frontiers | Frontiers in Communication

TYPE Original Research
PUBLISHED 23 April 2025
DOI 10.3389/fcomm.2025.1529650

Check for updates

OPEN ACCESS

EDITED BY
Daniel-Rareș Obadă,
Alexandru Ioan Cuza University, Romania

REVIEWED BY
Paula Rosa Lopes,
Lusofona University, Portugal
Iuliana Raluca Gheorghe,
Carol Davila University of Medicine and Pharmacy, Romania

*CORRESPONDENCE
Adrian Furnham
✉ adrian@adrianfurnham.com

RECEIVED 17 November 2024
ACCEPTED 21 February 2025
PUBLISHED 23 April 2025

CITATION
Wallhead G, Furnham A and McClelland A (2025) The influence of idealised and non-idealised models on the effectiveness of advertisements and body appreciation in females.
Front. Commun. 10:1529650.
doi: 10.3389/fcomm.2025.1529650

COPYRIGHT
© 2025 Wallhead, Furnham and McClelland. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

The influence of idealised and non-idealised models on the effectiveness of advertisements and body appreciation in females

Georgia Wallhead[1], Adrian Furnham[2]* and Alastair McClelland[1]

[1]Department of Experimental Psychology, University College London, London, United Kingdom, [2]Department of Leadership and Organisational Behaviour, Norwegian Business School (BI), Oslo, Norway

As social media advertising becomes increasingly influential, understanding the impact of different model representations on both consumer attitudes and body image is crucial. This study extends the existing literature by investigating the effects of using different sized models in social media advertising, examining the impact of the advertisements on body appreciation, and using memory and brand attitude as measures of advertisement effectiveness. In all, 235 young female participants from the United Kingdom viewed advertisements containing either "idealised" (thin) models or "non-idealised" (plus-size) models embedded within a simulated Instagram feed. Body Appreciation Scale (BAS) scores were taken *pre-exposure* and *post-exposure* to the advertisements. Advertisement effectiveness was measured via brand attitude and memorability of advertising information (free recall and recognition). Participants exposed to non-idealised models demonstrated a significant increase in BAS scores, whereas there was no effect for idealised models. There was a significant main effect of model type on brand attitude and free recall: non-idealised models elicited more positive brand attitudes and higher recall of brands/products compared to idealised models, but no significant effects were found for brand recognition. For participants exposed to idealised models, there was a significant positive relationship between their *pre-exposure* BAS scores and brand attitude scores, potentially explained by the perceived similarity between the participant and the model. The implications of using non-idealised models in advertisements for advertisers and consumers are discussed, and suggestions for future research are outlined.

KEYWORDS

idealised models, non-idealised models, advertisements, body image, body appreciation, brand attitude, free recall, recognition

Introduction

'Idealised' female models, who are most commonly used in advertisements, often have extremely thin figures (U.K. body-size 4–6) with features not usually possessed by ordinary people, making them appear desirable (Dillavou, 2009). These models tend to have a Body Mass Index (BMI) of 16 (Firger, 2016) which is considerably lower than the 'healthy' range of 18.5 to 24.9 (NHS, 2019). Consequently, it has been argued and demonstrated, exposure to idealised models can negatively impact female consumers' body image (Groesz et al., 2002), and, in extreme cases, can lead to eating disorders (Stice et al., 2001). Inevitably, there is a range of shapes that may be described as idealised, which can be between 'ultra-thin' to 'healthily thin' as defined by BMI. In this study, we use models that may be described as the latter.

Some brands have introduced more diversity by including average and plus-size models (Malmelin and Hakala, 2009; Zlotnick, 2020). These average and plus-size models are defined as 'non-idealised' because they are larger in size and more realistic in comparison to idealised models (Aagerup, 2011). While the main priority of advertisers is to create an effective advertisement, they are also morally responsible for the adverse effects of their advertisements on consumers (Lee and Jin, 2019).

This study aims to investigate whether the use of non-idealised models in advertisements can positively affect female consumer's body image, which has societal importance (BPS, 2019), and potentially a positive influence on advertisement effectiveness, which has financial benefits for brands (Tellis, 2004). It extends the current literature in three ways: comparing thin and plus-size models, using social media vs. traditional (print, TV, ecommerce) advertisements, and using memory (as a key measure of advertising effectiveness) in addition to brand attitude as outcome variables. Many studies that have attempted to measure the effectiveness of advertising have looked at memory, often thought of as a more robust measure of advertisement effectiveness than attitudes to the brand, or intention to buy (Furnham, 2019).

There is an extensive literature on model body size effects in advertising (Aagerup, 2021; Czerniawski, 2021; Janssen and Paas, 2014; Joo and Wu, 2021; Kordrostami and Laczniak, 2022; Paek et al., 2023; Selensky and Carels, 2021; Vazquez et al., 2024; Viglia et al., 2023; Yim et al., 2024). They tend to show that advertisers choose thinner models with very few using non-idealised, particularly plus-sized models. Researchers have been particularly interested in individual difference factors (such as personality, body size and body appreciation/satisfaction) and how they influence the evaluation of the model and the desire to purchase the product. Various explanations have been proposed such as that of Borau and Bonnefon (2017) who argued that previous inconsistent findings on the effects of non-idealised body shapes might have resulted from a complex causal framework. They suggested that "natural" models have an impact on performance through two affective mediators (body anxiety, and "repulsion toward the model"), while allowing moderation by the viewer's own body mass index (BMI). In another study Lou and Tse (2020) showed that, women assimilate to an average-sized model over a thin or plus-size model in advertising, which did not affect their subsequent body satisfaction. Moreover, women's body mass index (BMI) moderated the mediating relationship between model size and purchase intentions via perceived similarity to the model.

Body image

Marketers tend to over-represent idealised models in their advertisements (Yu et al., 2011). Using idealised models in traditional advertisements (e.g., TV, magazines) causes body image concerns in 21% of women (Mental Health Foundation, 2021), possibly because individuals think they are undesirable if they do not possess this thin body (Mills et al., 2017). Research has shown that exposure to idealised models in advertising results in women reporting lower self-esteem (Richins, 1991), greater body dissatisfaction (Grabe et al., 2008), and a more negative body image (Groesz et al., 2002). However, the effect sizes in these studies were small or moderate.

These findings can partly be explained by social comparison theory (Festinger, 1954); individuals evaluate their characteristics against others if some objective measures are unavailable. When individuals make upward comparisons to those who are better than they are, (e.g., consumers evaluating their body size against idealised models), their self-esteem is reduced. This is consistent with a recent meta-analysis of 48 articles, which found significant negative effects of upward comparison on social media users' body image, well-being, mental health and self-esteem (McComb et al., 2023).

However, not all women engage in social comparisons, and some women instead demonstrate a self-enhancement effect when exposed to idealised models (Myers and Biocca, 1992; Smeesters and Mandel, 2006). Self-enhancement is the motivation to maximise positive views of oneself (Giacomin and Jordan, 2017), therefore, by perceiving idealised models as aspirational, this motivates these women to achieve their ideal physique which positively influences their body image (Mussweiler and Strack, 2000).

Other studies have found that idealised models do not negatively influence consumers' body image, but rather non-idealised models shift consumers' body image perceptions in a positive direction. Both Halliwell et al. (2005) and Holmstrom (2004) found that viewing magazine advertisements containing idealised models did not significantly increase females' body-focused anxiety or body dissatisfaction, but non-idealised models elicited a relief effect, decreasing females' body-focused anxiety and body dissatisfaction. Females make downward social comparisons to non-idealised models who are larger than they are, leading them to feel better about their body shape. Diedrichs and Lee (2011) also found that females who internalise ideal beauty standards displayed a more positive body image after exposure to average-sized models compared to thin or no models. Yet it may also be that lateral comparisons are also very likely when comparing oneself to a non-idealised model, especially when the model is average-sized rather than plus-sized.

These findings suggest that using non-idealised models in place of idealised models within advertisements would benefit society by creating a more realistic beauty standard. However, research thus far has focused mainly on traditional advertising (e.g., magazines), and not more recent forms of advertising such as that found in social media, which this study aims to do.

