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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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19   **Abstract**

20   By depicting an unrealistic share of skinny or toned body types, modern mass media have been

21   found to shift users' perception of an ideal body towards narrow and often unattainable standards.

22   In response to this, the "#bodypositivity" movement (BoPo) on social media has set out to

23   challenge restrictive body ideals, advocating for more open-minded views towards the human

24   physique. Matching BoPo's emphasis on diversity, we hypothesized that viewing body-positive

25   online content alters women's concept of an ideal body to encompass a broader range of body

26   shapes (on a spectrum from skinny to obese). The results of two pre-registered experiments ($N_1 =$

27   191; $N_2 = 266$) support our assumption, connecting BoPo not only to a larger mean ideal body

28   shape, but also to a *diversification* of weight-related standards. We discuss our work as a crucial

29   extension of prior research, noting that the range found in people's bodily ideals may be (at least) as

30   relevant as their central tendency.

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

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33   **Public Significance Statement**

34   The results of two studies indicate that online media can effectively contribute to more diverse body

35   ideals if they depict a broader range of body shapes as physically attractive. Specifically, our work

36   suggests that by disrupting the frequent overrepresentation of thin female bodies in the media—for

37   the sake of more inclusivity—women's understanding of an ideal body could be changed to

38   encompass a larger range of weight types, potentially prompting more open-minded views and

39   behaviors in society. For psychological scholars, the current research further underscores the

40   importance of looking beyond parameters of central tendency (such as group averages), considering

41   that diversity measures may be as or even more important in certain contexts.

42   **Recognizing the beauty in diversity: Exposure to body-positive content on social media**

43   **broadens women's concept of ideal body weight**

44   Social networking sites (SNS) have become a fundamental media and communication

45   channel for millions of people, who use platforms such as Instagram or TikTok to express

46   themselves, connect with their peers, and learn about the world (Auxier & Anderson, 2021). By

47   these means, the respective services have also emerged as a key source for social norms and

48   standards (e.g., Masur et al., 2021)—and, due to their highly visual nature, continue to shape the

49   modern-day understanding of physical beauty (e.g., Mills et al., 2017). Yet, just as traditional mass

50   media did for decades (e.g., Botta, 1999; Te'eni-Harari, & Eyal, 2015), popular social media sites

51   overrepresent thin and fit bodies, neglecting the social reality of human diversity (Åberg et al.,

52   2020; Cohen et al., 2021; Mingoia et al., 2017). Along these lines, they are considered responsible

53   for communicating and cultivating an unhealthy *thin ideal*, leading to potentially harmful social

54   comparison processes, lower well-being, and eating disorders (e.g., Huang et al., 2021; Mills et al.,

55   2017; Stein et al., 2021; Verduyn et al., 2020).

56   Distinguishing social media from TV and magazines, however, is the fact that users

57   themselves can contribute to the content that is shown on the respective platforms. In turn, this

58   participative nature has also facilitated user-led efforts to transform what is depicted as beautiful on

59   popular social media sites. A particularly prominent voice in this regard has been the *body positivity*

60   movement (*BoPo*). Using the BoPo label and hashtag, SNS users have uploaded millions of posts

61   that disregard restrictive beauty ideals, instead propagating more open-minded attitudes towards the

62   human body and its many different forms. Extending prior theory and research, we argue that such

63   diverse media portrayals may not only shift beauty standards towards a less skinny ideal body

64   shape, but actually broaden people's mental representation of ideal bodies so that *more* body types

65   are considered beautiful. Unlike previous literature, which has mainly focused on central tendency

66   as the core parameter to grasp bodily perceptions (or, in the case of interventions, looked at shifting

67   averages), we argue that it is equally important to examine the *breadth* of what individuals perceive

68   to be beautiful following their media use. Building upon this theoretical groundwork, we present

69   two pre-registered experiments to test the prediction that digital BoPo has the power to change what

70   users (in particular women) perceive to be an ideal body weight—both in terms of a shifting

71   average as well as a larger range of weight types. Furthermore, we connect these more abstract

72   perceptions to participants' specific evaluations of strangers' weight, as well as their own body

73   esteem. Lastly, we investigate whether body-positive social media content also affects more general

74   views on social diversity, beyond its focus on physical appearances.

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

76   Broadly speaking, beauty ideals (or standards) can be understood as culturally shared beliefs

77   as to which body shapes, facial features, skin attributes, and types of clothing are considered

78   beautiful and desirable in a given society. They have changed throughout history and show notable

79   cross-cultural variation—although differences have narrowed due to a proliferation of Western

80   culture (Swami, 2021). According to the *Tripartite Influence Model* (Thompson et al., 1999), young

81   people are typically socialized towards beauty standards by three main sources: Parents, peers, and

82   the media. While the relative contribution of these three influences may depend on various

83   individual and contextual factors, scientific literature has emphasized the impact of the latter rather

84   unanimously (Halliwell & Diedrichs, 2012). Also, quite impressively, research conducted with

85   media-naïve populations in remote rural areas has revealed that even brief, first-time contact to

86   mediated beauty ideals sufficed to alter concepts of physical attractiveness in a notable way

87   (Boothroyd et al., 2020).

88   Although, as noted above, beauty ideals encompass many aspects beyond bodily

89   characteristics, it should be pointed out that the understanding of a *desirable body shape* rests at

90   their core—across most cultures and age ranges (Calogero et al., 2007; Swami, 2021). Again, media

91   influences in this regard must not be underestimated. By now, there are multiple meta-analyses that

92   consistently link people's mass media use to a thinner or more athletic ideal body shape—both for

93   traditional (e.g., Grabe et al., 2008; Holmstrom, 2004; Huang et al., 2021) and for new media

94   formats (Saiphoo & Vahedi, 2019). To make sense of these effects, scholars have employed several

95   central theories that may explain why body depictions in the media exert such a profound impact on

96   audiences' (body-related) perceptions and attitudes. Among the most prominent frameworks in this

97   regard is *social comparison theory* (Festinger, 1954), which suggests that people show an inherent

98   inclination to compare themselves to others around them, hoping to achieve a well-informed

99   evaluation of the self. Indeed, scientific literature has shown that social comparisons are not just

100   based on peers or strangers in the natural world, but also frequently prompted by media characters

101   (e.g., Holmstrom, 2004). For instance, individuals may compare themselves to characters from

102   television shows and movies, or they may access social media platforms to choose other users as

103   their comparison standards.

104   While social comparison theory provides a sound explanation for the interplay between

105   media depictions and self-related attitudes, the framework is mainly focused on immediate and

106   short-term effects. This contrasts with the fact that mass media usually unfold their influence on

107   users' attitudes across multiple and repeated reception situations, a process that may not be entirely

108   explained by recurring social comparisons. Instead, these long-term effects are usually described

109   via *cultivation theory*—a framework proposing that frequent exposure to mass media shapes

110   people's understanding of reality according to the depicted content (Gerbner & Gross, 1976; Grabe

111   et al., 2008). More specifically, cultivation theory suggests that the often homogenous content

112   shown in contemporary media facilitates a *mainstreaming* of popular opinion, even if viewers' own

113   personal experiences may inhibit (or foster) this process (i.e., *resonance*; Gerbner et al., 1980). For

114   the topic at hand, the cultivation framework implies that by being almost exclusively exposed to

115   thin (female) or muscular (male) bodies in mass media, viewers are socialized to consider only a

116   narrow range of body types as desirable—resulting in so-called *thin-ideal* and *athletic-ideal*

117   *internalization* (Grabe et al., 2008; Martin & Racine, 2017; Scharrer, 2013). Again, meta-analytic

118   research shows that these effects are not only evoked by traditional media (e.g., Paterna et al.,

119   2021), but also occur when engaging with SNS (Mingoia et al., 2017). While some authors caution

120   that users' opportunity to choose from many types of content on social media might limit

121   mainstreaming effects (Morgan et al., 2015), others have argued that the platforms' strong emphasis

122   on trending or 'viral' content—as fostered by automatic algorithms—effectively results in even

123   stronger levels of content homogenization than known from traditional media (Chayka, 2019; Ong,

124   2018; Yau & Reich, 2019). Along the same lines, a recent study has connected users' engagement

125   with Instagram's public content to noteworthy changes in bodily perceptions, matching the

126   predictions of cultivation theory (Stein et al., 2021).

