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ORIGINAL PAPER

# Effects of Decentering and Non-judgement on Body Dissatisfaction and Negative Affect Among Young Adult Women

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## Abstract

**Objectives** Mindfulness-based interventions have shown effectiveness in reducing risk factors for disordered eating; however, little is known about mechanisms. This online study evaluated two isolated metacognitive components of mindfulness, adopting a decentered or non-judgemental stance towards internal experiences, respectively, for reducing body dissatisfaction and negative affect.

**Methods** Women ($N = 330$, $M_{age} = 25.18$, $SD = 4.44$) viewed appearance-ideal media images before listening to a 5-min audio recording that guided them to (a) distance themselves from their experience (*decentering*), (b) accept their experience without judgement (*non-judgement*), or (c) rest (*active control*). Participants reported state body dissatisfaction and negative affect at baseline, post-media exposure, and final assessment. Trait measurements (weight and shape concerns, mindfulness, emotion regulation) were assessed as potential moderators. Participants self-reported engagement and acceptability.

**Results** All groups reported significant reductions in body dissatisfaction and negative affect following the recording ($d = 0.15$–$0.38$, $p < 0.001$), with no between-group differences. Trait measurements did not moderate effects.

**Conclusions** The results suggest rest was as effective as the metacognitive components in ameliorating immediate negative impacts of appearance-related threats. Alternatively, coping strategies spontaneously adopted by the control group may have supplied temporary relief. Findings highlight the importance of including suitable control; further research should investigate when and for whom specific aspects of mindfulness-based interventions may be particularly helpful.

**Keywords** Mindfulness · Feeding and eating disorders · Body dissatisfaction · Negative affect · Primary prevention · Early intervention

Eating disorders are associated with significant impairment, including poorer quality of life (Mitchison et al., 2012), psychological distress (Kärkkäinen et al., 2018), and elevated risk for comorbid disorders (Berkman et al., 2007). Despite these consequences, less than a quarter of individuals with eating disorders receive treatment (Hart et al., 2011), and treatment is associated with modest recovery rates (Linardon & Wade, 2018), high dropout (Linardon et al., 2018), and considerable economic burden (Ágh et al., 2016). Developing and evaluating intervention strategies that target risk factors remain a priority for prevention and early intervention. Although considerable research now supports the efficacy of various approaches (for reviews, see Le et al., 2017; Watson et al., 2016), less is known about specific processes responsible for change. Understanding mechanisms of action is essential to develop precise, efficient, and effective interventions by targeting key components, removing ineffective strategies, and establishing superior initiatives (Holmes et al., 2018).

Mindfulness-based interventions have demonstrated some success in reducing body image concerns (e.g., body dissatisfaction, weight and shape concerns) and negative affect, two prominent risk factors for disordered eating (Pennesi & Wade, 2016), in both multi-session (e.g., Atkinson & Wade, 2015, 2016) and brief formats (e.g., Atkinson & Wade, 2012; Keng & Ang, 2019). Brief activities containing a single exercise are particularly useful for understanding mechanisms, as they allow for isolating components. For example, Atkinson and Wade (2012) found brief metacognitive acceptance improved state weight and appearance satisfaction and negative affect, relative to no training, following

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appearance-ideal media exposure among undergraduate women. However, the choice of control means the performance advantage of the experimental group cannot be exclusively attributed to acceptance because outcome expectations likely differed between groups (Au et al., 2020). Keng and Ang (2019) improved upon this by explicitly asking control participants to rest and creating a context for natural emotional regulation. They found 10-min mindfulness training reduced negative affect, body dissatisfaction, and disordered eating urges, relative to rest, in undergraduate women with eating disorder symptoms following a negative mood induction. The training consisted of multiple components (e.g., attention on the breath, thoughts as transient mental events, non-judgemental acceptance), which precludes conclusions about active ingredients. Isolating key aspects, and comparing their effects, will help identify elements central to producing benefit.

Mindfulness has been defined as the self-regulation of attention on immediate experience, in a curious, open, and accepting manner (Bishop et al., 2004). It involves two particular metacognitive elements which have relevance to proposed mechanisms through which mindfulness may reduce the risk for eating disorders (Atkinson, 2015). The first is that attending to experience in this particular way encourages the process of stepping outside of and viewing thoughts as transient mental events separate from one's self (Bernstein et al., 2015; Teasdale et al., 2002). Adopting this metacognitive perspective—or *decentering*—has been proposed as an overarching mechanism of mindfulness, producing change directly or indirectly through other processes (e.g., self-regulation, values clarification, exposure) (Shapiro et al., 2005). Regarding eating disorder prevention, decentering may create space around automatic negative responses (e.g., thoughts, feelings) to body or eating-related triggers, which may reduce the occurrence and impact of body dissatisfaction, negative affect, and urges to engage in disordered eating, in alignment with the dual-pathway model (Stice, 2001; Stice & Agras, 1998). Experimental work with undergraduate women showed decentering reduced both the discomfort and believability of negative self-focused thoughts (e.g., "I am too fat") compared to a distraction and thought control task (Masuda et al., 2004). Another study evaluated two decentering strategies applied while viewing appearance-ideal images and found instant (participants "waved" their thoughts "goodbye") and 2-min (participants visualised their thoughts as a waterfall they should step behind) formats were equally effective in reducing body dissatisfaction relative to asking participants to become absorbed by their thoughts (Manoli, 2018). However, this control condition reflects a ruminative-style thinking strategy which has been found to heighten body dissatisfaction (Naumann et al., 2016) and may have inflated group differences. Additionally, since both studies investigated decentering alone, the importance relative to other aspects of mindfulness remains unknown.