In this study, we look at body appreciation, which is closely related to the concept of body satisfaction. As Linardon et al. (2022) note, body appreciation, defined as accepting, holding favourable attitudes towards, and respecting the body, is the most widely studied facet of positive body image.

Social media

Over the past decade, many companies have gradually shifted their marketing spend from traditional media (e.g., TV, magazines) to digital advertising (e.g., social media) because Millennials and Gen Z are consuming less of the former and more of the latter (Munsch, 2021). There is a growing literature on the effectiveness of social media advertising (Djafarova and Rushworth, 2017; Vinaika and Manik, 2017) demonstrating its popularity and efficacy.

Specifically, marketers post advertisements on Instagram, a photo-sharing social media application used by 75% of 18–24 year-olds (Iqbal, 2021), to reach an audience of up to 2 billion monthly active

users (Kumar, 2024). However, recent research has suggested that Instagram negatively affects the self-esteem and body image of its female users aged 18–24 (Tuchband, 2018). Indeed, Engeln et al. (2020) found that participants using Instagram for 7 min engaged in more social comparisons, and showed a significant increase in body dissatisfaction, relative to controls who played a game for 7 min. This could be because Instagram sometimes contains highly edited unrealistic images, and when individuals make upward comparisons to these images this worsens their body image (Tiggemann et al., 2018). Editing images can distort bodies in many different ways, sometimes to make the outcome very unusual and unrepresentative of the population.

The use of editing apps such as Facetune and FaceApp, which presents a false representation of an individual, focuses on aesthetic and external appearance. This suggests that Instagram can be particularly detrimental to personal self-image.

To highlight Instagram's inauthenticity, some users post 'Instagram vs. reality' images, presenting an ideal version of themselves (best angles with filters) next to a natural version (relaxed and unfiltered). Tiggemann and Anderberg (2020) found that women, who viewed 'Instagram vs. reality' images, or just the 'reality' images, demonstrated an increase in body satisfaction compared to those who viewed just the idealised 'Instagram' images. This may suggest that posting realistic non-idealised images on social media can improve other users' body image. However, to our knowledge, this has not yet been explored in terms of advertising, and this is one of the aims of the current study.

The current study aims to investigate the effects of social media advertisements containing either idealised or non-idealised models on participants' body image. This investigation solely uses young female participants because they use social media most frequently (Glassman, 2010), and commonly report a negative body image (Bair et al., 2014).

Furthermore, while the majority of studies have used body dissatisfaction as a measure of body image, the current study uses body *appreciation* as an alternative measure. We believe that this is a unique contribution as this field is moving more toward studying positive, rather than negative body image outcomes (Tiggemann et al., 2020).

> H1: There will be an interaction between the type of model in the advertisement and the change in BAS scores. Participants exposed to idealised models will show a reduced BAS score and participants exposed to non-idealised models will show an increased BAS score.

Advertisement effectiveness

Idealised models are traditionally used in advertisements because they possess a body type with good physical and social health which is perceived as desirable in Western cultures (Levy-Navarro, 2009), and "the function of advertising is to create desire" (Yakhlef, 1999, p. 137). Marketers assume that these models are more effective because female consumers tend to prefer advertisements containing idealised models (Hesse-Biber et al., 2006), and develop more favourable attitudes towards the brand (Henderson-King et al., 2001), which elicits higher purchase intentions for the product (Till and Busler, 2000). One question that has been answered (Borau and Bonnefon, 2017; Janssen and Paas, 2014; Lou and Tse, 2020) but worth replicating, with different stimuli, is whether non-idealised models can be *more* effective than idealised models.

Although the early 2000s promoted extreme thinness as the beauty standard, evidence shows that this is no longer deemed to be aspirational (Barry, 2014). An increasing number of female consumers have criticised the use of unrealistically thin models in advertisements (Halliwell and Dittmar, 2004), and have demanded more diversity of body shapes and sizes via their social media platforms (Pounders and Mabry-Flynn, 2019). Therefore, brands have started to include more average and plus-size models, such as Rihanna's SavageXFenty collection, which changes the societal norms by broadening the beauty standard for women. Research has shown that advertisements do not need to contain extremely thin idealised models to be effective, and incorporating non-idealised models is more socially responsible (D'Alessandro and Chitty, 2011).

Many consumers, particularly millennials, are interested in how brands are meeting their social responsibilities (Kotler, 2011), and they tend to make purchases based on ethical grounds rather than aesthetic ones (Aagerup, 2011). For example, consumers may exhibit positive attitudes towards a brand that uses non-idealised models as the brand holds values, such as body inclusivity, which are congruent with their values (Ridgway, 2016). Barry (2014) also found that non-idealised models are perceived as honest, aspirational, socially responsible, and therefore more appealing, in contrast to idealised models who are perceived as dishonest and unrealistic, leading to a rejection of the 'thin-ideal'.

There is a literature on non-idealised models and advertising effectiveness going back over a decade (Åkestam et al., 2017; Diedrichs and Lee, 2010, 2011). There is also some recent evidence to suggest that women have responded positively to the use of more realistic models after being solely exposed to thin models for so long (Pounders and Mabry-Flynn, 2019), and therefore, may develop more positive attitudes towards brands that use non-idealised models. It is hypothesised that:

> H2: Participants exposed to non-idealised models will have a higher positive brand attitude score than participants exposed to idealised models.

Furthermore, there may be an interaction between the consumer's body image and the model's size on brand attitudes (Potter, 1986). Yu et al. (2011) found that brand attitudes were indirectly influenced by participants' body image via their perceived similarity to either the idealised or the non-idealised models. Specifically, women with a more negative body image perceive non-idealised models as aspirational (Barry, 2014), and perceive idealised models as less aspirational, which can be attributed to the substantial gap between their actual and ideal-self (Malär et al., 2011). Also, women who are less body-conscious perceive idealised models as aspirational and appealing (Malär et al., 2011). Thus, we test the idea that the viewing of different models has an effect on the relationship between body appreciation and attitude to brands. It is hypothesized that:

> H3: Participants viewing advertisements containing idealised models will show a positive association between body appreciation and brand attitude, and participants viewing advertisements

> containing non-idealised models will show a negative association between body appreciation and brand attitude.

Memory

It is also possible that advertisements containing non-idealised models are more memorable, and therefore more effective, than advertisements containing idealised models. Also, individuals pay more attention to novel and shocking advertisements (Wu and Huberman, 2008), and are more likely to remember things they pay attention to (Chun and Turk-Browne, 2007). Therefore, advertisements containing non-idealised models might be more 'attention-grabbing', and therefore more memorable, than advertisements containing idealised models. However, we acknowledge the fact that memory may be essentially unrelated to positive brand attitudes or purchase intentions.

Clayton et al. (2017) demonstrated that plus-size models are indeed more likely to be remembered than thin models. Participants demonstrated the highest levels of attention and recognition memory for plus-size models, followed by average-size models, and the lowest levels for thin models. The same procedure was employed by Ridgway (2016) who obtained the same result. While Clayton et al. (2017) provided an interesting insight into how the difference in the size of models influences their memorability, the findings cannot be generalised to advertising information, as they used retail images of models from fashion websites. In addition, they only measured recognition, and not free recall; which is more challenging and has not yet been explored in this context. From a marketing perspective, a consumer recalling a brand without any prompts is just as important as recognising the brand (Kenton, 2018). Therefore, the current study presents participants with advertisements containing different sized models and measures the memorability of the brands and products, using both free recall and recognition tasks. It is hypothesised that:

> H4: Participants viewing advertisements containing non-idealised models will have a higher free recall score than participants viewing advertisements containing idealised models.

> H5: Participants viewing advertisements containing non-idealised models will have a higher recognition score than participants viewing advertisements containing idealised models.

Method

Participants

There were 235 female participants in this study, aged 18–29 (M = 18.96 years, SD = 1.31), recruited via volunteer sampling. The majority of the participants (189) were psychology students recruited from the UCL SONA system, who were awarded 0.5 course credits for participating. The remainder of the participants (46) were recruited through social media. A G*Power analysis (Faul et al., 2007) revealed that this sample size was sufficient to detect a medium effect size ($f = 0.25$; Cohen, 1988) with $\alpha = 0.05$ and $1 - \beta = 0.80$. All the participants were from the United Kingdom but belonged to several ethnic groups; East Asian (42.55%), non-British European (25.53%), White British (15.74%) and Other (17.03%).

