The Journal of Sex Research

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hjsr20

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To cite this article: Flora Oswald, Amanda Champion, Devinder Khera, Madeline Young & Cory L. Pedersen (2022): Stereotype Application at the Intersection of Body Shape, Gender/Sex, and Sexual Orientation, The Journal of Sex Research, DOI: 10.1080/00224499.2022.2026286

To link to this article: https://doi.org/10.1080/00224499.2022.2026286

THE JOURNAL OF SEX RESEARCH
https://doi.org/10.1080/00224499.2022.2026286

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Stereotype Application at the Intersection of Body Shape, Gender/Sex, and Sexual Orientation

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ABSTRACT

Though much work has examined how sexual orientation and body shape are jointly constituted, less has examined the joint perception of body shape, gender/sex, and sexuality. We draw upon multifarious person perception approaches to examine how personality and sexuality-related traits are attributed to bodies of varying shape (skinny, average, fat) when presented with differing social identities along the axes of gender/sex (male, female) and sexual orientation (heterosexual, lesbian/gay). In a sample of 991 participants, we found robust evidence that trait application varied by both body shape and sexual orientation. Further, supporting our hypotheses, we found that gay male bodies were perceived as more feminine than heterosexual male bodies, and skinny male bodies were perceived as more feminine than other body shapes. Supporting additional hypothesizing, lesbian female bodies were perceived as more masculine than heterosexual female bodies, and fat female bodies were perceived as the most masculine across sexual orientations. Partially supporting our hypotheses, we found that average bodies were perceived as the most typical for all identities; further, bodies perceived as less typical of their social identity category were perceived as experiencing heightened prejudice on the basis of body shape.

> You can be 'straight thin', but 'gay fat'.
>
> - anonymous Grindr user, as cited in Arnold (2018)

Lesbian women are twice as likely to be fat[1] than their heterosexual counterparts (e.g., Boehmer et al., 2007; Struble et al., 2010); the converse is true for gay men, who are less likely to be fat than heterosexual men (e.g., Fredriksen-Goldsen et al., 2013; Lunn et al., 2017). Literature spanning psychology, public health, and LG (lesbian and gay) studies has interrogated these patterns through differing lenses – often drawing upon minority stress models – which position sexual stigma as a fundamental cause of health disparities (see Matsick et al., 2020) to understand these differential outcomes (e.g., Mereish, 2014; Mereish & Poteat, 2015). Much of this work has drawn connections to how LG community norms shape bodily attitudes; for example, academics have theorized that greater acceptance of body diversity in lesbian populations contributes to greater body satisfaction and thus lower drive for thinness (e.g., Aaron et al., 2001). Conversely, researchers theorize that emphasis on (idealized) physical appearance within mainstream gay male communities promotes extensive drive for thinness and drive for muscularity (e.g., Tiggemann et al., 2007).

Though much work has focused on the joint constitution of body shape[2] and sexual orientation, less work has examined the joint *perception* of body shape and sexual orientation. Bodies, however, are important social stimuli which convey crucial social information to perceivers (e.g., Reed et al., 2007), and appear to be a special class of stimuli for which humans have developed specialized processing mechanisms (Reed et al., 2003), suggesting their perceptual significance. In the present work, we drew upon multifarious person perception approaches to examine how personality and sexual traits are attributed to bodies of varying shape (skinny, average, fat) when these bodies are presented as belonging to differing social identity categories along the axes of gender/sex[3] (male, female) and sexual orientation (heterosexual, L/G). Additionally, we examined a prejudice-related mediator (i.e., typicality) and outcomes to connect sexual trait judgments to stigma and

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Portions of this paper were presented at the annual meeting of the Society for the Scientific Study of Sexuality (online, 2021).

[1]We use the terms "fat" and "fatness" in keeping with fat studies scholarship, which rejects the use of terms such as "obesity" and "overweight" in favor of fat as a descriptive term for larger bodies. However, we use obesity where necessary to stay true to source material.

[2]We use "body shape" as a reference to the fatness of bodies, opting for the terminology of shape rather than weight or size given that (1) weight is a discrete and specific measure which humans are not particularly apt at perceiving accurately and (2) size might refer also to height or proportion (see also, Oswald et al., 2020).

[3]We use the terminology of "gender/sex" (see, van Anders, 2015) to refer to the jointly constituted identities of our target stimuli both as inherently sexed bodies (developed in a program which models bodies based on biological sex) and as gendered persons with whole identities intertwined with their sexed bodies. We refer to bodies as "male" or "female," but use "men/man" or "women/woman" to refer to social identities. We recognize that gender and gender/sex identities can and do branch from sex, but in the current work we assign all male bodies identities of "man/men" and all female bodies identities of "woman/women."

Supplemental data for this article can be accessed on the publisher's website.

health outcomes. Prior work has established the relevance of sexual trait inferences to fat stigma and the importance of considering sexuality-related fat stigma and discrimination for health and well-being (Oswald et al., 2020). The present work bridges existing disparate literatures on body shape, sexual orientation, person perception, and prejudice to examine sexuality-related trait inferences and prejudice-related outcomes associated with multivariate body stimuli with intersecting social category memberships.

Multifarious Person Perception: Body Shape, Gender/Sex, and Sexual Orientation

Traditionally, stereotyping and prejudice research has focused on singular social identity categories (e.g., gender/sex, sexual orientation), treating these identities as unidimensional and independent (Bowleg, 2008; Ghavami & Peplau, 2013). However, stereotypes are not applied to targets in uniform ways (see Petsko & Bodenhausen, 2020); intersectional forces – the ways in which "each social group is constructed through the lens of the others" (Ghavami et al., 2016, pp. 34–35; see also, Crenshaw, 1989, 1991; hooks, 1984) – inform the activation, application, and outcomes of stereotyping processes (Petsko & Bodenhausen, 2020). Because major systems of oppression are interlocking (Combahee River Collective, 1977) – such that hierarchies of value placed on the body are affected by other social systems of domination, such as patriarchy and heterosexism (see van Amsterdam, 2013) – it is important to understand how body shape interacts with other identities. We theorize this interaction by drawing upon theories of intersectionality and more recent work, which situates intersectional notions in perceptual literature to understand multifarious person perception.

Evidence supports that stereotypes about fat men differ from stereotypes about men generally, while stereotypes about fat men and fat women also differ (though the latter do show more overlap; see, Oswald et al., 2020). Stereotypes thus are not unilaterally applied to identities such as *man* or *fat* (as is inherently assumed in traditional stereotyping research), but rather consider the intersecting identity categories of the target (though the processes by which this occurs are contested, see, Petsko & Bodenhausen, 2020). Given that intergroup relations – including processes such as stereotyping and prejudice – are grounded in perception (Xiao et al., 2016), perception of intersectional targets can be used as a starting point for understanding intersectional stereotyping and concomitant prejudice.

Sparse existing work has examined perceptions of bodies at the specific intersection of shape, gender/sex, and sexual orientation. Some literature has examined identities at these intersections drawing upon the *experiences* of individuals belonging to specific subgroups where these identities are salient; however, in the present work, we are interested in *perceptions* of these identity intersections. For example, previous work has explored the experiences of fat gay men, who sometimes self-identify as "bears" or simply "big men" (see Gough & Flanders, 2009; Whitesel, 2014); others have examined women's experiences at the intersection of fatness, femininity, and lesbian identity, revealing multiple marginalization and unique experiences of stigmatization (e.g., Taylor, 2018). However, some individuals also embrace these identities as a form of resistance against homogenizing stereotypes (e.g., gay "big men" reject the dominant image of gay men as thin and actively reclaim space in the gay community; see Whitesel, 2014). Though these *experiences* of unique stigmatization and marginalization have been elucidated, little is known about the upstream perceptual processes by which this marginalization is produced (e.g., what do people think when they see a fat gay man?).

One experimental study by Essayli et al. (2019) examined the perceived sexual orientation of hypothetical men and women with eating disorders and obesity, finding no significant differences in perceived sexual orientation among male and female obese targets. Over 80% of (predominantly heterosexual) participants perceived both male and female targets with obesity as heterosexual, though obese male targets were more likely than obese female targets to be rated as heterosexual, partially consistent with the (simplified) notion of gay men as skinny and lesbian women as fat. One qualitative study of intersectional stereotypes (Murphy et al., 2021) examined perceived stereotypes (i.e., dominant, shared beliefs about associations between certain characteristics and a group at large; see Matsick & Conley, 2016) of the intersections of gender and sexual orientation, and gender and fatness, finding that fat women were simultaneously stereotyped as heterosexual and likely to be queer, while fat men were stereotyped as heterosexual; this study did not specifically capture stereotypes of compound identities including all three categories. In tune with intersectional theorizing, it is important to note that heterosexual and skinny/average men and women – that is, prototypical men and women – also exist at the intersection of body shape, gender/sex, and sexual orientation. However, research on prototypical samples and stimuli typically takes this intersectionality for granted (see Remedios & Snyder, 2015); it is thus difficult to draw conclusions based upon these intersections due to a lack of explicit examination.

Sexual Traits

Prior work has demonstrated the relevance of sexual trait inferences to fat stigma, and the importance of considering sexuality-related fat stigma and discrimination for health and well-being (Oswald et al., 2020). Oswald and colleagues found that fat male and female bodies were generally viewed as sexually unattractive and were associated with gender-atypical (i.e., traditionally or stereotypically associated with a different gender), and thus negative, sexual traits. Similarly, very skinny male bodies were associated with negative traits. This study examined the intersection of body shape – including skinny and average bodies, which are often uninterrogated due to their prototypicality – with gender – finding that sexual trait attribution did vary by both gender and body shape. Further work has demonstrated that sexual stereotypes vary by gender and body shape together, though more overlap is noted between fat men and fat women than men and women generally (Murphy et al., 2021). These findings suggest the inference of sexuality traits from body shape and gender in systematic ways.

However, body perception and corresponding evaluations are influenced by additional social category memberships (see, Alt et al., 2019), suggesting that sexual trait attribution – and concomitant stereotyping and discrimination – is influenced by these identities as well. Examining the role of intersecting social identities on body perception, Alt et al. (2019) demonstrated interdependent associations between body shape and additional social category memberships (ethnicity, age, and gender/sex); fatness was evaluated differently depending on its perceived typicality for the target's intersecting identities. Sexual orientation is a particularly relevant and understudied additional social identity, given the apparently interrelated nature of sexual orientation and body shape (as reviewed above). Given sexual stereotypes vary by sexual orientation (e.g., Calabrese et al., 2018; Murphy et al., 2021), and body morphology's implication in judgments of sexual orientation (particularly for women; Alt et al., 2019), it seems likely that sexual trait attribution would vary along all three axes of body shape, gender/sex, and sexual orientation. Understanding sexual trait attributions along these axes in tandem would provide insight into intersectional stereotyping processes that impact individuals multiply marginalized along these axes.

