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Testing a Low-Intensity Single-Session Self-Compassion Intervention for State Body Shame in Adult Women: A Dismantling Randomized Controlled Trial

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State body shame is a risk factor for eating disorders, and self-compassion is emerging as a potentially effective treatment option in such cases. This study tested the efficacy of a brief (15-minute) self-compassion intervention in reducing state body shame. Using dismantling trial methodology, participants were randomly allocated to an active compassion condition ($n = 23$), an inactive control compassion condition ($n = 23$), or an educational control condition ($n = 23$). Measures of state body image and state shame were collected pre-intervention, immediately after the intervention, and a day after the intervention. Subjective units of state body shame (SUBS) were intensively measured during each invention. Self-compassion interventions were equally efficacious at protecting against deterioration of state body shame and were effective at reducing state shame compared to the educational control condition, with medium effect sizes (respectively – $n_p^2 = .07$ and $n_p^2 = .08$). Reductions in state shame were retained at follow-up. None of the interventions had an effect on body image ($n_p^2 = .04$). Findings demonstrate the clinical promise of brief self-compassion interventions, particularly as evidenced-based "homework" exercises.

Keywords: self-compassion; intervention; body shame; body image; randomized controlled trial

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PARTICULARLY FOR WOMEN, there is pressure to achieve and maintain unrealistic slim and toned bodies in accordance with the Western cultural "ideal" (Thompson & Heinberg, 1999). This pressure increases the likelihood of negative emotions and body image disturbance (Brunet et al., 2012, Cash & Smolak, 2011). Shame occurs whenever women fail to achieve internalized or cultural ideals and this failure is attributed to stable and global aspects of self (e.g., "I am an undesirable person"). Shame can be externally or internally cued. External shame is the experience of being seen by others as flawed, inferior, inadequate, or powerless (e.g., the belief that one's body image is negatively evaluated by others; Matos et al., 2015). Internal shame is the tendency to attend

to the negative aspects of the self and to make global judgments of the self as bad, inferior, and flawed (e.g., "My physical appearance makes me feel inferior to others"; Melo et al., 2019). Experiencing high levels of shame is associated with anxiety and depression (Matos & Pinto-Gouveia, 2010; Tangney et al., 1992), even without body image issues.

When negative perceptions become focused on and fused with the body (i.e., weight or physical appearance), this creates body shame. Body shame can play a central role in eating psychopathology and body dissatisfaction (Ferreira et al., 2014; Goss & Gilbert, 2002; Noll & Fredrickson, 1998). While the role of trait shame (i.e., as a stable personality trait) in eating and body image problems is well-established, there is far less literature on state-level shame, and particularly "in-the-moment" and "here and now" feelings of shame (Castonguay et al., 2012; Harder & Zalma, 1990; Mosewich et al., 2011). People who are self-critical of their bodies are subject to more negative body-related criticism by others and are more likely to experience negative emotional states (i.e., state shame; Crocker et al., 2014). The current study therefore investigated whether it was possible to positively change in-the-moment state shame through providing a brief psychological intervention.

Self-compassion-based interventions have been suggested as a potentially effective way to address body shame issues (Albertson et al., 2015). A recent systematic review ($k = 23$ studies) found that compassion-based interventions reduce body weight shame (Carter et al., 2022). Given the importance of addressing body image and shame issues and the need for efficient, accessible, and effective intervention options, it is important to identify the most parsimonious manner in which to deliver interventions (Franko et al., 2013). Low-intensity psychological approaches such as unguided or guided self-help are designed with the parsimony principle in mind. Low-intensity psychological interventions have been developed, tested, and then disseminated in routine services, due to their ability to increase access to effective and brief therapies (Clark, 2018).

The current study was developed following a feasibility and pilot trial that demonstrated that a brief (i.e., 40-minute, single session), low-intensity self-compassion intervention was effective in reducing state body shame (Turk et al., 2022). The self-compassion condition of the pilot trial consisted of several guided meditations—a "building warmth through touch" exercise, a "self-compassion break," a "compassionate body scan," a "loving-kindness and compassion meditation," an "affectionate breathing" exercise, and "noticing practice." Every 5 minutes, participants were asked to rate their level of body shame (i.e., subjective units of state shame distress). At three time points there were significant reductions in state body shame: twice during the compassionate body scan and once during the noticing practice, thus potentially indicating these two exercises as active components of the intervention (Ahn & Wampold, 2001; Stevens et al., 2000). Ahn and Wampold (2001) noted that component studies isolate the active ingredients of therapies by comparing treatments with and without certain ingredients. The findings of the pilot study suggested the possibility of isolating specific compassion components and using them to develop an even briefer (15-minute) intervention for reducing state body shame. Such a brief intervention would then be suitable as an in-session change method as part of a larger package, or as a homework exercise to address immediate state body shame outside the therapy room. A previous randomized control micro-trial found that the magnitude of in-the-moment improvements was important as they predicted greater changes in long-term body-related outcomes (Fuller-Tyszkiewicz et al., 2019). Patients need to experience change in states to enable change in traits. Existing body image and eating pathology interventions have problems of low engagement, low adherence, and high attrition. Therefore, brief and low-intensity interventions may help to overcome these problems, as they require less commitment of time and effort by the patient (Stein et al., 2011).

