

An Exploratory Study of a Meditation-based Intervention for Binge Eating Disorder

JEAN L. KRISTELLER

*Department of Psychology, Indiana State University,
Terre Haute, Indiana*

C. BRENDAN HALLETT

Project Reality, Salt Lake City, Utah

JEAN L. KRISTELLER is Professor of Psychology at Indiana State University. Her research interests are emotional and behavioral self-regulatory processes in eating disorders and in cancer patients.

C. BRENDAN HALLETT was a doctoral student at Indiana State University and is currently a counselor/prevention specialist at Project Reality, a drug treatment center. He is interested in the use of mindfulness techniques to treat compulsive behaviors.

COMPETING INTERESTS: None declared.

ADDRESS. Correspondence should be directed to:
JEAN L. KRISTELLER, PH.D., Department of Psychology, Indiana State University, Terre Haute, IN 47809, USA.
[email: pykris@root.indstate.edu]

Journal of Health Psychology
Copyright © 1999 SAGE Publications
London, Thousand Oaks and New Delhi.
[1359-1053(199907)4:3]
Vol 4(3) 357-363: 008561

Abstract

The efficacy of a 6-week meditation-based group intervention for Binge Eating Disorder (BED) was evaluated in 18 obese women, using standard and eating-specific mindfulness meditation exercises. A single-group extended baseline design assessed all variables at 3 weeks pre- and post-, and at 1, 3, and 6 weeks; briefer assessment occurred weekly.

Binges decreased in frequency, from 4.02/week to 1.57/week ($p < .001$), and in severity. Scores on the Binge Eating Scale (BES) and on the Beck Depression and Anxiety Inventories decreased significantly; sense of control increased. Time using eating-related meditations predicted decreases on the BES ($r = .66$, $p < .01$). Results suggest that meditation training may be an effective component in treating BED.

Keywords

binge eating disorder, control, depression, meditation

MEDITATION HAS a long history of being used within spiritual practice (Goleman, 1988). More recently, it has been used for attaining general well-being, as well as for treatment of anxiety, addictions, pain management, and as an adjunct to psychotherapy (Carrington, 1998; Kabat-Zinn et al., 1992; Marlatt & Kristeller, in press; Rubin, 1996). Meditation appears to have the potential to facilitate self-regulation, and may enhance insight and the integration of physiological, emotional, cognitive, and behavioral aspects of human functioning. In understanding the effects of meditation on patterns of dysregulated behavior and emotion, we may also come to better understand the common roots of general and spiritual well-being.

There have been anecdotal reports of the value of meditation for treating eating disorders (Epstein, 1995; Ray, 1981), but the effects have not been systematically studied. However, research on meditation suggests that it may be effective in addressing many of the factors relevant to binge eating disorder (BED). Individuals with BED appear to suffer from the dysregulation of multiple psychological processes that contribute to binge eating, including elevated anxiety and dysphoria, distorted and reactive thinking patterns, and disturbed awareness of normal physiological cues related to food intake (Fairburn & Wilson, 1993).

Binge eating disorder

Binge eating disorder is characterized by frequent episodes (at least 2 days per week) of unusually large amounts of food, accompanied by feelings of lack of control (American Psychiatric Association, 1994). Other criteria include marked distress and guilt regarding binge eating, secretive eating, and a lack of the compensatory behaviors (e.g. purging, fasting, or laxative misuse) that characterize bulimia nervosa. Binge eating disorder is almost twice as common in females, with an overall prevalence rate of 3 to 5 percent in community samples, but ranging from 15 percent among the general obese population to as much as 30 percent for obese persons in weight control programs (Spitzer et al., 1993; Telch, Agras, & Rossiter, 1988). Obese bingers typically report bingeing 3 to 5 days per week, eat more fatty foods, and may be at greater health risk than obese non-

bingers (Rossiter, Agras, Telch, & Bruce, 1992).