Femininity and Masculinity

It remains unclear whether fatness masculinizes or feminizes bodies, particularly queer bodies (see, Taylor, 2018); fat bodies for women tend to befit male norms (e.g., Hartley, 2001), but also conjure feminine notions of motherly or matronly figures (Murphy et al., 2021; Taylor, 2018). Similarly, fat bodies for men may conjure notions of strength and power (van Amsterdam, 2013) but may also feminize male bodies given the apparent failure to meet masculine norms of muscularity and self-control (e.g., Bell & McNaughton, 2007; Murphy et al., 2021; Whitesel, 2014). However, perceived bodily gender-typicality (i.e., femininity and masculinity) has been implicated in sexual trait judgments; bodies that violate gendered norms (i.e., very fat females, very skinny and very fat males) are associated with gender-atypical sexual traits (Oswald et al., 2020). Gender-atypicality in both body shape and body motion also predicts judgments of LG identity (Johnson et al., 2007). These findings are in line with "gender inversion" theories of homosexuality (e.g., Kite & Deaux, 1987), which link lesbians with masculinity and gay men with femininity. These assumptions extend to inform the stereotypes (e.g., the perception that gay men have feminine-typical traits like friendliness [Kite & Deaux, 1987]) underlying benevolent forms of prejudice (e.g., Massey, 2010). That perceived gender inversion underpins judgments of sexual orientation is well supported in person perception literature (e.g., Dunkle & Francis, 1990; Freeman et al., 2010; see also, Rule, 2017). In the present work, we examined whether gay male targets and lesbian female targets would be perceived as more feminine and more masculine, respectively, than their heterosexual counterparts, across body shape. Additionally, we expected that skinnier male bodies would be seen as the most feminine across sexual orientations and that fatter female bodies would be seen as the most masculine across sexual orientations.

Typicality

Generally, typicality informs social evaluations such that prototypical stimuli that match expectations are evaluated more favorably (see Alt et al., 2019). Alt et al. (2019) applied this general understanding to body perception, finding that additional social category memberships (i.e., age, race, gender/sex) impacted the perceived typicality of heavier bodies. Furthermore, typicality judgments mediated the relationship between social category and impression evaluations, such that lower perceived typicality was associated with more negative evaluations. The authors speculated that sexual orientation would further impact typicality judgments (Alt et al., 2019), citing stereotypes of gay men as body-conscious as likely to impact perceptions. Others have shown a connection between body size stereotypical associations and sexual orientation. For instance, fatter bodies among women have been associated with masculinity and lesbian identity (McPhail & Bombak, 2015; Silvia & Rios, 2021). Further, Oswald et al. (2021) found that typicality mediated the relationship between body size and perceived prejudice among bisexual men and women. Average body types were perceived as most typical for bisexual men and women. However, fatter or skinnier bodies for bisexual men and women were perceived as less typical, which mediated perceptions of prejudice. In other words, fatter or skinnier bisexual men and women were perceived as experiencing greater prejudice as a result of body size (Oswald et al., 2021).

In line with this theorizing, we examined the perceived typicality of bodies with varying body shape, gender/sex, and sexual orientation. We expected that average bodies would be perceived as the most typical heterosexual bodies, skinny bodies would be the most typical for gay men, and fat bodies would be the most typical for lesbian women. Further, given the association of typicality with evaluative outcomes, we examined typicality as a mediator of perceived prejudice.

The Current Study

Though prior work has detailed observed relationships between body shape, gender/sex, and sexual orientation, less work has examined how these identities are jointly perceived. We draw upon multifarious person perception approaches to examine how sexual traits are attributed to bodies of varying shape (skinny, average, fat) when these bodies are presented as belonging to differing social identity categories along the axes of gender/sex (male, female) and sexual orientation (heterosexual, lesbian/gay). Further, to explore underexamined aspects of these identity intersections, we drew upon theorizing in the person perception literature, examining perceptions of femininity and masculinity, as well as typicality, in relation to perceived prejudice. We hypothesized the following:

(1) **Trait Application**: We hypothesized that, within gendered sexual orientation category (e.g., heterosexual man, lesbian woman) sexual trait application would vary by body shape. We also anticipated differences in personality and sexuality-related trait application between heterosexual and sexual minority bodies of the same body shape (e.g., fat lesbian female, fat heterosexual female).
(2) **Femininity/Masculinity**: We hypothesized that gay male bodies would be perceived as more feminine than heterosexual male bodies overall. Further, we hypothesized that skinnier male bodies would be seen as the most feminine across sexual orientations. For women, we hypothesized that lesbian female bodies would be perceived as more masculine than heterosexual female bodies, and that fatter female bodies would be seen as the most masculine across sexual orientations.
(3) **Typicality**: We hypothesized that among heterosexual bodies, the average body type would be perceived as the most typical, among gay men the skinny body type would be the most typical, and among lesbian women the fat body type would be the most typical.
(4) **Prejudice**: We hypothesized that perceptions of typicality would mediate perceived experiences of prejudice such that bodies seen as more typical of their social category would be perceived as facing less prejudice on the basis of weight.

Method

Data were collected between December 2020 and May 2021. These data and the present sample belong to a larger project that focused on body shape and sexual stereotyping, and we use only a subset of the larger dataset of variables to address the present research question. There are no other publications related to the present subset of data.

Participants

Individuals over the age of 16 years were eligible to take part in the study. There were no other exclusion criteria. Participant recruitment included a human research pool at a large Western Canadian university, or through online sampling via multiple social platforms (Facebook, Instagram, Twitter, and Reddit) and research recruitment sites for sexology and psychology studies.[4] The aggregate dataset comprised 1864 participants. From this aggregate, 324 were removed for only completing the demographics, 12 were removed for completing the survey more than once, 63 were excluded for falling below a 51% survey completion cutoff, and 2 were removed on suspicion of trolling.[5] Given these exclusions, the final aggregate dataset comprised 1463 participants. For the purposes of the present study, we only included participants from the larger dataset who were assigned to a *heterosexual* or *gay/lesbian condition*; bisexual conditions were also included in the larger project but data from these conditions is not analyzed or presented here (see Oswald et al., 2021). Given these exclusions, a final subset sample of 991 participants was obtained for the present research study. Table 1 provides a detailed distribution of participant demographics.

Stimuli

The stimuli were six (3 males, 3 female) bodies generated using the Skinned Multi-Person Linear (SMPL) Model (Loper et al., 2015), a vertex-based model which accurately represents a variety of human body shapes (Hu et al., 2018). The stimuli were a subset of those used by Oswald et al. (2020). Stimuli for the present study represented a variety of body shapes, with each gendered set of three containing one "very skinny," one "average," and one "very fat" body (see Oswald et al., 2020). Henceforth, we refer to the "very skinny" and "very fat" bodies simply as "skinny" and "fat" for clarity; the study from which the stimuli are borrowed had additional body shape conditions necessitating more specific labels. We limited the current study to only three body sizes given (a) low variance between similar conditions (e.g., "very skinny" and "skinny") in previous work (see Oswald et al., 2020) and (b) the need to limit the number of conditions in order to be adequately powered for all primary analyses.

Renderings of each body included a frontal and a 45° profile view, displayed to participants side-by-side; we visualized stimuli under controlled illumination, background, and surface material conditions, to maximize the realism and visibility of the stimuli (see Supplementary Figure 1 for all six stimuli). Stimuli were presented against a white background with a bold, underlined label at the bottom of the image describing the purported social identity of the individual (e.g., "lesbian woman").

Measures

Demographic Questionnaire

Participants provided information about their age, gender, race/ethnicity, sexual orientation, relationship status, and highest level of education. In addition, participants indicated how they perceived their own body shape on a scale of 1 (*very underweight*) to 5 (*very overweight*).

Perceived Typicality

Similar to Alt et al. (2019), participants indicated how typical the target appeared compared to people with the same social identity (e.g., "How typical do you think this body is for a lesbian woman"); response options ranged from 1 (*very atypical*) to 4 (*very typical*).

[4]As required by our IRB, the survey was anonymous and information regarding recruitment locations for each participant was not gathered. It is unknown where most of the successful participant acquisition took place; therefore, the composition of our sample as it relates to recruitment locale is uncertain.

[5]Trolling was defined as a series of two or more responses that appeared insincere. For instance, ages that were unbelievable or sexual orientation categories that do not exist.

Table 1. Distribution of participant demographic characteristics.

	Participants $N = 991$
Age	$M = 25.78$ ($SD = 10.05$)
Gender Identity	
Woman	588 (59.3%)
Man	339 (34.2%)
Non-Binary	40 (4.0%)
Specify	24 (2.4%)
Gender/Sex	
Cisgender	894 (90.2%)
Transgender	86 (8.7%)
Intersex	9 (0.9%)
Sexual Orientation	
Straight	567 (57.2%)
Gay	36 (3.6%)
Lesbian	40 (4.0%)
Bisexual	204 (20.6%)
Pansexual	58 (5.9%)
Asexual	60 (6.1%)
Specify	26 (2.6%)
Race/Ethnicity	
African/Black	54 (5.4%)
White	628 (63.4%)
South Asian	73 (7.4%)
Asian/East Asian	58 (5.9%)
Indigenous/Aboriginal	10 (1.0%)
Hispanic/Latinx	75 (7.6%)
Middle Eastern/North African/Arab	14 (1.4%)
Pacific Islander	8 (0.8%)
Multiethnic/Specify	61 (6.2%)
Prefer not to say	9 (0.9%)
Relationship Status	
Single	461 (46.5%)
Casually dating	93 (9.4%)
Non-married committed relationship	263 (26.5%)
Married/civil union	161 (16.2%)
Separated/divorced	12 (1.2%)
Widowed	1 (0.1%)
Monogamous Relationship	
Yes	425 (42.9%)
No	91 (9.2%)
Education	
Some high school	136 (13.7%)
High school diploma	140 (14.1%)
Some college/university	368 (37.1%)
Completed undergraduate	210 (21.2%)
Vocational degree/certificate	22 (2.2%)
Postgraduate studies	113 (11.4%)
Self-Perceived Body Size	
Very underweight	5 (0.5%)
Underweight	107 (10.8%)
The proper weight	491 (49.5%)
Overweight	342 (34.5%)
Very overweight	45 (4.5%)

Note: Some participants did not respond to all demographic items. Missing data was not replaced for any demographic variables. The monogamous relationship variable accounts only for participants who indicated currently being in a relationship.

Trait Application

Borrowing from Oswald et al. (2020), the trait list included descriptor terms which captured a wide variety of personality and sexual traits (e.g., quarrelsome, passionate, and self-confident). Upon presentation of each body shape, participants indicated whether each trait descriptor applied to the body shape by selecting one of two options: "*does not apply*" (0) or "*applies*" (1) (see also Hu et al., 2018). See supplementary materials for a full list of 30 personality and sexuality traits.

