Original Article

Power, Self-Esteem, and Body Image

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Abstract: We expected power – the perceived capacity to influence others – to be an antecedent of positive body image because power is closely linked to self-esteem, which in turn is linked to body image. In a cross-sectional study (N = 318), sense of power was positively related to body appreciation and satisfaction with one's appearance. Self-esteem partially mediated this effect. In an experimental study (N = 114), participants assigned to a high-power group indicated more body appreciation, reported more body satisfaction, and estimated themselves to be taller than participants assigned to a low-power group. Self-esteem mediated all the effects. Altogether, power affected body image directly but also indirectly through elevated self-esteem. Implications refer to clinical prevention and intervention programs.

Keywords: power, self-esteem, body height, personal sense of power, narcissism

Power – the perceived capacity to influence others – changes how people think and feel (Guinote, 2017). It is a fundamental force that can account for social and intrapsychic processes (Keltner et al., 2003). As power dynamics are of major importance in everyday life and affect human functioning at various levels (Pratto, 2016), it is likely that they also affect how individuals perceive and appreciate their physical appearance. Indeed, power has been extensively linked to specific body positions and people's perceptions of their own height (Carney et al., 2005; Hall et al., 2005; Körner, Röseler, et al., 2022). To complement this evidence, we studied whether power can also change a person's appreciation of their own body.

In general, people strive for positive self-perception and want to feel good about themselves (Taylor & Brown, 1988). Regarding one's body, moreover, respecting and appreciating various qualities and functions of the body are associated with several desirable correlates, such as life satisfaction, physical health, and less stress (Davis et al., 2020; Lobera, 2011). Yet, the factors that positively impact body image have only partially been identified (Piran, 2015; Tylka & Wood-Barcalow, 2015a). Whereas factors such as sexual orientation (Frederick & Essayli, 2016), attachment styles (Cash et al., 2004), or nature exposure (Swami et al., 2019) have been considered as antecedents, to the best of our knowledge, one important factor that has not yet been investigated is power. The present study is aimed at closing this gap by testing whether the experience of power is associated with body appreciation and body height. Self-esteem, which has been linked to both power and body perception, can be expected to mediate this relationship.

Conceptualizing Power

Power is most often defined as control over valued resources (Emerson, 1962; Keltner et al., 2003) or influence over other people (Dahl, 1957). Power can be differentiated into whether people actually possess power or whether they feel they have power. The first can be understood as *structural power* and can be manipulated through role assignment. The latter is called *personal sense of power* (Anderson et al., 2012) and describes an individual's perceived ability to influence others. Sense of power can be based on but can also be independent of sociostructural characteristics and may actually be more predictive of various outcomes than the actual possession of power (Bugental et al., 1997).

Sense of power can be assessed as a stable trait (e.g., Schmid, 2018) or as a situation-specific state measure (e.g., Anderson et al., 2012). When manipulating power, researchers typically aim to instill a sense of power in participants (Tost, 2015) and test its downstream consequences. Clearly, the experience of power has effects on various spheres of life. It activates the behavioral approach system (Anderson & Berdahl, 2002), increases confidence (see Briñol et al., 2017), increases authenticity and well-being (Kraus et al., 2011), and impacts perception (Lee & Schnall, 2014). Overall, power energizes the thoughts and behaviors

that are in line with the aims and values of the actor (Guinote, 2017; Keltner et al., 2003), an effect that also suggests that underlying dispositions may have stronger effects when a person has power. Thus, the effects of power and dispositions may interact to bring about certain outcomes.

Power and Body Image

To date, researchers who have studied power in relation to body-related measures have focused only on body height. Apparently, observers associate power with vertical expansion (Schubert, 2005). In this vein, terms in our daily language that refer to height (e.g., up, top) are associated with power (Giessner & Schubert, 2007). Thus, power differences have also been referred to as the vertical dimension of relationships. Tall people are more likely than short people to be seen as potential leaders (Blaker et al., 2013), and individuals in managerial positions on average are taller than other employees (Egolf & Corder, 1991). Furthermore, body height has been reported to be positively correlated with sociostructural power characteristics, such as income or workplace success (Judge & Cable, 2004), and researchers have found that independent of participants' gender, experimentally induced power feelings lead participants to underestimate the size of others (Yap et al., 2013) and to overestimate their own body height in comparison with an inanimate object, their actual body height, and the height of an avatar in a video game (Duguid & Goncalo, 2012). Thus, there is evidence that power is linked to perceptions of body height.

Yet, body height is only one of various components of overall body image. A positive body image (which is considered distinct from a negative body image or components of overall body image such as body height) encompasses body appreciation, body acceptance and love, perceived beauty, appearance-related self-care, inner positivity, and filtering information in a body-protective manner (Tylka & Wood-Barcalow, 2015a). Body appreciation is considered the most central component of a positive body image (Tylka & Wood-Barcalow, 2015b), and this centrality is why we chose to focus on this component in the present study.

Body appreciation is characterized by seeing value in the features, functionality, and the health of one's body (Tylka & Wood-Barcalow, 2015a). Like personal sense of power, body appreciation can be measured as a state or as a trait. There is evidence that body appreciation is malleable: For example, a dissonance-based body image intervention and self-compassion meditation training were found to increase body appreciation (Halliwell et al., 2015).

Can experiencing power also increase body appreciation? We think so because power changes one's perception (Guinote, 2017; Lee & Schnall, 2014; Wang et al., 2018). For example, high-power participants judged boxes to be less heavy than low-power participants did (Lee & Schnall, 2014). Such effects do not seem to be restricted to the physical environment but are relevant to the evaluation of one's own physical properties (see Duguid & Goncalo, 2013). Moreover, influential individuals are perceived to be competent and confident (e.g., Anderson & Kilduff, 2009), and participants in expansive body positions, which signal power, are perceived to be more attractive (Vacharkulksemsuk et al., 2016). Thus, it seems plausible that not only powerful others are rated as more attractive than others but also an actor's power might activate such self-perceptions and boost body satisfaction and appreciation. Yet, most importantly, we believe that power affects body image because the experience of power increases self-esteem (e.g., Körner et al., 2021; Wojciszke & Struzynska-Kujalowicz, 2007).

