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Recognizing the Beauty in Diversity: Exposure to Body-Positive Content on Social Media Broadens Women's Concept of Ideal Body Weight

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By depicting an unrealistic share of skinny or toned body types, modern mass media have been found to shift users' perception of an ideal body toward narrow and often unattainable standards. In response to this, the "#bodypositivity" (BoPo) movement on social media has set out to challenge restrictive body ideals, advocating for more open-minded views toward the human physique. Matching BoPo's emphasis on diversity, we hypothesized that viewing body-positive online content alters women's concept of an ideal body to encompass a broader range of body shapes (on a spectrum from skinny to obese). The results of two preregistered experiments ($N_1 = 191$; $N_2 = 266$) support our assumption, connecting BoPo not only to a larger mean ideal body shape but also to a *diversification* of weight-related standards. We discuss our work as a crucial extension of prior research, noting that the range found in people's bodily ideals may be (at least) as relevant as their central tendency.

Public Significance Statement
The results of two studies indicate that online media can effectively contribute to more diverse body ideals if they depict a broader range of body shapes as physically attractive. Specifically, our work suggests that by disrupting the frequent overrepresentation of thin female bodies in the media—for the sake of more inclusivity—women's understanding of an ideal body could be changed to encompass a larger range of weight types, potentially prompting more open-minded views and behaviors in society. For psychological scholars, the current research further underscores the importance of looking beyond parameters of central tendency (such as group averages), considering that diversity measures may be as or even more important in certain contexts.

Keywords: diversity, body positivity, body shape, body ideals, social media

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Social networking sites (SNS) have become a fundamental media and communication channel for millions of people who use platforms such as Instagram or TikTok to express themselves, connect with their peers, and learn about the world (Auxier & Anderson, 2021). By these means, the respective services have also emerged as a key source for social norms and standards (e.g., Masur et al., 2021)—and, due to their highly visual nature, continue to shape the modern-day understanding of physical beauty (e.g., Mills et al., 2017). Yet, just as traditional mass media did for decades (e.g., Botta, 1999; Te'eni-Harari & Eyal, 2015), popular social media sites overrepresent thin and fit bodies, neglecting the social reality of human diversity (Åberg et al., 2020; Cohen et al., 2021; Mingoia et al., 2017). Along these lines, they are considered responsible for communicating and cultivating an unhealthy *thin ideal*, leading to potentially harmful social comparison processes, lower well-being, and eating disorders (e.g., Huang et al., 2021; Mills et al., 2017; Stein et al., 2021; Verduyn et al., 2020).

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Distinguishing social media from TV and magazines, however, is the fact that users themselves can contribute to the content that is shown on the respective platforms. In turn, this participative nature has also facilitated user-led efforts to transform what is depicted as beautiful on popular social media sites. A particularly prominent voice in this regard has been the *body positivity* (*BoPo*) movement. Using the BoPo label and hashtag, SNS users have uploaded millions of posts that disregard restrictive beauty ideals, instead propagating more open-minded attitudes toward the human body and its many different forms. Extending prior theory and research, we argue that such diverse media portrayals may not only shift beauty standards toward a less skinny ideal body shape but also broaden people's mental representation of ideal bodies so that *more* body types are considered beautiful. Unlike previous literature, which has mainly focused on central tendency as the core parameter to grasp bodily perceptions (or, in the case of interventions, looked at shifting averages), we argue that it is equally important to examine the *breadth* of what individuals perceive to be beautiful following their media use. Building upon this theoretical groundwork, we present two pre-registered experiments to test the prediction that digital BoPo has the power to change what users (in particular women) perceive to be an ideal body weight—both in terms of a shifting average as well as a larger range of weight types. Furthermore, we connect these more abstract perceptions to participants' specific evaluations of strangers' weight as well as their own body esteem. Lastly, we investigate whether body-positive social media content also affects more general views on social diversity beyond its focus on physical appearances.

Understanding Body Shape Ideals as Part of People's Shared Social Reality

Broadly speaking, beauty ideals (or standards) can be understood as culturally shared beliefs as to which body shapes, facial features, skin attributes, and types of clothing are considered beautiful and desirable in a given society. They have changed throughout history and show notable cross-cultural variation—although differences have narrowed due to the proliferation of Western culture (Swami, 2021). According to the *Tripartite Influence Model* (Thompson et al., 1999), young people are typically socialized toward beauty standards by three main sources: Parents, peers, and the media. While the relative contribution of these three influences may depend on various individual and contextual factors, scientific literature has emphasized the impact of the latter rather unanimously (Halliwell & Diedrichs, 2012). Also, quite impressively, research conducted with media-naïve populations in remote rural areas has revealed that even brief, first-time contact to mediated beauty ideals sufficed to alter concepts of physical attractiveness in a notable way (Boothroyd et al., 2020).

Although, as noted above, beauty ideals encompass many aspects beyond bodily characteristics, it should be pointed out that the understanding of a *desirable body shape* rests at its core—across most cultures and age ranges (Calogero et al., 2007; Swami, 2021). Again, media influences in this regard must not be underestimated. By now, there are multiple meta-analyses that consistently link people's mass media use to a thinner or more athletic ideal body shape—both for traditional (e.g., Grabe et al., 2008; Holmstrom, 2004; Huang et al., 2021) and for new media formats (Saiphoo & Vahedi, 2019). To make sense of these effects, scholars have employed several central theories that may explain why body depictions in the media exert such a profound impact on audiences' (body-related) perceptions and attitudes. Among the most prominent frameworks in this regard is *social comparison theory* (Festinger, 1954), which suggests that people show an inherent inclination to compare themselves to others around them, hoping to achieve a well-informed evaluation of the self. Indeed, scientific literature has shown that social comparisons are not just based on peers or strangers in the natural world but also frequently prompted by media characters (e.g., Holmstrom, 2004). For instance, individuals may compare themselves to characters from television shows and movies, or they may access social media platforms to choose other users as their comparison standards.

While social comparison theory provides a sound explanation for the interplay between media depictions and self-related attitudes, the framework is mainly focused on immediate and short-term effects. This contrasts with the fact that mass media usually unfold their influence on users' attitudes across multiple and repeated reception situations, a process that may not be entirely explained by recurring social comparisons. Instead, these long-term effects are usually described via *cultivation theory*—a framework proposing that frequent exposure to mass media shapes people's understanding of reality according to the depicted content (Gerbner & Gross, 1976; Grabe et al., 2008). More specifically, cultivation theory suggests that the often homogenous content shown in contemporary media facilitates a *mainstreaming* of popular opinion, even if viewers' own personal experiences may inhibit (or foster) this process (i.e., *resonance*; Gerbner et al., 1980). For the topic at hand, the cultivation framework implies that by being almost exclusively exposed to thin (female) or muscular (male) bodies in mass media, viewers are socialized to consider only a narrow range of body types as desirable—resulting in so-called *thin-ideal* and *athletic-ideal internalization* (Grabe et al., 2008; Martin & Racine, 2017; Scharrer, 2013). Again, meta-analytic research shows that these effects are not only evoked by traditional media (e.g., Paterna et al., 2021) but also occur when engaging with SNS (Mingoia et al., 2017). While some authors caution that users' opportunity to choose from many types of content on social media might limit mainstreaming effects (Morgan et al., 2015), others have argued that the platforms' strong emphasis on trending or "viral" content—as fostered by automatic algorithms—effectively results in even stronger levels of content homogenization than known from traditional media (Chayka, 2019; Ong, 2018; Yau & Reich, 2019). Along the same lines, a recent study has connected users' engagement with Instagram's public content to noteworthy changes in bodily perceptions, matching the predictions of cultivation theory (Stein et al., 2021).

Social comparison and cultivation processes offer important insight as to how mass media affect people's expectations, norms, and standards of beautiful bodies. It is crucial to note, however, that these standards are applied not only to evaluate oneself but also to make sense of other people's *attractiveness* (Stephen et al., 2014; van den Berg et al., 2002). Considering the high importance of this judgment in nearly any interpersonal context—from the initiation of romantic relationships (e.g., Brand et al., 2012) to success in the workplace (e.g., Commisso & Finkelstein, 2012)—body shape ideals therefore emerge as a core aspect of our shared social reality. They modulate the social feedback that individuals give and receive, while also exerting a strong influence on anticipated feedback, i.e., people's expectations about future social interactions (Langlois et al., 2000). In this sense, bodily ideals also take on a key role in the emergence (and

more problematically, the disruption) of individuals' self-esteem: Only by aligning their body shape with societal concepts of beauty, many people may find it possible to engage in successful social contact and in turn, feel satisfied about their own appearance (Fredrickson & Roberts, 1997; Thompson et al., 1999).