127   Social comparison and cultivation processes offer important insight as to how mass media

128   affect people's expectations, norms, and standards of beautiful bodies. It is crucial to note, however,

129   that these standards are not only applied to evaluate oneself, but also to make sense of other

130   people's *attractiveness* (Stephen & Perera, 2014; van den Berg et al., 2002). Considering the high

131   importance of this judgment in nearly any interpersonal context—from the initiation of romantic

132   relationships (e.g., Brand et al., 2012) to success in the workplace (e.g., Commisso & Finkelstein,

133   2012)—body shape ideals therefore emerge as a core aspect of our shared social reality. They

134   modulate the social feedback that individuals give and receive, while also exerting a strong

135   influence on anticipated feedback, i.e., people's expectations about future social interactions

136   (Langlois et al., 2000). In this sense, bodily ideals also take on a key role in the emergence (and

137   more problematically, the disruption) of individuals' self-esteem: Only by aligning their body shape

138   with societal concepts of beauty, many people may find it possible to engage in successful social

139   contact and in turn, feel satisfied about their own appearance (Fredrickson & Roberts, 1997;

140   Thompson et al., 1999).

141   Taken together, scientific literature suggests that the overrepresentation of thin and athletic

142   body shapes in today's media landscape provides a crucial benchmark for both self- and other-

143   related perceptions. Considering the severe negative consequences that may arise from this,

144   researchers and health officials have pursued numerous interventional approaches, for instance

145   targeting children's media literacy (e.g., Kurz et al., 2022) or the reduction of fat-phobic stereotypes

146   (e.g., Stewart & Ogden, 2021). In many cases, these efforts are directly aimed at shifting thin-ideal

147   perceptions towards a heavier norm and to disrupt the media-facilitated idolization of overly skinny

148   bodies. At the same time, scholars and practitioners in the field of body image have suggested that

149   overcoming problematic body ideals might not be a question of *different* but of *broader* standards—

150   so as to effectively reduce appearance-related pressures for as many people as possible (e.g., Cohen

151   et al., 2021; Palumbo, 2022). Arguably, this approach aligns with the core message of the rapidly

152   growing body positivity (BoPo) movement, whose proponents use contemporary media platforms

153   such as *Instagram* to propagate potentially healthier, but especially more inclusive body ideals.

154   **Body Positivity and Diversity Online**

155   Although most people of today may likely encounter it on social media for the first time, the

156   idea of BoPo is all but new to the digital age. In fact, aspirations to overcome hegemonic beauty

157   standards have a long history, going back as far as the first wave of feminism during the 19th

158   century (Cunningham, 2003; Walters, 2005). Initially rooted in questions of emancipation and

159   female empowerment, BoPo evolved into a broader social movement over the course of the 20th

160   century, later concurring with the fat acceptance movement of the 1960s and 1970s (Alptraum,

161   2016). At the same time, body-positive thought has long been driven by Black feminism and queer

162   activism—two sociopolitical movements that both aim at overcoming the societal erasure of

163   marginalized identities (Griffin et al., 2022). As such, the ever-evolving concept of BoPo may be

164   best described as the legacy of several, intersectionally linked ideologies. Even though scholars

165   have noted that drawing the boundaries of modern-day body positivity has become increasingly

166   difficult (Sastre, 2014), its proponents are generally united by the same set of principles: The belief

167   that beauty standards constitute an undesirable cultural construct—and that different bodies should

168   not be placed in a societal hierarchy (Leboeuf, 2019).

169   While the world of modern mass media is traditionally known as a nexus for restrictive

170   beauty standards (e.g., Izydorczyk et al., 2020), it has slowly opened up to body-positive notions in

171   recent years. Apart from several well-received ad campaigns and reality TV shows (e.g., Cameron,

172   2019; Johnston & Taylor, 2008), a particularly important role in this regard has fallen to social

173   media, which paved the way for a heightened presence of BoPo in the public sphere. At the time of

174   this writing, the popular social network Instagram features more than 18 million posts labelled with

175   the hashtag #bodypositive; even more impressively, videos tagged with the term have been watched

176   more than ten billion times on the platform TikTok. Faced with this immense popularity, scientific

177   research has also taken a strong interest in digital BoPo. So far, the resulting literature clearly leans

178   towards a favorable perspective, linking the reception of body-positive content to significant

179   improvements in body satisfaction, mood, and self-esteem—especially among women, who are still

180   most at risk to suffer from oppressive beauty standards (e.g., Cohen et al., 2019a; Stevens &

181   Griffiths, 2020). Importantly, scientific reviews have also pointed out that claims about negative

182   side-effects of BoPo, such as a trivialization of obesity, remain unsubstantiated (Cohen et al., 2021).

183   However, with the scholarly focus fixed on questions of self-perception, we believe that one

184   of the most important effects of BoPo has not yet received the warranted attention: The

185   phenomenon's role in altering societal body standards. After all, as outlined above, media

186   depictions hold the power to change what people perceive to be an ideal body shape in a most

187   critical manner (Bonafini & Pozzilli, 2010; Swami, 2021; Thompson et al., 1999). What is

188   particularly noteworthy about BoPo in this regard is that it has proliferated at an unusually high

189   pace, gaining millions of supporters within only a few years. In contrast to previous changes of

190   societal beauty ideals—which have spanned decades or even centuries (Bonafini & Pozzilli,

191   2010)—this suggests that today's media audiences may experience a much more intense

192   transformation of their physical comparison standards. Also, quite crucially, BoPo sets itself apart

193   from other attempts to alter appearance-related perceptions in that it does not necessarily disregard

194   current body ideals (such as overly thin or muscular body shapes); instead, the movement actually

195   suggests embracing *more* forms of the human physique as beautiful. In turn, the success of body-

196   positive appeals might not be measured against a complete overhaul of bodily perceptions, but

197   rather in terms of significantly broader body shape ideals.

198   And yet, despite the growing academic interest in body-positive media, we note that the

199   phenomenon's effect on general body perceptions has received only little attention to date. While a

200   recent study has provided initial evidence that the exposure to larger body types may nudge

201   people's perception of an ideal body towards a heavier shape (Aniulis et al., 2021), this observation

202   offers only limited insight regarding BoPo's core mission, i.e., the diversification of bodily ideals.

203   In fact, we believe that this speaks to a more general shortcoming of body image research. Up until

204   now, the scientific examination of people's body-related attitudes has been predominantly focused

205   on measures of *central tendency*, both in studies on the detrimental effects of the thin body ideal as

206   well as those exploring potential interventions. Of course, this dominant approach is not without its

207   merit—but it appears incomplete. Proposing a notable theoretical advancement, we argue that

208   measures of *diversity* (or range) should be added to the investigation of people's body image to gain

209   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 Supplementary Materials S1 and S2). 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 been 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

234   leaves little doubt about the necessity to adapt the current default of measuring body ideals—so that

235   future studies can actually assess the full picture instead of a mere piece of the puzzle.

236   However, we also suppose that this goal can be readily achieved through a modification of

237   the popular graphical rating scale method (and its subsequent analysis). By asking participants to

238   select not one but *all* the body shapes they deem ideal, researchers can obtain two focal parameters

239   to describe people's body-related standards. First, in examining the mean chosen option, scholars

240   will still be able to investigate the average body ideal. Yet, per our modification, the range or

241   *diversity* of participants' body-related ideals is obtained as a second, potentially relevant variable,

242   operationalized via the number of chosen body shapes. While this modification may seem subtle at

243   first glance, we consider it an important next step in the investigation of human body image. After

244   all, there may be numerous contexts in which our novel measure emerges as a more insightful

245   criterion than the single mean—and the realm of body-positive media provides a fitting and highly

246   relevant example for this.

247   **Experiment 1**

248   Previous literature on digital BoPo frequently mentions users' body-related ideals as a

249   construct of interest (e.g., Ando et al., 2021; Cohen et al., 2019a), but actual experimental

250   investigations into this outcome remain lacking to this day—not least regarding potential

251   diversification effects. In response to this research gap, we designed two experiments that revolved

252   around a theoretically refined measurement of people's body shape ideals. More specifically, we

253   focused our research solely on the experience of women, as previous research has highlighted the

254   pronounced impact of societal body standards on this gender (Dittmar et al., 2000; Keski-Rahkonen

255   & Mustelin, 2016; Quittkat et al., 2019). This is not to say that appearance-related stress is a

256   uniquely female phenomenon; as a matter of fact, recent literature also hints at increasing levels of

257   body-related pressure among men (especially with regards to muscularity, e.g., Voges et al., 2019).

258 Still, due to the large evidence on persisting gender differences, we opted for a fully female sample.

259 In line with this demographic focus, the body shape ideals examined in the current research mainly

260 concerned the dimension *body weight*. While some scientific publications also suggest a growing

261 interest in muscularity and athletic body types among women (e.g., Bozsik, 2018), societal

262 standards remain strongly fixated on thinness as the decisive criterion to evaluate female bodies

263 (Mingoia et al., 2017; Swami, 2021), so that this operationalization appeared timely and plausible.