The second metacognitive component of interest is adopting a non-judgemental attitude towards one's own experience, e.g., letting go of judgements about truth or value, which likely reduces maladaptive reactions. Regarding eating disorder prevention, this may reduce the impact of automatic judgements when perceived weight, shape, or appearance is inconsistent with desires or expectations, and promotes a more protective noncritical view of the self (Atkinson, 2015). Intervention work shows self-compassion meditation, which involves responding to oneself without judgement and viewing one's experiences without over-identification or isolation from common human experience (Neff, 2003), reduces preoccupation with weight and shape in women (Albertson et al., 2015). These researchers suggested that self-compassion may decrease individuals' tendency to criticise their bodies, which may in turn help them to develop a more accepting stance towards their bodies. Some studies have isolated this non-judgemental stance from other components (e.g., mindfulness, common humanity) to examine whether it is the active component. For instance, Luethcke et al. (2011) found that non-judgemental (i.e., neutral descriptions) and mindfulness-based (i.e., neutral descriptions while maintaining a present-centred, open, and accepting orientation) mirror exposure interventions were equally effective in reducing weight and shape concerns, body checking, and body avoidance. Non-judgement therefore provides a useful comparison to decentering to understand key components of mindfulness.

The present research builds on prior mindfulness-based approaches by isolating distinct elements, and directly comparing these potential, theoretically derived processes of change. The main aim was to conduct a micro-component study to examine the effects of adopting a decentered compared to a non-judgemental stance towards internal experiences of body dissatisfaction and negative affect. Although we predicted both isolated components to alleviate body dissatisfaction and negative affect relative to a rest control condition, we expected decentering would be superior to non-judgement. A second aim was to explore factors that may moderate component effects. We hypothesised that effects of the components compared to rest would be greater for individuals exhibiting poorer emotion regulation and mindfulness skills and elevated weight and shape concerns. The third aim was to evaluate engagement and acceptability of these components in isolation. We hypothesised emotion regulation difficulties would predict poorer engagement in both components, whereas mindfulness and weight and shape concerns would be unrelated to engagement.

## Method

### Participants

Participants were 330 women recruited via advertisements on online research platforms and social media. Inclusion criteria were identifying as women and aged 16–35. The majority ($n = 267$) were recruited using *Prolific* (open to participants from all available countries), an online data collection platform that has been shown to generate reliable data from diverse participants (Palan & Schitter, 2018). Participants were aged 18–35 ($M = 25.18$, $SD = 4.44$), with self-reported body mass index (BMI) between 15.45 and 49.92 ($M = 24.18$, $SD = 5.64$), and identified primarily as White (78.8%). Mean weight and shape concern was 3.30 ($SD = 1.70$), with just under half (42.7%) endorsing a score indicative of clinical concerns ($\geq 4$; e.g., Lavender et al., 2010; Luce et al., 2008). Table 1 displays descriptive statistics.

An a priori power analysis was conducted using G*Power (version 3.1.3; Faul et al., 2009) based on the effect size obtained by Atkinson and Wade (2012) in which brief acceptance was associated with greater improvements in appearance satisfaction than a no-intervention control (Cohen's $d = 0.38$). Using an independent samples design to detect a difference in final appearance dissatisfaction between an experimental and control group, an acceptable power of 0.80 with an alpha of 0.05 required a sample size of 110 per group.

### Procedure

A 3 (group: decentering, non-judgement, rest control) by 3 (time: baseline, post-media exposure, final) factorial design assessed component effects on weight dissatisfaction, shape dissatisfaction, appearance dissatisfaction, and negative affect. Following approval from the University of Bath Psychology Research Ethics Committee, we distributed a link inviting participants to complete a single online session. Participants received an information sheet describing the study as an investigation of how different thought exercises influence person-related factors. After providing informed consent, participants completed trait and state measures. To help conceal the study aims, two filler visual analogue scales (VAS) supplemented the body dissatisfaction VAS. Adapted from the Satisfaction with Life Scale (Diener et al., 1985), items asked "How satisfied do you feel with your life right now?" and "In most ways, how close do you feel your life is to your ideal right now?". Participants then underwent a media exposure task, after which they repeated the state measures. Next, participants were randomly allocated to condition and asked to engage with a strategy to help them respond to media images. Finally, participants repeated the state measures, responded to engagement, acceptability, and demographic questions, and were debriefed. Participants

