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# Mindfulness Interventions for Preventing and Treating Eating Disorders in Adolescent and Young Adult Females

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Mindfulness Interventions for Preventing and Treating Eating Disorders in  
Adolescent and Young Adult Females

Amanda Pfeifer Graves

An evidence based scholarly paper submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Master of Science

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## ABSTRACT

Mindfulness Interventions for Preventing and Treating Eating Disorders in  
Adolescent and Young Adult Females

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**Purpose:** The portrayal of women in the mass media is increasingly sexualized. An accumulation of negative media exposure can cause adolescent girls to fall prey to self-objectification. Repeated experiences of self-objectification can result in body shame, which consequently may lead to dietary restraint and binge eating to achieve the idealized thin body. The goals of a mindfulness intervention are to change how one feels in response to external cues and to develop healthier coping skills. The purpose of this literature review is to compare and contrast recent studies on mindfulness measures aimed at preventing or treating disordered eating behaviors in adolescent and young adult females.

**Method:** An electronic search was performed on MEDLINE, CINAHL, psycINFO, and Alt Health to identify English-language studies from 2006 to 2016. 16 articles (seven randomized controlled trials and nine quasi-experimental design studies) met inclusion criteria and were reviewed.

**Findings:** A variety of mindfulness interventions showed promising results in decreasing eating disorder symptomology, including mirror exposure, acceptance practices, yoga, mindfulness-based educational programs, acupuncture, and mealtime mindfulness.

**Conclusions:** Mindfulness interventions show promising efficacy in reducing eating disorder symptomology. Nursing implications and recommendations for further research are discussed.

**Keywords:** eating disorders, mindfulness, adolescent, female, relaxation, acupuncture, mirror exposure, breathing techniques

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## Mindfulness Interventions for Preventing and Treating Eating Disorders in Adolescent and Young Adult Females

The portrayal of women in the mass media is increasingly sexualized. According to Hausenblas et al. (2013), these media-idealized depictions leave long-lasting, yet detrimental impressions on vulnerable individuals. Women's bodies are objectified, with unattainable thinness set as the standard for beauty. Women, including adolescent girls, are at risk of placing high priority on attaining the media's interpretation of beauty (Hausenblas et al., 2013). Over time, an accumulation of negative media experiences can cause adolescent girls to fall prey to self-objectification.

Self-objectification can be defined as "the process by which women come to internalize and accept the beliefs that society projects on them" (McKay, 2013, p. 55). Self-objectification can result in being overly critical of one's own body, thus posing a threat to mental health (Fredrickson & Roberts, 1997). Girls and women alike start to observe themselves as objects to be seen, which in turn leads them to embrace an outsider's viewpoint of their own bodies (Slater & Tiggemann, 2015).

Repeated experiences of self-objectification can result in body shame, which consequently may lead to dietary restraint and binge eating to achieve the idealized thin body (Dakanalis et al., 2014). Adolescent girls may develop a strong desire to change their bodies via unhealthy practices (Register, Katreovich, & Aruguete, 2015; Slater & Tiggemann, 2015). Additionally, self-objectification is associated with an increased risk for eating disorders and depression as one tries to conform to the media's beauty standards (Slevec & Tiggemann, 2011).

Several interventions have focused on alleviating disordered eating and its accompanying rigid behaviors. The practice of mindfulness is one intervention that appears promising.

Mindfulness can be defined as purposefully paying attention to an experience in a non-judgmental way and gaining or deepening one's awareness (Kabat-Zinn, 2003). Types of mindfulness interventions include meditation, relaxation, yoga, mirror exposure, acupuncture/acupressure, and acceptance. The goals of a mindfulness intervention are to change how one feels in response to external cues and to develop healthier coping skills (Slyter, 2012). Because self-criticism is prevalent in those suffering with body image disturbances and/or disordered eating, a mindfulness-based intervention could help overcome negative ruminating thoughts and foster greater self-acceptance. Therefore, the purpose of this literature review is to compare and contrast recent studies on mindfulness aimed at preventing or treating disordered eating behaviors in adolescent and young adult females.

