the 11 participants pre-intervention was 2.5, while as seen in **Supplemental Table 2**, the average score of the 4 participants post-intervention was 2.75. Higher scores on the

mindful eating questionnaire overall, and within each category, have been associated with more mindful eating habits and lower scores have been associated with less mindful eating habits and higher BMI. Pre-intervention, the category in which the participants scored the least overall was distraction, while the category in which they scored the highest was external cues. Similarly, in the post-intervention, participants scored the least overall in the distraction category and the highest in the emotional response category. **Figure 1** shows a box and whisker plot of the pre and post-intervention data with the Y-axis showing the scores and the X-axis showing the 5 categories. In **Figure 1**, the median score of the Pre-intervention Emotional Response category sits above the axis approximately at the 3.1 mark, whereas the median for the rest of the categories fall below that. This means that the participants scored the highest within this category, which indicates that they had greater mindful eating habits when compared to the rest of the categories. Additionally, the median score of the Post-intervention Emotional Response category sits above the axis approximately at the 3.5 mark, whereas the median for the rest of the categories fall below that. The median score of both awareness, distraction, and emotional response increased from pre-intervention to post-intervention, showing an improvement in these areas, however, they were not statistically significant (**Figure 1**). A Wilcoxon signed-rank test showed that the three mindful eating group coaching calls did not elicit a statistically significant change in mindful eating in adult women within any category: Awareness ($Z = -.365$, $p = 0.715$), Distraction ($Z = -1.289$, $p = 0.197$), Disinhibition ($Z = -1.069$, $p = 0.285$), Emotional Response ($Z = -1.826$, $p = 0.068$), and External Cues ($Z = -1.604$, $p = 0.109$).

Hunger and Fullness Scale

Participants were asked to fill out a Hunger and Fullness Scale worksheet that included rating their hunger before and their fullness after on a scale from 1-10 (1 meaning starving and 10 meaning extremely full) for each meal (breakfast, lunch, and dinner). The Wilcoxon Signed Ranks Test showed that the mean pre and post-meal fullness rating before and after the intervention didn't change much. Two means that stood out are the mean for pre-intervention after lunch ($\mu = 7.0$) and dinner ($\mu = 7.5$), and post-intervention after lunch ($\mu = 6.25$) and dinner ($\mu = 7.0$).

Table 1. Pre-Intervention Emergent Subthemes and Selected Quotes of Mindful Eating.

Subtheme	Selected Quotes
<p>Question: Have you ever heard of mindful eating before? In your opinion, what is it?</p> <p>Awareness</p>	<p>“Having awareness for how you feel and what you think before/during/after you are eating.”</p> <p>“Mindful eating is being aware of your thoughts, emotions and how food is making you feel.”</p>
<p>Question: Based on what you know now, what do you think are the benefits of mindful eating?</p> <p>Hunger Cues</p>	<p>“Tuning into hunger to help listen to my body and not under or over eating.”</p> <p>“Being more in tune to your body and actually listening to what it needs instead of what you want.”</p>
<p>Question: Based on what you know now, what do you think are the benefits of mindful eating?</p> <p>Digestion</p>	<p>“Better digestion.”</p> <p>“Healthy digestive system.”</p>
<p>Question: Based on what you know now, what do you think are barriers to implementing mindful eating principles?</p> <p>Habits</p>	<p>“Old habits are hard to break.”</p> <p>“Past behaviors, learned from diet culture.”</p>
<p>Question: Based on what you know now, what do you think are barriers to implementing mindful eating principles?</p> <p>Distraction</p>	<p>“lack of focus (distractions), medical conditions such as ADHD.”</p> <p>“Perhaps medical conditions (ADHD)”</p>
<p>Question: Based on what you know now, what do you think are barriers to implementing mindful eating principles?</p> <p>Busyness</p>	<p>“Busyness (time).”</p> <p>“Busy schedule.”</p>
<p>Question: Is there anything in particular you would like to learn related to mindful eating?</p> <p>Emotional Eating</p>	<p>“How not to think about food so much, especially during emotional times.”</p> <p>“When and how to control emotional eating.”</p>

Table 2. Post-Intervention Emergent Subthemes and Selected Quotes of Mindful Eating.

