

**The Effects of Grunting in the Gym and Sexual Orientation Towards Perceived
Masculinity and Wellbeing**

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Abstract

Masculinity is stereotypically associated with male gender roles like competence and self-assertiveness (Ricciardelli & Williams, 1995). A masculine behavior linked to these roles is grunting (Lev & Hertzog, 2021). Currently, little research exists on the perception of grunting and whether it actually exerts a sense of masculinity. Our study investigates these aspects and looks into grunting and sexual orientation's effect on masculinity perceptions and other related factors, specifically targeting gay men. We predict that grunting could act as a buffer towards homosexual stereotypes and therefore cause gay men who grunt to be perceived as more masculine. We conducted a 2x2 between-subjects design where the variables grunting, and sexual orientation were manipulated. The sample consisted of N=333 participants who were randomly assigned to one of four experimental conditions. We presented a video of a man working out in the gym who either was grunting and homosexual, grunting and heterosexual, not grunting and homosexual and not grunting and heterosexual. Results showed that there was a main effect of grunting on perceived masculinity, however oppositional to our prediction whereas sexual orientation did not show a main effect on perceived masculinity. There was no interaction effect, meaning gay men who grunt were not perceived to be more masculine. Despite our results being different than expected, we can gain insights from our research. What defines desirable masculinity may have shifted towards more feminine behaviors (Ricciardelli & Williams, 1995) and that sexual orientation did not influence masculinity because of a decrease in sexual prejudice (Jayakumar, 2009).

Keywords: Grunting, Sexual orientation, Masculinity, Wellbeing, Sexual prejudice

The Effects of Grunting in the Gym and Sexual Orientation Towards Perceived Masculinity and Wellbeing

Sexual orientation and gender roles and norms are continuously a controversial topic in society. For instance, as a man, it is commonly expected to portray male gender roles in order to gain status and be socially accepted and respected (Duncan, 2007; Murray & Drummond, 2005). However, taking sexual orientation into account, may influence people's perception of a man's masculinity. Heterosexual men are stereotypically connected to masculine gender roles, whereas gay men are associated with female gender roles (Blashill & Powlishta, 2009; Duncan, 2007; Hunt et al., 2015). Furthermore, the objectification theory states that sexually objectifying someone's body will lead to internalizing these views and by definition start to self-objectify. In comparison to heterosexual men, gay men self-objectify more (Kozak et al., 2009; Martins et al., 2007). This can be explained by stereotypes, discrimination and societal homophobia gay men experience. It may be shown by the way the mainstream, gay and visual media is used to objectify a standardized stereotype of the gay man needing to be fit, muscular and hairless. (Duncan, 2007; Martins et al., 2007; Murray & Drummond, 2005; Murray & Touyz, 2012).

In our study, we aimed to investigate the influence of sexual orientation and a socially constructed phenomenon, grunting in the gym (Lev & Hertzog, 2021), on the perceptions of masculinity, wellbeing and other related factors. At present, an extensive body of research focused on the effects of men's sexual orientation on perceptions of gender and psychological characteristics exists. However, our study uniquely explored the added effects of a socially constructed phenomenon, namely grunting in the gym, as the first experimental study ever conducted. Overall, we investigated the singular and combined effects of grunting and sexual orientation on gender and psychological factors, specifically targeting perceptions of masculinity and wellbeing.

Grunting Provides Privileges

The act of grunting is defined by a process in which someone produces a sound in the situation of being in pain or in anger (Cambridge University Press, n.d.). Most research about grunting focuses on how it is a physical function which improves performance but not on how people perceive this act. (Davis et al., 2016). “Grunting in times of bodily exertion is perceived as a voluntary performance” (Lev & Hertzog, 2021, p.1), and it is commonly known to be performed in the gym when lifting weights (Morales et al., 1999). It is a type of social interaction, a voluntary act that is controlled and adjusted depending on the situation (Lev & Hertzog, 2021). For instance, grunting is often used in a situation to acquire social status and portray competence, such as the skilled gym goer. In contrast, the act of grunting may disappear when joining a new gym because it’s an unfamiliar environment and one may feel more likely to be intimidated (Lev & Hertzog, 2021).

Furthermore, women often do not use this specific behavior, as they tend to be sexualized when doing so and therefore, they may intentionally steer away from this action (Lev & Hertzog, 2021). Consequently, grunting has become more associated with male gender norms such as strength and dominance. Thus, a gender identity divide may occur between men and women in the gym. Moreover, men tend to manipulate this social interaction in order to gain control over the space in the gym, contributing to the gender power gap (Lev & Hertzog, 2021).

Not only does it create a gender power gap between men and women, it may additionally contribute to a power divide within males. As it is a male gender role, men may feel pressured in having to perform this act. If one does not use this action correctly, male gym goers may be identified as less masculine, competent and dominant (Lev & Hertzog, 2021). Hence, the motivation behind grunting may be to avoid a masculinity threat, which has been proven to lead to public discomfort (Vescio et al., 2021). When multiple men grunt in

the gym a sense of brotherhood and shared control over the space in that environment may develop (Lev & Hertzog, 2021). Moreover, this social categorization, conforming to in-group norms (Knippenberg & Wilke, 1992), can enhance a person's confidence inside and outside of the gym and therefore affect someone's overall wellbeing (Turner & Reynolds, 2012).

