Self-concept clarity and appearance-based social comparison to idealized bodies

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ARTICLE INFO

ABSTRACT

Exposure to images of idealized bodies in the media has been shown to increase body dissatisfaction among women. One of the mechanisms through which exposure influences body dissatisfaction is appearance-based comparison with the people in the images. The present study tested the hypothesis that individuals low in self-concept clarity (i.e., individuals who lack a clear sense of their own identity) would be more likely to compare themselves to images of thin models, and would consequently experience greater body dissatisfaction. White female participants ($N = 489$) were exposed to either images featuring idealized bodies or neutral control images, and then indicated the extent to which they compared their appearance to that of the targets and reported their level of body dissatisfaction. A moderated-mediation model showed that the effect of exposure condition on body dissatisfaction via appearance comparison to the targets depended on the participant's level of self-concept clarity. Those with lower self-concept clarity engaged in greater comparison when exposed to idealized images relative to control images, leading to greater post-exposure body dissatisfaction. These findings suggest that low self-concept clarity might increase vulnerability to the negative effects of exposure to idealized media images.

1. Introduction

In Western cultures, the dominant norm for female attractiveness emphasizes a slim, toned physique (Bozsik, Whisenhunt, Hudson, Bennett, & Lundgren, 2018; Buote, Wilson, Strahan, Gazzola, & Papps, 2011; Dittmar et al., 2000). This idealized figure is neither representative of nor realistically attainable for most women (Brownell, 1991; Spitzer et al., 1999). Consequently, many women perceive a discrepancy between their actual physical appearance and their ideal appearance (Vartanian, 2012), and greater perceived actual-ideal body discrepancy is associated with increased body dissatisfaction (Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991). The media are a key source through which appearance ideals are transmitted and reinforced (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002). Societal beauty standards can be conveyed through mass media formats such as television, movies, magazines, billboards (Buote et al., 2011; Thompson et al., 1999) and, more recently, through the Internet and social networking (Fardouly & Vartanian, 2016; Tiggemann & Miller, 2010). Thin bodies are greatly over-represented among women shown in mass media (Byrd-Bredbenner & Murray, 2003), and the images women are exposed to on social networking websites, such as Instagram and Facebook, may also reinforce unrealistic ideals (Pilgrim & Bohnet-Joschiko, 2019; Tiggemann & Zaccardo, 2018).

There is a wealth of evidence indicating that exposure to media depicting idealized bodies contributes to body dissatisfaction among women and girls (e.g., Fardouly & Vartanian, 2016; Grabe Ward, & Hyde, 2008). Importantly, experimental studies have provided causal evidence for the association between exposure to idealized imagery and body dissatisfaction (Grabe et al., 2008). The typical experimental paradigm for studying this effect involves exposing some participants to images or videos featuring women with idealized bodies, and others to non-idealized bodies (e.g., normal-weight or overweight persons) or to non-human imagery (e.g., consumer products, scenery; Groesz et al., 2002). Individuals exposed to the idealized imagery typically experience greater body dissatisfaction (Grabe et al., 2008), an effect that has been found following exposure to magazine images (e.g., Stice & Shaw, 1994), television commercials (Hargreaves & Tiggemann, 2003a), music videos (Tiggemann & Slater, 2004), and images posted on social networking websites (Tiggemann & Zaccardo, 2015). Meta-analyses of studies examining the effects of media exposure on body image have generally found

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small-to-medium effects (Grabe et al., 2008; Groesz et al., 2002), although more recent meta-analyses indicate that the effect sizes are small and highly variable across studies (e.g., Ferguson, 2013).

