APPEARANCE-BASED SOCIAL MEDIA USE, BODY DISSATISFACTION, AND MOOD AMONG YOUNG WOMEN WITH HIGH WEIGHT BIAS INTERNALIZATION: INVESTIGATING THE ROLES OF BODY-RELATED SHAME AND SELF-COMPASSION

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Abstract

The current study investigated how weight bias internalization (WBI) relates to body dissatisfaction and mood among young women following an upward appearance-based comparison to thin-ideal Instagram imagery, and whether such relationships are mediated by body-related shame and moderated by self-compassion. Undergraduate women (*N*=109) completed trait measures of WBI and body-related shame in Part I. During Part II, participants were randomly assigned to either 1)compare their body parts to those of thin-ideal Instagram models; or to 2)an appearance-neutral control condition. Participants completed pre(Time 1)/post(Time 2) measures of body dissatisfaction and mood and Time 2 measures of self-compassion and appearance-based comparison. Following upward comparison, higher WBI was related to greater weight and appearance dissatisfaction and depressed mood. At heightened WBI, body-related shame explained elevated appearance-dissatisfaction and self-compassion buffered against increased depression. Findings highlight the need for interventions addressing body dissatisfaction and mood among young women with high WBI in social media contexts.

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Appearance-Based Social Media Use, Body Dissatisfaction, and Mood Among Young Women with High Weight Bias Internalization: Investigating the Roles of Body-Related Shame and Self-Compassion

Social media use is widely popular in North American society, with 47% of adults using Instagram. The use of this platform is particularly prevalent among young adults; 78% of individuals aged 18-29 years reported using Instagram in 2023, and in general, women tended to use social media more than men (Gottfried, 2024). While social media use can present some psychological benefits such as self- and social- connectedness (Kim et al., 2021), it has also been linked to poor mental health outcomes such as increased symptoms of depression and anxiety (Boer et al., 2021; Lambert et al., 2022) and worsened body image among young women (Cash, 2004; Huang et al., 2021).

Photo-based platforms, such as Instagram, can be particularly detrimental for body image and mood (Vandenbosch et al., 2022). They provide ample opportunity for engagement with content that features appearance-based body norms including the thin ideal (Karsay et al., 2021). The thin ideal is the glorification of thinness as the most desirable body type; its societal presence is ubiquitous (Keery et al., 2004). Individuals often erroneously attribute positive life circumstances, general life satisfaction, and social acceptance to thinness, which further propagates the thin ideal (Evans, 2003; Hohlstein et al., 1998). Exposure to media that idealizes thinness can reinforce perceptions of the thin ideal (López-Guimerà et al., 2010) and can lead individuals to internalize this as an aspirational (albeit unrealistic) body type that they should personally strive towards achieving (Thompson & Stice, 2001). Further, exposure to such unrealistic body norms on social media can elicit appearance comparisons — namely in the form of upward social comparisons (Mills, 2017). Festinger's (1954) *Social Comparison Theory*

proports that comparing oneself to those with similar attributes is an intrinsic drive, and such comparison is often a self-evaluative tool. However, when individuals engage in upward comparison to thin-ideal images, this presents a form of appearance-based body-image threat that can result in their self-perception of relative inferiority (Mills et al., 2022). This is particularly concerning for girls and young women, who are more likely to engage in comparison behaviour on social media than male peers (Dane & Bhatia, 2023).

The *Tripartite Influence Model of Body Image and Disordered Eating* (Thompson et al., 1999) implicates appearance-ideal internalization and social comparison as responsible for facilitating the relationship between societal body ideals and poor outcomes for women's body image. There is substantial support for this model's applicability in the context of social media use. Exposure to thin-ideal media imagery has been consistently linked to body dissatisfaction (i.e., a negative evaluation of one's body due to a perceived failure to meet societal body norms) and poor mood (Brown & Tiggemann, 2016; Jiotsa et al., 2021; Sumter, 2018). Appearance ideal internalization and appearance comparison have been identified as key mediators in this relationship (Holland & Tiggemann, 2016), and experimental evidence has consistently demonstrated a particularly harmful role of upward social comparisons in this context (Dane & Bhatia, 2023; Fardouly et al., 2015; Hogue & Mills, 2019; McComb & Mills, 2021; Tiggemann & Polivy, 2010). Social media-related body image outcomes are an important issue requiring further research, given the prevalence of body dissatisfaction among adult women (13.4-31.8% of U.S. women; Fallon et al., 2014) and its established links with disordered eating among vulnerable individuals (Holland & Tiggemann, 2016; Paxton et al., 2006; Slane et al., 2014).

Weight Bias Internalization (WBI)

Much like the ubiquity of the thin ideal in Western society (Keery, 2004), there is also widespread propagation of weight stigma facilitated by various media formats and public health efforts. This includes negative stereotypes about higher-weight individuals (e.g., attributions of laziness, lack of discipline, unhappiness), which are pervasive on social media, and public health messaging that inaccurately positions individual weight loss and maintenance of a "healthy weight" as critical for upholding physical health and lessening societal economic burdens (Tylka et al., 2014). WBI occurs when such weight stigma is integrated into one's self-concept, resulting in a devaluation of the self. This includes negative evaluations of one's weight and shape, however, unlike body dissatisfaction, WBI also encompasses a devaluation of an individual's entire self-concept and self-identity (Lillis et al., 2010; Pearl & Puhl., 2018). In other words, individuals with high WBI have a negative self-image due to their internalization of negative social stereotypes surrounding weight.

While WBI occurs across the gender and weight spectrum (Romano et al., 2022), it is more common among women and higher-weight individuals (Lillis et al., 2010). There are established links between WBI and depression, anxiety, poor physical health, exercise avoidance (Jackson & Steptoe, 2017; Puhl et al., 2018a; Ratcliffe & Ellison, 2015; Yangyuen et al., 2024), disordered eating (Marshall et al., 2020; Martin-Wagar & Weigold, 2023), body image distress, and low self-esteem (Barnhart et al., 2024; Durso et al., 2016; Pearl & Puhl, 2016; Yangyuen et al., 2024). Importantly, the literature supports WBI as a predictor of body dissatisfaction (Pearl & Puhl, 2018), and WBI is most strongly associated with poor body image among young women and individuals who fall within a normative weight range (Styk et al., 2024).

WBI and the Tripartite Influence Model

Much like the process of thin-ideal internalization, the development of WBI is largely facilitated by internalizing appearance norms (including the thin ideal) and sociocultural pressures that promote an aspirational view of thinness and disparage higher-weight bodies (Lee et al., 2019; Shentow-Bewsh et al., 2016; Stewart & Ogden., 2021). While the Tripartite Influence Model does not currently include WBI, WBI is conceptually similar to thin-ideal internalization, and it has been linked with comparable outcomes. Considering these similarities, WBI appears to align with this model as a facilitator of the relationship between societal body ideals and poor body image.

Further, in line with those with high thin-ideal internalization, young women with high WBI may be particularly vulnerable to negative outcomes within appearance-based social media contexts. For example, engaging with image-based social media is more strongly associated with WBI among younger, rather than older women (Moufawad et al., 2024). Additionally, young women with high WBI experience worsened negative affect as a result of viewing social media content that idealizes extreme thinness and fitness (Christensen Pacella et al., 2024). While social comparison was not assessed in these studies, it is possible that it may explain such vulnerabilities. For example, having low self-esteem and depressive symptoms — which are closely related to WBI — can heighten one's vulnerability to engaging in more frequent and more harmful social comparison on social media (Appel et al., 2015; Jang et al., 2018). However, a direct connection between social comparison and WBI has not yet been established.

Despite conceptual similarities with the Tripartite Influence Model (Thompson et al., 1999) and related vulnerabilities within appearance-based social media contexts, no research to date has explored how engaging in upward social comparison to thin-ideal imagery specifically

impacts young women with high WBI. This indicates a gap in the literature that this thesis can begin to address.

WBI and The Role of Body-Related Shame

WBI poses a significant risk to the health and well-being of young women. The *Weight Stigma and Wellbeing Process Model* (Tylka et al., 2014) draws on objectification theory (Noll & Fredrickson, 1998; Tiggemann & Slater, 2001) to provide a targeted theoretical framework for conceptualizing the risk of internalizing weight stigma. This model identifies factors related to self-objectification, such as body-related shame and appearance anxiety as processes through which the negative physical and psychological health outcomes of WBI occur. Body-related shame is particularly relevant to the proposed study, given past research demonstrating its associations with WBI (Barnhart et al., 2024) and harmful eating and body-image related outcomes (Mills et al., 2022; Tylka & Sabik, 2010). Further, the literature supports that body-related shame is predicted by appearance-based social comparison (Markham et al., 2005) and that body-related shame mediates the relationship between social comparison and restricted eating behaviours (Yao et al., 2021). Body-related shame represents a complex body-related self-conscious secondary emotion that occurs in response to beliefs that one's body falls short of broadly endorsed appearance norms (Castonguay et al., 2014; Noll & Fredrickson, 1998); it is comprised of a primary emotional component (e.g., disgust), a behavioural component (e.g., avoidance behaviour), and negative beliefs about one's body and how it is perceived by others (Gilbert et al., 2011). Despite theoretical support for body-related shame as a mechanism that facilitates negative outcomes associated with WBI, it is important to establish its explanatory value as we explore changes in body image and mood following social comparison to thin-ideal images on social media in this population.

Self-Compassion as a Moderator

The current literature illustrates important connections between WBI, body-related shame, and constructs involved in emotional regulation and processing such as self-compassion. Self-compassion involves directing kindness and compassion inward, treating oneself as one would a friend (Neff, 2003). There are previously established negative relationships between self-compassion and several body image and disordered eating risk factors identified in the Tripartite Influence Model (Thompson et al., 1999), such as lower engagement in appearance-based comparison and lower body dissatisfaction (Turk & Waller, 2020). Further, self-compassion moderates the inverse relationship between appearance-based comparison and body appreciation among young women (Homan & Tylka, 2015) and tempers the effect of appearance ideal internalization on body dissatisfaction among adult men (Maher et al., 2021).

Past research also demonstrates the efficacy of self-compassion interventions for reducing body image concerns among young women (Turk & Waller, 2020). Namely, a brief self-compassion intervention can help mitigate the negative effects of body-image threats on social media. Gobin and colleagues (2022) demonstrated that practicing self-compassion prior to engaging in upward appearance-based comparisons with thin-ideal images results in reduced body dissatisfaction among young women. There is also emerging support for the relevance of self-compassion interventions for individuals with high WBI. For example, Nightingale and Cassin (2023) showed that a brief letter-writing self-compassion intervention is most effective for improving body image among those with high levels of WBI.

Self-compassion has also been demonstrated as an effective buffer against body-related shame. Various studies report an association between high self-compassion and both lower body-related shame and lower body surveillance in non-clinical samples (Daye et al., 2014; Ferreira et

al., 2014; Liss & Erchull, 2015; Mosewich et al., 2011). In addition, external shame appears to explain the relationship between self-compassion and drive for thinness (Ferreira et al., 2013). Past intervention studies demonstrate the effectiveness of brief self-compassion interventions for reducing body-related shame within both general and high WBI samples of adult women (Albertson et al., 2015; Haley et al., 2025). However, women with high WBI exclusively experience reductions in body-related shame after undergoing a self-compassion intervention that is tailored for their specific psychoeducational needs (Haley et al., 2025), and not after undergoing a generic self-compassion intervention (Haley et al., 2022). Despite this emerging evidence, research is still needed to determine whether self-compassion mitigates body image and mood disturbance within a high WBI population, specifically as it applies to the context of appearance-based body image threats on social media.

In addition to direct connections between self-compassion and body image outcomes, there is also evidence to support an interplay between self-compassion and various emotional regulatory processes that may help to mitigate negative psychological outcomes associated with WBI. Self-compassion serves various emotional regulatory functions, such as the facilitation of emotional processing and prevention of maladaptive cognitive emotion regulation strategies that may hinder such processing, such as rumination (Neff, 2003; Robins et al., 2012). Self-compassion has also been linked to core mechanisms proposed by emotion regulation frameworks of anxiety and depression (Finlay-Jones, 2017). Further, improving one's self-compassion coincides with the uptake of more adaptive cognitive emotion regulation strategies (i.e., the cognitions, thoughts, and general mental processes employed to regulate one's emotions when faced with stressful events) (Rudolph et al., 2007) such as body-focused acceptance (Haley et al., 2022; Pullmer et al., 2021). Subsequent use of such adaptive strategies has been shown to

help improve body dissatisfaction among young women (Atkinson & Wade, 2012; Margolis & Orsillo, 2016). Finally, self-compassion has been demonstrated as an effective precursor for the facilitation of cognitive reappraisal (i.e., an adaptive cognitive ER strategy) in a clinical population of depressed individuals; this is relevant to those with high WBI, as cognitive reappraisal has been identified as a promising strategy to attenuate shame in this population (Pearl & Puhl, 2016).

Overall, self-compassion shows promise as a protective factor for negative psychological outcomes associated with WBI, illustrated by its role in directly mitigating body-related shame as well as its facilitatory role for adaptive emotional regulatory processes that target state body image and mood. Thus, further research is required to establish its value as a therapeutic target for individuals with high WBI who engage in appearance-based comparison on social media.

The Current Study

The primary objective of the current study was to establish an understanding of how viewing social media content that promotes beauty standards of thinness impacts the body image and mood of young women who have internalized negative stereotypes about weight. Following the frameworks of the Tripartite Influence Model and the Weight Stigma and Wellbeing Process Model, this study experimentally tested whether comparing oneself to idealized images of thinness exacerbates momentary body dissatisfaction and mood, especially among young women who reported elevated levels of WBI relative to the sample mean.

The secondary objectives of the current study were to explore the potentially mediating and moderating effects of factors closely related to WBI and body image. Firstly, this study investigated the potential mediating effects of body-related shame on the relationship between WBI and body dissatisfaction and mood after an appearance-based comparison task on social

media; given that women with high WBI were more vulnerable to negative body image and mood outcomes after viewing thin-ideal images on social media, we also addressed whether this vulnerability was explained by internalized body-related shame in this context. Next, this study established the moderating effects of self-compassion on the relationship between WBI and state body dissatisfaction and poor mood; this helped determine whether the use of self-compassion while engaging in upward social comparison mitigated negative impacts of viewing such idealized images of thinness on social media for individuals with high WBI.

Hypotheses

The Tripartite Influence Model of body image and disordered eating as well as Social Comparison Theory both predict that an individual who views idealized images of thinness will experience negative outcomes related to their body image and mood. Therefore, our first hypothesis (H1) was that, regardless of WBI, participants who viewed and compared themselves to social media content that promoted beauty-based standards of thinness would report a greater increase in body dissatisfaction and negative mood after this task than participants who viewed neutral images of nature.

Festinger's (1954) Social Comparison posits that individuals have an innate propensity towards engaging in upward social comparison and utilizing it as a self-evaluative tool. This is concerning, given that uninstructed comparisons on social media are most frequently upward comparisons, and this behaviour is endorsed more frequently by women than men (Dane & Bhatia, 2023). Further, in line with the Tripartite Influence Model (Thompson et al., 1999), the literature proports appearance-based upward social comparison as a key mechanism in the relationship between societal body ideals and negative body image among young women (Betz et al., 2019; Dane & Bhatia, 2023; Fardouly & Vartanian, 2015; Hogue & Mills, 2019; McComb

& Mills, 2021; Tiggemann & Polivy, 2010; Tiggemann & Zaccardo, 2015). Therefore, our second hypothesis (H2) was that engaging in higher levels of appearance comparison while viewing social media images that idealize thinness would mediate the effects of condition on state body dissatisfaction and mood outcomes. We also explored whether WBI moderated the path between condition and appearance comparison as an exploratory aspect of this hypothesis, in line with past research demonstrating increased engagement in social comparison among individuals who experience correlates of WBI (e.g., depression and low self-esteem) (Appel et al., 2015; Jang et al., 2018).

Further, the Tripartite Influence Model posits that appearance ideal internalization is crucial for the manifestation of negative body image outcomes after exposure to thin ideal body norms. Given the conceptual similarities between thin-ideal internalization and WBI, our third hypothesis (H3) was that reporting greater WBI would be related to greater body dissatisfaction and negative mood following comparison to thin ideal images.

The Weight Stigma and Wellbeing Process Model positions body-related shame as mechanistic in the relationship between WBI and various negative psychological and physical health outcomes, including poor body image. However, it is still unclear whether this holds true in a social media context. Following this framework, our fourth hypothesis (H4) was that body-related shame would mediate the relationship between WBI and body dissatisfaction and negative mood following an appearance-based comparison task.

Our fifth hypothesis (H5) concerned a potential moderator of the relationship between WBI and poor body image and mood following upward appearance-based comparison; this hypothesis aligns with clinically relevant literature. The literature supports that self-compassion can mitigate the negative effects of exposure to thin ideal images on body image and mood.