Materials/stimuli

The online experiment was created and hosted on the Gorilla platform (www.Gorilla.sc; Anwyl-Irvine et al., 2019).

Advertisements

Plus-size fashion brands were sourced from two websites and the five brands used for the advertisements were: HearUsRoar, NewGirlOrder, 11Honore, GoodAmerican, and Harlow. Another brand, Reformation, was used as an example in the free recall task.

We chose non-British brands that featured plus-size models. There was not a great selection of brands to choose from; many had 'plus-sizes' but did not use plus-size models. In addition, we needed to find images of models on the websites which had plain backgrounds so they could be edited.

We also chose brands that the participants would not have heard of (Australian brands), we personally had not heard of any of the brands. It was very difficult to find brands which used both thin and plus-size models, even if brands stocked small to large sizes. None of the brand names implied it was a plus-size brand. We assumed, but did not test, the idea that our participants had not heard of, seen or bought from these websites, which could have been a limitation.

To create the advertisements with the non-idealised models (see Appendix A), a plus-size model was extracted from each of the brands' websites and imported into PicCollage editing software (Cardinal Blue, 2020). The images were altered to a 1:1 ratio, by expanding the images' background, as this ratio is necessary when posting on the simulated Instagram feed. Then, the brand name was written in the top-left and the bottom-right of the image (e.g., 11Honore), and the clothing product name (e.g., sheath dress in red) was written in the middle-left. To create the advertisements with the idealised models (see Appendix A), the same steps were followed but the plus-size models were digitally slimmed-down using the "re-shape" tool in the AirBrush application (Pixocial Technology Singapore Pte. Ltd, 2020). The idealised and non-idealised versions of each model had the same outfit, hair, and face, ensuring that no confounding variables were introduced and the only difference between conditions was the model's body size.

Simulated Instagram feed

The IOS Social Dummy application (Richards, 2013) was used to create a simulated Instagram feed that resembles real-life social media advertising, ensuring good ecological validity. Non-human filler images (such as, animals, beaches, baths) with made-up captions were posted on the feed from appropriate fake profiles which included a username and profile picture (see Appendix B). The filler images were used to distract participants between the ads, preventing a ceiling effect for recognition, and they did not contain any people or food to ensure that the BAS scores were solely influenced by the models in the ads. All filler images and profile pictures were sourced from Instagram (2020). For the advertisements, the official brand logos were used as the profile pictures, and the brand names were used as usernames. The captions of the advertisements were #AD followed by product name (see Appendix B).

In the main experiment, for the non-idealised condition, three filler images were inserted into the feed on either side of each non-idealised advertisement, giving a total of 18 filler images and five advertisements. The feed was screen recorded so that the fillers were presented for 3 s and the advertisements were presented for 6 s. The video lasted 100 s, (18 × 3 s + 5 × 6 s + 16 s scrolling between images). This was repeated for the idealised condition. The images were shown in the same order and for the same length of time.

These timings were chosen because of the results from a pilot study of 25 consenting participants, who did not take part in the main investigation. Twenty-four filler images were used, and the advertisements were only shown for 5 s each. This resulted in a floor effect for recognition and free recall, so for the main experiment, some filler images were removed and the advertisements were displayed for longer.

Body appreciation scale

The Body Appreciation Scale (BAS; Tylka and Wood-Barcalow, 2015) was used to measure participants' body image, it is positively phrased which avoids inducing psychological harm. This scale was used because of its high internal consistency (Cronbach's $\alpha = 0.94$).

Memory tests

Memory was measured via free recall and recognition as in some previous studies (e.g., Furnham and Mainaud, 2011; Wong et al., 2019). The free recall task required participants to list the brand and product for each of the five advertisements, giving a maximum score of 10. Free recall responses were computed with the researcher blind to the participants' condition to avoid bias. In the multiple-choice recognition test, for each advertisement, participants had to select the brand name they had previously seen out of a list containing four other distractor brands. Participants received one point for each correctly identified brand, giving a maximum score of five.

Brand attitude task

Brand attitude was measured for each of the five advertisements using five items rated on a 5-point Likert scale taken from Spears and Singh's (2004) study. For example, the first item asked participants to rate the brand from 1 = '*Very unappealing*' to 5 = '*Very appealing*'. This scale has high internal consistency (Cronbach's $\alpha = 0.95$). Brand attitude scores were calculated by averaging the scores across the five items for each advertisement and summing them over the five advertisements.

Procedure

Ethics permission was sought and granted. Participants read the information sheet and completed the consent form. They were told they were taking part in a fashion judgement task, and that they should be as honest as possible. They first filled out a demographic questionnaire requesting their age, nationality, and ethnic origin, and then completed the BAS. Participants were then randomly allocated to either the idealised (thin) or the non-idealised (plus-size) model condition, and instructed to watch carefully the video on the next screen. They were randomly assigned automatically via the Gorilla software; participants were given a link to the Gorilla website and they completed the experiment online. The video of the simulated Instagram feed (containing advertisements of either the idealised or the non-idealised models) played for 100 s. Next, participants completed the free recall task, followed by the recognition task, and the brand attitudes task. Finally, participants completed the BAS again, before being debriefed on the aims of the study (see Figure 1 for experimental procedure).

Results

For all analyses reported in this section, the significance level was set at the conventional $p = 0.05$.

BAS scores

An ANOVA was conducted with time of BAS measurement (Before/After: Within-participants) and type of model depicted (Idealised/Non-Idealised: Between-participants) as independent variables and BAS scores as the dependent variable. Neither the Levene test for homogeneity of variance ($p = 0.120$), nor Box's test for equality of covariance matrices ($p = 0.624$), were significant. There was a significant main effect of when the BAS score was taken, $F(1, 233) = 22.09$, $p < 0.001$, $\eta_p^2 = 8.7\%$, whereby the mean BAS scores were significantly higher after viewing the advertisements ($M = 35.34$, $SD = 7.92$) compared to before ($M = 34.49$, $SD = 7.49$). There was no significant main effect of model type, $F < 1$ (Idealised: $M = 35.25$; Non-Idealised condition: $M = 34.56$) on the BAS score. The interaction between when the BAS was taken and the model condition was significant, $F(1, 233) = 5.23$, $p = 0.023$, $\eta_p^2 = 0.022$. Therefore, simple effects analyses were conducted comparing the BAS scores *before* and *after* viewing the advertisements, for both the idealised and non-idealised conditions. For the idealised condition, there was no significant difference in the BAS scores *after* viewing the advertisements ($M = 35.47$, $SD = 7.52$) compared to *before* ($M = 35.03$, $SD = 7.02$), $t(119) = 1.73$, $p = 0.086$, $d = 0.16$. For the non-idealised condition, a significant difference in BAS scores was found, $t(114) = 4.88$, $p < 0.001$, $d = 0.46$. Thus, BAS scores increased *after* viewing the advertisements ($M = 35.20$, $SD = 8.35$) compared to *before* ($M = 33.92$, $SD = 7.95$). Thus, H1 was partially supported.

The mean BAS change scores are presented in Table 1. A positive score indicates an increase in body appreciation, and a negative score a decrease.

Advertisement effectiveness

Correlations

Correlations between the three measures of advertisement effectiveness (free recall, recognition, and brand attitude) were computed for each model type, and are presented in Table 2.