Self-Esteem as a Mediating Mechanism

On a broad level, power leads to confidence (see Briñol et al., 2017). Correlates and consequences of power (e.g., touching others, action orientation, breaking social norms) are often rooted in confidence (e.g., Carney et al., 2005; Galinsky et al., 2003; Guinote, 2017). Increases in confidence through power may be explained by learning experiences. When observing powerful others, people may observe disinhibited behaviors and confidence and associate these behaviors with power. In this vein, studies have shown that participants who experience high power report higher confidence than those who experience low power (Briñol et al., 2007, 2009). Similarly, Wojciszke and Struzynska-Kujalowicz (2007) previously stated that "power and self-esteem go together" (p. 472). Experimental (Körner et al., 2020, 2021; Wojciszke & Struzynska-Kujalowicz, 2007) and correlational findings (Anderson et al., 2012; Körner, Heydasch, et al., 2022; Körner, Schütz et al., 2022; Wang, 2015) have shown that power is positively related to self-esteem. Therefore, we postulate a power–self-esteem hypothesis: Due to their ability to influence others and get their way as well as due to learning experiences, powerful people experience high overall self-esteem. In fact, self-esteem can be seen as a proximal mechanism of power, contributing to consequences such as agency (see Guinote, 2017). Yet, past research has tested whether power increases self-esteem without testing for the downstream consequences of such an increase in self-esteem.

Self-esteem is the positive global evaluation of the self (Baumeister, 1998). Having self-acceptance, self-respect, and self-worth protects against stress, anxiety, and social comparisons (e.g., Greenberg et al., 1992) and is an indicator

of well-being (Orth & Robins, 2022; Ryff, 1989). Thus, it seems plausible that self-esteem is also related to body perceptions in a positive way, and a great deal of research has actually shown relevant associations: In adolescents and adults, self-esteem has been found to be positively associated with body appreciation (Lobera, 2011; Tylka & Wood-Barcalow, 2015b). Self-esteem was also negatively associated with body dissatisfaction (van den Berg et al., 2010). Finally, patients with body dysmorphic disorder were reported to have lower explicit as well as implicit self-esteem than nonclinical individuals (Buhlmann et al., 2009). However, as always with nonexperimental data, causality could be reversed or there could be a bidirectional relationship between self-esteem and body image. Nonetheless, we expected body image to be a consequence in this research because of the following findings.

In clinical research, low self-esteem is seen as a risk factor for many body-related disorders (Polivy & Herman, 2002), and meta-analytical findings have supported the notion that low self-esteem is a precursor to eating disorders (Colmsee et al., 2021). In nonclinical intervention studies, self-related variables, such as self-compassion and self-esteem, have been reported to predict body satisfaction (e.g., Seekis et al., 2017, 2020). Low self-esteem is considered a risk factor for body image concerns, whereas high self-esteem is seen as a protective factor in developing a positive body image. Therefore, self-esteem interventions are often used to target body dissatisfaction and internalizations of a thin ideal (see O'Dea, 2004). In a longitudinal study with schoolgirls, low self-esteem predicted the development of eating problems 4 years later (Button et al., 1996). In another study with adolescents, self-esteem mediated the effect of an intervention that targeted body satisfaction (Armitage, 2012). Altogether, past cross-sectional, experimental, and longitudinal research indicates that self-esteem can predict body image. Thus, we expected self-esteem to be a mediator of the relationship between power and body image.

Yet, the effects of power may vary with stable dispositions (Chen et al., 2001; ten Brinke & Keltner, 2022). We assumed that inflated self-esteem, that is, narcissism (Foster et al., 2003), may be relevant to the power–body image relationship because people with exceedingly positive self-views may report an overall positive body image independent of the experience of power. Indeed, narcissism has been linked with a heightened desire for power (Carroll, 1987), but this desire has not necessarily been found to match the subjective sense of being powerful (Anderson et al., 2012). Thus, people with high levels of narcissism might maintain their grandiose self-views (e.g., regarding their body) even when they do not feel powerful in a specific situation. In fact, a key feature of narcissism is the positive evaluation of oneself across situations (Raskin & Terry, 1988). This argument dovetails with research showing that narcissists are less susceptible than others to situational influences (Byrne & Worthy, 2013). In other words, the body image of narcissistic people should be high overall, regardless of the respective condition – that is, even when they are in a low-power position.

Theoretical Relevance

This research is relevant to Objectification theory (Fredrickson & Roberts, 1997). Objectification means that someone views less powerful people as a means to meet their own goals or needs. People lacking self-determination and agency are considered more likely to become targets of objectification (Nussbaum, 1999). As power is positively associated with self-determination, agency (Anderson et al., 2012), and self-esteem, it is possible that power may also buffer people against becoming the target of objectification.

Valuing others only for their physical appearance and treating them as sexual objects is considered sexual objectification (Fredrickson & Roberts, 1997). When people have been the target of sexual objectification, they also tend to accept these views (Loughnan et al., 2017). Such self-objectification is negatively associated with self-esteem and body appreciation (Veldhuis et al., 2020). By contrast, when people experience power and in turn heightened self-esteem, their self-perception regarding their body may also change. Consequently, self-objectification, which has negative implications for health (e.g., Woodward et al., 2017), may be less frequent.

