Do Sexual Orientation and Grunting in the Gym have an Effect on the Perception of an Athlete?

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Abstract

While most people have encountered grunting athletes in a gym before, little is known about the effect of this sound on the perception of the athlete. Does it make the athlete seem more masculine or even more attractive? And do gay athletes get the same privilege, or do they get perceived differently? Adding to the existing qualitative research, our quantitative study investigates the influence of grunting and sexual orientation on the perception of an athlete. We predict grunting athletes to be perceived as more masculine, more satisfied with their life and body, and to get more sexually objectified by the participants. We assigned the participants ($N = 333$) to the four conditions of grunting-heterosexual, nongrunting-heterosexual, grunting-homosexual and nongrunting-homosexual. The participants had to watch a video of an athlete of their condition working out. Subsequently, they completed a questionnaire investigating our variables of interest. Conducting ANOVAs, we found that grunting did not make the athlete be perceived as more masculine, attractive, or satisfied with their life and body. With this study being the first quantitative study on grunting in the gym space in social psychology, we provide a starting point for future studies.

Keywords: grunting, perception, homosexuality, masculinity, gym

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Nowadays, society often links health and attractiveness to a muscular body. Therefore, shaping one's body has become of significant importance in many people's life (Mor et al., 2014). Besides shaping one's body, the gym has become a place for socialization and shaping people's identity, as well as perceptions and habits of health, fitness, and pleasure (Lev & Hertzog, 2021). Most people that have ever been to a gym probably have noticed that while most people stay quite when lifting weights, some athletes grunt – meaning they exhale a loud noise. Everybody has a different reaction to grunting. While it is a widely accepted concept in professional tennis players, some people see grunting as a demonstration of the power and strength of an athlete, and some might perceive the grunter as distracting or even annoying.

Even though everybody reacts differently to the grunting of athletes, it generally gives the athlete the privilege of being perceived as more masculine (Hertzog & Lev, 2019). But we do not know the actual effect on the perception of the grunter. Consequently, we sought to answer the question of whether grunting has an influence on the way an athlete is perceived, namely the perceived masculinity, perceived wellbeing, and perceived attractiveness and sexual objectification of the athlete. We predict that athletes in the grunting condition will be perceived to be higher in masculinity, life and body satisfaction/wellbeing, and attractiveness. In this paper, I will focus on investigating the influence on perceived masculinity, wellbeing, and sexual objectification. On the other hand, things such as homosexuality make a man be perceived as less masculine, which they often reject (Duncan, 2007). Therefore, secondly, we predict to replicate the findings of gay athletes being perceived as less masculine and more feminine than heterosexual men (Duncan, 2007, Mor et al., 2014, Reese et al., 2013). However, if gay men grunt, this might give them the privilege to be perceived more masculine. Therefore, lastly, we predict an interaction effect between our two variables,

meaning that homosexual grunters will be perceived to be more masculine than homosexual non-grunters.

Grunting

When talking about grunting in the gym, we must differentiate between forced exhalation, which is more of a breathy and airy sound, and grunting, which is a more guttural than forced exhalation (Lev & Hertzog, 2021). Grunting in the gym space, which is a male-dominated space (Craig & Liberti, 2007, Johansson, 1996), is predominantly done by men (Lev & Hertzog, 2021). For the present study, we define grunting as making a low inarticulate sound, typically to express effort or indicate assent (Y. Koc, [lecture notes], September 14, 2021).

So far, there have been no empirical studies about grunting in the gym space in social psychology, though it does come up in studies about tennis players. Most of the studies about grunting in tennis mention the advantage of trunk stabilization by trapping air inside the lungs during the so-called Valsalva maneuver (Callison et al., 2014, O'Connell et al., 2016). This can also be beneficial when lifting weights. Moreover, there is evidence from tennis that grunting can be of advantage for the athletes by distracting and/or intimidating the opponent (Müller et al., 2019, Sinnett & Kingstone, 2010, Sinnett et al., 2018). Besides trunk stabilization and distraction of the opponent, an individual's performance might be considerably influenced purely by the belief in the importance of vocalization through for example grunting, leading to a placebo effect (Davis et al., 2015).