**Table 1** Descriptive statistics

| | Whole sample ($N = 330$) | Decentering ($n = 111$) | Non-judgement ($n = 109$) | Rest control ($n = 110$) |
|---|---|---|---|---|
| Variable | *N* (%) | *n* (%) | *n* (%) | *n* (%) |
| White | 260 (78.8) | 86 (77.5) | 82 (75.2) | 92 (83.6) |
| Asian / Asian British | 29 (8.8) | 12 (10.8) | 8 (7.3) | 9 (8.2) |
| Mixed / Multiple ethnic groups | 19 (5.8) | 6 (5.4) | 9 (8.3) | 4 (3.6) |
| Black / African / Caribbean / Black British | 13 (3.9) | 4 (3.6) | 6 (5.5) | 3 (2.7) |
| Other ethnic group | 9 (2.7) | 3 (2.7) | 4 (3.7) | 2 (1.8) |
| Experience with meditation, mindfulness, or contemplative prayer [a] | 164 (49.7) | 54 (48.6) | 55 (50.5) | 55 (50.0) |
| | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) |
| Age | 25.18 (4.44) [24.70, 25.66] | 24.59 (3.82) [23.88, 25.31] | 25.22 (4.46) [24.37, 26.07] | 25.74 (4.94) [24.80, 26.67] |
| BMI | 24.18 (5.64) [23.57, 24.79] | 24.08 (5.44) [23.06, 25.11] | 24.56 (6.14) [23.39, 25.73] | 23.91 (5.34) [22.90, 24.92] |
| Weight and shape concerns | 3.30 (1.70) [3.12, 3.48] | 3.31 (1.69) [2.99, 3.63] | 3.52 (1.63) [3.21, 3.83] | 3.07 (1.76) [2.74, 3.41] |
| Mindfulness | 47.80 (7.32) [47.00, 48.59] | 47.51 (7.50) [46.10, 48.92] | 46.79 (7.44) [45.38, 48.20] | 49.08 (6.88) [47.78, 50.38] |
| Emotion regulation | 44.90 (12.87) [43.51, 46.29] | 46.31 (13.66) [43.74, 48.87] | 46.38 (11.84) [44.13, 48.62] | 42.02 (12.68) [39.62, 44.41] |

*Note*. Values reported in square brackets are 95% confidence intervals

[a] Reflects participants responding "yes" to this question

received £2.50 (through *Prolific*) or entry into a draw for a £20 Amazon voucher.

### Media Exposure

Participants viewed 24 images depicting thin female models for approximately 5 min. Instructions asked participants to peruse the images as they normally would if they were looking at them in the privacy of their homes. Images and instructions were taken from Moreno-Domínguez et al. (2019) as these were deemed relevant to our target sample and previously found to produce deterioration in body dissatisfaction and anxiety VAS. Images were frontal, full-body images of models wearing either swimwear or form-fitting clothes; predicted to have BMIs below 19; and selected from women's magazines, fashion catalogues, and other internet sources. Images were presented in random order and participants could progress to the next image after 10 s each (Brown & Tiggemann, 2016).

### Mindfulness Components

Component content for the three conditions was presented in a 5-min audio format.

**Decentering** Participants were informed that stepping back from thoughts will help them view thoughts as passing mental events rather than as aspects of self or direct reflections of truth. Instructions guided participants to imagine a waterfall in which the stream of water is like their stream of thoughts. They encouraged participants not to resist this stream, and not to pretend that it does not exist, but to step behind the stream and observe how it passes by. Instructions encouraged participants to apply this way of observing thoughts to any thoughts that they had right now (e.g., "Try to notice the thoughts, sensations, and emotions that come up in you. But also realise that these are merely mental events. They are passing phenomena that are being produced by your brain. And because of that, you don't have to do anything about them. These thoughts will always disappear by themselves"). Participants were told that it was natural to find themselves being carried away in their thoughts sometimes and, as soon as they notice this, try to again step back from their thoughts, observing how they arise and fade away. The content was adapted from *Decentering Perspective* (Keesman et al., 2020).

**Non-judgement** Participants were informed that taking an unbiased, curious, and open stance towards their thoughts will help them to accept thoughts without evaluations or judgement rather than criticise themselves for having them. Metacognitive acceptance instructions were adapted so that they focused exclusively on the attitude of non-judgement, rather than also on becoming aware of internal experiences and releasing them. Participants were told that it was natural for their minds to generate evaluative labels for various thoughts, such as judgements of them as being 'bad' or 'wrong'. They were told that, when this happens, just notice and acknowledge it (e.g., "simply note it—'ah—there is judging'—and return to a curious, open, and accepting frame of mind—noting your thoughts as thoughts, sensations as sensations, and feelings as feelings: Nothing more, and nothing less"). Instructions encouraged participants to bring a sense of kindness and compassion to their experience, and to try not to hold on to their thoughts and feelings, make them go away, or judge themselves for having them. Participants were told that the idea is to create the space within themselves for unpleasant thoughts and feelings, allowing them to be there, and welcoming all their experience as it comes. The content was adapted from *Metacognitive Acceptance* (Atkinson & Wade, 2012).