Therefore, our fifth hypothesis posited that, at higher levels of state self-compassion, participants with elevated WBI would report a less pronounced increase in body dissatisfaction and negative mood following an appearance-based social comparison task. In other words, we predicted that endorsing high state self-compassion would buffer the effects of elevated WBI on body image and mood outcomes.

Overall Significance

Overall, the current study contributed to our understanding of the effects of engaging with social media content that promotes the thin ideal on the body image and mood of young women with varying levels of WBI. To our knowledge, no research has addressed the body image and mood experiences of young women with high WBI in the context of appearance-based body image threats on social media and subsequent social comparison behaviour. It is pertinent to establish a better understanding of these relationships in this context, given the harmful impacts of social media use on body image and mood (Brown & Tiggemann, 2016), the prevalence of social media use among young women, and the vulnerability of women with internalized weight bias to developing body dissatisfaction (e.g., Pearl & Puhl, 2018). Additionally, the proposed study extended the Weight Stigma and Wellbeing Process Model by establishing the explanatory role of body-related shame for negative body image and mood outcomes related to WBI in a social media context. Finally, this research explored state self-compassion as a potentially protective factor with the goal of providing foundational knowledge for future research aimed at identifying therapeutic targets and developing interventions for young women with high WBI who experience poor body image related to their social media use.

Method

Participants

Female-identifying, young adult undergraduate students at York University were recruited for a study advertised as exploring young women's mental health experiences and their experiences using social media. Recruitment was facilitated through the York University Undergraduate Research Participant Pool (URPP), where students received 1.0 research participation credits towards an undergraduate Psychology course for their participation in each portion of this two-part study; they received a total of 2.0 research credits upon completion of the study.

Inclusion criteria included identifying as a woman, being between the ages of 18-25, having sufficient fluency and reading comprehension in English, and having normal or corrected vision. Data cleaning procedures involved excluding duplicate cases, excluding data from non-consenting participants, and excluding data from participants who attempted less than 50% of the survey questions. Part II data were excluded from one participant who advanced to the experimental task before receiving proper instruction. After the data had been cleaned, there were 161 valid cases for Part I of the study, and 112 valid cases for Part II of the study. Further exclusions were made for 49 participants who did not complete both parts of the study, either because they dropped out of the study after Part I, or did not attend their scheduled timeslot for Part II of the study and were not able to reschedule within 5-9 days of completing Part I. Further, one of these participants had completed both Parts I and II of the study, but their data was excluded as they were below the age of 18. Of the 112 remaining participants, three more cases were excluded due to the participants failing at least two out of the three attention checks included among baseline questionnaires in Part I. After final exclusions were made, data from a

total of 109 participants were included in analyses. Fifty-six of these participants had been assigned to the control condition, and 53 had been assigned to the experimental condition. This sample size aligned with the results of an *a priori* sample size estimation using G*Power, which yielded a recommended sample size of 110 participants (55 participants in the experimental group was recommended for sufficient power for mediation analysis). This sample size estimation was based on an alpha of level of 0.50, a medium effect size, and a power estimate of 0.80.

Participants' ages ranged from 18 to 24 (M = 19.16, SD = 1.55). The self-reported ethnic distribution of the sample was 9.20% White/European origin, 12.80% African/Caribbean or African/Caribbean-Canadian, 6.40% Chinese/Chinese-Canadian, 24.80% South Asian/South Asian-Canadian, 6.40% Southeast Asian/Southeast Asian-Canadian, 16.50% West Asian/West Asian-Canadian, 2.80% Arab/Arab-Canadian, .90% Mexican/Mexican-Canadian, 3.70% other Latinx/Hispanic or other Latinx/Hispanic-Canadian, 4.60% other ethnicity, and 11.90% biracial or multiracial. Participants' objective body mass index (BMI = kg/m^2) scores ranged from 15.94 to 53.70 (M = 23.06, SD = 5.25). The mean, median, and mode for BMI scores fell within the World Health Organization's guidelines for the "normal" weight range (18.5-24.9) (World Health Organization, 2019). Twenty-four participants did not provide sufficient information (i.e., weight and/or height) to calculate a BMI score.

Measures

Baseline Measures

Body-related shame. The Guilt and Shame subscales of the Body and Appearance Self-Conscious Emotions Scale (BASES) is a 16-item measure that assesses body and appearance self-conscious emotions, consisting of four subscales that capture guilt (four items), shame (four

items), authentic pride (four items), and hubristic pride (four items) (Castonguay et al., 2014). The Shame subscale was administered for the purpose this study. Respondents indicated how often they identified with each item on a five-point Likert scale ranging from one ("Never") to five ("Always"). Total scores for each of the Shame subscales range from zero to 20; subscale scores were obtained by summing responses to each relevant item. Castonguay and colleagues (2014) outlined adequacy in the measure's reliability and validity. The value of Cronbach's alpha for the current sample was $\alpha = .93$. Trait body-related shame was analyzed as a mediator in the relationship between WBI and body image/mood outcomes following experimental manipulation (see H4).

Weight bias internalization. Internalization of weight bias was measured using the Modified Weight Bias Internalization Scale (Pearl & Puhl, 2014). This 11-item questionnaire was modified from the original version (Durso & Latner, 2008) to extend its applicability across the weight spectrum, rather than just for higher weight individuals. Agreement with each item is rated on a seven-point Likert scale ranging from one ("Strongly disagree") to seven ("Strongly agree"). A total score was calculated by averaging scores for all items, with higher scores representing greater internalization of weight bias. Pearl and Puhl (2014) presented strong support for the scale's psychometric strength within a mixed-gender sample of adults living in the U.S. (Cronbach's alpha = .90). The value of Cronbach's alpha for the current sample was $\alpha = .94$. WBI was be analyzed as a both a moderator (see H2) and a predictor (see H3, H4, and H5) in the proposed study.

Social media use. Participants answered a series of questions regarding their social media use to illustrate the typical social media use behaviour in the everyday lives of our sample. Questions captured the platforms that participants used, their primary purposes of use (e.g., "to

communicate with friends/family"), their frequency of general social media use, and their frequency of Instagram use.

Demographics. Information regarding participants' age, gender identity, ethnic background, weight, and height was collected to provide descriptive statistics on the sample.

Outcome Measures

Pre/post body image and mood. Visual analog scale (VAS) measure was used to examine changes in body dissatisfaction and mood after the experimental manipulation. Both measures followed the design of Harper and Tiggemann (2008) and Tiggemann and McGill (2004). Participants were presented with a horizontal visual line scale out of 100 and ranging from "Not at all" to "Very much" for each item; they were asked to position a sliding bar to a location on the scale that represents their current feelings. Items measuring levels of depression and anxiety captured negative mood. Items measuring levels of weight dissatisfaction and appearance dissatisfaction captured state body dissatisfaction. State depression, anxiety, weight dissatisfaction, and appearance dissatisfaction at Time 1 (pre-experimental task) and Time 2 (post-experimental task) were the primary outcome variables in this study.

State self-compassion. The use of self-compassion during and immediately after the experimental task was assessed using the State Self-Compassion Scale-Long Form (Neff et al., 2021). This is an 18-item self-report questionnaire that assesses global tendencies towards self-compassion in the current moment, as well as current endorsement of the six domains of self-compassion (self-kindness, self-judgment, common humanity, isolation, mindfulness, over-identification). Participants were asked to rate on a five-point Likert scale (one= "Not at all true for me" to five= "Very true for me") the extent to which they endorsed applying compassion to themselves during and immediately after the experimental task. The instructions of this measure

were modified to urge participants to think about how they felt during and after completion of the experimental task. A total score reflected the mean of the subscale scores. Higher total scores indicate greater current self-compassion. Since we did not have hypotheses regarding subscales on this measure, we used the total score for this study. Neff and colleagues' (2021) study demonstrated psychometric support for this measure in a sample of mixed-gender individuals attending university in the U.S. The Cronbach's alpha for total scores among this sample was α = .89. State self-compassion was analyzed as a moderator in this study (see H5).

State Appearance Comparison. Three retrospective items adapted from Tiggemann and McGill (2004) were used to assess the degree to which participants engaged in state appearance comparison during the experimental task (State Appearance Comparison Scale). Participants were asked to rate on a seven-point Likert scale how much they had thought about their own appearance during the task (1 = "not at all", 7 = "very much"), and the degree to which they compared their overall appearance and specific body parts to those of thin-ideal Instagram models (1 = "no comparison", 7 = "a great deal of comparison"). Participants in the control condition received a modified version of the latter two items, which were not specific to the experimental stimuli (e.g., "How much did you compare your overall appearance to other women while viewing the nature images?"). Responses to the three items were averaged to yield a total score ranging from one to seven that represented state appearance comparison. Psychometric support for this scale was demonstrated among a female undergraduate sample (α = .91) (Tiggemann & McGill, 2004). The Cronbach's alpha within the current sample was α = .96. State appearance comparison was investigated as a mediator of the relationship between condition and body dissatisfaction and mood outcomes (see H2).

Procedure

This study employed a between-subjects experimental design, comprised of one experimental condition (appearance-based comparison task) and one control condition (nature image viewing task).

Part 1: Baseline Measures

Approximately one week prior to participating in the experimental portion of the study, students responded to a series of self-report questionnaires using an online QuestionPro survey. The first page of the survey provided information on the study and informed consent to participate. The participants were given as much time as necessary to provide their informed consent, and those who did not provide consent were redirected to the survey termination and debriefing page.

Baseline administration of the Weight Bias Internalization Scale-Modified (WBIS-M) (Pearl & Puhl, 2014) captured participants' internalization of weight stigma. Participants also responded to several short answer questions that helped illustrate their typical behaviour on social media, including information about the platforms they use, frequency of use, and engagement style. In addition, the Body and Appearance Self-Conscious Emotion Scale (BASES)- Shame subscale (Castonguay et al., 2014) was administered at baseline to capture participants' endorsement of trait body-related shame. At this time, participants also provided demographic information (e.g., age, gender identity, ethnicity, height, and weight). All baseline questionnaires were administered in a session separate from the experimental manipulation, to avoid priming effects.

After completing these questionnaires, eligible participants were redirected to the URPP website and prompted to schedule a timeslot for their participation in the second part of the

study, which involved meeting with the reseracher via Zoom. Participants were instructed to schedule this meeting as close to seven days after their completion of Part 1 as possible, however, they were provided with options to schedule the meeting between five and nine days after initial participation if necessary.

Part 2: Experimental Manipulation and VAS Measures at Time 1 and Time 2

Participants eligible and willing to continue to Part II were randomized to either the control or experimental group using block randomization in Excel with blocks of four to ensure balanced group sizes. Participants completed the experimental portion of the study using the QuestionPro platform after joining a Zoom meeting with the researcher. Students were asked to keep their camera on for the duration of the meeting, and the researcher remained on the Zoom call to answer any questions that arose. A link to the QuestionPro survey containing the instructions and materials for the experiment was provided to participants through the chat function on Zoom. Participants provided ongoing consent by reading the same consent form from Part 1 indicating their willingness to proceed on the QuestionPro survey. They then completed Time 1 visual analogue measures of state weight dissatisfaction, appearance dissatisfaction, depression, and anxiety (VAS; Harper & Tiggemann, 2008; Tiggemann & McGill, 2004).

Participants assigned to the control condition viewed 12 images of nature (Moffit et al., 2018) for at least 45 seconds per image to account for time and mental engagement. Participants assigned to the experimental condition viewed 12 images in total of seven different thin-ideal target women for at least 45 seconds per image. The survey was programmed so that participants could not advance to the next image until they had remained on the current page for a duration of at least 45 seconds. The images for the experimental condition were selected prior to the start o

the study based on pilot testing with six undergraduate women within the age range of our target sample. These volunteers rated 60 images of women based on their attractiveness and representativeness of the thin-ideal, through which the highest rated 12 images were selected as experimental materials. While viewing these idealized images of thinness, participants in the experimental condition were asked to compare the size of their body parts to those of the Instagram target women's body. This validated appearance-based forced comparison task (Gobin et al., 2022) involved participants ranking their thighs, arms, waist, butt, hips, biceps, breasts, legs, and stomach as *much smaller, smaller, about the same size, larger or much larger* than the Instagram target women's respective body parts, and an additional ranking of their own face and overall attractiveness as *much less attractive, less attractive, about the same level of attractiveness, slightly more attractive, or much more attractive* relative to that of the Instagram target woman. This forced comparison task helped to ensure that participants actively engaged with the images rather than passively view them, and it reinforced the element of social comparison within the experiment. To account for mental effort and engagement, participants in the control condition rated various visual aspects of the nature images. Prior to the start of the experimental task, participants were presented with a practice image and corresponding questions to familiarize them with task and provide an opportunity to ask questions.

At Time 2, immediately after viewing these images, participants in both the control and experimental conditions completed the same state mood and body image measures that they completed at the beginning of Part 2 once again. Participants also complete the State Self-Compassion Scale Long Form (SSCS-LF) (Neff et al., 2021) to assess their use of coping strategies while viewing these images, and the State Appearance Comparison Scale (SACS)

(Tiggemann & McGill, 2004) to assess their engagement in appearance comparison during the task.

Finally, the researcher turned their camera and microphone back on to provide the participants with a debriefing session. They explained the purpose of the study, answered any remaining questions, outlined previous research to provide context for the current study, assessed whether the experiment resulted in distress or discomfort, provided mental health resources in case distress or discomfort were to arise after the session, and thanked the individual for their participation in the study.

Data Analysis

Alpha was set at .05 for all analyses. Pearson's correlations were carried out to initially assess the relationships between the study variables of interest.

To address H1, an analysis of covariance (ANCOVA) was conducted to determine whether participants' Time 2 state anxiety, depression, weight dissatisfaction, and appearance dissatisfaction differed based on condition (thin-ideal image comparison, control condition), and included Time 1 scores of the respective mood and body dissatisfaction measures as covariates. Statistically significant interactions yielded from this analysis were further investigated using paired samples *t-tests* with Bonferroni correction.

To address H2, that appearance comparison would mediate the relationship between condition and body dissatisfaction and mood outcomes (i.e., anxiety, depression, weight dissatisfaction, and appearance dissatisfaction), a series of mediation analyses were conducted using PROCESS Macro for SPSS. Further, to test the exploratory component of H2 regarding the moderating role of WBI on the relationship between condition and appearance comparison, this model also included the moderating effects of WBI on path *a* (i.e., Type 1 moderated mediation).

The remaining hypotheses (H3, H4, and H5) were tested through analyses of a subset of the sample: participants who were assigned to the experimental, thin-ideal image comparison condition.

To address H3, that reporting elevated WBI would be associated with elevated body dissatisfaction and mood following appearance-based comparisons on social media (i.e., at Time 2), we conducted bivariate correlations, partial correlations controlling for respective Time 1 scores, and linear regressions included in the mediation and moderation models for H4 and H5.

To address H4, that body-related shame would have significant mechanistic value in the relationship between WBI and body image/mood in the experimental context, mediation regression analyses were conducted using PROCESS SPSS macro version 4.2 (Hayes, 2022). In this model, WBI was defined as the predictor (i.e., continuous WBIS-M scores), trait body-related shame was defined as the mediator, and the outcome variables were Time 2 state anxiety, depression, weight dissatisfaction, and appearance dissatisfaction.

Hypothesis five proposed that the use of state self-compassion would temper the negative body image and mood effects of the appearance-based comparison task among those with elevated WBI. This was tested using a moderation analysis using PROCESS SPSS macro version 4.2 (Hayes, 2022). The model included WBI as a continuous predictor, state self-compassion endorsed during and after the experimental task as the moderator, and Time 2 state anxiety, depression, weight dissatisfaction, and appearance dissatisfaction as the outcome variables.

Results

Descriptive Analysis of Typical Social Media Use

To support the relevancy of exploring social-media-related responses within our sample, we conducted descriptive analyses to assess whether participants typically used social media, and

how they typically used various platforms. 97.2% of participants reported using social media at least once a day, with 78.9% reporting using Instagram at least once a day. Instagram was the most used social media platform among participants, with 97.2% of participants endorsing use. Further, 67.00% of participants reported one of their reasons for using social media as to view celebrity and influencer content.

Preliminary Analyses

Baseline Between-Group Differences

A series of Mann-Whitney U tests examined baseline characteristics between the two conditions following random assignment. This non-parametric test was chosen due to violations of the normality assumption among many of these variables, which was assessed by Shapiro-Wilk tests. The results showed that participants in the control condition and the experimental condition did not significantly differ on median age, $U = 1366.50$, $Z = -.76$, $p = .45$, BMI, $U = 886.50$, $Z = -.057$, $p = .95$, WBI, $U = 1474.50$, $Z = -.058$, $p = .95$, trait body-related shame, $U = 1412.00$, $Z = -.44$, $p = .66$, state depression at Time 1, $U = 1204.50$, $Z = -1.70$, $p = .088$, state weight dissatisfaction at Time 1, $U = 1482.50$, $Z = -.009$, $p = .99$, and state appearance dissatisfaction at Time 1, $U = 1375.50$, $Z = -.66$, $p = .51$. However, there was a significant difference in median state anxiety scores at Time 1 between the conditions, $U = 931.00$, $Z = -3.36$, $p < .001$, with participants in the experimental condition (*Median* = 43.00) reporting greater state anxiety at baseline than participants in the control condition (*Median = 21.50,* See Table 1). These results suggest that random assignment to condition resulted in equivalent groups on most participant characteristics and baseline states and traits. However, upon starting the experiment, the experimental group reported greater state anxiety than the control group. Since baseline state anxiety scores were accounted for in subsequent ANOVAs, no adjustments were deemed

necessary to relevant analyses involving state anxiety scores. Further, no adjustments were made to the mediation and moderation analyses involving state anxiety, as they only involved the experimental group at post-manipulation. Visual inspection of the means and distribution of the baseline anxiety scores did not reflect an atypical sample in the experimental group, nor did it suggest ceiling effects on baseline state anxiety.