The act of grunting is stereotypically used by the skilled and physically strong gym goer (Lev & Hertzog, 2021). Consequently, people who observe this behavior in the gym, may attribute it with a specific type of appearance and thus lead them to sexually objectify the grunting gym goer. Therefore, with the knowledge of grunting being tied to sexual objectification the grunting gym goer may internalize these thoughts and as a result self-objectify when they perform this act (Kozak et al., 2009; Martins et al., 2007). Men who grunt may experience the privilege of masculinity and what it embodies, however it may come at the cost of objectification. These consequences of grunting have never been empirically investigated; hence we constructed this first experimental study to further look at these aspects.

Additionally, grunting has served various purposes in tennis. On the one hand, it may function as a physical mechanism by increasing someone's force. On the other hand, it may have psychological effects on the opponent. It can be used as a distraction, influencing response time, providing false information on the strength of the hit, as well as influencing judgement of a ball's trajectory (Davis et al., 2016; Mueller et al., 2019; Sinnett et al., 2018).

All in all, grunting is accompanied with many privileges, may it be enhancing performance in sporting activities or serving as a status symbol. It is a socially constructed phenomenon, used primarily by men, which has the function of symbolizing masculine attributes such as competence and dominance (Lev & Hertzog, 2021). Therefore, regardless of how people who perform the act of grunting perceive themselves in reality, they are prone to portray a certain image of self-assurance to the outside world. Taking the above into

account, we have predicted that people who grunt will be perceived to have a higher level of masculinity, competence and wellbeing. As it is presumably connected to masculinity, we believe that men who grunt will automatically objectify themselves more.

Gay men and their battle with male gender norms

To this day, gay men fight against the stereotype society holds towards them, for instance being perceived to have effeminate characteristics (Blashill & Powlisha, 2009; Duncan, 2007; Hunt et al., 2015). On top of that, popular culture press and the media shapes the perceptions of people within and outside of the gay community, by portraying them as physically fit, muscular and sexually appealing (Duncan 2007; Martins et al., 2007; Murray & Drummond, 2005; Murray & Touyz, 2012). For a deeper understanding of the effects certain stereotypes have on gay men, the background of gay-liberation of the 1960s should be taken into account. Before the gay-liberation movement, gay men were valued as less attractive and defined as weak which resulted in portraying themselves within traditional heterosexual masculinity gender roles. Only when they would embody this image of perfection, they would feel a sense of public pride (Duncan, 2007). It should be noted that when a person must deal with the constant pressure of upholding a certain image or standard in order to feel accepted in a society, psychological consequences, such as body dissatisfaction and eating disorders arise (Duncan, 2007; Murray & Drummond, 2005).

There is a lot of added pressure on gay men applied both internally and externally influenced for one by the media, which shapes a specific image of a sexualized gay male standard (Duncan et al., 2007; Martins et al., 2007; Murray & Drummond, 2005; Murray & Touyz, 2012). Applying the concept of objectification theory to gay men who, through persistent sexual objectification, internalize these perceptions and consequently are more concerned with their physical appearance. This leads to self-body shaming, eating disorders, body dissatisfaction, and other related psychological stressors (Martins et al., 2007; Rollero &

De Piccoli, 2017). Studies have shown that this objectification is stronger for gay men than heterosexual men (Kozak et al., 2009; Martins et al., 2007). The pressure put on them as the feelings it elicits creates an abundance of psychological distress for gay men.

Overall, gay men face many challenges in order to be accepted and not be discriminated in society. The pressure they face to avoid or reinforce stereotypes is immense and distressing. It takes a toll on their mental health because they dehumanize themselves by treating themselves as an object, shaped by society (Martins et al., 2007). With this, they may disregard their sexual identity only to perform a masculine, physically appealing role, which is in line with societal norms. Nevertheless, they still experience homophobia which leads to them adapting even more heterosexual behavior and physical attributes, in order to portray a less threatening image of homosexuality (Duncan, 2007). All in all, these stereotypes, stigmas and sexually prejudiced views people hold towards gay men led to our second prediction of gay men being perceived as less masculine than heterosexual men.

In conclusion, it might be interesting to look at the effect of grunting and sexual orientation together on perceived masculinity and psychological related issues, such as wellbeing. For instance, while being gay is perceived to be less masculine (Eslen-Ziya & Koc, 2016), grunting is perceived to be more masculine (Lev & Hertzog, 2021). In this case, what happens to gay men who grunt? Does grunting buffer against the negative effect of sexual orientation for gay men? Taking these points into account leads to our third prediction, gay men who grunt in the gym will be perceived higher in masculinity. Accordingly, we aim to investigate with our three predictions what the effects of grunting and sexual orientation are on perceived masculinity.

Method

Participants and Procedure

The initial sample size in the conducted study was 369, where a total of 16 participants dropped out of the study before completion and 12 participants were excluded due to failing the manipulation check. Furthermore, 5 participants who reported a sexual orientation other than heterosexual were removed from the sample to increase the homogeneity of the participant pool, and 3 outliers were removed, leaving us with 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 ($M = 34.75$, $SD = 13.106$). A requirement for participants to take part in the study was that they would not identify as homosexual.

The participants were recruited through the American platform Qualtrics and the study was conducted in English. 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 7.50 euros for completing the study. The participants had to provide consent for processing their data, and information about participant identity was kept anonymous.