Only recently Lev and Hertzog (2021) published a paper about grunting in the gym space. In their article, they talk about how it is socially mediated through a process of socialization and the social context, whereas most people assume that the grunt of athletes is an involuntary and natural action. Moreover, they describe grunting as a rational and voluntary action that requires learning. With most people who grunt being men, there seems to be a connection between grunting and masculinity. In addition to that, there is a connection

in society between muscularity and masculinity. In short, grunting signifies strength and dominance (Lev & Hertzog, 2021). With their study being a good first approach to the topic of grunting in a gym, it is qualitative and now needs to be empirically tested. We are interested in how other people perceive men who grunt in the gym. In particular, we are testing whether grunting signals dominance and strength, and whether the sexual orientation of the athlete makes a difference. To do so, we came up with three clusters to explore whether grunting and sexual orientation have an influence on perceived masculinity and those clusters. The three clusters are: the psychological cluster, including self-esteem, body-image satisfaction, and life-satisfaction; the physical cluster, including attractiveness, nutrition, workout enjoyment, and exertion level; and the gender cluster, including masculinity and sexual behavior, such as sexual objectification. In my paper, I will focus on the psychological cluster and on the gender cluster.

Gender Cluster: Masculinity

In 2018, Dr. Kimmel, the director of the center for the study of men and masculinities in New York, asked his students: “Tell me what it means to be a real man.” (…) “Take charge; be authoritative,” said James, a sophomore. (…) “It means suppressing any kind of weakness,” another offered. (…) “Walk like a man. Never cry.” (Gilpin & Proulx, 2018). This conversation exemplifies society’s stereotypical thinking about masculinity.

Generally, concepts such as masculinity are constructed and defined socially, historically, and politically (Leach, 1994). In 2003, Mahalik and colleagues came up with 11 masculinity norms in Western society, including dominance, power over women, heterosexual self-perception, and being a playboy (Mahalik et al., 2003). Grunting satisfies the norm of dominance (Lev & Hertzog, 2021), as well as creating a gender power gap between men and women (Hertzog & Lev, 2019). Furthermore, the media takes on an important part in defining what is understood as masculine by most of the society. Superheroes and action figures become increasingly muscular and tall, creating a picture of the ‘perfect man’ as being tall

and muscular (Davids et al., 2018; Murray & Touyz, 2012). Moreover, on any social media platform, people are exposed to carefully selected pictures of others practicing a form of positive self-presentation, which has a major impact on people's norm perception (Qiu et al. 2012). Working out in a gym and creating a muscular body satisfy Mahalik's (2003) norms of a heterosexual self-perception. Yet, the media's portrait of the perfect man, as well as Mahalik's playboy norm entail an increase in sexual objectification of the male body (Davids et al., 2018) making men's appearance and seeming masculine more and more important.

While being perceived as masculine is a major goal for most men, it appears to be even more important for many homosexual men since in society the stereotypical gay male is frequently linked to femininity. It is often said that homosexual men have a higher rate of dissatisfaction with their bodies as their masculinity is more often threatened. Moreover, the gay male community has a primary emphasis on physical attractiveness, which is among other things defined as being muscular (Duncan, 2007, Lev & Hertzog, 2021, Touyz, 2012). Trying to be perceived as less feminine and more masculine, muscularity and therefore working out in a gym becomes a major part of many homosexual men's life. This connects the topic of masculinity, sexual orientation and grunting in the gym, leading to or current study.

Gender Cluster: Sexual Objectification

Sexual objectification happens when a person is reduced and treated exclusively as an object for sexual use, and when the sexual functions are separated out from the rest of the person (Calogero, 2012). In 1994, Siever mentioned the sexual objectification theory with regard to homosexual men and heterosexual women. He found an association between sexual objectification of those two groups and their mutual concern for attractiveness (Siever, 1994). Based on this theory and the objectification theory by Frederickson and Roberts (1997), which states that individuals internalize an objectifying perspective of themselves after continuously experiencing covert and overt objectification, leading to self-objectification (Brewster et al., 2017), Duncan in 2007 found that homosexual men are likely to see

themselves as sexual objects in the pursuit of a sexual partner. Moreover, Duncan refers to the importance of looking masculine for many homosexual men which might be explained by Mahalik's masculinity norm of a heterosexual self-perception. Though, Duncan adds that for some gay men, fulfilling the stereotype of a muscular fat-free, and hairless body, therefore conforming to a "culturally desirable" body type and shape, is tied to being proud of their sexuality and therefore wanting to demonstrate the "positive" side of being gay (Duncan, 2007).

