

**Mind Your Grunt: The Impact of Grunting on Social Perceptions in the Gym**

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### **Abstract**

Grunting is a behavior commonly performed in gyms, especially by males. Previous literature suggested that men grunt in order to be attain social benefits such as being perceived more masculine and dominant. However, there is a lack of empirical evidence demonstrating how a male grunter is really perceived by others. Hence, this study was the first experiment conducted to gain insights into how a man is perceived by those around him when he grunts in the gym, and to investigate if there are any gender differences in perception. This research employed a 2x2 experimental design and examined the effects of grunting on perceptions of masculinity, social dominance, and both physical and social attractiveness. A sample of 327 UK participants, aged 18 to 78, was exposed to a video depicting either a grunting or non-grunting man and subsequently completed a questionnaire. The results were analyzed using a 2-way ANOVA. The findings revealed that grunting diminishes perceptions of masculinity and both physical and social attractiveness while enhancing perceptions of social dominance, the latter particularly among women. This study significantly enhances the theoretical understanding of grunting behavior in gyms and provides practical insights for male gym-goers. The findings suggest that men should carefully consider the potential negative social perceptions associated with grunting when deciding whether to engage in this behavior during their workouts.

*Keywords:* Grunting, masculinity, social dominance, social attractiveness, physical attractiveness, perceptions

## **Mind Your Grunt: The Impact of Grunting on Social Perceptions in the Gym**

Every day, humans articulate their feelings, thoughts, and needs through a complex web of language that has developed throughout evolution. However, some of the most powerful expressions are presented in the form of simple sounds: A sigh signals relief, a groan implies discomfort, and a gasp conveys shock. This thesis delved into one such sound - *grunting* - a low guttural noise often made during physical exertion. It explores its nuances, contexts, and the unspoken messages it carries, specifically within the environment of the gym and when it is performed specifically by men.

The interest in studying grunting specifically in this context - its performance in the gym by men- is twofold. Firstly, it arises from the observation that men predominantly exhibit grunting, which is generally perceived as a normalized behavior, while women engaging in grunting often face social disapproval and reprimand (Lev & Hertzog, 2022; Stahl, 2015). Secondly, the investigation is propelled by the study of Lev and Hertzog (2022) which posited that men utilize grunting as a means to project a specific status or image of masculinity and dominance within the gym environment, thereby reinforcing gender divisions and hierarchies within this setting. However, the authors do not offer sufficient evidence to understand how the grunter is really perceived by others and whether these real perceptions align with his expectations of how he is perceived when grunting. Therefore, a focal point of the current study is to investigate this discrepancy in expected and real perceptions.

Previous research has touched upon factors contributing to gender divisions at the gym (Coen et al., 2018; Johansson, 1996; Salvatore & Marecek, 2010). However, this study uniquely scrutinizes the role of grunting in this intricate dynamic. Specifically, it aims to investigate whether males grunting in the gym are perceived by others as inherently masculine and dominant, as Lev and Hertzog (2022) suggest is the expectation of the grunter. Additionally, this paper delves into the extent to which the grunter is perceived to be socially

and physically attractive by other gym attendees and to explore whether there are any gender differences in perceptions.

## **Grunting**

Previous research has mainly focused on studying the physiological effects of grunting in sports (Callison et al., 2014; Sinnott et al., 2018), or on its function of distracting opponents (Sinnott et al., 2018), but there is growing attention on its psycho-social effects, particularly surrounding its influence on expressions of gender, and gender relations in the gym.

The importance of studying grunting in this context is highlighted once one considers the communicative functions that grunting and vocalization, in general, have been shown to have. For example, grunting has been found to successfully indicate to perceivers a grunter's sex and their levels of distress in tennis matches (Raine et al., 2017), and vocalization is an essential indicator of masculinity and dominance (Wolff & Puts, 2010).

In line with these suggestions, Lev and Hertzog (2022) suggested that men do not start grunting spontaneously in the gym; instead, they are encouraged and socialized by other men to do so as a way of exhibiting masculinity. This brings to attention the importance of understanding grunting within the context of *gender norms*, which are the social rules that inform what is expected based on gender (Cislaghi & Heise 2019). Taken together, previous research suggests that the grunter intends to convey masculinity and dominance; however, whether he is perceived as such by other gym attendees is unclear.

## **Gender Norms: Masculinity and Social Dominance**

### ***Masculinity***

*Masculinity* can be understood as the characteristics that are thought to be typical of men and boys. Traditionally, male gender norms encompass traits such as physical strength, ambition, and leadership (Donnelly & Twenge, 2017). Grunting, considered a manifestation of masculinity in societal norms (Lev & Hertzog, 2022; Schaap & Berkers, 2013), aligns with

these expectations. Lev and Hertzog (2022) indicate that men grunt with a primary goal of demonstrating masculinity and adhering to gender norms, however, their findings yielded insufficient evidence to substantiate the claim that a man is perceived as more masculine when he grunts.

One potential reason for this lack of evidence and why male grunters were not perceived as explicitly masculine is the evolving understanding of gender norms. Increasingly, especially in the Western world, the distinctions between "norm-appropriate" exercises for men and women have blurred (Turnock, 2021). More women engage in weightlifting, traditionally seen as male-dominated, while more men participate in activities like yoga or pilates, traditionally considered feminine. This shift has challenged conventional gender norms and may influence perceptions of masculinity associated with male grunting. This is also reflected in recent policies in some gyms that explicitly forbid grunting as part of their house rules, often on the basis of the behavior being disruptive and unnecessary. Hence, in this study, we aim to explore the relationship between grunting and perceptions of masculinity, without preconceived expectations about the direction of this relationship based on the lack of clarity in previous literature.