After having chosen to take part in the study, participants were required to read and fill out the informed consent prior to starting the experiment. Once the participants had agreed to the requirements of the study and filled out the informed consent form, certain demographic data was 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 if they did not want to. Afterward, they were randomly allocated to one of the conditions, watched the video with

audio, and responded to the dependent variables. Furthermore, the participants' prolific ID was needed in order to transfer the compensation amount following the completion of the experiment. The data was collected anonymously and would 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

There were four conditions. The conditions were grunting heterosexual, non-grunting heterosexual, grunting homosexual and non-grunting homosexual. The sexuality variable was manipulated through means of a text appearing on the screen before the video began mentioning that the man working out was being filmed by his 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 a number of 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, or remain silent. 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 two different clusters were investigated, namely the gender cluster and the psychological cluster. Specifically, perceived masculinity, and self-objectification is connected to the gender cluster, whereas perceived competence, feminine attributes and wellbeing is associated with the psychological cluster, whereas masculinity, and self-objectification, represented by the sexual objectification scale, is connected to the gender cluster. However, a third cluster was investigated by other study colleagues, namely the physical cluster where attractiveness and perceived fitness were the focus. 7-point Likert scales were used for all variables except sexual objectification.

Gender Cluster

Masculinity and objectification were measured in the gender cluster. Masculinity was measured using singular 7-point Likert scale questions directly asking participants to rate the subject on masculinity. To assess self-objectification of the athlete, a separate sexual objectification scale was created which was constituted by the newly created scales sexual objectification competence and sexual objectification appearance. The idea was to create a score for the competence items and the appearance items from the 10 item objectification scale by Frederickson (1997). 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. The scores

indicate to what extent participants believe that the athlete objectifies himself. Therefore, the objectification scale represented perceived self-objectification

Psychological Cluster

The psychological cluster focused on investigating perceptions of competence from the stereotype content model (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 competence. Four items were used to measure competence (capable, competent, confident, and skillful). A composite scale for competence was created due to its respective high internal consistency: ($\alpha=0.887$).

A separate dependent variable, feminine attributes was created which assessed attitudes that relate to femininity perceptions based on the BEM sex-role inventory (Bem, 1974). The survey included 4 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). A composite scale of fematt was created combining its respective questions, with internal reliability scores of $\alpha = 0.861$ for feminine attribute items

Self-esteem, perceived body image satisfaction and life satisfaction were assessed using Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree). With $\alpha = 0.816$, the internal consistency of the 3 items was sufficient to combine them into the scale "wellbeing".

Checks

Manipulation checks were conducted to test whether the manipulation of each of the independent variables was perceived by the participants. Regarding the sexuality independent variable, 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 at 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 out 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.

Results

We ran a 2×2 between-subject factorial ANOVA testing for the effect of grunting and sexual orientation on perceived masculinity and other related factors. Along with the 2×2 between-subject factorial ANOVA we performed a normality check and a homoscedasticity check. We tested for normality by conducting the Shapiro Wilk test and found conditions different from a normal distribution.

Nevertheless, based on the Central Limit Theorem we have a large enough sample size ($N = 333$) and therefore, regarding sample size, analyzing the Kurtosis and Skewness we can argue for normality of our variables. However, this assumption was only met after deleting our dependent variable Feminine (10), due to its high kurtosis and skewness. We additionally deleted three outliers of our wellbeing (grunting-heterosexual) outcome variable. To test for homoscedasticity of variance across all outcome variables we conducted the Levene's Test of Equal Variances. The results indicate that all outcome variables are not significant, meaning that the assumption of equal variances across outcome variables hold. Lastly, the assumption of independence was met due to independent random sampling.

Finally, with the 2×2 between-subject factorial ANOVA we tested for the effect of grunting and sexual orientation on perceived masculinity and other related factors.

Prediction 1

For our first prediction, we found a significant main effect of grunting on the outcome variable perceived masculinity, $F(1,329) = 6.18, p = .013, \eta_p^2 = .018$. However, these results were oppositional to our prediction as people in the no grunting condition scored higher in masculinity ($M = 5.15, SD = 1.24$), as compared to people in the grunting condition ($M = 4.79, SD = 1.34$). We additionally found significant effects for people in the grunting condition on sexual objectification; $F(1,324) = 9.21, p = .003, \eta_p^2 = .027$ where people in the no-grunting condition scored higher on perceived self-objectification ($M = 6.93, SD = 12.84$) compared to people in the grunting condition ($M = 2.49, SD = 13.62$). Moreover, we found significant effects for people in the grunting condition on competence; $F(1,329) = 9.12, p = .003, \eta_p^2 = .027$ and feminine attributes; $F(1, 329) = 14.62, p = <.001, \eta_p^2 = .042$. However, for these outcome variables people the no-grunting condition scored higher on competence ($M = 5.14, SD = .98$) than people in the grunting condition ($M = 4.80, SD = 1.07$) and people in the no grunting condition scored higher in feminine attributes ($M = 3.64, SD = 1.00$) than people in the grunting condition ($M = 3.20, SD = 1.08$). Contrary to our prediction, there was no significant effect of grunting on wellbeing; $F(1, 329) = .009, p = .922, \eta_p^2 = <.001$, where perceived wellbeing constituted of, body image satisfaction, life satisfaction and self-esteem.

Prediction 2

For our second prediction, we found no significant effect of sexual orientation, on our outcome variables perceived masculinity; $F(1,329) = .860, p = .354, \eta_p^2 = .003$, meaning that gay men are not perceived to be more or less masculine compared to heterosexual men. Sexual orientation was additionally found to have no significant effect on sexual objectification $F(1,324) = .445, p = .505, \eta_p^2 = .001$. Furthermore, for our outcome variable

perceived competence there was no significant effect of sexual orientation to be found;

$F(1,329) = 1.457, p = .228, \eta_p^2 = .004$; as well as for sexual orientation on perceived

wellbeing; $F(1,329) = .658, p = .418, \eta_p^2 = .002$.