As compared to obese non-bingers, obese binge eaters have a more perfectionist attitude toward dieting and report constantly struggling to control their urges to eat (Gormally, Black, Daston, & Rardin, 1982) and greater levels of dysphoria (de Zwaan et al., 1994; Wadden, Foster, Letizia, & Wilk, 1993). Individuals who binge have been shown to have a decreased awareness of their level of satiety, a critical aspect in the regulation of food intake (Hadigan, Walsh, Devlin, LaChaussee, & Kissileff, 1992; Hetherington & Rolls, 1989).

Meditation as a therapeutic intervention

Meditation techniques may modify the dysregulated processes associated with BED in several ways. Although there are many variations, the basic elements are to maintain a relaxed focus on a single object of attention, and when that attention shifts to another object, to simply return it to the original object. Mindfulness meditation techniques, as used here, emphasize the ability to bring focused, yet detached, awareness to all objects of attention, while maintaining a non-judgmental, self-accepting attitude. As a relaxation technique, meditation may decrease both emotional (Beauchamp-Turner & Levinson, 1992) and physiological reactivity in such disorders as essential hypertension (Sothers & Anchor, 1989). By promoting awareness of physiological signals, meditation may increase the ability to recognize and respond to normal satiety cues. As a way of improving self-acceptance, it may decrease the relative appeal of binge eating as an escape mechanism (Heatherton & Baumeister, 1991) and facilitate general therapeutic change. In treatment of psychiatric populations, Kabat-Zinn et al. (1992) found that an 8-week mindfulness meditation program was effective in significantly lowering the anxiety and panic symptoms of participants, changes that were highly stable (Miller, Fletcher, & Kabat-Zinn, 1995). Teasdale and his colleagues (Teasdale, Segal, & Williams, 1995; Teasdale, 1998) have reported lower relapse rates in individuals with a history of clinical depression who participated in a mindfulness meditation program.

Table 1. Mean scores on weekly assessments and means across weeks for pre- and post-treatment

| Week | Means for weekly assessments | | | | | | | | | Means across weeks | | | t-value | | |
|--------------------------------|------------------------------|-----|-----|-----------|-----|-----|-----|-----|-----|--------------------|-----|-------------------------------|----------------|--------------------------------|------------------|
| | Pre-treatment | | | Treatment | | | | | | Post-treatment | | Pre-mean ^b (SD) | | Post-mean ^b (SD) | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | | | | 3 |
| Number of binges/week | 5.0 | 3.7 | 3.9 | 3.9 | 1.9 | 2.5 | 1.9 | 2.5 | 0.9 | 1.8 | 1.7 | 1.6 | 4.02 | 1.57 (1.36) | 6.37** (1.49) |
| Eating control ^a | 2.1 | 3.2 | 2.7 | 2.7 | 4.4 | 4.0 | 4.8 | 4.3 | 5.2 | 4.9 | 4.8 | 4.8 | 2.65 (.78) | 4.91 (.97) | 9.51** |
| Mindfulness ^a | 3.0 | 4.2 | 4.2 | 3.7 | 4.7 | 4.8 | 4.9 | 4.7 | 5.7 | 5.1 | 5.7 | 5.6 | 3.84 (1.33) | 5.50 (.86) | 8.31** |
| Hunger awareness ^a | 1.7 | 3.4 | 3.6 | 3.6 | 4.6 | 4.6 | 5.1 | 5.1 | 5.2 | 5.0 | 5.4 | 5.1 | 3.44 (1.19) | 5.25 (.61) | 5.48** |
| Satiety awareness ^a | 2.9 | 3.6 | 3.9 | 4.1 | 4.8 | 5.0 | 5.1 | 5.1 | 5.4 | 5.4 | 5.7 | 5.3 | 3.63 (1.41) | 5.44 (.62) | 7.21** |