Manipulation Check

Next, a Mann-U Whitney test was conducted to establish whether participants in the experimental and control condition differed based on their level of appearance-based comparison reported during the experimental tasks. This non-parametric test was employed, given violations of the normality assumption among appearance comparison scores, which was assessed using a Shapiro-Wilk test. The results demonstrated that participants in the experimental condition (*Median* = 5.67) reported significantly higher median state appearance comparison scores at after the experimental task compared to those in the control condition (*Median* = 1.00), $U = 374.00$, $Z = -6.83$, $p < .001$ (see Table 1). This confirms that the experimental comparison task was effective in inducing an upward social comparison between participants and the subjects of thin-ideal images on Instagram.

Relationships Between Study Variables Within the Experimental Condition

Means, standard deviations, and Pearson's R bivariate correlations were calculated between WBI scores, BMI, body-related shame, state self-compassion, trait self-compassion, state appearance comparison, and post-induction measures of the VAS outcomes within the experimental condition (see Table 2). Log transformations were applied to BMI, state appearance comparison, and all VAS measures at Time 2, due to violations of normality as assessed by Shapiro-Wilk tests. Partial correlations were also conducted to assess the relationship between

WBI and body-related shame, while controlling for state self-compassion (see Table 3). The direction and strength of the relationships between the variables aligned with previous research.

Table 1

Time 1 and Time 2 Means, Standard Deviations, and Medians by Condition

Measure	Nature Image Group (Control Condition)		Thin-Ideal Image Group (Experimental Condition)	
	M (SD)	*Median*	*M (SD)*	*Median*
WBI	3.26 (1.57)	3.14	3.28 (1.52)	3.00
BMI	22.83 (4.40)	22.31	23.35 (6.20)	21.86
BR-Shame	9.59 (4.31)	9.00	9.85 (4.22)	10.00
State SC	3.31 (.68)	3.36	3.30 (.74)	3.44
State AC	2.27 (1.96)	1.00*	5.30 (1.54)	5.67*
VAS Anxiety				
Time 1	25.84 (25.13)	21.50*	42.98 (27.25)	43.00*
Time 2	13.80*[a] (19.17)	4.50*	32.13*[a] (29.25)	21.00
VAS Depression				
Time 1	16.38 (22.65)	3.00	23.43 (26.98)	14.00
Time 2	9.77*[a] (16.72)	1.00	24.30*[a](27.66)	13.00
VAS Weight Dissatisfaction				
Time 1	36.00 (30.14)	31.00	35.57 (30.98)	25.00
Time 2	30.27*[a] (30.22)	18.50	44.15*[a] (35.27)	42.00
VAS Appearance Dissatisfaction				

Time 1	38.98 (29.52)	38.50	35.53 (29.85)	30.00
Time 2	33.91*[a](29.26)	28.50	46.00 (34.78)*[a]	54.00

Note. n = 109. WBI = Weight Bias Internalization Scale- Modified Total Score; BR-Shame = Body and Appearance Self-Conscious Emotions Scale- Shame subscale score; Trait SC = Trait Self-Compassion Scale Short-Form total score; State SC = State Self-Compassion Scale total score; State AC = State Appearance Comparison Scale total score. Asterisks denote significant median differences ($p < .05$) between conditions, derived from *Mann-Whitney U* tests. Asterisks with superscripts indicate significant differences in estimated marginal means at Time 2, based on ANCOVA post hoc pairwise comparisons with Bonferroni correction, controlling for Time 1 scores.

Table 2

Intercorrelations for WBI, BMI, Body-Related Shame (BR-Shame), State Self-Compassion, State Appearance Comparison, and Time 2 State Body Dissatisfaction and Mood Outcome Variables

Variable	1	2	3	4	5	6	7	8	9	10	*M*	*SD*
1. WBI	---										3.28	1.52
2. BMI	.46**	---									23.35	6.20
3. BR-Shame	.59***	.14	---								9.85	4.22
4. State SC	-.65***	-.50**	-.44***	---							3.30	.74
6. State AC	.44***	.19	.34*	-.53***	-.19	---					5.30	1.54
7. Anxiety	.31*	.054	.34*	-.33*	-.15	.15	---				32.13	29.25
8. Depression	.52***	.33*	.38**	-.57***	-.40**	.39**	.63***	---			24.30	27.66
9. Weight Dissatisfaction	.73***	.40*	.41**	-.61***	-.28*	.39**	.29*	.48***	---		44.15	35.27
10. Appearance Dissatisfaction	.57***	.086	.45***	-.61***	-.23	.36**	.49***	.44***	.62***	---	46.00	34.78

Note. Intercorrelations, means, and standard deviations reflect represent data from participants in the experimental condition only. Means and standard deviations reflect non-log transformed data. $n = 53$. WBI = Weight Bias Internalization Scale- Modified Total Score; BMI = Log-transformed BMI scores; BR-Shame = Body and Appearance Self-Conscious Emotions Scale- Shame subscale score; State SC = State Self-Compassion Scale total score; Trait SC = Trait Self-Compassion Scale Short-Form total score; State AC = Log-transformed State Appearance Comparison Scale total score; Anxiety = Log-transformed state anxiety VAS score at Time 2; Depression = Log-transformed state depression VAS score at Time 2; Weight Dissatisfaction = Log-transformed state weight dissatisfaction VAS score at Time 2; Appearance Dissatisfaction = Log-transformed state appearance dissatisfaction VAS score at Time 2. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3

Partial Correlations Between WBI and Body-Related Shame and Time 2 State Body Dissatisfaction and Mood Outcome Variables

Control Variable	Variable	WBI
State SC	BR-Shame	.44**
Time 1 Anxiety	Time 2 Anxiety	.16
Time 1 Depression	Time 2 Depression	.40**
Time 1 Weight Dissatisfaction	Time 2 Weight Dissatisfaction	.39**
Time 1 Appearance Dissatisfaction	Time 2 Appearance Dissatisfaction	.38**

Note. Partial correlations reflect data from participants in the experimental condition only. $n = 53$. WBI = Weight Bias Internalization Scale- Modified Total Score; BR-Shame = Body and Appearance Self-Conscious Emotions Scale- Shame subscale score; State SC = State Self-Compassion Scale total score; Time 1 Anxiety = Log-transformed state anxiety VAS score at Time 1; Time 2 Anxiety = Log-transformed state anxiety VAS score at Time 2; Time 1 Depression = Log-transformed state depression VAS score at Time 1; Time 2 Depression = Log-transformed state depression VAS score at Time 2; Time 1 Weight Dissatisfaction = Log-transformed state weight dissatisfaction VAS score at Time 1; Time 2 Weight Dissatisfaction = Log-transformed state weight dissatisfaction VAS score at Time 1; Time 1 Appearance Dissatisfaction = State appearance dissatisfaction VAS score at Time 2 * $p < .05$; ** $p < .01$; ***$p < .001$

H1: Effect of Condition on State Body Dissatisfaction and Mood

ANCOVA, Controlling for Mood and Body Image at Time 1

A series of ANCOVAs were conducted to compare state mood and body dissatisfaction at Time 2 between the experimental and control conditions, controlling for respective state measures at Time 1. ANCOVA post hoc comparisons of estimated marginal means for each Time 2 outcome measure were conducted with Bonferroni correction, controlling for Time 1 measurement scores. State VAS measures of anxiety, depression, weight dissatisfaction, and appearance dissatisfaction were log-transformed prior to analysis to correct for violations of normality of residuals and homogeneity of variance assumptions.

As hypothesized, there was a significant effect of condition on state anxiety at Time 2 after adjusting for Time 1 levels, $F(1, 108) = 5.52$, $p = .021$, partial $\eta^2 = .049$. State anxiety at Time 2 was significantly higher in the experimental condition than the control condition ($p = .021$; see Table 1). There was also a significant effect of condition on state depression at Time 2 after adjusting for Time 1 scores, $F(1, 108) = 16.95$, $p < .001$, $\eta^2 = .14$. At Time 2, state depression was significantly higher in the experimental condition than in the control condition ($p < .001$; see Table 1).

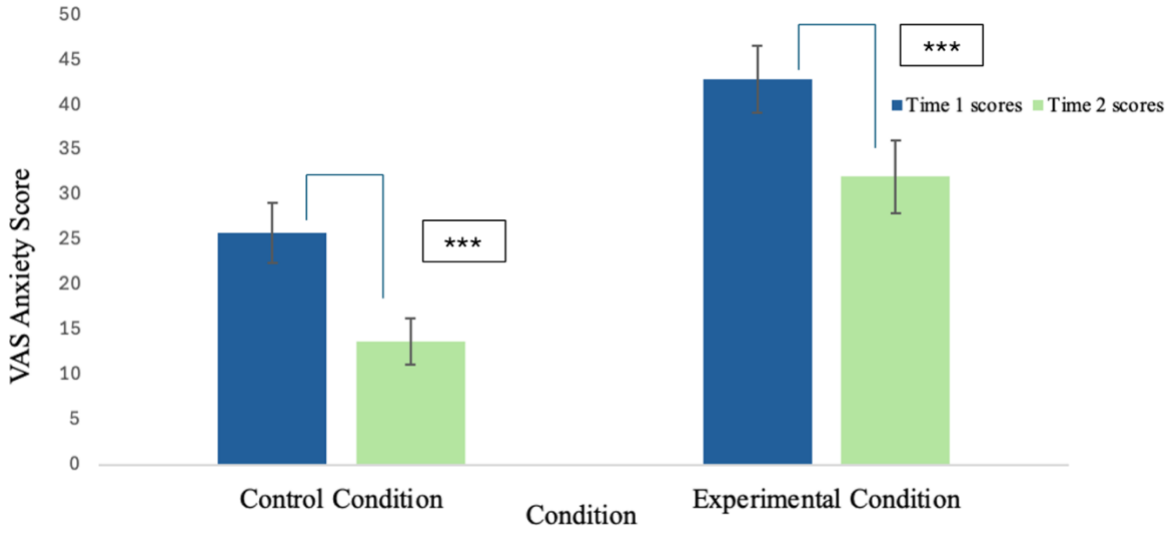
In terms of body image, an ANCOVA revealed a significant main effect of condition on Time 2 state weight dissatisfaction after controlling for Time 1 levels, $F(1, 108) = 9.64$, $p = .0020$, partial $\eta^2 = .083$. There was also a significant main effect of condition found on state appearance dissatisfaction at Time 2 when controlling for baseline levels, $F(1, 108) = 9.47$, $p = .0030$, partial $\eta^2 = .082$. Both appearance dissatisfaction ($p = .0030$) and weight dissatisfaction ($p = .0020$) were greater at Time 2 within the experimental condition, than in the control condition (see Table 1).

Within-Group Changes from Time 1 to Time 2

Paired samples *t*-tests were used to compare non-adjusted means of the various VAS measures between Time 1 and Time 2. Contrary to our hypotheses, there were significant decreases in state anxiety within both the control condition (t (55) = 4.55, $p < .001$, $M_{difference}$ = 12.04) and the experimental condition (t (52) = 3.74, $p < .001$, $M_{difference}$ = 10.85) from Time 1 to Time 2 (see Figure 1). Further, while the control condition experienced a significant decrease in depression (t (55) = 3.74, $p < .001$, $M_{difference}$ = 6.61) between Times 1 and 2, the experimental condition experienced no statistically significant changes in depression (see Figure 2). Participants in the control condition experienced significant decreases in weight dissatisfaction (t (55) = 3.55, $p < .001$, $M_{difference}$ = 5.73) and appearance dissatisfaction (t (55) = 3.11, $p = .001$, $M_{difference}$ = 5.07) from Time 1 to Time 2. And in alignment with our hypotheses, participants in the experimental condition reported statistically significant increases in both weight dissatisfaction (t (52) = 2.93, $p = .003$, $M_{difference}$ = 8.59) and appearance dissatisfaction (t (52) = 3.14, $p = .001$, $M_{difference}$ = 10.47) between Time 1 and Time 2 (see Figures 3 and 4).

Figure 1

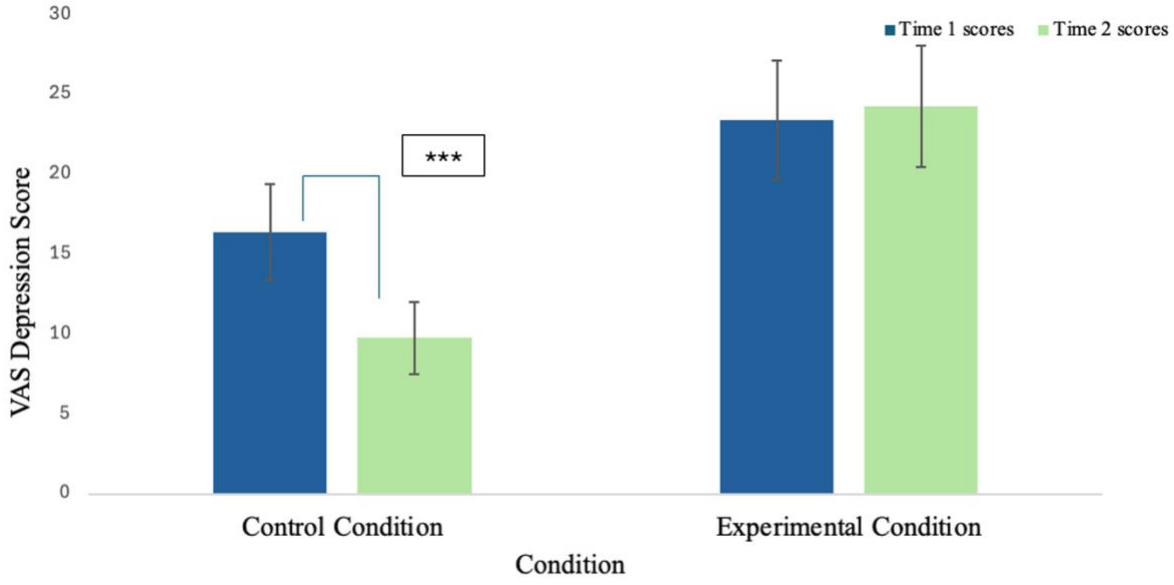
Anxiety Scores Prior to and Following Exposure to Experimental Images



Note. *** $p < .001$

Figure 2

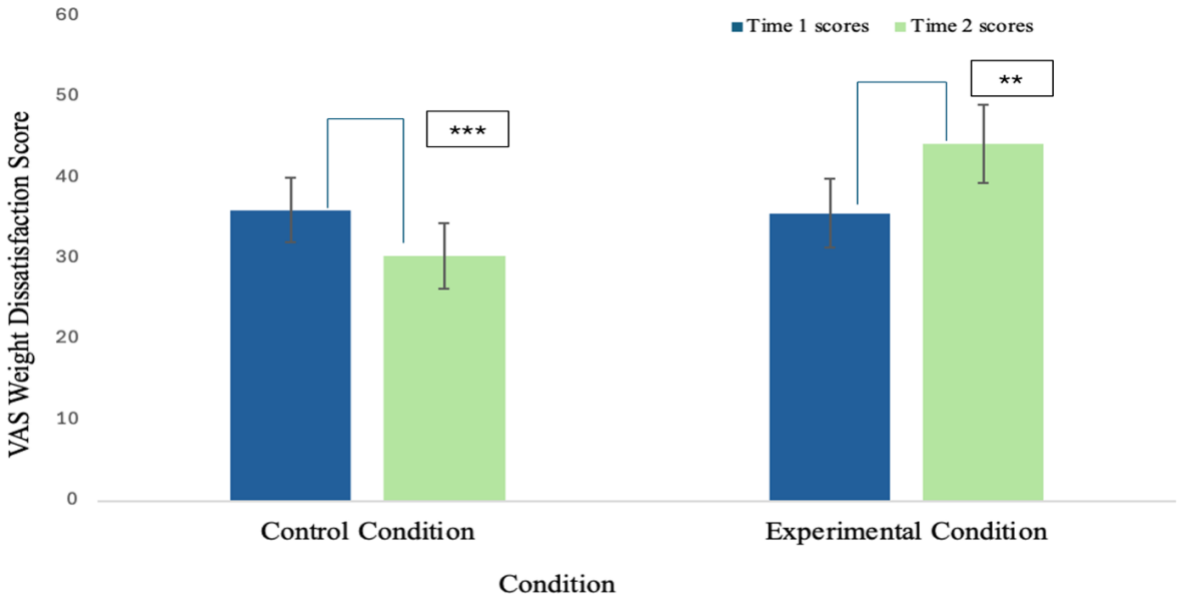
Depression Scores Prior to and Following Exposure to Experimental Images