264 At the beginning of the first experiment, we randomly assigned our female participants to

265 view one of two types of Instagram content: Whereas one group was presented with BoPo posts, the

266 second group received so-called *fitspiration* content—which claims to promote an athletic and

267 healthy lifestyle, but in practice often tends to emphasize weight loss and traditionally skinny body

268 ideals (Simpson & Mazzeo, 2016). Following this social media treatment, we asked our participants

269 to choose all weight types from a visual figure rating scale that they considered as ideal; doing so,

270 we found ourselves able to examine not only the mean ideal body shape, but also the *range*

271 characterizing women's weight-related standards. Based on our theoretical considerations, as well

272 as the reviewed evidence in favor of BoPo's effectiveness (e.g., Aniulis et al., 2021; Cohen et al.,

273 2019a), we assumed:

274 **H1:** Following the exposure to BoPo (vs. fitspiration) content, female participants will

275 describe ideal bodies **(a)** with a heavier body shape on average, and **(b)** by selecting a larger

276 number of body shapes in total.

277 Next, we explored whether our experimental treatment would also evoke a significant group

278 difference in a more specific weight attribution task. For this purpose, we asked our female

279 participants to rate the weight of various strangers depicted on full-body photographs. Bearing in

280 mind that the exposure to body-positive materials might shift participants' comparison standard to a

281   heavier shape (as per H1; see also Devine et al., 2022), we supposed that the average weight

282   evaluation would turn out lower in the BoPo condition:

283   **H2:** Following the exposure to BoPo (vs. fitspiration) content, participants will rate the

284   weight of strangers with a lower average score.

285   Lastly, we inspected yet another specific outcome of the potentially changed body shape

286   ideals: The assessment of romantic relationships between people with different weight types.

287   Presenting participants with a fictional heterosexual partnership scenario that featured an athletic

288   man and either a thin or an overweight woman, it was hypothesized that BoPo's core persuasive

289   message (to disregard bodily characteristics as a way to judge individuals) would lead participants

290   to make their evaluation less dependent on the weight of the described woman. We presumed:

291   **H3:** Following the exposure to BoPo (vs. fitspiration) content, participants will show

292   smaller differences in their evaluations of **(a)** the expected relationship duration and **(b)** physical

293   attraction for couples with either an overweight or a thin woman.

294   **Method**

295   The current study, including our hypotheses and planned analyses, was preregistered

296   (https://aspredicted.org/ELP_DCO).[1] Furthermore, we provide all anonymized data, as well as our

297   analysis codes for both studies in an Open Science Framework (OSF) repository

298   (https://osf.io/9ajm4/?view_only=f93de8fe1d714bd794a47e58659bae26). In the current study

299   country, it is not required to obtain institutional ethics approval for psychological research as long

300   as it does not concern issues regulated by law. However, all reported research (in both experiments)

301   was carried out in full accordance with the Declaration of Helsinki, as well as the guidelines

[1] In the current manuscript, the wording and numbering of the preregistered hypotheses was slightly modified for reasons of clarity and consistency. This did not, however, involve any theoretical modifications.

302   provided by the American Psychological Association and the [ANONYMIZED] Psychological

303   Society.

304   *Participants*

305   An a priori sample size calculation via G*Power software focusing on the step of our

306   planned analyses that required the highest sample size—i.e., the two-factorial ANOVA for

307   hypothesis H3, with parameters set to 80% power, $\alpha = .05$, and an assumed moderate effect of $f =$

308   0.25—resulted in an aspired sample size of 128 participants for the experiment. Using public

309   mailing lists and social media groups, we initially recruited 200 [ANONYMIZED] participants (age

310    $M = 27.84$ years, $SD = 8.18$), all of whom self-identified as female. Based on our pre-registered

311   criteria to ensure high data quality, however, we excluded several participants: Those who had

312   failed an instructional attention check ($n = 7$), indicated careless responding in a diligence self-

313   report item ($n = 1$), or mentioned severe technical issues during their participation ($n = 1$). As such,

314   our final sample consisted of 191 women (age $M = 27.46$ years; $SD = 7.81$). We observed a high

315   level of education among our participants, with the majority indicating either a university degree

316   (49.2%), a university entrance qualification (28.8%), or a completed vocational education (14.1%).

317   *Procedure and Materials*

318   All participants had to give their informed consent before proceeding to our online

319   experiment, which was provided via the platform *SoSciSurvey*. Since our study was based on a

320   between-subject design, an automatic randomization procedure first assigned each participant to

321   either the BoPo or the fitspiration condition. Subsequently, we presented both groups with a set of

322   seven social media profiles—four that matched their respective condition, and three neutral

323   distractor profiles (presented in random order as single pages). Each profile consisted of five

324   thematically relevant pictures displayed in Instagram's typical interface design, complete with brief

325   captions. To sharpen the focus on the provided images, however, we refrained from adding other

326   aspects typically found in Instagram accounts (e.g., short bios or image grids), limiting our profiles

327   to a given selection of five posts to scroll through.

328   According to our online platform's automatic measurement of the time spent on these pages,

329   each profile was viewed for an average duration of 28.9 seconds, resulting in a mean exposure time

330   of 202.3 seconds for the whole social media treatment (range: 61–788 seconds; median: 169

331   seconds). Once they had finished looking at the provided content, participants were guided towards

332   our measure of ideal body shapes, the relationship scenario, and the photo rating task (which was

333   presented last due to its visual nature). Concluding our experiment, we obtained several

334   sociodemographic and control variables from our participants, namely their age, level of education,

335   and weekly Instagram use. Also, for exploratory purposes, we inquired participants about their

336   height and weight in order to calculate the body-mass index as a potential covariate.

337   ***Social Media Stimuli and Pretest.*** Striving for high external validity, we decided to use real

338   social media content as stimuli in our experiment. Thus, we first reviewed several publicly

339   accessible Instagram profiles by moderately popular social media accounts (i.e., so-called *meso*

340   *influencers* with more than 10,000 followers) that had posted images with the hashtags

341   #bodypositive, #bodypositivity, or #bodyacceptance (for the BoPo condition). In particular, we

342   looked for posts whose images and captions incorporated central BoPo themes as identified in a

343   recent content analysis (Cohen et al., 2019b), i.e., self-appreciation, inner positivity, and the

344   unfiltered depiction of physical flaws. For the fitspiration stimuli, we repeated our search with the

345   terms #fitspiration, #fitspo, and #workout. In both conditions, various ethnicities were included in

346   our photo selection so that participants from different cultural backgrounds could relate to the

347   depicted individuals. Also, in order to avoid stimuli with high recognition value, we omitted

348   particularly prominent profiles that exceeded 100,000 followers.

349   In total, this initial selection procedure yielded sixteen Instagram profiles, eight for the

350   BoPo, and eight for the fitspiration condition. Additionally, we collected a smaller set of six profiles

351   using the search terms #lifestyle, and #instagood, so that they could be added as distractor stimuli to

352   both conditions. To further narrow down our materials, we then carried out a pretest with 30 female

353   Instagram users (age $M = 25.23$ years; $SD = 2.69$), identifying the profiles with the highest

354   conceptual fit to our definitions of BoPo and fitspiration (e.g., the extent to which the BoPo posts

355   encapsulated the abovementioned core themes). By these means, the initial set of potential stimuli

356   was cut in half (for a full overview of the provided definitions and pretest results, see

357   Supplementary Material S3). Consequently, our study's treatment consisted of seven profiles in

358   each condition: Four profiles encapsulating the respective topic (BoPo or fitspiration), as well as

359   three distractor profiles (kept constant in both conditions). Each of these profiles was presented as a

360   scroll-down page in Instagram's distinct corporate design, encompassing a total of five pictures

361   with their real captions and hashtags (e.g., BoPo profile: "WONDER WOMAN! Be your own

362   superhero, the costume is optional! #loveyourself"; fitspiration profile: "Currently doing the same

363   dumbbell routines in my PJs, but I hope you enjoy this shot! #fitness"; neutral profile: "It's

364   beginning to look a lot like SUMMER"). If a caption was originally longer than three lines of text,

365   only the first three lines were shown. To avoid any potentially confounding information, all signs of

366   social feedback (i.e., likes and comments) were removed from the shown posts.

367   ***Measuring Body Shape Ideals.*** The core dependent variable of our study—participants'

368   concept of ideal body shapes—was measured using the female version of the graphical Figure

369   Rating Scale (FRS; Stunkard et al., 1983), albeit in a conceptually refined format. The FRS consists

370   of schematic drawings of nine silhouettes, either female or male, which span a broad weight

371   spectrum between extreme thinness and obesity (Figure 1 in the Results section depicts the scale,

372   with the copyright holders' explicit permission). Originally designed for research in the clinical

373   context, the FRS has since taken on a prominent role in non-clinical studies on body satisfaction as

374   well (e.g., Bays et al., 2009; Sand et al., 2017). Moreover, it has been used to assess study

375   participants' general understanding of ideal body shapes (e.g., Bissell, 2004)—the very concept that

376   was also of interest to us. In a notable distinction from previous applications of the instrument,

377   however, we did not ask participants to choose only one preferred body shape but tasked them with

378   selecting all shapes that matched their understanding of an ideal appearance. By these means, we

379   yielded two variables: The mean body shape that was considered as ideal, as well as the total

380   number of chosen body shapes (our core indicator for the breadth of participants' ideals).