Table 2 reveals that for both the idealised and non-idealised conditions the measures of memory (free recall and recognition) were significantly positively correlated. There was also an unexpected significant negative correlation between brand attitude and recognition in the non-idealised condition, but not in the idealised

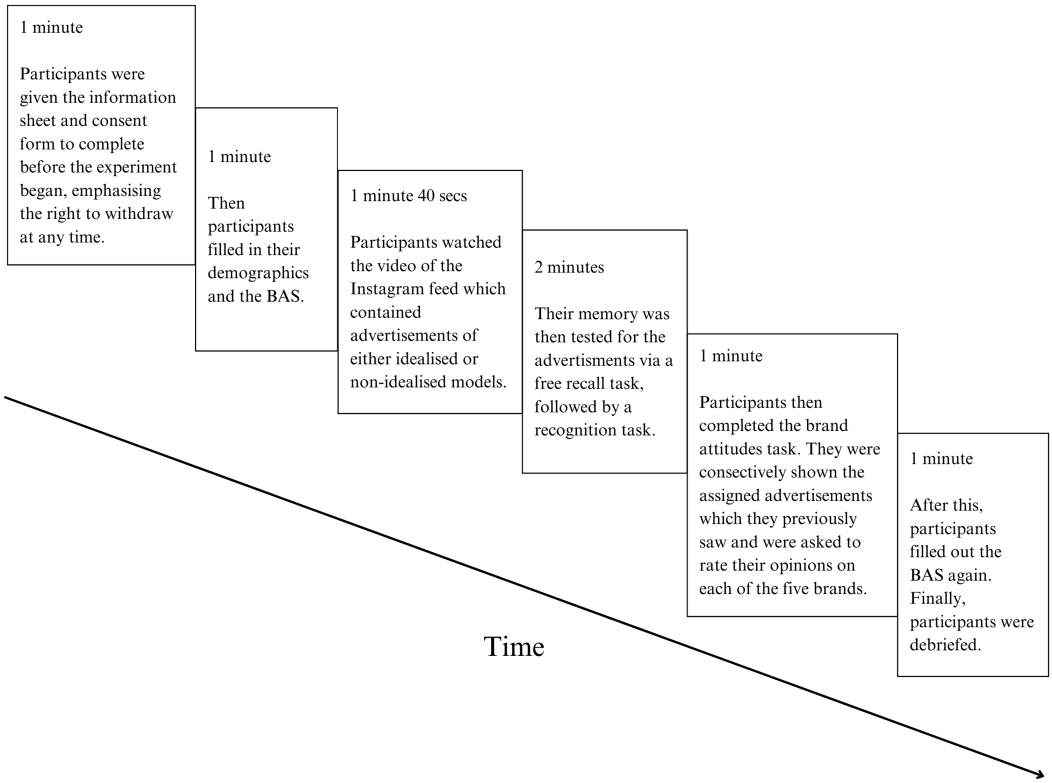

FIGURE 1
The order and timing of the tasks in the study.

TABLE 1 Means and standard deviations for the BAS change scores for the idealised and non-idealised model conditions.

Model type	*M*	*SD*	*N*
Idealised	0.44	2.80	120
Non-idealised	1.28	2.81	115

TABLE 2 Pearson correlations between the measures of free recall, recognition, and brand attitude for the idealised and non-idealised model conditions.

Measure	Free recall	Recognition	Brand attitude
Free recall		0.481**	−0.019
Recognition	0.361**		−0.056
Brand attitude	−0.081	−0.233*	

Correlations for the idealised condition (n = 120) are presented above the diagonal, and correlations for the non-idealised condition (n = 115) are presented below the diagonal.
*$p < 0.05$. **$p < 0.01$ (two-tailed).

condition. There was no significant correlation between free recall and brand attitude in either condition.

Brand attitude

A regression model was fitted to the data. The categorical predictor variable was the type of model used within the advertisements (idealised or non-idealised), the continuous predictor variable was the BAS score taken *pre-exposure* to the advertisements, and the continuous criterion variable was the brand attitude scores. An interaction term was also added to the model. The BAS scores were centred so the main effect of model type could be examined at the mean level of body appreciation. The adjusted means are presented in Table 3.

There was a significant main effect of model type on brand attitude, $F(1, 231) = 7.03$, $p = 0.009$, $\eta_p^2 = 0.030$, whereby participants who viewed advertisements containing non-idealised models displayed a significantly higher brand attitude score compared to participants who viewed advertisements containing idealised models. There was also a significant main effect of the *pre-exposure* BAS score on brand attitude, $F(1,231) = 5.87$, $p = 0.016$, $\eta_p^2 = 0.025$. However, there was no interaction between the *pre-exposure* BAS score and model type, $F < 1$.

TABLE 3 Table of adjusted mean scores and standard deviations for the brand attitude scores, under conditions of idealised and non-idealised models.

Model type	*M(adj)*	*SD*	*N*
Idealised	17.12	3.21	120
Non-idealised	18.16	3.32	115

TABLE 4 Table of adjusted mean scores and standard deviations for free recall and recognition, under conditions of idealised and non-idealised models.

	Model type					
	Non-idealised			Idealised		
Memory measure	*M(Adj)*	*SD*	*N*	*M(Adj)*	*SD*	*N*
Free recall	2.32	1.56	120	2.73	1.51	115
Recognition	2.37	1.32	120	2.36	1.29	115

Planned contrasts revealed that for the non-idealised model condition, there was no significant relationship between the *pre-exposure* BAS score and the brand attitude score, $F(1,113) = 1.33$, $p = 0.252$, $R^2 = 1.2\%$ (R^2 adjusted = 0.3%). However, for the idealised model condition, there was a significant positive relationship between the *pre-exposure* BAS score and the brand attitude score, $F(1,118) = 5.64$, $p = 0.026$, $R^2 = 4.1\%$ (R^2 adjusted = 3.3%).

Thus, H2 was supported, as brand attitude was more positive following exposure to non-idealised models than idealised models, and H3 was partially supported; as predicted, a positive relationship was found between BAS and brand attitude for idealised models, but the negative relationship predicted between BAS and brand attitude for non-idealised models was not evident.

Memory

To test the two memory hypotheses (H4 and H5), two one-way ANCOVAs were conducted to compare the effect of model type on memory (measured via free recall and recognition) after controlling for the effects of the *pre-exposure* BAS score; the adjusted means are presented in Table 4.

Free recall

There was a significant difference in mean free recall between the model type conditions, $F(1, 232) = 3.83$, $p = 0.026$ (one-tailed), $\eta_p^2 = 0.016$, thus, as predicted, the participants who viewed advertisements containing non-idealised models had a higher free recall score than participants who viewed advertisements containing idealised models. The *pre-exposure* BAS score was not a significant covariate, $F < 1$.

Recognition

There was no significant difference in mean recognition between the model type conditions, $F < 1$, after controlling for body appreciation. The *pre-exposure* BAS score was not a significant covariate, $F(1, 232) = 2.26$, $p = 0.134$, $\eta_p^2 = 0.010$. There was no significant difference in mean recognition between the model type conditions, $F(1, 232) = 0.029$, $p = 0.865$, $\eta_p^2 = 0.00$, after controlling for body appreciation.

Therefore, H4 was supported as the free recall score was higher for non-idealised models than idealised, but H5 was not.

Discussion

The first hypothesis was partially supported, as an interaction was found between the type of model and the change in the BAS scores *pre-exposure* and *post-exposure* to the advertisements; non-idealised models elicited a greater change in BAS scores compared to idealised models. Participants exposed to non-idealised models showed an increase in their BAS scores, however, participants exposed to idealised models showed no change in their BAS scores, rather than the decrease that was predicted. These findings are congruent with Holmstrom (2004) and Halliwell et al. (2005) who found that idealised models have no effect on consumers' body image, but non-idealised models improve women's body image. The positive effect of non-idealised models can be explained in terms of social comparison theory (Festinger, 1954). When making downward social comparisons to others with inferior attributes, individuals feel better about their attributes. However, we should acknowledge that we did not explicitly measure any comparison process—which could be seen as a limitation.

The current findings contradict studies in which it was found that idealised models elicit greater body dissatisfaction (Grabe et al., 2008) and a more negative body image (Groesz et al., 2002). This was possibly because some participants were inspired by the idealised models and demonstrated a self-enhancement effect, as in the study by Mussweiler and Strack (2000). Alternatively, the idealised models in this study may not have represented extremely thin real-life models as they were digitally created by slimming down the non-idealised versions. In the free recall task, some participants responded with "thin pear-shaped lady," "normal women," "average-sized woman," indicating that the idealised models were not perceived as extremely thin. Possibly participants believed there was not much discrepancy between their body-size and the idealised models, therefore, appreciation of their own bodies was unaffected.