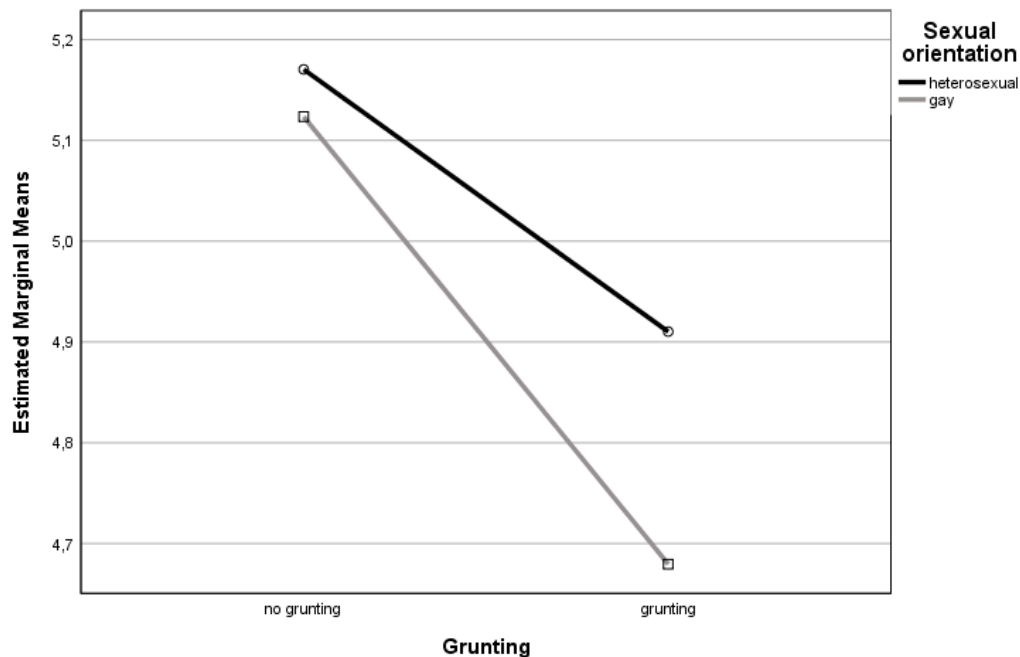
However, we found a significant main effect of sexual orientation on our outcome variable, feminine attributes; $F(1,329) = 10.460, p = .001, \eta_p^2 = .03$. More specifically, gay men scored higher in feminine attributes ($M = 3.62, SD = 1.03$) than heterosexual men ($M = 3.25, SD = 1.06$).

Prediction 3

Regarding our third prediction, we found no significant interaction effects between grunting and sexual orientation on masculinity; $F(1,329) = .421, p = .517, \eta_p^2 = .001$; as to be seen in Figure 1, implying that gay men who grunt were not perceived to be more or less masculine compared to heterosexual men who grunt. Further non-significant effects of sexual orientation and grunting on competence; $F(1,329) = .042, p = .838, \eta_p^2 = <.001$; feminine attributes; $F(1,329) = .855, p = .356, \eta_p^2 = .003$ and wellbeing; $F(1,329) = .639, p = .435, \eta_p^2 = .002$ were found. Nevertheless, we found a significant interaction effect between grunting and sexual orientation on the sexual objectification variable, $F(1,324) = 4.497, p = .035, \eta_p^2 = .014$. Interestingly, gay men who grunt scored higher in perceived self-objectification ($M = 4.64, SD = 13.76$) compared to heterosexual men ($M = .35, SD = 13.21$). Whereas, heterosexual men who did not grunt scored higher in perceived self-objectification ($M = 7.86, SD = 11.72$) than gay men who did not grunt ($M = 5.98, SD = 13.90$).

Figure 1

Interaction effect of sexual orientation and grunting on masculinity perceptions



Discussion

The aim of our study was to investigate the effects of grunting and sexual orientation towards perceptions about gender and psychological related aspects. Specifically, how these factors may influence people's perceptions towards perceived masculinity and wellbeing. Our first prediction regarding gender related aspects was that, people will perceive men who grunt to be higher in masculinity and objectify themselves more. Regarding the psychological related aspects, we predict that they will be perceived to have a higher competency and wellbeing, regardless of their sexual orientation. Furthermore, we also looked at the effect grunting has on perceived feminine attributes in order to be sure that there was no connection between these variables. However, our findings were not consistent with our prediction. There was an effect of grunting on perceived masculinity, self-objectification and competence nevertheless, the main effect was surprisingly oppositional to our prediction. Grunting namely decreased perceived masculinity, self-objectification and competency across sexual

orientations. Leading to the speculation that grunting may be perceived differently than we expected.

As grunting is seen as a type of social interaction within the group of the skilled gym goers, other people may perceive them as typically masculine and competent (Lev & Hertzog, 2020). Our results indicate otherwise, which leads to the speculation that people may perceive grunting as an act, primarily to impress their out-and in-group with masculinity and competence. This is in line with the theory of social categorization, stating that people are inclined to conform to in-group norms, in order to fit into a group (Knippenberg & Wilke, 1992). Furthermore, a study has shown men to feel public discomfort and shame when their gender is threatened (Vescio et al., 2021). Therefore, men may endorse in-gender conform behavior, such as grunting, in order to avoid a threat to their masculinity. Consequently, people may perceive the act of grunting to be motivated by conforming to in-group norms in order to avoid a masculinity threat. Therefore, our findings show that grunting may have the oppositional effect, namely men who grunt involuntarily portray less masculinity and competence.