### **Methods**

An electronic search was performed on MEDLINE, CINAHL, psycINFO, and Alt Health to identify English-language studies from 2006 to 2016. Search terms included mindfulness, yoga, relaxation, meditation, eating disorder, bulimia, anorexia, binge eating disorder, adolescence, teenager, and female. After duplicate articles were removed, 82 articles remained. Research articles were excluded if they involved only adult participants, targeted specific disease states other than eating disorders (ADHD, substance abuse, asthma, etc.), or were non-interventional studies. Two authors independently reviewed studies and met frequently to discuss findings in the research. After careful evaluation of each study's abstract and aims, 16 interventional research articles met inclusion criteria for this literature review. Specifically, seven were randomized controlled trials (RCTs) and nine were quasi-experimental designs. Of these studies, nine focused on eating disorder prevention, and seven focused on treating eating disorders. See Figure 1 for article selection process.

## **Results**

### **Prevention of Eating Disorder Demographics**

Nine eating disorder prevention studies had varying age demographics. Four studies focused on the adolescent age group, two of which solely focused on fifth graders, ages 9 to 11 years old. The remaining five studies involved young adults, many of whom were undergraduate students. Of the nine studies, seven reported on the participants' ethnicity, with the remaining two not specifying participants' ethnicity. In studies that included ethnicity, the majority of the participants were predominantly Caucasian. The sample size of the prevention studies ranged from 44 to 347 participants.

The interventions used in the eating disorder prevention studies include mindfulness-based programs (n=5), mirror exposure (n=2), yoga (n=1), and acceptance (n=1). Each study stated the length and frequency of the mindfulness intervention. The mindfulness-based programs were multi-faceted, incorporating more than one type of mindfulness interventions. The intervention duration ranged from one 20-minute session (Atkinson & Wade, 2012) to ten 90-minute weekly sessions (Scime, Cook-Cottone, Kane & Watson, 2006).

### **Prevention of Eating Disorders Findings**

Two studies used mirror exposure as the primary intervention to prevent disordered eating behaviors. Both studies instructed participants to stand in front of a full-length mirror and assess various body parts in a nonjudgmental, or neutral, fashion. Delinsky and Wilson (2006) repeated this process three times for 60 minutes over a three-week period with 45 participants ages 17 to 31 years old (mean age of 20.5 years). Homework assignments were given between sessions, focusing on nonjudgmental behavior, such as keeping a journal of daily body image thoughts. Luethcke, McDaniel, and Becker (2011) had 168 participants ages 17 to 21 years old

(mean age of 18.45 years), who performed the mirror exposure exercise three times over 6 weeks with varying duration in front of the mirror, but with a different approach each time:

nonjudgmental (neutral or descriptive comments), mindful (neutral or descriptive comments while focusing on being in the present moment), and cognitive-dissonance (positive comments).

From baseline to post intervention, both studies showed improvements in eating disorder behaviors; however, Luethcke et al. (2011) found that only cognitive dissonance mirror exposure showed statistically significant increases in body parts satisfaction ( $F = 6.91, p < 0.001$ ).

Delinsky and Wilson (2006) found the nonjudgmental approach to mirror exposure was associated with significant decreases in body checking ( $F = 4.68, p < 0.05$ ), body image avoidance ( $F = 5.52, p < 0.05$ ), weight and shape concern ( $F = 6.08, p < 0.05$ ), and an increase in self-esteem ( $F = 16.08, p < 0.05$ ).

Five studies used a mindfulness program as the intervention for eating disorder prevention. Elements of the mindfulness programs included breathing techniques, education, awareness and acceptance practices, meditation, relaxation, yoga, and homework. Atkinson and Wade (2016) implemented a mindfulness program in 44 undergraduate women ages 17 to 31 years old (mean age of 20.57 years), which included one weekly 60-minute session for 3 weeks. Their mindfulness program included acceptance and nonjudgmental practices, body image exercises, and outside homework assignments (i.e. self-affirmations, writing a letter to a young girl regarding body image). Compared to baseline, after completing the program, participants demonstrated statistically significant improvements in weight and shape concern ( $d = 0.86, p < 0.05$ ), thin ideal internalization ( $d = 1.22, p < 0.01$ ), and eating disorder symptoms ( $d = 0.87, p < 0.05$ ), including a decrease in dietary restraint ( $d = 0.93, p < 0.06$ ) (Atkinson & Wade, 2016). However, at follow-up six months after completing the program, the improvements were no

longer statistically significant, which was attributed to participants forgetting to do the intervention and/or being too busy (Atkinson & Wade, 2016).