The second hypothesis was supported; the non-idealised models elicited more positive attitudes towards the brands compared to the idealised models. This may be because brands using non-idealised models are seen as being more honest, socially responsible, and appealing than those using idealised models (Barry, 2014), and consumers have recently demanded more diverse body-sizes in advertisements (Pounders and Mabry-Flynn, 2019). It is possible that participants believed in the importance of body inclusivity and

therefore demonstrated more positive brand attitudes in the non-idealised condition, as research shows that consumers exhibit positive attitudes toward ethical brands which hold values that are congruent with their own (Ridgway, 2016). However, there are likely to be individual differences in body inclusivity beliefs, therefore, future research should measure these beliefs as it may moderate consumers' brand attitudes towards advertisements using different sized models. Currently, these ideas however remain as essentially little more than untested speculations.

The finding above suggests that brands may benefit from using non-idealised models in their advertisements, in contrast to earlier findings which suggest that consumers demonstrate more positive attitudes towards brands using idealised models (for example, Henderson-King et al., 2001; Hesse-Biber et al., 2006; Till and Busler, 2000). The current findings also contradict those obtained by Halliwell and Dittmar (2004) who suggested that model size does not influence brand attitudes. This inconsistency may be due to their use of deodorant as the product category in their advertisements which is unrelated to body-size, in contrast to the use of clothing in the current investigation. When consumers purchase a practical product (e.g., a deodorant) to fulfil their needs, the model in the advertisement might be irrelevant (Aagerup, 2011). However, when consumers purchase clothing for aesthetic purposes the model's size contributes to the appearance of the item (Kozar and Damhorsti, 2008). Therefore, future research could explore the use of different product categories, and investigate whether this modulates the influence of different sized models on brand attitudes.

One unanticipated finding was an association between body appreciation and brand attitude. While no other study has directly measured this relationship, a possible explanation could be that body appreciation is significantly associated with life satisfaction (Swami and Ng, 2015), and life satisfaction is positively correlated with brand behaviour, including brand awareness (Abbas et al., 2016).

The third hypothesis was that there would be an interaction between consumers' *pre-exposure* BAS score and the type of model viewed, on brand attitude, and this was only partially supported. Participants viewing non-idealised models did not show a negative relationship between body appreciation and brand attitude. These findings are consistent with those of Yu et al. (2011), who found that women with a more negative body image did not demonstrate significantly higher brand attitudes after viewing non-idealised models compared to women with a more positive body image. However, as predicted, this investigation found that participants viewing idealised models showed a significant positive relationship between body appreciation and brand attitude. This finding is congruent with that of Malär et al. (2011) who found that less self-conscious individuals are more likely to perceive idealised models as aspirational as they are similar to them. Therefore, the current finding could be explained in terms of perceived similarity; participants with higher BAS scores are probably more likely to relate to the idealised models resulting in higher brand attitudes, as Kelly et al. (2014) found that individuals give positive evaluations to others that are similar to them.

The fourth hypothesis was that there would be an effect of model type on free recall, and this was supported; brands and products were recalled better by participants exposed to advertisements containing non-idealised models compared to idealised models. The most plausible explanation is that non-idealised models are unexpected, as they violate social conventions in fashion (Dahl et al., 2003), which grabs the consumers' attention (Wu and Huberman, 2008), resulting in better memory, as there is a clear link between attention and memory (Chun and Turk-Browne, 2007). Furthermore, the *pre-exposure* BAS scores were not correlated with free recall suggesting consumers' body image does not influence their memorability for advertisements containing an idealised or non-idealised model.

While a positive correlation was found between free recall and recognition scores in both the idealised and non-idealised conditions, the fifth hypothesis that there would be an effect of model type on recognition memory performance was not supported. No previous study has directly measured this for brand recognition specifically, however, this finding somewhat contradicts those obtained by Clayton et al. (2017) and Ridgway (2016) who found that plus-size models were recognised more than average-size models, followed by thin models, using a yes/no recognition task. It is not entirely clear why there is a difference in the findings, but it could be that model size affects model recognition, but not brand recognition. Alternatively, the discrepancy could be attributed to the type of recognition memory task used (yes/no vs. multiple-choice task) as they rely on slightly different mechanisms (see Smith and Duncan, 2004).

An explanation for the effect of model type on free recall but not recognition could be due to individual differences in focus of attention (i.e., on the models vs. product or brand); the recognition task was solely for brands, while free recall responses were mostly of the products. Individuals pay more attention to plus-size models than thin models (Clayton et al., 2017). Therefore, most participants probably focused heavily on the non-idealised models which increased their free recall of the products (clothing), but this distracted them from the brand names, resulting in poorer brand recognition. However, other participants may have been less distracted by the non-idealised models so may have also focused on the brand names resulting in better free recall and brand recognition scores. The high and low recognition scores of participants in the non-idealised condition, due to individual differences in their focus of attention, could have counteracted each other leading to a non-significant effect of model type on recognition. Future investigations could use eye-tracking to measure participants' focus of attention as this may influence the distinction between brand and product memorability.

Furthermore, the negative correlation found between brand attitude and recognition scores in the non-idealised condition could also be explained by the focus of attention. The unconventional nature of non-idealised models may have drawn participants' attention to this aspect of the advertisement resulting in higher brand attitude scores, at the expense of other information—such as the brand names—resulting in lower recognition scores. However, for the advertisements with idealised models, this did not occur, possibly because these models are conventional and draw less attention.

Limitations and future research

A limitation of this study is that participants' body size (BMI) was not controlled for which influences the way consumers perceive different sized models. As this study was conducted online during the COVID-19 pandemic, participants' weight and height could not be measured, as they might not have had weighing scales or a tape measure at home. Further, we were advised ethical permission might not be given if we asked for this data.

Another possible limitation of this study was that the digitally created idealised models were not thin enough to represent the extreme thinness of real-life idealised models. Therefore, if this investigation were to be replicated, a pilot study should be conducted in which participants categorise the models into thin, average, and plus-size, and only the thin models are used in the idealised condition. Alternatively, real idealised models could be used in the idealised condition and these models could be photo-manipulated to create the non-idealised versions.

Furthermore, as this study used female participants aged 18–29 years, it is unclear whether the positive effects of non-idealised models on body appreciation and advertisement effectiveness extends to older females, a possible avenue for future research. As women age, they often gain weight due to bodily changes, however, they tend to accept and demonstrate an increase in body appreciation compared to younger women. Older women also display more positive attitudes towards clothing modelled by older-larger models than younger-thinner models, and their attitudes are correlated with perceived similarity to the model (Kozar and Damhorsti, 2008). Therefore, the positive effects of non-idealised models on body appreciation and brand attitude may be more prominent in older women. Older women are also less likely to recall advertising information than are younger women, but are more likely to be influenced by the information. This could suggest that overall, free recall and recognition scores may be lower in older women, but they may demonstrate higher brand attitudes as they are more easily persuaded. Therefore, future research should explore these effects in older female participants using older female models.

Another limitation concerns using the BAS-2 test as a state, rather than a trait measure. There has long been a distinction between stable traits and passing states particularly in the anxiety literature, though the two are related. We believe that whilst an individual's body appreciation and evaluation is relatively stable over time it can be challenged and changed as a function of particular stimuli. Further, we believe that the very simple items of the BAS-2 can be used to assess state measures. However, this assumption needs to be tested to prove our point. Equally importantly, we should acknowledge the problem of possible demand characteristics as this scale was administered twice, and which may have alerted some participants to the experimental design and purpose.

As the current study solely used explicit measures of memory (free recall and recognition) and brand attitude, future research could use implicit measures as these are also useful in understanding advertisement effectiveness (Dimofte, 2010). Explicit self-report measures of brand attitude may lead to exaggerated responses as participants may not reveal their true attitudes (i.e., social desirability bias), or may even be unaware of them (Karns and Khera, 2015). In this study, more positive explicit brand attitudes were associated with non-idealised models compared to idealised models. However, a meta-analysis of studies using the Implicit Association Test (IAT) indicated that individuals universally possess implicit 'anti-fat' attitudes (Watts and Cranney, 2010), suggesting that the current findings may not hold—and might even be reversed—if an implicit measure of brand attitude was employed. It is also important to measure implicit memory because consumers are sometimes unaware that prior advertisement exposure unconsciously guides their brand decisions, e.g., unplanned impulse buys (Rook, 1987), and explicit memory is only appropriate when consumers consciously engage in effortful retrieval of advertising information (Shapiro and Krishnan, 2001). Thus, future studies could explore the impact of different sized models in advertisements using an implicit memory measure, and implicit brand attitudes using the IAT.