Furthermore, grunting had an effect on feminine attributes namely, when the act of grunting would be absent participants would perceive the actor to have more feminine attributes. This would imply that grunting is associated with higher masculinity perceptions however, our results indicate otherwise. We may explain these findings by taking a closer look at what constitutes desirable masculinity. A study suggested a possible shift of desirable masculinity being connected to female attributes such as nurturance and expressiveness (Ricciardelli & Williams, 1995). Meaning, what constitutes masculinity may have been redefined. Grunting led to a decrease in perceptions of feminine attributes and masculinity, which may reflect that stereotypical masculine behavior may not be desired anymore (Ricciardelli & Williams, 1995).

Moreover, participants perceived the actor in the non-grunting condition to objectify himself more. This could be explained by the shift in desired masculinity to more feminine attributes (Ricciardelli & Williams, 1995). As the actor was judged to have more feminine attributes when not grunting this could mean participants perceived him to embody a stronger sense of desired masculinity. As a consequence, he may be viewed as being more sexually objectified and, in accordance with objectification theory, be perceived to objectify himself more (Martins et al., 2007).

Lastly, our findings did not reflect a main effect of grunting on higher perceived wellbeing. This may be due to the fact that research has only shown grunting to be related to male gender norms such as competence, strength and dominance (Lev & Hertzog, 2021). As these aspects are not included in our wellbeing scale the conclusion can be drawn that our data does not support a link between grunting and perceived wellbeing.

For our second prediction we expected gay men to be perceived as less masculine than heterosexual men, regardless of the act of grunting. Our findings however did not show that participants perceived gay men being more or less masculine. Along with this, our findings depicted no significant difference between both sexual orientations regarding the perception of self-objectification, competence and wellbeing.

A possible explanation may be connected to the gay liberation in the 1960s, where gay men were trying to break out of the stereotypes connected to their sexual orientation, such as being sexually objectified due to how popular culture press and the media shapes a sexualized image of gay men (Duncan, 2017; Martins et al., 2007; Murray & Drummond, 2005; Murray & Touyz, 2012). Following, in 1973 the Diagnostic and Statistical Manual (DSM) removed homosexuality as a diagnosis (Drescher, 2015). Nowadays, same-sex marriage is legal in 28 countries and 81 countries have laws against workplace discrimination on the basis of sexual orientation (BBC News, 2021). All of these milestones indicate that sexual prejudice is

increasingly becoming less socially acceptable (Jayakurmar, 2009) and therefore, a shift from decriminalization to acceptance of sexual orientation exists. Our findings may reflect this shift because there was no difference found between gay and heterosexual men regarding masculinity, self-objectification, competence and wellbeing.

In contrast, our results show that gay men are perceived to have more female attributes than heterosexual men. Multiple studies have shown that in many societies gay men have been stereotyped to have female gender roles (Duncan, 2017; Hunt et al., 2017; Blashill & Powlishta, 2009). Therefore, people may use subconsciously learned stereotypes when seeing gay men and immediately associate them with female attributes. Even though sexual prejudice has decreased (Jayakurmar, 2009), we cannot draw the conclusion that stereotypes towards gay men overall have been eliminated in society, hence affecting our findings.

Our last prediction provided no significant evidence to reflect that, gay men who grunt are perceived as more or less masculine than gay men who do not grunt. This can be explained by the main effect of our first prediction being opposite to the direction that we expected. If grunting decreased masculinity perceptions and sexual orientation had no effect on masculinity perceptions, combining the two would not result in confirming our prediction of an interaction effect. Therefore, we can reason as to why gay men who grunt did not have an effect on perceived masculinity.

Interestingly, we found an interaction effect between our dependent variable, sexual objectification, and both of our independent variables, grunting and sexual orientation. First of all, in the grunting condition, gay men were perceived to objectify themselves more than heterosexual men. This may be related back to the fact that females who grunt in the gym are quick to be sexually objectified (Lev & Hertzog, 2020). Connecting this to gay men being perceived to have more feminine attributes than heterosexual men (Duncan, 2017; Hunt et al.,

2017; Blashill & Powlishta, 2009), one may imply that gay men might be more inclined to objectify themselves more.

Second of all, in the non-grunting condition, heterosexual men were more sexually objectified than gay men. This may be due to the fact that grunting was seen as a stereotypically masculine behavior (Lev & Hertzog, 2021). A heterosexual man that does not grunt could be seen as straying away from the stereotype and more towards the feminine. This shift has been shown to reflect a more desired masculinity (Ricciardelli & Williams, 1995). This could lead to the perception that heterosexual men who do not grunt would be seen as more sexually objectified and therefore objectify themselves more. This is in contrast to gay men who have already been perceived to have more feminine attributes (Blashill & Powlishta, 2009) and therefore, the act of not grunting may affect perceptions of them less, relative to heterosexual men.

Implications

Overall, our results have added to previous findings regarding perceptions about societal issues, such as sexual prejudice. Even though sexual prejudice and therefore overall discrimination and stereotypes associated to gay men have decreased (Jayakurmar, 2009; BBC News, 2021), they are continuously faced with the prejudice of homosexual stereotypes (Duncan, 2007). Our results shed light to both the decrease of sexual prejudice and the continuous existence of homosexual stereotypes. First of all, perceptions of masculinity, competence, self-objectification and wellbeing was not influenced by sexual orientation. Thus, portraying equal and non-prejudiced evaluation of both gay and heterosexual men. Second of all, gay men were associated to more feminine attributes, compared to heterosexual men, indicating that stereotypes do still exist.