Sexual objectification does not only enforce gay men's desire to look a certain way, but also pressures heterosexual men to comply with the body norms for masculinity and attractiveness, linking this variable to our study.

Psychological Cluster: Life and Body Satisfaction

For a long time, body image dissatisfaction was almost solely linked to women. Though, an increasing body of data reveals that in terms of prevalence of this dissatisfaction, men are approaching parity with women (McCreary & Sasse, 2000). Trying to explain the gender differences in the gym space, Murray and Touyz (2012) mention the "femininity hypothesis" and the "theory of threatened masculinity" associated to body image. The femininity hypothesis states that people who endorse stereotypical feminine traits pursue dietary restrictions and purging behaviors to reach their ideal of a thin body type. The theory of threatened masculinity describes a pursuit of hyper-muscularity which can be underpinned by a certain vulnerability to feeling threatened with respect to one's masculinity. It entails that people associate more muscles and less thinness to masculinity. Furthermore, Murray and Touyz (2012) link gender role orientation of males to a certain predisposition in some men towards the pursuit of a more muscular or thinner body. Precisely, they connect a more masculine gender role to a desire of muscularity, and a more feminine gender role to a drive for thinness. Though, it appears to be even more important for many gay men because in society the stereotypical gay male is frequently linked to femininity (Clarke & Arnold, 2017).

This leads to multiple papers stating that homosexual men have a higher rate of dissatisfaction with their bodies because their masculinity is more often threatened, though the results investigating this idea are inconsistent (Duncan, 2008, Gil, 2007, Murray & Touyz, 2012). Moreover, as previously mentioned, the gay male community puts a lot of importance on muscularity because of having a primary emphasis on physical attractiveness. In conclusion, seeming masculine is a major goal for most men, no matter their sexuality, and masculinity is often linked to muscularity. Additionally, the rise in body dissatisfaction in men leads to an intrinsic motivation to work out and change their physical appearance (Awruk & Janowski, 2016). Nevertheless, sexuality and context, such as a gym space, have a major influence on this desire.

In 2016, Awruk and Janowski found a negative relationship between working out and symptoms of depression, meaning than working out does not only help people with their body dissatisfaction but also life dissatisfaction, thus linking the variable to our study.

The Present Study

Overall, we are making two main predictions. The first hypothesis that we are investigating is that men in the grunting condition will be perceived to be more masculine, differently sexually objectified compared to non-grunters, and to be more satisfied with their life and body, meaning to be rated as higher in wellbeing, because grunting gives men the privilege of being perceived as more masculine (Lev & Hertzog, 2019). Moreover, based on the previous findings that homosexual men are perceived as more feminine, our second prediction will replicate the finding of homosexual men being perceived as less masculine than heterosexual men. Lastly, based on the assumption that grunting makes a man seem more masculine, we expect homosexual men who grunt while lifting weights to be perceived as more masculine than homosexual men who do not grunt.

Methods

Participants and Procedure

The initial sample size of our study was 369, where a total of 16 participants dropped out before completion and 12 participants were excluded due to failing the manipulation check. Furthermore, five participants who reported a sexual orientation other than heterosexual were removed from the sample to increase the homogeneity of the participant pool, and three outliers were removed, resulting in a total sample size of $N = 333$. Of the 333 participants, 79 were male (23.72%), 253 (75,98%) were female and one person identified as non-binary (0,3%). The age range of participants was 18-79 years old ($M = 34.75$, $SD = 13.11$).

The survey was hosted on Qualtrics and conducted in English. Participants were recruited through the platform Prolific Academic. The recruitment text used to advertise the study, briefly mentioned the nature and content of the experiment, namely watching a video of a man working out followed by a questionnaire measuring multiple variables. Participation was voluntary and there was monetary compensation of 1.50 euros for completing the study. The participants had to provide consent for processing their data. Information about participants' identity was kept anonymous.

After having chosen to take part in the study, participants were required to read and fill in the informed consent prior to starting the experiment. Once the participants agreed to the requirements of the study and filled in the informed consent form, demographic data were collected. Participants were asked about their gender, age, sexual orientation, perceived socioeconomic status, education and how often they go to the gym to exercise. Participants were able to choose not to answer these questions. Afterwards, they were randomly allocated to one of the four conditions, to then watch the video with audio and subsequently fill in the questionnaire which assessed our dependent variables. Furthermore, the participants' prolific ID was needed to transfer the compensation amount following the completion of the experiment. The data was collected anonymously and will be securely stored for 10 years on Qualtrics.