Furthermore, explicit memory was tested almost immediately after advertisement exposure. Increasing the time delay to 24 h decreases explicit memory performance by half (Brandt and Nieuwenhuis, 2017), suggesting that non-idealised models may not elicit superior free recall scores of advertising information, compared to idealised models, with a longer time delay. However, implicit memory shows no measurable decline over a one-week time delay between advertisement exposure and brand decisions (Shapiro and Krishnan, 2001). Therefore, future research could test implicit and explicit memory one-week after advertisement exposure, as real-life consumers do not always make purchases immediately after viewing advertisements.

While the findings provide an insight into the effectiveness of non-idealised models in social media advertising via memorability and brand attitude, this may not necessarily translate to purchases. Consumers that prefer ethical (body inclusive) brands, do not tend to purchase from them (Carrington et al., 2010). Therefore, future research should track consumers' real-life online purchases to see whether ads containing non-idealised models elicit greater purchases compared to idealised models. With the development of eCommerce, consumers can make instant purchases directly through social media, for example, 130 million Instagram users click on shopping ads monthly (Newberry, 2021). Therefore, instead of measuring self-reported purchase intentions, (e.g., Halliwell and Dittmar, 2004), future researchers could use online clicks to measure purchases as it is more ecologically valid.

Implications and conclusions

The results indicate that when advertising clothes to young female consumers via social media, non-idealised models are more effective than idealised models, with respect to brand attitudes and the memorability of the brands/products. From a marketing perspective, the findings imply that using non-idealised models in advertisements might provide financial benefits as consumers tend to purchase from brands they remember and have positive attitudes towards (Gunter, 1999). However, marketers should be aware that as more brands start to use non-idealised models less attention and memorability will be generated because the shock factor and novelty may rapidly deteriorate (Wu and Huberman, 2008).

The results also indicate that viewing advertisements containing non-idealised models increases consumers' body appreciation. This finding has important implications for society as it suggests that promoting body inclusivity can improve women's body image, which is associated with greater well-being, better mental health, and less vulnerability to eating disorders (Mental Health Foundation, 2021). As this investigation focused specifically on social media advertising, social media marketers should use more realistic models, as leading by example may encourage users to stop posting highly edited images, which promote unrealistic beauty standards.

In conclusion, the findings indicate that exposure to non-idealised models increases consumers' body appreciation, whereas idealised models have no influence. Non-idealised models have a significant positive effect on advertisement effectiveness, with respect to brand attitude and free recall of advertising information, but not brand recognition. The findings also demonstrate that for idealised models, those with a higher BAS score (*pre-exposure* to advertisements) developed more positive brand attitudes, possibly due to perceived similarity to the idealised models. This investigation has important implications for marketers as it suggests that using non-idealised models in their social media advertisements will benefit the brand, as well as the consumer, and society as a whole.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by UCL Department of Experimental Psychology EP/2018.007. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

GW: Data curation, Formal analysis, Methodology, Validation, Writing – original draft. AF: Writing – review & editing. AM: Project administration, Supervision, Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2025.1529650/full#supplementary-material

References

Aagerup, U. (2011). The influence of real women in advertising on mass market fashion brand perception. *J. Fash. Mark. Manag.* 15, 486–502. doi: 10.1108/13612021111169960

Aagerup, U. (2021). Men's and women's implicit negativity towards obese fashion models. *J. Glob. Fash. Market.* 13, 273–288. doi: 10.1080/20932685.2021.1977164

Abbas, T., Abrar, M., Rizwan, S., and Iqbal, A. (2016). The relationship of life satisfaction with buying intention and brand behavior for global brand. *Eur. J. Bus. Manage.* 8, 97–105.

Åkestam, N., Rosengren, S., and Dahlén, M. (2017). Advertising 'like a girl': toward a better understanding of 'femvertising' and its effects. *Psychol. Mark.* 34, 795–806. doi: 10.1002/mar.21023

Anwyl-Irvine, A. L., Massonié, J., Flitton, A., Kirkham, N. Z., and Evershed, J. K. (2019). Gorilla in our midst: an online behavioural experiment builder. *Behav. Res. Methods* 52, 388–407. doi: 10.3758/s13428-019-01237-x

Bair, A., Steele, J. R., and Mills, J. S. (2014). Do these norms make me look fat? The effect of exposure to others' body preferences on personal body ideals. *Body Image* 11, 275–281. doi: 10.1016/j.bodyim.2014.04.004

Barry, B. (2014). Selling whose dream? A taxonomy of aspiration in fashion imagery. *Fash. Style Pop. Cult.* 1, 175–192. doi: 10.1386/fspc.1.2.175_1

Borau, S., and Bonnefon, J.-F. (2017). The advertising performance of non-ideal female models as a function of viewers' body mass index: A moderated mediation analysis of two competing affective pathways. *Int. J. Advert.* 36, 457–476. doi: 10.1080/02650487.2015.1135773

BPS. (2019). The influence of body image on mental health. The British Psychological Society. Available online at: https://www.bps.org.uk/blogs/guest/influence-body-image-mental-health (Accessed January 7, 2021).

Brandt, D., and Nieuwenhuis, I. (2017). Understanding memory in advertising. *Nielsen Journal of Measurement*, 1, 1-5. Available at: https://www.nielsen.com/us/en/insights/report/2017/understanding-memory-in-advertising/

Cardinal Blue (2020). PicCollage (Version 7.72.1) [Mobile app]. App Store. Available online at: https://apps.apple.com/gb/app/piccollage-grid-photo-editor/id448639966 (Accessed November 15, 2020).

Carrington, M. J., Neville, B. A., and Whitwell, G. J. (2010). Why Ethical Consumers Don't Walk Their Talk: Towards a Framework for Understanding the Gap Between the Ethical Purchase Intentions and Actual Buying Behaviour of Ethically Minded Consumers. *J Bus Ethics* 97, 139–158. doi: 10.1007/s10551-010-0501-6

Chun, M. M., and Turk-Browne, N. B. (2007). Interactions between attention and memory. *Curr. Opin. Neurobiol.* 17, 177–184. doi: 10.1016/j.conb.2007.03.005

Clayton, R. B., Ridgway, J. L., and Hendrickse, J. (2017). Is plus size equal? The positive impact of average and plus-sized media fashion models on women's cognitive resource allocation, social comparisons, and body satisfaction. *Commun. Monogr.* 84, 406–422. doi: 10.1080/03637751.2017.1332770

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd ed.).* Hillsdale, NJ: Lawrence Erlbaum Associates.

Czerniawski, A. M. (2021). "Real" bodies in plus-size fashion. *Fat Stud.* 11, 231–243. doi: 10.1080/21604851.2021.1913827

D'Alessandro, S., and Chitty, B. (2011). Real or relevant beauty? Body shape and endorser effects on brand attitude and body image. *Psychol. Mark.* 28, 843–878. doi: 10.1002/mar.20415

Dahl, D. W., Frankenberger, K. D., and Manchanda, R. V. (2003). Does it pay to shock? Reactions to shocking and nonshocking advertising content among university students. *J. Advert. Res.* 43, 268–280. doi: 10.1017/S0021849903030332

Diedrichs, P. C., and Lee, C. (2010). GI Joe or Average Joe? The impact of average-size and muscular male fashion models on men's and women's body image and advertisement effectiveness. *Body Image* 7, 218–226. doi: 10.1016/j.bodyim.2010.03.004

Diedrichs, P. C., and Lee, C. (2011). Waif goodbye! Average-size female models promote positive body image and appeal to consumers. *Psychol. Health* 26, 1273–1291. doi: 10.1080/08870446.2010.515308

Dillavou, L. J. (2009). Cognitive responses, attitudes, and product involvement of female consumers to traditional and non-traditional models in beauty advertising [Unpublished master's thesis]. Iowa State University. doi: 10.31274/etd-180810-2441

Dimofte, C. V. (2010). "Implicit Measures of Consumer Cognition: A Review," *Psychology & Marketing*, 27, 921–37. doi: 10.1002/mar.20366

Djafarova, E., and Rushworth, C. (2017). Exploring the credibility of online celebrities' Instagram profiles in influencing the purchase decisions of young female users. *Comput. Hum. Behav.* 68, 1–7. doi: 10.1016/j.chb.2016.11.009

Engeln, R., Loach, R., Imundo, M. N., and Zola, A. (2020). Compared to Facebook, Instagram use causes more appearance comparison and lower body satisfaction in college women. *Body Image* 34, 38–45. doi: 10.1016/j.bodyim.2020.04.007

Faul, F., Erdfelder, E., Lang, A. G., and Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav. Res. Methods* 39, 175–191. doi: 10.3758/BF03193146

Festinger, L. (1954). A theory of social comparison processes. *Hum. Relat.* 7, 117–140. doi: 10.1177/001872675400700202

Firger, J. (2016). For runway models, high fashion means a dangerously low BMI. Newsweek. Available online at: https://www.newsweek.com/2016/02/19/high-fashion-low-bmi-424763.html (Accessed January 9, 2021).