Anticipated Prejudice

Participants responded to three items that measured the extent to which they perceived the target as experiencing prejudice because of their body shape, sexual orientation, and gender/sex (e.g., "How much prejudice do you think this person faces as a result of their *body shape*"). Response options included a 4-point Likert-type scale ranging from 0 (*none*) to 3 (*an extreme amount*).

Perceived Femininity/Masculinity

Participants responded to two items that measured the extent to which they perceived the target to be feminine and the extent to which they perceived the target to be masculine (i.e., "How feminine [masculine] do you think this person is?"). Response options included a 6-point Likert-type scale ranging from 0 (*not at all*) to 5 (*very*), where higher scores indicate heightened perceptions of the target's femininity or masculinity.

Procedure

Participants were told the study was an investigation of perceptions of individuals with differing identities and completed the study entirely online using the Qualtrics survey platform. After providing informed consent, participants completed the demographic questionnaire and were randomly assigned to one of twelve conditions. The design was a 3 (body shape: skinny, average, fat) x 2 (stimulus gender/sex: male, female), x 2 (sexual orientation: heterosexual, lesbian/gay); participants were thus randomly assigned to one condition representing some combination of these traits (e.g., skinny gay man).[6] This design allowed us to compare how perceptions of the same social identity category (e.g., gay male) varied by body shape across conditions (i.e., skinny gay male vs. average gay male vs. fat gay male).

Body stimuli were presented from both a frontal and 45° profile, following similar procedures of Hu et al. (2018) and Oswald et al. (2020). Before viewing the body stimulus, participants read a brief set of instructions detailing what they would see and respond to (see supplemental materials). Text above each body shape stimulus directed the participant to "Please look closely at this body and then answer the following questions." Included underneath each body-shaped stimulus was the purported social identity of the individual (e.g., "heterosexual man"). First, a single question asked participants to indicate how typical they thought the body stimulus was for the social identity (e.g., "heterosexual man"). Next, participants responded to the 30-item trait list, which tasked them with judging whether the trait applied to the body shape presented. Finally, participants again viewed the original body shape stimulus (e.g., "heterosexual man") and responded to three items regarding anticipated prejudice and two items on perceived femininity/masculinity. Once participants completed

[6]Participants were randomly assigned to conditions as follows: skinny heterosexual male ($n = 97$); average heterosexual male ($n = 66$); fat heterosexual male ($n = 90$); skinny gay male ($n = 73$); average gay male ($n = 67$); fat gay male ($n = 83$); skinny heterosexual female ($n = 81$); average heterosexual female ($n = 100$); fat heterosexual female ($n = 85$); skinny lesbian female ($n = 83$); average lesbian female ($n = 95$); fat lesbian female ($n = 71$).

their responses, the survey redirected to a debriefing form. The experiment was self-paced and the median completion time was approximately five minutes.

Analytic Strategy

All analyses were conducted in IBM® SPSS 27.0 software. We used multiple imputation to deal with missing data after checking Little's MCAR test (Garson, 2019). To investigate our hypotheses, several different analytic strategies were employed. First, a correspondence analysis was conducted as a visualization technique to explore the relationship between gendered sexual orientation, body shape, and personality and sexuality-related trait applications; this technique allowed us to visualize the associations between these variables. Although this is an exploratory analysis, similar statistical strategies have been used in other studies to understand the structure of association (e.g., Hu et al., 2018; Oswald et al., 2020, 2021). Second, given that the correspondence analysis only provides a graphical representation of traits by gendered sexual orientation and body shape categories, we supplemented this analysis with a categorical principal component analysis (CATPCA) – a data reduction technique that enabled us to conduct follow-up multivariate analysis (i.e., multiple regressions) to determine statistical differences between gendered sexual orientation and body shape categories and several personality and sexuality-related trait domains (H1). Third, in order to determine whether differences existed on gendered sexual orientation and body shape categories and femininity/masculinity or typicality, a series of analysis of variances (ANOVAs) were conducted (H2 and H3). Given the results from previous studies on body size stereotypical associations and prejudice, and the mediating role of typicality, we used Hayes (2018) PROCESS macro model 4 in SPSS 27.0, with 10,000 bias-corrected 95% bootstrap confidence intervals to test whether perceptions of typicality would mediate perceived experiences of prejudice based on body shape for stimuli identified as (1) heterosexual male, (2) gay male, (3) heterosexual female, and (4) lesbian female.

Results

H1: Trait Application

Correspondence Analysis

We hypothesized that, within a gender/sex sexual orientation category (e.g., heterosexual man and lesbian woman), sexual trait application would vary by body shape. We also anticipated differences in sexual trait application between heterosexual and sexual minority bodies of the same body shape (e.g., fat lesbian woman, fat heterosexual woman). To explore trait applications across gendered sexual orientation body shapes, we followed procedures outlined by Hu et al. (2018) and Oswald et al. (2020) and employed a correspondence analysis (CA). CA allows visualization of the observations (bodies) and variables (traits) in a unitary multivariate space. To implement the CA, we tallied body and trait variables in a contingency table for bodies of each gender/sex orientation, with the three body shapes (skinny, average, fat) along the columns and the 30 personality and sexuality traits in the rows. CA transformed the body and trait variables into two new sets of factor scores – one for the bodies and one for the traits. With these factor scores as coordinates, two-dimensional maps were formed to visualize the traits associated with each body. Bodies were inputted as the column variable and column principle normalization was utilized; thus, the relationships between the column variables (bodies) and the relationships between the row variables (traits) can be interpreted from proximity, noting with caution that the vertical distances between these coordinates are inflated (Oswald et al., 2020).

Figure 1 illustrates that the vertical axis separated traits by valence, with positive traits (e.g., flirtatious, seductive, and dominant)[7] generally on the left side of the plot and negative traits (e.g., prudish, sexually diseased, sexist) generally on the right side of the plot. This dimension accounted for 57.0% of inertia. Sexual minority bodies were generally found on the left side of the vertical axis (positive), along with heterosexual females of all body shapes (skinny, average, fat). Male heterosexual bodies of all body shapes were found on the negative right side of the vertical axis.

The horizontal axis separated traits by agency. Active personality and sexuality traits (e.g., dominant, sexually open) were primarily in the top half of the plotted space, and passive personality and sexuality traits (e.g., sexually submissive, anxious) were in the bottom half. This dimension accounted for 23.0% of inertia. Male and female sexual minority bodies were situated primarily in the active, top half of the space, and both male and female heterosexual skinny and average bodies were located primarily in the passive, bottom half of the space.

Categorical Principal Component Analysis

A CATPCA was used as a data reduction technique on the 30 personality and sexuality-related traits that measured inferences about various body shapes. CATPCA, also referred to as nonlinear principal components analysis, is appropriate for data reduction when variables are categorical (i.e., binary) and the research is concerned with identifying the underlying components of a set of variables while maximizing the amount of variance accounted for by those items (see Starkweather & Herrington, 2018). The primary benefit of CATPCA over traditional PCA is the lack of assumptions; CATPCA does not assume linear relationships among numeric data and does not require assuming multivariate normal data (Garson, 2018).

In the initial CATPCA, seven traits (prudish, sexually repressed, promiscuous, kinky, curious, hypersexed, agreeable) did not load properly and were removed[8]; 23 traits were retained and entered in the CATPCA. A Varimax rotation

[7]Although we categorized "dominant" as a positive trait eliciting sub-traits associated with confidence, decisiveness, and assertiveness, we acknowledge this trait may also include negative characteristics such as aggression or disagreeableness. It is unknown whether participants in the current study interpreted "dominant" as a mostly positive, negative, or neutral trait.

[8]We used Raubenheimer's (2004) cutoff criteria for loadings above 0.4 on the central dimension and all other loadings below 0.25.

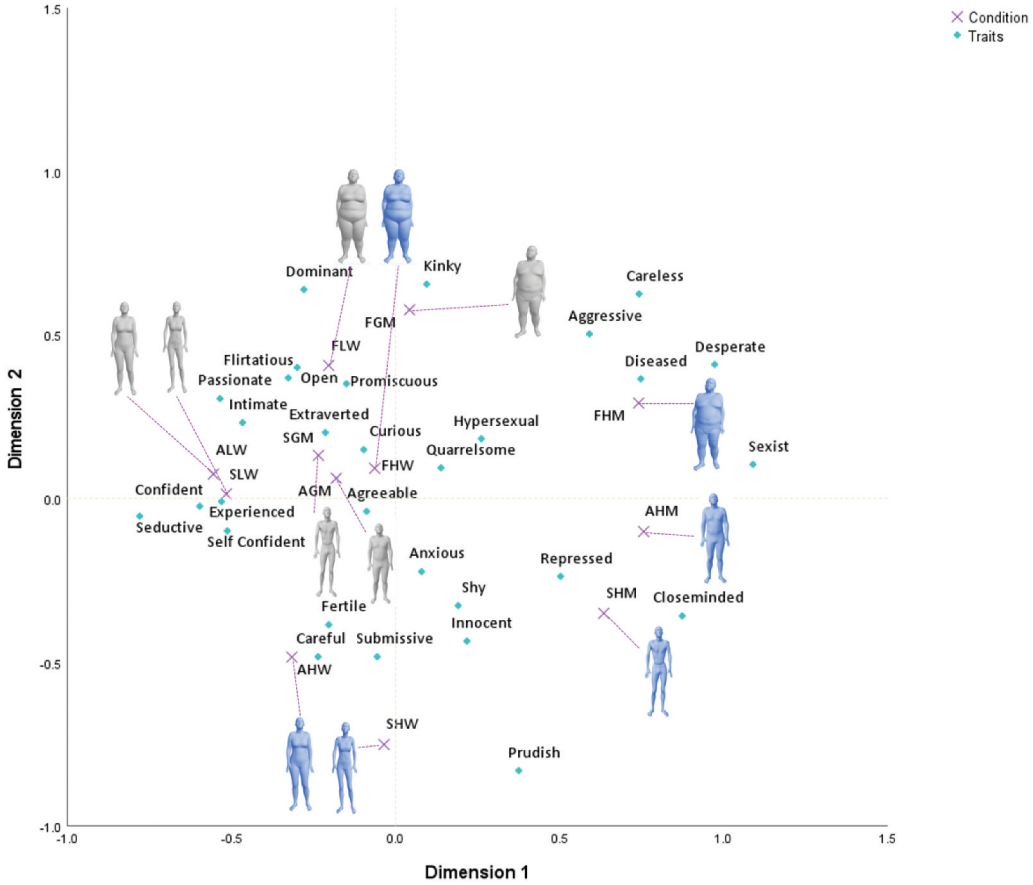

Figure 1. Biplot of trait ratings for gender/sex by sexual orientation. *Note*. Blue bodies represent heterosexual stimuli and gray bodies represent gay/lesbian stimuli. SHM = Skinny Heterosexual Man; AHM = Average Heterosexual Man; FHM = Fat Heterosexual Man; SGM = Skinny Gay Man; AGM = Average Gay Man; FGM = Fat Gay Man; SHW = Skinny Heterosexual Woman; AHW = Average Heterosexual Woman; FHW = Fat Heterosexual Woman; SLW = Skinny Lesbian Woman; ALW = Average Lesbian Woman; FLW = Fat Lesbian Woman.

with Kaiser normalization was employed with a three-dimension solution (as used in Oswald et al., 2020) which explained 20.26%, 13.52%, and 11.26% of the variance, respectively. Given the personality and sexuality traits included in each loading, the components were labeled sexually extroverted (Component 1: sexually confident, sexually experienced, self-confident, flirtatious, intimate, seductive, sexually open, passionate, extraverted, sexually dominant, and fertile; α = .82), sexually antagonistic (Component 2: sexist, sexually desperate, closed-minded, careless, quarrelsome, sexually aggressive, and sexually diseased; α = .71), and sexually introverted (Component 3: shy, anxious, sexually submissive, innocent, and careful; α = .64). Component loadings are available in supplemental materials (see Supplementary Table 1).