**Rest Control** Participants were informed that allowing yourself time to rest, away from the busyness of life, is important for healthy living in today's world, which we often perceive as being chaotic. Then participants were asked to take a short break to rest, with no other instructions than not to use their phones during this period. The rest period was intended to provide a context for natural emotional regulation, comparable to contexts for recovery in everyday life. We specifically framed rest as being helpful to hold participant expectations constant across both the control and experimental conditions. To promote further belief in the effectiveness of the technique and similarity across conditions, instructions reminded participants to enjoy this short break to rest as each minute elapsed. The content was adapted from Keng and Ang (2019).

## Measures

Participants self-reported their age, gender, height, weight, ethnicity, and prior experience with meditation, mindfulness, or contemplative prayer (yes/no question and brief description). We calculated BMI using kg/m$^2$.

### Body Dissatisfaction

Participants assessed current feelings on three dimensions of body satisfaction, namely weight, shape, and appearance, using VAS. Participants were asked to indicate how satisfied they felt about their weight, shape, and appearance, right now, by dragging a slider handle along a horizontal line with endpoints *not at all* and *very much*. There was one item per dimension of body satisfaction. These VAS have shown to be reliable indicators of change in body satisfaction (Heinberg & Thompson, 1995; Tiggemann & Mcgill, 2004) and

correlate strongly with the Body Dissatisfaction subscale of the Eating Disorder Inventory (Garner et al., 1983). Items were reverse coded so that higher scores indicated greater weight, shape, and appearance dissatisfaction. In the current sample, total body dissatisfaction had high internal consistency across the three timepoints (T1: Cronbach's $\alpha = 0.92$, $\omega = 0.92$; T2: $\alpha = 0.95$, $\omega = 0.95$; T3: $\alpha = 0.95$, $\omega = 0.95$).

#### Negative Affect

Participants assessed current feelings on five dimensions of affect using VAS. Participants were asked to indicate how anxious, sad, happy, angry, and confident they felt right now by dragging a slider handle along a horizontal line with endpoints *not at all* and *very much*. There was one item per dimension of affect. Positive affect items were reverse coded, and a mean score was calculated, with higher scores reflecting greater negative affect. VAS have the advantage of being quick to complete, difficult to recall, and sensitive to slight changes, and these five items have shown good internal consistency (Tiggemann & Zaccardo, 2015). In the current sample, total negative affect had good internal consistency across the three timepoints (T1: Cronbach's $\alpha = 0.76$, $\omega = 0.79$; T2: $\alpha = 0.76$, $\omega = 0.78$; T3: $\alpha = 0.72$, $\omega = 0.73$).

#### Five Facet Mindfulness Questionnaire (FFMQ-15; Baer et al., 2012)

The FFMQ-15 is a 15-item measure of trait mindfulness with the five subscales observe, describe, acting with awareness, non-judging, and non-reactivity, which have 3 items each. Total trait mindfulness ranges from 15 to 75, and each subscale ranges from three to 15, with higher scores indicating greater mindfulness. The FFMQ-15 has shown high levels of convergent validity before and after mindfulness-based interventions, and high reliability in a general population sample (Gu et al., 2016). In the current sample, the total FFMQ-15 showed good internal consistency (Cronbach's $\alpha = 0.77$, $\omega = 0.75$), as did most subscales (observe: $\alpha = 0.61$, $\omega = 0.62$; describe: $\alpha = 0.84$, $\omega = 0.84$; acting with awareness: $\alpha = 0.72$, $\omega = 0.74$; non-judging: $\alpha = 0.87$, $\omega = 0.87$; non-reactivity: $\alpha = 0.66$, $\omega = 0.67$).

#### Eating Disorder Examination–Questionnaire (EDE-Q; Fairburn & Beglin, 1994)

Concern over weight and shape was assessed using two relevant subscales from the EDE-Q, a self-report version of the interview-based EDE (Cooper & Fairburn, 1987). The weight concern and shape concern subscales have five and eight items, respectively, and total weight and shape concern was calculated by taking the mean of 12 items (one shared item). Scores range from zero to six, with higher scores indicating greater concerns. The EDE-Q has shown high internal consistency and convergence with the interview-based EDE (Berg et al., 2012). In the current sample, total weight and shape concerns showed high internal consistency (Cronbach's $\alpha = 0.96$, $\omega = 0.96$), as did subscales (weight concern: $\alpha = 0.89$, $\omega = 0.89$; shape concern: $\alpha = 0.94$, $\omega = 0.94$).

#### Difficulties in Emotion Regulation Scale–Short Form (DERS-SF; Kaufman et al., 2016)

The DERS-SF is an 18-item questionnaire assessing emotion regulation difficulties, with the six subscales strategies, non-acceptance, impulse, goals, awareness, and clarity, which have three items each. Total emotion regulation difficulties range from 18 to 90, and each subscale ranges from three to 15, with higher scores indicating greater difficulties. The DERS-SF has shown good reliability and concurrent validity in both adult and adolescent samples (Kaufman et al., 2016). In the current sample, the total DERS-SF showed good internal consistency (Cronbach's $\alpha = 0.91$, $\omega = 0.92$), as did subscales (strategies: $\alpha = 0.83$, $\omega = 0.83$; non-acceptance: $\alpha = 0.85$, $\omega = 0.85$; impulse: $\alpha = 0.92$, $\omega = 0.92$; goals: $\alpha = 0.90$, $\omega = 0.90$; awareness: $\alpha = 0.77$, $\omega = 0.77$; clarity: $\alpha = 0.82$, $\omega = 0.83$).