Furnham, A. (2019). Advertising: The contribution of applied cognitive psychology. *Appl. Cogn. Psychol.* 33, 168–175. doi: 10.1002/acp.3458

Furnham, A., and Mainaud, L. (2011). The effect of French television sexual program content on the recall of sexual and nonsexual advertisements. *J. Sex Res.* 48, 590–598. doi: 10.1080/00224499.2010.503947

Giacomin, M., and Christian, J. C. (2017). Self-enhancement motives in *Encyclopedia of personality and individual differences*, V. Zeigler-Hill and T. K. Shackelford (Eds.) Cham, Switzerland: Springer. 1–5.

Glassman, N. (2010). Women Spend 30% More Time on Social Web Than Men. AdWeek. Available online at: https://www.adweek.com/performance-marketing/women-more-on-social-web-than-men/ (Accessed December 18, 2020).

Grabe, S., Ward, L. M., and Hyde, J. S. (2008). The role of the media in body image concerns among women: a meta-analysis of experimental and correlational studies. *Psychol. Bull.* 134, 460–476. doi: 10.1037/0033-2909.134.3.460

Groesz, L. M., Levine, M. P., and Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: a meta-analytic review. *Int. J. Eat. Disord.* 31, 1–16. doi: 10.1002/eat.10005

Gunter, B. (1999). *Media Research Methods: Measuring Audiences, Reactions and Impact*. London: Sage.

Halliwell, E., and Dittmar, H. (2004). Does size matter? The impact of model's body size on women's body-focused anxiety and advertising effectiveness. *J. Soc. Clin. Psychol.* 23, 104–122. doi: 10.1521/jscp.23.1.104.26989

Halliwell, E., Dittmar, H., and Howe, J. (2005). The impact of advertisements featuring ultra-thin or average-size models on women with a history of eating disorders. *J. Community Appl. Soc. Psychol.* 15, 406–413. doi: 10.1002/casp.831

Henderson-King, D., Henderson-King, E., and Hoffmann, L. (2001). Media images and women's self-evaluations: social context and importance of attractiveness as moderators. *Personal. Soc. Psychol. Bull.* 27, 1407–1416. doi: 10.1177/01461672012711002

Hesse-Biber, S., Leavy, P., Quinn, C. E., and Zoino, J. (2006). The mass marketing of disordered eating and Eating Disorders: The social psychology of women, thinness and culture. *Women's Stud. Int. Forum* 29, 208–224. doi: 10.1016/j.wsif.2006.03.007

Holmstrom, A. J. (2004). The effects of the media on body image: a meta-analysis. *J. Broadcast. Electron. Media* 48, 196–217. doi: 10.1207/s15506878jobem4802_3

Instagram (2020). Instagram (Version 177.0) [Mobile app]. App Store. Available online at: https://apps.apple.com/gb/app/instagram/id389801252 (Accessed March 23, 2021).

Iqbal, M. (2021). Instagram Revenue and Usage Statistics (2021). Business of Apps. Available online at: https://www.businessofapps.com/data/instagram-statistics/ (Accessed March 20, 2021).

Janssen, D. M., and Paas, L. J. (2014). Moderately thin advertising models are optimal, most of the time: Moderating the quadratic effect of model body size on ad attitude by fashion leadership. *Mark. Lett.* 25, 167–177. doi: 10.1007/s11002-013-9249-y

Joo, B. R., and Wu, J. (2021). The impact of inclusive fashion advertising with plus-size models on female consumers: The mediating role of brand warmth. *J. Glob. Fash. Market.* 12, 260–273. doi: 10.1080/20932685.2021.1905021

Karns, D., and Khera, I. (2015). Actual Versus Self-Reported Consumer Behavior: An Empirical Investigation of a Socially Desirable Behavior. In: J. D. Lindquist (eds) Proceedings of the 1984 Academy of Marketing Science (AMS) Annual Conference. Developments in Marketing Science: Proceedings of the Academy of Marketing Science. Springer, Cham. doi: 10.1007/978-3-319-16973-6_82

Kelly, J., Sadeghieh, T., and Adeli, K. (2014). *Peer review in scientific publications: benefits, critiques, & a survival guide*: EJIFCC. 25, 227–43.

Kenton, W. (2018). Brand Recognition. Investopedia. Available online at: https://www.investopedia.com/terms/b/brand-recognition.asp#:~:text=Brand%20recall%20tends%20to%20indicate,unaided%20recall%20or%20spontaneous%20recall (Accessed February 25, 2021).

Kordrostami, M., and Laczniak, R. N. (2022). Female power portrayals in advertising. *Int. J. Advert.* 41, 1181–1208. doi: 10.1080/02650487.2021.1998878

Kotler, P. (2011). Reinventing marketing to manage the environmental imperative. *J. Mark.* 75, 132–135. doi: 10.1509/jmkg.75.4.132

Kozar, J. M., and Damhorsti, M. L. (2008). Older women's responses to current fashion models. *J. Fash. Mark. Manag. Int. J.* 12, 338–350. doi: 10.1108/13612020810889290

Kumar, N. (2024). Instagram statistics – global demographics & trends (2024). Demand Sage. Available online at: https://www.demandsage.com/instagram-statistics/ (Accessed January 3, 2025).

Lee, J. Y., and Jin, C. H. (2019). The role of ethical marketing issues in consumer-brand relationship. *Sustainability (Switzerland)* 11:6536. doi: 10.3390/su11236536

Levy-Navarro, E. (2009). "Fattening queer history: Where does fat history go from here?" in *The fat studies reader*. eds. E. Rothblum and S. Solovay (New York: New York University Press), 15–24.

Linardon, J., McClure, Z., Tylka, T. L., and Fuller-Tyszkiewicz, M. (2022). Body appreciation and its psychological correlates: a systematic review and meta-analysis. *Body Image* 42, 287–296. doi: 10.1016/j.bodyim.2022.07.003

Lou, C., and Tse, C. H. (2020). Which model looks most like me? Explicating the impact of body image advertisements on female consumer well-being and consumption behaviour across brand categories. *Int. J. Advert.* 40, 602–628. doi: 10.1080/02650487.2020.1822059

Malär, L., Krohmer, H., Hoyer, W. D., and Nyffenegger, B. (2011). Emotional brand attachment and brand personality: The relative importance of the actual and the ideal self. *J. Mark.* 75, 35–52. doi: 10.1509/jmkg.75.4.35

Malmelin, N., and Hakala, J. (2009). Guided by the brand: from brand management to integrative corporate communications. *Bus. Strategy Ser.* 10, 248–258. doi: 10.1108/17515630910989141

McComb, C. A., Vanman, E. J., and Tobin, S. J. (2023). A meta-analysis of the effects of social media exposure to upward comparison targets on self-evaluations and emotions. *Media Psychol.* 26, 612–635. doi: 10.1080/15213269.2023.2180647

Mental Health Foundation (2021). Body image report – Executive Summary Mental health foundation. Available online at: https://www.mentalhealth.org.uk/publications/body-image-report/exec-summary (Accessed March 11, 2021).

Mills, J. S., Shannon, A., and Hogue, J. (2017). "Beauty, body image, and the media" in *Perception of Beauty*. ed. M. P. Levine (London: IntechOpen Limited).