Note. *** $p < .001$

Figure 3

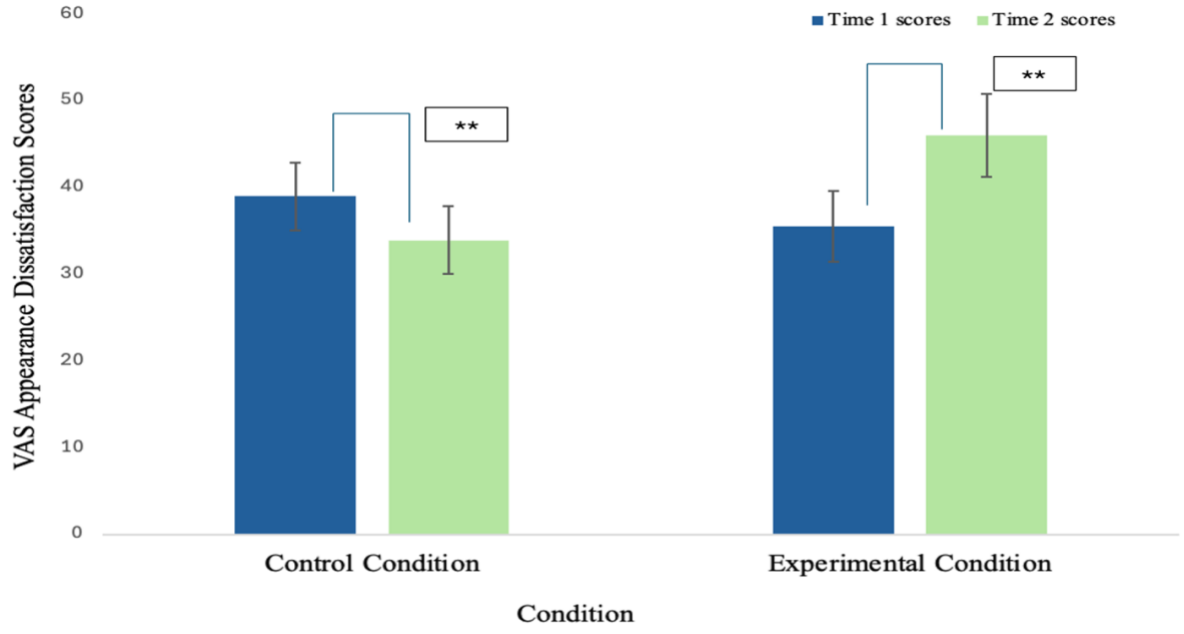
Weight Dissatisfaction Scores Prior to and Following Exposure to Experimental Images



Note. *** $p < .001$; ** $p < .01$.

Figure 4

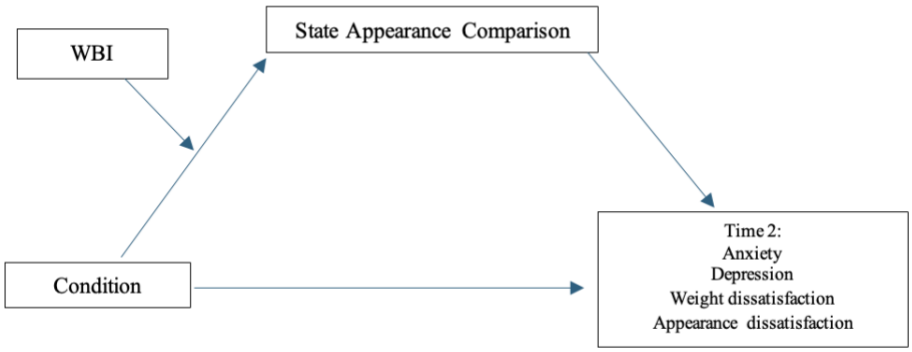
Appearance Dissatisfaction Scores Prior to and Following Exposure to Experimental Images



Note. ** $p < .01$.

Figure 5

Proposed Relationships Between Condition, State Appearance Comparison, WBI, and State Body Dissatisfaction and Mood Variables



H2: Mediation of State Appearance Comparison on the Effects of Condition on State Body Dissatisfaction and Mood, Moderated by WBI

Next, a series of moderated mediation (Type 1) analyses were conducted to test whether WBI moderates an indirect effect of condition on state mood and body image at Time 2 via state appearance-based comparison endorsed during the experimental thin-ideal comparison task (see Figure 5). These analyses were conducted using PROCESS macro for SPSS with 5000 bootstrap samples (model 7; Version 4.2; Hayes, 2022). VAS measures of anxiety and depression at Time 2 were log transformed to correct for violations of normality assumptions. Across all models, results revealed no significant effect of WBI on state appearance comparison (see Table 5). There was a significant effect of condition on state appearance comparison, with participants in the experimental condition reporting higher levels of state appearance comparison during the experimental task than those in the control condition. However, across all models, WBI was not a significant moderator of this relationship (see Table 4).

State Anxiety at Time 2

While there was a significant direct effect of condition on anxiety at Time 2, state appearance comparison did not significantly predict anxiety (see Table 4). The 95% bootstrap confidence intervals at all levels of WBI included zero, indicating no significant indirect effect of condition on anxiety through appearance comparison.

State Depression at Time 2

Condition did not significantly predict state depression at Time 2, whereas state appearance comparison significantly predicted higher levels of state depression at Time 2 (see Table 4). This suggests that the relationship between condition and Time 2 depression was fully mediated by state appearance comparison, where appearance comparison predicted depression at Time 2 regardless of condition.

State Weight Dissatisfaction at Time 2

The direct effect of condition on weight dissatisfaction at Time 2 was not significant, but higher appearance-based comparison significantly predicted greater weight dissatisfaction (see Table 4). This indicates a significant indirect effect of condition on Time 2 weight dissatisfaction through state appearance comparison.

State Appearance Dissatisfaction at Time 2

There was no significant main effect of condition on appearance dissatisfaction. However, higher endorsement of appearance comparison had a significant main effect on appearance dissatisfaction (see Table 4). This reveals an indirect effect of condition on Time 2 appearance dissatisfaction through appearance comparison.

Table 4

Conditional Direct and Indirect Effects of Condition on State Body Dissatisfaction and Mood Outcomes by State Appearance Comparison, Moderated by WBI

Model by Outcome Variable	Regression paths	R^2	F(df)	p	R^2 *Change*	Estimate	*SE*	*t*	95% CI		p
									LL	*UL*	
Model 1 (State AC)		.49	54.36 (3, 105)	< .001	.0041	---	---	---	---	---	---
	Mediation *a* path (condition on State AC)	---	---	---	---	2.39	.73	3.29	.95	3.83	.0013
	Effect of WBI on State AC	---	---	---	---	.071	.38	.19	-.67	.82	.85
	Condition * WBI on State AC	---	---	---	---	.19	.21	.91	-.23	.61	.36
Model 2 (Anxiety)		.14	8.19 (2, 106)	< .001	---	---	---	---	---	---	---
	Mediation *b* path (State AC on anxiety)	---	---	---	---	.018	.034	.54	-.049	.086	.59
	Direct effect, c' (Condition on anxiety)	---	---	---	---	.43	.16	2.74	.12	.73	.072
	Indirect effect with 95% CI (at mean of WBI)	---	---	---	---	.056	.10	---	-.15	.25	---
Model 3 (Depression)		.20	13.76 (2, 106)	< .001	---	---	---	---	---	---	---

	Mediation *b* path (State AC on depression)	---	---	---	---	.097	.034	2.87	.030	.16	.0049
	Direct effect, *c'* (Condition on depression)	---	---	---	---	.18	.16	1.11	-.14	.50	.27
	Indirect effect with 95% CI (at mean of WBI)	---	---	---	---	.29	.11	---	.091	.52	---
Model 4 (Weight dissatisfaction)		.090	4.65 (2, 106)	.012	---	---	---	---	---	---	---
	Mediation *b* path (State AC on weight dissatisfaction)	---	---	---	---	4.05	1.67	2.43	.74	7.37	.017
	Direct effect, *c'* (Condition on weight dissatisfaction)	---	---	---	---	1.61	7.36	.22	-12.98	16.20	.83
	Indirect effect with 95% CI (at mean of WBI)	---	---	---	---	12.25	5.18	--	2.62	22.97	---
Model 5 (Appearance dissatisfaction)		.097	5.13 (2, 106)	.0075	---	---	---	---	---	---	---
	Mediation *b* path (State AC on appearance dissatisfaction)	---	---	---	---	4.57	1.67	2.74	1.26	7.89	.0073
	Direct effect, *c'* (Condition on weight dissatisfaction)	---	---	---	---	-1.76	7.40	-.24	-16.44	12.92	.81

	Indirect effect with 95% CI (at mean of WBI)	---	---	---	---	13.83	5.29	---	4.05	24.91	---

Note. n = 109, *CI* = confidence interval; *LL* = lower limit; *UL* = *upper limit;* State AC = State Appearance Comparison Scale total score; Anxiety = Log-transformed state anxiety VAS score at Time 2; Depression = Log-transformed state depression VAS score; Weight Dissatisfaction = State weight dissatisfaction VAS score at Time 2; Appearance Dissatisfaction = State appearance dissatisfaction VAS score at Time 2

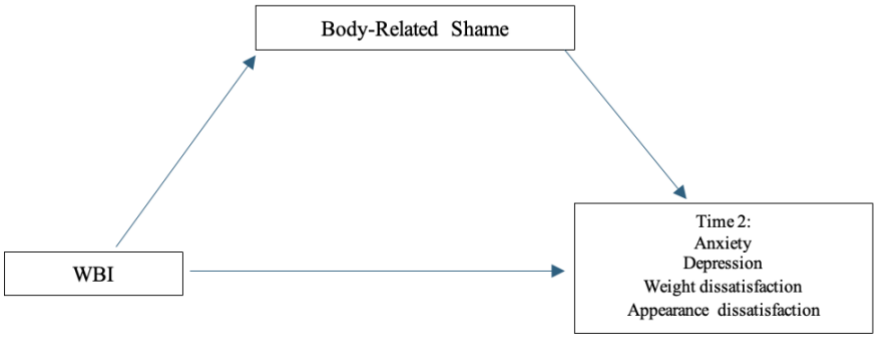
H3: Relationships Between WBI and Body Dissatisfaction and Mood in the Experimental Condition

A series of correlations were conducted to examine whether greater trait WBI was associated with worsened state body dissatisfaction and mood outcomes after engaging in upward comparisons with thin-ideal content on social media, while controlling for state body dissatisfaction and mood at Time 1. Log-transformations were performed on all Time 1 and Time 2 VAS measures, to correct for violations of the normality assumption.

There were significant positive bivariate correlations between WBI and Time 2 state anxiety ($p = .023$), WBI and Time 2 state depression ($p < .003$), WBI and Time 2 state weight dissatisfaction ($p < .001$), and WBI and Time 2 state appearance dissatisfaction ($p < .006$) (see Table 2). These correlations were followed up with partial correlations controlling for respective measures of mood and body dissatisfaction at Time 1. There were significant positive partial correlations between WBI and Time 2 state depression ($p = .003$), WBI and Time 2 state weight dissatisfaction ($p = .005$), and WBI and Time 2 state appearance dissatisfaction ($p = .006$) (see Table 5). However, after controlling for Time 1 state anxiety, the partial correlation between WBI and Time 2 state anxiety was not significant, $p = .26$ (see Table 3). Therefore, within our sample, reporting elevated trait WBI was associated with more severe state depression, weight dissatisfaction, and appearance dissatisfaction after engaging in upward comparisons to thin-ideal content; however, it was not associated with more severe state anxiety after engaging in such comparisons. These results are further reflected throughout subsequent mediation and moderation models, whereby there are significant effects of WBI on Time 2 weight and appearance dissatisfaction and depression, but not Time 2 anxiety (see Tables 5 and 6).

Figure 6

Proposed Relationships Between WBI, Body-related Shame, and State Body Dissatisfaction and Mood Variables



Note. Model will include participants in the experimental condition only.

H4: Mediation of Body-Related Shame on the Effects of WBI on State Body Dissatisfaction and Mood Within the Experimental Condition

PROCESS macro for SPSS with 5000 bootstrap samples (model 4; Version 4.2; Hayes, 2022) was used to test the potential mediating effects of trait body-related shame on the relationship between WBI and state measures of mood and body image at Time 2 within the experimental condition (see Figure 6). Time 2 state depression was log transformed to correct for violation of the normality assumption. Across all models, WBI scores significantly predicted trait body-related shame (see Table 5). This demonstrates that greater WBI was associated with greater levels of body-related shame among participants in the experimental condition.

State Anxiety at Time 2

The direct effect of WBI on state anxiety at Time 2 was not significant, nor was the effect of body-related shame on anxiety. Further, the indirect effect of WBI on state anxiety through

body-related shame was not significant (see Table 5), signifying that body-related shame does not mediate this relationship.

State Depression at Time 2

While WBI significantly predicted state depression at Time 2, there was no significant main effect of body-related shame on Time 2 depression when controlling for WBI. A non-significant indirect effect of state depression at Time 2 through body-related shame signifies that no mediation was present (see Table 5).

State Weight Dissatisfaction at Time 2

WBI significantly predicted Time 2 state weight dissatisfaction. However, body-related shame was not associated with weight dissatisfaction at time 2 when controlling for WBI, and thus there was no significant indirect effect of WBI on weight depression through body-related shame (see Table 5), indicating no evidence of mediation.

State Appearance Dissatisfaction at Time 2

Both WBI and body-related shame had significant main effects on state appearance dissatisfaction (see Table 5). The indirect effect of WBI on appearance dissatisfaction through body-related shame was significant, demonstrating that participants with greater trait WBI in the experimental group reported greater trait body-related shame, which then predicted heightened appearance dissatisfaction. This provides evidence for body-related shame as a potential mechanism through which WBI contributed to worsened state body image in the experimental condition.

Table 5

Direct and Indirect Effects of WBI on State Body Dissatisfaction and Mood Outcomes within the Experimental Condition via Body-Related Shame

Model by Outcome Variable	Regression paths	R^2	F(df)	p	Estimate	SE	t	95% CI		p
								LL	*UL*	
Model 1 (BR-Shame)		.35	26.86 (1, 51)	< .001	---	---	---	---	---	---
	Mediation *a* path (WBI on BR-Shame)	---	---	---	1.63	.32	5.18	1.00	2.26	< .001
Model 2 (Anxiety)		.13	9.16 (2, 50)	<.001	---	---	---	---	---	---
	Mediation *b* path (BR-Shame on anxiety)	---	---	---	1.80	1.23	1.47	-.67	4.27	.15
	Direct effect, c' (WBI on anxiety)	---	---	---	5.85	3.72	1.57	-1.62	13.31	.12
	Indirect effect with 95% CI	---	---	---	2.94	1.86	---	-.98	6.41	---
Model 3 (Depression)		.28	14.80 (2, 50)	<.001	---	---	---	---	---	---
	Mediation *b* path (BR-Shame on depression)	---	---	---	.018	.023	.78	-.029	.065	.44

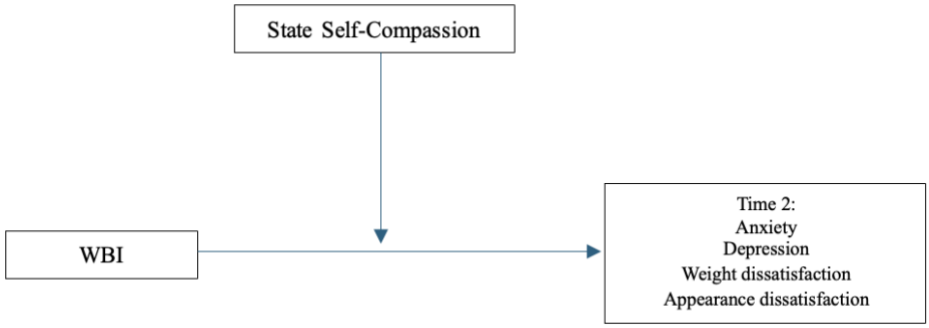
	Direct effect, c' (WBI on depression)	---	---	---	.18	.057	3.26	.071	.30	.0020
	Indirect effect with 95% CI	---	---	---	.030	.037	---	-.045	.10	---
Model 4 (Weight dissatisfaction)		.62	65.94 (2, 50)	< .001	---	---	---	---	---	---
	Mediation *b* path (BR-Shame on weight dissatisfaction)	---	---	---	-.39	1.02	-.38	-2.43	1.65	.70
	Direct effect, c' (WBI on weight dissatisfaction)	---	---	---	18.84	2.54	7.42	13.74	23.95	< .001
	Indirect effect with 95% CI	---	---	---	-.64	1.71	---	-4.22	2.65	---
Model 5 (Appearance dissatisfaction)		.45	38.32 (2, 50)	< .001	---	---	---	---	---	---
	Mediation *b* path (BR-Shame on appearance dissatisfaction)	---	---	---	2.40	1.18	2.04	.036	4.77	.047
	Direct effect, c' (BR-Shame on appearance dissatisfaction)	---	---	---	10.47	3.37	3.11	3.70	17.23	.0031
	Indirect effect with 95% CI	---	---	---	3.93	1.86	---	.36	7.68	---

Note. $n = 53$, *CI* = confidence interval; *LL* = lower limit; *UL = upper limit;* BR-Shame = Body and Appearance Self-Conscious Emotions Scale- Shame subscale score; Anxiety = State anxiety VAS score at Time 2; Depression = Log-transformed state depression

VAS score; Weight Dissatisfaction = State weight dissatisfaction VAS score at Time 2; Appearance Dissatisfaction = State appearance dissatisfaction VAS score at Time 2.