### ***Social Dominance***

Lev and Hertzog (2022) categorized grunting as a *hegemonic behavior* in gym environments, suggesting its aim is to uphold male social dominance and perpetuate gender inequalities, particularly targeting women and marginalized male groups such as gay men. *Social dominance*, described as the ability to influence or control others through threat or demand (Copeland & Driskal, 1995), shapes perceptions and evaluations of one's and others' dominance levels, influencing our behaviors and attitudes to navigate social interactions without disadvantage (Watanabe & Yamato, 2015). A possible example of the role of social dominance in shaping grunting behavior is provided by Lev and Hertzog (2022) where they

describe how a physically-inferior man grunting at the gym, readily and swiftly obliged to the request of a physically-superior gym attendee to stop grunting, likely to avoid a disadvantageous confrontation.

Historically, the gym has been male-dominated, but recent shifts in the Western world see women increasingly asserting their presence and challenging athletic and social conventions. Lev and Hertzog (2017) suggested this may pose a threat to men's dominance, prompting hegemonic behaviors like grunting to address this challenge.

While direct evidence in literature linking grunting to dominance communication is lacking, previous studies showed the importance and effectiveness of vocalization in conveying dominance (Hodges-Simeon et al., 2010; Tussing & Dillard, 2000; Wolff & Puts, 2010). Previous research also suggested that vocal masculinity, characterized by low pitch, is pivotal in perceptions of dominance (Wolff & Puts, 2010). Given that grunting produces a low guttural sound, it meets the criteria of vocal masculinity, potentially leading to perceptions of high dominance.

Overall, masculinity and dominance are intertwined traits ascribed to men by traditional gender norms. Given that grunting is historically linked to masculinity and potentially indicates dominance through its low pitch, we expect that grunting is positively associated with perceptions of social dominance.

### **Interpersonal Attractiveness**

Another relevant variable to investigate is *interpersonal attraction*. An individual is considered interpersonally attractive when others hold positive attitudes and evaluations of them. This variable is comprised of three dimensions: a desire to collaborate with a person on a task (task attractiveness), the desire to befriend them (social attractiveness), and finally physical attractiveness, which is an evaluation of physical appearance (Litsa & Bekiara,

2022). This study focuses on two components: Social attractiveness and physical attractiveness.

### ***Social Attractiveness***

Lev and Hertzog (2022) provide a blurry image of how grunTERS are perceived in terms of social attractiveness. The researchers found that grunting can be part of a bonding experience among men in some cases, but it is generally met with disapproval and avoidance by both men and women. To understand this disapproval, we consider the context of the gym, which is essentially a place where people often go to destress, engage in self-improvement, and focus on exercising. It is a shared space where attendees have to be considerate of each other. When a person grunts, it can be seen as a disrespect to those around him, and even make it hard for them to focus on their exercise. Based on this, it can be suggested that participants will not perceive the grunter as socially attractive because people generally do not pursue friendships with people, they find disruptive and disrespectful.

However, based on the literature, it can be expected that there might be a difference in the degree to which men and women evaluate the grunter, with women perceiving the grunter as less socially attractive. This assumption is based on the information that women often intentionally suppress their grunts, as reported by Lev and Hertzog (2022), hence, they may consider grunting as less of a “natural” and uncontrollable behavior, than men, who mostly do not have to suppress their grunts (or even think about it), and therefore evaluate them more negatively.

Taking this into account, I expect that the grunter will on average be perceived as less socially attractive than the non-grunting male, and female gym-goers might especially report low perceived social attractiveness.

### ***Physical Attraction***



In this study, perceptions of physical attraction are considered within the context of heteronormative relations. Thus, while this study measures male participants' evaluations of the male grunter's physical attractiveness, it will focus on female participants' perceptions.

The field of evolutionary psychology posits that women have an inherent adaptive preference for features indicative of health in men, therefore evaluating such features as more physically attractive (Windhager et al., 2011). Following this assumption research suggests that vocal masculinity, which is characterized by low-pitch, suggests dominance, and leads to higher perceptions of physical attractiveness (Wolff & Puts, 2010).

As previously stated, we expect that grunting increases perceptions of social dominance, and so we expect that this leads to perceptions of physical attractiveness. This is important to consider for the following reason: If grunting simultaneously increases perceptions of physical attractiveness and perceptions of dominance, this raises questions regarding the implications this may have, and whether perceptions of physical attractiveness may subtly obscure or minimize the hegemonic intention of the grunt.

In summary, this study investigates whether grunting increases perceptions of physical attractiveness, and expects that grunting will increase perceptions of physical attractiveness through the expected increase in perceptions of social dominance.

### **Current Study**

To summarize, the current study investigates how people perceive a grunting male regarding masculinity, social dominance, and physical and social attractiveness and whether there are any differences between how males and females perceive the male grunter.

Based on the literature reviewed, men may grunt in the gym as an exhibition of masculinity and dominance (Lev & Hertzog, 2022) as part of an overall effort to dominate the space (Coen et al., 2018; Lev & Hertzog, 2022). However, there is insufficient empirical evidence on the influence of grunting in shaping masculinity perceptions. Hence, this study

will first assess the impact of grunting on perceptions of masculinity and with no predetermined direction I hypothesize the following:

**Hypothesis 1.** Male grunters will be perceived as displaying different levels of masculinity as compared to non-grunting males, across both male and female observers.

Secondly, grunting is characterized as low-pitched sound, and studies indicate that such sounds lead to perceptions of higher social dominance, hence I hypothesize that:

**Hypothesis 2.** Male grunters will be perceived as displaying higher levels of dominance as compared to non-grunting males, across both male and female observers.