Atkinson and Wade (2015) implemented a mindfulness program with 347 adolescent females ages 14 to 18 years old (mean age of 15.7 years). Their intervention involved three weekly sessions of body image acceptance practices, role-plays, breathing exercises, and homework assignments, such as practicing body awareness and reciting self-affirmations. From baseline to post intervention, significant decreases were found in weight and shape concern ( $d = 0.45, p = 0.046$ ), dietary restraint ( $d = 0.46, p = 0.044$ ), and psychosocial impairment ( $d = 0.57, p = 0.007$ ) (Atkinson & Wade, 2015).

Similarly, Scime et al. (2006) implemented a ten-week mindfulness-based intervention with 90-minute sessions with 45 female 5<sup>th</sup> grade students. The program included relaxation; yoga; and education regarding body image, self-esteem, coping skills, and social pressures. Compared to baseline, at the end of the program, participants had a statistically significant decrease in body dissatisfaction ( $d = 0.45, p < 0.01$ ) and drive for thinness ( $d = 0.24, p = 0.02$ ) (Scime et al., 2006). In 2008, Scime and Cook-Cottone utilized the same 10-week mindfulness program but with a different sample of 5<sup>th</sup> grade ( $n = 75$ ) females. In the 2008 study, they measured bulimia eating behaviors. At the end of the program, the study had similar results to Scime et al. (2006), with statistically significant decreases from baseline to post intervention in body dissatisfaction ( $F = 7.79, p = 0.006$ ) and drive for thinness ( $F = 17.48, p < 0.001$ ). In addition, there was a statistically significant decrease in bulimia eating behaviors ( $F = 5.46, p < 0.02$ ) (Scime & Cook-Cottone, 2008).

Johnson, Burke, Brinkman, and Wade (2016) held eight weekly mindfulness sessions ranging from 35 to 50 minutes in duration that included breath counting, focusing on the present

moment, and relaxation techniques with 176 participants (mean age of 13.63 years). No statistically significant improvements were found from baseline to post intervention with weight/shape concern ( $F = 0.26, p > 0.05$ ). Of note, this was also the only study that included adolescent males ( $n = 52.3\%$  male) (Johnson et al., 2016).

Mitchell, Mazzeo, Rausch, and Cooke (2007) employed yoga as the primary intervention for preventing eating disorders in 93 undergraduate females (mean age of 19.56 years). After six weekly 45-minute sessions of yoga, no statistically significant decreases were found for disordered eating ( $p > 0.05$ ), drive for thinness ( $p > 0.05$ ), or body satisfaction ( $p > 0.05$ ) (Mitchell et al., 2007).

Atkinson and Wade (2012) utilized acceptance (acknowledging thoughts and allowing them to pass without judgment) as the primary intervention with 79 female participants ages 18 to 57 years old (mean age of 23 years). Body dissatisfaction was provoked by having participants view media images portraying the thin-ideal female. Participants then received ten minutes of acceptance training to process the thoughts and feelings that surfaced during the body dissatisfaction induction. Training included how to utilize acceptance techniques when experiencing negative media pressure (i.e. advertisements). Assessments were performed at baseline, after the body dissatisfaction exercise, and following the acceptance training. Participants answered questions regarding how they viewed their own bodies compared to the images shown, such as the desirability of the woman's body. Compared to the control group, those that were able to successfully engage in the acceptance techniques had greater improvements in weight satisfaction ( $d = 0.22, p = 0.027$ ) and appearance satisfaction ( $d = 0.38, p = 0.008$ ), with a significant decrease in negative affect ( $d = 0.41, p = 0.010$ ) (Atkinson & Wade, 2012).