Our findings regarding the effect of grunting towards perceived masculinity shed light to the fact that grunting may not be perceived as the stereotypically masculine behavior as the

paper of Lev & Hertzog (2021) suggests. This finding opens up the question as to what constitutes masculinity. A possible shift of desirable masculinity towards more feminine attributes may be the reason as to why grunting was not perceived to increase masculinity (Ricciardelli & Williams, 1995).

Lastly, our non-existent interaction effect between grunting and sexual orientation on perceived masculinity may highlight, that modern views of sexual orientation cannot easily be influenced by stereotypically gendered behavior, in relation to perceived masculinity. This again sheds light to the fact of sexual prejudice decreasing in society as it is not seen as socially acceptable (Jayakumar, 2009)

Limitations

Next, in examining the limitations of our study, it is apparent that a self-reported digital questionnaire might have affected our results. Even though we made sure to have an attention check, external influences might have still had an affect on participants' responses. Additionally, the participants had to pay attention to the video and the sound at the same time, which may have caused divided attention. Therefore, participants should fill out the questionnaire in the lab where the environment is controlled for. Furthermore, our sample only consisted of heterosexual people and additionally primarily females, whom may have had an influence on our results. First of all, studies have shown that participants responses towards gay people were higher in sexual prejudice if their sexual orientation was heterosexual (Moskowitz, 2012), leading to a possible influencing factor on our results. Second of all, grunting is an act performed primarily by men and consequently women may not relate to its social function of portraying masculinity (Lev & Hertzog, 2020) and therefore affecting it's the evaluation of this specific variable. It must additionally be considered, that females show less sexual prejudice than males (Berent et al., 2016), which may be why there was no difference to be found between heterosexual and gay men regarding perceived

masculinity. Participants possible non-prejudiced views may have affected our second and third predictions.

A fourth limitation in our study was the use of the broad age range of our sample. Age of the participants may have been an influencing factor towards how liberal or conservative opinions are towards societal topics such as sexual orientation (Finnegan, 2014). Thus, these possible varying opinions may have impacted our results.. It may be better to focus on a specific target population in order to establish if participants' societal attitudes influenced our results.

Lastly, the presented video in our experiment was flawed. The video was not professionally produces as it was not of high audio quality due to the background noises in the gym. Consequently, directing participants' attention towards the video's flaws and not towards what they were supposed to focus on, leading to a possible impact on our results. Taking these limitations into account, it may be of interest to replicate our study in order to establish if these limitations have an effect on our findings.

Future Research

Possible points to consider for future research are for one, to measure the effects of heterosexual and gay women who grunt. In the paper of Lev and Hertzog (2021), it is discussed that women who grunt are quick to be sexualized. However, would the actor's sexual orientation influence this assumption as it does for males or is the sex of the actor the determining factor for self-objectification when grunting? If women are sexualized when grunting does this imply that grunting is not perceived as masculine anymore when women practice it? In addition, grunting is not as socially accepted for women as it is for men. However, going against their gender roles, may lead to an effect on perceived psychological related factors. Women may be perceived, as for instance having higher self-esteem when grunting because of going against their expected gender norms.

Finally, it may be interesting to replicate the study across various different countries and cultures. Sexual orientation is perceived differently across countries and cultures because values and norms differentiate in different cultures (Poushter & Kent, 2020). Therefore, responses to psychological and gender related factors might be influenced when evaluating gay people.

Conclusion

In conclusion, our study aimed to investigate three different predictions related to the effects of grunting and sexual orientation towards gender and psychological factors. Interestingly, we found that all three predictions mostly did not reflect the findings we would have expected. As grunting is seen as a masculine gender role (Lev & Hertzog, 2020) and gay men are perceived to have more feminine attributes compared to heterosexual men (Blashill & Powlishta, 2009), we would have expected that gay men will be perceived as more masculine when indulging into a male gender role such as grunting. Regardless, an important aspect our study highlights is that sexual prejudice has decreased as there were no perceived differences between gay men and heterosexual men to be found regarding masculinity (Jayakurmar, 2009). Another important question which arose from our study is, to what extent masculinity has been reconceptualized, if a previously known gender role such as grunting was associated to less masculinity. As our study shows, the perception of masculinity is shifting away from burley mustache men of the past and we may be on the road to developing a new ideal for men. One that is more inclusive for gay and heterosexual men alike.

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Appendix A: Survey

Grunting

Survey Flow

EmbeddedData
PROLIFIC_PIDValue will be set from Panel or URL.
Block: consent (1 Question)
BlockRandomizer: 1 - Evenly Present Elements
Standard: Hetero-NoGrunt (6 Questions)
Standard: Hetero-Grunt (6 Questions)
Standard: Gay-NoGrunt (6 Questions)
Standard: Gay-Grunt (6 Questions)
Standard: Outcomes (5 Questions)
Standard: Demo (8 Questions)
Standard: Debrief (1 Question)
Page Break 

Start of Block: consent

consent **Perceptions of People Working Out at Gyms**
PSY-2122-S-091

You are being invited to take part in a study regarding the perceptions of people working at the gym. You will be asked to watch a video of a man working out, and answer some questions about the video and about your impressions of this person.