After completing the questionnaire, participants were debriefed on the study. The debriefing made participants aware of the other possible conditions of the study. Furthermore, it described the aim of the study and the variables the study intended to measure, which has been purposefully vague in the informed consent. The benign deception resulting from the manipulation of the sexuality variable was also made clear to the participants. Finally, the reasons for conducting the study were briefly explained, as well as the expected effects. The overall duration of the study was approximately 10 minutes.

Design

The current study used a 2x2 between-subjects design. Therefore, two independent variables were manipulated, namely, sexual orientation (heterosexual vs homosexual) and grunting (grunting vs no grunting). The participants were randomly assigned to one of the four conditions, which are grunting-heterosexual (HEG n=78), nongrunting-heterosexual (HEN n=88), grunting-homosexual (HOG n=78) and nongrunting-homosexual (HON n=89).

Experimental Manipulation

Each participant was put into one of the four conditions. The sexuality variable was manipulated through means of a text appearing on the screen above the video, stating that the athlete in the video is being filmed by his romantic partner, a female name in the heterosexual condition and a male name in the homosexual condition. The participant would then watch a video of the man performing several exercises. These exercises were a leg press, deadlift, overhead barbell, and bench press. The grunting variable was manipulated by having the subject in the video grunt during his workouts through a voice-over or remain silent. Moreover, the song Believer by Imagine Dragons was added to remove background noise. There were two video versions of each exercise, where the subject would either grunt or remain silent, meaning there was no difference in video material in the different sexuality conditions. The subject was the same in every condition.

Measures

Variables pertaining to three different clusters were investigated, namely the psychological cluster, the physical cluster, and the gender cluster. 7-point Likert scales were implemented for all variables except objectification.

Psychological Cluster

The psychological cluster focused on investigating perceptions of warmth and competence from the stereotype content model, self-esteem, gender roles and body and life satisfaction of the video subject (Cuddy, et al. 2009).

A Likert scale ranging from 1 (Not at all) to 7 (Entirely) was used to assess people's perception of the athlete's warmth and competence. Four items were used to measure warmth (friendly, warm, sincere, good-natured) and four items were used to measure competence (capable, competent, confident, and skillful). Composite scales for warmth and competence were created due to their respective high internal consistency (respectively $\alpha = 0.89$ and $\alpha = 0.89$).

Perceived self-esteem, using variables such as self-reliance and confidence, perceived body-image satisfaction and life-satisfaction were assessed using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree). With $\alpha = 0.82$, the internal consistency of the three items was sufficient to combine them into the scale "wellbeing".

Separate dependent variables of masculine attributes and feminine attributes were created to assess attitudes that relate to masculinity and femininity perceptions based on the BEM sex-role inventory (Reese et al., 2013). The survey included five questions for masculine attributes, measuring traits such as assertiveness and dominance, and four questions for feminine attributes, including measures of sympathy and understanding, all of which used a Likert scale ranging from 1 (Not at all) to 7 (Entirely). Composite scales of masculine attributions and feminine attributions were created, combining their respective questions, with internal reliability scores of $\alpha = 0.77$ for masculine attribute items and $\alpha = 0.86$ for feminine attribute items.

Gender Cluster

Masculinity, femininity, and objectification were measured in the gender cluster. Both masculinity and femininity were measured using singular 7-point Likert scale questions directly asking participants to rate the subject on masculinity and femininity. To assess sexual objectification of the athlete, a self-objectification scale by Frederickson (1997) was used, where participants had to rank ten features, from most important (1) to least important (10), based on how much they thought the athlete would value them. These features included physical coordination, health, strength, weight, sex appeal, physical attractiveness, stamina, sculpted muscles, physical fitness level and measurements.

Manipulation and Attention checks

Manipulation checks were administered to assess whether the participants perceived the manipulation of each of the independent variables. Regarding the independent variable sexuality, at the start of the survey participants had to answer who had shot the video of the subject, which had been stated in the descriptive text the participants received prior to watching the video. If the answer given did not fit the assigned condition, their data got excluded from the statistical analysis ($N = 12$).