Studying power in relation to body image also provides a way to tentatively test aspects of the Developmental Theory of Embodiment (Piran & Teall, 2012). This theory proposes three domains that are relevant to a positive body image: physical freedom, mental freedom, and social power. Social power, which resembles the idea of personal sense of power (i.e., having influence, experiencing freedom, and being able to implement decisions), is most relevant to the present research and includes experiences of freedom due to not being confronted with prejudice, being treated fairly regardless of one's appearance, and being able to resist oppressive forces (Piran, 2015). Still, the other domains are related to power too: Safety and the connection to desire and pleasure (physical domain) are linked to power because power is linked to being able to satisfy pleasure motives (Keltner et al., 2003). Freedom of voice and action regardless of appearance (mental domain) pertain to power because power is associated with action tendencies and with behaving freely (Galinsky et al., 2003). As Piran (2015) wrote, "girls who are raised in social environments that nurture their assertive voice,

power, passionate involvement in meaningful activities, and freedom to act in the world assertively have a more positive body image" (p. 152). Thus, the experience of social power should be particularly relevant to a positive body image. As power can be linked to consequences such as an action tendency (Galinsky et al., 2003), promotion focus (Keltner et al., 2003), and self-esteem (Wojciszke & Struzynska-Kujalowicz, 2007), the experience of power should also be relevant for the other two domains described in the Developmental Theory of Embodiment.

Overview

We conducted two studies (one cross-sectional, one experimental) to investigate the effects of power on body height perception, body satisfaction, and body appreciation. First, we aimed to test whether powerful people describe themselves as taller than others. Second, we aimed to identify power as a potential antecedent of body satisfaction and body appreciation. Third, we tested whether self-esteem is a mediator of the power–body image link.

Power is a sociorelational construct, and the question of how body image is shaped by social aspects is important (Tylka & Wood-Barcalow, 2015a). Moreover, if power is an antecedent of positive body image, power could function as a protective factor in developing positive body perceptions. Finally, the current research provides a test of the role of power in Objectification theory (Fredrickson & Roberts, 1997) because this theory suggests that self-objectification marked by a lack of power is related to negative appearance evaluations. Altogether, our studies should contribute to the power literature by expanding the variables that power can predict. Our studies will also contribute to the body image literature by helping to provide a more complete understanding of variables that are related to body image.

Study 1

In this cross-sectional study, we assessed personal sense of power as a trait (see Anderson et al., 2012) to study whether generalized feelings of power are related to body image. Sense of power has been shown to be predictive of various outcomes and to be more relevant than objective power (Bugental et al., 1997; Körner & Schütz, 2021). Moreover, experienced power is the variable that is relevant for interventions, as it is easier to increase someone's sense of power in coaching or therapy (Huang et al., 2011) than to change a person's objective circumstances. We expected that sense of power would be positively associated with perceived body height (Hypothesis 1), body appreciation (Hypothesis 2), and satisfaction with one's body (Hypothesis 3). We expected self-esteem to mediate the associations between power and body satisfaction (Hypothesis 4a), body appreciation (Hypothesis 4b), and body height (Hypothesis 4c). In an exploratory fashion, we tested whether narcissism would moderate the power–body image relationship. The study was pre-registered (https://aspredicted.org/blind.php?x=ez3gg5), and the hypotheses, sample size, scales, and data analytic strategy were specified before the data were collected. All data are available at https://osf.io/vfnyh/.

Method

Participants and Procedure

Participants were recruited from two German universities and via social media. Overall, 320 individuals completed this study. Two participants were excluded because they had implausibly fast processing times (Leiner, 2019).[1] The final sample comprised 318 participants. As the results did not differ between the full sample and the pre-registered sample size (300), we used the larger sample. Due to a programming error, demographic data were available for only two-thirds of the sample (data were compiled from two projects). Of these participants, 22% were male and 78% were female, with a mean age of 22.98 years (SD_{age} = 7.22, range: 18–68).

The online survey began with questions about demographic data; followed by the scales for narcissism, power, and self-esteem; and finally, the body image-related measures. The survey took around 20 min to complete.

Measures

Power was measured with the trait version of the German Personal Sense of Power Scale (Anderson et al., 2012; Körner, Heydasch, et al., 2022). The six items (e.g., "My ideas and opinions are often ignored") are rated on a scale ranging from 1 to 7 (= *strongly agree*). Strict measurement invariance across sex has been demonstrated for the scale as well as satisfactory construct validity and high temporal stability (Körner, Heydasch, et al., 2022). The Cronbach's α coefficients for the present study are presented in Table 1. In addition, we report McDonald's ω total by using the robust maximum likelihood estimator (MBESS package in R; Kelley, 2018).

[1] Results hardly differed when the excluded participants were retained in the analyses (see the Online Supplement).

Table 1. Study 1: Descriptive statistics, Cronbach's α coefficients, McDonald's ω coefficients, and zero-order correlations for power, self-esteem, narcissism, and body-related measures

Variable	*M*	*SD*	1	2	3	4	5	6
1. Power	4.72	0.92	.82/.83					
2. Self-esteem	4.24	1.05	.54***	.94/.94				
3. Body satisfaction	6.22	1.73	.40***	.63***	.82/.82			
4. Body appreciation	3.61	0.80	.46***	.71***	.76***	.93/.93		
5. Perceived body height	4.92	2.00	.02	.01	.01	−.02	—	
6. Narcissism	2.48	0.83	.21***	.18**	.14*	.20***	.05	.73/.74

Note. Cronbach's α/McDonald's ω coefficients are presented on the diagonal. $p < .05$, two-tailed. $^{**}p < .01$, two-tailed. $^{***}p < .001$, two-tailed.

The short form of the Multidimensional Self-Esteem Scale (*MSES*; Rentzsch et al., 2021) consists of 24 items (e.g., "Do you have a positive attitude toward yourself?") and was used to measure trait self-esteem. Some items are assessed with respect to intensity (1 = *not at all* to 7 = *very much*), some with respect to frequency (1 = *never* to 7 = *very often*). The items capture the following six topics: self-regard, social contact, social criticism, performance self-esteem, physical appearance,[2] and physical ability.