Figure 7

Proposed Relationships Between WBI, State Self-Compassion, and State Body Dissatisfaction and Mood Variables



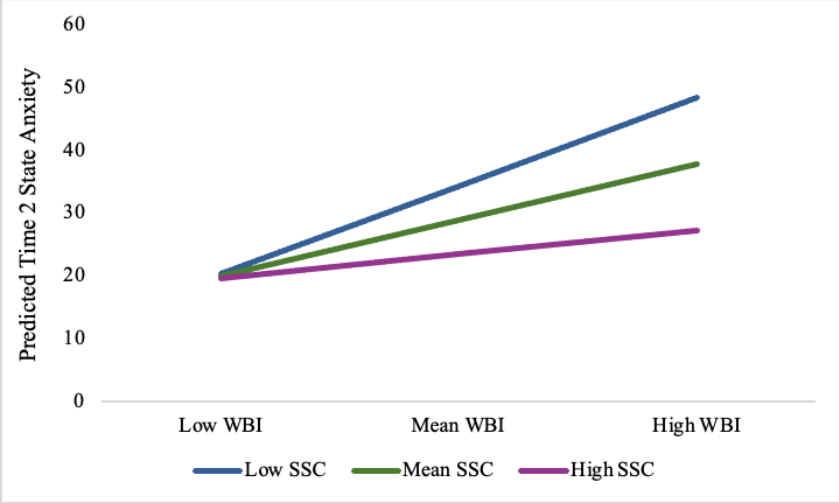
Note. Model will include participants in the experimental condition only.

H5: Moderation of State Self-Compassion on the Effects of WBI on State Body Dissatisfaction and Mood within the Experimental Condition

A series of moderation analyses were conducted to assess whether state self-compassion endorsed during the thin-ideal comparison task moderates the relationship between WBI and state mood and body image outcomes at Time 2 within the experimental condition (see Figure 7). PROCESS macro for SPSS (Version 4.2; Hayes, 2022) model 1 with 5000 bootstrap samples was used for these analyses. WBI and state self-compassion scores were mean centered to reduce multicollinearity and facilitate interpretation of the interaction terms.

Figure 8

Interaction Between WBI and State Self-Compassion Predicting Time 2 Anxiety



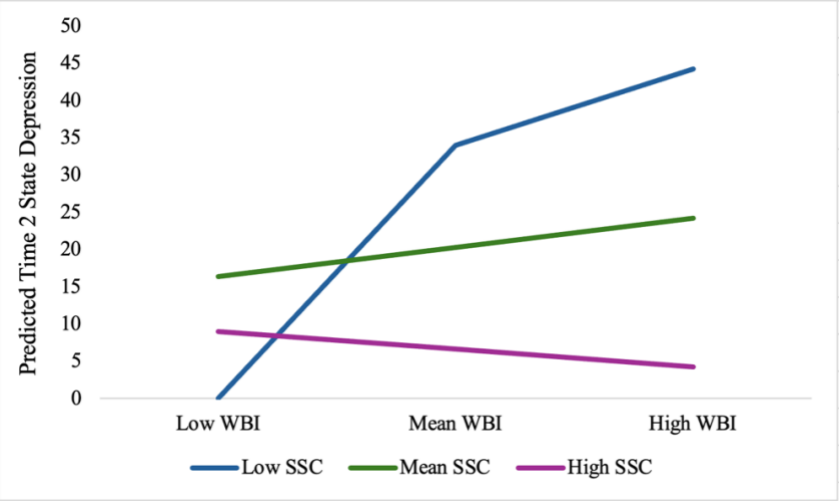
Note. Predicted values of Time 2 anxiety are plotted at low (–1 SD), mean (centered), and high (+1 SD) levels of state self-compassion and weight bias internalization (WBI), both of which were mean centered prior to analysis. The relationship between WBI and anxiety was strongest at low levels of state self-compassion.

State Anxiety at Time 2

There was no significant interaction between WBI and state self-compassion (see Table 6). However, conditional effects showed that WBI was significantly positively associated with Time 2 anxiety at lower levels of state self-compassion. Therefore, while the interaction was not significant, comparisons across levels of state self-compassion revealed that, for participants who endorsed low self-compassion during the thin-ideal comparison task, having higher trait WBI was linked to greater anxiety at Time 2. In contrast, utilizing high levels of state self-compassion during the experimental task weakened the relationship between WBI and Time 2 anxiety (see Figure 8); this suggests that high self-compassion may mitigate the negative emotional impacts of WBI in this context, although results should be interpreted with caution, given the non-significant interaction.

Figure 9

Interaction Between WBI and State Self-Compassion Predicting Time 2 Depression



Note. Predicted values of Time 2 depression are plotted at low (–1 SD), mean (centered), and high (+1 SD) levels of state self-compassion and weight bias internalization (WBI), both of which were mean centered prior to analysis. The relationship between WBI and anxiety was strongest at low levels of state self-compassion, attenuated at mean levels, and nonsignificant or negative at high levels of self-compassion.

State Depression at Time 2

There was a significant main effect of WBI on depression at Time 2, but no significant main effect of state self-compassion endorsed during the experimental task. However, there was a significant interaction between WBI and state self-compassion (see Table 6), suggesting that the relationship between WBI and state depression at Time 2 was moderated by state self-compassion. Conditional effects showed that WBI was significantly positively associated with state depression at lower levels of state self-compassion, specifically for scores of self-compassion below -.85 (16.98% of the sample). Thus, for those who endorsed lower self-compassion during the experimental task, having higher levels of trait WBI was associated with greater state depressive after making upward comparisons to thin-ideal images (see Figure 9). Those who endorsed mean levels of state self-compassion during the comparison task exhibited a

weaker association between WBI and Time 2 depression. At high levels of WBI, high state self-compassion use during the comparison task effectively buffered the impact of high WBI on Time 2 depression. This suggests that state self-compassion may serve as a protective factor for women with elevated levels of WBI against feeling depressed while engaging in upward comparison to thin-ideal images.

State Weight Dissatisfaction at Time 2

The interaction between WBI and state self-compassion was not significant, and thus there was no significant moderating effect of state self-compassion on the relationship between WBI and weight dissatisfaction at Time 2 (see Table 6). The relationship between WBI and Time 2 state weight dissatisfaction does not significantly differ across levels of state self-compassion.

State Appearance Dissatisfaction at Time 2

There was also no significant interaction between WBI and state self-compassion use (see Table 6), indicating no evidence of moderation. Thus, the relationship between WBI and Time 2 state appearance dissatisfaction does not significantly differ across levels of state self-compassion.

Table 6

Conditional Effects of WBI on State Body Dissatisfaction and Mood Outcomes within the Experimental Condition as Moderated by State Self-Compassion

Model by Outcome Variable	Regression paths	R^2	F(df)	p	R^2 *Change*	Estimate	*SE*	*t*	95% CI		p
									LL	*UL*	
Model 1 (Anxiety)		.26	4.23 (3, 49)	.0097	.029	---	---	---	---	---	---
	Direct effect of WBI	---	---	---	---	5.87	3.01	1.95	-.19	11.93	.057
	Effect of State SC	---	---	---	---	-7.36	5.61	-1.31	-18.63	3.81	.20
	WBI * State SC	---	---	---	---	-4.54	3.21	-1.42	-10.98	1.91	.16
Model 2 (Depression)		.44	9.84 (3, 49)	< .001	.049	---	---	---	---	---	---
	Direct effect of WBI	---	---	---	---	2.58	2.09	1.24	-1.62	6.78	.22
	Effect of State SC	---	---	---	---	-18.39	5.12	-3.59	-28.68	8.09	.00080
	WBI * State SC	---	---	---	---	-5.58	2.44	-2.29	-10.48	-.68	.027
Model 3 (Weight dissatisfaction)		.65	61.70 (3, 49)	< .001	<.001	---	---	---	---	---	---
	Direct effect of WBI	---	---	---	---	14.64	2.99	4.89	8.63	20.66	<.001
	Effect of State SC	---	---	---	---	-11.10	6.01	-1.85	-23.18	.98	.071
	WBI * State SC	---	---	---	---	-.31	2.40	-.13	-5.12	4.51	.90

Model 4 (Appearance dissatisfaction)		.48	26.78 (3, 49)	< .001	.013	---	---	---	---	---	---
	Direct effect of WBI	---	---	---	---	8.71	3.03	2.87	2.62	14.79	.0060
	Effect of State SC	---	---	---	---	-16.47	7.10	-2.32	-30.73	-2.20	.68
	WBI * State SC	---	---	---	---	-3.56	2.82	-1.26	-9.23	2.11	.21

Note. $n = 53$, *CI* = confidence interval; *LL* = lower limit; *UL = upper limit;* State SC = State Self-Compassion Scale total score; Anxiety = State anxiety VAS score at Time 2; Depression = Log-transformed state depression VAS score; Weight Dissatisfaction = State weight dissatisfaction VAS score at Time 2; Appearance Dissatisfaction = State appearance dissatisfaction VAS score at Time 2.

Discussion

This is the first study to our knowledge to explore how engaging with social media content that promotes the thin ideal uniquely impacts state body image and mood among young women with elevated levels of WBI. Past research — drawing from Social Comparison Theory (Festinger, 1954) and the Tripartite Influence Model of Body Image and Disordered Eating (Thompson et al., 1999) — demonstrates that, among young women, engaging in upward social comparison to thin-ideal content on social media presents an appearance-based body image threat that can lead to negative mood and body dissatisfaction (Hogue & Mills, 2019; McComb & Mills, 2021; Tiggemann & Polivy, 2010). We replicated these findings in the current sample (H1 and H2) and aimed to extend our existing knowledge by exploring nuances of these relationships as they apply to young women with elevated levels of WBI (H3). Further, we looked to extend the Weight Stigma and Wellbeing Process Model (Tylka et al., 2014) to explore body-related shame as a key mechanism that drives negative body image and mood outcomes associated with WBI in the context of appearance-based body image threats on social media (H4). Finally, given evidence supporting negative associations between self-compassion and several risk factors within the Tripartite Influence Model (e.g., body shame, body dissatisfaction, appearance comparison) among young women (Turk & Waller, 2020) and high WBI samples (Haley et al., 2025; Nightingale & Cassin, 2023), the current study aimed to establish preliminary evidence for the future development of tailored interventions for young women with high WBI when using social media. We did so through an exploration of how uninstructed use of state self-compassion during and after upward comparison to appearance-based body image threats buffered adverse body image and mood outcomes (H5).

Discussion of H1 and H2: Effects of Condition and Appearance Comparison on Body Dissatisfaction and Mood

Our findings largely supported our hypotheses. As predicted in H1, regardless of reported levels of WBI, young women who were instructed to compare themselves to Instagram content that promoted appearance-based standards of thinness experienced significantly greater weight and appearance dissatisfaction after this task than young women in the control condition, who viewed images of nature. While participants in the experimental condition reported significant increases in weight and appearance dissatisfaction, those in the control condition reported significant decreases on these measures. These results demonstrate that even brief exposure and comparison to appearance-based body image threats on social media negatively impacted the body image of these young women. These findings provide direct support for Social Comparison Theory (Festinger, 1954), which posits that making upward social comparisons can lead to feelings of relative inferiority with perceived superior others and a desire to reduce the discrepancy between oneself and the idealized target (i.e., the thin-ideal Instagram images). Other recent research supports this theoretical framework, highlighting that comparisons on social media are frequent among women, and that social comparisons are most commonly upward and result in feelings of inadequacy (Dane & Bhatia, 2023).

Examining the findings for H1 and mood, both state anxiety and depression were elevated among those who were instructed to compare themselves to thin-ideal imagery, compared to those who viewed nature images when controlling for baseline scores. However, unexpectedly, those in the experimental condition did not report a significant increase in depression and they reported a decrease in state anxiety, whereas women in the control condition reported significant decreases in both state anxiety and depression after viewing images of

nature. In other words, although the between-group differences supported H1, the within-group differences did not clearly support the idea that the social comparison task caused worsened mood. These results are discrepant with existing research that highlights adverse outcomes for mood after exposure to appearance-based content (Brown & Tiggemann, 2016; Christensen Pacella et al., 2024; Fardouly et al., 2015; Lambert et al., 2022; Tiggemann & McGill, 2004; Tiggemann & Zaccardo, 2015). However, many of these past studies combined measures of anxiety, depression, and other mood variables (e.g., happiness) to represent a singular measure of general negative affect (e.g., Brown & Tiggemann, 2016; Christensen Pacella et al., 2024; Tiggemann & Zaccardo, 2015). This differs from the approach to operationalizating mood variables in the current study and could have masked outcomes that were specific to each unique mood state.

Our second hypothesis (H2) was that state appearance comparison would mediate the effect of condition on body dissatisfaction. As predicted, state appearance comparison fully mediated the effect of condition on weight and appearance dissatisfaction; thus, engaging in higher levels of appearance comparison explained why heightened body dissatisfaction was seen after engaging with thin-ideal content in the experimental condition but not after viewing images of nature in the control condition. These findings align with the Tripartite Influence Model (Thompson et al., 1999), which identifies upward social comparison as a key facilitator of the link between societal body ideals and body dissatisfaction. A large body of research has demonstrated that upward comparison drives negative body image outcomes upon exposure to appearance-based body image threats on social media (Betz et al., 2019; Dane & Bhatia, 2023; Fardouly & Vartanian, 2015; Hogue & Mills, 2019; McComb & Mills, 2021; Portingale et al., 2024; Tiggemann & Polivy, 2010; Tiggemann & Zaccardo, 2015).

H2 was only partially supported for mood outcomes. State appearance comparison during exposure to thin-ideal or nature images did not mediate the effect of condition on subsequent anxiety. The Tripartite Influence Model supports social comparison as a mechanism specifically for body image disturbance. Although it was predicted that it also results in lowered mood, social comparison may not operate in the same way when applied to mood outcomes. Although past studies have established links between appearance-based social media use and negative mood outcomes, appearance comparison does not appear to explain or moderate this relationship in the literature (Fardouly et al., 2015; Tiggemann & McGill, 2004; Tiggemann & Zaccardo, 2015). Therefore, it is possible that confounding factors may contribute to certain negative mood states such as feeling anxious. In addition, since these studies combined several mood states to operationalize "negative affect," the previous evidence may not generalize to all negative mood states. For example, in the current study, the degree of engagement in appearance comparison fully mediated the relationship between condition and depression, and thus appearance comparison explained why young women who were exposed to thin-ideal images reported greater Time 2 depression than those who viewed neutral images. This is also supported by previous findings that depressed individuals tend to experience more envy, and these feelings of envy are facilitated by social comparison social media (Appel et al., 2015). However, it is possible that findings from this past study may not generalize to non-clinical populations. Overall, further research is needed to distinguish between explanatory mechanisms for varying mood states following appearance-based comparison to thin-ideal imagery.

Included in H2 was an exploration of the moderating role of WBI on the relationship between condition and appearance comparison. While there has been very limited research on this topic, the existing literature suggests that experiencing depression and low self-esteem,

which are both related to WBI, may increase one's vulnerability to negative outcomes after engaging in appearance comparison on social media (Appel et al., 2015; Jang et al., 2018). The current study found that young women with elevated WBI engaged in appearance comparison at comparable rates with their lower WBI peers, both when instructed to compare themselves to thin ideal images, as well as when they were given no instruction to do so and viewed neutral images. These null findings pose an interesting avenue for further investigation. They also lend validity to the subsequent findings of the current study by ruling out individual differences in appearance comparison as a rival hypothesis.