Munsch, A. (2021). Millennial and generation Z digital marketing communication and advertising effectiveness: a qualitative exploration. *J. Glob. Scholars Market. Sci.* 31, 10–29. doi: 10.1080/21639159.2020.1808812

Mussweiler, T., and Strack, F. (2000). The "relative self": Informational and judgmental consequences of comparative self-evaluation. *J. Pers. Soc. Psychol.* 79, 23–38. doi: 10.1037/0022-3514.79.1.23

Myers, P. N., and Biocca, F. A. (1992). The elastic body image: the effect of television advertising and programming on body image distortions in young women. *J. Commun.* 42, 108–133. doi: 10.1111/j.1460-2466.1992.tb00802.x

Newberry, C. (2021). 44 Instagram Stats That Matter to Marketers in 2021. Hootsuite. Available online at: https://blog.hootsuite.com/instagram-statistics (Accessed March 20, 2021)

NHS. (2019). What is the body mass index (BMI)? Available online at: https://www.nhs.uk/common-health-questions/lifestyle/what-is-the-body-mass-index-bmi/ (Accessed November 6, 2020).

Paek, H. J., Vilela, A. M., and Nelson, M. R. (2023). "Gender-role portrayals in TV advertising" in *encyclopedia of quality of life and well-being research*. ed. F. Maggino (Cham: Springer).

Pixocial Technology Singapore Pte. Ltd. (2020). Air Brush (Version 4.17.1) [Mobile app]. Available online at: https://apps.apple.com/gb/app/airbrush-best-photo-editor/id998411110 (Accessed November 15, 2020).

Potter, W. J. (1986). Perceived reality and the cultivation hypothesis. *J. Broadcast. Electron. Media* 30, 159–174. doi: 10.1080/08838158609386617

Pounders, K., and Mabry-Flynn, A. (2019). Consumer response toward plus-size models featured in the mainstream media. *J. Consum. Aff.* 53, 1355–1379. doi: 10.1111/joca.12251

Richards, A. (2013). Social Dummy (Version 5.1.7) [Mobile app]. App Store. Available online at: https://apps.apple.com/gb/app/social-dummy/id610088272 (Accessed November 15, 2020).

Richins, M. L. (1991). Social comparison and the idealized images of advertising. *J. Consum. Res.* 18:71. doi: 10.1086/209242

Ridgway, J. L. (2016) Depicting thin, average, and plus size models in fashion advertisements: exploring social comparisons, body image satisfaction, purchase intentions, and memory, International Textile and Apparel Association Annual Conference Proceedings, Volume 73, Issue 1. doi: 10.31274/itaa_proceedings-180814-1316

Rook, D. W. (1987).The Buying Impulse. *Journal of Consumer Research*, 14, 189–199. doi: 10.1086/209105

Selensky, J. C., and Carels, R. A. (2021). Weight stigma and media: An examination of the effect of advertising campaigns on weight bias, internalized weight bias, self-esteem, body image, and affect. *Body Image* 36, 95–106. doi: 10.1016/j.bodyim.2020.10.008

Shapiro, S., and Krishnan, H. S. (2001). Memory-based measures for assessing advertising effects: A comparison of explicit and implicit memory effects. *Journal of Advertising*, 30, 1–13. doi: 10.1080/00913367.2001.10673641

Smeesters, D., and Mandel, N. (2006). Positive and negative media image effects on the self. *J. Consum. Res.* 32, 576–582. doi: 10.1086/500489

Smith, D. G., and Duncan, M. J. J. (2004). Testing theories of recognition memory by predicting performance across paradigms. *J. Exp. Psychol. Learn. Mem. Cogn.* 30, 615–625. doi: 10.1037/0278-7393.30.3.615

Spears, N., and Singh, S. N. (2004). Measuring attitude toward the brand and purchase intentions. *J. Curr. Issues Res. Advert.* 26, 53–66. doi: 10.1080/10641734.2004.10505164

Stice, E., Spangler, D., and Agras, W. S. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: A longitudinal experiment. *J. Soc. Clin. Psychol.* 20, 270–288. doi: 10.1521/jscp.20.3.270.22309

Swami, V., and Ng, S. K. (2015). Factor structure and psychometric properties of the body appreciation scale-2 in university students in Hong Kong. *Body Image* 15, 68–71. doi: 10.1016/j.bodyim.2015.06.004

Tellis, G. J. (2004). *Effective advertising: understanding when, how, and why advertising works*. Thousand Oaks, CA: SAGE Publications, Inc.

Tiggemann, M., and Anderberg, I. (2020). Social media is not real: The effect of 'Instagram vs reality' images on women's social comparison and body image. *New Media Soc.* 22, 2183–2199. doi: 10.1177/1461444819888720

Tiggemann, M., Anderberg, I., and Brown, Z. (2020). Uploading your best self: Selfie editing and body dissatisfaction. *Body Image* 33, 175–182. doi: 10.1016/j.bodyim.2020.03.002

Tiggemann, M., Hayden, S., Brown, Z., and Veldhuis, J. (2018). The effect of Instagram "likes" on women's social comparison and body dissatisfaction. *Body Image* 26, 90–97. doi: 10.1016/j.bodyim.2018.07.002

Till, B. D., and Busler, M. (2000). The match-up hypothesis: Physical attractiveness, expertise, and the role of fit on brand attitude, purchase intent and brand beliefs. *J. Advert.* 29, 1–13. doi: 10.1080/00913367.2000.10673613

Tuchband, A. (2018). Impact of social media: A thematic analysis exploring body image and self-esteem amongst 18–24 year old women. [Unpublished master's thesis]. Manchester Metropolitan University. Available online at: https://e-space.mmu.ac.uk/id/eprint/621701 (Accessed January 8, 2021).

Tylka, T. L., and Wood-Barcalow, N. L. (2015). The body appreciation scale-2: Item refinement and psychometric evaluation. *Body Image* 12, 53–67. doi: 10.1016/j.bodyim.2014.09.006

Vazquez, E. E., Felix, R., and Siliceo, L. (2024). Female advertising models and their body mass index (BMI): How does BMI similarity affect perceived product quality? *J. Consum. Behav.* 23, 1251–1269. doi: 10.1002/cb.2274

Viglia, G., Tsai, W. H. S., Das, G., and Pentina, I. (2023). Inclusive advertising for a better world. *J. Advert.* 52, 643–646. doi: 10.1080/00913367.2023.2255242

Vinaika, R., and Manik, D. (2017). How Instagram is changing the way marketing works. *Int. J. Manage. Bus. Stud.* 7, 12–16.

Watts, K. J., and Cranney, J. (2010). Automatic evaluation of body-related words among young women: an experimental study. *BMC Public Health.* 10: 308. Available at: http://www.biomedcentral.com/1471-2458/10/308

Wong, H. Y. A., McClelland, A., and Furnham, A. (2019). Advertisement–programme congruence in memory of sexual fragrance advertisements. *Appl. Cogn. Psychol.* 33, 806–813. doi: 10.1002/acp.3523

Wu, F., and Huberman, B. A. (2008). Popularity, novelty and attention. Proceedings of the ACM Conference on Electronic Commerce. 240–245. doi: 10.1145/1386790.1386828

Yakhlef, A. (1999). Mapping the consumer-subject in advertising. *Consum. Mark. Cult.* 3, 129–143. doi: 10.1080/10253866.1999.9670333

Yim, M. Y., Kim, E., and Ahn, H. (2024). Do plus-size models really benefit obese consumers? Investigating the influence of plus-size models on negative emotions and mental imagery. *J. Fash. Mark. Manage. Int. J.* 28, 1113–1134. doi: 10.1108/JFMM-03-2023-0066

Yu, U. J., Damhorst, M. L., and Russell, D. W. (2011). The impact of body image on consumers' perceptions of idealized advertising images and brand attitudes. *Fam. Consum. Sci. Res. J.* 40, 58–73. doi: 10.1111/j.1552-3934.2011.02088.x

Zlotnick, R. (2020). Rihanna's inclusive models are rocking the fashion world and making people emotional. Distractify. Available online at: https://www.distractify.com/p/rihanna-inclusive-plus-size-models (Accessed, February 25, 2021).