#### Engagement

Engagement questions (free text) asked participants to describe their thoughts, behaviour, and how they responded to any negative thoughts and feelings, during the audio (see Supplementary Material for exact wording). Descriptions of thoughts and behaviour during the audio were rated for degree of engagement with the instructions using a 4-point scale (1 = *definitely not followed*, 2 = *probably not followed*, 3 = *probably followed*, 4 = *definitely followed*) (Atkinson & Wade, 2012). We assumed participants engaged unless they described other coping strategies (e.g., positive thinking, avoidance) in the experimental groups, or metacognitive concepts (e.g., accepting or decentering) in the control group. Both authors independently rated 10% of responses, with interrater reliability indicating a substantial level of agreement, $\kappa = 0.65$, 95%CI [0.44–0.85], $p < 0.001$ (see Supplementary Material for further details). Most discrepancies were resolved when combining responses rated 1 and 2 (non-engagement) and responses rated 3 and 4 (engagement). The first author rated the remaining responses.

#### Acceptability

Acceptability questions asked participants to rate the technique using separate 5-point scales for ease of use,

enjoyment, effectiveness, and likelihood of continued use (Atkinson & Wade, 2015).

### Data Analyses

Data were screened for normality, outliers, and missing values (see Supplementary Material). A manipulation check of the media exposure task to induce deterioration in outcomes was performed using 3 (group) × 2 (time: baseline, post-media exposure) analyses of variances (ANOVAs). We assessed component effects using 3 (group) × 2 (time: post-media exposure, final) ANOVAs. Cohen's *d* was calculated for paired groups (i.e., to evaluate the main effect of time-point across the whole sample) by dividing the difference in means by the average standard deviation of both repeated measures (Cumming, 2012). We evaluated the moderation of component effects using PROCESS v3.4 for SPSS (Hayes, 2018). We entered condition as predictor and evaluated models for each combination of moderator (trait measurements) and outcome (changes from post-media exposure to final assessment).

In addition to rating with respect to engagement (see "Measures" section), we analysed descriptions of thoughts and behaviour during the audio using a thematic analysis approach to identify prominent patterns and inform future framing of specific aspects of mindfulness. The first author followed the steps outlined in Braun and Clarke (2006): familiarisation with data via reading and re-reading written descriptions; forming initial codes by recording interesting elements; identifying, reviewing, and refining themes by collating codes and merging or differentiating preliminary themes; and reporting overarching themes supported by selected extracts. Both authors independently coded 10% of responses and consulted before the first author coded the remaining data, and overarching themes were discussed with the research team. Table S1 in Supplementary Material provides an excerpt from our list of themes, codes, and coded extracts.

A chi-squared test evaluated any association between condition and engagement. Separate logistic regressions for each condition tested whether trait measurements predicted engagement. One-way ANOVAs with Bonferroni-adjusted post hoc tests examined acceptability across groups.

## Results

### Manipulation Check

Significant main effects of time indicated expected deterioration in outcomes from baseline to post-media exposure across all groups: shape dissatisfaction, $F(1, 327) = 44.72$, $p < 0.001$, $d = 0.18$; weight dissatisfaction, $F(1, 327) = 56.12$, $p < 0.001$, $d = 0.17$; appearance dissatisfaction, $F(1, 327) = 34.55$, $p < 0.001$, $d = 0.10$; negative affect, $F(1, 327) = 13.86$, $p < 0.001$, $d = 0.10$. There were no other significant main effects or interactions. Following media exposure, outcomes were not significantly different between groups.

### Component Effects

Table 2 displays descriptive statistics for all outcomes at post-media exposure and final assessment. Significant main effects of time indicated overall improvement in outcomes from post-media exposure to final assessment: shape dissatisfaction, $F(1, 327) = 49.39$, $p < 0.001$, $d = 0.16$; weight dissatisfaction, $F(1, 327) = 41.97$, $p < 0.001$, $d = 0.15$; appearance dissatisfaction, $F(1, 327) = 46.34$, $p < 0.001$, $d = 0.18$; negative affect, $F(1, 327) = 164.51$, $p < 0.001$, $d = 0.38$. There were no other significant main effects or interactions.

### Moderators of Component Effects

There was no significant interaction between condition and weight and shape concerns, mindfulness, or emotion regulation, on change in outcomes, indicating baseline trait measurements did not moderate component effects (see Table 3).

### Engagement

Engagement was indicated for 71.2% in the decentering, 73.4% in the non-judgement, and 90.9% in the rest control group. There was a significant association between condition and engagement, $\chi^2$ $(2, N = 330) = 15.24$, $p < 0.001$. Post hoc tests indicated the rest control group was significantly more likely to reflect engagement than the other groups ($p < 0.001$). The logistic regression model was not significant for decentering, non-judgement, or rest control, indicating baseline trait measurements did not predict engagement across groups.