Taken together, scientific literature suggests that the overrepresentation of thin and athletic body shapes in today's media landscape provides a crucial benchmark for both self- and other-related perceptions. Considering the severe negative consequences that may arise from this, researchers and health officials have pursued numerous interventional approaches, for instance targeting children's media literacy (e.g., Kurz et al., 2022) or the reduction of fat-phobic stereotypes (e.g., Stewart & Ogden, 2021). In many cases, these efforts are directly aimed at shifting thin-ideal perceptions toward a heavier norm and disrupting the media-facilitated idolization of overly skinny bodies. At the same time, scholars and practitioners in the field of body image have suggested that overcoming problematic body ideals might not be a question of *different* but of *broader* standards—so as to effectively reduce appearance-related pressures for as many people as possible (e.g., Cohen et al., 2021; Palumbo, 2022). Arguably, this approach aligns with the core message of the rapidly growing BoPo movement, whose proponents use contemporary media platforms such as *Instagram* to propagate potentially healthier, but especially more inclusive body ideals.

Body Positivity and Diversity Online

Although most people of today may likely encounter it on social media for the first time, the idea of BoPo is all but new to the digital age. In fact, aspirations to overcome hegemonic beauty standards have a long history, going back as far as the first wave of feminism during the nineteenth century (Cunningham, 2003; Walters, 2005). Initially rooted in questions of emancipation and female empowerment, BoPo evolved into a broader social movement over the course of the twentieth century, later concurring with the fat acceptance movement of the 1960s and 1970s (BBC, 2020). At the same time, body-positive thought has long been driven by Black feminism and queer activism—two sociopolitical movements that both aim at overcoming the societal erasure of marginalized identities (Griffin et al., 2022). As such, the ever-evolving concept of BoPo may be best described as the legacy of several, intersectionally linked ideologies. Even though scholars have noted that drawing the boundaries of modern-day BoPo has become increasingly difficult (Sastre, 2014), its proponents are generally united by the same set of principles: The belief that beauty standards constitute an undesirable cultural construct—and that different bodies should not be placed in a societal hierarchy (Leboeuf, 2019).

While the world of modern mass media is traditionally known as a nexus for restrictive beauty standards (e.g., Izydorczyk et al., 2020), it has slowly opened up to body-positive notions in recent years. Apart from several well-received ad campaigns and reality TV shows (e.g., Cameron, 2019; Johnston & Taylor, 2008), a particularly important role in this regard has fallen to social media, which paved the way for a heightened presence of BoPo in the public sphere. At the time of this writing, the popular social network Instagram features more than 18 million posts labeled with the hashtag #bodypositive; even more impressively, videos tagged with the term have been watched more than 10 billion times on the platform TikTok. Faced with this immense popularity, scientific research has also taken a strong interest in digital BoPo. So far, the resulting literature clearly leans toward a favorable perspective, linking the reception of body-positive content to significant improvements in body satisfaction, mood, and self-esteem—especially among women, who are still most at risk to suffer from oppressive beauty standards (e.g., Cohen, Fardouly, et al., 2019; Stevens & Griffiths, 2020). Importantly, scientific reviews have also pointed out that claims about negative side effects of BoPo, such as the trivialization of obesity, remain unsubstantiated (Cohen et al., 2021).

However, with the scholarly focus fixed on questions of self-perception, we believe that one of the most important effects of BoPo has not yet received the warranted attention: The phenomenon's role in altering societal body standards. After all, as outlined above, media depictions hold the power to change what people perceive to be an ideal body shape in a most critical manner (Bonafini & Pozzilli, 2010; Swami, 2021; Thompson et al., 1999). What is particularly noteworthy about BoPo in this regard is that it has proliferated at an unusually high pace, gaining millions of supporters within only a few years. In contrast to previous changes in societal beauty ideals—which have spanned decades or even centuries (Bonafini & Pozzilli, 2010)—this suggests that today's media audiences may experience a much more intense transformation of their physical comparison standards. Also, quite crucially, BoPo sets itself apart from other attempts to alter appearance-related perceptions in that it does not necessarily disregard current body ideals (such as overly thin or muscular body shapes); instead, the movement actually suggests embracing *more* forms of the human physique as beautiful. In turn, the success of body-positive appeals might not be measured against a complete overhaul of bodily perceptions, but rather in terms of significantly broader body shape ideals.

And yet, despite the growing academic interest in body-positive media, we note that the phenomenon's effect on general body perceptions has received only little attention to date. While a recent study has provided initial evidence that the exposure to larger body types may nudge people's perception of an ideal body toward a heavier shape (Aniulis et al., 2021), this observation offers only limited insight regarding BoPo's core mission, i.e., the diversification of bodily ideals. In fact, we believe that this speaks to a more general shortcoming of body image research. Up until now, the scientific examination of people's body-related attitudes has been predominantly focused on measures of *central tendency*, both in studies on the detrimental effects of the thin body ideal as well as those exploring potential interventions. Of course, this dominant approach is not without its merit—but it appears incomplete. Proposing a notable theoretical advancement, we argue that measures of *diversity* (or range) should be added to the investigation of people's body image to gain a more comprehensive understanding of the processes and effects at hand.

Shifting Focus From Central Tendency to Measures of Diversity

Combining insight from many different disciplines, researchers have developed numerous methods to assess the concept of an ideal body in a more abstract, overarching sense. Apart from the sporadic use of questionnaires (e.g., Schmalbach et al., 2020) and implicit attitude tests (e.g., Liu et al., 2022), this has mainly involved graphical rating scales. In these instruments, visual arrays of different body silhouettes are presented to participants who then have to

choose the one shape they consider as perfect or most desirable. Rather critically, however, this has led to a narrow understanding (and operationalization) of body shape ideals. By conceptualizing such standards as single manifestations or scores, which are then aggregated and compared between groups, scientists have neglected the possibility that individuals may actually consider multiple body types as ideal—that is, vary in terms of the *breadth* describing their bodily standards.

To scrutinize the scope of this conceptual limitation, we conducted a systematic literature search. Using two thematically relevant academic databases (*APA PsycInfo, Communication and Mass Media Complete*), we identified a total of 113 studies from the past two decades (2002–2022) that had measured participants' concept of an ideal body (for more details on our search procedure and the full list of obtained studies, please see Supplement S1 and S2 in the online supplemental materials). After excluding all non-English publications and those that were not retrievable at the time of our screening, we consulted the remaining 104 studies with an emphasis on their applied methodology. By these means, we found that 100% of the reviewed publications had operationalized participants' perception of an ideal body as a single value—using either single-choice graphical rating scales ($n = 93$), self-report questionnaires ($n = 7$), computer-based photo-editing tools ($n = 4$), or implicit measures ($n = 3$). Looking at these results, it becomes clear that previous research has focused exclusively on central tendency as the core parameter to gauge participants' body ideals. In our opinion, this creates a most noteworthy restriction. More so, we believe that our literature review leaves little doubt about the necessity to adapt the current default of measuring body ideals—so that future studies can actually assess the full picture instead of a mere piece of the puzzle.

However, we also suppose that this goal can be readily achieved through a modification of the popular graphical rating scale method (and its subsequent analysis). By asking participants to select not one but *all* the body shapes they deem ideal, researchers can obtain two focal parameters to describe people's body-related standards. First, in examining the mean chosen option, scholars will still be able to investigate the average body ideal. Yet, per our modification, the range or *diversity* of participants' body-related ideals is obtained as a second, potentially relevant variable, operationalized via the number of chosen body shapes. While this modification may seem subtle at first glance, we consider it an important next step in the investigation of human body image. After all, there may be numerous contexts in which our novel measure emerges as a more insightful criterion than the single mean—and the realm of body-positive media provides a fitting and highly relevant example for this.