For the independent variable of grunting, an audio check was performed before the start of the video to ensure that participants had adequate sound quality. This was done by playing an audio recording of someone listing a four-digit number, which the participant then had to fill in. Only when the participant filled in the correct four-digit number, they would be able to proceed with the rest of the experiment. This eliminated the possibility of having data of people who were not able to distinguish the grunting taking place in the video.

As an attention check, participants were asked the name of the athlete in the video after having viewed the video, which had been stated in the descriptive text. This was done as an additional precaution to observe whether participants were retaining the information provided before the video and subsequent survey.

A part of the group additionally used the variables attractiveness, health, workout enjoyment and exertion level of the athlete, as well as promiscuity, but I will not measure them in my paper.

Analysis

A number of two-way between-groups analyses of variance (ANOVAs) were conducted with the software SPSS, to explore the impact of grunting of an athlete and his sexual orientation on the perceived masculinity, wellbeing, and sexual objectification of the athlete.

We predicated two main effects and one interaction effect. Firstly, we predicted athletes in the grunting condition to be perceived as more masculine and higher in wellbeing than athletes in the nongrunting condition. Secondly, we predicted to replicate the finding of gay men being perceived as less masculine than heterosexual men. Lastly, we predicted an interaction effect of homosexual grunters being perceived as more masculine than homosexual nongrunters. Before conducting the ANOVAs, we checked the sample size, which was large enough, based on the central limit theorem, and the ANOVA assumptions. The assumption of independence was met. Homoscedasticity was checked for by looking at Levene's statistic and was met for all dependent variables after removing the outliers. Lastly, normality was checked on its validity using the Shapiro Wilk test. Significant results, meaning deviation from normality, for all outcome conditions were found, except for masculine attributions (no grunting-hetero: $W(87) = 0.97$, $p = 0.08$; grunting-heterosexual, $W(80) = 0.97$, $p = .1$; grunting-homosexual, $W(77) = 0.98$, $p = 0.25$). Masculine attributions having non-significant results means that this variable is normal. However, when looking at the kurtosis, skewness, and boxplots, we can argue for normality of the rest of the data, which was met by all dependent variables except of the variable "Feminine". Therefore, this variable was excluded from our analysis.

First of all, we analysed our data on three variables tapping on masculinity: masculine, masculine attributions, and feminine attributions. Examining our data, we found a significant negative main effect of grunting on perceived masculinity. This is demonstrated by the negative effect of grunting on the variable "masculine", $F(1, 329) = 6.180$, $p = .013$, with a small effect size of $\eta_p^2 = .02$, as well as by the negative effect of grunting on feminine attributions, $F(1, 329) = 14.998$, $p < .001$, $\eta_p^2 = .04$. The effect of grunting on masculine attributions, $F(1, 329) = 0.470$, $p = .518$, did not reach statistical significance. Overall, contrary to our expectation, people in the grunting condition on average were not perceived to be more masculine ($M = 4.79$, $SD = 1.34$), regardless of sexual orientation, as compared to those in the no-grunting condition ($M = 5.21$, $SD = 1.24$). Thus, our data does not support our first prediction of athletes being perceived as more masculine when grunting.

Neither the effect of the grunting of the athlete ($F(1, 329)= 0.009$, $p = .926$), the sexual orientation of the athlete ($F(1, 329) = 0.573$, $p = .449$), or the interaction effect of grunting and sexual orientation ($F(1, 329) = 0.639$, $p = .425$) did reach significance with the perceived life- and body-satisfaction of the athlete.

Furthermore, based on our data, the participants seem to objectify the athlete less when he is grunting ($M = 2.49$, $SD = 13.62$), than when he is not grunting ($M = 6.93$, $SD = 12.85$), which is demonstrated by the negative effect of grunting on sexual objectification being significant, $F(1, 324) = 9.251$, $p = .003$, with an effect size of $\eta_p^2 = .028$. There was no significant difference between the sexual objectification of heterosexual or homosexual men ($F(1, 324) = 0.679$, $p = .41$).

Our second prediction, of homosexual men being perceived as less masculine than heterosexual men is partially supported. The variables masculine attributions ($F(1, 329) = 0.279$, $p = .598$), and masculine ($F(1,329) = 0.96$), $p = .328$) were found to have no significant effect with sexual orientation with a p-value higher than .05, leaving only the variable investigating feminine attributions to have an effect on the perception of the athlete.