One key pathway through which exposure to idealized imagery can influence body dissatisfaction is via appearance-based social comparisons (Thompson et al., 1999). Because the media images typically depict idealized bodies that are unrepresentative of and unattainable for most women, comparing one's appearance to that of the people depicted in these media images can result in individuals experiencing body dissatisfaction. Although there is considerable evidence from correlational and longitudinal studies that the tendency to engage in appearance-comparisons is associated with body dissatisfaction (e.g., Rodgers, McLean, & Paxton, 2015; Shroff & Thompson, 2006), there are fewer studies that have examined comparisons to specific images as a mechanism underlying the effect of exposure to idealized images on body dissatisfaction. Tiggemann and McGill (2004) conducted a seminal study in which participants were randomly assigned to view magazine advertisements featuring bodies representative of the thin-ideal or products alone. After they viewed their assigned stimuli, participants were asked to indicate the extent to which they engaged in appearance comparison processing while viewing the images (what we might call "state appearance comparisons") and then reported their level of body dissatisfaction. Participants who viewed idealized images exhibited greater post-exposure body dissatisfaction and weight anxiety than did those who viewed control images, and this effect was mediated by appearance comparison to the targets. Another more recent study replicated these effects using photographs posted on social networking sites (Tiggemann & Zaccardo, 2015).

1.1. Self-concept clarity as a moderator

Several studies have indicated that there are individual differences in the extent to which exposure to idealized images leads to body dissatisfaction, with some individuals (such as those high in thin-ideal internalization and or high in trait appearance comparison tendency) being more negatively impacted than others (e.g., Dittmar & Howard, 2004; Durkin & Paxton, 2002). One individual difference that might be particularly relevant when examining appearance comparisons as a mediator of the effect of exposure to idealized images is self-concept clarity. Self-concept clarity is a component of self-identity that is distinct from other self-related constructs, such as self-esteem (reflecting the evaluative component of the self) and self-complexity (reflecting the array of different facets of the self). Self-concept clarity specifically refers to the degree to which a person's sense of self is well-defined, certain, temporally stable, and internally congruent (Campbell, 1990; Campbell et al., 1996). When individuals lack a clear sense of their own identity, they are more dependent on external influences to help define themselves (Campbell, 1990) and they may be more compelled to compare themselves to others as a means of determining where they stand relative to others (Butzer & Kuiper, 2006). That is, these individuals may use social comparison as a method of gathering information about who they are and how they fit into society. There is evidence that low self-concept clarity is associated with a greater tendency to make social comparisons (Butzer & Kuiper, 2006).

In the context of body image, several studies have shown that low self-concept clarity is associated with a greater tendency to engage in appearance-based comparisons (e.g., Vartanian & Dey, 2013; Vartanian, Hayward, Smyth, Paxton, & Touyz, 2018). In particular, Vartanian et al. (2018) and Vartanian and Hayward (2018) developed the Identity Disruption Model of body dissatisfaction which posits that negative early life experiences contribute to a disrupted sense of one's personal identity (i.e., low self-concept clarity). Having low self-concept clarity leads individuals to compare their appearance to that of others, which in turn results in greater

body dissatisfaction. The association between self-concept clarity and appearance comparisons has been demonstrated among women (White and Asian), men, and adolescent boys (Cahill & Mussap, 2007; Humphreys & Paxton, 2004; Vartanian & Dey, 2013; Vartanian et al., 2018).

The studies just described have shown that self-concept clarity is associated with a general tendency to engage in appearance-based comparisons, but say nothing about how individuals respond to being exposed to a comparison target. Given that individuals who are low in self-concept clarity are known to engage in more frequent appearance comparisons on a trait-level, they may also be more likely to compare their appearance to specific target individuals, such as when exposed to images of idealized bodies. One study (Humphreys & Paxton, 2004) did find that individuals with low self-concept clarity experienced greater anxiety following exposure to idealized media images, but the researchers did not assess the mechanism through which that difference emerged. Theoretically, low self-concept clarity should make individuals more likely to compare their appearance to that of the models in the idealized images, but that aspect of the theory has yet to be tested.

1.2. The present research

The aim of the present study was to determine whether self-concept clarity moderated the effect of exposure to idealized images on young women's appearance comparisons and body dissatisfaction. Participants viewed images of idealized bodies or control images (images not prominently featuring human bodies) before completing measures of their state appearance comparison and state body dissatisfaction. Because the models featured in the images were all young White women, the participants in this study were also limited to young White women. Following from previous research (e.g., Tiggemann & McGill, 2004), we hypothesized that participants exposed to idealized bodies would engage in greater comparison with the targets, and express higher post-exposure dissatisfaction, than would those who viewed control images. We also predicted that state appearance comparisons would mediate the effect of exposure condition on body dissatisfaction. Finally, we predicted that the magnitude of the path from exposure condition to body dissatisfaction through appearance comparisons would be moderated by self-concept clarity (a moderated-mediation model; see Fig. 1).