The project aims to run between 1/11/2021 and 30/09/2022, and it has been approved by the Ethical Committee of Psychology at University of Groningen. This study is being supervised by Dr. Yasin Koc (Assistant Professor) and conducted together with Charlotte Lieser (Bachelor student), Rieke Peters (Bachelor student), Maaïke van der Sluijs (Bachelor student), Johanna Mann (Bachelor student), Phillip Kaesemann (Bachelor student), and Skyler Reynolds (Bachelor student).

You will first be asked for consent to participate, then you will be asked to watch a video, and answer a questionnaire about that video. The expected duration for the study is 5-6 minutes.

Participation in the research is voluntary. However, your consent is needed. Therefore, please read this information carefully. If you decide to not participate, you do not need to explain why, and there will be no negative consequences for you. You may leave the study even after you have consented to participate. There are no negative consequences of participation.

You will be asked to indicate the following personal information: your age, your gender, your sexual orientation, but no other personal information (e.g., name, email address) will be

collected. You have a right not to answer any personal information. You will also be asked about sensitive information (i.e., your race). Only Dr. Yasin Koc will have access to the personal data. The anonymized data will be securely saved for 10 years. The anonymized data will be used for presentation and publication in scientific journals.

If you would like your data to be removed from the study, you can contact dr. Yasin Koc through y.koc@rug.nl until 30/12/2021, and we will remove your data. Afterwards, since we will have anonymised and analyzed your data, it will be impractical to remove your data.

If you have any questions about the research, you can email dr. Yasin Koc at y.koc@rug.nl. If you have any questions or concerns regarding your rights as a research participant, you may also contact the Ethics Committee of Psychology of the University of Groningen: ecp@rug.nl. If you have questions or concerns regarding your privacy, or regarding the handling of your personal data, you may also contact the Data Protection Officer of the University of Groningen: privacy@rug.nl.

Please indicate below that you have read the information about the research, and you understand what the research is about, what is being asked of you, which consequences participation can have, how your data will be handled, and what your rights are.

In relation to participation and in relation to consent to processing my personal data (gender, age, sexual orientation):

- Yes, I consent to participate and I consent to the processing of my personal data as mentioned in the research information. (1)

End of Block: consent

Start of Block: Hetero-NoGrunt



AUDIO CHECK – until people put in the right number, they cannot go to the next page!

Q18 Please set the sound of your computer to medium and make sure you can hear the background audio while you are watching the video. Please enter the number you hear in numeric form (e.g., 1234) to be able to continue.

Q19 Now you will see a video of Tom. Tom likes working out at the gym regularly. This video was shot by his girlfriend - Kate. Please now watch the following video carefully while also attending to the background audio. You will answer some questions evaluating Tom based on his workout.

Page
Break 

These are attention check questions, but we will only use the “who shot the video” question for excluding participants. The others are fillers.

Q20 What was the name of the person in the video?

- Sean (1)
- Tom (2)
- Erik (3)

Q21 Who shot the video?

- His girlfriend (1)
- His workout buddy (2)
- His brother (3)

Q30 How would you rate his technique?

- Poor (1)
- Reasonable (2)
- Average (3)
- Good (4)
- Excellent (5)

Q23 Did you recognise the song in the background?

- Imagine Dragons - Believers (1)
- Lost Kings - Don't Kill My High (2)

- YUNGBLUD - Hope For The Underrated Youth (3)

End of Block: Hetero-NoGrunt

Start of Block: Hetero-Grunt



Q34 Please set the sound of your computer to medium and make sure you can hear the background audio while you are watching the video. Please enter the number you hear in numeric form (e.g., 1234) to be able to continue.

Page
Break 

Q35 Now you will see a video of Tom. Tom likes working out at the gym regularly. This video was shot by his girlfriend - Kate. Please now watch the following video carefully while also attending to the background audio. You will answer some questions evaluating Tom based on his workout.

Page
Break 

Q36 What was the name of the person in the video?

- Sean (1)
- Tom (2)
- Erik (3)

Q37 Who shot the video?

- His girlfriend (1)
- His workout buddy (2)
- His brother (3)

Q38 How would you rate his technique?

- Poor (1)
- Reasonable (2)
- Average (3)
- Good (4)
- Excellent (5)

Q39 Did you recognise the song in the background?

- Imagine Dragons - Believers (1)
- Lost Kings - Don't Kill My High (2)
- YUNGBLUD - Hope For The Underrated Youth (3)

End of Block: Hetero-Grunt

Start of Block: Gay-NoGrunt



Q26 Please set the sound of your computer to medium and make sure you can hear the background audio while you are watching the video. Please enter the number you hear in numeric form (e.g., 1234) to be able to continue.

Page
Break



Q27 Now you will see a video of Tom. Tom likes working out at the gym regularly. This video was shot by his boyfriend - Mike. Please now watch the following video carefully while also attending to the background audio. You will answer some questions evaluating Tom based on his workout.

Page
Break



Q28 What was the name of the person in the video?

- Sean (1)
- Tom (2)
- Erik (3)

Q29 Who shot the video?

- His boyfriend (1)
- His workout buddy (2)
- His brother (3)

Q31 How would you rate his technique?

- Poor (1)
- Reasonable (2)
- Average (3)
- Good (4)
- Excellent (5)

Q31 Did you recognise the song in the background?

- Imagine Dragons - Believers (1)

- Lost Kings - Don't Kill My High (2)
- YUNGBLUD - Hope For The Underrated Youth (3)

End of Block: Gay-NoGrunt

Start of Block: Gay-Grunt



Q40 Please set the sound of your computer to medium and make sure you can hear the background audio while you are watching the video. Please enter the number you hear in numeric form (e.g., 1234) to be able to continue.