Feminine attributions had a significant effect with sexual orientation, $F(1, 329) = 10.460$, $p = .001$, with a small effect size of $\eta_p^2 = .031$. On average, the athlete in the homosexual condition were rated as having more feminine attributions ($M = 3.63$, $SD = 1.03$), than the athlete in the heterosexual condition ($M = 3.25$, $SD = 1.06$), supporting our prediction.

Our third prediction was not supported for masculinity ($F(1, 329) = 0.421$, $p = .517$) and life- and body satisfaction ($F(1, 329) = 0.64$, $p = .425$). Though, we found a significant interaction effect with sexual objectification, $F(1, 324) = 4.49$, $p = .035$, with an effect size of $\eta_p^2 = .01$. Even though participants objectified heterosexual athletes as well as homosexual athletes less when they were grunting, heterosexual men got more objectified when not grunting ($M = 7.86$, $SD = 11.72$) than homosexual ($M = 5.98$, $SD = 13.91$). When grunting, heterosexual men got less objectified ($M = 0.35$, $SD = 13.21$) than homosexual men ($M = 4.64$, $SD = 13.74$) (Figure 1).

Discussion

This research's primary objective was to investigate the effect of grunting in the gym space and the influence of an athlete's sexual orientation on the perceived masculinity, perceived wellbeing, and sexual objectification of said athlete. More precisely, we predicted that athletes who grunt while working out would be perceived as more masculine compared to athletes who do not grunt, regardless of their sexual orientation. Additionally, perceived wellbeing and sexual objectification were predicted to be higher for athletes in the grunting condition. Secondly, we expected to replicate the findings of gay men being perceived as more feminine than heterosexual men, regardless of whether they grunt while working out or not. Lastly, we investigated whether there is an interaction effect between grunting and sexual orientation.

Although, there is a small difference in the perception of the masculinity of grunting athletes and non-grunting athletes, based on our data, men who grunt in the gym are not perceived as more masculine. On the contrary, we found that they are perceived as more

feminine, though this effect was only small. This means that our first prediction was not supported. Besides the possibility that grunting simply has this effect, there are a few implications in our study that might contributed to these findings. Firstly, our study was conducted online, meaning that even though we did include an attention check, we cannot truly know whether the participants followed the instructions, watched the video, or did the study by themselves and alone. Moreover, the video is only to a certain extent comparable to a real-life scenario that one would encounter in a gym because it consisted of multiple short clips that were edited together. The video for the grunting condition had an audio track of grunting edited, though the grunting sounds did not match up with the movements of the athlete. In addition to the grunting sounds, the song "Believer" by the band Imagine Dragons was added to the video, so that there was no original video sound anymore. This song might operate as a mediator, influencing the perception of the athlete.

These implications might lead to a different perception of the athlete than when the participants would have encountered a grunting athlete in a real-life setting, with real gym sounds. Some of these implications can be solved by reconducting the study in a lab and therefore having more control about the attention of the participants and external influences. Moreover, a different video with an athlete actually grunting could be used, instead of editing the grunting sound over the video. This would lead to a more natural setting and therefore heighten the overall generalizability of the data.

In line with our second prediction, the athlete of the homosexual condition was perceived as more feminine than the athlete of the heterosexual condition, regardless of grunting or not. These results are no new findings, but rather support many previous studies such as the ones mentioned in the paper by Duncan (2007) and Clarke and Arnold (2017).

Lastly, we found a small interaction effect of grunting and sexual orientation on the sexual objectification of the athlete. While heterosexual athletes were objectified far less when grunting, the difference between gay grunters and non-grunters was comparatively low.

Again, there are multiple possible explanations for this difference, with the study setup and the video being one of them. Moreover, the athlete in the homosexual condition might got less objectified, because, on one hand, gay men are seen as more feminine, as many researchers such as Duncan in 2007 discussed before. On the other hand, 75% of our participants were heterosexual females who are normally not sexually interested in gay men, meaning the sexual objectification of them is different no matter if they are grunting or not. Additionally, the female participants might sexually objectify the heterosexual athlete more than heterosexual male participants do, simply due to the general sexual interest in the athlete.