Kirby (2017) reviewed different compassion-based interventions. The review concluded that there is a wide range of low- to high-intensity compassion interventions available, with notable differences in terms of focus and content. Given the variation in the elements targeted by these interventions, Kirby (2017) emphasized the need to conduct component analyses for compassion-based interventions, to determine mechanisms of change, identify active components, and remove passive components. In the previous trial (Turk et al., 2022), there was evidence for the effectiveness of the overall self-compassion intervention for state body shame. However, it was not clear whether such compassion was useful for other state constructs, such as state shame or state body image.

Therefore, the current study tested the impact of an active self-compassion intervention on state shame and state body image, as well as state body shame. Two adaptations were introduced in response to the outcome and learning from the

previous trial. First, the "active" elements of the self-compassion intervention were identified and compared with elements that appeared to have been ineffective. Second, a wider range of individuals were recruited for the intervention. In the previous trial, participants had to have moderate to severe body dissatisfaction, which meant that it was unclear whether women with less severe body dissatisfaction could benefit from the self-compassion intervention (i.e., potentially making the low-intensity compassion intervention useful as a prevention approach). Therefore, the current study used wider inclusion criteria when assessing the efficacy of the brief self-compassion intervention.

The primary aim of this study was to evaluate the efficacy of a very brief single-session self-compassion intervention for state body shame ("active self-compassion condition"), against an inactive compassion component intervention ("inactive self-compassion condition"). To increase the validity of the design, a further control group was added into the method, with participants undertaking a time-matched education task ("educational control condition"). This enabled the efficacy of the active self-compassion condition to be determined with greater confidence. Due to the brevity of the interventions, the credibility and expectancy of the interventions was verified with participants. The study therefore checked whether intervention groups differed in perceived credibility and to therefore control for nonspecific factors (i.e., perceived credibility) that might influence outcomes of the interventions (Stinson et al., 2018). The possible moderating effects of trait body dissatisfaction were also tested, to determine whether the interventions worked differently according to participants' initial levels of body dissatisfaction.

HYPOTHESES

1. "Active" self-compassion would be differentially efficacious in reducing state body shame compared to both "inactive" self-compassion and educational conditions.

2. Trait body dissatisfaction would moderate any effect of the interventions on state body shame, state shame and state body image.

Method

ETHICS AND DESIGN

This study received ethical approval from the Department of Psychology Research Ethics Committee at the University of Sheffield (no: 040360). The design was a dismantling randomized-controlled trial. The design was mixed, with three intervention types (Active self-compassion condition, Inactive self-compassion condition, Educational control condition) × four time points during the intervention (0 minute, 5 minutes, 8 minutes, 13 minutes). The study was preregistered with ClinicalTrials.gov (ID: NCT04984252).

SAMPLE SIZE

The power calculation was derived from the findings in the feasibility and pilot trial (Turk et al., 2022). The large effect size indicated for the subjective units of body shame measure (tau = .88) is equivalent to Cohen's $f = 0.44$. As this study had three arms, G*Power indicated that for α of 5% and 80% power, a total sample of 67 would be needed (i.e., 23 completers per group).

PARTICIPANTS

Participants were recruited using the online recruitment site PROLIFIC, receiving standard payment levels for the time taken. The study recruited only women, because women have been identified as being at high risk for developing negative body image and eating disorders (Kjærbye-Thygesen et al., 2004). Eligible participants were self-identified women, aged ≥ 18 years, fluent in English, able to use a computer and able to access an internet connection. Exclusion criteria were a Body Mass Index (BMI) < 18.5, male, age < 18 years, no access to a tablet or computer with an internet connection, or an insufficient knowledge of English. Individuals were first screened using the PROLIFIC prescreen function for gender and language.

Participants consisted of a sample of 72 women, randomly allocated to either Active self-compassion condition ($n = 24$), Inactive self-compassion condition ($n = 25$), or Educational control condition ($n = 23$). Therefore, the study was adequately powered. See Figure 1 for the relevant CONSORT diagram. The randomization sequence (1:1) was created using (=RANDBETWEEN) function in Excel 2007.