Multiple Regression: Male Bodies by Sexual Orientation

To examine the effects of sexual orientation (i.e., heterosexual and gay) by three different male body shapes (i.e., skinny, average, and fat) on predicting sexually extroverted, antagonistic, and introverted personality and sexuality-related traits, six independent multiple regressions were employed using the average body type as the reference category. The first three regressions were for heterosexual males and the last three for gay males. A Bonferroni corrected alpha of $p < .01$ was applied.

The regression model for extroverted personality and sexuality-related traits among heterosexual men of various bodies was not statistically significant, $F(2, 1419) = 1.85$, $p = .16$. The second multiple regression for antagonistic personality and sexuality-related traits for heterosexual men was statistically significant, $F(2, 1419) = 18.83$, $p < .001$; $R^2 = .03$, with coefficients showing that the skinny heterosexual male body significantly predicted lower antagonistic personality and sexuality-related traits compared to the average heterosexual male body. There was no significant difference between the fat heterosexual male body and the average heterosexual male body in predicting antagonistic traits (see Table 2). The third regression model for introverted personality and sexuality-related traits for heterosexual men was also statistically significant, $F(2, 1419) = 14.75$, $p < .001$; $R^2 = .02$. An examination of the coefficients indicated that the skinny heterosexual male body significantly predicted greater introverted traits compared to the average heterosexual male body (see Table 2).

Another series of three regressions were conducted for gay males. The regression model for extroverted personality and sexuality-related traits among gay male body shapes was not statistically significant, $F(2, 1221) = 1.20$, $p = .28$. The second multiple regression for antagonistic personality and sexuality-related traits for gay males was statistically significant, $F(2, 1221) = 19.10$, $p < .001$; $R^2 = .03$. Coefficients indicated that

Table 2. Summary of regression model for the prediction of personality and sexuality-related traits for male bodies by sexual orientation.

			95% Confidence Interval Estimates	
	B	*t*	Lower	Upper
Heterosexual Male				
Extroverted Traits				
Skinny Male	−.05	−1.44	−.18	.03
Fat Male	.01	.21	−.10	.12
Antagonistic Traits				
Skinny Male	−.12	−3.71*	−.42	−.13
Fat Male	.06	1.84	−.10	.29
Introverted Sexual Traits				
Skinny Male	.17	5.13*	.22	.50
Fat Male	.08	2.34	.03	.31
Gay Male				
Extroverted Traits				
Skinny Male	−.05	−1.49	−.24	.03
Fat Male	−.04	−1.29	−.22	.05
Antagonistic Traits				
Skinny Male	−.05	−1.39	−.24	.04
Fat Male	.15	4.38*	.17	.44
Introverted Traits				
Skinny Male	−.01	−.28	−.16	.12
Fat Male	−.11	−3.15*	−.36	−.08

Standardized coefficients reported. *$p < .01$. Experimental conditions are dummy coded; reference condition is average heterosexual male and average gay male, respectively.

Table 3. Summary of regression model for the prediction of personality and sexuality-related traits for female bodies by sexual orientation.

			95% Confidence Interval Estimates	
	B	*t*	Lower	Upper
Heterosexual Female				
Extroverted Traits				
Skinny Female	−.08	−2.69*	−.30	−.05
Fat Female	.01	.28	−.11	.14
Antagonistic Traits				
Skinny Female	.11	3.89*	.10	.29
Fat Female	.18	6.04*	.21	.40
Introverted Sexual Traits				
Skinny Female	.13	4.42*	.15	.39
Fat Female	−.07	−2.23	−.26	−.02
Lesbian Female				
Extroverted Traits				
Skinny Female	.03	1.01	−.07	.21
Fat Female	−.12	−3.73*	−.42	−.13
Antagonistic Traits				
Skinny Female	−.03	−1.07	−.17	.05
Fat Female	.12	3.76*	.11	.34
Introverted Traits				
Skinny Female	.06	1.97	.01	.25
Fat Female	−.15	−4.86*	−.44	−.19

Standardized coefficients reported. *$p < .01$. Experimental conditions are dummy coded; reference condition is average heterosexual female and average lesbian female, respectively.

the fat gay male body significantly predicted greater antagonistic traits compared to the average gay male body. There was no significant difference between the skinny gay male body and the average gay male body in predicting antagonistic personality and sexuality-related traits (see, Table 2). The third regression model for introverted personality and sexuality-related traits was also statistically significant, $F(2, 1221) = 6.39$, $p < .01$; $R^2 = .01$. An examination of the coefficients indicated that the fat gay male body significantly predicted lower introverted traits compared to the average gay male body (see Table 2).

Multiple Regression: Female Bodies by Sexual Orientation

A similar technique was employed for the female bodies to determine the effects of sexual orientation (i.e., heterosexual and lesbian) by three different female bodies (i.e., skinny, average, and fat) on predicting extroverted, antagonistic, and introverted personality and sexuality-related traits. Six independent multiple regressions were employed using the average body type as the reference category; the first three regressions for heterosexual female bodies and the last three for lesbian female bodies. A Bonferroni corrected alpha of $p < .01$ was applied.

The regression model for extroverted personality and sexuality-related traits among heterosexual females of various bodies was statistically significant, $F(2, 1455) = 5.05$, $p < .01$, $R^2 = .01$. An examination of coefficients revealed that the skinny heterosexual female body significantly predicted lower extroverted personality and sexuality-related traits compared to the average heterosexual female body. No significant difference was found between the fat heterosexual female body and the average heterosexual female body (see Table 3). The second multiple regression for antagonistic personality and sexuality-related traits for heterosexual female bodies was also statistically significant, $F(2, 1455) = 19.05$, $p < .001$; $R^2 = .03$. An examination of the coefficients indicated that the skinny heterosexual female body and the fat heterosexual female body significantly predicted greater antagonistic traits compared to the average heterosexual female body (see Table 3). Finally, the third regression model for introverted personality and sexuality-related traits for heterosexual female bodies was statistically significant, $F(2, 1455) = 21.14$, $p < .001$; $R^2 = .03$, indicating that the skinny heterosexual female body significantly predicted greater introverted personality and sexuality-related traits compared to the average heterosexual female body (see Table 3). There was no significant difference between the fat heterosexual female body and the average heterosexual female body in predicting introverted traits (see Table 3).

Following this, another series of three regressions was conducted for lesbian females. The regression model for extroverted personality and sexuality-related traits among lesbian females of various body shapes was statistically significant, $F(2, 1269) = 11.37$, $p < .001$; $R^2 = .02$. The fat lesbian female body significantly predicted lower extroverted traits; no differences were found between the skinny lesbian female body and the average lesbian female body. The second multiple regression for antagonistic personality and sexuality-related traits for lesbian females was also statistically significant, $F(2, 1269) = 11.76$, $p < .001$; $R^2 = .02$, revealing that the fat lesbian female body significantly predicted greater antagonistic personality and sexuality-related traits relative to the average lesbian female body. There was no significant difference between the skinny lesbian female body and the average lesbian female body in predicting antagonistic traits (see Table 3). The third regression model for introverted personality and sexuality-related traits was statistically

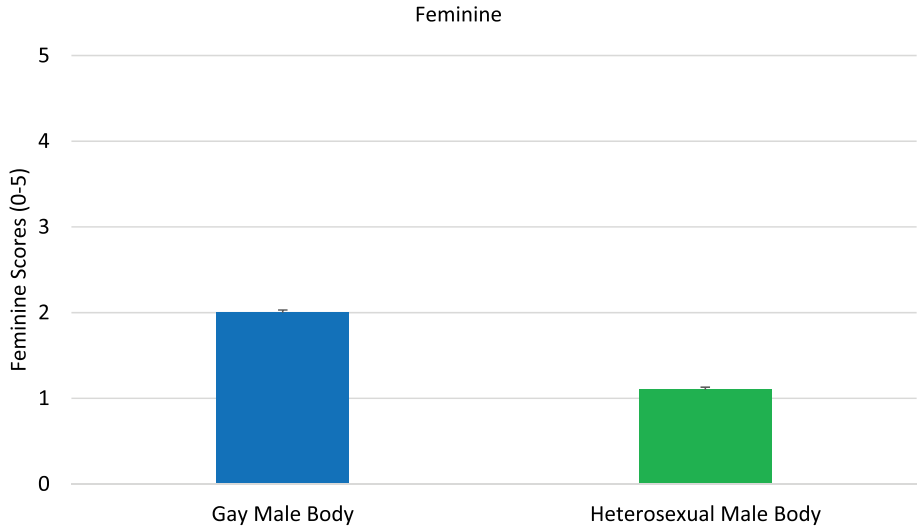

Figure 2. Participants' perceptions of femininity for male bodies by sexual orientation.