The literature reviewed provides indication that grunters are in general evaluated less positive and are often perceived as annoying by observers (Lev & Hertzog, 2022). Females may also perceive the grunter as less socially attractive than males. Hence, I hypothesize the following:

**Hypothesis 3.** Male grunters will be perceived as less socially attractive as compared to non-grunting males, across observers, with females evaluating the grunter less positively than males.

Furthermore, the literature suggests that vocalization masculinity (Wolff & Puts, 2010) and dominance (Ahmetoglu & Swami 2012) increase women's physical attraction toward a male. Therefore, based on the expectation that grunting increases perceptions of dominance, I hypothesize that women will perceive the male grunter favorably on physical attractiveness.

**Hypothesis 4.** Male grunters will be perceived as more physically attractive as compared to non-grunting males by female observers.

## **Method**

### **Participants and Design**

We aimed to recruit 320 participants so that we could have 80 participants per cell in the design. A total of 342 participants answered the online questionnaire, all recruited via Prolific ([www.prolific.com](http://www.prolific.com)), and exclusively from the United Kingdom. Fifteen participants were excluded from the study for various reasons: One person declined consent for data processing, eleven individuals withdrew from the study, and three people failed the manipulation check. There were no exclusion criteria for age. Initially, our intention was to exclude respondents who do not frequent the gym. However, due to an error by Prolific, the exclusion was not successful, and consequently, we decided to include these respondents in our analysis. This resulted in a final sample size of  $N = 327$ . The mean age of the remaining participants was 42 years, with a range from 18 to 78 years ( $SD = 12.7$ ). Gender distribution was nearly equal with 49.5% identifying as female, and 50.5% identifying as male.

The study was registered by the Ethical Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen (EC-BSS). This study was pre-registered (AsPredicted #171791). To investigate the relationship between grunting and perceptions of masculinity and other variables, we designed an experiment using a 2x2 design. The independent variables were gender (male vs. female) and grunting (grunting vs. no grunting). Participants were randomly assigned, based on their gender, to either watch a video featuring a man grunting or one without grunting. This allocation resulted in the following conditions: Female and grunting ( $N = 77$ ), female and no grunting ( $N = 85$ ), male and grunting ( $N = 85$ ) and male and no grunting ( $N = 80$ ).

## **Procedure**

Once participants opened the survey, the first thing they saw was a form detailing information about the study and requesting informed consent. Participants had the option to either give or decline their consent, without any consequences for them. Thereafter, the participants were exposed to attention and sound checks. Participants had to fill in the right

digit span to continue the study, to ensure they could hear the sound in the video as well. This was a crucial step, as this research relies on the participant's audition of the target's grunting (or lack thereof). Therefore, it was important to make sure the potential grunting in the video would be properly heard by the participants. Afterwards, the following text was shown: "*Now you will see a video of Jamie working out in the gym. Jamie likes working out at the gym regularly. In this video he is the person wearing a black T-shirt and green shorts. Please now watch the following video carefully. You will answer some questions evaluating Jamie based on his workout.*" Beneath the text the participants could start the video of a man working out in a gym environment.

Participants in the grunting condition were shown the man grunting during exercising and participants in the no grunting condition were shown the exact same video with the exception of the grunting noise. In the no-grunting condition, the man was solely exhaling. After watching the video, participants in both conditions were asked the same questions. When participants went to the next page, they were asked three questions to check if they paid attention. The following questions were: "*What is the name of the man working out?*", "*What is the man wearing in the video?*" and "*Was the man in the video making noisy breathing sounds (i.e., grunting)?*", which served as a manipulation check. After the manipulation check, participants answered questions about the measures outlined below.

On the last page, participants were asked to fill in the following four questions regarding the demographic. Participants were asked about their (1) age, (2) gender, (3) how often they go to the gym, and (4) whether they frequent a mixed-gender gym. Finally, the participants were asked for their Prolific ID, were debriefed about the aim of the study, thanked and paid for their participation in the study.

## **Materials**

To test our hypotheses, a 44-second-long video was created in which a white male, who was 23 years of age, performs four different exercises in strict form: Incline dumbbell bench-press, dumbbell biceps curls, overhead triceps extensions at a cable tower, and back-squats at a smith machine respectively. Each exercise was recorded separately and cut together to create the final video. For each exercise, three repetitions were performed. These exercises were chosen because they are commonly implemented in the male training-regimes, while also prioritizing free weights to foster the association to masculine norms regarding choice of equipment. The weights were chosen in a fashion to justify the grunting noise in the grunting condition, resulting in 22kg, 16kg, 35kg, and 60kg (excluding the weight of the barbell) respectively. The man was filmed from about 2.5 – 3 meters using an iPhone 14 and a tripod. To ensure good audio quality, a separate microphone was used, placed close to the target. The man was filmed from an 80 – 90-degree angle, with the exception of a 135-degree angle used for the back-squat, to ensure that the facial expressions would not influence the grunting vs the no-grunting condition, while still making it possible for the participant to answer questions about the measured variables, e.g., attractiveness. There was no music in the gym, but air-conditioning noise from the building. During some exercises, one person worked out in the background or on the side, to facilitate an authentic atmosphere of a gymnasium as experienced by most gym-goers. Lastly, and most importantly, the video in the grunting and no-grunting condition were exactly the same, with the only difference being the grunting noise, which was edited out after filming.

## **Measures**

The complete list of items for each measure is presented in Appendix A.

### ***Perceived Masculinity***

We aimed to examine the extent to which the participants perceived the target to be masculine. Perceived masculinity was assessed in two ways: Firstly, we made use of the

following self-constructed singular item to assess this construct: “*To what extent do you think [the target] is masculine?*”. The answer options were presented on a scale of 1 - *not at all*; to 7 - *entirely*.