In summary, mirror exposure resulted in decreased body checking and weight/shape concerns (Luethcke et al., 2011; Delinsky & Wilson, 2006); however, the yoga intervention did not demonstrate a significant change in disordered eating, drive for thinness, or body dissatisfaction (Mitchell et al., 2007). Acceptance practices resulted in decreased body dissatisfaction and negative affect (Atkinson & Wade, 2012). The majority of mindfulness programs resulted in decreased weight/shape concern, body dissatisfaction, and eating disorder symptoms (Atkinson & Wade, 2016; Atkinson & Wade, 2015; Scime & Cook-Cottone, 2008; Scime et al., 2006), with the exception of one study showing no significant improvements in weight/shape concerns (Johnson et al., 2016).

### **Treatment of Eating Disorders Demographics**

Seven eating disorder treatment studies were included. Of these, five studies focused on the young adult age group, ranging from 18 to 31 years old; one study included adolescent participants; and one study only stated that participants were “at least 16 years old or older” (Cowdrey, Stewart, Roberts, & Park, 2013, p. 412). All participants had been diagnosed with and were currently being treated for an eating disorder, specifically anorexia nervosa, bulimia nervosa, and body dysmorphic disorder. Five of the seven studies reported that the majority of the participants were Caucasian. The remaining two studies did not report on participant ethnicity. The sample size of the treatment studies ranged from 9 to 63 participants.

The interventions used in the eating disorder treatment studies include yoga (n=1), acceptance (n=1), mind/body programs (n=3), and acupuncture/acupressure (n=2). All studies stated the length and frequency of the mindfulness intervention. The intervention duration ranged from one session (Hartmann, Thomas, Greenberg, Rosenfield, & Wilhelm, 2015) to ten sessions (Fogarty, Harris, Zaslowski, McAinch, & Stojanovska, 2010), with sessions varying from 10

minutes to 60 minutes (Carei, Fyfe-Johnson, Breuner & Brown, 2009; Cook-Cottone, Beck, & Kane, 2008).

### **Treatment of Eating Disorders Findings**

Two studies utilized acupuncture and acupressure/light massage as a treatment for women diagnosed with eating disorders. In both studies, there were improvements with disordered eating from baseline to post-intervention. The earliest study (Fogarty et al., 2010) involved nine participants over 17 years old (mean age of 23.7 years) with anorexia who underwent ten 20-minute acupuncture sessions over 13 weeks. From baseline to post-intervention, participants had an increase in their quality of life score ( $p = 0.081$ ) and a decrease in perfectionism tendencies ( $p = 0.060$ ) (Fogarty et al., 2010). Smith, Fogarty, Touyz, Madden, Buckett, and Hay (2014) studied 26 participants in their early twenties with anorexia who either received nine 60-minute acupuncture or acupressure/light massage treatments over a 6-week period. Post-intervention improvements were found in both the acupuncture and acupressure groups, specifically in reduction of eating concerns in the acupressure group ( $p < 0.05$ ) and a reduction in weight concerns in the acupuncture group ( $p < 0.05$ ), with an improved quality of life ( $p < 0.05$ ) in both groups (Smith et al., 2014).

Three studies utilized multi-faceted mindfulness programs as treatment for eating disorders, with two studies specifically focused on mealtime interventions. Cook-Cottone et al. (2008) studied 24 young women ages 14 to 30 years old (mean age of 20 years) diagnosed with eating disorders. Participants attended weekly two-hour sessions for eight weeks. Sessions included yoga, journal activities, mind-body education, and relaxation. From baseline to post-intervention, there was a significant decrease in the desire to be thin ( $t = 2.84, p = 0.009$ ) and decrease in body dissatisfaction ( $t = 4.29, p = 0.0005$ ), but no change in bulimia symptoms were

identified with the Eating Disorder Inventory-2 scale ( $t = 1.487$ ) (Cooke-Cottone et al., 2008). Similarly, Hepworth (2011) also studied 33 young women ages 18 to 30 years old (mean age of 21 years) diagnosed with eating disorders. Participants completed ten weekly sessions primarily focused on mealtime. Topics such as eating awareness, breathing techniques, and mindfulness were taught and practiced. Results were similar to the Cook-Cottone et al. (2008) study, with a decrease in the desire to be thin ( $t = 5.87, p < 0.000$ ) and decrease in food preoccupation and bulimia symptoms via the Eating Attitudes Test-26 ( $t = 6.55, p < 0.000$ ) (Hepworth, 2011).