Page
Break 

Q41 Now you will see a video of Tom. Tom likes working out at the gym regularly. This video was shot by his boyfriend - Mike. Please now watch the following video carefully while also attending to the background audio. You will answer some questions evaluating Tom based on his workout.

Page
Break 

Q42 What was the name of the person in the video?

- Sean (1)
- Tom (2)
- Erik (3)

Q43 Who shot the video?

- His boyfriend (1)
- His workout buddy (2)
- His brother (3)

Q44 How would you rate his technique?

- Poor (1)
- Reasonable (2)
- Average (3)
- Good (4)
- Excellent (5)

Q45 Did you recognise the song in the background?

- Imagine Dragons - Believers (1)
- Lost Kings - Don't Kill My High (2)
- YUNGBLUD - Hope For The Underrated Youth (3)

End of Block: Gay-Grunt

Start of Block: Outcomes



bemscm Please respond to the following question by thinking about the person in the video you just watched.

1-4 Stereotype content model – Warmth

5-8 Stereotype content model – Competence

9 – Masculinity

10 – Femininity (depending on the correlation, we might combine 9 and 10)

11 – Attractiveness

12 – Promiscuity

13-17 – BEM Gender roles – masculine

18-21 – BEM Gender roles - feminine

To what extent do you think he is:

	1 - Not at all (1)	2 - A little (2)	3- More than a little (3)	4 - Moderately (4)	5 - A lot (5)	6 - More than a lot (6)	7 - Entirely (7)
Friendly (1)							
Warm (2)							
Sincere (3)							
Good-natured (4)							
Capable (5)							
Competent (6)							
Confident (7)							
Skillful (8)							
Masculine (9)							
Feminine (10)							
Attractive (11)							
Promiscuous (12)							
Assertive (13)							
Dominant (14)							
Aggressive (15)							
Athletic (16)							

Self-reliant (17)
Sensitive (18)
Sympathetic (19)
Understanding (20)
Gentle (21)

Page Break

Please respond to the following question by thinking about the person in the video you just watched.

Each one are separate scales measuring exactly what it says

To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
He has high self-esteem. (1)							
He is satisfied with the appearance, size and shape of his body. (2)							
In general, he is satisfied with his life. (3)							



fitness Please respond to the following question by thinking about the person in the video you just watched.

First three are health related questions
Last three are fitness related questions.

To what extent do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
He is physically healthy. (1)							
He eats healthy food (2)							
He takes unhealthy supplements. (3)							
He is fit. (4)							
He enjoys his workouts. (5)							
He doesn't like working out. (6)							

exertion What is the exertion levels of the person in this video during his workout?

- Extremely light intensity / no intensity (1)
- Very light intensity (2)
- Light intensity (3)

- Moderate intensity (4)
- High intensity (5)
- Very high intensity (6)
- Extreme intensity (7)

Page
Break 

Self-objectification scale (Fredrickson 1997)

subject Considering the person working out in the video, please rank the following features based on how much you think he values in terms of his physical self-concept from most important (1) to least important (10)

- _____ physical coordination (1)
- _____ health (2)
- _____ weight (3)
- _____ strength (4)
- _____ sex appeal (5)
- _____ physical attractiveness (6)
- _____ energy level (e.g., stamina) (7)
- _____ firm/sculpted muscles (8)
- _____ physical fitness level (9)
- _____ measurements (e.g., chest, waist, hips) (10)

End of Block: Outcomes

Start of Block: Demo

Q11 What is your age?

Q10 What is your gender?

- Male (1)
- Female (2)
- Non-binary (3)
- I want to specify myself: (4) _____

Q19 What is your sexual orientation?

- Heterosexual (1)

- Gay/lesbian (2)
- Bisexual (3)
- Pansexual (4)
- Queer (5)
- I want to specify myself (6) _____

Q18 How often do you go to the gym to exercise?

- Never (1)
- Sometimes (2)
- A few times a week (3)
- Most days of the week (4)
- Every day (5)

Q12 Think of this ladder as representing where people stand in the US. At the top of the ladder are people who are the best off, those who have the most money, most education, and best jobs. At the bottom are those who have the least money, least education, and worst jobs or no job.

Please select the number of the rung that best represents where you think you stand on the ladder.

- 10 (1)
- 9 (2)
- 8 (3)
- 7 (4)
- 6 (5)
- 5 (6)
- 4 (7)
- 3 (8)
- 2 (9)
- 1 (10)



Q15 What is your highest educational qualification?

- No formal qualification (1)
- Secondary education (2)
- High school / A level (3)
- Technical / community college degree (4)

- Undergraduate degree (5)
- Postgraduate degree (6)
- Doctorate degree (7)

Q16 What is your political ideology?

Very liberal

Very conservative

1

2

3

4

5

6

7

Political ideology ()	
-----------------------	---



Q17 What is your Prolific ID?

End of Block: Demo

Start of Block: Debrief

Q9 In this study, we asked you to watch a video of a man performing multiple exercises at the gym. This was a 2x2 design, meaning there were four possible conditions, namely watching a man working out while grunting or remaining silent, and having the man be presented as heterosexual or gay as manipulated by the name of the filming partner. Our study aimed to evaluate how perceived masculinity as well as factors pertaining to gender, psychological and physical characteristics were affected by sexual orientation and grunting during exercise.

End of Block: Debrief