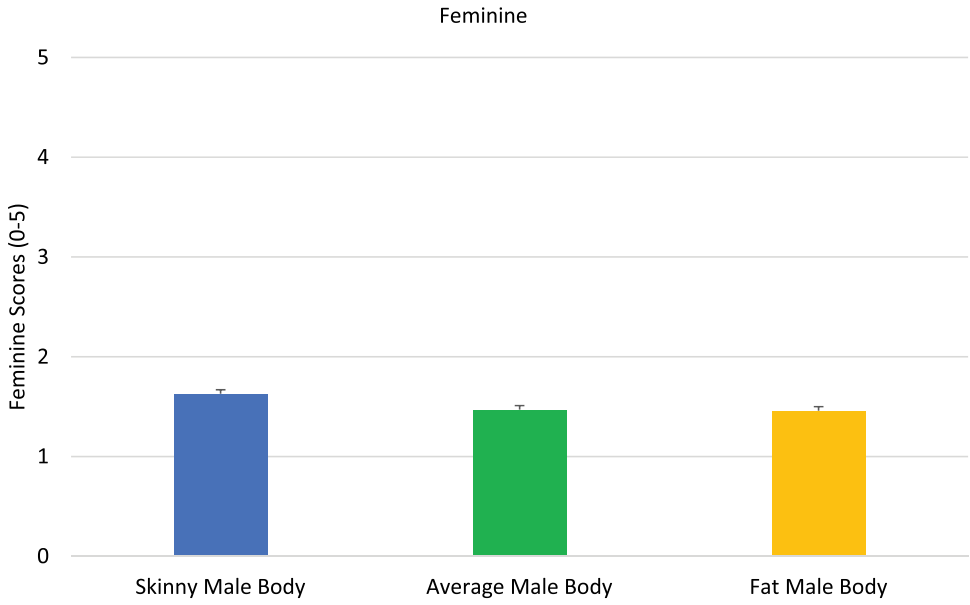

Figure 3. Participants' perceptions of femininity for male bodies by body shape.

significant, $F(2, 1269) = 22.55$, $p < .01$; $R^2 = .03$, with coefficients indicating that the fat lesbian female body significantly predicted lower introverted traits compared to the average lesbian female body (see Table 3).

H2: Femininity/Masculinity

We conducted four independent one-way ANOVAs to test the components of hypothesis 2. Our first analysis examined whether gay male bodies were perceived as more feminine than heterosexual male bodies. Statistically significant differences were found between the groups, $F(1, 2810) = 426.47$, $p < .001$, $\eta p^2 = .13$, with gay male bodies ($M = 2.00$; $SE = .03$) perceived as more feminine than heterosexual male bodies ($M = 1.10$; $SE = .03$). Results are presented in Figure 2. A second ANOVA explored whether skinnier male bodies were perceived as the most feminine. This analysis revealed statistically significant differences among the groups, $F(2, 2809) = 5.51$, $p < .01$, $\eta p^2 = .004$, with Bonferroni post hoc follow-up comparisons indicating that skinnier male bodies ($M = 1.63$; $SE = .04$) were more feminine compared to average male ($M = 1.47$; $SE = .04$) and fat male bodies ($M = 1.46$; $SE = .04$; see Figure 3).

Our third one-way ANOVA assessed whether lesbian female bodies were perceived as more masculine than heterosexual female bodies. A significant difference was found, $F(1, 3020) = 78.59$, $p < .001$, $\eta p^2 = .03$, indicating that lesbian female bodies ($M = 1.38$; $SE = .03$) were more masculine than heterosexual female bodies ($M = 0.99$; $SE = .03$). Results are presented in Figure 4. Finally, our fourth ANOVA found significant differences for female body shapes on perceptions of

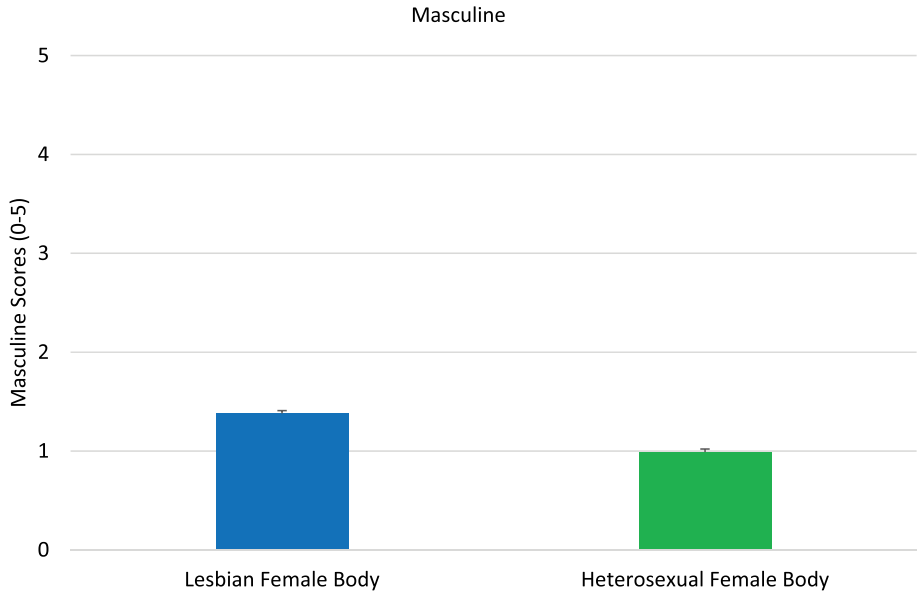

Figure 4. Participants' perceptions of masculinity for female bodies by sexual orientation.

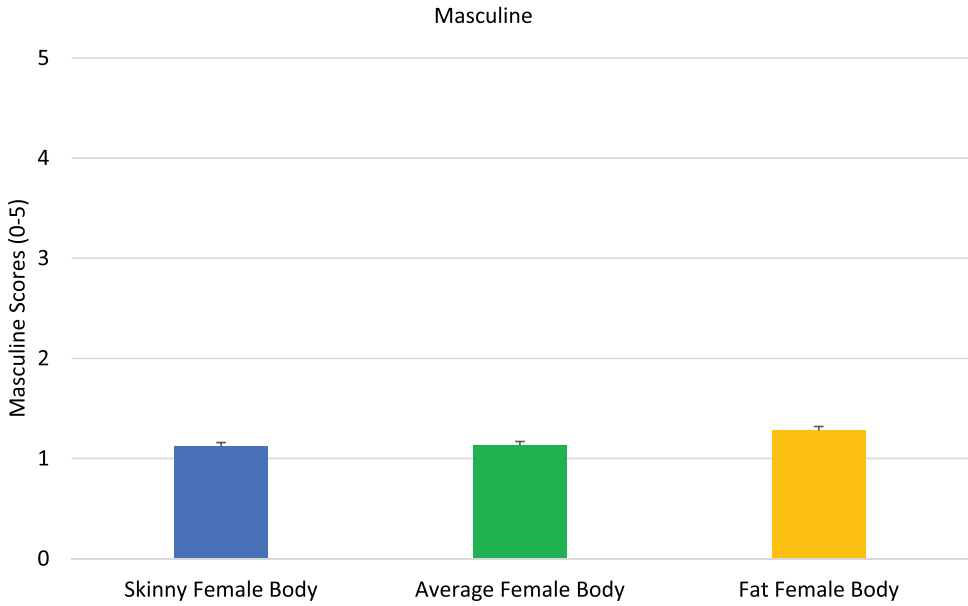

Figure 5. Participants' perceptions of masculinity for female bodies by body shape.

masculinity, $F(2, 3019) = 5.26$, $p < .01$, $\eta p^2 = .003$. Fatter female bodies ($M = 1.28$; $SE = .04$) were perceived as most masculine across sexual orientations; skinny ($M = 1.12$; $SE = .04$) and average ($M = 1.13$; $SE = .04$) female bodies were scored significantly lower on masculinity (see Figure 5).

H3: Typicality

We conducted a series of ANOVAs to test our hypotheses that among heterosexual bodies the average body type would be perceived as the most typical, among gay men the skinny body type would be most typical, and among lesbian women the fat body type would be most typical. There were significant differences for typicality among heterosexual bodies, $F(5, 3108) = 223.00$, $p < .001$, $\eta p^2 = .26$. Bonferroni post hoc pairwise comparisons revealed that average bodies were perceived as most typical for heterosexual men and women. A second ANOVA explored typicality among gay men only. Significant differences were found, $F(2, 1335) = 209.82$, $p < .001$, $\eta p^2 = .24$, indicating that average bodies for gay men were perceived as more typical compared to skinny and fat bodies for gay men. In turn, skinny bodies for gay men were perceived to be more typical than fat bodies for gay men. A third ANOVA determined differences of typicality scores for body types among lesbian women. Statistically significant mean differences were found among the groups, $F(2, 1491) = 182.81$, $p < .001$, $\eta p^2 = .20$. Average bodies for lesbian women were perceived as more typical compared to skinny and fat bodies for lesbian

Table 4. Means and standard deviations for typicality by sexual orientation within body gender/sex.

Gender/Sexual Orientation	Body Type	Typicality	Body Size Prejudice
		M(*SD*)	*M*(*SD*)
Men			
Heterosexual			
	Skinny	2.39 (0.65)	1.17 (0.77)
	Average	3.18 (0.58)	0.67 (0.64)
	Fat	2.40 (0.61)	1.84 (0.76)
Gay			
	Skinny	2.53 (0.60)	1.12 (0.80)
	Average	2.87 (0.49)	0.93 (0.86)
	Fat	2.10 (0.59)	2.03 (0.77)
Women			
Heterosexual			
	Skinny	2.73 (0.65)	0.95 (0.78)
	Average	3.23 (0.55)	1.05 (0.85)
	Fat	2.40 (0.60)	2.00 (0.74)
Lesbian			
	Skinny	2.81 (0.63)	0.77 (0.87)
	Average	2.92 (0.47)	1.03 (0.90)
	Fat	2.24 (0.64)	2.06 (0.79)

women, and skinny bodies for lesbian women were perceived as more typical than fat bodies. All means and standard deviations are presented in Table 4.

H4: Typicality as a Mediator for Perceived Experiences of Prejudice

A series of mediation models were used to examine the hypothesis that bodies typical of their social category would be perceived as facing less prejudice on the basis of weight. We calculated four Hayes (2018) models 4s with 10,000 bias-corrected 95% bootstrap confidence intervals to determine whether perceptions of typicality would mediate perceived experiences of prejudice based on body shape for stimuli identified as (1) heterosexual male, (2) gay male, (3) heterosexual female, and (4) lesbian female.

The independent variable for each model was multicategorical with three body-type conditions (i.e., skinny, average, and fat). As a result, dummy coded variables (D_1 and D_2) were created, and average body-type condition was used as our reference category. D_1 represents a comparison between skinny body type and the reference group, whereas D_2 represents a comparison between fat body type and the reference group. Point estimates and confidence intervals are used to determine statistically significant indirect effects (Hayes, 2018). See Table 4 for descriptive statistics on typicality and body shape prejudice.