2. Method

2.1. Participants

Participants (N = 514) were recruited via Prolific Academic, an online participant recruitment service, and were paid 1.90 GBP in exchange for their participation. Individuals who register for Prolific Academic complete a range of pre-screening measures, and this allows researchers to select specific samples to invite to participate in a given study. Only individuals who identified as female, White, and aged between the 18–25 were eligible to participate in the current study. These restrictions were in place so that we could ensure that the participants had similar demographics to the models used in the stimuli. Respondents were excluded from the study if they did not complete all the measures (n = 14), failed an attention check question (a question instructing participants to select a specific response option; n = 9), or failed a validity check (a question asking participants to describe the objects displayed in an image; n = 2). The final sample of consisted of 489 participants. Their mean age was 22.2 years (SD = 2.12), and their mean body mass index (BMI; kg/m2) was 24.2 (SD = 6.47). The study was approved by the UNSW Human Research Advisory Panel.
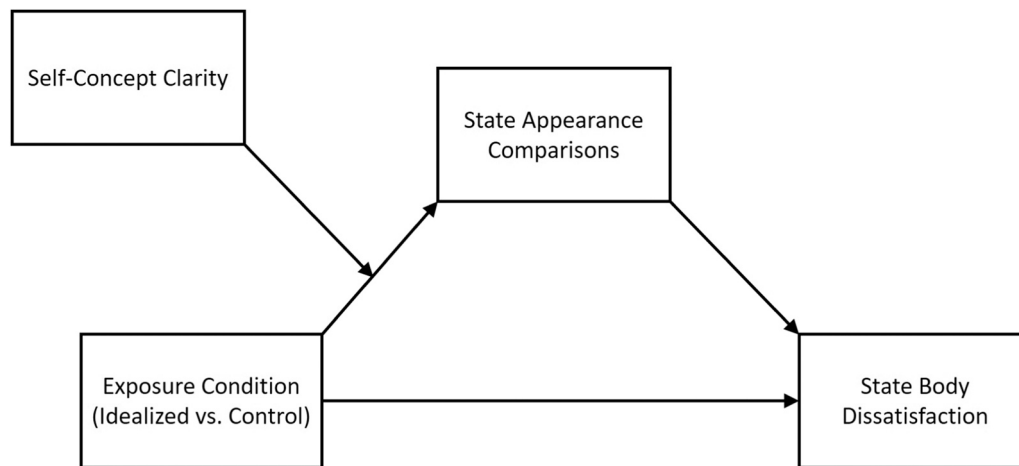
Fig. 1. A moderated-mediation model of exposure-induced body dissatisfaction, Note. Hypothesized moderated-mediation model in which self-concept clarity moderates the effect of exposure to idealized imagery on body dissatisfaction via state appearance comparison.

2.2. Materials

2.2.1. Experimental manipulation: image type

Two sets of 20 images were used in the present study, which will be referred to as the "idealized" (experimental) or "control" sets. The idealized set has been used in previous research and has been shown to effectively induce state body dissatisfaction (Cohen, Fardouly, Newton-John, & Slater, 2019). This set of images is composed of full-body photographs of young, thin, toned women drawn from public Instagram accounts. The models are clad in revealing or tight-fitting clothing (e.g., swimwear, fitness attire) in which the shape of their bodies is clearly visible, and the images have previously been rated as representing the "thin ideal," which the researchers defined to participants as "women with thin and toned bodies" (Cohen et al., 2019). The control image set consists of photographs of scenic locations, such as lakes or streets lined with historic buildings. Human figures are also present in each of these photographs, but are not the central focus (e.g., small figures in a distant crowd). Control images that included human figures were chosen so that questions relating to state appearance comparison could be applicable to both the experimental and control conditions. These control images were also chosen over images of women without idealized bodies because self-concept clarity is associated with a greater tendency to engage in appearance comparisons irrespective of the direction of the comparison (e.g., Vartanian et al., 2018). Had we used images of women without idealized bodies as our control stimuli, we would not have been able to test whether state comparisons mediated the effect of exposure on body dissatisfaction.