^a Value is on a 7-point Likert scale

^b Pre-mean: average of pre-treatment weeks 1–3 and treatment week 1

Post-mean: average of post-treatment weeks 1–3 and treatment week 6

** $p < .001$

Table 2. Mean scores and standard deviations on pre- and post-treatment variables

| | Intake/pre-treatment | Treatment | | | 3 weeks post-treatment | Pre-mean ^a (SD) | Post-mean ^a (SD) | t-value |
|--------------------------|----------------------|-----------------|-----------------|-----------------|------------------------|-------------------------------|--------------------------------|---------|
| | | Week 1 | Week 4 | Week 6 | | | | |
| Binge Eating Scale (BES) | 32.3 (6.78) | 31.1 (9.56) | 24.5 (10.76) | 15.1 (8.38) | 15.1 (9.80) | 31.69 (7.69) | 15.08 (8.12) | 9.86** |
| Depression (BDI) | 17.8 (12.51) | 17.2 (12.29) | 14.4 (11.91) | 8.0 (6.15) | 10.2 (9.37) | 17.47 (12.02) | 9.11 (6.95) | 4.48** |
| Anxiety (BAI) | 16.3 (13.45) | 15.2 (10.84) | 14.6 (14.47) | 10.9 (13.02) | 10.5 (13.00) | 15.78 (11.69) | 10.69 (12.98) | 3.10* |

^a Pre-mean: average of pre-treatment (intake assessment) and week 1

Post-mean: average of 3 weeks post-treatment and week 6

* $p < .01$, ** $p < .001$

In recent years, interventions that have succeeded in treating bulimia and obesity have been studied for the treatment of BED; some of these, including cognitive-behavioral therapy and interpersonal therapy, have shown considerable success (Agras et al., 1994, 1995), yet the research on treatment approaches for BED is still quite limited. One possible limitation in these treatments is the lack of attention to increasing awareness and acceptance of bodily cues that maintain bingeing behavior, in particular the sensations of hunger and satiety.

The meditation-based intervention used in this study was conceptualized as a treatment component that may improve the efficacy of more established interventions. The central feature of this intervention is the use of meditation as a tool for increasing mindfulness. This mindfulness, or increased attention, pertains to bodily sensations influencing bingeing behavior, as well as physical, cognitive, and emotional triggers to binge. In addition, it is expected that meditation will increase a sense of control and decrease levels of dysphoria and anxiety.

Methods

Participants

Twenty-one women participated from among approximately 50 who responded to advertisements offering a treatment study for women who were overweight and had problems with binge eating. Only women were included due to the possibility of gender differences without enough statistical power to examine them, and to the desirability of running single-gender groups.

Women were accepted for the study who met criteria for the diagnosis of BED, were not currently participating in a weight loss program or psychotherapy that conflicted with this study, and did not have a comorbid disorder (such as a personality or psychotic disorder) that might interfere with compliance. Women taking medication related to weight loss were requested to either discontinue use or to maintain the dose during the study period. A \$20 deposit was requested, to be refunded upon completion of the treatment and assessments. Three women dropped out early in treatment and were not included in analyses; one woman who missed three sessions and one who missed two are

included in order to better reflect overall clinical response.

Design

This study used a single-group design with an extended baseline and a follow-up of 3 weeks to establish minimal stability of symptoms pre- and post-intervention. Although not optimal, given the lack of previous data, this exploratory approach was considered adequate to provide information regarding basic treatment efficacy. A similar design was used to explore effects of a meditation intervention for treating anxiety disorders (Kabat-Zinn et al., 1992).

Treatment procedures

Recruitment occurred over 5 months; 3 treatment groups included from 3 to 9 participants. Seven sessions were conducted over a 6-week period: 2 sessions in the first week built group cohesion and reinforced meditation practice. The primary focus of treatment was the use of mindfulness meditation in three forms: general mindfulness meditation, eating meditation, and mini-meditations. The primary goal of general mindfulness meditation is to develop focused attention and awareness of the object of that attention; instructions are to simply take note of whatever thoughts, emotions, or bodily sensations arise, returning attention to the breath when it engages with another focus. This practice teaches individuals to observe the contents of the mind and sensations of the body without judgment and to learn detached awareness (Kabat-Zinn, 1990). Eating meditations applied this approach more specifically toward the behaviors, beliefs, and emotions associated with food intake, somewhat as in guided imagery, but with an emphasis on attaining detached awareness. For mini-meditations, instructions are to take a few moments to stop and become aware of thoughts and feelings, at times such as prior to meals or when binge urges occurred.