Heterosexual Male Bodies

There were statistically significant relative total effects of body shape on perceived prejudice for the skinny (D_1: $\beta c1 = .50$, $SE = .05$, $t = 10.98$, $p < .001$, $CI_{95} = [.41 \text{ to } .59]$) and fat heterosexual male body conditions (D_2: $\beta c2 = 1.17$, $SE = .05$, $t = 25.44$, $p < .001$, $CI_{95} = [1.08 \text{ to } 1.27]$) versus the average heterosexual male body condition. Put differently, compared to the average heterosexual male body condition (i.e., the reference category), the skinny and fat heterosexual male body conditions were significantly higher on perceived prejudice. We predicted that perceptions of prejudice were mediated through typicality. Support for this hypothesis was found. Significant relative indirect effects of typicality were found for D_1 and D_2 conditions versus the average body condition. Relative to the average condition, skinny ($a_1b = .21$, $SE_{(Boot)} = .03$, $CI_{(95\% \text{ Boot})} = [.16 \text{ to } .27]$) and fat heterosexual male bodies ($a_2b = .21$, $SE_{(Boot)} = .03$, $CI_{(95\% \text{ Boot})} = [.16 \text{ to } .27]$) were perceived as less typical, which in turn, led to higher rates of perceived prejudice. The full model was statistically significant, $F(2, 1497) = 325.51$, $p < .001$ and explained 29% of the variance in prejudice scores. All pathway coefficients are presented in Figure 6.

Gay Male Bodies

Statistically significant relative total effects of body shape on perceived prejudice for the skinny gay male body (D_1: $\beta c1 = .19$, $SE = .06$, $t = 3.23$, $p < .01$, $CI_{95} = [.07\text{-}.30]$) and fat gay male body conditions (D_2: $\beta c2 = 1.10$, $SE = .06$, $t = 19.80$, $p < .001$, $CI_{95} = [.99 \text{ to } 1.21]$) versus the average gay male body condition were found. In other words, when compared to the average gay male body condition (i.e., the reference category), the skinny and fat gay conditions were significantly higher on perceived prejudice. We hypothesized that typicality mediated the relationship between body shape and perceptions of prejudice. There were statistically significant small relative indirect effects for both the skinny (D_1) and fat (D_2) gay male body conditions versus the average gay male body condition. D_1 ($a_1b = .03$, $SE_{(Boot)} = .01$, $CI_{(95\% \text{ Boot})} = [.01 \text{ to } .06]$) and D_2 ($a_2b = .07$, $SE_{(Boot)} = .03$, $CI_{(95\% \text{ Boot})} = [.01 \text{ to } .13]$) were perceived as less typical than the average gay male body, which in turn, correlated with higher perceived prejudice on the basis of body shape. The full model was statistically significant, $F(2, 1310) = 249.25$, $p < .001$ and explained 27% of the variance in body shape prejudice scores; see coefficients presented in Figure 7.

Heterosexual Female Bodies

We found non-significant relative total effects of body shape on perceived prejudice for the skinny heterosexual female body condition (D_1: $\beta c_1 = -.09$, $SE = .05$, $t = -1.92$, $p = .06$, $CI_{95} = [-.19 \text{ to } .00]$) compared to the average heterosexual female body condition. However, a statistically significant total effect was found for the fat heterosexual female body condition (D_2: $\beta c_2 = .96$, $SE = .05$, $t = 19.85$, $p < .001$, $CI_{95} = [.86 \text{ to } 1.05]$) versus the average. There were no differences between skinny and average female bodies on perceived prejudice, but the fat heterosexual female body was perceived to experience more prejudice than the average. A statistically significant relative small indirect effect was found; D_2 ($a_2b = .07$, $SE_{(Boot)} = .03$, $CI_{(95\% \text{ Boot})} = [.19 \text{ to } .13]$) was perceived as less typical than the average, which correlated with higher perceived prejudice on the basis of body shape. No significant relative indirect effect was found for D_1 compared to the average. The full model was statistically significant, $F(2, 1567) = 297.00$, $p < .001$ and explained 26% of the variance in prejudice scores. All direct and total effects are presented in Figure 8.

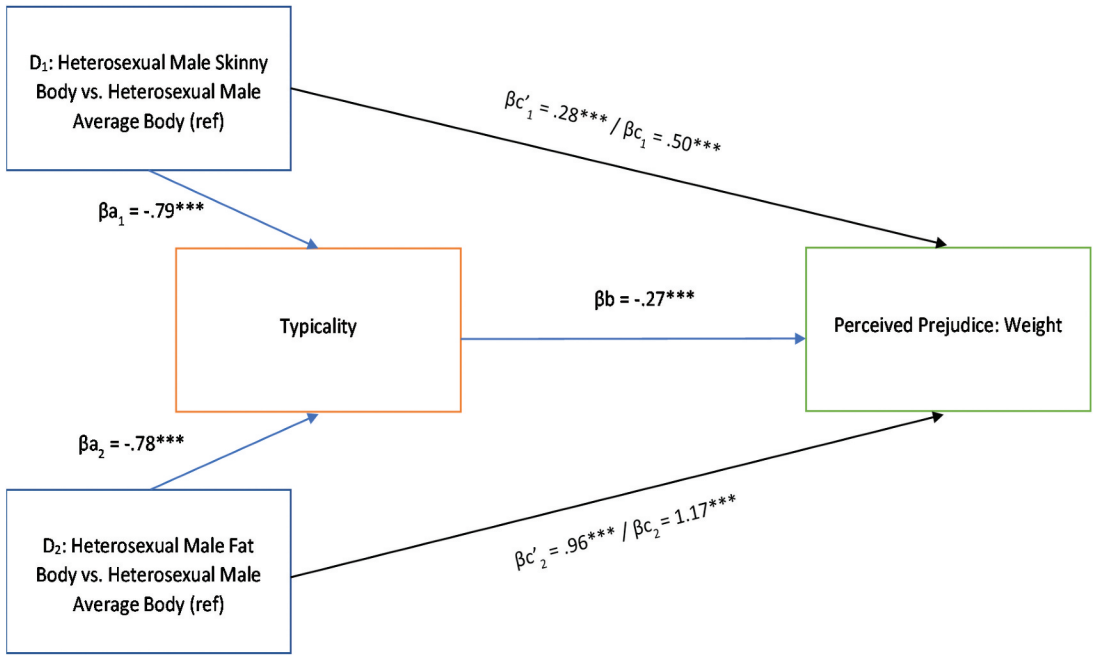

Figure 6. Heterosexual male bodies: mediation analysis model 4. *Note*. A significant relative direct effect on typicality was found; skinny heterosexual male body (βa_1 = −.79, *SE* = .04, *t* = −19.82, *p* < .001, CI_{95} = [−.87 to −.71]) and fat heterosexual male body (βa_2 = −.78, *SE* = .04, *t* = −19.88, *p* < .001, CI_{95} = [−.86 to −.70]) conditions were perceived as less typical than the average heterosexual male body condition. A significant negative direct effect from typicality to perceived prejudice was found (βb = −.27, *SE* = .03, *t* = −8.19, *p* < .001, CI_{95} = [−.34 to −.21]), wherein lower levels of typicality predicted higher perceived prejudice.

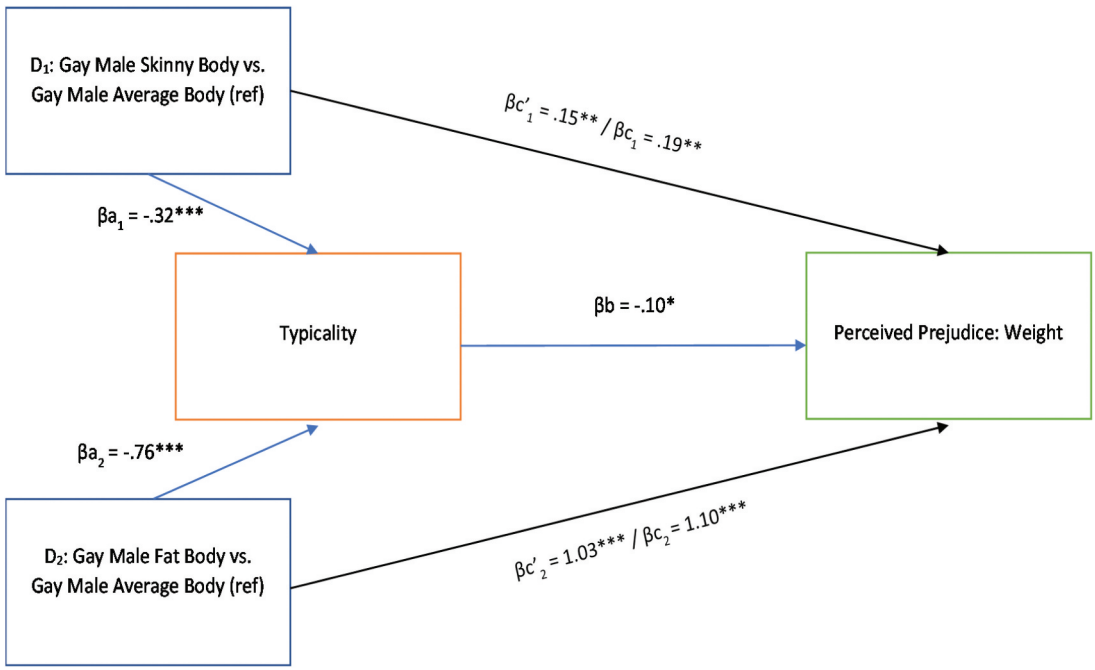

Figure 7. Gay male bodies: mediation analysis model 4. *Note*. A significant relative direct effect on typicality was found; skinny gay male body (βa_1 = −.32, *SE* = .04, *t* = −8.48, *p* < .001, CI_{95} = [−.40 to −.25]) and fat gay male body (βa_2 = −.76, *SE* = .04, *t* = −20.85, *p* < .001, CI_{95} = [−.83 to −.69]) conditions were perceived as less typical than average gay male body. A significant direct effect from typicality to perceived prejudice was found (βb = −.10, *SE* = .04, *t* = −2.34, *p* = .02, CI_{95} = [−.18 to −.02]), wherein lower levels of typicality predicted higher perceived prejudice.