Two scales were used to measure aspects of body image: The Body Image State Scale (*BISS*; Cash et al., 2002) is a six-item measure of momentary evaluative and affective experiences involving one's own body. Responses were given on a 9-point scale (e.g., "Right now, I feel… extremely/mostly/moderately/slightly dissatisfied; neither dissatisfied nor satisfied; slightly/moderately/mostly/extremely satisfied with my physical appearance"). For the present study, we used trait instructions ("In general, I feel…"). Furthermore, the Body Appreciation Scale-2 was used (BAS-2; Tylka & Wood-Barcalow, 2015b). The scale assesses the acceptance of favorable attitudes toward one's body with 10 items (e.g., "I respect my body"). A 5-point scale was used.

To assess perceived relational body height, we developed a 10-point pictorial measure and refer to this as the Body Height Scale (BHS). The conception of the scale was based on a pictorial body image scale by Petersen (2005) and addresses perceptions of oneself in relation to others. However, we did not vary body fat or muscularity but only body height. The BHS showed 10 silhouettes of a gender-neutral avatar (created in MakeHuman Version 1.1.0, 2016) in ascending order with respect to body height. Participants were instructed to tick the avatar that best described their body height in relation to the other silhouettes.

Narcissism was measured with the Narcissistic Admiration and Rivalry Questionnaire (*NARQ*; Back et al., 2013). The total score for the NARQ was computed. High scores reflect the strong motivation of maintaining a grandiose self. A sample item is, "I deserve to be considered a great person." Answers were given on a scale ranging from 1 (= *strongly disagree*) to 6 (= *strongly agree*).

Data Analysis Strategy

We used SPSS version 25, Mplus version 7, and PROCESS version 3.3 (Hayes, 2012) for the data analyses. We tested self-esteem as a mediator of the effect of power on all three dependent variables simultaneously in Mplus. Unstandardized regression coefficients (*b*) and one-tailed bootstrapped 95% Confidence Intervals ($k = 5{,}000$ samples) are reported. For the direct, indirect, and total effects, partially standardized effect sizes (*ps*) were computed in PROCESS. They indicate the change in standard deviations on the criterion for a one-unit increase in the predictor. In an exploratory fashion, we tested the moderating role of narcissism using Model 1 in PROCESS. One-tailed *p*-values are reported due to the directional nature of the hypotheses.

Results

Descriptive statistics for and correlations between all variables are provided in Table 1. In line with Hypothesis 1, power was positively associated with the *BISS* ($b = 0.16$, $p = .045$). In line with Hypothesis 2, power was positively associated with the *BAS-2* ($b = 0.08$, $p = .016$). Contrary to Hypothesis 3, there was no significant association between power and the *BHS* ($b = 0.05$, $p = .354$).

Next, we tested whether self-esteem mediated the relationship between power and body image. Regarding the *BISS*, sense of power affected both the mediator and the outcome (see Table 2). The bootstrapped 95% CI of the indirect effect did not include zero [0.44, 0.77], which suggests that power had an increasing effect on the *BISS* through self-esteem. As both the direct and total effects were

[2] Note that the results hardly changed when the analyses were conducted without the physical appearance self-esteem subscale to minimize construct overlap between self-esteem and body satisfaction (see the Online Supplement).

Table 2. Study 1: Results of mediation analyses predicting body-related variables (*Y*) from power (*X*) mediated by self-esteem (*M*)

Effects	*b*	*SE*	*p*	95% CI	Effect size *ps*
Body satisfaction					
$X \rightarrow M$ (a)	0.62	0.06	<.001	[0.50, 0.73]	
$M \rightarrow Y$ (b)	0.96	0.09	<.001	[0.74, 1.14]	
$X \rightarrow Y$ (c′)	0.16	0.10	.045	[−0.03, 0.35]	0.10
Indirect ($a \times b$)	0.60	0.08	<.001	[0.44, 0.77]	0.34
Total (*c*)	0.76	0.10	<.001	[0.55, 0.96]	0.44
Body appreciation					
$X \rightarrow M$ (*a*)	0.62	0.06	<.001	[0.50, 0.73]	
$M \rightarrow Y$ (*b*)	0.50	0.04	<.001	[0.42, 0.58]	
$X \rightarrow Y$ (c′)	0.08	0.04	.016	[0.01, 0.16]	0.10
Indirect ($a \times b$)	0.31	0.04	<.001	[0.24, 0.39]	0.39
Total (*c*)	0.40	0.05	<.001	[0.31, 0.48]	0.49
Perceived body height					
$X \rightarrow M$ (*a*)	0.62	0.06	<.001	[0.50, 0.73]	
$M \rightarrow Y$ (*b*)	−0.01	0.13	.461	[−0.28, 0.25]	
$X \rightarrow Y$ (c′)	0.05	0.14	.355	[−0.23, 0.33]	0.03
Indirect ($a \times b$)	−0.01	0.08	.462	[−0.17, 0.16]	0.00
Total (*c*)	0.04	0.12	.354	[−0.19, 0.27]	0.03

Note. *p*-values are one-tailed.

significant and the 95% CI did not include zero, self-esteem was found to be a partial mediator of the power–*BISS* relationship. This finding provides support for Hypothesis 4a.

In line with Hypothesis 4b, personal sense of power indirectly affected the *BAS-2* through self-esteem (see the 95% CI in Table 2, [0.24, 0.39]). Both the total effect and the direct effect were significant, which suggests that self-esteem partially mediated the relationship between power and the *BAS-2*.