2.2.2. Measures

2.2.2.1. Self-concept clarity.

The Self-Concept Clarity Scale (SCCS; Campbell et al., 1996) was used to assess participants' level of self-concept clarity. The scale consists of 12 items assessing the certainty, temporal stability, and congruence of the responder's self-beliefs (e.g., "In general, I have a clear sense of who I am and what I am"; "My beliefs about myself seem to change very frequently"; "I spend a lot of time wondering about what kind of person I really am"). Participants were asked to rate their agreement with each statement on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*). After reverse-coding relevant items, the items were averaged to create a mean self-concept clarity score, with a higher score indicating greater self-concept clarity (Cronbach's $\alpha = 0.85$).

2.2.2.2. State appearance comparison.

The 3-item state appearance comparison scale devised by Tiggemann and McGill (2004) was used to assess the extent to which participants compared their own appearance and body to that of the individuals pictured. The first question asked participants to rate how much they "thought about (their) appearance whilst viewing the images" on a 7-point scale (1 = *No thought*, 7 = *A lot of thought*). The second and third items asked about the extent to which participants compared their "overall appearance" and "specific body parts" to those of the people in the images shown (1 = *No comparison*, 7 = *A lot of comparison*). The items were averaged to create a state appearance comparison score for each participant, with a higher score indicating greater appearance comparison with the targets (Cronbach's $\alpha = 0.94$).

2.2.2.3. State body dissatisfaction.

Three items from the Body Image State Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) were used to assess participants' state level of body dissatisfaction following the exposure task. Only three of the six items from the original scale were used in order to keep the assessment brief. Participants were asked to rate how they felt "right now in this very moment" about different aspects of their bodies (their overall physical appearance, size and shape, and weight) on a 9-point scale (1 = *Extremely dissatisfied*, 5 = *Neither satisfied nor dissatisfied*, 9 = *Extremely satisfied*). This measure was reverse-coded so that higher mean scores indicate greater dissatisfaction (Cronbach's $\alpha = 0.92$).

2.2.2.4. Covariates.

Trait appearance comparison tendency and thin-ideal internalization have been previously shown to moderate the effect of exposure on body dissatisfaction (Dittmar & Howard, 2004; Durkin & Paxton, 2002; Thompson & Stice, 2001), and they also correlate with both self-concept clarity and body dissatisfaction (Vartanian et al., 2018). Thus, these variables were measured and included as covariates in a follow-up analysis to determine whether any effects of self-concept clarity still held when controlling for internalization and trait comparison tendency. Trait appearance comparison tendency was measured using the Physical Appearance Comparison Scale – Revised (Schaefer & Thompson, 2014). This measure assesses the frequency with which individuals report engaging in appearance comparisons in their everyday lives. The 11 items assess appearance comparisons (both in general and specifically relating to body weight, shape and fat) across a variety of situations (e.g., "When I'm out in public, I compare my body fat to the body fat of others"). Participants were asked to rate on a 5-point scale (0 = *Never*, 4 = *Always*) how often they engaged in the behaviors described. Responses to the items were averaged, with a higher mean score indicating a greater frequency of comparison

(Cronbach's α = 0.95). Thin-ideal internalization was assessed using the thinness-related internalization subscale of the Sociocultural Attitudes Toward Appearance Questionnaire-4 (Schaefer et al., 2015). Participants were asked to indicate their agreement with 4 items (e.g., "I want my body to look very thin") on a 5-point scale (1 = *Definitely disagree*, 5 = *Definitely agree*). Response items were averaged, with a higher score indicating greater internalization (Cronbach's α = 0.81).

2.2.2.5. Demographics. Participants were asked to report their age, gender, ethnicity, and height and weight (which were used to calculate participants' BMI).