Subtheme	Selected Quotes
<p>Question: In your opinion, what is mindful eating?</p> <p>Noticing how food makes you feel</p>	<p>“Noticing my food, how it makes me feel and how I feel before and after eating.”</p> <p>“Being in tune with the food you are eating and what it is doing for your body.”</p>
<p>Question: In your opinion, what is mindful eating?</p>	<p>“Taking the time to appreciate what's on your plate from the flavors, the smells to how it taste.”</p>

Appreciating	“Appreciating.”
Question: Based on what you know now, what do you think are the benefits of mindful eating? Digestion	“Healthier digestion.” “Better on digestion.”
Question: Based on what you know now, what do you think are the benefits of mindful eating? Preventing Overeating	“Not overeating.” “Cues me into when I'm full...less overeating.”
Question: Based on what you know now, what do you think are barriers to implementing mindful eating principles? Time	“schedules, responsibilities.” “Time.”
Question: What was your favorite experience or moment of the group coaching calls? Tips provided	“Suggestions for some of my personal challenges.” “Eating tips.”
Question: What could we improve on? Nothing	“I really enjoyed it and found it beneficial - I don't have any suggestions!” “I thought it was all great.”
Question: Was there anything you wish we would have covered but didn't? Nothing	“I think you nailed it!” “Nothing!”