381   ***Photo Rating Task.*** To investigate participants' perceptions of other people's weight, the

382   method and materials developed by Stein et al. (2021) were utilized in the current study.

383   Participants were presented with 36 full-body photographs depicting a wide range of the human

384   physique, including muscular, skinny, chubby, and obese body shapes. For each portrayed person, a

385   5-point item ranging from "severely underweight" (1) to "severely overweight" (5) had to be

386   answered. Since the photo-rating task was designed to measure weight perceptions regardless of

387   gender or cultural background, it features a balanced female-to-male ratio (18 photos each) and

388   represents different ethnic groups. By averaging all 36 photo ratings into an overall *weight*

389   *perception* score, we were able to assess participants' general tendency to rate the bodies of others

390   as more or less heavyset.

391   ***Relationship Evaluation Task.*** A fictitious partnership scenario was used to examine how

392   our participants would appraise the romantic connection between people with either similar or

393   different body types. Specifically, we created a short story about the first encounter and subsequent

394   relationship between the two characters Laura and Tom (see Supplementary Material S4 for the full

395   scenario). After this brief introductory text, participants were shown fictitious character profiles for

396   both protagonists (see Supplementary Material S5), including hobbies and interests, as well as

397   abstract body silhouettes. While Tom was always portrayed as an athletic man, Laura was described

398   either as a slim or as an overweight woman—creating an additional between-subjects factor for our

399   experiment. After viewing the character profiles, participants rated their expectation about the

400   couple's romantic future (e.g., "I suspect that they will stay together for a long time.") and Tom's

401   attraction to Laura (e.g., "I think that Tom is strongly attracted to Laura.") with four items each (1 =

402   *strongly disagree*, 5 = *strongly agree*). The resulting indices showed very high internal consistency

403   (Cronbach's α = .86 and .89).

404   **Results**

405   Table 1 gives an overview of the means and standard deviations that were observed for the

406   outcome variables in the two social media conditions. Regarding the relationship evaluation task—

407   which involved a second between-subjects factor—descriptive statistics are given separately for the

408   two presented versions of the fictional scenario.

409   ***Effect of the Shown SNS Content on Body Shape Ideals***

410   Addressing participants' concept of an ideal body (H1), we first conducted an independent t-

411   test with the type of shown SNS content as between-subjects factor and the *mean selected body*

412   *shape* in the FRS as dependent variable. This yielded a significant result, $t(189) = 3.31$, $p = .001$,

413   with a medium effect size of Cohen's $d = 0.48$, 95% CI [0.19, 0.76]. As hypothesized, the average

414   body shape that was selected as ideal turned out slightly more voluminous in the BoPo condition (M

415    $= 4.29$; $SD = 0.75$) than in the fitspiration condition ($M = 3.92$; $SD = 0.82$).

416   Next, we focused on the *number of body shapes* selected in the FRS. Based on a significant

417   Levene test ($p = .006$), we employed the recommended Welch statistic in our analysis of group

418   differences. Using the average number of selected body shapes as a criterion, we observed a

419   significant difference between both conditions, $t_w(179.81) = 2.15$, $p = .017$, Cohen's $d = 0.31$ (95%

420   CI [0.03, 0.60]). On average, participants in the BoPo condition selected nearly three body shapes

421   to describe an ideal body ($M = 2.93$; $SD = 2.34$), whereas those presented with fitspiration content

422   only chose slightly more than two body shapes ($M = 2.27$; $SD = 1.84$).

423   In summary, the reported findings support hypothesis H1: As expected, the exposure to

424   BoPo content shifted our female participants' concept of ideal bodies towards a heavier body type,

425   as well as an increased range of bodies. Offering additional insight into our effects, Figure 1

426   compares the percentage of participants selecting each of the FRS's body shapes as ideal depending

427   on their assigned condition. A visual inspection of this graph further emphasizes that the type of

428   shown SNS content led to notably different body shape ideals.

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

430   Having obtained participants' weight ratings for 36 photographed strangers, we first

431   calculated the mean score across all answers. In the resulting *weight perception score*, a higher

432   value indicated a tendency to perceive the depicted bodies as heavier (i.e., stricter weight

433   perceptions), whereas a lower value signified more lenient views on people's physiques. On

434   average, participants in the BoPo condition perceived the weight of the depicted strangers as

435   significantly less heavy than those in the fitspiration condition, $t(189) = 2.77$, $p = .003$, Cohen's $d =$

436   0.40 (95% CI [0.12, 0.69]). Although the numerical differences between the two groups might

437   appear rather miniscule at first sight (see Table 1), the observed low standard deviations may

438   explain why even a small mean difference could be identified as statistically meaningful. In any

439   case, we give a positive answer to H2, noting that weight perceptions were indeed affected by the

440   prior exposure to different types of SNS content.

441   ***Effects of the Shown SNS Content on Relationship Evaluations***

442   In the final part of our main analysis, we focused on the results of our relationship

443   evaluation task. Since this part of the study had introduced a second between-subjects factor

444   (scenario "athletic man, thin woman" vs. scenario "athletic man, overweight woman"), two-

445   factorial analyses of variance (ANOVAs) were employed to scrutinize the respective hypotheses.

446   First, we entered both manipulations—shown SNS content and type of couple in the relationship

447   scenario—as between-subjects factors and participants' assumptions about the expected

448   *relationship duration* as a dependent variable. Both main effects turned out insignificant, $F(1, 187)$

449    $= 0.27$, $p = .607$ for the SNS factor and $F(1, 187) = 0.74$, $p = .391$ for the relationship scenario

450   factor. More importantly, however, we note that the interaction effect—the actual focus of our

451   hypothesis H3—also fell short of the conventional threshold of significance, $F(1, 187) = 2.80$, $p =$

452    $.096$, partial $\eta^2 = .015$ (95% CI [.000, .065]).

453   In a second ANOVA, we subsequently explored potential differences in participants'

454   expectations about the *physical attraction* between the fictitious characters. Here, we uncovered a

455   significant main effect of the type of scenario, $F(1, 187) = 12.81$, $p < .001$, $\eta^2 = .064$ (95% CI

456   [0.013, 0.141])—presenting a couple with an athletic man and an overweight woman led

457   participants across both social media conditions to assume significantly lower physical attraction

458    $(M = 3.44, SD = .71)$ than describing a thin woman in the same constellation $(M = 3.79, SD = 0.63)$.

459   On the other hand, neither the main effect of the shown SNS content, $F(1, 187) = 0.43$, $p = .511$,

460   nor the (theoretically relevant) interaction effect, $F(1, 187) < .01$, $p = .947$, emerged significant. In

461   conclusion, we give a negative answer to H3: Viewing BoPo (vs. fitspiration) content did not lead

462   to a significantly different assessment of the romantic prospects or physical attractiveness of women

463   with different body sizes.

464   ***Exploratory Analyses***

465   Following our main procedures, we decided to carry out several exploratory steps to find out

466   whether the obtained results depended on specific sociodemographic or control variables. Repeating

467   our analyses with smaller sub-samples that were limited either to young adults (ages 18 to 34; $N =$

468   165) or to those who had described themselves as active Instagram users $(N = 166)$, we found no

469   substantial differences compared to the findings of our previous analyses. Similarly, controlling for

470   participants' body-mass index as a covariate (see the project's OSF repository for the according

471   analysis codes) resulted in no notable deviations from our original results.

472   **Discussion**

473   Our first study revealed promising evidence that digital BoPo content as found on popular

474   social media platforms alters users' perceptions of ideal human body shape. Compared to

475   fitspiration posts, which promote an athletic lifestyle and thin-ideal mindset, body-positive SNS

476   posts prompted female participants to describe their body-related ideals with a broader range of

477   physiques as well as slightly heavier body types. Thus, by applying an adapted version of a well-

478   established measurement tool, we were able to observe BoPo's effectiveness in a more nuanced

479   way—acknowledging two distinct outcomes of emphasizing diversity in digital media.

480   Proceeding from abstract to more specific effects, we found our brief body-positive

481   treatment (in the scope of only a few minutes exposure) to shift weight perceptions about strangers

482   towards a more lenient perspective. For proponents of the BoPo movement, these findings might be

483   quite encouraging. Considering that only a handful of SNS posts sufficed to elicit the reported

484   effects, it stands to reason that a prolonged exposure to BoPo contents in the real world might

485   eventually result in an even stronger rejection of weight-related standards. Keeping in mind the

486   highly problematic outcomes associated with restrictive beauty ideals, this vision may be

487   welcomed—not only by scientific scholars but also by parents and health officials, who may feel

488   concerned about the vulnerable self-esteem of young children and adolescents.