For about 20 minutes at the start of each session, participants discussed progress and difficulties experienced during the previous week. Each session then focused on a specific theme related to overcoming binge eating, such as being aware of binge triggers, hunger and satiety awareness, self-forgiveness, and relapse prevention, using guided meditations and exercises in mindful eating, including use of food provided

either by the leader or by group members. Homework included daily meditation, either on tape or self-guided, and mindful-eating exercises. A draft treatment manual is available (Kristeller & Hallett, unpublished MS).

Measures

Screening measures Participants were first screened using the Questionnaire of Eating and Weight Patterns—Revised (Spitzer et al., 1993; QEWP-R; Yanovski, 1993), which assesses the primary characteristics of BED. Participants were weighed and measured to calculate their body mass index (BMI); a BMI above 27 was required for participation. The Symptom Checklist 90–R (Derogatis, 1983) was used to screen for symptoms of psychiatric comorbidity. Individuals were then formally and extensively interviewed to confirm diagnostic and inclusion/exclusion criteria, and to present the rationale for the treatment program, in particular the role of meditation, and the focus on attitude and behavior change, rather than on weight loss.

Binge and affect measures These measures were collected at the initial screening prior to the group, on the first day of the group, prior to the fourth session of the group, on the last day of the group, and at the 3-week follow-up. The Binge Eating Scale (BES; Gormally et al., 1982), designed specifically for obese individuals, measures aspects of binge eating severity and preoccupation with bingeing. The instructions for the BES were modified to ask for ratings over the *past 2 weeks*; the original instructions do not specify a time period. The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Beck Anxiety Inventory (BAI; Beck & Steer, 1987) measure severity of depression and anxiety.

Weekly measures Each week participants reported the number of binge eating episodes during the past week, the proportion of episodes considered 'large' or 'small', as well as ratings of sense of control and sense of mindfulness during eating, and awareness of hunger and satiety cues. During the pre- and post-periods, these ratings were collected by telephone, and during treatment, at the beginning of each session. In addition, during treatment, daily

monitoring forms were used to record time spent using the three types of meditation practice: general, eating and 'mini-meditation'. This was collected weekly by telephone during follow-up.

Characteristics of the participants

The average age of participants ($N = 18$) was 46.5 years ($SD = 10.5$), with a range from 25 to 62; all but one were white. All had graduated from high school and six had a bachelor's degree or higher. Average weight before treatment was 238.94 lb ($SD = 34.10$, range 151–302 lb), and an average BMI of 40.33 (range 28–52). None had previous experience with meditation.

Results

Change in nature of bingeing, subjective eating experience and mood

The number of binges reported per week dropped significantly over treatment (Table 1). Nine participants reduced binges to less than one per week, and five reported one to two per week. Before treatment, the proportion of binges rated 'large' was 70.28 percent ($SD = 25.9$), with the proportion 23.61 percent ($SD = 27.6$) at 3-week follow-up ($F(1, 17) = 27.54, p < .001$). Binge Eating Scale scores also fell significantly (Table 2). Changes in BES and in binge frequency were only marginally related ($r = .40, p = .10$). Perceived levels of eating control, sense of mindfulness, and awareness of hunger cues and satiety cues all increased significantly (see Table 1). There was no overall change in weight. Both depression, as measured by the BDI, and anxiety, as measured by the BAI, fell significantly (see Table 2).

Relationship between meditation and outcome variables

During treatment, participants reported meditating an average of 15.82 hours in total ($SD = 3.15$), with general mindfulness meditation accounting for 9.0 hours ($SD = 2.24$), eating meditation for 5.02 hours ($SD = 2.22$), and mini-meditation (which takes only a few moments at a time) for 1.81 hours ($SD = 1.41$). Time spent using the eating meditation was related to change in BES scores ($r = .66, p <$

.01); time spent in mini-meditation was related to the change in BDI scores ($r = .59, p < .025$). A decrease in number of binges was related to an increase in sense of eating control ($r = .73, p < .001$) and sense of mindfulness ($r = .76, p < .001$). Not surprisingly, increases in mindfulness and in eating control were also related ($r = .58, p < .025$). Increased awareness of satiety cues was also related to a reduction in binges ($r = .53, p < .025$), but change in awareness of hunger cues was not ($r = .19, p = .46$). Change in eating control was related to a reduction in BES scores ($r = .54, p < .025$), and to lowering of BAI ($r = .42, p < .10$) and BDI scores ($r = .46, p = .06$) at a statistically marginal level. Contrary to expectations, amounts of meditation practiced did not predict change in sense of mindfulness.