### ***Perceived Traditional Masculinity***

Secondly, we assessed participant’s perceptions of masculinity according to traditional gender norms, through three items derived from the Bem Sex-Role Inventory (BSRI; Bem, 1974). Participants were asked to what extent they rated the man in the video to be (1) “*Assertive*”, (2) “*Independent*”, and (3) “*Ambitious*” ( $\alpha = 0.80$ ). The anchors ranged from 1 - *not at all*; to 7 - *entirely*. The items were averaged to calculate a single composite score for perceived traditional masculinity.

### ***Perceived Social Dominance***

Participants were asked to rate to what extent they consider the target to be socially dominant. The operationalization of this construct was derived from Rodriguez-Santiago et al. (2020)’s study, which assimilated male social dominance to aggressiveness, leadership traits and as being socially central. The items for social dominance ( $\alpha = 0.85$ ) included “*I think this person typically takes on a leadership role in social settings*”. The answer options were presented on a scale of 1 - *strongly disagree*; to 7 - *strongly agree*. All the items were averaged to compute one composite score for perceived social dominance.

### ***Perceived Attractiveness***

Participants were asked to rate the target’s attractiveness. This construct was assessed using 9 items adapted from McCroskey and McCain (1974)’s study measuring interpersonal attractiveness. This measure consisted of three distinct domains: social attractiveness, task attractiveness and physical attractiveness. Participants were asked to indicate to what extent they agree with different statements. The items for social attractiveness ( $\alpha = 0.79$ ) included “*I would like to have a friendly chat with him*”. The items for physical attractiveness ( $\alpha = 0.78$ )

included: “I think the man is handsome”. The items for task attractiveness ( $\alpha = 0.85$ ) included: “I have the feeling that he is a very good weightlifter”. Overall, the construct of attractiveness had a good reliability ( $\alpha = 0.85$ ). The answer options were presented on a scale of 1 - *strongly disagree*; to 7 - *strongly agree*. All the items were averaged to compute one composite score for perceived attractiveness.

### ***Perceived Aggressiveness***

Participants were asked to rate the extent to which they perceived the target to be aggressive. The assessment of this construct was done using a single self-constructed item: “*To what extent do you think [the target] is aggressive?*”. The answer options were presented on a scale of 1 - *not at all*; to 7 - *entirely*.

### ***Perceived SES***

The MacArthur Scale of Subjective Social Status adult version (Adler et al., 2000) was used to measure participant’s perceived SES of the man in the video. Participants were shown a ladder with the numbers zero to ten on it and were told that the ladder represented society. People on top of the ladder are best off in terms of money, education and working the most respected jobs. People on the bottom of the ladder are worse off, so have less money, lesser education and the least respected job or no job. The task participants were shown was: “*Please select the number of the rung that best represents where you think the person in the video (Jamie) stands on the ladder*”. The answers options were presented on a scale from 1 - *ten*; to 11- *zero*.

This study was conducted as a Bachelor’s Thesis project in collaboration with other students, therefore not all constructs are relevant to the current research paper, which assesses the effects of grunting on perceived masculinity, social dominance, physical attractiveness, and social attractiveness.

## **Results**

### **Preliminary Analysis**

As a requirement for the statistical analysis, the assumptions of normality and independence of observations, and homoscedasticity were tested. Visual inspection of normal Q-Q plots confirmed the normality assumption, and independence was assured through the sampling procedure, by procuring a simple random sample. Levene's test of homoscedasticity indicated a violation of the homogeneity of variance assumption for the dependent variable perceived social attractiveness  $F(3, 323) = 2.95, p = .033$ , and the dependent variable physical attractiveness  $F(3, 323) = 3.19, p = .024$ . However, these violations are minor, and ANOVA is robust against these violations, so we continued the analysis.

### **Main Analysis**

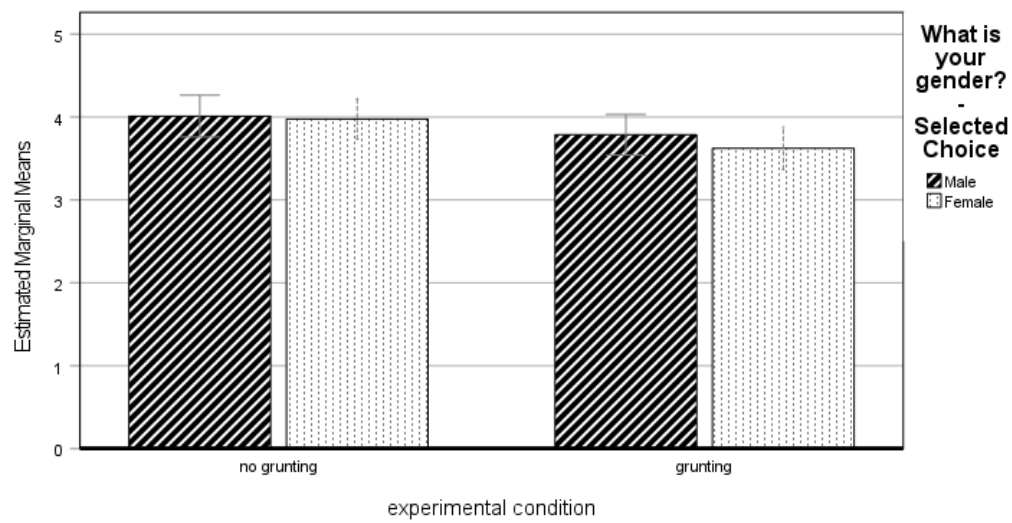
To test the effect of grunting and gender on the outcome variables perceived masculinity, dominance, social attractiveness, and physical attractiveness, we used a series of two-way analysis of variance (2-way ANOVA).