The most frequent way of relating to negative thoughts and feelings in the rest control group (reported by 16.4%) involved a conscious attempt to not think about them (e.g., "I pushed them out of my mind"). A comparable proportion of the decentering group (13.5%) also engaged in cognitive avoidance, with one participant reporting they "struggled to understand how watching [their] thoughts pass by like water was not considered to be suppressing them". The next most common approach in the rest control group (reported by 9.1%) involved positive thinking (e.g., "I focused on positive thoughts"). An equal proportion of the non-judgement group (9.2%) also attended to pleasant thoughts and focused on the good in situations (e.g., "I tried to turn [negative thoughts and feelings] into positive thoughts instead"). See Supplementary Material for full details of the themes identified

**Table 2** Means (and *SD*s) for outcomes at baseline, post-media exposure, and final assessment

| Variable | Whole sample ($N = 330$) | | | Decentering ($n = 111$) | | | Non-judgement ($n = 109$) | | | Rest control ($n = 110$) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Baseline | Post-media exposure | Final | Baseline | Post-media exposure | Final | Baseline | Post-media exposure | Final | Baseline | Post-media exposure | Final |
| Shape dissatisfaction | 58.91 (27.97) | 63.99 (29.69) | 59.22 (29.44) | 58.44 (26.23) | 63.96 (27.24) | 59.07 (27.83) | 60.00 (28.66) | 65.09 (30.20) | 58.70 (30.65) | 58.29 (29.19) | 62.94 (31.70) | 59.90 (30.03) |
| Weight dissatisfaction | 57.20 (29.76) | 62.42 (30.92) | 57.90 (30.34) | 57.83 (28.37) | 62.45 (28.91) | 58.09 (29.13) | 58.83 (29.66) | 63.58 (30.51) | 57.70 (29.88) | 54.94 (31.33) | 61.25 (33.41) | 57.90 (32.21) |
| Appearance dissatisfaction | 56.88 (26.50) | 61.60 (29.02) | 56.44 (29.01) | 57.90 (23.53) | 63.59 (26.68) | 57.70 (26.95) | 57.01 (27.67) | 61.76 (28.97) | 55.30 (29.29) | 55.72 (28.28) | 59.42 (31.35) | 56.30 (30.88) |
| Negative affect | 38.68 (19.27) | 40.59 (19.67) | 33.53 (17.03) | 39.01 (19.87) | 41.33 (21.41) | 33.81 (18.62) | 39.54 (18.94) | 41.72 (18.16) | 33.75 (16.20) | 37.51 (19.08) | 38.72 (19.31) | 33.03 (16.27) |

using thematic analysis, including complete frequency statistics and additional extract examples.

### Acceptability

Table 4 displays descriptive and test statistics for acceptability. While there were no significant between-group differences for enjoyment, effectiveness, or likelihood of continued use, there was a significant between-group difference for ease of use. Post-hoc tests revealed that the rest control group reported significantly higher ease of use than the decentering ($p = 0.012$) and non-judgement ($p < 0.001$) groups.

## Discussion

This study evaluated two metacognitive components of mindfulness focused on adopting a decentered or non-judgemental stance towards experience, respectively, in the context of reducing risk factors for disordered eating. Our first aim was to assess component effects compared to an active control. As expected, the decentering and non-judgement groups experienced significant improvements in body dissatisfaction and negative affect; however, contrary to predictions, the rest control group experienced similar improvements. While it is possible that improvements simply reflect an effect of time since media exposure, which would indicate none of the techniques were effective, improvements in body dissatisfaction in the current study ($M_{change} = 4.82$, $SD = 29.37$) were greater than those from a no-intervention control condition ($M_{change} = 3.42$, $SD = 29.62$) reported in previous research using a similar experimental paradigm (Atkinson & Wade, 2012). Our findings therefore seem consistent with those from previous studies showing brief acceptance or decentering exercises reduced body dissatisfaction and negative affect (Atkinson & Wade, 2012; Manoli, 2018). Our finding that all groups changed similarly is in contrast to Manoli (2018), who found differences between decentering and control groups for improvements in body dissatisfaction. Part of this disparity may be attributed to a difference in controls. Whereas Manoli encouraged participants to immerse themselves in their thoughts, we provided a resting period for natural emotional recovery. Our robust methodology, which improved upon the thought-immersion control by not encouraging a strategy that has been shown to worsen body dissatisfaction (Naumann et al., 2016), may have resulted in smaller between-group differences that require larger sample sizes to detect. Additionally, although Keng and Ang (2019) found brief mindfulness training reduced negative affect compared to rest, their study did not specifically frame rest as helpful and therefore outcome expectations may have differed across conditions. It is