Experiment 1

Previous literature on digital BoPo frequently mentions users' body-related ideals as a construct of interest (e.g., Ando et al., 2021; Cohen, Fardouly, et al., 2019), but actual experimental investigations into this outcome remain lacking to this day—not least regarding potential diversification effects. In response to this research gap, we designed two experiments that revolved around a theoretically refined measurement of people's body shape ideals. More specifically, we focused our research solely on the experience of women, as previous research has highlighted the pronounced impact of societal body standards on this gender (Dittmar et al., 2000; Keski-Rahkonen & Mustelin, 2016; Quittkat et al., 2019). This is not to say that appearance-related stress is a uniquely female phenomenon; as a matter of fact, recent literature also hints at increasing levels of body-related pressure among men (especially with regard to muscularity, e.g., Voges et al., 2019). Still, due to the large evidence on persisting gender differences, we opted for a fully female sample. In line with this demographic focus, the body shape ideals examined in the current research mainly concerned the dimension *body weight*. While some scientific publications also suggest a growing interest in muscularity and athletic body types among women (e.g., Bozsik et al., 2018), societal standards remain strongly fixated on thinness as the decisive criterion to evaluate female bodies (Mingoia et al., 2017; Swami, 2021), so that this operationalization appeared timely and plausible.

At the beginning of the first experiment, we randomly assigned our female participants to view one of two types of Instagram content: Whereas one group was presented with BoPo posts, the second group received so-called *fitspiration* content—which claims to promote an athletic and healthy lifestyle but in practice often tends to emphasize weight loss and traditionally skinny body ideals (Simpson & Mazzeo, 2017). Following this social media treatment, we asked our participants to choose all weight types from a visual Figure Rating Scale (FRS) that they considered as ideal; doing so, we found ourselves able to examine not only the mean ideal body shape but also the *range* characterizing women's weight-related standards. Based on our theoretical considerations, as well as the reviewed evidence in favor of BoPo's effectiveness (e.g., Aniulis et al., 2021; Cohen, Fardouly, et al., 2019), we assumed:

> *Hypothesis 1 (H1):* Following the exposure to BoPo (vs. fitspiration) content, female participants will describe ideal bodies (a) with a heavier body shape on average and (b) by selecting a larger number of body shapes in total.

Next, we explored whether our experimental treatment would also evoke a significant group difference in a more specific weight attribution task. For this purpose, we asked our female participants to rate the weight of various strangers depicted in full-body photographs. Bearing in mind that the exposure to body-positive materials might shift participants' comparison standard to a heavier shape (as per H1; see also Devine et al., 2022), we supposed that the average weight evaluation would turn out lower in the BoPo condition:

> *Hypothesis 2 (H2):* Following the exposure to BoPo (vs. fitspiration) content, participants will rate the weight of strangers with a lower average score.

Lastly, we inspected yet another specific outcome of the potentially changed body shape ideals: The assessment of romantic relationships between people with different weight types. Presenting participants with a fictional heterosexual partnership scenario that featured an athletic man and either a thin or an overweight woman, it was hypothesized that BoPo's core persuasive message (to disregard bodily characteristics as a way to judge individuals) would lead participants to make their evaluation less dependent on the weight of the described woman. We presumed:

> *Hypothesis 3 (H3):* Following the exposure to BoPo (vs. fitspiration) content, participants will show smaller differences in their evaluations of (a) the expected relationship duration

and (b) physical attraction for couples with either an overweight or a thin woman.

Method

The current study, including our hypotheses and planned analyses, was preregistered (https://aspredicted.org/ELP_DCO). Furthermore, we provide all anonymized data as well as our analysis codes for both studies in an Open Science Framework (OSF) repository (https://osf.io/9ajm4/). In the current study country, it is not required to obtain institutional ethics approval for psychological research as long as it does not concern issues regulated by law. However, all reported research (in both experiments) was carried out in full accordance with the Declaration of Helsinki, as well as the guidelines provided by the American Psychological Association and the German Psychological Society.

Participants

An a priori sample size calculation via G*Power software focusing on the step of our planned analyses that required the highest sample size—i.e., the two-factorial analyses of variance (ANOVA) for hypothesis H3, with parameters set to 80% power, $\alpha = .05$, and an assumed moderate effect of $f = 0.25$—resulted in an aspired sample size of 128 participants. Using public mailing lists and social media groups, we initially recruited 200 German-speaking participants (age $M = 27.84$ years, $SD = 8.18$), all of whom self-identified as female. Based on our pre-registered criteria to ensure high data quality, however, we excluded several participants: Those who had failed an instructional attention check ($n = 7$), indicated careless responding in a diligence self-report item ($n = 1$), or mentioned severe technical issues during their participation ($n = 1$). As such, our final sample consisted of 191 women (age $M = 27.46$ years; $SD = 7.81$). We observed a high level of education among our participants, with the majority indicating either a university degree (49.2%), a university entrance qualification (28.8%), or a completed vocational education (14.1%).

Procedure and Materials

All participants had to give their informed consent before proceeding to our online experiment, which was provided via the platform *SoSciSurvey*. Since our study was based on a between-subject design, an automatic randomization procedure first assigned each participant to either the BoPo or the fitspiration condition. Subsequently, we presented both groups with a set of seven social media profiles—four that matched their respective conditions and three neutral distractor profiles (presented in random order as single pages). Each profile consisted of five thematically relevant pictures displayed in Instagram's typical interface design, complete with brief captions. To sharpen the focus on the provided images, however, we refrained from adding other aspects typically found in Instagram accounts (e.g., short bios or image grids), limiting our profiles to a given selection of five posts to scroll through.

According to our online platform's automatic measurement of the time spent on these pages, each profile was viewed for an average duration of 28.9 s, resulting in a mean exposure time of 202.3 s for the whole social media treatment (range: 61–788 s; median: 169 s). Once they had finished looking at the provided content, participants were guided toward our measure of ideal body shapes, the relationship scenario, and the photo rating task (which was presented last due to its visual nature). Concluding our experiment, we obtained several sociodemographic and control variables from our participants, namely their age, level of education, and weekly Instagram use. Also, for exploratory purposes, we inquired participants about their height and weight in order to calculate the body mass index as a potential covariate.

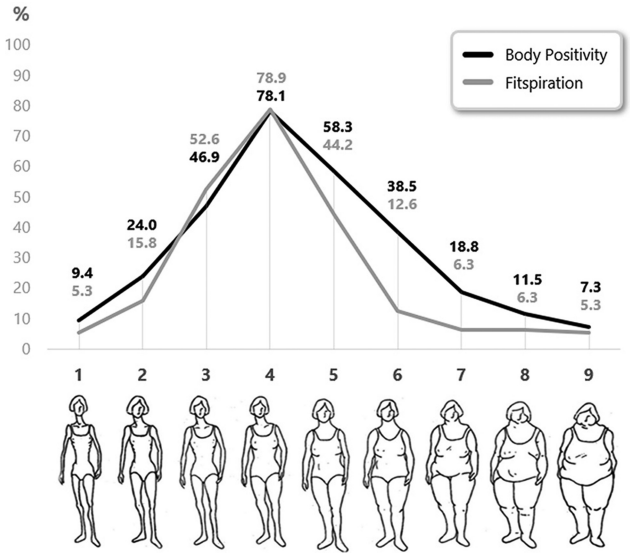
Social Media Stimuli and Pretest. Striving for high external validity, we decided to use real social media content as stimuli in our experiment. Thus, we first reviewed several publicly accessible Instagram profiles by moderately popular social media users (i.e., so-called *meso influencers* with more than 10,000 followers) that had posted images with the hashtags #bodypositive, #bodypositivity, or #bodyacceptance (for the BoPo condition). In particular, we looked for posts whose images and captions incorporated central BoPo themes as identified in recent content analysis (Cohen, Irwin, et al., 2019), i.e., self-appreciation, inner positivity, and the unfiltered depiction of physical flaws. For the fitspiration stimuli, we repeated our search with the terms #fitspiration, #fitspo, and #workout. In both conditions, various ethnicities were included in our photo selection so that participants from different cultural backgrounds could relate to the depicted individuals. Also, in order to avoid stimuli with a high recognition value, we omitted particularly prominent profiles that exceeded 100,000 followers.