Firstly, the 2-way ANOVA indicated a significant main effect of grunting,  $F(1, 325) = 5.19, p = .023, \eta_p^2 = .016$  on *perceived masculinity*, but no significant main effect of gender,  $F(1, 325) = .628, p = .43, \eta_p^2 = .002$ , nor of the interaction effect of gender and grunting,  $F(1, 326) = .26, p = .612, \eta_p^2 = .001$ . Participants in the grunting condition ( $M = 3.7, SD = 1.16$ ) perceived the male exerciser as less masculine than in the no-grunting condition ( $M = 3.99, SD = 1.13$ ). These results provide support for the hypothesis regarding the effect of grunting on masculinity perceptions. A visual representation of the marginal means per group can be found in Figure 1.



**Figure 1**

*Marginal Means Across Gender and Condition for Perceived Masculinity*



Error bars: 95% CI

Furthermore, we tested perceptions of *traditional masculinity* using Bem's Sex-Role

Inventory: the 2-way ANOVA indicated no significant main effect of grunting,  $F(1, 325) =$

.11,  $p = .74$ ,  $\eta_p^2 = .00$  on perceived masculinity, no significant main effect of gender,  $F(1,$

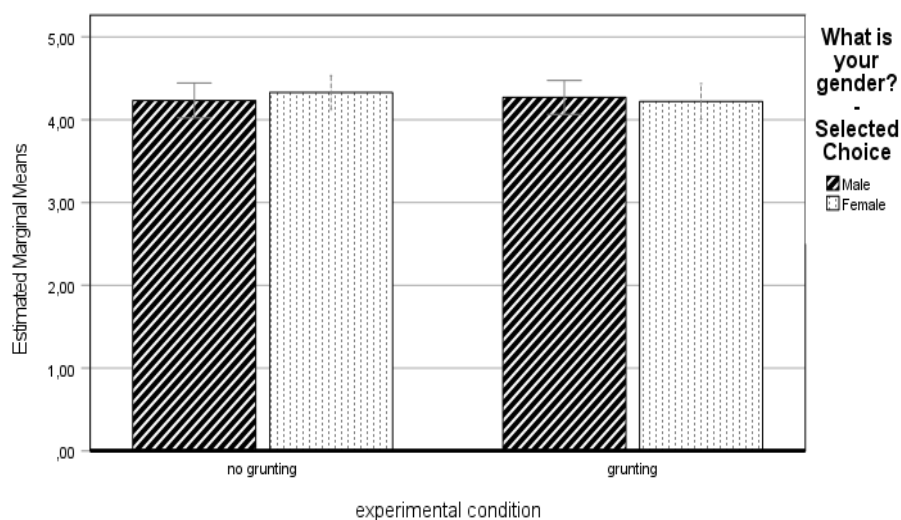
325) = .05,  $p = .83$ ,  $\eta_p^2 = .00$ , nor of the interaction effect of gender and grunting,  $F(1, 326) =$

.47,  $p = .49$ ,  $\eta_p^2 = .001$ . A visual representation of the marginal means per group can be found

in Figure 2.

**Figure 2**

*Marginal Means Across Gender and Condition for Perceived Traditional Masculinity*

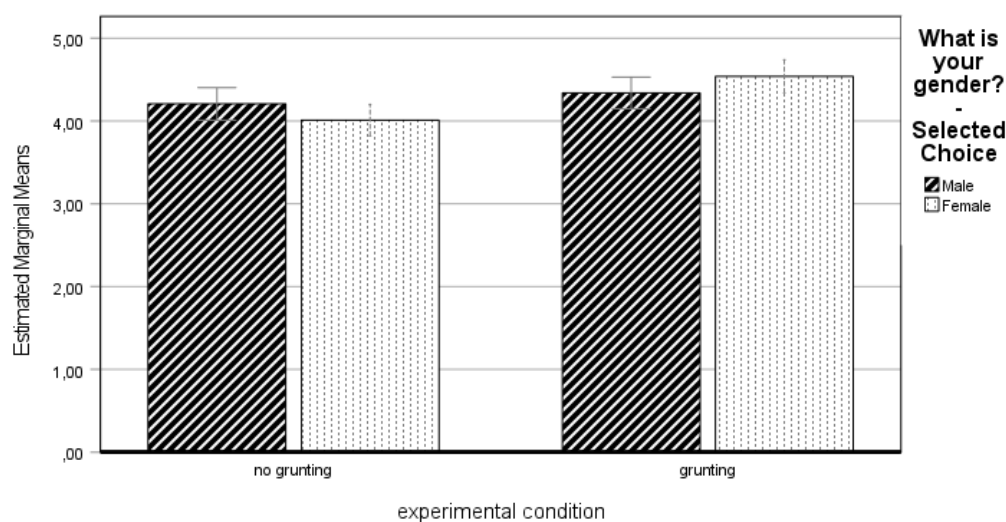


Error bars: 95% CI

Next, a 2-way ANOVA indicated a significant main effect of grunting,  $F(1, 325) = 11.22, p = <.001, \eta_p^2 = .034$  on perceived *social dominance*, but no significant main effect of gender,  $F(1, 325) = .00, p = .986, \eta_p^2 = .00$ . The interaction effect of gender and grunting was also found to be significant,  $F(1, 326) = 4.02, p = .046, \eta_p^2 = .012$ . Participants in the grunting condition perceived the male exerciser as more socially dominant ( $M = 4.44, SD = .83$ ) than in the no-grunting condition ( $M = 4.11, SD = .95$ ). The interaction effect shows that in the no-grunting condition, male participants perceive the male exerciser as more socially dominant ( $M = 4.21, SD = .92$ ) than female participants ( $M = 4.01, SD = .98$ ), but in the grunting condition female participants perceive the male exerciser as more socially dominant ( $M = 4.54, SD = .85$ ), than male participants ( $M = 4.34, SD = .81$ ). These results lend support to the hypothesis regarding the effect of grunting on perceptions of social dominance. A visual representation of the marginal means per group can be found in Figure 3.