Discussion

The primary purpose of this study was to explore the value of a meditation-based intervention as a component of treatment for BED. While the findings must be considered cautiously, due to the exploratory nature of the design, substantial changes in behavior and emotional state were observed among the participants. In particular, the number of reported binges, their intensity, and attitudes toward eating (as measured by the BES) were improved, and depression and anxiety decreased. Although the length of follow-up was quite limited, the reduction in bingeing and in most other measures of response remained stable over the following 3 weeks.

Some of these results are comparable to treatments of BED reported elsewhere. Agras and his colleagues (1995) treated 50 women with BED, who had comparable levels of obesity, binge frequency and BES scores at initiation of cognitive-behavioral treatment. At the end of the treatment, the mean number of binges had decreased from 4.4 to 0.7, BES scores had decreased from 29.4 to 18.1, and the BDI had decreased from 14.6 to 11.5. There was no overall weight loss at 12 weeks. However, about half the women in that program were abstinent at the end of intervention, the best predictor of long-term improvement, whereas none of the participants in the present study were judged to be abstinent. Half, however, did report an

average of one or fewer binges per week at follow-up.

Participants also reported a significant improvement in a sense of mindfulness, perceived control of eating, and awareness of hunger and satiety cues. Furthermore, the pattern of correlations suggests that mindfulness and increased awareness of satiety cues may be particularly important as mediating variables. While awareness of hunger cues also improved, bingeing is inherently more a dysfunction of failure to terminate eating, than one of initiating eating too frequently (though both may occur). Therefore, becoming more sensitive to satiety signals may be particularly useful for increasing control with binge eating. Participants reported emotional improvement: the pretreatment levels of anxiety and depression fell from the mild to moderate levels to non-clinical levels, on average. Non-eating meditation exercises also proved powerful: for example, about half of the participants reported that a 'forgiveness meditation' helped them substantially resolve feelings of anger toward parents or husbands, feelings that they identified as having been common binge triggers.

The women also found it surprising and paradoxical that giving up a degree of conscious control over their eating led to increased control. It seems likely that meditation contributed to becoming detached and non-critical toward the self, an aspect of mindfulness that appears important to the success of the intervention. Future research, with a randomized design, larger sample, and longer follow-up, should attempt to assess this more fully, perhaps by using a design that separates the formal meditation elements from those aspects of treatment more common to standard cognitive-behavioral intervention.

References

- Agras, W. S., Telch, C. F., Arnow, B., Eldredge, K., Detzer, M. J., Henderson, J., & Marnell, M. (1995). Does interpersonal therapy help patients with binge eating disorder who fail to respond to cognitive-behavioral therapy? *Journal of Consulting and Clinical Psychology, 63*(3), 356-360.
- Agras, W. S., Telch, C. F., Arnow, B., Eldredge, K., Wilfley, D. E., Raeburn, S. D., Henderson, J., & Marnell, M. (1994). Weight loss, cognitive-