Discussion of H3, H4, and H5: The Effects of Social Comparison to Thin-Ideal Imagery at Elevated Levels of WBI

Relationships Between WBI and State Body Dissatisfaction and Mood Outcomes

For young women in our study, higher WBI was related to greater weight and appearance dissatisfaction following an appearance-based body image threat. These findings align with predictions made in H3 and are consistent with extensive previous research establishing a link between WBI and body dissatisfaction (Durso et al., 2016; Pearl & Puhl, 2018; Yangyuen et al., 2024) that is particularly strong for young women and individuals within a normative weight range (Styk et al., 2024). These trait-level relationships might provide context as to why young women with elevated WBI in our sample were more sensitive to state body dissatisfaction following appearance-based body image threats, given established vulnerabilities among those with heightened body dissatisfaction (Ferguson, 2013). Additionally, previous studies have identified links between exposure to body ideals on social media with higher WBI (Alberga et al., 2018; Parsa et al., 2021; Homan et al., 2012). The current findings help frame these vulnerabilities through the lens of the Tripartite influence Model (Thompson et al., 1999); this is

the first study to our knowledge to assess how the body image of young women with elevated WBI is uniquely impacted when engaging in social comparison to appearance-based body ideals in an appearance-based social media setting.

Building on the relationship between WBI and body dissatisfaction outlined in H3, we also examined how WBI influenced mood outcomes following appearance-based body image threats. We found that higher WBI was related to greater state depression in this context. Our findings are consistent with previously established relationships between WBI and depression in another diverse sample of female undergraduate students (Borgatti et al., 2024), as well as findings that WBI strengthens associations between exposure to appearance-based content of body ideals (e.g., including thin-ideal images) on social media and subsequent negative affect for young women who self-report disordered eating (Christensen Pacella et al., 2024). By elucidating the role of social comparison in this process, our study not only contextualizes past findings within the Tripartite Influence Model (Thompson et al., 1999), but it extends such findings to a broader sample, including women who do not necessarily engage in disordered eating but still report elevated WBI. Further, our finding that the relationship between WBI and state anxiety in the context of thin-ideal images on social media was not significant highlights that past research that utilized a non-specific mood outcome such as negative affect might not have captured nuances in how depressive and anxious mood states differ in response to appearance-based body image threats. Our finding that social comparison did not mediate the effect of condition on Time 2 anxiety (H2) provides support for such nuances, suggesting that distinct mood state outcomes are not as reliably influenced by thin-ideal images on social media as is body image.

Taken together, our findings thus far reveal that comparing oneself to thin-ideal images on Instagram led to subsequent increases in weight and appearance dissatisfaction, and that young women with elevated WBI are particularly vulnerable to these aversive outcomes. Thus, our remaining hypotheses (H4 and H5) aimed to address *why* young women who reported elevated WBI may be particularly vulnerable in this context, and what might help buffer such sensitivity to appearance-based upward comparison to thin-ideal imagery.

Trait Body-Related Shame as Mediator

Our analyses for H4 drew from the Weight Stigma and Wellbeing Process Model (Tylka et al., 2014), which proposes that body-related shame is a process through which decreased psychological well-being is linked to WBI in a broad range of populations and settings. Within the context of social comparison, past research has shown that engaging in social comparison predicts body-related shame (Markham et al., 2005; Mills et al., 2022; Tylka & Sabik, 2010), and that body-related shame helps explain restricted eating behaviour that results from social comparison (Yao et al., 2021). We aimed to extend this work to identify whether body-related shame holds explanatory value within the context of appearance-based threats on social media, specifically among young women with high WBI. Our results revealed that body-related shame partially mediated the relationship between WBI and appearance dissatisfaction following comparison to thin-ideal imagery. Thus, while shame helps to explain this relationship, WBI remains a strong and direct predictor of appearance dissatisfaction in this context, indicating that additional mechanisms may also be at play.

Body-related shame did not mediate relationships between WBI and anxiety, depression, and weight dissatisfaction in the context of thin-ideal imagery, nor did it have significant direct effects on any of these outcome variables. The current findings specifically support to the

Weight Stigma and Wellbeing Process Model (Tylka et al., 2014) by isolating the role of body-related shame in a social media context. Future research should explore other mechanisms proposed by the model, such as appearance monitoring, within appearance-based body image threat settings.

Although body-related shame only helped to explain appearance dissatisfaction in our study, our findings reinforce its broader relevance within the context of WBI, body image, and social comparison. In our study, WBI consistently had a significant direct effect on body-related shame (see Table 5), which supports growing evidence in the literature that body-related shame is a pervasive experience among those with WBI (Barnhart et al., 2024; Bidstrup et al., 2022; Lucibello et al., 2023). It is pertinent that future studies continue this line of exploration, to further establish the interplay between WBI and body-related shame and its negative consequences on young women, particularly when faced with appearance-based body image threats.

State Self-Compassion as a Moderator

The final aim of the current study was to examine whether self-compassion moderated the relationship between WBI and negative mood and body image outcomes following upward comparison to thin-ideal imagery (H5). By examining whether varying levels of uninstructed state self-compassion use during an appearance-based comparison task buffered against body dissatisfaction and negative mood among individuals with elevated WBI, we sought to explore whether self-compassion could serve as a protective factor and help determine the need for future research on interventions targeting this mechanism.

The existing literature supports self-compassion as an adaptive emotion regulation strategy in the context of body image, with evidence supporting relationships between high

levels of self-compassion and lower body-related shame within non-clinical samples (Daye et al., 2014; Ferreira et al., 2014; Liss & Erchull, 2015; Mosewich et al., 2011), lower body image concerns, lower drive for thinness, lower body dissatisfaction, and more positive body image (Turk & Waller, 2020). Having high self-compassion has also been associated with lower engagement in appearance-based social comparison in non-clinical samples (Duarte et al., 2015; Homan & Tylka, 2015). Results from preliminary analyses in our study aligned with such relevant findings, reflecting significant negative correlations between state self-compassion employed during the comparison task and body-related shame, state appearance comparison, state weight dissatisfaction, state appearance dissatisfaction, and state depression (see Table 2). Further, we found that greater WBI at baseline was associated with lower state self-compassion during the experimental phase of our study.

In support of H5, moderation analyses revealed a significant interaction effect between WBI and self-compassion on state depression following upward comparison to thin-ideal imagery. For women with high WBI, utilizing higher levels of state self-compassion during and after the comparison task buffered the effect of WBI on subsequent depressed mood. This shows promise for self-compassion as a protective tool for young women with WBI who experience depressed mood in the context of appearance-based social media use. In contrast, self-compassion did not demonstrate the same protective effects against WBI on anxiety, weight dissatisfaction, and appearance dissatisfaction. This may be because, in our study, self-compassion was measured as an uninstructed state during and immediately after the comparison task, rather than as a deliberately practiced strategy. The lack of active self-compassion instruction may have limited its potential to buffer the negative effects of upward social

comparison, suggesting that the benefits of self-compassion might be more pronounced when individuals are intentionally trained to use these strategies in challenging situations.

Past research demonstrates that self-compassion can be cultivated through structured interventions (Finlay-Jones, 2017), and that this is attainable among WBI populations through tailored interventions (Haley et al., 2025). Past self-compassion interventions have been efficacious in reducing depression and anxiety (Finlay-Jones, 2017), body dissatisfaction, and body-related shame (Albertson et al., 2015; Haley et al., 2025) among young women. In the context of exposure to appearance-based body image threats, one study found that a brief self-compassion exercise was an effective buffer against body dissatisfaction following upward appearance-based comparisons to thin-ideal social media images (Gobin et al., 2022). Significant relationships between self-compassion and most of these variables that were established in the current study suggest body image, mood, body-shame, and social comparison as viable targets for self-compassion interventions, which should be explored specifically among high WBI samples in future research. In fact, such interventions might be particularly suited to young women with WBI, given past research demonstrating that the effects of a letter-writing self-compassion intervention were most effective for improving body image at high levels of baseline WBI (Nightingale & Cassin, 2023).

Clinical Implications and Future Research

The results of the current study have several implications. Within the experimental group, it was found that comparing oneself to images that idealize thinness on Instagram resulted in significant increases in weight and appearance dissatisfaction among female undergraduate students. This is concerning, given that 78% of young adults report using Instagram and that usage is highest among young women (Gottfried, 2024). Not only are upward comparisons

prevalent among social media users, but young women engage in such comparison at a higher frequency than do young men (Dane & Bhatia, 2023). Resulting body dissatisfaction not only perpetuates further appearance comparison on social media (Portingale et al., 2024), but it poses a significant risk to young women for the development of disordered eating behaviour and eating disorders (Holland & Tiggemann, 2016; Paxton et al., 2006; Slane et al., 2014).

Findings from the current study also demonstrated that young women who report relatively higher levels of WBI are especially vulnerable to weight dissatisfaction, appearance dissatisfaction, and depressed mood following upward comparison to thin ideal imagery. In addition, appearance dissatisfaction in this context was explained in part by levels of body-related shame, which provides support for the Weight Stigma and Wellbeing Process Model (Tylka et al., 2014) in a social media context. Greater use of state self-compassion during and immediately after comparison to thin-ideal imagery was associated with lower WBI, body-related shame, state appearance comparison, and lower anxiety, depression, weight dissatisfaction, and appearance dissatisfaction following this comparison task. Additionally, for young women with elevated levels of WBI, high levels of state self-compassion during this comparison task effectively buffered against resulting feelings of depression. These findings present preliminary support for enhancing self-compassion as a potential clinical intervention to help protect young women with high WBI from negative outcomes associated with appearance-based social media use.

Further research that focusses specifically on individuals with high WBI is warranted. Mean WBI scores in the current sample mirrored those of similar undergraduate samples (Jenkins & Baysen, 2025) and were relatively normally distributed. Targeted recruitment efforts

would capture a sample with more pervasive and severe WBI among young women, who might benefit most from interventions aimed at preventing negative psychological outcomes.

Future research on women and men across the lifespan with high WBI should continue our investigations into unique mechanisms that drive negative body image and mood outcomes in the context of social media. Further, given that our findings provide preliminary support for self-compassion as a protective factor for young women with high WBI, future studies should explore this further through structured interventions centering on increasing and applying self-compassion. Given nuances to the efficacy of past self-compassion interventions based on level of WBI (Nightingale & Cassin, 2023), and the efficacy of a past intervention that was modified for a high WBI population (Haley et al., 2025), future studies should also explore aspects of such interventions that can be tailored to best suit the needs of this population. For example, incorporating greater psychoeducation and directly targeting WBI alongside self-compassion has led to promising outcomes (Haley et al., 2025) in comparison to a non-tailored self-compassion intervention (Haley et al., 2022).

Limitations

This study had several limitations. Firstly, using VAS measures to capture body dissatisfaction and negative mood has been called into question in recent years over its accuracy in detecting statistically significant change (Want et al., 2024). For example, a statistically significant change in scores from measurement at Time 1 to Time 2 may not translate to what could be considered a meaningful change in mood or body dissatisfaction. During debriefing within the experimental condition, reports of participants feeling neutral or unaffected by the comparison task were much more frequent than reports of participants feeling strongly impacted by the task, despite statistically significant changes found in the data. Whether this discrepancy

reflected participants' underestimation of the of the task on their body image and mood, a downplaying of their feelings at the time, or an over-sensitivity of the VAS measures is unknown. Regardless, recording a marker of substantial subjective change would allow for preliminary exploration of such discrepancies. Not only would this lend to more nuanced understanding of these discrepancies, but this might also provide a marker of when further probing is necessary during debriefing to delineate significant distress or discomfort experienced during the study.

Further, it is possible that the content of the VAS measures for mood could have been influenced by social norms. When asked to answer how depressed and anxious they felt, participants could interpret the scale to measure normative sad mood versus psychopathology, which could have affected the validity of the measure and the results. In other words, if participants did not identify with experiencing pathological depression and anxiety symptoms, it is possible that they could have underrepresented their depressed mood or feelings of anxiety at both timepoints. Thus, future studies might benefit from other mood measures instead of or in addition to the VAS measures.

Another limitation of the current study was that there was no test of the directionality of appearance comparisons endorsed by participants during the experimental task. Future studies should explicitly test the direction of comparison to ensure that upward (as opposed to downward or lateral) social comparison occurred among participants, rather than relying on theoretical foundations.

Another limitation of the current study was the possibility of demand characteristics. Although several filler questions were scattered throughout both surveys and a cover story was used to conceal the true nature of the study, it is still possible that participants deduced a theme

surrounding body image from the nature of questionnaires that were included. The presence of demand characteristics could have introduced biased responding either consciously or unconsciously, including answering questions in a socially desirable manner or answering questions in line with expectations for the effect of the experimental manipulation.

A final limitation of the current study was that there was a significant difference in baseline state anxiety scores between participants in the control and experimental condition prior to engaging in the experimental task. Although randomization to condition ensures that there is no systemic bias in the assignment of participants to condition, it can result in such differences. State anxiety could have been triggered by random events that happened to participants before they arrive at the testing session or could reflect some nervous anticipation about the study. Using baseline scores as a covariate in the analyses adjusted for pre-existing group differences. Trait anxiety was not measured in the current study, but it is possible that participants in the experimental condition had higher levels of trait (and not just state) anxiety at baseline. Regardless, such differences in state anxiety could reflect heightened emotional vulnerability in the experimental condition which may have confounded analyses of theoretically related outcome variables within this group (e.g., body-related shame). Running more participants with the hope of creating equivalent groups at baseline or replicating the study with a different sample are additional future research steps that could be taken.

Strengths

The current study also had several strengths. First, a strength of the current study was its use of experimental methods to investigate the body image and mood states of young women following upward comparison to thin-ideal images on social media. Through an experimental pre-post design, we were able to compare several outcomes between the experimental and

control conditions to ensure that body dissatisfaction and negative mood outcomes were a result of the experimental manipulation rather than of confounding factors. Further, establishing statistically significant differences between conditions in the degree to which participants engaged in state appearance comparison during the experimental task confirms the success of the intended experimental manipulation. Randomization to condition in the current study provides some control for pre-existing differences between participants at baseline, as discussed above.

Another strength of the current study was that the data were collected at a university with an ethnically and racially diverse student population; our sample reflected such diversity. This is a strength in relation to most body image research, which reflects an overrepresentation of White participants (Pollet et al., 2024). Having an ethnically diverse sample helps to strengthen the generalizability of our results. Having a diverse sample is an especially important issue when studying body image and WBI, given the relevancy of social determinants of health in these areas. Borgatti and colleagues (2024) uncovered nuances in body image and WBI experiences within a racially diverse sample, suggesting an avenue for further investigation using data from the current study to explore individual differences based on culture and ethnicity.

Conclusions

Experimentally induced upward appearance comparisons to models on Instagram that represent the thin-ideal results in significant increases in weight dissatisfaction and appearance dissatisfaction among young women. Young women with elevated WBI are relatively more vulnerable to weight dissatisfaction, appearance dissatisfaction, and depressed mood following appearance comparison to thin-ideal imagery, and heightened appearance dissatisfaction is explained by their tendency to feel shame related to their bodies. Finally, using high levels of self-compassion during upward appearance-based comparisons serves as a protective factor

against increases in depressed mood for young women with elevated WBI. These findings indicate that internalizing pervasive societal stigma towards higher weight individuals can negatively impact the body image and emotional well-being of young women within appearance-focussed social media contexts, which can be explained in part by a disposition towards experiencing the body-related self-conscious emotions of shame. Clinical interventions for body dissatisfaction and negative mood brought on by upward appearance-based comparison on social media are needed for young women with high WBI. Such interventions should aim to reduce weight bias internalization, further investigate underlying mechanisms such as body-related shame as potential treatment targets, and foster self-compassion as a protective coping strategy.

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Appendix A: Informed Consent Form

Study Name: Social Media Use and Mental Health Among Young Women Living in Canada.

Researchers: Dr. Jennifer Mills, (primary investigator), Department of Psychology, Faculty of Health, York University, 4700 Keele St, Toronto, ON M3J 1P3
Contact: jsmills@yorku.ca

Rachel Howells (co-investigator), Department of Psychology, Faculty of Health, York University, 4700 Keele St, Toronto, ON M3J 1P3
Contact: rhowells@yorku.ca

Purpose of the Research:
The purpose of this study is to improve our understanding of young women's mental health and their experiences using social media. Approximately 110 individuals will be invited to participate in this study.

What You Will Be Asked to Do in the Research:

Participation in this research study will be completed in two parts. Should you decide to participate in this research, you will be asked to complete Part 1, followed by Part 2 approximately seven days later. During Part 1 of the study, you will be asked to complete several online questionnaires regarding your current mental health and social media use. You will then be asked to select a timeslot to meet with the researcher approximately one week later. During Part 2 of the study, you will meet over Zoom with the researcher to complete a brief activity related to social media. You will also complete additional questionnaires regarding your current mental health and your experience during the activity. Completing this study will take roughly 120 minutes (60 minutes for Part 1 and 60 minutes for part 2) of your time. Upon request, the findings from this research will be made available to you when we have finished collecting the data and close the study. You will receive 2 URPP credits for participation in this study (1 credit for each part of the study).

Risks and Discomforts:
This study is considered minimal risk. However, it is possible that you may experience discomfort or distress when you are thinking about your mood, body image, eating, or how you relate to yourself. We do not expect any discomfort that you experience to be greater than what you might experience in a typical day. To mitigate any discomfort or distress, you may choose to refuse to participate in any aspect of the research without penalty. Additionally, we have provided a list of psychological resources at the bottom of this form that are available. These resources can help you if you experience discomfort during your participation in this study. You will be provided with these resources again upon completion of Part 2 of the study. If you feel uncomfortable due to any aspect of this study, you may discontinue your participation temporarily or permanently. If you choose to withdraw from the study at any point, you will still receive your full participation credit for the phase of the study that you participated in at the time of withdrawal.