**Figure 3**

*Marginal Means Across Gender and Condition for Perceived Social Dominance*

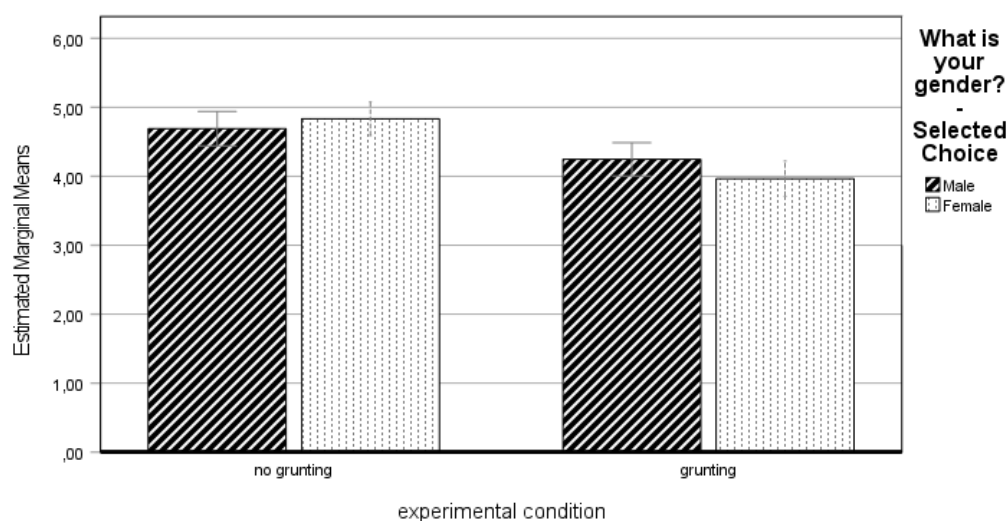


Error bars: 95% CI

Next, a 2-way ANOVA indicated a significant main effect of grunting,  $F(1, 325) = 27.4, p = <.001, \eta_p^2 = .08$  on *perceived social attractiveness*, but no significant main effect of gender,  $F(1, 325) = .30, p = .58, \eta_p^2 = .001$ , nor of the interaction effect of gender and grunting,  $F(1, 326) = 2.87, p = .09, \eta_p^2 = .009$ . Participants in the grunting condition ( $M = 4.11, SD = 1.15$ ) perceived the male exerciser as less socially attractive than in the no-grunting condition ( $M = 4.77, SD = 1.12$ ). These results lend support to the hypothesis regarding the effect of grunting on perceptions of social attractiveness, however, they do not support the hypothesized difference based on gender. A visual representation of the marginal means per group can be found in Figure 4.

**Figure 4**

*Marginal Means Across Gender and Condition for Perceived Social Attractiveness*



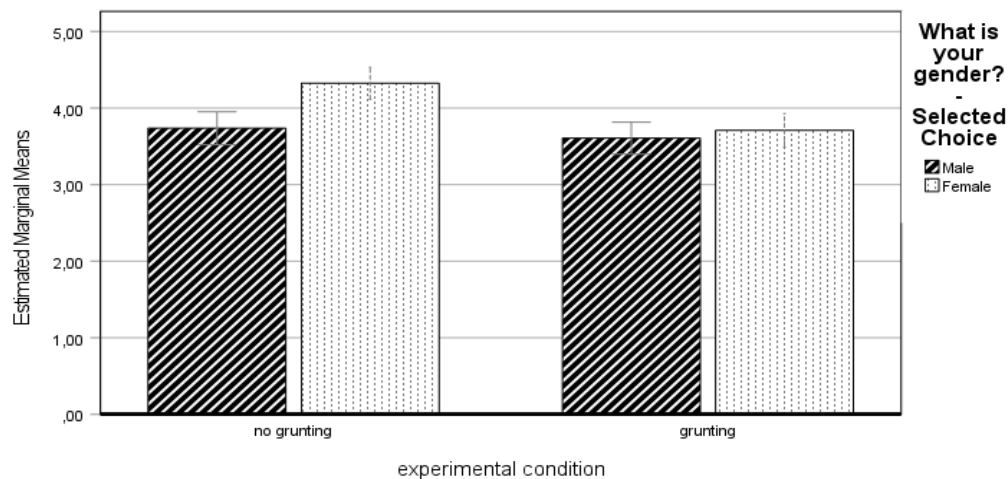
Error bars: 95% CI

Finally, a 2-way ANOVA indicated a significant main effect of grunting  $F(1, 325) = 11.77, p = <.001, \eta_p^2 = .04$  on perceived *physical attractiveness*, and a significant main effect of gender  $F(1, 325) = 10.09, p = .002, \eta_p^2 = .03$ . Furthermore, the interaction effect between gender and grunting,  $F(1, 326) = 5.0, p = .026, \eta_p^2 = .015$  was also significant. Participants in the grunting condition ( $M = 3.66, SD = .97$ ) perceived the male exerciser as less physically attractive than in the no-grunting condition ( $M = 4.04, SD = 1.03$ ). In both conditions, female participants perceived the male exerciser as more physically attractive ( $M = 4.03, SD = 1.11$ ) than male participants ( $M = 3.67, SD = .88$ ). Finally, grunting had a stronger effect on female participants: In the no-grunting condition, female participants ( $M = 4.33, SD = 1.10$ ) reported higher perceived physical attractiveness than male participants ( $M = 3.74, SD = 0.85$ ). However, when exposed to grunting, female participants ( $M = 3.71, SD = 1.04$ ) showed a greater decrease in perceived physical attractiveness than male participants ( $M = 3.61, SD = 0.91$ ). The mean difference in perceived physical attractiveness between the no-grunting and grunting conditions was greater for female participants ( $M_{diff} = 0.62, SD = 0.11$ ) than for male