489   Of course, we have to note that not all examined outcomes aligned with our expectations; in

490   the presented relationship evaluation task, showing BoPo content did not lead to significantly

491   different perceptions about the desirability of overweight women. In our interpretation, this might

492   be explained by a third-person effect: Participants might not have considered their own (shifting)

493   ideals when answering the respective questions, but rather how they expected the scenario's male

494   protagonist to behave. Moreover, the lack of significant differences in this more indirect measure

495   might suggest that participants' deeply rooted, implicit norms were not (yet) affected by the body-

496   positive stimuli. Still, even if the observed effects in our experiment only applied to participants'

497   explicit ideals, we do not believe that this takes away from the promising nature of our findings.

498   After all, it is not uncommon for individuals to first react to persuasive messages with a change in

499   their explicit attitudes, before implicit judgments are successively adapted as well (Whitfield &

500   Jordan, 2009). Of course, future replications of our work that focus on long-term effects or employ

501   measures to reduce socially desirable answering are much encouraged to yield definitive proof of

502   changing body ideals following the (repeated) exposure to BoPo.

503   To sum up, our first study uncovered noteworthy results concerning the effects of digital

504   BoPo content. Most of all, it lent first experimental support to the idea that body-positive content

505   can indeed reshape what people consider flawed (or flawless) body types. At the same time, we

506   would like to point out a potential limitation in our work. Specifically, the choice to juxtapose BoPo

507   with fitspiration content could raise the question whether the obtained group differences mainly

508   resulted from the convincing qualities of the former—or depended on the persuasiveness of the

509   latter as well. On the other hand, we suppose that the chosen fitspiration content likely resembled

510   what our participants encounter during their daily media use anyway, so that it might not have

511   exerted strong effects on its own. Still, we reached the conclusion that comparing BoPo to a more

512   neutral control group was a logical extension for a follow-up study. Similarly, testing the observed

513   effects under different conditions (e.g., with a new set of SNS stimuli and including baseline

514   measurements) appeared as a promising next step to establish their validity. To acknowledge these

515   ideas, and to connect our findings to other, theoretically relevant concepts, we conducted a second

516   experiment.

517   **Experiment 2**

518   In Study 2, we modified several aspects of our methodological approach to replicate our

519   core findings under different circumstances. First, due to the identified limitation that juxtaposing

520   BoPo with fitspiration content might have obfuscated which effects actually took place, we decided

521   to use a neutral control condition instead of fitspiration content in this study. Moreover, we now

522   included a baseline measurement, allowing for an investigation of numerical pre-to-posttest

523   differences. Lastly, striving to establish an empirical connection between our observations and

524   recent evidence on BoPo's self-related effects (Cohen et al., 2019a; Stevens & Griffiths, 2020), we

525   added a measure of participants' body self-esteem to this second experiment.

526   Based on our theoretical underpinnings and the evidence gathered in Experiment 1, we

527   hypothesized that body-positive content would again result in a stronger diversification of body

528   shape ideals than the comparison condition (mirroring H1 of Experiment 1). In addition to that, we

529   now assumed:

530   **H4:**   Following the exposure to BoPo (vs. fitspiration) content, participants will show

531   a stronger increase in body self-esteem.

532   Apart from these main research propositions, we further incorporated a more exploratory

533   research focus into the current study, taking inspiration from the framework of *lateral attitude*

534   *changes* (Glaser et al., 2014). Here, we pursued the question whether BoPo's persuasive effects

535   might reach beyond body-related outcomes, and also result in more favorable attitudes towards

536   social diversity in general terms.

537   **Lateral Attitude Change**

538   According to psychological research, people's explicit attitudes (i.e., their conscious

539   evaluations of different concepts, objects, and people) form an intricate network: Not only do they

540   depend on currently available mental propositions, but they also influence each other in a sensitive

541 way (Bohner & Dickel, 2011; Gawronski & Bodenhausen, 2006). In line with this understanding,

542 studies have shown that attempts to change one attitude may actually ripple out towards other,

543 related attitudes as well (e.g., Alvaro & Crano, 1997; Pérez & Mugny, 1987)—a phenomenon that

544 has later been termed *lateral attitude change* (LAC; Glaser et al., 2014).

545 Considering the topic at hand, we note that even though body-positive media typically

546 address physical appearances, they often touch upon broader issues of societal diversity as well. As

547 such, academic literature underscores that BoPo is inextricably entangled with the empowerment of

548 different genders, ethnicities, and sexual identities (e.g., Cwynar-Horta, 2016; Johansson, 2021;

549 Leboeuf, 2019). In this vein, the movement also shows notable overlap with other important anti-

550 prejudice endeavors (such as "Black Lives Matter" or Pride), finding common ground via its

551 emphasis on diversity, community, and self-acceptance (Hockin-Boyers & Clifford-Astbury, 2021;

552 Zavattaro, 2021).

553 As a matter of fact, the idea that BoPo might also be effective regarding other social

554 domains is also corroborated by social psychological insight. After all, literature suggests that

555 different forms of prejudice still plaguing modern society—e.g., racism, sexism, ageism, or fat-

556 phobia—might actually be underpinned by a common *intolerance schema*, i.e., a general tendency

557 to be more or less accepting of social minorities (Aosved et al., 2009). A rather similar argument is

558 proposed by *social dominance theory* (Sidanius et al., 2004), which proposes that people show a

559 relatively stable disposition to form and support (or disregard) group-based hierarchies. While this

560 is in no way supposed to imply that the experiences and hardships of different marginalized groups

561 may be equivalent, both theories offer firm arguments as to why body-positive content might reach

562 beyond its appearance-related effects. As such, we hypothesized:

563 **H5:** Following the exposure to BoPo (vs. fitspiration) content, participants will show a

564 stronger improvement of their attitudes towards social diversity.

565   Additionally, we examined several variables that might influence BoPo's effects on both

566   focal (i.e., body-related) and lateral (i.e., diversity-related) attitudes. First, we acknowledged one of

567   the most well-known propositions about social influence, namely that a persuasive attempt will be

568   much more effective if recipients do not yet feel strongly about the respective topic (i.e., show low

569   *attitude strength*; Pomerantz et al., 1995). Applying this notion to both concepts addressed in our

570   study, we assumed:

571   **H6:** After viewing BoPo content, the observed effects regarding **(a)** body shape ideals, **(b)**

572   body self-esteem, and **(c)** social diversity will decrease with participants'

573   corresponding attitude strength.

574   In their review of the LAC framework, Glaser et al. (2014) further suggested that

575   individuals' *need for consistency*—which can be understood as a dispositional preference for

576   forming consistent beliefs and cognitions (Cialdini et al., 1995)—plays a crucial role for lateral

577   persuasion. Based on this, we proposed the following hypothesis:

578   **H7:** After viewing BoPo content, the lateral attitude change (regarding social diversity) will

579   increase with participants' need for consistency.

580   Lastly, an additional hypothesis on so-called displacement effects (i.e., attitudinal changes

581   that only apply to the lateral but not the focal concept) was developed and investigated as part of a

582   separate exploratory research effort. The corresponding analysis and results are presented in

583   Supplementary Material S6.

584   **Method**

585   Similar to Study 1, the second experiment was preregistered on the AsPredicted platform

586   (https://aspredicted.org/QYR_HIG). All obtained data and analyses codes may be obtained from the

587   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 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 seconds; $n = 5$). In consequence, our final sample consisted of 266 participants (age $M = 26.12$ years; $SD = 9.69$; 262 female, 4 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 in a gift raffle of $2 \times €25$; 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 pre-test 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.

612   Subsequently, both groups were presented with four Instagram posts matching their condition,

613   depicting either body-positive or neutral design content. To ensure proper engagement with the

614   provided posts, we added a pre-programmed timer function to our online questionnaire, so that

615   participants had to view each post for at least 10 seconds before they were able to proceed.

616   Compared to Experiment 1, our measurement of participants' exposure to each of these posts

617   revealed similar viewing times ($M = 24.0$ seconds versus 28.9 seconds in Experiment 1). In terms of

618   cumulative exposure, however, the smaller number of stimuli naturally resulted in a much lower

619   mean duration of 96.2 seconds (median: 81.5 seconds; range: 44–988 seconds)—nearly half of the

620   time measured in the first experiment. Following this treatment, we carried out a second

621   measurement of the three dependent variables, before providing questionnaires on the need for

622   consistency, and lastly, sociodemographic and control variables.