Last, for perceived body height, the indirect effect did include zero in the bootstrapped 95% CI [−0.17, 0.16], which shows that self-esteem did not mediate the relationship between power and the *BHS* (see Table 2). This finding was contrary to Hypothesis 4c.

Narcissism was not a moderator. The effect of the interaction between power and narcissism did not have a significant effect on the *BISS* ($p = .229$), *BAS-2* ($p = .405$), or *BHS* ($p = .087$).

Discussion

This study is the first to directly study power in relation to body image. The hypotheses that power is positively associated with body appreciation and satisfaction with one's appearance were supported. Both relationships were partially explained by self-esteem. Yet, with respect to the other research question, there was no association between personal sense of power and body height. Despite experimental evidence of a strong relationship between size and power (Duguid & Goncalo, 2012), we did not find a relationship. Notably, other reports found trait sense of power and sociostructural power characteristics to be unrelated to body height (Heineck, 2005; Körner, Heydasch, et al., 2022). Perhaps only strong manipulations that instill strong feelings of power have the capacity to change self-perception so that individuals perceive themselves to be taller. We tested this assumption in the next study. Furthermore, we tested our hypotheses in an experimental design.

Study 2

Study 2 was designed as an experiment to assess whether differences in people's perceived positive body image depend on induced power. A scenario task was used as a power manipulation because such tasks have been found to reliably induce a sense of power (Galinsky et al., 2003). We expected that participants in the high-power group would indicate higher body height (Hypothesis 1), higher body appreciation (Hypothesis 2), and higher body satisfaction (Hypothesis 3) than participants in the low-power group. Self-esteem was hypothesized to mediate the effect of power on measures of body image (Hypotheses 4a–c). The study was pre-registered (https://aspredicted.org/blind.php?x=zt5gz8). Again, in an exploratory fashion, narcissism was tested as a moderator of the relationship between power and body image.

Method

Participants

Participants were recruited online via university mailing lists, social media, and fora. A total of 122 participants completed the study. Eight participants were excluded because they gave implausible answers on the power manipulation task or had implausibly fast processing times (Leiner, 2019).[3] The final sample comprised 114 individuals (66% female, 33% male, 1% diverse). They were 30 years old on average (*SD* = 13.85, range: 18–66). Participants lived all over Germany. The majority of the sample

[3] The results hardly differed when the excluded participants were also part of the analyses (see the Online Supplement).

comprised university students (59%), and 36% were employed.

Procedure

We used a cover story to avoid demand effects. Participants were told that they were participating in a study on the relationship between specific life events and self-perception. They did not know that there were two experimental groups. Furthermore, we did not employ a manipulation check for the power induction to avoid priming the topic of power. Moreover, in previous research, the manipulation had reliably produced differences in participants' sense of power (d = 1.613 for the difference between high and low power with 52 participants; d = 2.254 with 202 participants; Körner et al., 2023).

After providing demographic data and completing a questionnaire on narcissism, participants were randomly assigned to a high- or low-power group. In the high-power group, participants were asked to imagine that they were in a leadership position of a student-led consultancy and had received applications from potential student employees. They were able to decide which applicants would be invited and to generate questions for the job interview. Participants in the low-power group were asked to imagine that they had applied for a job at the student-led consultancy and that they very much needed a job to pay their expenses. They were instructed to write a letter of application. Then, they had to wait for a response and were finally rejected. The manipulations contained the same situation (a job at the consultancy) for participants in both groups, but specific features were varied. The features that were varied were aligned with the typical tasks and environments that would go with a high-power person (listing the requirements, being in an employed position) or a low-power person (making a request/writing a letter of application, being unemployed; Keltner et al., 2003).

Afterward, participants completed questionnaires on self-esteem and body image. After the data were collected, participants were debriefed via email.

Measures

The same questionnaires that were used in Study 1 were used to measure body image and narcissism (α = .77, ω = .78). The reliabilities are presented in Table 3.

To measure self-esteem, we used the State Self-Esteem Scale (SSES; Rudolph et al., 2020), which has been shown to be sensitive to experimental manipulations and does not measure trait self-esteem such as the *MSES* from Study 1 does. For example, the SSES scores have been found to be impacted by experimental manipulations (e.g., Chansiri & Wongphothiphan, 2021; Körner et al., 2021; Rudolph et al., 2020), and thus, we felt the instrument would be useful for detecting the effects of our power manipulation. With 15 items (e.g., "I am worried about looking foolish"), the scale captures performance-, social-, and appearance-based dimensions of self-esteem. Answers were given on a scale ranging from 1 (= *strongly disagree*) to 5 (= *strongly agree*).

Data Analysis Strategy

As pre-registered, the effect of power on body image was tested using ANCOVAs that controlled for age and gender. The results are reported along with difference values (D) indicating the absolute difference between the high- and low-power groups. The mediation hypotheses were tested as in Study 1. The low-power group was coded 1, and the high-power group was coded 2. We computed partially standardized effect sizes (*ps*), which indicate the change in the standard deviations of the indirect, total, or direct effect when the predictor increases by one unit (i.e., when it changes from low power to high power). As in Study 1, we tested narcissism as a potential moderator. If an interaction term was significant ($p < .05$, one-tailed), conditional effects were reported for the 16th (low), 50th (medium), and 84th (high) percentiles. Again, one-tailed p-values were reported for the hypothesis tests.

Results

Descriptive statistics for and correlations between the dependent variables and self-esteem are presented in Table 3. In line with Hypothesis 1, we found a medium-sized effect of power on the *BISS*, $F(1, 110) = 14.22$, $p < .001$, $\eta_p^2 = .11$, with higher values for participants in the high-power condition than for those in the low-power condition (D = 1.04, SE = 0.28). Also, Hypothesis 2 was supported, as participants in the high-power group scored higher on the *BAS-2* than those in the low-power group, $F(1, 110) = 6.96$, $p = .010$, $\eta_p^2 = .06$ (D = 0.34, SE = 0.13). Regarding the *BHS*, $F(1, 110) = 7.63$, $p = .007$, $\eta_p^2 = .07$, as expected, values for participants in the high-power condition were higher than values for participants in the low-power condition (D = 1.10, SE = 0.40). Effect sizes for the *BAS-2* and *BHS* were also medium in size.