Participants' demographic information is presented in Table 1. Education levels were as follows: 42% bachelor's degree; 31.9% high school graduate, diploma, or equivalent; 23.2% master's degree; 1.4% no schooling completed; and 1.4% doctoral degree. Approximately half (53.6%) were students, 30.4% were employed, 8.7% indicated as other, 5.8% were self-employed, and 1.4% were homemakers. 43.5% of the participants were White, 34.8% of them were black/African/Caribbean/Black British, and 13% were from "other"

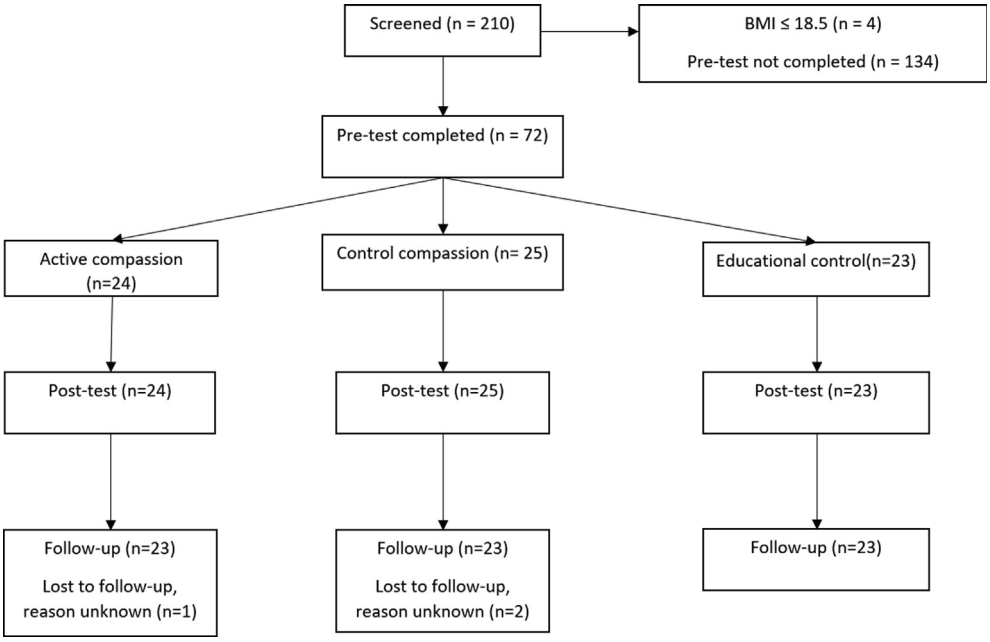

FIGURE 1 CONSORT diagram showing screening and group application.

Table 1
Descriptive Statistics of Intervention Groups

Variable	Active self-compassion condition ($n = 23$)	Inactive self-compassion condition ($n = 23$)	Educational control condition ($n = 23$)
Education			
No school	0	0	1(4.3)
High School Graduate, Diploma/ Equivalent	8 (34.8)	7(30.4)	7(30.4)
Bachelor degree	13 (56.5)	7(30.4)	9(39.1)
Master's degree	2 (8.7)	8(34.8)	6(26.1)
Doctoral degree	0	1(4.3)	0
Employment status			
Employed	8 (34.8)	6(26.1)	7(30.4)
Self-employed	2 (8.7)	1(4.3)	1(4.3)
Homemaker	1 (4.3)	0	0
Student	11 (47.8)	14(60.9)	12(52.2)
Retired	0	0	0
Other	1 (4.3)	2(8.7)	3(13.0)
Ethnicity			
East Asian/Asian British	0	1(4.3)	0
Black/African/Caribbean/Black British	11(47.8)	7(30.4)	6(26.1)
Mixed/Multiple ethnic groups	1(4.3)	1(4.3)	0
White	6(26.1)	10(43.5)	14(60.9)
Other ethnic group	2(8.7)	4(17.4)	3(13.0)
South Asian/Asian British	3(13.0)	0	0

Note. The values in the parentheses indicate the percentage.

ethnic groups (4.3% South Asian/Asian British; 2.9% mixed/multiple ethnic groups; 1.4% were East Asian/Asian British).

MEASURES

Primary Outcome Measure

Subjective units of body shame (SUBS) were the primary outcome measure of the study. We use

the term "state body shame" throughout to mean in-the-moment and here-and-now feelings of shame towards body. The SUBS measure was scored 0 (*no shame*) to 100 (*full of shame*) and was taken at four points during the intervention: 0 minutes, 5 minutes, 8 minutes, 13 minutes. Participants were asked to simply report a number between 0 and 100. There are no reference points for this scale to label scores between 0 and 100.

Secondary Outcome Measures

The following measures were used before the interventions (pretest), immediately after the interventions (posttest), and a day after the interventions (follow-up). The follow-up was relatively short because of focus on state change rather than trait change.

The Body Image States Scale was used to assess transient feelings about the body and physical appearance (BISS; Cash et al., 2002). State body image refers to a person's in-the-moment perception of and attitudes toward their own body, especially its appearance (Cash et al.). A six-item scale measures current body-image experiences at a particular point in time or in a specific context. The BISS's internal consistency has been reported as alpha = .77 for women (Cash et al.). Cash et al. provide evidence for the BISS's convergent validity, showing that the BISS was appropriately correlated with various trait measures of body image. A sample item is: "Right now, I feel... (1 = *Extremely physically attractive* to 9 = *Extremely physically unattractive*)." In the current study, there was an administrative error in the options of the third question of the BISS, which presented "extremely satisfied" instead of "extremely dissatisfied." Therefore, we removed that question and used the scores of the five items that were accurately presented. After removing that one item, the internal consistency of the scale was still at an acceptable level in this study (pretest: $\alpha = .70$, posttest: $\alpha = .81$, and follow-up: $\alpha = .89$).