2.3. Procedure

Participants were invited to complete an online study examining how individuals "evaluate and respond to images they see on social media." After providing informed consent, participants completed a brief demographic survey to confirm their eligibility for the study. Participants were then informed that they would be shown a series of photographs "typical of those seen on social media" and asked questions about each of these images. Participants were then randomly allocated to view either the control image set (n = 243) or the idealized image set (n = 246). Each image was shown for a total of 7 s before the survey automatically advanced to a page of distractor questions about that image (e.g., "How likely to do you think it is that the image was sponsored by a company or brand?"; "How aesthetically pleasing was the image?"). These questions were included to bolster the cover story but were irrelevant to aims of the study. After viewing the image set, participants completed the measures of state appearance comparisons and state body dissatisfaction, followed by the measures of self-concept clarity, trait appearance comparison tendency, and thin-ideal internalization. The trait measures were completed after image exposure and after completing the state measures in order to avoid the possibility that completing the trait measures could have influenced participants' responding to the stimuli. Finally, participants completed the demographic questions. A debriefing statement was provided at the conclusion of the study. The study took approximately 15 min to complete.

2.4. Data analysis

Data were screened for normality prior to conducting the main analyses. All variables were normally distributed except for BMI, which was positively skewed with a high degree of kurtosis. Removing outliers (i.e., individuals with a BMI greater than 3 standard deviations away from the mean; n = 12) normalized the distribution but did not alter the pattern of results. Therefore, all participants were included in the analyses reported below. Independent samples t-tests were conducted to confirm that there were no significant differences between exposure groups on any of the trait measures or demographic variables, and correlations were computed for all of the trait and state measures. Independent samples t-tests were conducted to test the hypotheses that participants exposed to idealized bodies would report greater state appearance comparison and greater body dissatisfaction than would participants in the control group. To test the hypothesis that state appearance comparison would mediate the effect of exposure condition on body dissatisfaction, a bootstrapped mediation analysis with 10,000 resamples was conducted using the PROCESS macro for SPSS (Model 4; Hayes, 2017). For this analysis, the control condition was coded as 0, and idealized condition was coded as 1. Next, a moderated-mediation analysis (Model 7; Hayes, 2017) was used to determine whether the effect of exposure condition on body dissatisfaction, via state appearance comparison, was moderated by

self-concept clarity level. Point estimates of the conditional effects of exposure condition on state appearance comparison, and the conditional indirect effects of exposure condition on body dissatisfaction, were computed at values of self-concept clarity equating to the 16th, 50th and 84th percentiles of the distribution (these values will be referred to as "low," "moderate," and "high" values of self-concept clarity, respectively). Finally, the moderated-mediation analysis was repeated with trait appearance comparison tendency and thin-ideal internalization entered as covariates. Because BMI was correlated with state body dissatisfaction (r = 0.40, p < .001), BMI was also included in this model as a covariate along with trait appearance comparison tendency and thin-ideal internalization.

3. Results

3.1. Preliminary analysis

There were no missing data for the 489 participants included in the analyses. Independent samples t-tests confirmed that there were no significant differences between exposure groups on any of the trait or demographic variables (see Table 1). The correlations among the trait and state variables are shown in Table 2.

3.2. Effect of exposure condition

As predicted, participants exposed to idealized images reported comparing themselves more to the people in the images (M = 4.67, SD = 1.86) than did those who viewed control images (M = 1.96, SD = 1.30), $t(439.36)$[1] = 18.69, p < .001, d = 1.69. Participants exposed to idealized images also indicated higher levels of body dissatisfaction (M = 6.08, SD = 2.15) than did those who viewed control images (M = 5.15, SD = 2.08), $t(487)$ = 4.89, p < .001, d = 0.44. Follow-up analyses using a one-sample t-tests further showed that participants exposed to the idealized images reported a significant level of *dis*satisfaction (i.e., they scored above the neutral mid-point of the scale; t = 7.90, p < .001, d = 0.50) whereas participants exposed to the control images did not differ from the neutral mid-point of the scale (t = 1.10, p = .273, d = 0.07).