In total, this initial selection procedure yielded 16 Instagram profiles: Eight for the BoPo and eight for the fitspiration condition. Additionally, we collected a smaller set of six profiles using the search terms #lifestyle and #instagood, so that they could be added as distractor stimuli to both conditions. To further narrow down our materials, we then carried out a pretest with 30 female Instagram users (age $M = 25.23$ years; $SD = 2.69$), identifying the profiles with the highest conceptual fit to our definitions of BoPo and fitspiration (e.g., the extent to which the BoPo posts encapsulated the abovementioned core themes). By these means, the initial set of potential stimuli was cut in half (for a full overview of the provided definitions and pretest results, see Supplement S3 in the online supplemental materials). Consequently, our study's treatment consisted of seven profiles in each condition: Four profiles encapsulating the respective topic (BoPo or fitspiration) and three distractor profiles (kept constant in both conditions). Each of these profiles was presented as a scroll-down page in Instagram's distinct corporate design, encompassing a total of five pictures with their real captions and hashtags (e.g., BoPo profile: "WONDER WOMAN! Be your own superhero, the costume is optional! #loveyourself"; fitspiration profile: "Currently doing the same dumbbell routines in my PJs, but I hope you enjoy this shot! #fitness"; neutral profile: "It's beginning to look a lot like SUMMER"). If a caption was originally longer than three lines of text, only the first three lines were shown. To avoid any potentially confounding information, all signs of social feedback (i.e., likes and comments) were removed from the shown posts.

Measuring Body Shape Ideals. The core dependent variable of our study—participants' concept of ideal body shapes—was measured using the female version of the graphical FRS (Stunkard et al., 1983), albeit in a conceptually refined format. The FRS consists of schematic drawings of nine silhouettes, either female or male, which span a broad weight spectrum between extreme thinness and obesity (Figure 1 in the Results section depicts the scale, with the copyright holders' explicit permission). Originally designed

Figure 1

Percentage of Participants Selecting the Respective Body Shape as Ideal in Experiment 1 (N = 191)



for research in the clinical context, the FRS has since taken on a prominent role in non-clinical studies on body satisfaction as well (e.g., Bays et al., 2009; Sand et al., 2017). Moreover, it has been used to assess study participants' general understanding of ideal body shapes (e.g., Bissell, 2004)—the very concept that was also of interest to us. In a notable distinction from previous applications of the instrument, however, we did not ask participants to choose only one preferred body shape but tasked them with selecting all shapes that matched their understanding of an ideal appearance. By these means, we yielded two variables: The mean body shape that was considered as ideal, as well as the total number of chosen body shapes (our core indicator for the breadth of participants' ideals).

Photo Rating Task. To investigate participants' perceptions of other people's weight, the method and materials developed by Stein et al. (2021) were utilized in the current study. Participants were presented with 36 full-body photographs depicting a wide range of the human physique, including muscular, skinny, chubby, and obese body shapes. For each portrayed person, a 5-point item ranging from (1) *severely underweight* to (5) *severely overweight* had to be answered. Since the photo-rating task was designed to measure weight perceptions regardless of gender or cultural background, it features a balanced female-to-male ratio (18 photos each) and represents different ethnic groups. By averaging all 36 photo ratings into an overall *weight perception* score, we were able to assess participants' general tendency to rate the bodies of others as more or less heavyset.

Relationship Evaluation Task. A fictitious partnership scenario was used to examine how our participants would appraise the romantic connection between people with either similar or different body types. Specifically, we created a short story about the first encounter and subsequent relationship between the two characters Laura and Tom (see Supplement S4 in the online supplemental materials for the full scenario). After this brief introductory text, participants were shown fictitious character profiles for both protagonists (see Supplement S5 in the online supplemental materials), including hobbies and interests, as well as abstract body silhouettes. While Tom was always portrayed as an athletic man, Laura was described either as a slim or as an overweight woman—creating an additional between-subjects factor for our experiment. After viewing the character profiles, participants rated their expectations about the couple's romantic future (e.g., "I suspect that they will stay together for a long time.") and Tom's attraction to Laura (e.g., "I think that Tom is strongly attracted to Laura.") with four items each (1 = *strongly disagree*, 5 = *strongly agree*). The resulting indices showed very high internal consistency (Cronbach's $\alpha = .86$ and .89).

Results

Table 1 gives an overview of the means and standard deviations that were observed for the outcome variables in the two social media conditions. Regarding the relationship evaluation task—which involved a second between-subjects factor—descriptive statistics are given separately for the two presented versions of the fictional scenario.

Effect of the Shown SNS Content on Body Shape Ideals

Addressing participants' concept of an ideal body (H1), we first conducted an independent *t*-test with the type of shown SNS content as a between-subjects factor and the *mean selected body shape* in the FRS as a dependent variable. This yielded a significant result, $t(189) = 3.31$, $p = .001$, with a medium effect size of Cohen's $d = 0.48$, 95% confidence interval (CI) [0.19, 0.76]. As hypothesized, the average body shape that was selected as ideal turned out slightly more voluminous in the BoPo condition ($M = 4.29$; $SD = 0.75$) than in the fitspiration condition ($M = 3.92$; $SD = 0.82$).

Next, we focused on the *number of body shapes* selected in the FRS. Based on a significant Levene test ($p = .006$), we employed the recommended Welch statistic in our analysis of group differences. Using the average number of selected body shapes as a criterion, we observed a significant difference between both conditions, $t_w(179.81) = 2.15$, $p = .017$, Cohen's $d = 0.31$, 95% CI [0.03, 0.60]. On average, participants in the BoPo condition selected nearly three body shapes to describe an ideal body ($M = 2.93$; $SD = 2.34$), whereas those presented with fitspiration content only chose slightly more than two body shapes ($M = 2.27$; $SD = 1.84$).

In summary, the reported findings support hypothesis H1: As expected, the exposure to BoPo content shifted our female participants' concept of ideal bodies toward a heavier body type, as well as an increased range of bodies. Offering additional insight into our effects, Figure 1 compares the percentage of participants selecting each of the FRS's body shapes as ideal depending on their assigned condition. A visual inspection of this graph further emphasizes that the type of shown SNS content led to notably different body shape ideals.

Effect of the Shown SNS Content on Perceptions of Strangers' Weight

Having obtained participants' weight ratings for 36 photographed strangers, we first calculated the mean score across all answers. In the resulting *weight perception score*, a higher value indicated a

Table 1
Descriptive Statistics for the Dependent Variables in Study 1

Variable	BoPo condition ($n = 96$)		Fitspiration condition ($n = 95$)	
	M (*SD*)		*M* (*SD*)	
Body ideals: Mean selected body shape[a]	4.29 (0.75)		3.92 (0.82)	
Body ideals: Number of selected body shapes[a]	2.93 (2.34)		2.27 (1.84)	
Photo rating task: Average weight rating[b]	3.04 (0.17)		3.10 (0.16)	
	Thin woman ($n = 48$)	Overweight woman ($n = 48$)	Thin woman ($n = 46$)	Overweight woman ($n = 49$)
Relationship scenario: Expected relationship duration[c]	3.76 (0.57)	3.52 (0.73)	3.55 (0.69)	3.63 (0.67)
Relationship scenario: Physical attraction[c]	3.76 (0.66)	3.41 (0.75)	3.83 (0.60)	3.47 (0.68)

Note. BoPo= #bodypositivity.
[a]Measured with the 9-point Figure Rating Scale. [b]Averaged score across 36 photo ratings, ranging from 1 to 5. [c]Scale ranges from 1 to 5.

tendency to perceive the depicted bodies as heavier (i.e., stricter weight perceptions), whereas a lower value signified more lenient views on people's physiques. On average, participants in the BoPo condition perceived the weight of the depicted strangers as significantly less heavy than those in the fitspiration condition, $t(189) = 2.77$, $p = .003$, Cohen's $d = 0.40$, 95% CI [0.12, 0.69]. Although the numerical differences between the two groups might appear rather miniscule at first sight (see Table 1), the observed low standard deviations may explain why even a small mean difference could be identified as statistically meaningful. In any case, we give a positive answer to H2, noting that weight perceptions were indeed affected by prior exposure to different types of SNS content.