623   *Social Media Stimuli.* Striving to replicate the findings from Study 1 under different

624   conditions, we assembled new social media materials for our second experiment. In particular, we

625   opted for a briefer treatment this time around, selecting only four posts for each of the two

626   experimental groups. Regarding the BoPo stimuli, we used the same Instagram search procedure as

627   before, which provided us with four posts depicting overweight women from different ethnic

628   backgrounds in an aesthetic and positive manner. Conversely, four posts marked with the hashtag

629   #interiordesign were chosen for the control condition—since we deemed this topic to be completely

630   unrelated to questions of diversity (yet representative of typical Instagram content). In another

631   modification compared to the previous study, we composed the photo captions in both conditions

632   ourselves this time around, striving for slightly longer messages (up to 80 words with three to six

633   hashtags and one to six emojis added). This approach was chosen to increase the textual similarity

634   between both conditions—and to give us the opportunity to sharpen the caption's focus in the body-

635   positive condition on BoPo core themes (e.g., a positive mindset, self-acceptance).

636   ***Body Shape Ideals.*** As in Study 1, the female version of the FRS by Stunkard et al. (1983)

637   was used to measure participants' body-related ideals based on nine graphical body shapes. Again,

638   the total number of body shapes served as our main indicator for the breadth of participants' body

639   shape ideals. Further echoing our previous effort, we also looked into the mean selected body shape

640   as a second dependent variable (even though it was not explicitly preregistered for this experiment).

641   ***Body Self-Esteem.*** As a measure of participants' body-related self-esteem, we employed the

642   well-established Body Appreciation Scale (BAS-2; Tylka & Wood-Barcalow, 2015), which consists

643   of ten items (e.g., "I feel love for my body") presented on 5-point Likert scales. A [*LANGUAGE*

644   *ANONYMIZED*] translation was created using a backtranslation method. Internal consistency turned

645   out excellent for both uses of the measure (Cronbach's α = .94 and .95).

646   ***Views on Social Diversity.*** For many different types of group-related attitudes and biases

647   (e.g., sexism, racism), validated measures may be obtained from literature. In contrast to this,

648   however, we did not come across any suitable instrument for our purpose of assessing views

649   towards social diversity as an overarching attitude. As such, we assembled our own seven-item

650   *views on social diversity* index, taking inspiration from previous prejudice research (Pettigrew,

651   1997). Specifically, we addressed six crucial aspects of societal diversity (i.e., in terms of age,

652   gender, sexual orientation, socioeconomic background, religion, and ethnicity), asking participants

653   to rate their openness towards these criteria (e.g., "I accept all forms of socioeconomic

654   background."; "Religion and worldview do not affect how I choose my friends."). Furthermore, one

655   item with high face validity ("I am completely open towards the diversity of people.") was added to

656   complete the index. The resulting measure—which showed acceptable internal consistency in both

657   its pre- and post-treatment application, especially considering its broad conceptual range

658   (Cronbach's α = .65 and .75)—can be consulted in the project's OSF repository.

659   *Attitude Strength.* We created a brief set of items on participants' attitude strength regarding

660   the three main outcome variables in our study: Beauty ideals (one item; "My idea of societal beauty

661   ideals is very fixed."), body self-esteem (one item; "I am completely certain as to how I see my own

662   body"), and views on social diversity (two items averaged to a composite score; e.g., "I think I have

663   a very strong, developed opinion about diversity.").

664   *Need for Consistency.* The Preference for Consistency Scale (Cialdini et al., 1995) provides

665   a well-established measure of people's disposition to strive for consistent attitudes and cognitions.

666   Utilizing the short form PFC-B, we translated its nine items (e.g., "I make an effort to appear

667   consistent to others") to [*ANONYMIZED*] and presented them to participants using five-point Likert

668   scales. Our translation of the PFC-B yielded good reliability, Cronbach's α = .77.

669   **Results**

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

671   ***Effect of Shown SNS Content on Body Shape Ideals***

672   In the first step of our statistical analysis, we focused on the observed changes in

673   participants' body shape ideals—operationalized via the mean body shape and total number of body

674   shapes selected in the FRS—depending on our experimental manipulation. To this end, we first

675   calculated the difference values between pre- and post-test measurement for both variables, before

676   entering the resulting difference scores into independent t-tests. By these means, we found that the

677   type of shown social media content (BoPo vs. control) had indeed resulted in different changes

678   regarding the mean selected body shape, $t(216.01) = 3.29$, $p < .001$, Cohen's $d = 0.40$ (95% CI

679   [0.16, 0.64]), and the total number of selected body shapes, $t(215.19) = 3.73$, $p < .001$, Cohen's $d =$

680   0.45 (95% CI [0.21, 0.69]). As the numerical group differences in Table 2 show, participants in the

681   BoPo condition not only showed a stronger shift towards a heavier body ideal, but also increased

682   the number of selected shapes significantly more than those exposed to neutral control content.

683   Offering a graphical overview of our results, Figure 2 juxtaposes the chosen FRS shapes (as well as

684   the obtained pre-posttest differences) for both conditions. As this graph shows, body-positive

685   content resulted in a much more notable change between our two measurements than the neutral

686   condition, which yielded nearly the same scores. Hence, we report additional support for the main

687   hypothesis from our first experiment (H1).

688   *Effect of Shown SNS Content on Body Self-Esteem*

689   Second, we proceeded to investigating potential group differences in the observed change of

690   participants' body self-esteem. Again, a difference score (subtracting the pre- from the posttest

691   result) was calculated and entered into an independent t-test. Doing so, we found that participants'

692   body self-esteem had indeed changed to a significantly different extent in both conditions, $t(264) =$

693   3.09, $p = .002$, Cohen's $d = 0.38$ (95% CI [0.14, 0.62]). As expected, those presented with BoPo

694   content showed a stronger improvement of their body self-esteem after the social media content

695   than participants who had merely viewed neutral design posts (see Table 2 for numerical results).

696   As such, hypothesis H4 on the self-related benefits of body-positive Instagram content was also

697   supported by our data.

698   *Lateral Attitude Change*

699   To examine BoPo's potential to change broader views on societal diversity, we compared

700   the average difference scores in the *views on social diversity* index between the BoPo and control

701   condition with another independent t-test. Unlike what we anticipated, both groups showed nearly

702   the same change (or lack thereof) regarding this variable, $t(264) = .05$, $p = .962$, Cohen's $d = 0.01$

703   (95% CI [–0.24, 0.25]). Referring readers to the descriptive data in Table 2, we report that our

704   hypothesis on LAC was not supported by the current experiment.

705   In response to our hypotheses H6 and H7—which proposed several variables that might

706   influence the attitude changes after viewing body-positive content—we conducted three moderated

707   regression analyses, using the obtained difference scores (i.e., change in body shape ideals, body

708   self-esteem, and views on social diversity) as respective criteria. In all of these analyses, we first

709   entered the grouping variable (dummy-coded) and the corresponding level of attitude strength

710   (mean-centered) as predictors. For the regression focusing on social diversity views, need for

711   consistency was further added as a centered predictor. Subsequently, interaction terms were added

712   in a second step. Looking at the change in R^2, we observed no significant effects of the proposed

713   moderators (see Supplementary Material S7 for detailed results). Therefore, neither of the

714   developed hypotheses can be answered affirmatively.

715   *Exploratory Mediation Analysis*

716   Based on our significant findings regarding participants' body shape ideals (H1) and body

717   self-esteem (H4), we conceived of an additional step during our statistical analyses, which was

718   subsequently carried out in an exploratory manner. More specifically, a mediation model was

719   developed, in which the increased number of selected body shapes (i.e., the main indicator for

720   participants' broadening body ideals) served as a mediator between the SNS treatment and the

721   observed change in body self-esteem. Employing the PROCESS macro by Hayes (2017) with

722   10,000 bootstrap intervals, we indeed observed a significant indirect effect (Figure 3) of the social

723   media treatment via the change of body shapes marked as ideal on the change of body self-esteem,

724    $B = -0.03$ (95% CI [–0.06, –0.01])—mirroring the conceptual relationship described in our

725   introduction.

726   **Discussion**

727   In our second experiment, we revealed additional evidence emphasizing BoPo's potential to

728   alter societal body-related beauty ideals. First and foremost, we replicated the noteworthy

729   diversification effect from our first study under different conditions, showing that an even briefer

730   exposure to BoPo (for an average time of one-and-a-half minutes instead of nearly three) still

731   sufficed to broaden participants' appearance-related standards, and to shift their ideals towards a

732   slightly heavier body shape. In addition to that, we observed significant benefits for people's own

733   body esteem—resembling evidence from recent research (e.g., Cohen et al., 2019a)—and connected

734   both outcomes in an exploratory mediation model. Taken together, these findings suggest that the

735   angle pursued by the current project might indeed present the future for BoPo-related research: By

736   shifting their attention towards socially relevant constructs such as comparison standards and

737   norms, scholars may get a better handle on the intricate effects of this digital media phenomenon,

738   both self- and other-related.