The Shame subscale of the State Shame and Guilt Scale was used to test state shame (SSGS; Marschall et al., 1994). State shame refers to in-the-moment feelings of shame, though not specific to one's body (Turner, 2013). This is a five-item subscale. Cronbach's alpha for the shame scale has been reported as alpha = .89 (Tangney & Dearing, 2002), and the measure has good levels of predictive and convergent validity (Tangney & Dearing). A sample item is: "I feel like I am a bad person." Internal consistency for the present study was excellent ($\alpha = .81$ at pretest, $\alpha = .88$ posttest, and $\alpha = .90$ follow-up).

The Credibility/Expectancy Questionnaire (Devilly & Borkovec, 2000) is a six-item scale that measures treatment credibility and expectancy in psychotherapy research. Examples include "How logical does the intervention offered to you seem?" The questionnaire has been reported to have high internal consistency ($\alpha = .85$) and construct validity (Devilly & Borkovec, 2000). This measure was administered after the intervention. The internal consistency for the present study was high for credibility ($\alpha = .90$) and for expectancy ($\alpha = .92$). Since the correlation between credibility and expectancy was high ($r = .85$), only credibility was analyzed, due to the aims of the study.

The Body Shape Questionnaire (BSQ-8C; Evans & Dolan, 1993) is an eight-item questionnaire that measures body dissatisfaction. This BSQ-8C was used in the present study due to the BSQ-8B having reliability issues in the pilot trial. The BSQ-8C is highly sensitive to change in interventions (Pook et al., 2008). A sample item is "Have you been afraid that you might become fat (or fatter)?" The BSQ-8C has been reported to have good test-retest reliability, internal consistency ($\alpha = .93$), and convergent validity (Welch et al., 2012). This measure was taken before the intervention. The internal consistency for the present study was $\alpha = .90$.

Treatment Adherence Check

The following aspects were checked by the primary investigator after each session: "Did participants provide their level of shame four times?" and "Was the correct recording played (Active compassion vs Inactive compassion)?"

PROCEDURE

First, all applicants were screened for eligibility within the recruitment process. If they met the criteria, subjects were invited via email to book a session using an online scheduling calendar (Doodle) and were sent the information sheet. Then participants were sent the details to allow them to provide informed consent. Participants were asked to complete the pre-intervention questionnaires at their scheduled time and then joined the online session. All interventions were conducted with the facilitator monitoring, using the Blackboard platform. Interventions were implemented according to protocols prepared for the study (see Table 2). At the end of the intervention, participants were asked to complete the post-intervention measures. After delivering the interventions, the facilitator completed the treatment adherence check. Participants received follow-up measures 1 day after the intervention. After completing the follow-up, a

Table 2
Elements of the Interventions

Active self-compassion condition	Inactive self-compassion condition	Educational control condition
First half of compassionate body scan (5 mins) Second half of compassionate body scan-2 (5 mins) Short noticing meditation (5 mins)	Self-compassion break (5 mins) Loving-kindness compassion meditation (5 mins) Affectionate breathing exercise (5 mins)	Participants were asked to listen to a text on language and creativity throughout the 15 minutes.

debrief was provided. The recruitment process lasted from August 16, 2021, to October 5, 2021, when the minimum targeted sample size was achieved.

INTERVENTIONS

The three interventions (Active self-compassion condition, Inactive self-compassion condition, Educational control condition) were all audio files. These were voice-recorded by a psychology graduate not involved in the study. Both the Active and Inactive self-compassion interventions are types of self-compassion interventions (see below for detailed descriptions). They were shortened and adapted for the current purpose from materials on the following website: https://self-compassion.org/category/exercises/. For example, in the "loving-kindness and compassion meditation" exercise, participants were asked to focus on a certain body part that they were uncomfortable with, while the original exercise invited them to think about a difficult situation in their life. The conditions (summarized in Table 2) were as follows:

Active Self-Compassion Condition

This consisted of "compassionate body scan" and "noticing practice." The ingredients were based on the previous feasibility and pilot trial (Turk et al., 2022) to identify potentially active compassion components. The compassionate body scan meditation is designed to help the listener get in touch with body sensations and bring a sense of compassion and gratitude to their body. The listener is asked to be aware of the sensations of various body parts, starting with the toe and working up to the head. If any critical thought arises, then the participant is told to place a hand on their heart, breathe deeply and return to feeling simple sensations. The noticing practice helps the listener to be aware of what is happening both around them (i.e., sensations, sound, smell) and internally (i.e., emotions, thoughts) and letting them pass. The listener learns how to be aware of their feelings/thoughts and move on to the next one, rather than being stuck on one.