Effects of the Shown SNS Content on Relationship Evaluations

In the final part of our main analysis, we focused on the results of our relationship evaluation task. Since this part of the study had introduced a second between-subjects factor (scenario "athletic man, thin woman" vs. scenario "athletic man, overweight woman"), two-factorial ANOVAs were employed to scrutinize the respective hypotheses. First, we entered both manipulations—shown SNS content and type of couple in the relationship scenario—as between-subjects factors and participants' assumptions about the expected *relationship duration* as a dependent variable. Both main effects turned out insignificant: $F(1, 187) = 0.27$, $p = .607$, for the SNS factor and, $F(1, 187) = 0.74$, $p = .391$, for the relationship scenario factor. More importantly, however, we note that the interaction effect—the actual focus of our hypothesis H3—also fell short of the conventional threshold of significance, $F(1, 187) = 2.80$, $p = .096$, $\eta_p^2 = 0.015$, 95% CI [0.000, 0.065].

In a second ANOVA, we subsequently explored potential differences in participants' expectations about the *physical attraction* between the fictitious characters. Here, we uncovered a significant main effect of the type of scenario, $F(1, 187) = 12.81$, $p < .001$, $\eta^2 = 0.064$, 95% CI [0.013, 0.141]—presenting a couple with an athletic man and an overweight woman led participants across both social media conditions to assume significantly lower physical attraction ($M = 3.44$, $SD = 0.71$) than describing a thin woman in the same constellation ($M = 3.79$, $SD = 0.63$). On the other hand, neither the main effect of the shown SNS content, $F(1, 187) = 0.43$, $p = .511$, nor the (theoretically relevant) interaction effect, $F(1, 187) < 0.01$, $p = .947$, emerged significant. In conclusion, we give a negative answer to H3: Viewing BoPo (vs. fitspiration) content did not lead to a significantly different assessment of the romantic prospects or physical attractiveness of women with different body sizes.

Exploratory Analyses

Following our main procedures, we decided to carry out several exploratory steps to find out whether the obtained results depended on specific sociodemographic or control variables. Repeating our analyses with smaller sub-samples that were limited either to young adults (ages 18–34; $N = 165$) or to those who had described themselves as active Instagram users ($N = 166$), we found no substantial differences compared to the findings of our previous analyses. Similarly, controlling for participants' body mass index as a covariate (see the project's OSF repository for the corresponding analysis codes) resulted in no notable deviations from our original results.

Discussion

Our first study revealed promising evidence that digital BoPo content, as found on popular social media platforms, alters users' perceptions of ideal human body shape. Compared to fitspiration posts, which promote an athletic lifestyle and thin-ideal mindset, body-positive SNS posts prompted female participants to describe their body-related ideals with a broader range of physiques as well as slightly heavier body types. Thus, by applying an adapted version of a well-established measurement tool, we were able to observe BoPo's effectiveness in a more nuanced way—acknowledging two distinct outcomes of emphasizing diversity in digital media.

Proceeding from abstract to more specific effects, we found our brief body-positive treatment (in the scope of only a few minutes of exposure) to shift weight perceptions about strangers toward a more lenient perspective. For proponents of the BoPo movement, these findings might be quite encouraging. Considering that only a handful of SNS posts sufficed to elicit the reported effects, it stands to reason that a prolonged exposure to BoPo contents in the real world might eventually result in an even stronger rejection of weight-related standards. Keeping in mind the highly problematic outcomes associated with restrictive beauty ideals, this vision may

be welcomed—not only by scientific scholars but also by parents and health officials, who may feel concerned about the vulnerable self-esteem of young children and adolescents.

Of course, we have to note that not all examined outcomes aligned with our expectations; in the presented relationship evaluation task, showing BoPo content did not lead to significantly different perceptions about the desirability of overweight women. In our interpretation, this might be explained by a third-person effect: Participants might not have considered their own (shifting) ideals when answering the respective questions, but rather how they expected the scenario's male protagonist to behave. Moreover, the lack of significant differences in this more indirect measure might suggest that participants' deeply rooted, implicit norms were not (yet) affected by the body-positive stimuli. Still, even if the observed effects in our experiment only applied to participants' explicit ideals, we do not believe that this takes away from the promising nature of our findings. After all, it is not uncommon for individuals to first react to persuasive messages with a change in their explicit attitudes before implicit judgments are successively adapted as well (Whitfield & Jordan, 2009). Of course, future replications of our work that focus on long-term effects or employ measures to reduce socially desirable answering are much encouraged to yield definitive proof of changing body ideals following the (repeated) exposure to BoPo.

To sum up, our first study uncovered noteworthy results concerning the effects of digital BoPo content. Most of all, it lent first experimental support to the idea that body-positive content can indeed reshape what people consider flawed (or flawless) body types. At the same time, we would like to point out a potential limitation in our work. Specifically, the choice to juxtapose BoPo with fitspiration content could raise the question whether the obtained group differences mainly resulted from the convincing qualities of the former—or depended on the persuasiveness of the latter as well. On the other hand, we suppose that the chosen fitspiration content likely resembled what our participants encounter during their daily media use anyway, so that it might not have exerted strong effects on its own. Still, we reached the conclusion that comparing BoPo to a more neutral control group was a logical extension for a follow-up study. Similarly, testing the observed effects under different conditions (e.g., with a new set of SNS stimuli and including baseline measurements) appeared as a promising next step to establish their validity. To acknowledge these ideas and to connect our findings to other theoretically relevant concepts, we conducted a second experiment.

Experiment 2

In Study 2, we modified several aspects of our methodological approach to replicate our core findings under different circumstances. First, due to the identified limitation that juxtaposing BoPo with fitspiration content might have obfuscated which effects actually took place, we decided to use a neutral control condition instead of fitspiration content in this study. Moreover, we now included a baseline measurement, allowing for an investigation of numerical pre-to-posttest differences. Lastly, striving to establish an empirical connection between our observations and recent evidence on BoPo's self-related effects (Cohen, Fardouly, et al., 2019; Stevens & Griffiths, 2020), we added a measure of participants' body self-esteem to this second experiment.

Based on our theoretical underpinnings and the evidence gathered in Experiment 1, we hypothesized that body-positive content would again result in a stronger diversification of body shape ideals than the comparison condition (mirroring H1 of Experiment 1). In addition to that, we now assumed:

> *Hypothesis 4 (H4):* Following the exposure to BoPo (vs. fitspiration) content, participants will show a stronger increase in body self-esteem.

Apart from these main research propositions, we further incorporated a more exploratory research focus into the current study, taking inspiration from the framework of *lateral attitude changes* (LACs; Glaser et al., 2015). Here, we pursued the question whether BoPo's persuasive effects might reach beyond body-related outcomes and also result in more favorable attitudes toward social diversity in general terms.

Lateral Attitude Change

According to psychological research, people's explicit attitudes (i.e., their conscious evaluations of different concepts, objects, and people) form an intricate network: Not only do they depend on currently available mental propositions, but they also influence each other in a sensitive way (Bohner & Dickel, 2011; Gawronski & Bodenhausen, 2006). In line with this understanding, studies have shown that attempts to change one attitude may actually ripple out toward other, related attitudes as well (e.g., Alvaro & Crano, 1997; Pérez & Mugny, 1987)—a phenomenon that has later been termed LAC (Glaser et al., 2015).

Considering the topic at hand, we note that even though body-positive media typically address physical appearances, they often touch upon broader issues of social diversity as well. As such, academic literature underscores that BoPo is inextricably entangled with the empowerment of different genders, ethnicities, and sexual identities (e.g., Cwynar-Horta, 2016; Johansson, 2021; Leboeuf, 2019). In this vein, the movement also shows notable overlap with other important anti-prejudice endeavors (such as "Black Lives Matter" or Pride), finding common ground via an emphasis on diversity, community, and self-acceptance (Hockin-Boyers & Clifford-Astbury, 2021; Zavattaro, 2021).

As a matter of fact, the idea that BoPo might also be effective regarding other social domains is corroborated by social psychological insight. After all, the literature suggests that different forms of prejudice still plaguing modern society—e.g., racism, sexism, ageism, or fat-phobia—might actually be underpinned by a common *intolerance schema*, i.e., a general tendency to be more or less accepting of social minorities (Aosved et al., 2009). A rather similar argument is proposed by *social dominance theory* (Sidanius et al., 2004), which proposes that people show a relatively stable disposition to form and support (or disregard) group-based hierarchies. While this is in no way supposed to imply that the experiences and hardships of different marginalized groups may be equivalent, both theories offer firm arguments as to why body-positive content might reach beyond its appearance-related effects. As such, we hypothesized:

> *Hypothesis 5 (H5):* Following the exposure to BoPo (vs. fitspiration) content, participants will show a stronger improvement of their attitudes toward social diversity.