participants ( $M_{diff} = 0.13$ ,  $SD = 0.06$ ). These results provide evidence for the hypothesized effect of grunting on perceptions of physical attractiveness. A visual representation of the marginal means per group can be found in Figure 5.

### Figure 5

*Marginal Means Across Gender and Condition for Perceived Physical Attractiveness*



Error bars: 95% CI

The intention of this study was to restrict participation in the study to those who attend the gym, however, due to an error in the surveying platform, participants who do not attend the gym were allowed to participate. These participants were included in the final results, as an analysis of covariance suggested no significant effect of gym attendance on explaining the dependent variables. This shows the robustness of our results.

### Discussion

This study aimed to examine the impact of grunting behavior on gym attendees' perceptions of a man's masculinity, social dominance, and physical and social attractiveness. I hypothesized that grunting would affect perceptions of masculinity and found that it indeed leads to a reduced perception of masculinity. Secondly, I hypothesized that grunting would lead to higher perceptions of dominance across both groups of participants (female vs. male). However, while the results suggested that perceptions of dominance do increase in the

grunting condition, this effect was only observed in female participants. I also hypothesized that grunting would lower perceived social attractiveness, particularly among female participants. This was partially supported as grunting led to lower social attractiveness overall, but no stronger effect was observed for female participants. Finally, contrary to my hypothesis, grunting decreased perceptions of physical attractiveness in women.

### **Perceptions of Masculinity**

While previous literature suggested that men grunt in the gym intending to project heightened masculinity, our study yielded a paradoxical outcome where male grunTERS were perceived to be *less* masculine. One plausible explanation for this discrepancy lies in the association between masculinity and physical prowess. Raine et al. (2017) found that grunting is associated with perceptions of distress in athletes, particularly that when a grunt is high-pitched the more indicative of distress it is. So, when a male gym-goer grunts he may inadvertently convey struggle and distress to others, meaning that he is incapable of or experiencing difficulty in performing the exercise. Because physical strength is one of the core components of what Western societies understand under masculinity (Lacoviello et al., 2021), the perceived physical distress then translates into perceptions of lower masculinity. This is one likely explanation as to why grunting leads to reduced perceptions of masculinity.

Additionally, we also measured masculinity in a second way, using Bem's Sex-Role Inventory (BSRI; Bem, 1974), which reflects traditional masculinity. We found no significant effects of either of the independent variables, nor an interaction effect. The fact that grunting had a main effect on the single item construct "masculinity" but not on the traits characterizing traditional masculinity can be understood in two ways: firstly, as previously mentioned, in the western world there is shift in the understanding of gender norms. Accordingly, what was once understood to describe masculinity in 1974, may not align with the current understanding and this may explain why the results concerning the single-item

'masculinity' measure differed from those of the traditional masculinity construct using Bem's Sex-Role Inventory (BSRI; Bem, 1974). Secondly, it may simply be, that the grunting leads to a perception of a certain feature of masculinity that does not generalize to other associated features. These differences in two measures call for caution in interpreting our results.

### **Perceptions of Social Dominance**

A prime suggestion of previous literature by Lev and Hertzog (2021) was that grunting is also used as a form of asserting social dominance over others, particularly over women at the gym. The findings of this study lend evidence to this suggestion. Our study found that male participants had a higher baseline level of dominance perception in the no-grunting condition, and this perception only increased slightly in the grunting condition. Female participants had a lower baseline perception of dominance in the no-grunting condition, but their perception rose to a level higher than the male participants in the grunting condition as illustrated in Figure 3. above. This gender-based difference in dominance perception can be clarified by considering the criteria and functions differentiating the two groups of participants. In general men are more attentive to other men's dominance cues due to the context of intrasexual mating competition, particularly in spaces where there is female presence (Watkins et al., 2013) such as the gym. This may explain why male participants had a higher baseline level of dominance perception in the no-grunting condition. To explain why this level only rose slightly in the grunting condition, we can consider that men are attentive to a wider variety of dominance cues, such as the target's physique, facial features, and other indicators of physical strength, which are known to be relevant in male-male dominance assessments (Wolff & Puts, 2010). Thus, while grunting, as a low-pitched sound can indeed raise perceptions of dominance as the authors suggest, it may play a smaller role next to a myriad of other dominance cues.

In contrast, women are attentive to male dominance cues when it concerns promoting their physical safety and are in general more attentive to these cues when they perceive a threat from a male presence (Watkins et al., 2013). Within the context of this study, this could imply that in the grunting condition, women perceived threat and identified grunting as a high dominance cue. It is also possible that grunting served as a trigger to make other dominance cues salient by creating a threatening situation.