Lesbian Female Bodies

Statistically significant relative total effects of body shape on perceived prejudice were found for the skinny lesbian (D_1: βc1 = −.25, *SE* = .05, *t* = −4.60, *p* < .001, CI_{95} = [−.36 to −.14]) and fat lesbian female body (D_2: βc2 = 1.04, *SE* = .05, *t* = 18.95, *p* < .001, CI_{95} = [.93 to 1.14]) conditions versus the average lesbian female body condition. Compared to the average (i.e., the reference category), the skinny lesbian female body condition was scored significantly lower on

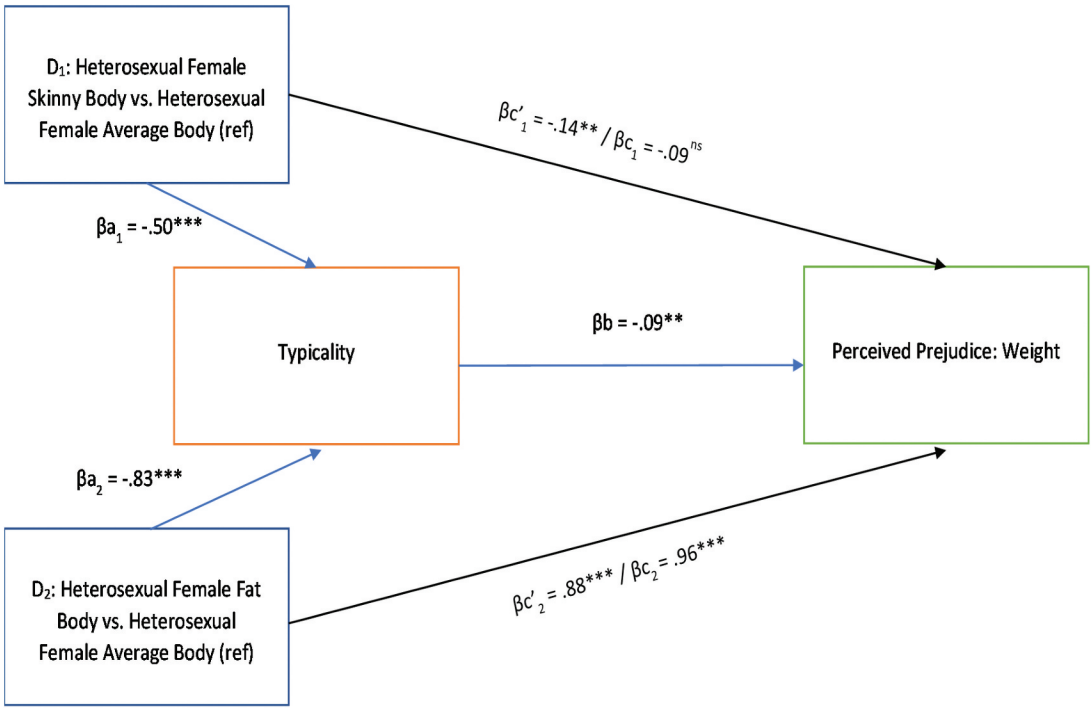

Figure 8. Heterosexual female bodies: mediation analysis model 4. *Note*. A significant relative direct effect on typicality was found; skinny heterosexual female bodies ($\beta a_1 = -.50$, $SE = .04$, $t = -13.56$, $p < .001$, $CI_{95} = [-.58$ to $-.43]$) and fat heterosexual female bodies ($\beta a_2 = -.83$, $SE = .04$, $t = -23.66$, $p < .001$, $CI_{95} = [-.90$ to $-.76]$) were perceived as less typical than average heterosexual female bodies. A significant direct effect from typicality to perceived prejudice was found ($\beta b = -.09$, $SE = .03$, $t = -2.62$, $p = .02$, $CI_{95} = [-.16$ to $-.02]$).

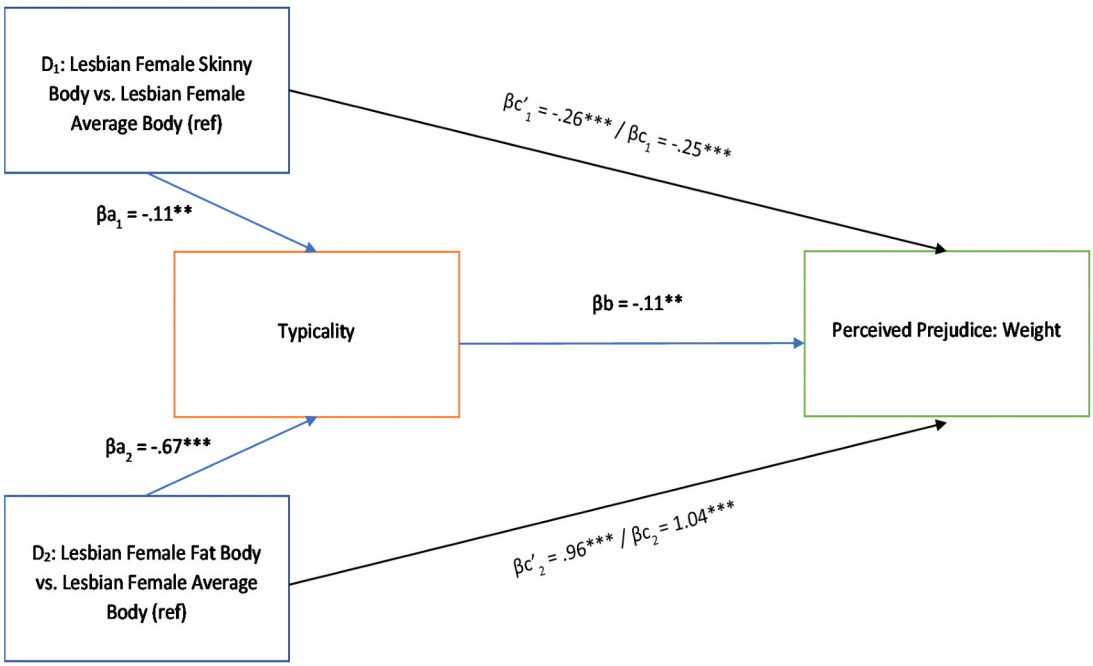

Figure 9. Lesbian female bodies: mediation analysis model 4. *Note*. A significant relative direct effect on typicality was found; skinny lesbian female body ($\beta a_1 = -.11$, $SE = .03$, $t = -3.20$, $p < .01$, $CI_{95} = [-.18$ to $-.04]$) and fat lesbian female body ($\beta a_2 = -.67$, $SE = .04$, $t = -18.02$, $p < .001$, $CI_{95} = [-.75$ to $-.60]$) conditions were perceived as less typical than average lesbian female body condition. A significant direct effect from typicality to perceived prejudice was found ($\beta b = -.11$, $SE = .04$, $t = -2.69$, $p = .007$, $CI_{95} = [-.18$ to $-.03]$).

perceived prejudice, whereas the fat condition was scored relatively higher on perceived prejudice. Significant small relative indirect effects were found for D_2. That is, D_2 ($a_2 b = .07$, $SE_{(Boot)} = .03$, $CI_{(95\%\ Boot)} = [.02$ to $.13]$) was perceived as less typical than the average lesbian female body, which correlated with higher perceived prejudice on the basis of body shape. The full model was statistically significant, $F(2, 1450) = 306.18$, $p < .001$ and explained 28% of the variance in prejudice scores. All direct and total effects are presented in Figure 9.

Discussion

The present study used an experimental approach to examine trait attributions to, and perceptions of, bodies of varying social identities along the axes of body shape (skinny, average, and fat) gender/sex (male, female) and sexual orientation (heterosexual, gay/lesbian). We demonstrated that people infer a diverse range of personality and sexuality-related traits from body shape, and that bodies of varying social identities are attributed differing traits. This work provides several novel findings to literatures on multifarious person perception and intersectional stereotyping, and has implications for understanding how multiple marginalization produces unique consequences via stereotyping processes.

Trait Application

Male Bodies

Between sexual orientation groups, differences emerged in trait application to male bodies. Our correspondence analysis revealed that heterosexual male bodies were primarily evaluated negatively, while gay male bodies were evaluated more positively. Among heterosexual bodies, the fat male body was associated with more agentic traits than the skinny male body, while the average body occupied a fairly central location. The skinny and average gay bodies occupied a similar trait space; the fat gay body was associated with slightly more negative and more active traits. The association of fatness with agency across sexual orientation contrasts with traditional stereotypes suggesting fat men are sexually passive and desperate (e.g., Hall, 2018; Oswald et al., 2020); recent qualitative literature, however, has suggested that stereotypes of fat men retain the traditional gendered differentiation which defines heterosexual sexual scripts, such that despite their body shape, fat men are still perceived as taking an active or dominant role in sexual interactions (Murphy et al., 2021). The perception of this dominant role in tandem with the perceived anger that fat men experience due to their (perceived) inability to find partners (e.g., "incel" stereotypes of fat men; see Murphy et al. (2021) may produce the association seen here of fat men with negative and active sexuality-related traits.

We found additional differences in trait attribution by body shape within sexual orientation category. Our regression analyses indicated that the skinny heterosexual body was associated with less antagonistic traits and greater introverted traits compared to the average heterosexual body; further, the fat gay body predicted greater antagonistic traits and less introverted traits compared to the average gay male body. Our findings for skinny heterosexual bodies mirror Oswald et al.'s (2020) finding that the same male body stimulus was negatively associated with extroverted traits. We did not find an effect for extroversion specifically but the inverse effect for introversion. Our finding that the fat gay male body was associated with the cluster of negative, antagonistic traits is suggestive of the overall negative evaluations of fat bodies, and particularly of fatness among gay men (Whitesel, 2014).

Female Bodies

Between sexual orientation groups, differences emerged in trait application to female bodies. Our correspondence analysis revealed that, though fat female bodies occupied a similar trait space regardless of sexual orientation, skinny and average bodies varied by sexual orientation. The heterosexual skinny and average female bodies occupied a similar space; additionally, the lesbian skinny and average female bodies occupied a similar space – though this space was separated from that of the heterosexual skinny and average bodies by the horizontal axis as well as vertical distance. The skinny and average heterosexual bodies were broadly associated with positive, but passive traits (e.g., submissive), while the lesbian bodies of the same shape were associated with more active traits (e.g., seductive). This suggests gender inversion theories underpin perceptions of sexual minorities; the active traits associated here with lesbian bodies are typical of masculine sexualities typically cast as dominant (or where traditionally gendered scripts simply fail to apply), while the passive traits associated with heterosexual bodies are typical of traditional gendered assumptions which position women as submissive to their dominant (male) partners (e.g., Kiefer & Sanchez, 2007; Simon & Gagnon, 1986). Notably, both the heterosexual and lesbian fat bodies were associated with relatively positive, active traits; Oswald et al. (2020) similarly found that fat bodies were associated with broadly active traits; these authors also found fat female bodies to be associated with negative trait clusters. It is unclear why fat female bodies were associated with positive traits in the current work given the long history of negative stereotyping of fat women's sexualities (e.g., Braziel, 2001; Murray, 2004). It is possible that the recent rise of body positive movements, which have produced greater visibility of fat female bodies – and particularly, of sexually confident fat women – may have begun to produce changes in stereotypes about fat women; however, we are cautious in positing such a rapid change in widely held judgments.

Indeed, our regression analyses indicated some negative associations with fatness within sexual orientation categories. The skinny heterosexual female body predicted less extroverted traits and greater introverted traits compared to the average heterosexual female body, while the skinny and fat heterosexual female bodies were associated with greater antagonistic traits than the average heterosexual female body. For lesbian bodies, the fat body predicted less extroverted traits, greater antagonistic traits, and less introverted sexual traits compared to the average body. The association of fat bodies with antagonistic traits, which were generally negative in nature, recalls traditional stereotypes about fat women's bodies (e.g., as sexually desperate and careless; see Oswald et al., 2020). That fat women are simultaneously associated with aspects of positive and negative sexual stereotypes may be reflective of the apparent repression of attraction toward fat women noted by Gordon (2020). Drawing upon analyses of pornography viewership which demonstrate that porn searches for fat bodies are rather popular and significantly outpace searches for skinny bodies (Ogas & Gaddam, 2011), Gordon (2020) theorized that many people do desire fat bodies (suggesting positive perceptions of fat women's sexuality), but repress these feelings due to

pervasive stigmatization (suggesting negative perceptions of fat women's sexuality). The current findings, in suggesting this complex narrative, add depth to our understanding of how fat women's bodies are perceived with regard to sexuality.