Inactive Self-Compassion Condition

This condition consists of a "self-compassion break," a "loving-kindness and compassion meditation," and an "affectionate breathing meditation." In the "self-compassion break," participants are asked to focus on a body part that they do not like, or that they are uncomfortable with. Then, participants are asked to get in touch with how they feel and what they think about that part. Next, participants were reminded to apply the three components of self-compassion (i.e., mindfulness, common humanity, and kindness). For instance, participants were told that "having these uncomfortable feelings is a part of life" or "it is okay to feel this way, everyone can feel this way, it is going to be OK." "Loving-kindness compassion meditation" aims to cultivate unconditional kind attitudes towards oneself, kind intentions towards certain targets (i.e., the body part that participants were uncomfortable with) and reduce suffering. "Affectionate breathing practice" aims to cultivate compassion towards oneself using affectionate breathing as a means of developing compassion. In this exercise, participants were asked to focus on their breath and encouraged to be kind towards themselves whenever any critical thoughts, feelings, or sensations arose.

Educational Control Condition

This condition consists of open-source text on language and creativity. This text was chosen to be emotionally neutral, with any identified emotional words excluded from the text (e.g., disgust, warmth). This text defines creativity and linguistic creativity. Then, it explains the different dimensions of the linguistic creativity (i.e., textual, contextual, and critical). Finally, it describes language and art, identifies a particular artist, and examines how this artist uses language in art.

DATA ANALYSIS

First, missing data were handled using casewise deletion. Completer analysis (with casewise deletion) was used because SPSS does not permit the

use of the necessary ANOVAs with data based on multiple imputation. The assumptions for ANOVA were checked. Subjective units of body shame (SUBS) were nonnormally distributed, so a two-step approach transformed the data (Templeton, 2011). In step 1, SUBS scores were transformed into a percentile rank, which resulted in uniformly distributed probabilities. In step 2, the inverse-normal transformation was applied to the results of the first step to generate SUBS consisting of normally distributed z-scores. We present the transformed values when reporting.

ANOVAs examined whether there were any differences between intervention groups in terms of their age, BMI, body dissatisfaction, and intervention credibility. To test the first hypothesis, a 3 (intervention type) × 4 (time points) mixed ANOVA with subjective units of body shame as a dependent variable was used. A 3 (intervention type) × 3 (time points) mixed ANOVA was used to test whether interventions had an impact on the level of state body image (the Body Image States Scale) and the level of state shame (the Shame subscale of the State Shame and Guilt Scale). Significant interaction effects were checked using independent *t*-tests. Further, we checked the assumptions for ANCOVA. When data met the assumptions, we ran ANCOVA to investigate whether the effects of intervention on the subjective units of body shame, state body image and state shame would change after controlling for trait body dissatisfaction (Body Shape Questionnaire).

Results

PRELIMINARY ANALYSIS

Descriptive analyses are presented in Table 3. There were no significant initial differences between groups in terms of age, F (2, 66) = 1.137, $p = .26$, or BMI, F (2, 66) = 0.68. $p = .51$. However, there was a significant difference in body dissatisfaction scores, F (2, 66) = 4.79, $p < .05$. A Tukey post hoc test revealed that there was no significant difference between the Active and Inactive self-compassion conditions, $p = .76$. However, body dissatisfaction scores were significantly lower in the Active compassion condition than the Educational control condition, $p < .05$. There was no significant difference between the Inactive self-compassion condition and Educational control condition, $p = .07$.

Treatment credibility was significantly different between the conditions (F (2, 66) = 17.149, $p < .001$). While the pairwise comparison of the Active self-compassion condition with the Inactive self-compassion condition was nonsignificant ($p = .63$), credibility scores were significantly higher in both the Active ($p < .001$) and Inactive self-compassion conditions, ($p < .001$) compared to the Educational control condition.

PRIMARY OUTCOME

Body dissatisfaction did not meet the assumptions of homogeneity for the regression slope, $F(2, 65) = 23.73$, $p < .001$. Therefore, we could not control for the effect of body dissatisfaction scores, meaning that the second hypothesis could not be tested.

THE EFFECT ON SUBS

Descriptive statistics are presented in Table 4 and related ANOVA in Table 5. The main effect of time was not significant, but there was a significant effect of condition. Both the Active ($M = -.21$, $SD = .17$) and Inactive self-compassion condition ($M = -.14$, $SD = .17$) generated significantly lower SUBS scores ($p < .05$) during the session than Educational control condition ($M = .44$, $SD = .17$). The pairwise comparison of the Active with the Inactive self-compassion condition was nonsignificant ($M = -.08$, $SD = .24$), $p = .94$.