**Table 3** Trait measurements as predictors of changes in outcome from post-media exposure to final assessment

| | Shape dissatisfaction | | | Weight dissatisfaction | | | Appearance dissatisfaction | | | Negative affect | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | $\Delta R^2$ | $F(2, 324)$ | $p$ | $\Delta R^2$ | $F(2, 324)$ | $p$ | $\Delta R^2$ | $F(2, 324)$ | $p$ | $\Delta R^2$ | $F(2, 324)$ | $p$ |
| Weight and shape concerns | .002 | 0.36 | .700 | < .001 | 0.05 | .949 | .001 | 0.22 | .802 | .001 | 0.17 | .846 |
| Mindfulness | .002 | 0.34 | .711 | .003 | 0.54 | .582 | .003 | 0.53 | .589 | .001 | 0.15 | .859 |
| Emotion regulation | .01 | 0.97 | .382 | .01 | 2.04 | .132 | .001 | 0.17 | .842 | .002 | 0.35 | .703 |

**Table 4** Acceptability ratings

| | Whole sample ($N = 330$) | Decentering ($n = 111$) | Non-judgement ($n = 109$) | Rest control ($n = 110$) | | | |
|---|---|---|---|---|---|---|---|
| Variable | $M$ ($SD$) | $M$ ($SD$) | $M$ ($SD$) | $M$ ($SD$) | $F$ | $df$ | $p$ |
| Ease of use | 3.81 (0.97) | 3.75 (0.98) | 3.55 (0.97) | 4.12 (0.90) | 10.15 | 2,327 | < .001 |
| Enjoyment | 3.58 (0.95) | 3.74 (0.90) | 3.43 (0.90) | 3.55 (1.02) | 2.98 | 2,327 | .052 |
| Effectiveness | 3.37 (0.97) | 3.35 (1.05) | 3.36 (0.95) | 3.39 (0.91) | 0.05 | 2,327 | .949 |
| Likelihood of continued use | 3.39 (1.13) | 3.42 (1.20) | 3.49 (1.06) | 3.27 (1.13) | 1.03 | 2,327 | .357 |

possible that benefits of very brief mindfulness-based interventions over controls may not reflect the intervention itself, but rather demand characteristics and expectancy effects. Studies should routinely use more rigorous controls such as in the current study so we can more exclusively attribute improvements to the technique itself.

An alternative explanation, given the differences between the multifaceted exercise employed by Keng and Ang (2019) and the techniques used in the current study, is that the components were too isolated, resulting in no benefit over our robust rest control. Multifaceted strategies may provide a preferable context for processes such as decentering and non-judgement to work together, perhaps to the extent that an overarching explanation of mindfulness is necessary for these processes to support change.

It is also possible that psychological disengagement from experience in any form is sufficient to produce momentary improvements, and disengagement could be the mechanism common across conditions. Just as how decentering has been proposed to help individuals disengage from thoughts (Bishop et al., 2004), taking a non-judgemental stance towards thoughts may require disengagement implicitly. Furthermore, the control group's tendency to engage in avoidance and positive thinking may not only explain why they believed rest to be effective, but also why it resulted in a reported reduction in this immediate context. Distraction, wishful thinking, and unwillingness to experience negative thoughts may supply momentary relief comparable to that afforded by mindfulness-based techniques (e.g., Tsai et al., 2017; Wade et al., 2009), possibly by delaying the impact of aversive events. However, substantial evidence suggests suppression and avoidance are maladaptive responses to distress over the long term (e.g., Aldao et al., 2010; Smith et al., 2019). Given that theoretical accounts of mindfulness involve a change in relationship to thoughts and feelings (Teasdale et al., 2002), it is likely that continued use is necessary for differences in effectiveness to emerge. Future dismantling work could incorporate regular practice to examine differences in component effects over longer-term follow-up.

Another factor that may have limited the component effects is the extent to which participants had effective natural coping strategies. Recent developments in media literacy education, which aims to encourage critical evaluation of the accuracy, fairness, and purpose of media content (Wilksch & Wade, 2015), may have heightened general public awareness, and improved how we respond to idealised imagery. An enhanced ability to attenuate immediate negative reactions would explain why the components were not superior to rest, and also how individuals were able to recover from media exposure after rest in this study but not in earlier studies with a no-intervention control (e.g., Wade et al., 2009). Future research may benefit from recruiting participants who are likely to experience more sustained impact from media exposure, for example individuals with high media internalisation, or consider other appearance-related threats.

Our second aim was to examine moderators of component effects. Contrary to predictions, we found that individuals with more weight and shape concerns and poorer mindfulness and emotion regulation did not experience greater benefit from the components than rest, which is inconsistent with results indicating higher-risk groups respond more positively to intervention (e.g., Moffitt et al., 2018; Stice et al., 2008). Understanding moderating factors is important to help match interventions to individuals (Holmes et al., 2018), and the current study indicates further work is needed to identify

mindfulness-based components that may be particularly helpful for specific subgroups.

Our third aim was to evaluate engagement and acceptability. Results indicate that although participants were more likely to engage in the rest control group, engagement was similar across the decentering and non-judgement groups. Engagement may have been higher in the control condition because resting allows participants can do whatever comes naturally, which is less effortful than adopting a particular perspective towards experience. However, rest may not be an effective long-term strategy and so future research should compare effects of experimental and control conditions over a longer duration. Rates of engagement in the components were consistent with the proportion of participants reported to have engaged in brief metacognitive acceptance in prior work (Atkinson & Wade, 2012), and make a further contribution in showing these different aspects of mindfulness support similar engagement.