Additionally, we examined several variables that might influence BoPo's effects on both focal (i.e., body-related) and lateral (i.e.,

diversity-related) attitudes. First, we acknowledged one of the most well-known propositions about social influence, namely that a persuasive attempt will be much more effective if recipients do not yet feel strongly about the respective topic (i.e., show low *attitude strength*; Pomerantz et al., 1995). Applying this notion to the concepts addressed in our study, we assumed:

> *Hypothesis 6 (H6):* After viewing BoPo content, the observed effects regarding (a) body shape ideals, (b) body self-esteem, and (c) social diversity will decrease with participants' corresponding attitude strength.

In their review of the LAC framework, Glaser et al. (2015) further suggested that individuals' *need for consistency*—which can be understood as a dispositional preference for forming consistent beliefs and cognitions (Cialdini et al., 1995)—plays a crucial role in lateral persuasion. Based on this, we proposed the following hypothesis:

> *Hypothesis 7 (H7):* After viewing BoPo content, the LAC (regarding social diversity) will increase with participants' need for consistency.

Lastly, an additional hypothesis on so-called displacement effects (i.e., attitudinal changes that only apply to the lateral but not the focal concept) was developed and investigated as part of a separate exploratory research effort. The corresponding analysis and results are presented in Supplement S6 in the online supplemental materials.

Method

Similar to Study 1, the second experiment was preregistered on the AsPredicted platform (https://aspredicted.org/QYR_HIG). All obtained data and analysis codes may be obtained from the project's abovementioned OSF repository.

Participants

An a priori calculation of minimum sample size (to detect medium effects in our planned two-tailed *t*-tests with 80% power and 5% alpha error probability) resulted in a lower limit of 128 participants for the current experiment. As in our previous study, we again strived to focus on the experience of those who suffer most from societal beauty standards; however, learning about the particular vulnerability of queer identities to appearance-related stress (Cuzzolaro & Milano, 2018; Tiggemann et al., 2007), we decided to open our recruitment not only to women but also to anyone not identifying as cis-male.

Of the 279 participants who initially responded to our participation calls on social media and mailing lists, a total of 13 individuals had to be excluded according to preregistered criteria, i.e., those who scored low in a diligence self-report item ($n = 7$), failed to describe the study contents in an open question ($n = 1$), or fell short of our pretested minimum time for careful responding (240 s; $n = 5$). In consequence, our final sample consisted of 266 participants (age $M = 26.12$ years; $SD = 9.69$; 262 female, four other). The observed level of education was quite high, with 54.1% of our sample indicating a university entrance qualification, followed by 35.0% with a completed university degree. As a special incentive for taking part in the study, all participants could enter a gift raffle of 2 × €25; for students at the local university, partial course credit could be chosen as an alternative compensation.

Procedure and Materials

The second experiment was again implemented via the online platform *SoSciSurvey*. After giving informed consent, participants were randomly assigned to one of two SNS conditions (BoPo vs. neutral content). Since we had decided to include a pretest measurement this time, we first presented measures on our three dependent variables (body ideals, body self-esteem, and views on social diversity), as well as brief scales on participants' corresponding attitude strength. Subsequently, both groups were presented with four Instagram posts matching their condition, depicting either body-positive or neutral design content. To ensure proper engagement with the provided posts, we added a preprogrammed timer function to our online questionnaire, so that participants had to view each post for at least 10 s before they were able to proceed. Compared to Experiment 1, our measurement of participants' exposure to each of these posts revealed similar viewing times ($M =$ 24.0 s vs. 28.9 s in Experiment 1). In terms of cumulative exposure, however, the smaller number of stimuli naturally resulted in a much lower mean duration of 96.2 s (median: 81.5 s; range: 44–988 s)—nearly half of the time measured in the first experiment. Following this treatment, we carried out a second measurement of the three dependent variables before providing questionnaires on the need for consistency and, lastly, sociodemographic and control variables.

Social Media Stimuli. Striving to replicate the findings from Study 1 under different conditions, we assembled new social media materials for our second experiment. In particular, we opted for a briefer treatment this time around, selecting only four posts for each of the two experimental groups. Regarding the BoPo stimuli, we used the same Instagram search procedure as before, which provided us with four posts depicting overweight women from different ethnic backgrounds in an aesthetic and positive manner. Conversely, four posts marked with the hashtag #interiordesign were chosen for the control condition—since we deemed this topic to be completely unrelated to questions of diversity (yet representative of typical Instagram content). In another modification compared to the previous study, we composed the photo captions in both conditions ourselves this time around, striving for slightly longer messages (up to 80 words with three to six hashtags and one to six emojis added). This approach was chosen to increase the textual similarity between both conditions—and to give us the opportunity to sharpen the caption's focus in the body-positive condition on BoPo core themes (e.g., a positive mindset, self-acceptance).

Body Shape Ideals. As in Study 1, the female version of the FRS by Stunkard et al. (1983) was used to measure participants' body-related ideals based on nine graphical body shapes. Again, the total number of body shapes served as our main indicator for the breadth of participants' body shape ideals. Further echoing our previous effort, we also looked into the mean selected body shape as a second dependent variable (even though it was not explicitly preregistered for this experiment).

Body Self-Esteem. As a measure of participants' body-related self-esteem, we employed the well-established Body Appreciation Scale (BAS-2; Tylka & Wood-Barcalow, 2015), which consists of 10 items (e.g., "I feel love for my body") presented on 5-point Likert scales. A German translation was created using a backtranslation method. Internal consistency turned out excellent for both uses of the measure (Cronbach's $\alpha = .94$ and .95).

Views on Social Diversity. For many different types of group-related attitudes and biases (e.g., sexism, racism), validated measures

may be obtained from the literature. In contrast to this, however, we did not come across any suitable instrument for our purpose of assessing views toward social diversity as an overarching attitude. As such, we assembled our own seven-item *views on social diversity* index, taking inspiration from previous prejudice research (Pettigrew, 1997). Specifically, we addressed six crucial aspects of societal diversity (i.e., in terms of age, gender, sexual orientation, socioeconomic background, religion, and ethnicity), asking participants to rate their openness toward these criteria (e.g., "I accept all forms of socioeconomic background."; "Religion and worldview do not affect how I choose my friends."). Furthermore, one item with high face validity ("I am completely open toward the diversity of people.") was added to complete the index. The resulting measure—which showed acceptable internal consistency in both its pre- and post-treatment applications, especially considering its broad conceptual range (Cronbach's $\alpha = .65$ and .75)—can be consulted in the project's OSF repository.

Attitude Strength. We created a brief set of items on participants' attitude strength regarding the three main outcome variables in our study: Beauty ideals (one item; "My idea of societal beauty ideals is very fixed."), body self-esteem (one item; "I am completely certain as to how I see my own body"), and views on social diversity (two items averaged to a composite score; e.g., "I think I have a very strong, developed opinion about diversity.").

Need for Consistency. The Preference for Consistency Scale (Cialdini et al., 1995) provides a well-established measure of people's disposition to strive for consistent attitudes and cognitions. Utilizing the short form PFC-B, we translated its nine items (e.g., "I make an effort to appear consistent to others") to German and presented them to participants using 5-point Likert scales. Our translation of the PFC-B yielded good reliability, Cronbach's $\alpha = .77$.

Results

Table 2 collects basic descriptive statistics for the dependent variables in Experiment 2.

Effect of Shown SNS Content on Body Shape Ideals

In the first step of our statistical analysis, we focused on the observed changes in participants' body shape ideals—operationalized via the mean body shape and total number of body shapes selected in the FRS—depending on our experimental manipulation. To this end, we first calculated the difference values between pre- and posttest measurements for both variables before entering the resulting difference scores into independent *t*-tests. By these means, we found that the type of shown social media content (BoPo vs. control) had indeed resulted in different changes regarding the mean selected body shape, $t(216.01) = 3.29$, $p < .001$, Cohen's $d = 0.40$, 95% CI [0.16, 0.64], and the total number of selected body shapes, $t(215.19) = 3.73$, $p < .001$, Cohen's $d = 0.45$, 95% CI [0.21, 0.69]. As detailed in Table 2, participants in the BoPo condition not only showed a stronger shift toward a heavier body ideal but also increased the number of selected shapes significantly more than those exposed to neutral control content. Offering a graphical overview of our results, Figure 2 juxtaposes the chosen FRS shapes (as well as the obtained pre-posttest differences) for both conditions. As this graph shows, body-positive content resulted in a much more notable change between our two measurements than the neutral condition, which yielded nearly the same scores. Hence, we report additional support for the main hypothesis from our first experiment (H1).