Critically, the interaction between the conditions and the time points was also significant, $p < .04$, indicating that changes in SUBS over time varied between the arms of the trial (see Figure 2). Active self-compassion and Inactive self-compassion groups did not differ on state body shame (SUBS) at times 1, 2, 3 or 4 (see Table 5). The Active self-compassion condition had significantly lower SUBS scores than the Educational control condition at times 3 and 4. Inactive self-

Table 3
Descriptive Statistics of Body Dissatisfaction and Treatment Credibility in the Groups

Variables	Active self-compassion condition M (*SD*)	Inactive self-compassion condition M (*SD*)	Educational control condition M (*SD*)
Age (years)	24.17 *(3.8)*	27.48 *(8.22)*	25.83 *(6.79)*
Body Mass Index	31.70 *(16.97)*	29.90 *(20.29)*	26.31 *(7.92)*
Body dissatisfaction	20.09 *(10.01)*	21.95 *(8.50)*	28.00 *(8.58)*
Intervention credibility	20.48 *(4.99)*	22.43 *(3.72)*	13.82 *(6. 35)*

Note. $N = 69$ ($n = 23$ for each condition).

Table 4
Transformed Means (M) and Standard Deviations (SD) on the SUBS by Intervention Group and Time Point

Subjective units of body shame (SUBS)	Active self-compassion condition M (*SD*)	Inactive self-compassion condition M (*SD*)	Educational control condition M (*SD*)
Time 1	−.13 (1.12)	−.07 (.82)	.25 (.94)
Time 2	−.11 (1.11)	−.18 (.85)	.43 (.85)
Time 3	−.26 (.99)	−.13 (.82)	.46 (.79)
Time 4	−.36 (.85)	−.17 (.74)	.64 (.79)

Note. Smaller values indicate less subjective units of body shame.

Table 5
Results for 3 × 4–Way ANOVA of Main Effects and Interactions for the SUBS

	F	*df*	*p*	n_p^2
Time	0.07	3	.98	.001
Condition	4.55	2	.01	.12
Time x condition	2.55	6	.04	.07

compassion condition had significantly lower SUBS scores than the Educational control condition at time 2, 3 and 4.

SUBS scores were compared over time within each condition. There was no significant effect of time in either the Active, $F(1.81, 39.87) = 1.172$, $p = .33$, or the Inactive self-compassion condition, $F(1.7, 37.38) = 0.3$, $p = .71$. While these SUBS scores did not change significantly over time, the scores in the Active self-compassion condition had a reducing trend (see Supplementary Table 1). The SUBS scores of those in the Educational control condition increased significantly over time, $F(3, 66) = 6.49$, $p < .05$. Thus, the Time × Condition interaction was driven primarily by the increasing shame levels in the Educational Control condition.

To summarize the primary outcome of the study, neither the Active nor the Inactive self-compassion interventions resulted in reductions in state body shame. However, the Educational Control condition was followed by increasing state body shame levels. Therefore, it is possible to conclude that the two Compassion conditions were associated with not experiencing a rise in state body shame.

SECONDARY OUTCOMES

The Effect of Interventions on State Body Image

Descriptive statistics are presented in Table 6. There were significant main effects of time and condition. However, the interaction effect was nonsignificant (Table 7). Considering the main effect of condition, there was no significant difference between the Active and Inactive self-compassion condition, $p = .61$. However, both the Active and Inactive self-compassion condition showed significantly higher state body image scores than the Educational control group. Considering the main effect of time, post hoc pairwise comparisons of time showed state body image scores were significantly lower at pretest than posttest or at the follow-up, showing that state body image improved after all interventions. There was no significant difference between posttest and follow-up.

The Effect of Interventions on State Shame

Descriptive statistics are presented in Table 6. There were significant main effects of time and condition (see Table 7). The interaction between time and condition was also significant, showing that state shame changed differently over time across conditions (see Figure 3). Considering the condition effect, post hoc pairwise comparisons of intervention types showed no significant differences between Active and Inactive self-compassion conditions, but significantly higher state shame in the Educational control condition than in those two groups. For the time effect, post hoc pairwise comparisons over time showed that there was no difference between posttest and follow-up.

To interpret the interaction effect (as shown in Figure 3), independent *t*-tests were used (see supplementary Table 2). Participants in the Active and Inactive compassion groups did not differ on state shame scores at pre-test, post-test or follow-up. Those in the Active and the Inactive self-compassion condition had significantly lower SUBS scores than Educational control condition at posttest and follow-up, but not at pretest. That is, both self-compassion groups had better outcomes than the Educational control condition.