3.3. Mediation analysis

Consistent with the hypotheses, mediation analysis indicated that the effect of exposure condition on body satisfaction was mediated by comparisons to the target individuals. There was a significant indirect effect of exposure condition on body dissatisfaction via state appearance comparison, b = 1.28, SE = 0.19, 95% CI [0.94, 1.66]. The positive coefficients indicate that individuals who engaged in greater appearance comparison experienced greater body dissatisfaction.

3.4. Moderated-mediation analysis

There was a significant interaction between exposure condition and self-concept clarity on appearance comparisons, b = −0.38, SE = 0.14, 95% CI [−0.65, −0.11], p = .006, indicating that the impact of image exposure differed depending on participants' level of self-concept clarity. Table 3 displays the conditional effects of exposure condition on appearance comparison at three levels of self-concept clarity (low, moderate, and high). Participants engaged in greater appearance comparison to the idealized images relative to the control images at all levels of self-concept clarity level, but this effect was largest among those relatively low in self-concept clarity, and

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[1] Levene's test of equality of variances was significant (F = 44.99, p < .001), and thus the degrees of freedom reflect those for the "equal variance not assumed" analysis.

Table 1
Between-groups differences on demographic variables and trait measures.

	Control images		Idealized images				
	M	SD	M	SD	t	p	d
Self-concept clarity	3.77	1.08	3.83	0.99	-0.58	.564	-0.05
Internalization	3.25	0.98	3.23	1.01	0.20	.839	0.02
Trait appearance comparison	2.06	1.05	2.10	0.97	-0.36	.717	-0.03
Age	22.1	2.1	22.2	2.1	-0.27	.790	-0.02
BMI	24.0	6.6	24.4	6.3	-0.83	.405	-0.08

Note. BMI = body mass index.

Table 2
Bivariate correlations between trait and state measures.

	1	2	3	4	5
1. Self-concept clarity	–				
2. Comparison tendency	-.39 ***	–			
3. Internalization	-.34 ***	.55 ***	–		
4. State appearance comparison	-.16 ***	.35 ***	.29 **	–	
5. State body dissatisfaction	.31 ***	-.53 ***	-.48 ***	-.41 *	–

*** p < .001.

Table 3
Conditional effects of exposure condition on appearance comparisons at low, moderate and high levels of self-concept clarity.

Level of SCC	Effect (b)	SE	p	LLCI	ULCI
Low	3.11	0.20	<.001	2.73	3.50
Moderate	2.75	0.14	<.001	2.47	3.03
High	2.34	0.20	<.001	1.95	2.73

Note. SCC = self-concept clarity, *LLCI* = lower-limit 95% confidence interval, *ULCI* = upper-limit 95% confidence interval.

Table 4
Conditional indirect effect of exposure condition on body dissatisfaction via appearance comparisons at low, moderate and high levels of self-concept clarity.

Level of SCC	Effect (b)	SE	LLCI	ULCI	Partially standardized indirect effect
Low	1.47	0.22	1.06	1.93	0.68
Moderate	1.30	0.19	0.95	1.68	0.60
High	1.11	0.17	0.79	1.46	0.51

Note. SCC = self-concept clarity, LLCI = lower-limit 95% confidence interval, ULCI = upper-limit 95% confidence interval. Partially standardized indirect effect = unstandardized indirect effect divided by the standard deviation of the outcome variable.

was smallest among those relatively high in self-concept clarity. The indirect effect of exposure condition on body satisfaction, via appearance comparison, was also conditional on level of self-concept clarity (index of moderated mediation = −0.18, SE = 0.07, 95% CI [−0.32, −0.05]). Table 4 displays the indirect effect of exposure condition on body satisfaction via appearance comparisons at low, moderate, and high levels of self-concept clarity. The indirect path was significant at all levels of self-concept clarity, but the magnitude of this indirect effect was largest among those relatively low in self-concept clarity, and was smallest among those relatively high in self-concept clarity.

3.5. Follow-up analyses

The results of the moderated-mediation analysis did not change when trait appearance comparison, internalization, and BMI were included as covariates in the analysis. The moderated mediation effect remained significant (index of moderated mediation = −0.06, SE = 0.03, 95% CI [−0.14, −0.01]).