Descriptions of coping strategies adopted by participants suggest avoidance is a default strategy following exposure to appearance ideals, and instructions targeting decentering alone may fail to discourage, and perhaps even endorse, this style of thinking. Individuals may conflate concepts that involve observing thoughts as passing mental events with actively pushing them away, despite the instruction to try not to suppress or avoid them. Results also highlight positive thinking as a default strategy and suggest that promoting a non-judgemental attitude may inadvertently encourage it. Individuals may misinterpret bringing compassion to experience as taking a positive stance towards thought content, perhaps then focusing on positive experience rather than negative experience, or even trying to change a negative experience into something positive. These results suggest isolated components in this brief format may be particularly susceptible to misinterpretation, but also highlight the need to be explicit in multicomponent approaches. It may be necessary to embed components in a multifaceted program to avoid inadvertently supporting strategies that, although may provide short-term relief, are maladaptive following continued application (Aldao et al., 2010).

We also aimed to identify potential barriers to engagement. As predicted, engagement was not associated with dispositional mindfulness or weight and shape concerns. These findings replicate and extend those from Atkinson and Wade (2012) by indicating that, like brief multifaceted strategies, successful engagement in component techniques is independent from trait mindfulness tendencies and body-related constructs. However, contrary to predictions, emotion regulation difficulties also did not predict poorer engagement. This is inconsistent with findings indicating such difficulties may interfere with core elements of mindfulness, including identifying and observing experiences (Atkinson & Wade, 2012). This discrepancy may reflect that, in contrast to Atkinson and Wade, our study disentangled decentered awareness and non-judgemental acceptance, respectively, from other aspects of mindfulness that may have depended on regulation skills.

Acceptability was similar across groups for all dimensions except ease of use, whereby the rest control group reported higher ease of use than the decentering and non-judgement groups. This is unsurprising given that the control condition did not instruct a particular strategy. These results offer a novel contribution by suggesting users receive different components of mindfulness comparably well. Future research could build on this work by using ecological momentary assessment to identify condition(s) in which specific components are most accessible. Such knowledge would provide a useful basis for deciding when and how to intervene using a just-in-time adaptive approach, which aims to maximise effectiveness by selecting and delivering content based on ongoing monitoring of an individual's internal state and context (Nahum-Shani et al., 2018).

## Limitations and Future Research

This study provided a robust test of two isolated components of mindfulness by including an active control. However, limitations should be noted. First, the sample consisted of young adult women who were primarily White. Future research should confirm these findings in a more diverse population, including different ages, genders, and ethnicities. Relatedly, by not advertising the study as an evaluation of strategies for body image or recruiting volunteers, we obtained a less targeted sample. Although young adult women are at high risk for body dissatisfaction (Neumark-Sztainer et al., 2018), and just under half of the participants endorsed body dissatisfaction at a level indicative of clinical severity, it remains unclear whether the techniques would be effective for those experiencing severe body image disturbances. Second, although we selected our control condition to hold non-specific factors constant, it is possible that it had a substantial impact on outcomes. Given that our a priori power analysis was based on the effect size from a no-intervention comparison (Atkinson & Wade, 2012), it is possible we were underpowered to detect potential differences between the control and experimental groups. Third, the study took place online rather than in a controlled laboratory setting, which limits our ability to ensure participants carefully viewed the media images, as well as understood and executed the mindfulness-based instructions. Nonetheless, an online format is potentially more indicative of how individuals practice mindfulness and view images in real life (e.g., via websites and mobile applications, social media, and films). Our findings therefore have good external validity as they are generalisable to the benefits of mindfulness-based techniques in natural settings. Finally, the observed

effects were relatively small. Although interventions with small effects have the potential to produce population benefits when delivered at scale (Rose, 1985), and the effects of brief interventions on state outcomes enable longer-term, sustained improvements (Fuller-Tyszkiewicz et al., 2019), further work may like to determine the extent to which these effects are meaningful.

By showing that core elements of mindfulness, which have received support in previous research, were just as effective as rest, our findings reinforce the importance of including an appropriate control condition and suggest focus may be better placed on sustained longer-term practice or multifaceted strategies. Future research could use a factorial design with a constant intervention component (i.e., a component that every person receives, which in this case would be non-judgemental, decentered, and present awareness) to test the effect of add-ons to the "minimal necessary" component of mindfulness (Manasse et al., 2019).

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**Author Contribution** ELO: Designed the study, collected the data, conducted the analyses, and wrote the manuscript. MJA: Designed the study, supervised data collection and analysis, and reviewed the manuscript. Both authors approved the final version of the manuscript for submission.

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**Data Availability** Due to ethical commitments, the data are available in anonymised form on request, subject to terms of use, from the University of Bath Research Data Archive (Osborne & Atkinson, 2022).

## Declarations

**Ethical Approval** All procedures performed in this study were in accordance with the ethical standards of the Institutional Research Committee and with the 1964 Helsinki Declaration and its later amendments. The study was approved by the Psychology Research Ethics Committee at the University of Bath (No. 19–299).

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** The authors declare no competing interests.

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