### **Perceptions of Physical Attractiveness**

The findings of Watkins and colleagues (2013) are pivotal in elucidating the results concerning perceived physical attractiveness. The current study expected a positive association between grunting and perceived physical attractiveness, predicated on the correlation between both elements and dominance. However, our results contradicted this hypothesis, revealing a negative association between grunting and perceived physical attractiveness among female participants. Drawing from the insights of Watkins et al. (2013), one can infer that dominance does not invariably translate into perceived physical attraction, as suggested by Wolff and Puts (2010). The specific context of dominance behavior - in this instance, grunting - holds significance. If a woman in the gym perceives the behavior as threatening, dominance is unlikely to engender perceptions of physical attractiveness. Even from an evolutionary standpoint, it is maladaptive to be attracted to features that signal danger. Hence, we might have got contrary findings here.

### **Perceptions of Social Attractiveness**

Regarding social attraction, our study hypothesized that grunting would diminish perceptions of social attractiveness, particularly among women, drawing from anecdotal evidence presented by Lev and Hertzog (2022). Consistent with these expectations, participants of both genders perceived the grunter as less socially attractive. However, our hypothesis regarding the gender-specific impact was not supported by the results. While



Figure 5 depicts a slight trend in this direction, it remains inconclusive. Although our study establishes a link between grunting and perceptions of low social attractiveness, the underlying mechanism remains obscure. It is plausible that annoyance or perceived disregard may contribute to this outcome.

### **Theoretical and Practical Implications**

This study is the first to use a quantitative approach to investigate the effects of grunting in the gym on perceptions. We examined previous suggestions by Lev and Hertzog (2022) and further added material using an experimental design. We collected a wide sample of participants, allowing for sufficient power in our study. For the purpose of this study, we produced a meticulously crafted and well-thought-out video. We ensured a realistic setting and directed the viewer's focus specifically to the grunt, minimizing distractions, as detailed in the methods section.

This study also offers practical implications, particularly for male gym-goers who grunt. Our findings indicate that grunting provides no real benefit to the individual. On the contrary, regardless of his intentions or what he expects to convey to others, grunting creates an unpleasant environment for those around him. This behavior leads to perceptions of reduced social attractiveness and masculinity and only increases perceived dominance among women, which would only be beneficial in case it leads to higher perceptions of physical attractiveness, and in this case it did not. Furthermore, grunting can potentially create unsafe environments for women. Therefore, it is generally advisable for men to limit or eliminate their grunting in the gym to foster a more welcoming and respectful atmosphere for all members.

### **Limitations and Future Directions**

This study was limited by several factors that may be improved in the future. While the intention was to set an age restriction, our sample varied in age from 18-78 years. This is

suboptimal because understandings of masculinity, dominance, and attractiveness may vary greatly according to age. Therefore, it is advisable to restrict participant age in future studies to include roughly a single generation.

The second limitation is posed by the nationality of participants, all hailing from the UK. This limits the generalizability of our results to other cultures where the context may be understood differently. Thirdly, this study is based on the assumption of a heteronormative context. The perceptions of queer individuals may thus reflect a different and unique reality, that is worthy of exploring, particularly in the case of gay men.

In consideration of the findings and limitations of this study, three main future research directions are proposed. Firstly, it is essential to study the tangible effects of grunting on gym-goers of all genders, with a particular focus on women. Moving beyond mere perceptions, future research should investigate the behavioral and attitudinal reactions of individuals to a grunting male in the gym, ideally in a naturalistic setting. This study found that women perceive the grunter as dominant and suggests this may be due to women perceiving themselves to be in a threatening situation. Hence, it is crucial to first determine the validity of this perception by, for example, examining physiological stress markers in women exercising in the presence of a grunter.

Secondly, it is important to explore whether this experienced stress impacts women's performance in the gym or even deters them from returning, as they may seek to avoid the stressful situation. Understanding these dynamics can provide deeper insights into the broader implications of grunting on gym culture and gender dynamics within fitness environments. The final suggestion is to dive deeper into the reactions of gay men. This is particularly interesting to study as gay men - similarly to women - are often the target of hegemony, and are potentially physically attracted to the grunter as well. The difference lies in that they may

not be intimidated by the man, or perceive themselves to be in any danger, due to them having comparable physical strength as the perpetrator of the grunting behavior.

### **Conclusion**

The aim of the study was to identify and examine the presence of a discrepancy between what the male grunter expects to convey with his grunts and how he is actually perceived by others. The primary assumption was that the grunter expects positive perceptions, however the results indicate the opposite effect: this study provided evidence indicating that men's performance of grunting behavior in the context of the gym, leads to lower perceptions of masculinity, social attractiveness, and physical attractiveness across male and female observers, while contributing to higher perceptions of social dominance in female observers. Hence, grunting can be considered as a behavior disadvantageous for both the grunter and those around them.

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## **Appendix A**

### **Measurement Items**

#### **Scale Item for Aggression**

1. To what extent do you think Jamie is aggressive?

#### **Scale Items for Masculinity**

1. To what extent do you think Jamie is masculine?

#### **Scale Items for Traditional Male Gender Norms**

1. To what extent do you think the man is assertive?
2. To what extent do you think the man is independent?
3. To what extent do you think the man is ambitious?

#### **Scale Items for Social Dominance**

1. This person tends to assert their opinions and preferences in social settings
2. I think this person typically takes on a leadership role in social settings
3. This person maintains control and influence over others in social settings

#### **Scale Items for Social Attractiveness**

1. I would like to have a friendly chat with him
2. We could never establish a personal relationship with each other
3. He wouldn't fit into my circle of friends

#### **Scale Items for Physical Attractiveness**

1. I think the man is handsome
2. He is not very good-looking
3. I find him very attractive physically

#### **Scale Items for Task Attractiveness**

1. I have the feeling that he is a very good weightlifter
2. I have confidence in his ability to give me gym advice



3. If I worked out with him, I would accomplish a lot