739   From a more critical perspective, however, we note that our research interest in the LAC

740   framework was not very fruitful during this first exploration of its kind. In contrast to the

741   considerable changes that were found regarding our focal topics (body shape ideals and body self-

742   esteem), the exposure to BoPo content hardly affected participants' open-mindedness towards

743   social diversity in general—in fact, nearly as little as viewing neutral interior design posts. At first

744   glance, this suggests that the persuasive power of body-positive messages might be more domain-

745   specific than initially assumed; on the other hand, it should be pointed out that any null findings in

746   this regard might also be contingent on specific aspects of the current study, such as our decision to

747   combine participants' attitudes about various forms of social diversity into one composite measure.

748   Arguably, more nuanced assessments (e.g., on specific types of prejudice) or a stronger focus on

749   immediate interpersonal judgments might help to reveal lateral persuasive effects of BoPo after all.

750   **General Discussion**

751   The concept of an ideal female body has a long—and arguably problematic—history, even

752   though its specifics have often changed across time and cultural borders (e.g., Bonafini & Pozzili,

753   2010). In the modern era, mass media are considered to play a major role in shaping body ideals

754   (e.g., Thompson et al., 1999), yet they have been criticized for disseminating a uniform picture of

755   thinness as the only ideal body shape for women. Likewise, social media such as Instagram or

756   TikTok have drawn strong criticism for propagating ideals of skinny body shapes as the only

757   desirable standard, potentially to an even stronger degree than traditional media (Döring et al.,

758   2016).

759   At the same time, millions of users on social media have created and fostered a trend aimed

760   at broadening the concept of the beautiful body: #bodypositivity. Extending prior theory and

761   research, we pursued the idea that social media portrayals of human diversity increase the range of

762   people's body-related ideals, along with shifting the ideal mean body towards a heavier shape. Two

763   online experiments with different control groups and stimuli supported our assumption, showing

764   that female participants exposed to BoPo selected more body shapes and, on average, a less thin

765   body to describe their understanding of an ideal physique. Moreover, the changes observed in these

766   more abstract standards also predicted an increased feeling of being comfortable in one's own

767   body—which implies that by changing perceptions of female attractiveness, body-positive content

768   indirectly affects how women perceive themselves.

769   For researchers interested in body-related media effects, we believe that the current work

770   carries a notable theoretical implication. Specifically, our findings underscore that scholars may be

771   advised to look beyond *average* body ideals to gain a comprehensive understanding of people's

772   bodily perceptions. Especially when examining new interventions that strive to overcome thin-ideal

773   standards, progress may not exclusively be measured in terms of shifting means; instead, with our

774   society being increasingly invested in matters of diversity and inclusivity, the decisive outcome

775   might be two-fold—establishing a less skinny ideal, while also fostering favorable attitudes towards

776   a broader range of different bodies.

777   As our research has added a new angle to the scientific examination of BoPo's merit, it

778   seems worth noting that sociocultural improvements can happen in various, often unexpected ways.

779 After all, the fact that social media—an innovation often perceived negatively by the general

780 public—may contribute to potentially healthier and more inclusive body ideals highlights that

781 societal progress does not rest in a technology per se, but rather in the hands of those who use it to

782 improve the situation of others. Assuming that the effects found in our two experiments generalize

783 towards other contexts and study designs as well, digital BoPo might find itself in a unique position

784 to foster societal transformations: By modifying internalized principles of beauty towards diversity,

785 it could tackle unfair appearance-related advantages that still persist in many areas of social life. In

786 turn, this could have important downstream consequences, leading to less social comparison

787 processes, higher well-being, a lower drive for unhealthy thinness, and fewer attempts at attaining a

788 skinny body via disordered eating behavior.

789 **Limitations and Future Directions**

790 　　Our main results are based on two preregistered experiments that involved two different

791 designs (random assignment with post-exposure measurement only or pre- and post-exposure

792 measurement) and two different control conditions (fitspiration or neutral content). In light of this,

793 we believe that our finding of consistent effects across both studies lends noteworthy support to the

794 proposed claims. At the same time, several limitations need to be noted. First, participants' body

795 ideals were measured mainly as explicit attitudes, which opens up our results to questions of social

796 desirability—even though we hope that the anonymous nature of our online experiments somewhat

797 mitigated this bias. Furthermore, we would like to point out that our research was limited to brief,

798 one-time exposure (in the matter of minutes); although single episodes of BoPo exposure may

799 repeat in people's daily lives, possibly leading to a cultivation of appearance-related standards

800 (Stein et al., 2021), long-term effects should definitely be substantiated by additional research (e.g.,

801 involving delayed measurements). As such, we strongly encourage additional studies that focus on

802   the stability of the evoked effects in order to establish them as an actual, persistent change of body

803   ideals.

804   Second, like much of the research in the media effects literature, we presented media stimuli

805   irrespective of the users' own selection processes. At the current time, little is known about stable

806   characteristics (e.g., gender role self-concepts) or situations (e.g., identity threat) that predict a

807   stronger preference for BoPo social media content. Based on the rich knowledge on media choice

808   (Knobloch-Westerwick, 2015), future research is encouraged to fill this research gap. Furthermore,

809   we note that our research was limited to one-time exposure and the measurement of short-term

810   effects. Without a doubt, longitudinal studies on the interplay between BoPo exposure and body

811   standards appear to be a particularly relevant next step.

812   Addressing a third methodological limitation, we note that our sample consisted only of

813   women (and, in the case of Experiment 2, four non-binary participants), with most of them

814   belonging to the young adult age group. While we have no reason to assume that the found effects

815   would be reduced or even absent for other age brackets, we still encourage future research to

816   replicate our experiments with younger or older participants. Moreover, as pointed out in a recent

817   meta-analysis (Saiphoo & Vahedi, 2019), gender differences in the media's impact on body image

818   disturbance seem to be diminishing in the digital age—so that extending our work to male

819   participants is a much-needed next step for future research. In the same vein, we would like to

820   underscore that the current research cannot offer insight into the specific experiences of non-binary

821   individuals; although we decided to be more inclusive of these participant groups in our second

822   experiment, the extremely low number of people indicating their gender as "other" prevented us

823   from conducting any relevant analyses. In a research field that remains notoriously fixated on the

824   life reality of majority groups, we argue that this should not be sidelined, but taken as inspiration for

825   important additional research.

826   Proceeding to questions of media modality, it may be kept in mind that although the BoPo

827   movement is currently most prevalent on social media, other media channels provide BoPo content

828   as well. This includes non-fictional and fictional literature, BoPo content on TV, or body-confident

829   musicians (e.g., Coyne et al., 2021). Presumably, getting to know diverse body standards from

830   different sources might be related to an additional diversification effect, assuming that this might

831   strengthen the cognitive availability of the respective ideals. In that sense, investigations on

832   intertextuality and related effects appear promising. Likewise, we want to point out that our work

833   focused exclusively on observing social media content produced by others. However, social media

834   users are, to a varying degree, also producers of content, which may then be shared with peers,

835   friends, or strangers. Based on this, it might be worthwhile to investigate how producing body-

836   positive content (e.g., as a photographer or model) also affects people's concept of ideal bodies—or

837   if it predicts even stronger effects.

838   Finally, from a more critical perspective, we note that the concept of body positivity itself

839   has recently come under scrutiny by several sociological and feminist scholars, who have argued

840   that contemporary BoPo efforts remain wrongfully fixated on physical appearances, failing to

841   disrupt issues of self-objectification and self-sexualization (e.g., Clark, 2023; Darwin & Miller,

842   2020). According to this work, it might be more important to aspire to genuine 'body neutrality'—

843   i.e., shifting away focus from physical attributes or concepts of beauty altogether. In all probability,

844   tapping into body neutrality literature could inform valuable extensions of our research; as a matter

845   of fact, diversification effects such as the one shown in our experiments might actually foreshadow

846   a reduced emphasis on physical attributes in society, very much in the sense of this body-neutral

847   perspective.

848   **Conclusion**

849   When judging others and themselves, humans rely on comparison standards and ideals,

850   including the concept of the perfect body shape. During the previous century, Western societies

851   have developed a potentially unhealthy standard of overly thin bodies as the only desirable ideal,

852   especially for girls and young women—and social media have now taken on an important role in

853   disseminating this problematic notion. However, they can have a positive impact as well: Two pre-

854   registered studies show that body-positive online media have the power to shift and broaden users'

855   concepts of beautiful body shapes. Thus, setting apart our work from decades of prior body image

856   research, we found that attempts to overcome restrictive body ideals may not only succeed by

857   shifting averages, but also by fostering a more diverse understanding of physical beauty.