Cowdrey et al. (2013) studied mindfulness interventions during meal times, specifically mindful breathing, rumination, and classical music distraction. 37 females at least 16 years old (mean age of 29.71 years) diagnosed with anorexia participated. They received instruction on compact discs for the three techniques. Participants were asked to familiarize themselves with these techniques at some point during the day prior to their evening meal. At that evening meal, participants were asked to implement the technique while eating. Analytical self-focus (the proportion of thoughts concerned with trying to make sense of things) and experiential self-focus (the ability to focus in the present moment) were assessed. This process was repeated three times to allow for participants to utilize each technique. When comparing techniques from baseline to post-intervention, rumination was found to have greater analytical self-focus ( $t = 2.42, p = 0.02$ ) when compared to mindful breathing. However, when comparing baseline to post-intervention for each technique, participants reported significantly greater experiential self-focus after using mindful breathing exercises or classical music distraction ( $F = 37.67, p < 0.001$ ) (Cowdrey et al., 2013).

Carei et al. (2009) studied Viniyoga (a combination of movement, chanting, and meditation) as an intervention for 54 young adolescents ages 11 to 21 years old (mean age of

16.52 years), who were currently diagnosed with an eating disorder. Over the eight-week intervention, participants attended 60-minute yoga classes twice a week. After the completion of each yoga session, there was a statistically significant decrease in food preoccupation ( $0.4 < d < 0.8, p < 0.01$ ) and a significant decrease in eating disorder behaviors from pre- to post-intervention ( $F = 3.26, p = 0.05$ ). However, at the twelve-week follow-up, these results were no longer significant ( $t = 1.74, p = 0.09$ ) (Carei et al., 2009).

Hartmann et al. (2015) studied three mindfulness techniques in 63 young adults (mean age of 26.55 years) diagnosed with anorexia, body dysmorphic disorder, along with a healthy control group. Participants were first asked, “Are there areas of your body that you are not satisfied with as with others? If you could change something on your body, what would it be?” (Hartmann et al., p. 645). After the question was posed, participants were asked to keep track of how many times the thought occurred over a five-minute period. Then, participants were assigned to one of three groups for instruction on one of three mindfulness techniques: acceptance/mindfulness, distraction, or cognitive-restructuring. Each group was instructed on how they were to process the incoming thoughts. The acceptance group was to visualize a river and to place the thought on a leaf, letting it float down the river. The distraction group was to think of anything besides the actual thought. The cognitive-restructuring group was to analyze the thought and to dwell on how the thought had been processed in the past. The participants were then retested for 5 minutes, counting their thoughts, and rescored with tool. All participants reported a decrease in appearance-related thoughts. Specifically, with the acceptance/mindfulness intervention, participants with body dysmorphic disorder had a significantly positive affect compared to the healthy controls ( $p < 0.01$ ). Anorexic participants benefited most from cognitive restructuring (Hartmann et al., 2015).

In summary, acupuncture and acupressure allowed for improved quality of life and a decrease in perfectionism tendencies in anorexic participants (Smith et al., 2014; Fogarty et al., 2010). By comparison, mindfulness programs centered around meal times resulted in a decreased drive for thinness and a decrease in body dissatisfaction in both anorexic and bulimic participants (Cowdrey et al., 2013; Hepworth, 2011). Yoga intervention resulted in less food preoccupation (Carei et al., 2009), whereas acceptance practice resulted in a decreased amount of negative appearance-related thoughts in body dysmorphic disorder (Hartmann et al., 2015)

## **Discussion**

### **Limitations**

Limitations noted in the studies include small sample sizes, variance in intervention type and length, lack of ethnic diversity, and lack of wide-range mindfulness studies, making comparison difficult.