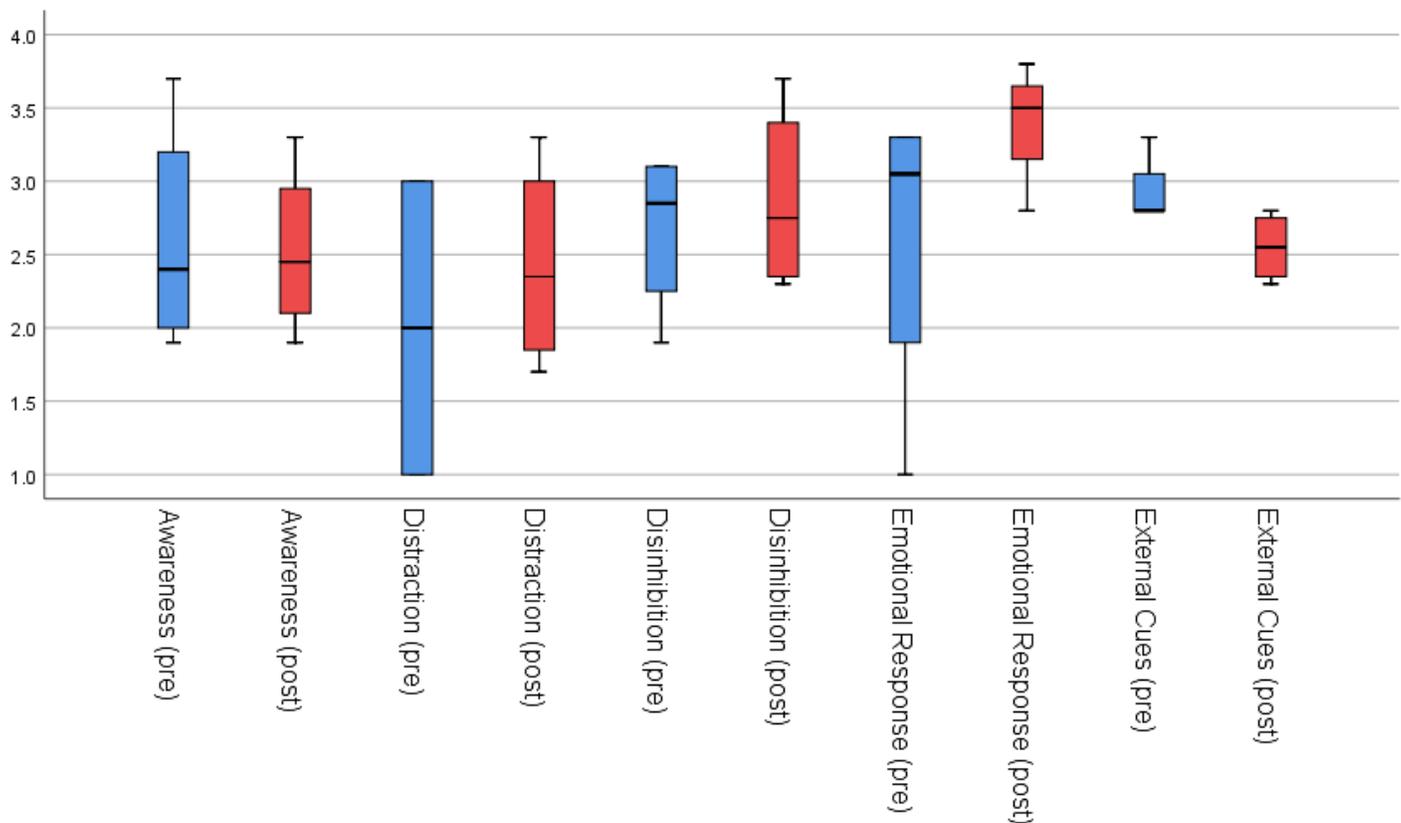


Figure 1. Box and whisker plot of the Mindful Eating Questionnaire Pre and Post Intervention results from each category. Likert scale questions were scored and the average was obtained from each participant within each category: Awareness, Distraction, Disinhibition, Emotional Response, and External Cues. There were no significant changes in any of the categories.

Discussion

Our research shows that the three, 45-minute mindful eating coaching sessions were not effective at improving knowledge and behavior change in regards to awareness, distraction, and overeating.

Mindful Eating Questionnaire

The Wilcoxon signed-rank test showed that the three mindful eating group coaching calls did not elicit a statistically significant change in mindful eating in adult women within any category: Awareness ($Z = -.365$, $p = 0.715$), Distraction ($Z = -1.289$, $p = 0.197$), Disinhibition ($Z = -1.069$, $p = 0.285$), Emotional Response ($Z = -1.826$, $p = 0.068$), and External Cues ($Z = -1.604$, $p = 0.109$) (Table 5). These findings contrast with other research that has found that mindfulness intervention participants relative to control participants, showed significantly greater increases in the awareness subscale from baseline to 12 months.¹⁵ This significant increase

could possibly be due to a longer intervention period (12 months vs the current 3-week intervention). A study that is comparable to our findings found that scores were not statistically significant for the domain distraction ($p = 0.245$) or awareness ($p = 0.252$).¹⁶

Hunger and Fullness Scale

By using the Wilcoxon Signed Ranks Test and we found that the mean pre-meal and post-meal ratings were not significant for any meal: before breakfast ($Z = -1.633$, $p = 0.102$), before lunch ($Z = -1.000$, $p = 0.317$), before dinner ($Z = -0.816$, $p = 0.414$), after breakfast ($Z = -1.732$, $p = 0.083$), after lunch ($Z = -1.000$, $p = 0.317$), and after dinner ($Z = -1.000$, $p = 0.317$). These findings contrast with other research that has found that the mean pre-meal fullness rating of the binge eating disorder (BED) group was slightly, but not significantly higher than that of the control group.¹⁷ Additionally, the mean post-meal fullness rating of the BED group was significantly higher but the change in fullness over the course of the meal did not differ between groups.¹⁷ The difference in findings could be due to the fact that these participants have binge eating disorder and the participants in the current study do not. Similar to our findings, the mean pre-meal, post-meal, and change in hunger ratings were not significantly different between groups.¹⁷

Perceptions of Mindful Eating

Participants reported improved mindful eating habits and knowledge as a result of the mindful eating coaching call participation. Post-intervention, an improvement was seen in terms of participants' opinions on what mindful eating is which is shown in **Table 2**. Participants' answers were more specific and accurate.

Additionally, most participants included what was learned in the intervention in the response. A study that was comparable to our qualitative findings found that self-awareness originated from and was enhanced by body awareness.¹⁸ Because much of the training in the program focused on attending to sensory experiences, the women learned to discern bodily sensations (e.g., hunger and satiety, and how emotions “feel”).¹⁸ For example, one woman in our study explained that, “I have been better about making my food more colorful, slowing down, taking a break from work to eat in a separate space and slowing down.”

Study Strengths and Weaknesses

There are several limitations to this study. Most importantly, the study sample consisted of eleven participants, and small sample sizes are more likely to result in false positive or false negative results so future research would benefit from recruiting larger numbers of participants. In addition, response rates differed from pre and post intervention and were particularly low, which may further weaken the generalizability of results.

Compliance was not measured with the three coaching calls and the participants who viewed the recordings were unknown. Demographic data was not collected on participants, therefore, the data was not representative of the broad race, educational and social diversity that characterizes the adult women who are followers of Toni. Additional research is needed to evaluate the MEQ in more diverse populations. Lastly, this study design does not allow us to determine cause and effect relationships. A strength of this study is that it was cost-effective to implement.