Next, we tested for whether self-esteem mediated the relationship between power and body image. Regarding the *BISS*, the independent variable (power manipulation) affected both the mediator and the outcome (see Table 4). The bootstrapped 95% CI of the indirect effect did not include zero [0.20, 1.03], which suggests that power increased body satisfaction through self-esteem. As both the direct and total effects were significant and zero was not included in the 95% CIs, self-esteem was a partial mediator of the power–*BISS* relationship.

Table 3. Study 2: Descriptive statistics (*M*, *SD*s), Cronbach's α coefficients, McDonald's ω coefficients, and zero-order correlations for self-esteem and body-related measures

	Low power		High power					
Variable	*M*	*SD*	*M*	*SD*	Group	1	2	3
1. Self-esteem	3.17	0.81	3.59	0.59	.29**	.92/.91		
2. Body satisfaction	5.33	1.64	6.45	1.39	.35***	.67***	.87/.89	
3. Body appreciation	3.48	0.74	3.86	0.67	.25**	.69***	.76***	.93/.93
4. Perceived body height	4.86	1.87	6.19	2.44	.28**	.49***	.56***	.44***

Note. Cronbach's α/McDonald's ω coefficients are presented on the diagonal. *p < .05, two-tailed. **p < .01, two-tailed. ***p < .001, two-tailed.

Table 4. Study 2: Results of mediation analyses predicting body-related variables (*Y*) from power (*X*) mediated by self-esteem (*M*)

Effects	*b*	*SE*	*p*	95% CI	Effect size *ps*
Body satisfaction					
$X \rightarrow M$ (*a*)	0.42	0.14	.002	[0.14, 0.69]	
$M \rightarrow Y$ (*b*)	1.38	0.18	<.001	[1.01, 1.71]	
$X \rightarrow Y$ (*c'*)	0.55	0.24	.011	[0.07, 1.01]	0.35
Indirect (*a* × *b*)	0.58	0.21	.003	[0.20, 1.03]	0.37
Total (*c*)	1.13	0.30	<.001	[0.54, 1.70]	0.72
Body appreciation					
$X \rightarrow M$ (*a*)	0.42	0.14	.002	[0.14, 0.69]	
$M \rightarrow Y$ (*b*)	0.69	0.10	<.001	[0.48, 0.88]	
$X \rightarrow Y$ (*c'*)	0.09	0.12	.230	[−0.16, 0.30]	0.12
Indirect (*a* × *b*)	0.29	0.10	.003	[0.11, 0.51]	0.40
Total (*c*)	0.37	0.14	.004	[0.10, 0.63]	0.52
Perceived body height					
$X \rightarrow M$ (*a*)	0.42	0.14	.002	[0.14, 0.69]	
$M \rightarrow Y$ (*b*)	1.48	0.24	<.001	[0.99, 1.96]	
$X \rightarrow Y$ (*c'*)	0.72	0.41	.041	[−0.11, 1.50]	0.31
Indirect (*a* × *b*)	0.62	0.25	.007	[0.21, 1.21]	0.27
Total (*c*)	1.34	0.41	.001	[0.52, 2.12]	0.57

Note. *p*-values are one-tailed.

Power indirectly affected the *BAS-2* through self-esteem (see the 95% CI in Table 4, [0.11, 0.51]). Whereas the total effect was significant, the direct effect of power on the *BAS-2* was not significant. Thus, self-esteem fully mediated the relationship between power and the *BAS-2*.

Finally, the high-power manipulation led to higher values on the *BHS* than the low-power condition did – by augmenting self-esteem in participants. The total and direct effects were significant, and the indirect effect did not include zero in the bootstrapped 95% CI [0.21, 1.21], which shows that self-esteem partially mediated the relationship between power and the *BHS* (see Table 4). Altogether, the results of mediation analyses supported Hypotheses 4 a–c.

Exploratory analyses that tested whether narcissism moderated the effect of power on body image revealed no significant interaction for the *BISS* (p = .057) or the *BHS* (p = .195). Yet, the interaction between narcissism and the *BAS-2* was significant and negative, $F(1, 110) = 3.17$, p = .039, one-tailed, and explained 2.58% of the variance in the criterion. The overall model explained 10.37% of the variance in the *BAS-2* scores. Simple slope analyses showed significant effects of power on the *BAS-2* when narcissism was low, $b = 0.56$, 95% CI [0.26, 0.86], $t = 3.08$, p = .003, or medium, $b = 0.35$, 95% CI [0.13, 0.58], $t = 2.60$, p = .011, but not when narcissism was high, b = 0.05, 95% CI [−0.31, 0.40], t = 0.21, p = .835 (see Online Supplement for a figure). These results mean that participants in the high-power group with low or medium levels of narcissism showed higher scores on the *BAS-2* than participants in the low-power group did. Yet, for participants with high levels of narcissism, there was no significant difference in *BAS-2* scores between the two experimental groups.

Discussion

This experiment showed that participants in the high-power group reported higher body satisfaction, body appreciation, and body height than participants in the low-power group did. The effects were due in part to the higher self-esteem of the participants in the high-power group in comparison with the participants in the low-power group. For body appreciation, the difference between people in the high- and low-power groups was fully mediated by self-esteem, which underscores the importance of positive self-evaluations in the power-body-image link. Furthermore, for people high on narcissism, there was no effect of power on body appreciation. It is likely that their self-views were already highly positive, so that it was not possible to increase the impact through the manipulation.