Femininity/Masculinity

Given literature demonstrating that perceptions of sexual orientation are often informed by perceived gender inversion, such that perceptions of gay identities are associated with femininity, and lesbian identities with masculinity (see Bjornsdottir et al., 2021; Dunkle & Francis, 1990; Freeman et al., 2010; Rule, 2017), we hypothesized that gay male bodies would be perceived as more feminine than heterosexual male bodies. We found support for this hypothesis; gay male bodies were perceived as significantly more feminine than heterosexual male bodies. Further, we hypothesized that skinnier male bodies would be perceived as the most feminine across sexual orientations; we found support for this hypothesis, such that skinnier male bodies were rated as more feminine compared to average male and fat male bodies. For female bodies, supporting our hypotheses, we found that lesbian bodies were perceived as more masculine than heterosexual bodies, and that fat bodies were perceived as the most masculine across sexual orientations.

Taken together, these findings support the notion that person perception is informed by gender inversion theories of homosexuality (Kite & Deaux, 1987; see also Rule, 2017). That gay bodies were perceived as more feminine and lesbian bodies as more masculine than their heterosexual counterparts indicates that these stereotypes of gender atypicality persist. Further, our finding that skinny male bodies were rated as most feminine could suggest a link between male thinness and perceptions of gay identities (also associated with femininity judgments), necessitating further examination of perceptions of skinny male bodies. For female bodies, the masculinizing role of fatness for women (e.g., Hartley, 2001) is suggested by our finding that fat bodies were rated as most masculine; it remains unclear under what conditions fatness may serve the feminizing role afforded by stereotypes of fat women as matronly or motherly (e.g., Murphy et al., 2021; Taylor, 2020).

Typicality

Based on evidence of varying body shape between heterosexual people and sexual minorities, such that gay men tend to be thinner than their heterosexual counterparts (Fredriksen-Goldsen et al., 2013; Lunn et al., 2017) and lesbian women tend to be fatter than their heterosexual counterparts (Boehmer et al., 2007; Struble et al., 2010), we hypothesized that among heterosexual bodies, the average body type would be perceived as the most typical, among gay men the skinny body type would be the most typical, and among lesbian women the fat body type would be the most typical. We expected that perceived typicality would mirror trends in body shape. In line with our hypotheses, we did find average bodies were perceived as most typical for heterosexual men and women. However, average bodies were also perceived as most typical for gay men and lesbian women; skinny bodies were less typical than average bodies, but more typical than fat bodies.

Our finding that skinny bodies were perceived as more typical than fat bodies was hypothesized for gay men, but surprising for lesbian women considering trends in lesbian womens' body shape as noted above (see Boehmer et al., 2007; Struble et al., 2010). This surprising finding for lesbian women may reflect the salience of gender/sex over sexual orientation in these category judgments; that is, the evaluation of fatness as atypical may be driven by the fact that fatness is perceived as atypical for women generally rather than for lesbian women specifically. Others have noted that gender/sex may have primacy over both body shape and sexual orientation in influencing social judgments about women (Murphy et al., 2021).

It is possible that average bodies – by nature – are viewed as prototypical for a wide variety of social categories given their positioning as the literal average body shape (and therefore the most prototypical). That average bodies were perceived as most typical for all social identity groups may also suggest a lack of salient cultural prototypes for body shape as it relates to gender/sex and sexual orientation; however, the differences in trait application and perceived femininity/masculinity detailed above suggest that we do have stereotypes about differing bodies of differing sexual orientations. This stereotyping may represent a bottom-up construction of understanding what is representative of a given social category, versus the top-down nature of a prototype; thus, stereotypes may be necessary but not sufficient for a group prototype.

Perceived Prejudice

Given the utility of typicality as a mediator of prejudice on the basis of body shape in previous work (Alt et al., 2019), we hypothesized that perceptions of typicality would mediate *perceived experiences* of prejudice such that bodies seen as more typical of their social category would be perceived as facing less prejudice on the basis of weight. We found some support for this hypothesis across identity categories. Most bodies perceived as less typical of their social identity category (skinny and fat heterosexual and gay male bodies, fat heterosexual and lesbian female bodies) were perceived as experiencing heightened prejudice on the basis of body shape. Meanwhile, skinny heterosexual and lesbian female bodies were perceived as less typical, and they were not related to increased perceived prejudice. In fact, for lesbian female bodies, skinny bodies were associated with decreased perceived prejudice.

Our findings point to the notion that, while skinny bodies are not associated with, or may even decrease prejudice among women, skinny male bodies are predictive of perceived prejudice. Work on weight stigma is typically oriented toward larger bodies, rather than thinner ones (Allison & Lee, 2015), yet the present results suggest a need to orient attention toward thinness, particularly among men. Skinny male bodies do not align with hegemonic standards of masculinity, and are associated with clusters of broadly negative traits (see also Oswald et al., 2020), yet little attention is paid to men's experiences of skinny bodies, especially to thinness as a stigmatized identity

(cf., Fox's (2007) qualitative report on thin gay bodies as they signify HIV). Work on the drive for muscularity among men is prevalent (e.g., McCreary & Sasse, 2000; Osa & Kelly, 2021) but, we argue, captures a separate dimension of the body through its focus on muscularity rather than shape, or weight, itself. Elucidating men's experiences of thinness would contribute to a more robust understanding of weight stigma, and may have broader implications for the study of masculinities.

Our results highlight the potential for typicality to provide an explanatory mechanism for why certain individuals might experience greater prejudice on the basis of body shape than others (see also Alt et al., 2019). Specifically, our results point to the importance of gender typicality, as effects generally did not differ by sexual orientation. The lack of sexual orientation effects, in tandem with the finding that average bodies were seen as most typical across gender/sex and sexual orientation categories, may suggest that we do not have robust cultural stereotypes about the interaction of body shape and sexual orientation, and may point to a lack of inference about intersectional experiences; that is, the present results suggest a general endorsement of the notion that people's experiences with body shape, and related prejudice, do not vary by sexual orientation. However, evidence suggests that these experiences are likely to vary (e.g., heightened prejudice toward fat men in gay communities, see Whitesel, 2014). It would be fruitful for future research to examine how people make intersectional inferences about perceived prejudice; a lack of such inferences – a lack of inherent understanding of intersectionality – may contribute to the ongoing maintenance of systems of marginalization, particularly as they contribute to multiple marginalization.

Limitations and Future Directions

The stimuli utilized herein varied (within gender/sex) only on one dimension: shape. Future work should examine potential differential contributions of different forms of bodily variation to sexual trait attributions; for example, the role of height and waist-to-hip ratio in addition to body shape. Recent work has demonstrated the utility of fat distribution on the body in informing stigmatization on the basis of body shape (Krems & Neuberg, 2021), suggesting this may be another fruitful direction to pursue. It would be beneficial to examine these body-specific manipulations in tandem with variables we intentionally controlled in the present work – given our preliminary focus on joint perceptions of body size and social identity labels – such as facial attractiveness, ethnicity, and age. Integrating these social identities into similar paradigms would provide a more holistic and generalizable understanding of processes of person perception and stereotyping as they relate to body shape.

Further, the present paradigm may be limited by the fact that, unlike in the real world, sexual orientation information was provided to perceivers. Generally, when encountering an unfamiliar other, sexual identity is unknown (though people do appear apt at extracting this information from facial and bodily cues; for example, see Ambady et al., 1999; Rule & Ambady, 2008; Rule et al., 2009). The present paradigm may thus be limited in ecological validity; however, it is unclear the extent to which this provision of information impacts perceptual judgments.

Additionally, as noted by Oswald et al. (2020), it is likely that perceptual judgments regarding the target social identities of the present work would vary by culture, as well as many participant sociodemographic variables including but not limited to gender/sex, sexual orientation, and body shape. We collected participant demographic information on these variables, but did not model their influence in the present work given a lack of theoretical basis for doing so. Further, the present sample was relatively sociodemographically homogenous and comprised primarily of majority group members (e.g., 90.2% cisgender, 63.4% White); future research should thus aim to replicate and extend the current findings in more diverse samples.

Further, though the present work provides some grounds for theorizing processes of stigmatization as they relate to trait attribution and stereotyping, we inquired only about perceived prejudice, which may not be a good proxy for actual experiences of prejudice. Future work should aim to assess how the processes of perception and stereotyping explored here influence actual stigma; for example, by interrogating how trait application translates to differential (i.e., prejudiced) treatment of individuals with differing identities. The downstream clinical implications of this type of work are important for the well-being of individuals with diverse bodies and identities. Further, work should aim to highlight the voices of those marginalized by identities on these axes and others in order to better understand lived experiences of stigma and potential interventions to reduce stigma – potentially by intervening at the stage of trait attribution.

Finally, some statistical techniques used in the present work were exploratory in nature (i.e., CATPCA). As such, analytical decisions regarding the labeling of personality and sexuality-related traits domains in our CATPCA may be viewed as arbitrary. Future research should seek to validate the trait application measure, item structure, and interpretation of items and domains.

Conclusion

The current work is an initial step in addressing a range of questions that can expand our understanding of the processes of multifarious person perception and how these processes inform trait attributions and stereotyping. In a single, well-powered study, we tested a number of hypotheses pertaining to perceptions of bodies with varying social identities along the axes of body shape (skinny, average, fat), gender/sex (male, female) and sexual orientation (heterosexual, gay/lesbian). First, in line with our hypothesizing, we found robust evidence that trait application varied by both sexual orientation and body shape. Further supporting our hypotheses, gay male bodies were perceived as more feminine than heterosexual male bodies, and skinny male bodies were perceived as more feminine than other body shapes. Supporting additional hypothesizing, lesbian female bodies were perceived as more masculine than heterosexual female bodies, and fat female bodies were perceived as the most masculine across sexual orientations. Partially supporting our typicality hypotheses, average bodies were perceived as the most typical for all sexual orientation/gender/sex identities; further, as hypothesized, we

did find that most bodies perceived as less typical of their social identity category (skinny and fat heterosexual and gay male bodies, fat heterosexual and lesbian female bodies) were perceived as experiencing heightened prejudice on the basis of body shape. The current findings provide insight into this under-examined identity intersection and provide fertile ground for future theorizing on interventions to reduce the negative consequences of multiple marginalization.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article

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