4. Discussion

The aim of this study was to investigate whether self-concept clarity moderated the effect of exposure to idealized images on state appearance comparisons and body dissatisfaction. Consistent with the hypotheses, participants who viewed idealized images engaged in greater appearance comparison with the targets, and consequently experienced more post-exposure body dissatisfaction, than did those who viewed control images. These findings provide additional support for the suggestion that appearance comparison is a key factor mediating the effect of exposure to idealized imagery on body image (Tiggemann & McGill, 2004; Tiggemann & Zaccardo, 2015). Although comparisons to images of idealized bodies on any given occasion will likely only lead to transient increases in body dissatisfaction, cumulative exposure can have longer-lasting effects. In everyday life, a high level of exposure to idealized imagery is likely to be near ubiquitous among females living in Western society (Buote et al., 2011; Thompson et al., 1999), and it is the accumulated effects of comparisons to these images that is theorized to contribute to the development of trait body dissatisfaction (Frederick, Daniels, Bates, & Tylka, 2017).

The most novel finding of this research is that the hypothesized moderated-mediation model was supported: the indirect effect of exposure on body dissatisfaction via appearance comparisons was conditional upon participants' level of self-concept clarity. Although exposure to thin-ideal images led to greater body dissatisfaction as a result of enhanced comparison processing for all levels of self-concept clarity, this effect was greatest among those with lower self-concept clarity. Notably, this pattern of results held even when controlling for other factors (thin-ideal internalization and trait appearance comparison) that are known to moderate the effect of ideal exposure on body dissatisfaction (Dittmar & Howard, 2004; Durkin & Paxton, 2002; Thompson & Stice, 2001), suggesting that self-concept clarity has a unique role to play in this process.

The moderation by self-concept clarity is consistent with theoretical perspectives on self-concept clarity in general (e.g., Campbell, 1990) and on the connection between self-concept clarity and body dissatisfaction in particular (e.g., Vartanian et al. 2018). Specifically, individuals who lack a clear sense of self are more likely to compare themselves to others because such comparisons can provide a means for understanding how and where they fit into society. There is correlational evidence that self-concept clarity is associated with a greater tendency to make social comparisons in general (Butzer & Kuiper, 2006), as well as a greater tendency to make appearance-based comparisons in particular (Humphreys & Paxton, 2004; Vartanian & Dey, 2013; Vartanian et al., 2018). Although these findings are informative, they are based on participants' retrospective assessments of how they generally think or feel, but cannot speak to how they respond to specific situations. The present study provides the first demonstration that self-concept clarity also predicts the extent to which individuals engage in appearance comparisons in the moment, to a specific target individual. Thus, it appears that having low self-concept clarity increases the risk of the negative consequences of exposure to idealized imagery and, by

extension, could increase the risk of body dissatisfaction as a result of repeated exposure and comparison to idealized bodies.

Although the differences in the effects of exposure as a function of self-concept clarity might be small (recall that the indirect path was significant at all levels of self-concept clarity, albeit of greatest magnitude for those low in self-concept clarity), these results are based on a single, brief exposure to idealized images. Repeated exposure and comparison to such images will likely accumulate to have a substantial impact on body dissatisfaction over time (Hargreaves & Tiggemann, 2003b). Research using ecological momentary assessment has found that young women make approximately 3–4 appearance comparisons per day, and that these comparisons in daily life are linked to increased momentary body dissatisfaction (Fardouly et al., 2017). Given the current findings, it may well be that the frequency of these daily comparisons (and the associated body dissatisfaction) is greater among individuals low in self-concept clarity, meaning that the types of small differences we observed in the present study could be experienced multiple times per day.

The current framework extends previous sociocultural models (in particular the tripartite influence model; Thompson et al., 1999) by identifying a broader risk factor that can increase vulnerability to body dissatisfaction. Previous research has shown that appearance comparisons can explain the impact of exposure to idealized imagery on body dissatisfaction (e.g., Tiggemann & McGill, 2004), and the current study adds to that work by providing insights into *who* is likely to be most vulnerable to those effects. In this way, self-concept clarity can be useful as a means of identifying individuals likely to be at risk. Furthermore, the theoretical framework proposes that self-concept clarity is an antecedent of comparison tendencies (Vartanian et al. 2018), which means that self-concept clarity could potentially provide an earlier entry point for prevention efforts aimed at reducing the development of body dissatisfaction over time. Of course, these developmental trajectories have yet to be tested empirically, and so for now remain speculative.