Benefits of the Research and Benefits to You:

Participating in this study will not provide any direct benefit to you. However, you will earn participation credits through the URPP for each phase of the study. Additionally, you may benefit by gaining insight into your current thoughts, feelings, and experiences related to mental health and social media use. Further, participating in this study is an opportunity to learn about and contribute to psychological research. Finally, this study may benefit psychological research; the future results of this study may be presented in papers and presentations related to this research, and they may be used to inform future research projects.

Voluntary Participation and Withdrawal: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the *nature of the ongoing relationship you may have with the researchers or study staff or the* nature of your relationship with York University either now, or in the future. If you stop participating, you will still be eligible to receive the promised pay/compensation for agreeing to be in the project, even if you withdraw without completion of the research. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

Confidentiality: All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research.

Your data will be safely uploaded in a password-protected electronic database for statistical analysis. Your name will not be included in this database; you will be identified only by a unique ID number. Dr. Jennifer Mills (primary investigator) and Rachel Howells (co-investigator) will have sole access to the data collected in this study for research purposes only. You will not be asked to provide your name or student number on any materials. Should you decide to participate, you will be asked to indicate your consent, which will be saved separately from your data.

De-identified statistical files may be retained indefinitely. All statistical data will be presented in aggregate form, ensuring that individual data points cannot be linked back to specific individuals.

Confidentiality will be provided to the fullest extent possible by law.

The data collected in this research project may be used – in an anonymized form - by members of the research team in subsequent research investigations exploring similar lines of inquiry. Such projects will still undergo ethics review by the HPRC, our institutional REB. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

Please note that at the end of the study, anonymized data may be deposited into one or more publicly accessible scientific repositories, such as York University Dataverse, an institutional research data repository, managed by York University Libraries and provided by Scholars Portal on behalf of the Ontario Council of University Libraries (OCUL), through which researchers from around the world will have access to these data for future research, through a [CC, CC-BY, CC-BY-NC, or other] standard data sharing license.

York University Dataverse does NOT accept content that contains confidential or sensitive information. Dataverse can be used to share de-identified and non-confidential data only. Contributors are required to remove, replace, or redact such information from datasets prior to upload. Scholars Portal makes backup copies of the uploaded data regularly in the event of a server or system malfunction, malicious attack, or other technical issues.

The researcher(s) acknowledge that the host of the online survey, Qualtrics, may automatically collect participant data without their knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researchers' system. Further, because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus the *confidentiality and privacy of data cannot be guaranteed during web-based transmission.*

This study will use the Zoom platform to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Further, while York University researchers will not collect or use IP addresses or other information which could link your participation to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the research team. If you are concerned about this, we would be happy to make alternative arrangements (where possible) for you to participate, perhaps via telephone. Please contact Rachel Howells (rhowells@yorku.ca) for further information.

Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting / data collection session.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Rachel Howells or Dr. Mills either by telephone at (416) 736-2100 extension 33153, or by e-mail (rhowells@yorku.ca or jsmills@yorku.ca). This research has received ethics review and approval by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.If you have any questions about this process, or about your rights as a participant in the study, please contact the Manager for the Office of Research Ethics, Kaneff Tower, York University (e-mail ore@yorku.ca).

Resources:
If completing any of these measures or participating in this study raises mental health concerns that you would like to discuss with someone, please contact one of the following resources to seek support:

- Student Counselling and Development (SCD), located in the Bennett Centre (N110), 416-736-5297
- York University Psychology Clinic (YUPC), located in the Behavioural Science Building (BSB104), 416-650-8488
- National Eating Disorder Information Centre helpline, 416-340-4156, 9am to 9pm from Monday to Thursday, 9am to 5pm on Friday, 12pm to 5pm on Saturday and Sunday

Legal Rights and Signatures:

I consent to participate in *"Social media use and mental health among young women living in Canada"* conducted by *Jennifer Mills* and *Rachel Howells.* I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

- o Yes
- o No

Name _____
Date _____
Please sign here _____

Consent to data deposit

I understand that my de-identified data will be placed into an open research data repository.

- o Yes
- o No

Name _____
Date _____
Please sign here _____

Appendix B: Demographic Questions

Please select your age group:
- o Under 18
- o 18-25
- o Above 25

Do you identify as a woman?
- o Yes
- o No
- o Prefer not to answer

What is your age (in years)?: _____

What is your ethnic background (select all that apply):
- ☐ White/European origin
- ☐ Indigenous: First Nations, Métis, or Inuit
- ☐ African-Canadian/African/Caribbean Origin
- ☐ Chinese or Chinese Canadian
- ☐ Japanese or Japanese Canadian
- ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan, Etc.)/South Asian Canadian
- ☐ Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian, etc.)/Southeast Asian Canadian
- ☐ Korean or Korean Canadian
- ☐ West Asian (e.g. Iranian, Afghan, etc.)/West Asian Canadian
- ☐ Other Asian or other Asian Canadian
- ☐ Arab/Arab Canadian
- ☐ Mexican or Mexican Canadian
- ☐ Puerto Rican
- ☐ Other Latinx/Hispanic/Other Latinx/Hispanic Canadian
- ☐ Bi-racial/Multi-racial
- ☐ Other: _____

How would you describe your gender identity?
- o Cisgender Male
- o Cisgender Female
- o Trans Male
- o Trans Female
- o Transmasculine
- o Transfeminine
- o Genderqueer/Gender Non-conforming
- o Non-binary
- o Two-spirit
- o I do not identify with any of these options
- o Prefer not to answer
- o Other/Prefer to self-describe: _____

What is your height (in feet and inches)?:

Feet: _____
Inches: _____

What is your weight (in pounds)?: _____

Appendix C: Body and Appearance Self-Conscious Emotion Scale (BASES)-Shame Subscale

Please read each statement carefully before answering. Please use the following scale to indicate how often you feel:

	Never 1	Rarely 2	Occasionally 3	Frequently 4	Always 5	Prefer not to answer
Bad about myself when I think about my appearance	○	○	○	○	○	○
Ashamed of the way I look	○	○	○	○	○	○
Inadequate when I think about my appearance	○	○	○	○	○	○
Ashamed of my appearance	○	○	○	○	○	○
Inadequate about my looks	○	○	○	○	○	○
Ashamed that I am a person who is unattractive	○	○	○	○	○	○

Appendix D: State Appearance Comparison Scale

Note. Items were presented with slightly different wording across conditions. The experimental condition version is listed first, followed by the control condition version in brackets.

When viewing the Instagram images, to what extent did you:

	No thought about my appearance 1	2	3	4	5	6	A lot of thought about my appearance 7
Think about your own appearance	○	○	○	○	○	○	○

	No comparison 1	2	3	4	5	6	A lot of comparison 7
Compare your overall appearance to that of the model in the Instagram photos [to the appearance of other women]	○	○	○	○	○	○	○
Compare your specific body parts to those of the model in the Instagram photos [to the body parts of other women]	○	○	○	○	○	○	○

Appendix E: State Self-Compassion Scale Long Form (SSCS-LF)

Note. Instructions were presented with slightly different wording across conditions. The experimental condition version is listed first, followed by the control condition version in brackets.

Think about how you have felt since comparing yourself to the Instagram models [viewing the Instagram images]. Please indicate how well each statement applies to how you are feeling toward yourself right now as you think about this situation, using the following scale:

	Not true at all for me 1	**2**	**3**	**4**	**Very true for me 5**	Prefer not to answer
1.I'm giving myself the caring and tenderness I need.	○	○	○	○	○	○
2.I'm obsessing and fixating on everything that's wrong.	○	○	○	○	○	○
3.I see my difficulties as part of life that everyone goes through.	○	○	○	○	○	○
4.I'm being pretty tough on myself.	○	○	○	○	○	○
5.I'm keeping my emotions in balanced perspective	○	○	○	○	○	○

6.I feel separate and cut off from the rest of the world.	○	○	○	○	○	○
7.I'm being kind to myself.	○	○	○	○	○	○
8.I'm getting carried away with my feelings.	○	○	○	○	○	○
9.I'm remembering that there are lots of others in the world feeling like I am.	○	○	○	○	○	○
10.I'm being a bit cold-hearted towards myself.	○	○	○	○	○	○
11.I'm taking a balanced view of this painful situation.	○	○	○	○	○	○
12.I feel like I'm struggling more than others right now.	○	○	○	○	○	○
13.I'm being supportive toward myself.	○	○	○	○	○	○
14.I'm blowing this painful incident out of proportion.	○	○	○	○	○	○

15.I'm remembering that difficult feelings are shared by most people.	○	○	○	○	○	○
16.I feel intolerant and impatient toward myself.	○	○	○	○	○	○
17.I'm keeping things in perspective.	○	○	○	○	○	○
18.I'm feeling all alone right now.	○	○	○	○	○	○

Appendix F: Social Media Use Questions

1. What social media platforms do you typically use? (Select all that apply):
   - ☐ Instagram
   - ☐ Tiktok
   - ☐ Twitter/X
   - ☐ Snapchat
   - ☐ Pinterest
   - ☐ Facebook
   - ☐ I don't use any social media platforms
   - ☐ Other (please specify): _____
   - ☐ Prefer not to answer

2. How do you typically use social media? (Select all that apply):
   - ☐ To view content from friends/family
   - ☐ To communicate with friends/family/friends
   - ☐ To view celebrity/influencer content
   - ☐ To post my own content
   - ☐ Other: _____
   - ☐ Prefer not to answer

3. How often do you typically use social media?:
   - o Never
   - o Rarely (1-2 times a week)
   - o Sometimes (every few days)
   - o Often (every day)
   - o Very often (multiple times a day)
   - o Prefer not to answer

4. How often do you use Instagram?:
   - o Never
   - o Rarely (1-2 times a week)
   - o Sometimes (every few days)
   - o Often (every day)
   - o Very often (multiple times a day)
   - o Prefer not to answer

Appendix G: Time 1 and Time 2 Body Dissatisfaction and Mood VAS Measures

Please rate your **CURRENT** feelings on the following items by sliding the bar to the point on the line that best describes how you are feeling **RIGHT NOW**:

Not at all **Extremely**

Anxious

Not at all **Extremely**

Depressed

Not at all **Extremely**

Dissatisfied With My Weight

Not at all **Extremely**

Dissatisfied With My Appearance

Appendix H: Weight Bias Internalization Scale-Modified (WBIS-M)

Please rate your agreement with each item.

	Strongly disagree (1)	Moderately disagree (2)	Slightly disagree (3)	Neither agree nor disagree (4)	Slightly agree (6)	Moderately agree (7)	Strongly agree (8)	Prefer not to answer
Because of my weight, I feel that I am just as competent as anyone.	○	○	○	○	○	○	○	○
I am less attractive than most other people because of my weight.	○	○	○	○	○	○	○	○
I feel anxious about my weight because of what people might think of me.	○	○	○	○	○	○	○	○
I wish I could drastically change my weight.	○	○	○	○	○	○	○	○
Whenever I think a lot about my weight, I feel depressed.	○	○	○	○	○	○	○	○

I hate myself for my weight.	○	○	○	○	○	○	○	○
My weight is a major way that I judge my value as a person.								
I don't feel that I deserve to have a really fulfilling social life, because of my weight.	○	○	○	○	○	○	○	○
I am OK being the weight that I am.	○	○	○	○	○	○	○	○
Because of my weight, I don't feel like my true self.	○	○	○	○	○	○	○	○
Because of my weight, I don't understand how anyone attractive would want to date me.	○	○	○	○	○	○	○	○

Appendix I: Experimental Task Materials (Experimental Condition)

Instructions

Note. Written instructions were presented on participants' screens in addition to the verbal instructions provided by the researcher.

PAUSE: Please notify the researcher that you have reached this point in the survey.

Next, you will be presented with a total of 12 images of Instagram models, displayed one at a time. **When you view each image, think about how the model's appearance compares to your own.** The first image displayed will be for practice.

Comparison Task Questionnaires

Note. Participants provided unique responses to each questionnaire upon viewing each image.

Please rate the size of each of your own body parts to those of the model:

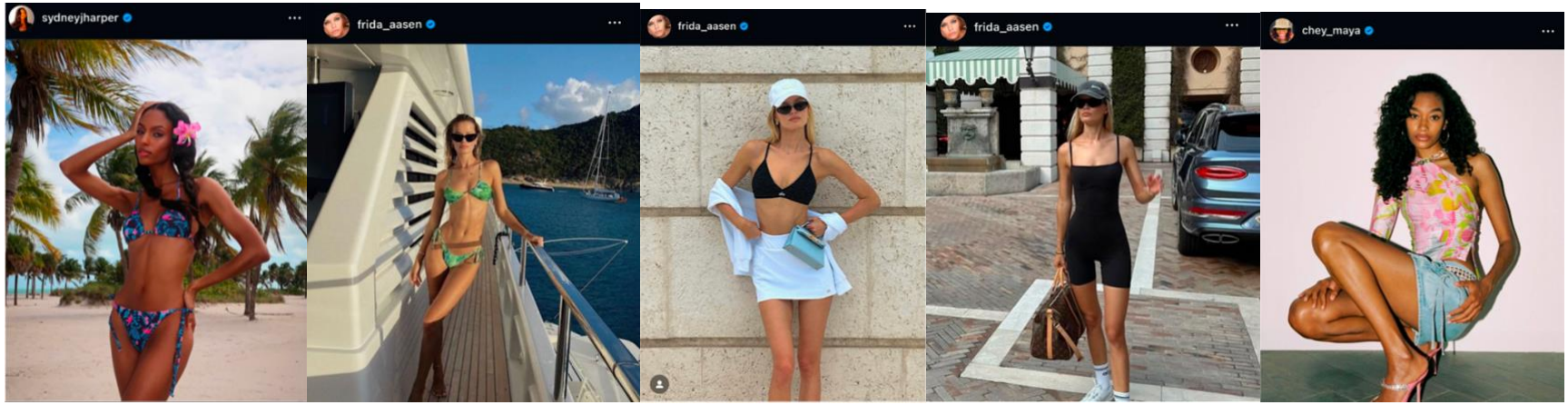
	Much smaller	Smaller	About the same size	Larger	Much Larger
My **arms** are:	○	○	○	○	○
My **biceps** are:	○	○	○	○	○
My **stomach** is:	○	○	○	○	○
My **waist** is:	○	○	○	○	○
My **hips** are:	○	○	○	○	○
My **thighs** are:	○	○	○	○	○
My **legs** are:	○	○	○	○	○
My **breasts** are:	○	○	○	○	○

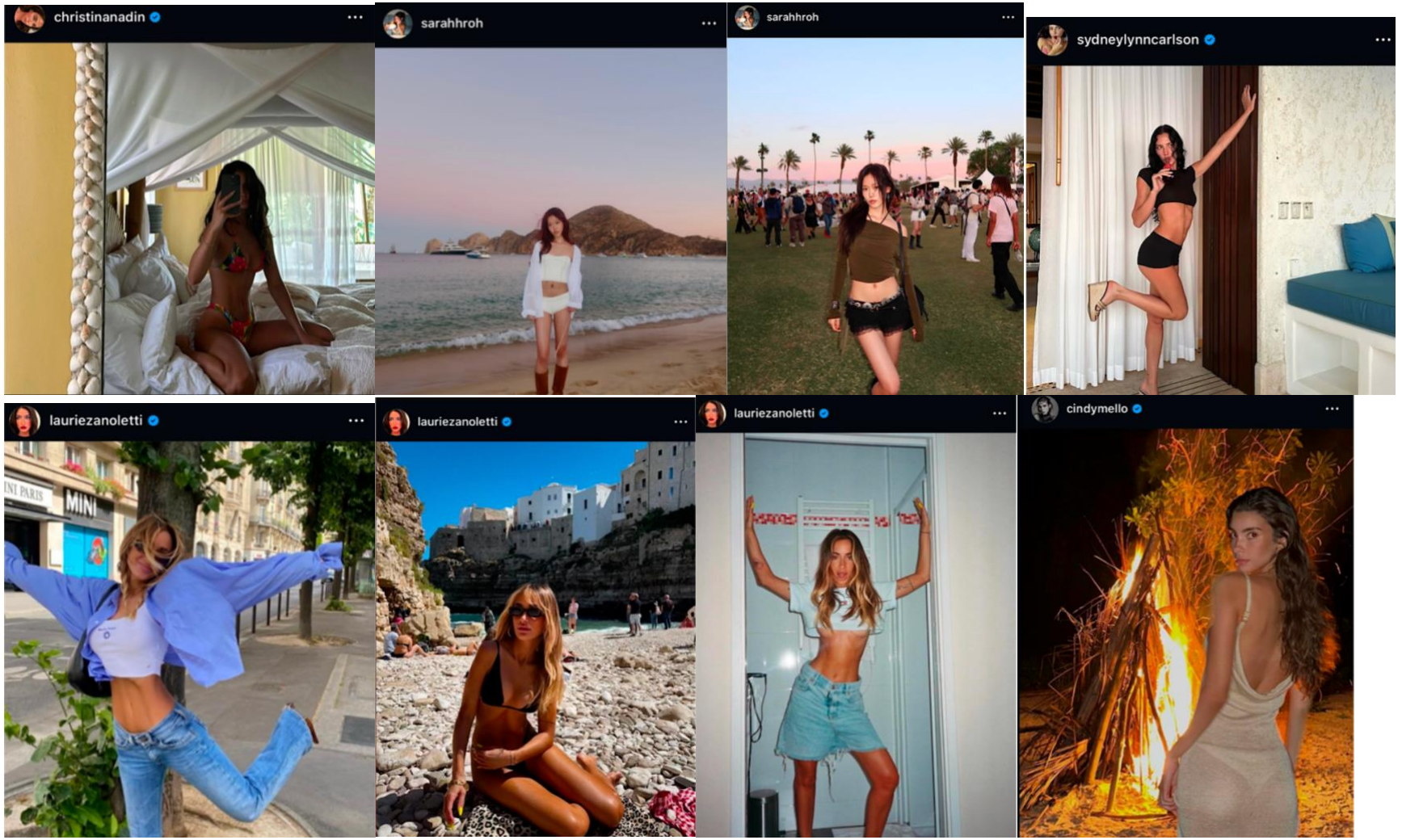
Please rate the attractiveness of yourself compared to the model:

	Much more attractive	Slightly more attractive	About the same level of attractiveness	Less attractive	Much less attractive
My **face** is:	○	○	○	○	○
My **overall physical appearance** is:	○	○	○	○	○

Thin-Ideal Images

Note. The first image was provided as practice. The order of subsequent images was randomized.




christinanadin
sarahhroh
sarahhroh
sydneylynncarlson
lauriezanoletti
MINI
lauriezanoletti
lauriezanoletti
cindymello

Appendix J: Experimental Tasks Materials (Control Condition)

Instructions
Note. Written instructions were presented on participants' screens in addition to the verbal instructions provided by the researcher.