Conclusion

These analyses suggest that the three, 45-minute mindful eating coaching sessions were not effective at improving knowledge and behavior change in regards to awareness, distraction, and overeating. This could possibly be due to the short intervention period, limited sample size, and other limitations. Small sample sizes are more likely to result in false positive or false negative results so future research would benefit from recruiting larger numbers of participants and implementing a longer intervention period.

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Appendix

Mindful Eating Questionnaire

1. I eat so quickly that I don't taste what I'm eating.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
2. When I eat at “all you can eat” buffets, I tend to overeat.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
 - e. I don't eat at buffets.
3. At a party where there is a lot of good food, I notice when it makes me want to eat more food than I should.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always

4. I recognize when food advertisements make me want to eat.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
 - e. Food ads never make me want to eat.
5. When a restaurant portion is too large, I stop eating when I'm full.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
6. My thoughts tend to wander while I am eating.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
7. When I'm eating one of my favorite foods, I don't recognize when I've had enough.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
8. I notice when just going into a movie theater makes me want to eat candy or popcorn.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
 - e. I never eat candy or popcorn.
9. If it doesn't cost much more, I get the larger size food or drink regardless of how hungry I feel.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
10. I notice when there are subtle flavors in the foods I eat.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
11. If there are leftovers that I like, I take a second helping even though I'm full.
 - a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
12. When eating a pleasant meal, I notice if it makes me feel relaxed.
 - a. Never/Rarely
 - b. Sometimes

- c. Often
 - d. Usually/Always
13. I snack without noticing that I am eating.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
14. When I eat a big meal, I notice if it makes me feel heavy or sluggish.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
15. I stop eating when I'm full...even when eating something I love.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
16. I appreciate the way my food looks on my plate
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
17. When I'm feeling stressed at work, I'll go find something to eat.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
 - e. I don't work.
18. If there's good food at a party, I'll continue eating even after I'm full.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
19. When I'm sad, I eat to feel better.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
20. I notice when foods and drinks are too sweet.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
21. Before I eat I take a moment to appreciate the colors and smells of my food.
- a. Never/Rarely

- b. Sometimes
 - c. Often
 - d. Usually/Always
22. I taste every bite of food that I eat.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
 - e. I never eat when I'm not hungry.
23. I recognize when I'm eating and not hungry.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
24. I notice when I'm eating from a dish of candy just because it's there.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
25. When I'm at a restaurant, I can tell when the portion I've been served is too large for me.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
26. I notice when the food I eat affects my emotional state.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
27. I have trouble not eating ice cream, cookies, or chips if they're around the house.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
28. I think about things I need to do while I am eating.
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
29. I eat past fullness...
- a. Never/Rarely
 - b. Sometimes
 - c. Often
 - d. Usually/Always
30. Before I eat, I feel starving.

- a. Never/Rarely
- b. Sometimes
- c. Often
- d. Usually/Always

31. Have you ever heard of mindful eating before? In your opinion, what is it?

32. Based on what you know now, what do you think are the benefits of mindful eating?

33. Based on what you know now, what do you think are barriers to implementing mindful eating principles?

34. Is there anything in particular you would like to learn related to mindful eating?

35. Do you currently incorporate any of the mindful eating tips below? Circle all that apply.

- Eating slowly and without distraction
- Listening to physical hunger cues and eating only until you're full
- Distinguishing between true hunger and non-hunger triggers for eating
- Engaging your senses by noticing colors, smells, sounds, textures, and flavors of your food
- Appreciating your food
- Eating to maintain overall health and well-being

ANSWER AFTER THE INTERVENTION:

How satisfied were you with the group coaching calls?

- a. Not satisfied
- b. Somewhat satisfied
- c. Satisfied
- d. Very satisfied

What was your favorite experience or moment of the group coaching calls?

What could we improve on?

Was there anything you wish we would have covered but didn't?

Table 1. Results of the Mindful Eating Questionnaire Pre-Intervention for each category and total score.