Effect of Shown SNS Content on Body Self-Esteem

Second, we proceeded to investigate potential group differences in the observed change of participants' body self-esteem. Again, a difference score (subtracting the pre- from the posttest result) was calculated and entered into an independent *t*-test. Doing so, we found that participants' body self-esteem had indeed changed to a significantly different extent in both conditions, $t(264) = 3.09$, $p = .002$, Cohen's $d = 0.38$, 95% CI [0.14, 0.62]. As expected, those presented with BoPo content showed a stronger improvement in their body self-esteem after the social media content than participants who had merely viewed neutral design posts (see Table 2 for numerical results). As such, hypothesis H4 on the self-related benefits of body-positive Instagram content was also supported by our data.

Lateral Attitude Change

To examine BoPo's potential to change broader views on societal diversity, we compared the average difference scores in the *views on social diversity* index between the BoPo and control condition with another independent *t*-test. Unlike what we anticipated, both groups showed nearly the same change (or lack thereof) regarding this variable, $t(264) = 0.05$, $p = .962$, Cohen's $d = 0.01$, 95% CI [–0.24, 0.25]. Referring readers to the descriptive data in Table 2, we report that our hypothesis on LAC was not supported by the current experiment.

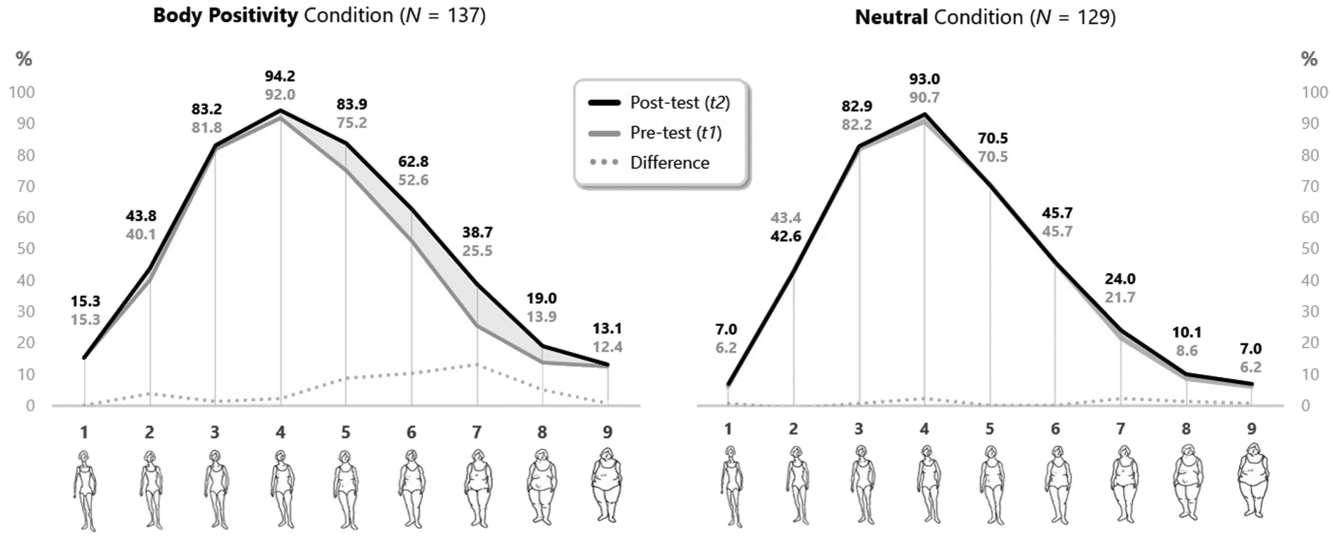
Table 2
Descriptive Statistics for Dependent Variables in Study 2

Variable	BoPo condition ($n = 137$)			Control condition ($n = 129$)		
	M (*SD*)			*M* (*SD*)		
	Pretest	Posttest	Δ	Pretest	Posttest	Δ
Body ideals: Mean selected body shape[a]	4.17 (0.77)	4.34 (0.78)	**+0.17 (0.43)**	4.05 (0.79)	4.08 (0.75)	**+0.03 (0.24)**
Body ideals: Number of selected body shapes[a]	4.09 (2.28)	4.54 (2.22)	**+0.45 (1.02)**	3.75 (3.67)	3.83 (2.02)	**+0.08 (0.57)**
Body Appreciation Scale (BAS-2)[b]	3.81 (0.78)	3.93 (0.80)	**+0.12 (0.24)**	3.71 (0.85)	3.76 (0.88)	**+0.04 (0.19)**
Views on social diversity index[b]	4.37 (0.46)	4.41 (0.47)	**+0.04 (0.25)**	4.36 (0.48)	4.40 (0.49)	**+0.04 (0.19)**

Note. Bold represents data are the focus of our statistical analysis. BoPo = #bodypositivity.
[a]Measured with the 9-point Figure Rating Scale. [b]Scale ranges from 1 to 5.

Figure 2

Percentage of Participants Selecting the Respective Body Shape as Ideal in Experiment 2 (N = 266)



In response to our hypotheses H6 and H7—which proposed several variables that might influence the attitude changes after viewing body-positive content—we conducted three moderated regression analyses, using the obtained difference scores (i.e., change in body shape ideals, body self-esteem, and views on social diversity) as respective criteria. In all of these analyses, we first entered the grouping variable (dummy-coded) and the corresponding level of attitude strength (mean-centered) as predictors. For the regression focusing on social diversity views, the need for consistency was further added as a centered predictor. Interaction terms were then added in a second step. Looking at the change in R^2, we observed no significant effects of the proposed moderators (see Supplement S7 in the online supplemental materials for detailed results). Therefore, neither of the developed hypotheses can be answered affirmatively.

Exploratory Mediation Analysis

Based on our significant findings regarding participants' body shape ideals (H1) and body self-esteem (H4), we conceived of an additional step during our statistical analyses, which was subsequently carried out in an exploratory manner. More specifically, a mediation model was developed, in which the increased number of selected body shapes (i.e., the main indicator for participants' broadening body ideals) served as a mediator between the SNS treatment and the observed change in body self-esteem. Employing the PROCESS macro by Hayes (2017) with 10,000 bootstrap intervals, we indeed observed a significant indirect effect (Figure 3) of the social media treatment via the change of body shapes marked as ideal on the change of body self-esteem, $B = -0.03$, 95% CI [–0.06, −0.01]—mirroring the conceptual relationship described in our introduction.

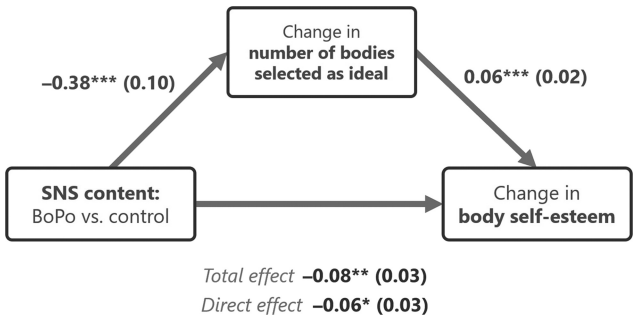
Discussion

In our second experiment, we revealed additional evidence emphasizing BoPo's potential to alter societal body-related beauty ideals. First and foremost, we replicated the noteworthy diversification effect from our first study under different conditions, showing that an even briefer exposure to BoPo (for an average time of one-and-a-half minutes instead of nearly three) still sufficed to broaden participants' appearance-related standards and to shift their ideals toward a slightly heavier body shape. In addition to that, we observed significant benefits for people's own body esteem—resembling evidence from recent research (e.g., Cohen, Fardouly, et al., 2019)—and connected both outcomes in an exploratory mediation model. Taken together, these findings suggest that the angle pursued by the current project might indeed present the future for BoPo-related research: By shifting their attention toward (and actually measuring) socially relevant constructs such as comparison standards and norms, scholars may get a better handle on the intricate effects of this digital media phenomenon, both self- and other-related.