Summary. Overall, there was a consistent pattern of impact on state shame outcomes, but not for state body image. Both the active and inactive self-compassion conditions were moderately effec-

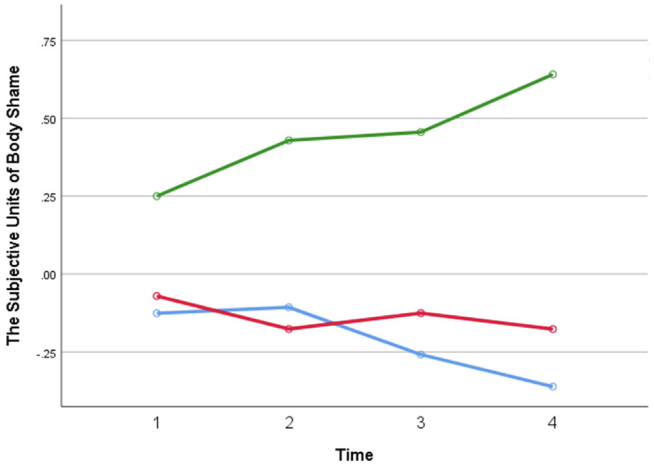

FIGURE 2 Effect of interventions on the Subjective Units of Body Shame. The blue line is the active self-compassion condition, the red line is the inactive self-compassion condition, and the green line is the educational control group.

Table 6
Mean Scores (M) and Standard Deviations (SD) on the State Body Image and State Shame by Intervention Group and Time Points

	Active self-compassion condition M (*SD*)	Inactive self-compassion condition M (*SD*)	Educational control condition M (*SD*)
State body image			
Pre-test	21.74 (6.22)	24.39 (6.07)	27.30 (4.93)
Post-test	16.43 (7.41)	17.70 (6.02)	24.22 (6.04)
FU	16.78 (7.95)	19.35 (6.03)	23.70 (7.29)
State shame			
Pre-test	8.17 *(3.86)*	8.65 *(3.47)*	9.78 *(4.39)*
Post-test	6.04 *(1.96)*	5.83 *(1.56)*	8.39 *(4.33)*
FU	6.52 *(2.76)*	5.70 *(1.55)*	9.56 *(5.32)*

Table 7
Results for 3 × 3–Way ANOVA of Main Effects and Interactions for State Body Image and State Shame

	F	*df*	*p*	n_p^2
State body image				
Time	33.00	2	.001	.33
Condition	8.40	2	.001	.20
Time × Condition	1.23	4	.30	.04
State shame				
Time	21.17	2	.001	.24
Condition	4.77	2	.01	.13
Time × Condition	2.72	4	.03	.08

tive in preventing a deterioration in state body shame and in reducing state shame levels during sessions, compared to the educational control group. The effects of these single-session interventions on state shame were maintained at 1-day follow-up. The second hypothesis could not be tested.

Discussion

This dismantling randomized controlled trial tested the efficacy of a very brief and low-intensity self-compassion intervention (i.e., the active compassion condition) against an inactive compassion condition and an educational control group on state body shame, state body image, and state shame. Our first hypothesis was partially supported, as the active self-compassion condition had a differential impact on body shame compared to the education control. However, contrary to the hypothesis, both active and inactive self-compassion interventions had similar effects on state body shame and shame, with medium effect sizes. Both compassion interventions outperformed the educational control. However, there was no such effect on body image. Our second hypothesis could not be tested due to methodological issues.

The findings of this study support the effectiveness of self-compassion-based interventions for

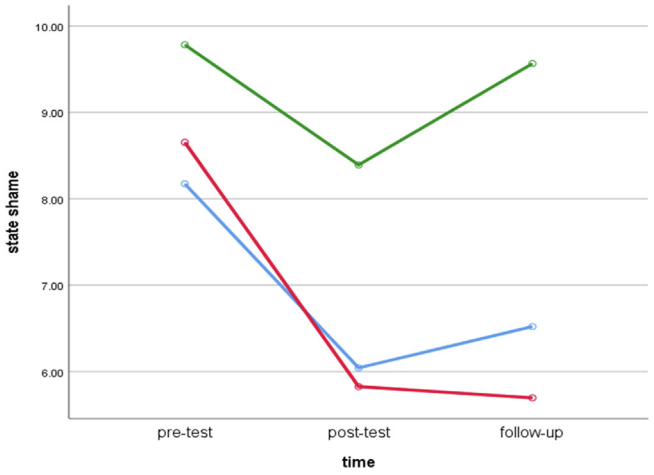

FIGURE 3 Effect of interventions on state shame. The blue line is the Active self-compassion condition, the red line is the inactive compassion condition, and the green line is the educational control group.

body image (Turk & Waller, 2020), although impact was limited to body shame rather than body image. This finding is similar to the impact of some previous self-compassion interventions, which have reduced levels of trait body shame (Albertson et al., 2015; Cândea & Szentágotai-Tătar, 2018), although others have not found this outcome (Toole & Craighead, 2016; Voelker et al., 2019). While the evidence for self-compassion interventions for trait body shame is mixed, the present study is the first that has focused on state body shame and state shame. Focusing on state issues is important as it allows changes in "in the moment" feelings that might be disabling of broader therapeutic engagement and change.