Sample sizes among the studies were relatively small, ranging from 9 (Fogarty et al., 2010) to 347 participants (Atkinson & Wade, 2015). Only three of the eating disorder prevention studies had more than 100 participants (Johnson et al., 2016; Atkinson & Wade, 2015; Luethcke et al., 2011). By comparison, the largest sample size in the eating disorder intervention studies was 63 participants (Hartmann et al., 2014). Because the sample sizes were small, interpretation of the results should be done with caution. Future studies should include larger samples to strengthen the findings.

Intervention duration greatly varied in length, ranging from only one session to weekly sessions for 13 weeks. Each session ranged from ten to ninety minutes. The variance between the studies' intervention duration and session length adds to the difficulty of comparing these studies. Due to the complex nature of eating disorders, interventions of longer durations should

be used in future studies with follow-up at six months and one year to assess durability of study benefits.

The majority of the participants in the studies were Caucasian, thereby making it difficult to generalize results to other ethnicities. There are cultural differences in how beauty is defined. These cultural differences can pose internal conflict to teenage girls living in a predominately Western/Caucasian thin ideal environment, but being raised with different cultural ideals in their home environments. Therefore, more culturally specific research is needed to determine if mindfulness interventions are transferable across cultures, or to see if mindfulness is beneficial for certain cultures, but not for others.

Multifaceted programs showed promise in treating eating disorders as well as preventing development of disordered eating behaviors. However, it is difficult to assess which component of these programs was most helpful. It is also unknown if there was a program component that was harmful for the participants, but it was counteracted with another component because beneficial components occurred simultaneously. Further, it is difficult to compare studies against each other due to limited research on each type of mindfulness intervention.

### **Recommendations for research**

Challenges found in this review include a large umbrella of mindfulness interventions with minimal studies to support each subcategory of mindfulness (i.e. yoga, acupressure, mirror exposure, etc.). Because of the limited number of such studies, it was difficult to compare the subcategories against themselves. Therefore, additional research on each subcategory of mindfulness intervention reviewed is needed.

Furthermore, several studies reviewed did not have follow-up post-intervention data collection. Future research that assesses follow-up post-intervention is needed to evaluate for

lasting effects of mindfulness interventions on eating disorders. The two studies that did follow-up post-intervention (Atkinson & Wade, 2014; Carei et al., 2013) found that the mindfulness intervention no longer had significant lasting results at follow-up. Therefore, research would be helpful on participants continuing with the intervention after study completion.

Lastly, as discussed in the limitations of studies, there is a need for larger sample sizes with a variety of ethnicities to make the results comparable for all adolescent and young adult women. Also, it would be beneficial to include a variety of cultures to determine if mindfulness interventions are transferable across cultures. In addition, because self-objectification and disordered eating are so complex, study lengths should be longer in duration and allow for post-intervention follow-up to assess for lasting benefits.

### **Implications for nursing**

Mindfulness interventions are readily available. They are low-cost and are of minimal risk of harm to the patient. Nurses can easily teach such interventions to patients in clinic visits, which can subsequently be performed by the patient at home, such as mirror exposure exercises, mindfulness during mealtimes, and relaxation techniques. Because many adolescent females are at risk for negative body image and/or disordered eating, regular screening of intrusive body thoughts and unhealthy eating practices should be addressed regularly. Questions such as “how do you feel about your body?” or “what thoughts occur when you look at your body in the mirror?” would be helpful during the patient exam or on an intake questionnaire. Additionally, body image pamphlets and posters in exam rooms can lead into an open and safe conversation regarding body image and how to avoid potentially harmful eating habits.

## **Conclusion**

Self-objectification continues to be a potential threat to adolescent and young adult women's physical and mental health (Slater & Tiggemann, 2015; Dakanalis et al., 2014; Slevec & Tiggemann, 2011). Mindfulness interventions show promise in disrupting the negative pathway towards disordered eating and body shame. More research is needed to assess the effectiveness. However, mindfulness interventions are low-cost and low risk, many of which could be taught in a short time and should be considered for young women who are at risk or struggling with eating disorder.

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**Figure 1. Article Selection Process**