From a more critical perspective, however, we note that our research interest in the LAC framework was not very fruitful during this first exploration of its kind. In contrast to the considerable

Figure 3

Mediation Model Developed in Study 2



Note. Presented are unstandardized regression coefficients, with associated standard errors in parentheses.
* $p < .05$. ** $p < .01$. *** $p < .001$.

changes that were found regarding our focal topics (body shape ideals and body self-esteem), the exposure to BoPo content hardly affected participants' open-mindedness toward social diversity in general—in fact, nearly as little as viewing neutral interior design posts. At first glance, this suggests that the persuasive power of body-positive messages might be more domain-specific than initially assumed; on the other hand, it should be pointed out that any null findings in this regard might also be contingent on specific aspects of the current study, such as our decision to combine participants' attitudes about various forms of social diversity into one composite measure. Arguably, more nuanced assessments (e.g., on specific types of prejudice) or a stronger focus on immediate interpersonal judgments might help to reveal the lateral persuasive effects of BoPo after all.

General Discussion

The concept of an ideal female body has a long—and arguably problematic—history, even though its specifics have often changed across time and cultural borders (e.g., Bonafini & Pozzilli, 2010). In the modern era, mass media are considered to play a major role in shaping body ideals (e.g., Thompson et al., 1999), yet they have been criticized for disseminating a uniform picture of thinness as the only ideal body shape for women. Likewise, social media, such as Instagram or TikTok, have drawn strong criticism for propagating ideals of skinny body shapes as the only desirable standard, potentially to an even stronger degree than traditional media (Döring et al., 2016).

At the same time, millions of users on social media have created and fostered a trend aimed at broadening the concept of the beautiful body: #bodypositivity. Extending prior theory and research, we pursued the idea that social media portrayals of physical diversity increase the range of people's body-related ideals, along with shifting the ideal mean body toward a heavier shape. Two online experiments with different control groups and stimuli supported our assumption, showing that female participants exposed to BoPo selected more body shapes and, on average, a less thin body to describe their understanding of an ideal physique. Moreover, the changes observed in these more abstract standards also predicted an increased feeling of being comfortable in one's own body—which implies that by changing perceptions of female attractiveness, body-positive content indirectly affects how women perceive themselves.

For researchers interested in body-related media effects, we believe that the current work carries a notable theoretical implication. Specifically, our findings underscore that scholars may be advised to look beyond *average* body ideals to gain a comprehensive understanding of people's bodily perceptions. Especially when examining new interventions that strive to overcome thin-ideal standards, progress may not exclusively be measured in terms of shifting means; instead, with our society being increasingly invested in matters of diversity and inclusivity, the decisive outcome might be twofold—establishing a less skinny ideal, while also fostering favorable attitudes toward a broader range of different bodies.

As our research has added a new angle to the scientific examination of BoPo's merit, it seems worth noting that sociocultural improvements can happen in various, often unexpected ways. After all, the fact that social media—an innovation often perceived negatively by the general public—may contribute to potentially healthier and more inclusive body ideals highlights that societal progress does not rest in a technology per se, but rather in the hands of those who use it to improve the situation of others. Assuming that the effects found in our two experiments generalize toward other contexts and study designs as well, digital BoPo might find itself in a unique position to foster societal transformations: By modifying internalized principles of beauty toward diversity, it could tackle unfair appearance-related advantages that still persist in many areas of social life. In turn, this could have important downstream consequences, leading to less social comparison processes, higher well-being, a lower drive for unhealthy thinness, and fewer attempts at attaining a skinny body via disordered eating behavior.

Limitations and Future Directions

Our main results are based on two preregistered experiments that involved two different designs (random assignment with post-exposure measurement only or pre- and post-exposure measurement) and two different control conditions (fitspiration or neutral content). In light of this, we believe that our finding of consistent effects across both studies lends noteworthy support to the proposed claims. At the same time, several limitations need to be noted. First, participants' body ideals were measured mainly as explicit attitudes, which opens up our results to questions of social desirability—even though we hope that the anonymous nature of our online experiments somewhat mitigated this bias. Furthermore, we would like to point out that our research was limited to brief, one-time exposure (in a matter of minutes); although single episodes of BoPo exposure may repeat in people's daily lives, possibly leading to a cultivation of appearance-related standards (Stein et al., 2021), long-term effects should definitely be substantiated by additional research (e.g., involving delayed measurements). As such, we strongly encourage additional studies that focus on the stability of the evoked effects in order to establish them as an actual, persistent change of body ideals.

Second, as is common in media effects research, we presented media stimuli irrespective of the users' own selection processes. At the current time, little is known about stable characteristics (e.g., gender role self-concepts) or situations (e.g., identity threat) that predict a stronger preference for BoPo social media content. Based on the rich knowledge on media choice (Knobloch-Westerwick, 2015), future studies are encouraged to fill this research gap. Furthermore, we note that our research was limited to one-time exposure and the measurement of short-term effects. Without a doubt, longitudinal studies on the interplay between BoPo exposure and body standards appear to be a particularly relevant next step.

Addressing a third methodological limitation, we note that our sample consisted only of women (and, in the case of Experiment 2, four non-binary participants), with most of them belonging to the young adult age group. While we have no reason to assume that the found effects would be reduced or even absent for other age brackets, we still encourage future research to replicate our experiments with younger or older participants. Moreover, as pointed out in a recent meta-analysis (Saiphoo & Vahedi, 2019), gender differences in the media's impact on body image disturbance seem to be diminishing in the digital age—so that extending our work to male participants is a much-needed next empirical step. In the same vein, we would like to underscore that the current research cannot offer insight into the specific experiences of non-binary individuals; although we decided to be inclusive of these participant groups

in our second experiment, the extremely low number of people indicating their gender as "other" prevented us from conducting any relevant analyses. In a research field that remains notoriously fixated on the life reality of majority groups, we argue that this should not be sidelined, but taken as inspiration for important additional research.

Proceeding to questions of media modality, it may be kept in mind that although the BoPo movement is currently most prevalent on social media, other media channels provide BoPo content as well. This includes non-fictional and fictional literature, BoPo content on TV, or body-confident musicians (e.g., Coyne et al., 2021). Presumably, getting to know diverse body standards from different sources might be related to an additional diversification effect, assuming that this might strengthen the cognitive availability of the respective ideals. In that sense, investigations on intertextuality and related effects appear promising. Likewise, we want to point out that our work focused exclusively on observing social media content produced by others. However, social media users are, to a varying degree, also producers of content, which may then be shared with peers, friends, or strangers. Based on this, it might be worthwhile to investigate how producing body-positive content (e.g., as a photographer or model) also affects people's concept of ideal bodies—or if it predicts even stronger effects.

Finally, from a more critical perspective, we note that the concept of BoPo itself has recently come under scrutiny by several sociological and feminist scholars, who have argued that contemporary BoPo efforts remain wrongfully fixated on physical appearances, failing to disrupt issues of self-objectification and self-sexualization (e.g., Clark, 2023; Darwin & Miller, 2021). According to this work, it might be more important to aspire to genuine "body neutrality"—i.e., shifting away focus from physical attributes or concepts of beauty altogether. In all probability, tapping into body neutrality literature could inform valuable extensions of our research; as a matter of fact, diversification effects such as the one shown in our experiments might actually foreshadow a reduced emphasis on physical attributes in society, very much in the sense of this body-neutral perspective.

Conclusion

When judging others and themselves, humans rely on comparison standards and ideals, including the concept of the perfect body shape. During the previous century, Western societies developed a potentially unhealthy standard of overly thin bodies as the only desirable ideal, especially for girls and young women—and social media have now taken on an important role in disseminating this problematic notion. However, they can have a positive impact as well: Two pre-registered studies show that body-positive online media have the power to shift and broaden users' concepts of beautiful body shapes. Thus, setting apart our work from decades of prior body image research, we found that attempts to overcome restrictive body ideals may succeed not only by shifting averages but also by fostering a more diverse understanding of physical beauty. Empirically, this observation was only made possible by complementing the typically mean-focused approach with an adapted measure of body ideal diversity. For the future of body-related media and communication research, this might ultimately constitute a superior approach: After all, it is more inclusive to make more (instead of different) bodies seem attractive—and researchers might want to evaluate effects, processes, and interventions accordingly.

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