Participant	Awareness	Distraction	Disinhibition	Emotional Response	External Cues	Total Score
1	2.1	1.0	2.6	1.0	3.3	2.0
2	1.9	1.0	1.9	3.3	2.8	2.2
3	2.7	3.0	3.1	2.8	2.8	2.9
4	3.7	3.0	3.1	3.3	2.8	3.2
5	2.3	2.0	2.6	2.5	2.3	2.3
6	1.7	1.7	1.0	2.6	3.2	2.0
7	2.4	1.3	1.7	1.8	3.2	2.1
8	1.9	2.0	1.9	1.5	2.5	2.0
9	2.1	3.7	3.1	3.3	2.3	2.9
10	2.1	2.0	2.1	2.3	2.8	2.3
11	1.6	1.0	1.0	1.7	2.2	1.5
Average	2.2	2.0	2.2	2.4	3.0	2.3

Table 2. Results of the Mindful Eating Questionnaire Post-Intervention for each category and total score.

Participant	Awareness	Distraction	Disinhibition	Emotional Response	External Cues	Total Score
1	2.3	1.7	2.4	2.8	2.3	2.3
2	2.6	2.0	2.3	3.8	2.4	2.6
3	1.9	3.3	3.1	3.5	2.7	2.9
4	3.3	2.7	3.7	3.5	2.8	3.2
Average	2.5	2.4	2.9	3.4	2.6	2.75

Hunger and Fullness Scale

What is the Hunger & Fullness Scale?

The Hunger & Fullness Scale is a simple way for you to monitor how hungry or full you are at any point in time, especially just before and just after your meals or snacks. The scores are based on a scale that goes from 1-10. 1 is really, really hungry what we sometimes describe as ‘starving’ although of course we’re not starving. 10 is really, really full which we sometimes describe as ‘bursting or stuffed’.

Table 3. Test Statistics of the MEQ using Wilcoxon Signed Ranks Test.

Test Statistics^a					
	Awareness (post) - Awareness (pre)	Distraction (post) - Distraction (pre)	Disinhibition (post) - Disinhibition (pre)	Emotional Response (post) - Emotional Response (pre)	External Cues (post) - External Cues (pre)
Z	-.365 ^b	-1.289 ^c	-1.069 ^c	-1.826 ^c	-1.604 ^b
Asymp. Sig. (2-tailed)	.715	.197	.285	.068	.109

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

Table 4. Descriptive Statistics of the Hunger and Fullness Scale data using Wilcoxon Signed Ranks Test.

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Pre_before_breakfast	6	4.0000	1.26491	3.00	6.00	3.0000	3.5000	5.2500
Pre_before_lunch	6	4.3333	1.86190	3.00	8.00	3.0000	4.0000	5.0000
Pre_before_dinner	6	5.0000	1.89737	3.00	8.00	3.0000	5.0000	6.5000
Pre_after_breakfast	6	6.6667	1.03280	5.00	8.00	5.7500	7.0000	7.2500
Pre_after_lunch	6	7.0000	.89443	6.00	8.00	6.0000	7.0000	8.0000
Pre_after_dinner	6	7.5000	1.51658	5.00	9.00	6.5000	7.5000	9.0000
Post_before_breakfast	4	4.2500	1.25831	3.00	6.00	3.2500	4.0000	5.5000
Post_before_lunch	4	4.0000	1.41421	2.00	5.00	2.5000	4.5000	5.0000
Post_before_dinner	4	4.5000	1.73205	3.00	7.00	3.2500	4.0000	6.2500
Post_after_breakfast	4	7.0000	.81650	6.00	8.00	6.2500	7.0000	7.7500
Post_after_lunch	4	6.2500	.50000	6.00	7.00	6.0000	6.0000	6.7500
Post_after_dinner	4	7.0000	1.41421	5.00	8.00	5.5000	7.5000	8.0000

Table 5. Test Statistics of the Hunger and Fullness Scale data using Wilcoxon Signed Ranks Test.

Test Statistics^a						
	Post_before_breakfast - Pre_before_breakfast	Post_before_lunch - Pre_before_lunch	Post_before_dinner - Pre_before_dinner	Post_after_breakfast - Pre_after_breakfast	Post_after_lunch - Pre_after_lunch	Post_after_dinner - Pre_after_dinner
Z	-1.633 ^b	-1.000 ^b	-.816 ^b	-1.732 ^b	-1.000 ^c	-1.000 ^b
Asymp. Sig. (2-tailed)	.102	.317	.414	.083	.317	.317

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

c. Based on positive ranks.