4.1. Limitations and future directions

There are some limitations of this research that are worth considering. First, the sample used in this study was deliberately homogenous. The idealized image set included photos only of young, White females, and so we recruited a sample whose demographics matched those of the models so that we could maximize the likelihood that participants would view the idealized models as relevant targets for comparison (Festinger, 1954; Frisby, 2004). The homogeneity of the sample, of course, raises questions about the generalizability of the results. Although previous research has shown that the associations among self-concept clarity, appearance comparisons, and body dissatisfaction hold across a range of groups (students and community samples, Asian and White participants, men and women, adults and adolescents; see Vartanian & Hayward, 2018), it would nonetheless be worth demonstrating that self-concept clarity moderates the effects of exposed to idealized images in more diverse samples. It would also be worth examining the effects of exposure to different types of imagery (e.g., body positive images, or women with larger bodies) to determine whether self-concept clarity moderates the effects of exposure more generally.

Second, although the experimental design allowed us to provide causal evidence for the impact of exposure on appearance comparisons and body dissatisfaction, the moderator (self-concept clarity) was a measured individual difference variable assessed at a trait level. Self-concept clarity is typically conceptualized as a relatively stable feature of the self, but other work has also shown that the clarity of self-concept can fluctuate at a state level (e.g., Nezlek & Plesko, 2001). It would be interesting for future research to consider whether self-concept clarity could be manipulated as a means of

buffering against the effects of exposure to idealized images. Several studies have shown that state self-concept clarity can be manipulated experimentally, such as by using a writing task to prime clarity of self-concept (e.g., Csank & Conway, 2004; Emery et al., 2015). These types of manipulations could potentially be applied in the context of exposure to idealized media images. If boosting people's self-concept clarity resulted in lower levels of appearance comparison and consequent body dissatisfaction, then this would provide further support for the theoretical perspective, and would also have potential practical implications. For example, interventions designed to boost self-concept clarity, or to encourage aspects of the self that are not based on appearance, could be a useful approach to help buffer against the effects of ubiquitous exposure to idealized media images.

Another limitation of the experimental approach is that such an approach can lack ecological validity. For example, the nature, context, and timing of viewing the images would likely have been different from how people experience these images in their daily lives. Furthermore, we were only able to assess the impact of exposure on a single occasion. Alternative approaches, such as using Ecological Momentary Assessment (EMA), would allow researchers to capture these processes over time in a more ecologically valid context. Previous research has examined appearance comparisons and body dissatisfaction using an EMA approach (e.g., Fardouly et al., 2017), and there is also evidence that individuals' levels of self-concept clarity can shift naturally, over both long and short temporal spans (Light & Visser, 2013; Nezlek & Plesko, 2001). Using an EMA approach to examine, for example, whether daily shifts in self-concept clarity are associated with daily shifts in appearance comparisons and body dissatisfaction would allow the temporal dynamics of these relationships to be elucidated.

4.2. Conclusion

This study demonstrated that appearance comparisons mediated the effect of exposure to idealized imagery on body dissatisfaction, and that this mediation effect was moderated by participants' level of self-concept clarity. The findings are consistent with the theoretical perspective indicating that individuals low in self-concept clarity are more likely to compare their appearance to others, and highlight self-concept clarity as a potential vulnerability factor in the context of body dissatisfaction. The findings suggest promising avenues for future research into how better to predict, prevent, and treat body dissatisfaction.

CRediT authorship contribution statement

Jeanne Carter: Conceptualization, Methodology, Investigation, Project administration, Formal analysis, Writing – original draft.**, Lenny Vartanian:** Conceptualization, Methodology, Supervision, Writing – review & editing.

Declaration of Interests

The authors have no conflicts of interest to declare.

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