General Discussion

This research aimed to investigate the sometimes assumed but previously untested issue of whether power is a relevant variable in the nomological net of a positive body image. Power has been shown to change perceptual processes (Lee & Schnall, 2014), make people confident (Briñol et al.,

2017), and increase self-esteem (Körner et al., 2021; Wojciszke & Struzynska-Kujalowicz, 2007). Moreover, according to Objectification theory (Fredrickson & Roberts, 1997) and the Developmental Theory of Embodiment (Piran & Teall, 2012), power is an important variable for a positive body image. For these reasons, we had expected that power might also make people more appreciative of their bodies. We measured relational body height as an aspect of overall body image, and we measured body appreciation and satisfaction with one's appearance as aspects of positive body image. Self-esteem was assumed to be a mediating factor in these links. In this way, we aimed to study the link between power and body image directly for the first time and propose self-esteem as a variable that might explain the effects of power on downstream consequences.

Summary of Findings

The findings on body height differed between the studies. Whereas personal sense of power was not significantly associated with height in the cross-sectional study, in the experiment, we found that participants in the high-power group pointed to a taller silhouette to describe themselves than participants in the low-power group did. These findings dovetail with past research. Personal sense of power assessed as a trait was reported to be unrelated to body height (Körner, Heydasch, et al., 2022), whereas research that demonstrated an overestimation of one's body height was experimental (Duguid & Goncalo, 2012). On the basis of these findings, we assume that only a strong experience of high (or low) power has the potential to affect perceptual processes to such an extent that people perceive their physical properties or the size of others in a different way. Furthermore, these effects may be temporary. In everyday life, there are multiple occasions to validate one's relative height, so misperceptions might not persist.

With respect to body appreciation as a broad component of positive body image (Tylka & Wood-Barcalow, 2015a) and satisfaction with one's appearance as another important body image-related variable, the results supported the hypotheses. In both studies, power was positively linked to body appreciation and body satisfaction. Apparently, power is an important antecedent of body image. Even in highly narcissistic people, power was related to positive body image in all but one test. Therefore, we do not consider narcissism to be an important moderator.

Self-esteem mediated the association between power and body image for both measures we employed. In Study 2, the direct effect of power on body appreciation became nonsignificant when self-esteem was added as a mediator. Thus, the impact of power on body image may be due to the strong positive association between power and self-esteem (Körner et al., 2020, 2021; Wojciszke & Struzynska-Kujalowicz, 2007) – a finding that is in line with the fact that self-esteem has repeatedly been reported to be positively correlated with body image (e.g., Lobera, 2011). Thus, the power–self-esteem proposition suggested in the theory section was supported as were the hypotheses describing self-esteem as a mediator of a positive body image.

Theoretical and Practical Implications

Clinical Relevance

Altogether, this is the first study to show power as an antecedent of a positive body image. The results can be viewed as dovetailing with the Developmental Theory of Embodiment (Piran & Teall, 2012) in that social power and power-related proxies were shown to be highly relevant for a positive body image. Power may in fact work as a protective factor against body-related threats. Both a generalized high sense of power and momentary feelings of high power apparently affect body appreciation. In a practical sense, it may be possible to use empowering interventions to promote a positive body image and possibly also help people develop the ability to make decisions and be assertive (Pratto, 2016). People who tend to engage in self-objectification and body surveillance (Fredrickson & Roberts, 1997) may also benefit from the experience of power. Future research could follow-up on the findings presented here and design and test programs with empowering components – particularly in individuals with strong tendencies to engage in self-objectification.

Boundary Conditions

Yet, there are also boundary conditions that are relevant to the results presented here. On the one hand, when people in general think positively about their body[4] and then experience power, this experience can increase their confidence in their body because power typically strengthens a person's reliance on their inner thoughts (Guinote et al., 2012; Weick & Guinote, 2008). A power intervention might thus further strengthen the person's positive body image. On the other hand, people who tend to think negatively about their body and then experience increased self-confidence through the

[4] Note that we mean to refer to positive self-evaluations that are healthy, not exceedingly positive self-views ("grandiosity"), such as the ones that occur with narcissism.

experience of power may be in an incongruent state (Swann et al, 1987). This power-induced self-confidence would not be in line with their pre-existing thoughts (see the self-validation hypothesis; Briñol & Petty, 2003). Consequently, no or a negative effect of power on positive body image may emerge. Future studies could test these assumptions by considering a self-validation approach (Briñol et al., 2009) and assessing trait body image before an experimental manipulation of power. This reasoning also has implications for clinicians who work with patients with a very negative body image. Providing positive thoughts and emotions might be a pre-requisite for obtaining the positive effects of empowerment on body-related perceptions.

Practical Relevance in Nonclinical Settings

Beyond their relevance in therapy, the findings may also extend the understanding of people in positions of power. Indeed, we investigated personal sense of power, but sense of power and actual power are typically correlated (e.g., Anderson et al., 2012), and in Study 2, participants experienced power from a high (or low) position of power. People who attain power in organizations may, due to stereotypes and implicit leadership theories, often be perceived as attractive (Cherulnik et al., 1990) and have a positive body image. In fact, leading positions typically require positive self-views regarding one's performance, social competencies, and even physical abilities and appearance. Imagine leaders who feel uncomfortable with their appearance and worry about how they are perceived – they may be distracted during important interactions or presentations and might thus not be effective. In turn, when people attain a position of power, a positive body image may develop. Future research may test whether people who have a successful career tend to have a positive body image. Of course, and as elaborated in the examples above, such an association could be bidirectional: Power may affect body image, and body image may affect power through self-perception and the perceptions of others and their feedback.