PAUSE: Please notify the researcher that you have reached this point in the survey.
Next, you will be presented with a total of 12 images of nature, displayed one at a time. **When you view the images, think about the visual aspects and colours in the photo.** The first image displayed will be for practice.

Control Questionnaires
Note. Participants provided unique responses to each questionnaire upon viewing each image.

Please rate your agreement concerning the colours of the photo:

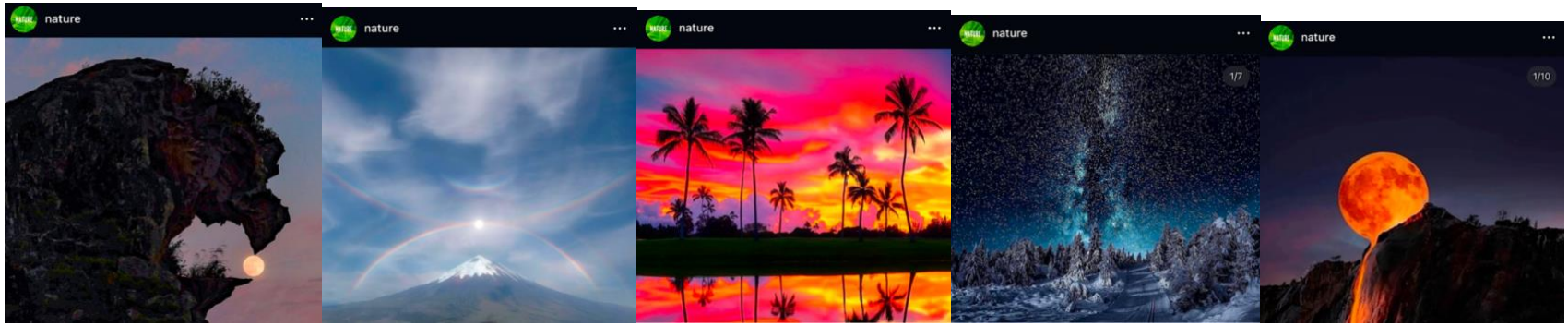
	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
The colours are **bright**	○	○	○	○	○
The colours are **dull**	○	○	○	○	○
The colours are **dark**	○	○	○	○	○
The colours are **light**	○	○	○	○	○
The colours are **warm**	○	○	○	○	○
The colours are **cool**	○	○	○	○	○
There are lots of **different colours**	○	○	○	○	○
There are lots of **similar colours**	○	○	○	○	○

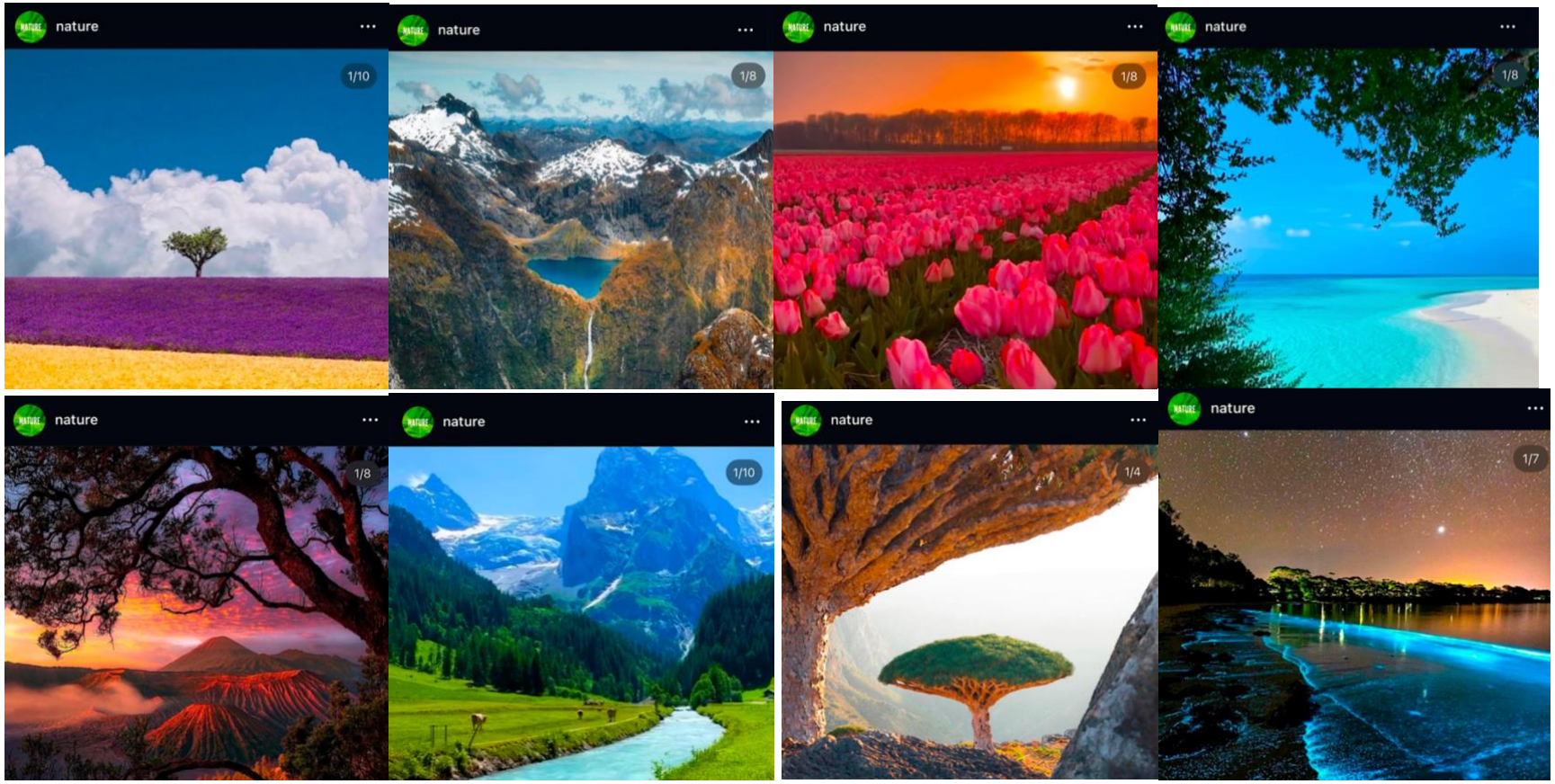
Please rate your agreement concerning the visual appeal of the photo:

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
The **colours** are visually appealing	○	○	○	○	○
The **overall photo** is visually appealing	○	○	○	○	○

Images

Note. The first image was provided as practice. The order of subsequent images was randomized.




nature
1/10
nature
1/8
nature
1/8
nature
1/8
nature
1/8
nature
1/10
nature
1/4
nature
1/7

Appendix K: Feedback and Debriefing

Thank you for participating in our study! Although we were interested in better understanding the mental health and social media experiences among young women living in Canada, our research questions are actually more specific than what you were first told.

At the beginning of the study, we could not inform you of the complete purpose of this study as it pertains to social comparison, body image, mood, and internalized weight bias, as this information might have created a response bias and weakened the study results. Many other students like you will be participating in this study over the coming weeks, so we kindly request that you do not discuss this study with other potential student participants at this time. If you have any questions or concerns regarding your participation in this study, you may contact Rachel Howells (rhowells@yorku.ca).

Purpose of the Study:
In this research study, we are actually interested in exploring whether exposure to idealized images of thin women on social media impacts the body image and mood of young women. Specifically, we are interested in assessing whether an induced comparison of one's own body to the body of thin young women on Instagram, compared to exposure to images of nature, results in increased body dissatisfaction and depression and anxiety symptoms among women with internalized weight bias. Previous studies have shown that when women view idealized images of thinness on social media, they often negatively evaluate themselves in comparison, which can negatively impact certain people's body image and mood, particularly young women who are already vulnerable to feeling dissatisfied with their bodies. Young women with internalized weight bias are among those at risk for body dissatisfaction; internalized weight bias occurs when individuals integrate negative social stereotypes about higher-weight people into their view of themselves, resulting in a negative self-image. While our overarching topic has been studied in more general samples of young women, there is a lack of research about the impacts of engaging in comparison on social media on the body image and mood of young women with high internalized weight bias, making this an important issue to investigate. Our study aims to better understand these relationships, while also exploring potential explanations for the negative outcomes that may be more pronounced among participants with high weight bias internalization. Past research has established body shame as having important explanatory value for the negative outcomes of internalized weight bias, so we are interested in investigating whether this remains relevant in the context of social comparison and social media. Finally, we aim to uncover factors that may either intensify or mitigate such negative impacts of social media use in this population. We aim to establish whether the use of self-compassion while viewing thin-ideal images on Instagram has a positive or negative impact on young women's body dissatisfaction and negative mood in the moments during and after social media use. We hope that this study will improve our overall understanding of body image and mood concerns among young women with internalized weight bias, and that it might bring to light important next steps for addressing negative outcomes of social media use. The studies below provide more information about this field of interest:
Hogue, J. V., & Mills, J. S. (2019). The effects of active social media engagement with peers on body image in young women. *Body Image, 28,* 1–5. https://doi-org.ezproxy.library.yorku.ca/10.1016/j.bodyim.2018.11.002

Pearl, R. L., & Puhl, R. M. (2018). Weight bias internalization and health: A systematic review. *Obesity Reviews*, *19*(8), 1141–1163. https://doi.org/10.1111/obr.12701

Tylka, T. L., Annunziato, R. A., Burgard, D., Daníelsdóttir, S., Shuman, E., Davis, C., & Calogero, R. M. (2014). The weight-inclusive versus weight-normative approach to health: evaluating the evidence for prioritizing well-being over weight loss. *Journal of Obesity*, 983495. https://doi-org.ezproxy.library.yorku.ca/10.1155/2014/983495

Design of the Study:

- All participants completed the same battery of questionnaires during Part 1, which included measures of weight bias internalization, body image, disordered eating, body shame and guilt, self-compassion, self-esteem, and social media use.
- One week later, all participants attended a Zoom meeting with the researcher to complete Part 2 of the study. They first completed a battery of questionnaires regarding their current experiences of body image and mood. Next, they were randomly assigned to a control group or an experimental group to complete the experimental portion of the study. After this portion of the study, all participants completed questionnaires about their current experiences of body image and mood, in addition to questionnaires pertaining to their use of self-compassion and various cognitive emotion regulation techniques during the experimental or control task.
    - Participants who were assigned to the control group viewed images of nature to account for time and mental effort.
    - Participants who were assigned to the experimental group viewed idealized images of thin women on a fake Instagram profile. They engaged in a body comparison task that involved comparing various parts of their body to those of the women in the images. The purpose of this body comparison task was to induce an upward social comparison between the participant and the women who appeared in the images.

Expected Results:

We expect that individuals who engage in an upward comparison to idealized images of thinness on Instagram will report worsened body image and mood in comparison to those who view images of nature. Importantly, we predict that the negative impact of engaging in such social comparison will be more pronounced for individuals who report high levels of internalized weight bias. Further, we hypothesize that the role of body shame in explaining negative outcomes of internalized weight bias will persist in the context of social comparison on social media. Finally, we expect that individuals with high weight bias internalization that report using self-compassion techniques during and after the experimental task will have more positive body image and mood outcomes in comparison to those who do not utilize self-compassion strategies.

Questions and Concerns:

If completing any of these measurements or participating in this study raised psychological concerns that you would like to discuss, please contact one of the following resources:

- Student Counselling & Development (SCD) located in the Bennett Centre (N110), 416-736-5297
- York University Psychology Clinic (YUPC) located in the Behavioural Science Building (BSB 104), 416-650-8488
- National Eating Disorder Information Center helpline, 416-340-4156, Monday to Friday from 9am to 9pm

If you have questions about this study, please contact Rachel Howells (rhowells@yorku.ca). You may also contact Dr. Jennifer Mills after August 2025 if you would like to receive a copy of the results from this study:

Dr. Jennifer Mills (416) 736-2100 ext. 33153 jsmills@yorku.ca

If you have any questions for the committee, or about your rights as a participant in the study, please contact the Manager for the Office of Research Ethics, Kaneff Tower, York University (e-mail ore@yorku.ca).

Thank you for participating in this study!

Appendix L: Debriefing Consent Form

Study Title: Social Media Use and Mental Health Among Young Women
Principal Investigator: Dr. Jennifer Mills

While reading the debriefing form, I learned that it was necessary for the researchers to be vague about the exact purpose of this study. I realize that this was necessary since having full information about the actual purpose of the study might have influenced the way in which I responded to the tasks, and this would have invalidated the results. Thus, to ensure that this did not happen, some of the details about the purpose of the study initially were not provided (or were provided in a manner that slightly misrepresented the real purpose of the study). However, I have now received a complete written explanation as to the actual purpose of the study and have had an opportunity to ask any questions about this and to receive acceptable answers to my questions.

I have been asked to give permission for the researchers to use my data (or information I provided) in their study and agree to this request. I am aware that I may withdraw this consent by notifying the Principal Investigator.

This study has been reviewed and received ethics clearance through the Human Participants Review Committee (HPRC). If you have questions for the Committee, contact the Manager, Research Ethics, Office of Research Ethics, at ore@yorku.ca.

For all other questions, contact Rachel Howells (rhowells@yorku.ca).

- o I give the researchers my consent to use the information I provided.

- o I do NOT give the researchers my consent to use the information I provided.

Thank you for participating in this study!

Appendix M: Undergraduate Research Participant Pool Recruitment Advertisement

Study Name: Social Media Use and Mental Health Among Young Women

Researcher names:

Dr. Jennifer Mills (primary investigator), Department of Psychology, Faculty of Health, York University.
Rachel Howells (co-investigator), Department of Psychology, Faculty of Health, York University.

Contact: rhowells@yorku.ca

Abstract	We are interested in furthering our understanding of the mental health experiences of female-identifying York University undergraduate students, as well as their experiences on social media.
Description	*Please note that this study is to be completed online* During Part 1 (online survey only, no videoconference), participants will complete a series of questionnaires regarding their current mental health and social media use. It is important to only access this survey during your chosen timeslot for Part I. Please do NOT access the survey outside of your chosen timeslot. During Part 2 (videoconference), participants will meet with the researcher over Zoom to complete a brief, social-media-related activity. For this activity, participants will view Instagram images and answer a number of questions. They will also complete additional questionnaires regarding their current mental health and their feelings during and after the activity. *Part 2 will take place between 5 and 9 days after Part I. Please schedule your timeslot for Part 2 as close to 7 days after Part I as possible.
Eligibility Requirements	Participants must be aged 18-25 years, identify as women, have English reading competency and fluency in English, and have normal or corrected vision.
Preparation	Please note that we will request for you to keep your camera on during the video conference for Part II. We request that you participate in Part I and Part II using a laptop or tablet, rather than a phone (although this is not required). .
Duration	Part 1: 60 minutes Part 2: 60 minutes (Total of 2 hours)
Credits	Part 1: 1 credit Part 2: 1 credit (Total of 2 credits)