- behavioral, and desipramine treatments in binge eating disorder: An additive design. *Behavior Therapy*, 25, 225-238.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Beauchamp-Turner, D. L., & Levinson, D. M. (1992). Effects of meditation on stress, health, and affect. *Medical Psychotherapy*, 5, 123-131.
- Beck, A. S., & Steer, R. A. (1987). *Beck Anxiety Inventory manual*. San Antonio, TX: Psychological Corporation.
- Beck, A. S., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 53-63.
- Carrington, P. (1998). *The book of meditation*. Boston: Element.
- Derogatis, L. R. (1983). *SCL-90-R Manual II*. Townson, MO: Psychometric Research.
- de Zwaan, M., Mitchell, J. E., Seim, H. C., Specker, S. M., Pyle, R. L., Raymond, N. C., & Crosby, R. B. (1994). Eating related and general psychopathology in obese females with binge eating disorder. *International Journal of Eating Disorders*, 15(1), 43-52.
- Epstein, M. (1995). *Thoughts without a thinker*. New York: HarperCollins.
- Fairburn, C. G., & Wilson, G. T. (Eds.). (1993). *Binge eating: Nature, assessment, and treatment*. New York: Guilford.
- Goleman, D. (1988). *The meditative mind: The varieties of meditative experience*. New York: Putnam.
- Gormally, J., Black, S., Daston, S., & Rardin, D. (1982). The assessment of binge eating severity in obese persons. *Addictive Behaviors*, 7, 45-55.
- Hadigan, C. M., Walsh, B. T., Devlin, M. J., LaChaussee, J. L., & Kissileff, H. R. (1992). Behavioral assessment of satiety in bulimia nervosa. *Appetite*, 18, 233-241.
- Hetherington, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, 110(1), 86-108.
- Hetherington, M., & Rolls, B. J. (1989). Sensory-specific satiety in anorexia and bulimia nervosa. In L. H. Schneider, S. J. Cooper, & K. A. Halmi (Eds.), *The annals of the New York Academy of Sciences: The psychobiology of human eating disorders* (Vol. 575, pp. 387-398). New York: New York Academy of Sciences.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. New York: Dell.
- Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., Lenderking, W. R., & Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *American Journal of Psychiatry*, 149(7), 936-943.
- Kristeller, J. L., & Hallett, C. B. (unpublished MS) *A meditation-based intervention for Binge Eating Disorder: Treatment manual*. Unpublished manuscript.
- Marlatt, G. A., & Kristeller, J. L. (in press). Mindfulness and meditation. In *Integrating Spirituality in Clinical Treatment*. American Psychological Association Press.
- Miller, J. J., Fletcher, K., & Kabat-Zinn, J. (1995). Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. *General Hospital Psychiatry*, 17, 192-200.
- Ray, S. (1981). *The only diet there is*. Berkeley, CA: Celestial Arts.
- Rossiter, E. M., Agras, W. S., Telch, C. F., & Bruce, B. (1992). The eating patterns of non-purging bulimic subjects. *International Journal of Eating Disorders*, 11, 111-120.
- Rubin, J. B. (1996). *Psychotherapy and Buddhism: Toward an integration*. New York: Plenum Press.
- Sothers, K., & Anchor, K. N. (1989). Prevention and treatment of essential hypertension with meditation-relaxation methods. *Medical Psychotherapy*, 2, 137-156.
- Spitzer, R. L., Yanovski, S., Wadden, T., Wing, R., Marcus, M. D., Stunkard, A., Devlin, M., Michall, J., Hasin, D., & Horne, R. L. (1993). Binge eating disorder: Its further validation in a multisite study. *International Journal of Eating Disorders*, 13(2), 137-153.
- Teasdale, J. (1998). *Treatment outcomes from a randomized controlled trial of attentional control (mindfulness) training*. Paper presented at meeting of the Association for Advancement of Behavior Therapy, Washington, DC, October.
- Teasdale, J., Segal, A., & Williams, J. M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attention control (mindfulness) training help? *Behavior Research and Therapy*, 33, 25-39.
- Telch, C. F., Agras, W. S., & Rossiter, E. M. (1988). Binge eating increases with increasing adiposity. *International Journal of Eating Disorders*, 7, 115-119.
- Wadden, T. A., Foster, G. D., Letizia, K. A., & Wilk, J. E. (1993). Metabolic, anthropometric, and psychological characteristics of obese binge eaters. *International Journal of Eating Disorders*, 14(1), 17-25.
- Yanovski, S. (1993). Binge eating disorder: Current knowledge and future directions. *Obesity Research*, 1, 306-324.