858   Empirically, this observation was only made possible by complementing the typically mean-

859   focused approach with an adapted measure of body ideal diversity. For the future of body-related

860   media and communication research, this might ultimately constitute a superior approach: After all,

861   it is more inclusive to make more (instead of different) bodies seem attractive—and researchers

862   might want to evaluate effects, processes, and interventions accordingly.

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Table 1

Descriptive Statistics for the Dependent Variables in Study 1

Variables	BoPo condition (n = 96)		Fitspiration condition (n = 95)	
	M (SD)		M (SD)	
Body ideals: Mean selected body shape[1]	4.29 (0.75)		3.92 (0.82)	
Body ideals: Number of selected body shapes[1]	2.93 (2.34)		2.27 (1.84)	
Photo rating task: Average weight rating[2]	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[3]	3.76 (0.57)	3.52 (0.73)	3.55 (0.69)	3.63 (0.67)
Relationship scenario: Physical attraction[3]	3.76 (0.66)	3.41 (0.75)	3.83 (0.60)	3.47 (0.68)

Note. [1] Measured with the 9-point Figure Rating Scale. [2] Averaged score across 36 photo ratings, ranging from 1 to 5. [3] Scale range from 1 to 5.

Table 2

Descriptive Statistics for Dependent Variables in Study 2

Variables	BoPo condition (n = 137)			Control condition (n = 129)		
	M (SD)			M (SD)		
	Pre-test	Post-test	Δ	Pre-test	Post-test	Δ
Body ideals: Mean selected body shape[2]	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[2]	4.09 (2.28)	4.54 (2.22)	**+0.45 (1.02)**	3.75 (3.67)	3.83 (2.02)	**+0.08 (0.57)**
BAS-2 Body Appreciation Scale[1]	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[1]	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. [1] Scale range from 1 to 5. [2] Measured with the 9-point Figure Rating Scale.

Figure 1

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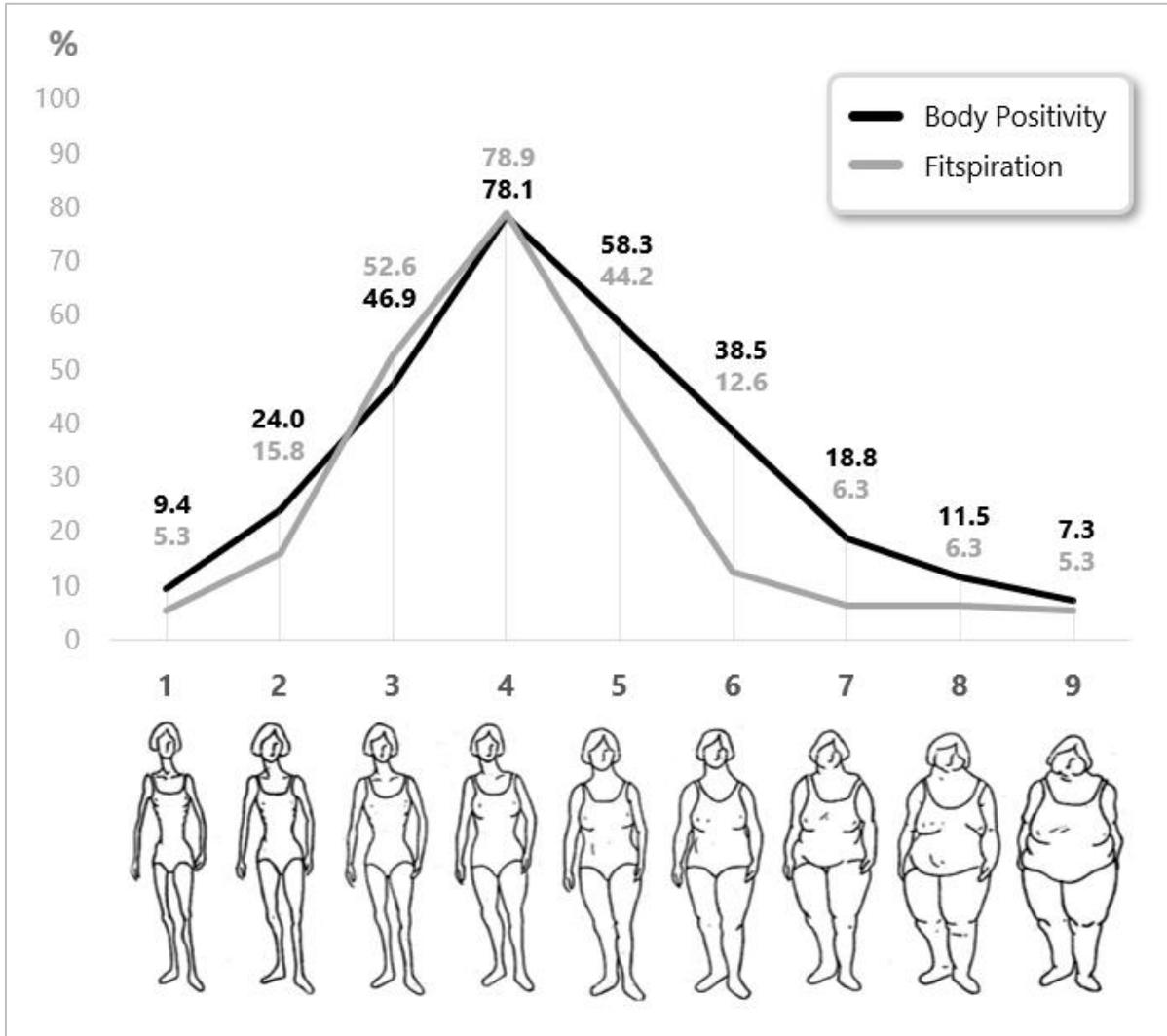(N = 191)*

Figure 2

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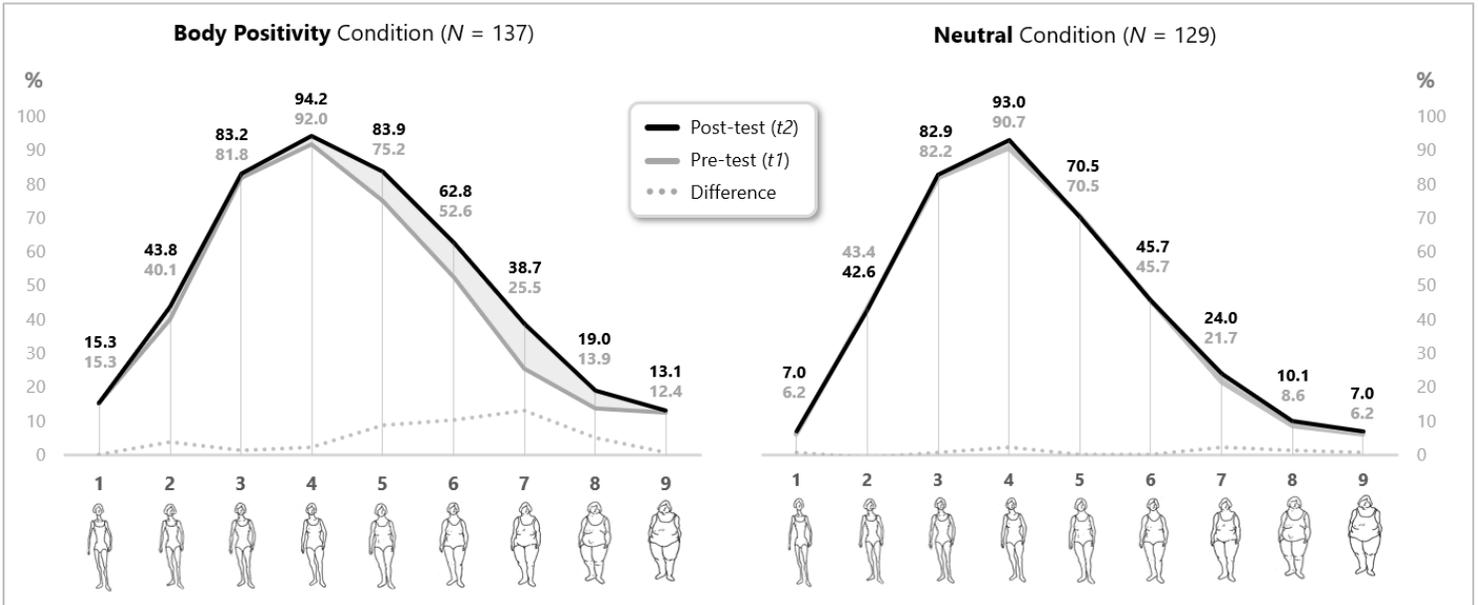

Figure 3

Mediation Model Developed in Study 2. Presented are Unstandardized Regression Coefficients, with Associated Standard Errors in Parentheses. (* p < .05, ** p < .01, *** p < .001)