So far, there has been no quantitative work on grunting in the gym space. Furthermore, there also has been barely any qualitative work on the topic in social psychology. Conducting the first quantitative study on the topic of grunting, our research mainly adds to the literature about the perception of grunting in the gym by Lev and Hertzog (2021). In their ethnographic research, they describe grunting as a social construct, that requires learning to time appropriately when the right moment comes. While Lev and Hertzog (2019) also focused on the power gap between men and women emerging from grunting in the gym space, our study focused only on men. Therefore, comparing the different perceptions of grunting men and grunting women could be interesting for future studies. Moreover, it could also be interesting to conduct the same study with heterosexual and homosexual female athletes. While homosexual men are often seen as more feminine in society, the opposite is the case for homosexual women, meaning they are often perceived as more masculine (Clarke & Arnold, 2017). This kind of study would further add to the knowledge of grunting as well as to the knowledge about homosexual women and how they are seen.

Based on our findings of heterosexual men not being perceived as more masculine when grunting, Lev and Hertzog's (2021) note that masculine men are expected to grunt but women are expected to exhale "appropriately", it will be important for future studies to investigate the effect of grunting on the perception of female athletes. Moreover, the two

researchers mention a big socialization aspect of grunting for men. Therefore, in future studies, it would be interesting to investigate whether there is a difference between the amount of grunting in mixed gyms compared to female only gyms because normally female grunting is seen as unnatural and inappropriate (Lev & Hertzog, 2021).

While there are also already many studies providing evidence for gay men being perceived as more feminine, future research could look at differently sexually oriented men, such as bisexual men. Although, one could not only look at more diverse athletes, but also include more diverse participants, since this study only contained participants who identified as heterosexual. Insights of this research domain will not only contribute to a greater understanding of the phenomenon of grunting in athletes but will also add to the knowledge about grunting from previous qualitative work with empirical data. Additionally, it sheds light on different perception of heterosexual and homosexual men, while being important for gym goers as well. Important in the sense that if grunting is linked to negative things, it will also negatively affect others.

Overall, one of our three predictions was not supported by our data that. Instead, for our first hypothesis we found the contrary of our prediction. Moreover, for our third prediction, we found only a very small effect on the variable of sexual objectification but no significant effect on masculinity, which was the main interest of this study. Grunting in the gym space does not make an athlete be perceived as more masculine, more attractive, or more satisfied with his life and body. Future research should aim to do more replications and to answer these questions implementing improved versions of our design.

Men put a lot of effort into their body and grunt to claim their space and demonstrate their masculinity (Hertzog & Lev, 2019), but instead based on our research, it works the other way around. With this new information, contradicting what was previously believed, one could consider telling the athlete about the influence of the grunting when encountering some grunting. Though, there is still the possibility of men grunting to push themselves to be

"better". Additionally, as previously mentioned, in other settings such as tennis, it is proven that grunting can act as a distraction of the opponent. Once again, this demonstrates that further research needs to be done on the topic of grunting in the gym space.

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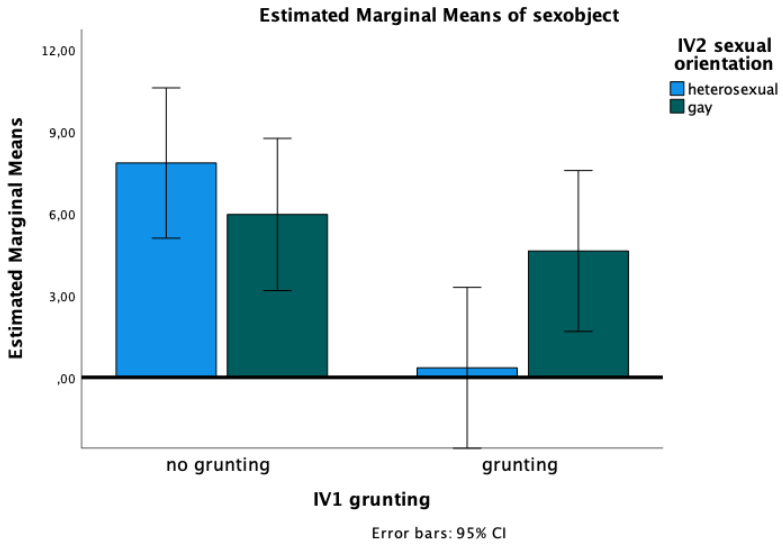
Appendix

Figure 1



Note. Barchart of the effect of grunting on the sexual objectification of the athlete splitted in heterosexual and gay.