Contrary to prediction, the active compassion condition did not have a larger impact than the inactive compassion condition. One possible explanation for this is that the effects found in the pilot trial were due to the cumulative effect of several consecutively applied components, rather than the immediately presented components. It is also possible that showing compassion towards oneself, in any form, is sufficient to produce in-the-moment improvements to difficult emotional states. It is possible that the small *N* in the previous pilot trial might have meant the effects of different elements were due to the study being underpowered rather than representing a true effect. It might be the case that any and all self-compassion interventions are useful, as suggested here. In addition, both self-compassion interventions were perceived as credible by the participants. The effect of both self-compassion interventions on state-shame was retained at follow-up. This indicates that brief interventions can have positive impacts on states that last beyond the session until the next day, but the further durability of these effects is not known. The follow-up was necessarily brief due to the nature of the outcome measures (e..g., a 3-months follow-up would limit any assumption that state body shame at that point in time had anything to do with the intervention).

These findings further support previous studies, which suggest that self-compassion might protect against body image concerns (Braun et al., 2016; Tylka & Kroon Van Diest, 2015), but only against state body shame and state shame, in this case. This finding is in keeping with Halliwell's affect regulation framework, which proposes that body compassion and embracing respect and appreciation for the body might help people to treat their bodies kindly, even if they face difficult emotions or body image-related threats (e.g., shame; Halliwell, 2015). Surprisingly, there was no interaction effect of Condition × Time on state body image. It is possible that different aspects of body image (e.g., attractiveness, body weight) take longer to respond to self-compassion, perhaps requiring repeated engagement in the intervention, or an alternative focus. Thus, it is possible that lack of effect on body image was due to brevity of the interventions.

IMPLICATIONS, LIMITATIONS AND FUTURE DIRECTIONS

In clinical terms, these findings suggest that brief and low-intensity self-compassion interventions might offer immediate "state" support when individuals feel ashamed about their bodies in the moment. Such interventions might be transformed into mobile apps, allowing individuals to utilize

the treatment resources in their daily lives, to alleviate body shame/shame as and when necessary. Such interventions could also be offered to individuals as homework as a part of prevention programs or wider therapy. Alternatively, it could be used as an in-session change method for reducing state shame, particularly if it helps patients engage with other aspects of treatment (e.g., using compassion as a precursor to an exposure-based approach).

This work has limitations, and more investigation is needed before interventions can be recommended. The sample in the present study was limited in its generalizability. It consisted of young women, and therefore the findings cannot be assumed to be generalizable across sex, gender identity, or age. It also needs to be tested across more ethnically diverse samples. In particular, this approach needs to be tested with men experiencing body shame. Future research might investigate repeated brief self-compassion interventions in a wider time frame, to determine when the changes in body image occur. A methodological limitation here was the erroneous omission of an item from the state body image scale, although that did not impair the measure's internal consistency. In addition, as the trait body image data were not suitable for ANCOVA, it was not possible to determine whether these findings held good across individuals with higher or lower trait body dissatisfaction.

Further work is needed to investigate whether self-compassion interventions are effective in the same manner in clinical samples. However, there is constant sociocultural appearance-related pressure on women in westernized societies. Therefore, shifting cultural norms towards acceptance of different body shapes and sizes is likely to be a more effective method in the long term than focusing on interventions that target body-related shame at the individual level (Watson et al., 2019).

Future studies should examine whether the use of these interventions (possibly at a more intensive dosage) promotes longer-term, sustained improvements in body image concerns. This could include consideration of whether the level of immediate symptom improvement predicts the level of any sustained body image improvements. Where these brief compassion interventions are integrated into larger treatment packages, then the acceptability for patients and clinicians needs to be understood, and their effectiveness needs to be compared with packages that do not contain compassion interventions (Sekhon et al., 2017). Since isolating one component in a one-off session is not the only approach to determining active ingredients, future research might consider using other approaches (i.e., additive designs) to determine active ingredients of self-compassion interventions (Ahn & Wampold, 2001).

Given high treatment costs and low levels of treatment-seeking behaviors for eating and body image pathology, if these self-compassion approaches do prove useful and helpful, they should be considered as a possible prevention approach for people who are at risk of developing eating and body image problems (Stice et al., 2007). The preventative efficacy needs to be further researched, with the primary outcome being lowering the number of individuals who need and go on to access treatment. The hypothesis is that such compassion exercises might reduce risk factors (i.e., state shame) in a way that precludes the subsequent development of eating and body image problems, and therefore these are the mechanisms that should be considered in such work.

Conclusion

This trial contributes to understanding of the effectiveness of self-compassion in protecting against state body shame and shame. Such brief and low-intensity interventions might be best conceived as adjunctive components to current treatments targeting specific symptoms (e.g., shame) across eating disorders/body image disturbance, rather than as stand-alone treatments. Brief and low-intensity compassion interventions that are evidence-based hold particular promise in terms of increasing access to psychological interventions. Future research now needs to extend these findings to wider populations (e.g., men, adolescents) in well-controlled studies. The use of dismantling methods in these populations is indicated. The nature of the compassion interventions tested here favors their use, particularly as homework exercises, as they are brief and therefore easily repeated across various contexts.

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