Mediating Mechanisms

Body image researchers have called for a better understanding of mediators in intervention programs (Piran, 2015). We tested and found that self-esteem was a general and important mediator, but there may be other possible pathways from power to a positive body image. The Approach/Inhibition Theory of Power (Keltner et al., 2003) posits that positive emotions are a consequence of power. However, evidence regarding this proposition has been mixed. Some researchers have found positive associations between power and mood (Berdahl & Martorana, 2006), whereas others have not (Galinsky et al., 2003; Smith & Bargh, 2008). Therefore, we do not think that mood would be a relevant alternative mechanism. However, authenticity was reported to be elevated by power (Kraus et al., 2011), and there is initial evidence that links authenticity to body satisfaction in adolescents (Impett et al., 2008). Future research could test authenticity as a possible mediator. Rumination or change in the focus of one's attention could also be relevant. As power is associated with action orientation and implemental thinking (Galinsky et al., 2003), powerful people may be less affected when confronted with threats regarding their appearance. Examining intermediate processes can help to further extend the understanding of how power affects positive body image. This idea is particularly emphasized by the Study 2 findings, which showed that self-esteem fully mediated the power–body appreciation link, but with respect to body satisfaction, there was only a partial mediation – which suggests that additional processes may be relevant.

Yet, with respect to theory building, we were able to demonstrate that the positive effect of power on self-esteem also affects downstream consequences (i.e., body image measures). Upcoming studies should test other consequences of power (e.g., disinhibition) with self-esteem as a mediator. Doing so would strengthen the proposed power–self-esteem hypothesis and provide evidence regarding the question of whether self-esteem is an important aspect of power that needs to be integrated into existing power theories.

Limitations and Future Research Directions

Limitations of this study pertain to the samples we used. In both studies, most participants were university students with only some employees. Testing associations between power and positive body image in community samples, with children, adolescents, or the elderly will help broaden the generalizability of the results. In addition, more gender-balanced samples would allow for tests of gender effects. Although effects of power are typically independent of gender (e.g., Smith & Trope, 2006), it may be useful to test the gender effect for a variable such as body height because height seems to be more important for men than for women (Stulp et al., 2013). As our research showed that power is related to perceived body height and image – future research and theorizing could address the possible relevance of gender in that relationship.

Moreover, we used different study designs (i.e., a cross-sectional design and a between-subjects experiment), but to validate whether power can be a protective factor, it would be exceedingly important to also employ other designs, such as experiments with repeated measurements or diary studies with experience sampling methods. For example, assessing sense of power and body appreciation on consecutive days and employing multilevel analyses

would be informative for analyzing both intraindividual effects (changes within the same person) and interindividual effects (differences between people). Such findings may also be useful to health practitioners and clinical psychologists who aim to create interventions. In addition, such a design would provide insights into whether body image might also affect social power. Indeed, we found that sense of power predicted a positive body image, but bidirectional effects are also certainly possible.[5] Experiments in which self-esteem or body image is manipulated and possible effects on social power are investigated can also speak to possible reverse influences. If a positive body image could also increase confidence and power, interventions could also start by improving a patient's or client's body image.

Furthermore, the power manipulation used in Study 2 has been shown to reliably induce power feelings (i.e., social power), but personal power (i.e., self-efficacy, agency, perceived control; Overbeck, 2010) might also have been influenced. Personal power is strongly positively linked to social power as studied in the present research, but future research might benefit from disentangling the effects of social and personal power image (see, e.g., Lammers et al., 2009) on body. It is possible that the power manipulation also induced failure to a certain extent. Thus, future research could test what specific outcomes are impacted by this and by other power manipulations and whether it may be necessary to adapt the scenario to control for potential confounds.

A final limitation refers to the cross-cultural comparability of the results. The effects of power and self-esteem on body image may depend on cultural factors (Torelli & Shavitt, 2010) because, in individualistic countries, autonomy and free will are emphasized to a greater degree than in collectivistic cultures. A cross-cultural test of the associations between power, self-esteem, and body image would be helpful for gaining insight into such possible differences.

There are several additional avenues for future research: We tested body appreciation as a broad component of positive body image, but there are other important facets. For instance, it might be interesting to test for how power is associated with body acceptance and love, authentic body pride (Castonguay et al., 2015), or filtering information in a body-protective manner. Power is related to changes in cognitive processes (Smith & Trope, 2006), and thus, power may also affect the processing of (appearance-related) media information. Also, personal sense of power is positively correlated with authentic pride, and this association is significantly stronger than the association with hubristic pride (Körner, Heydasch, et al., 2022). Therefore, power may also have a positive impact on authentic body pride. These processes seem likely to be mediated by self-esteem too, as self-esteem is the affective core of authentic pride (Tracy et al., 2009) and is related to the perception of ideal beauty standards (Williams et al., 2014).

Finally, we used cross-sectional and experimental designs to investigate effects of power on body image. Yet, the use of clinical methods, which is typical of prevention or intervention research, will be very helpful to further validate the effect of perceived power on positive body image. For example, researchers could study whether power measured at a first measurement point is a precursor of a positive body image at a second measurement point several years later. To analyze effects of power on self-esteem and body appreciation, a control group could be compared with an experimental group that receives a specific treatment that includes components that increase social power.

Conclusion

Overall, correlational and experimental evidence demonstrated a strong positive relationship between power and body appreciation as well as between power and body satisfaction mediated by self-esteem. The findings are relevant not only for social and personality psychologists who aim to further their understanding of the consequences of power but also for clinicians who aim to understand the antecedents of a positive body image. Therefore, we recommend that practitioners and researchers consider power as a relevant factor for self-esteem and for theories and interventions that address a positive body image.

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[5] Reverse mediation models with body image as a predictor of self-esteem and power can be found in the Online Supplement.

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We have no conflicts of interest to disclose.

Publication Ethics
All procedures performed in studies involving human participants were in accordance with the ethical standards of the national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors. Informed consent was obtained from all participants who were included in the study.

Open Data
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