**Bisexual Stereotypes Apply Differently by Body Size : An Assessment of Bisexual Prototypicality, Trait
Application, and Body Size**

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Abstract

We blend person perception work with queer appearance psychology to examine the relationship between body size and bisexuality. In an online survey ($N = 472$, $M_{age} = 25.15$, 63.8% women), we examined the specific traits associated with a range of computer-modelled bodies identified as bisexual. We found that average body sizes were perceived as most prototypical of both bisexual men and bisexual women, skinny and fat bodies were more associated with clusters of traits which contrast with common stereotypes about bisexuality. Additionally, we found that bisexual men were associated with increased masculinity and decreased femininity relative to bisexual women, and found a general, though nonsignificant trend such that bisexual men were perceived as having heightened androcentric desire relative to women. Finally, we found evidence for the role of typicality as a mediator of perceived prejudice; less prototypical bodies tended to be perceived as experiencing greater prejudice based on body size.

Keywords: bisexual prejudice, body perception, intersectionality, person perception, prototypicality

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“Bi[sexual] people are often told their fat body is already excessive. The greed their body personifies tends to be read in their sexuality as well...For fat queer people, our queerness is intrinsically linked to our fatness because of how our bodies are perceived.”

- Morabito (2016)

Some of the most pervasive prejudices in contemporary society are faced by fat¹ people (see Rubino et al., 2020) and bisexual people respectively (Brewster & Moradi, 2010; Herek, 2002; Matsick & Rubin, 2018). Yet, little research has specifically examined the intersection of bisexuality and fatness, despite widespread interest in compound identities and multiple marginalization (e.g., Ghavami & Peplau, 2013; Petsko & Bodenhausen, 2019a, 2019b). Herein, we blend person perception work with LGBT (lesbian, gay, bisexual, and transgender) appearance psychology to provide a preliminary investigation of the relationship between body size² and bisexuality, examining how bisexual bodies of varying size are perceived. We examine the specific attributes associated with a range of bisexual bodies, with a focus on sexual traits; identifying the traits associated with bodies can inform understandings of prejudice and marginalization (see Oswald et al., 2020). Further, we examine perceived prejudice toward our bisexual body stimuli. We consider well-established mediators of prejudice such as prototypicality, countering the existing dearth of literature on prototypical bisexuality (e.g., Clarke et al., 2012). The present work answers calls for broader methods to approach visual

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 (see Gordon, 2020; Rothblum & Solovay, 2009). However, we use obesity where necessary to stay true to source material.

² We use “body size” as a reference to the fatness of bodies, opting for the terminology of size rather than weight given that weight is a discrete and specific measure which humans are not particularly apt at perceiving accurately (e.g., Shafran & Fairburn, 2002).

identities in LGBT appearance psychology as well as the need for more inclusive literature on sexual orientation perception generally; as called for by Clarke and colleagues (2012), “future appearance research should be fully inclusive of bisexuality and concerns of bisexual people...research specifically focused on bisexual people is needed in areas such as body image and appearance and visual identity to capture their distinct concerns” (p. 29; see also Lick et al., 2015).

Visible Bodies and Invisible Sexualities

Bodies are highly salient, visible features which convey a great deal of information to perceivers, even from a distance (e.g., Hummel et al., 2012; Yovel & O’Toole, 2016). Perceivers make spontaneous and unintentional negative judgements of fat bodies (Schupp & Renner, 2011). Fat bodies are highly stigmatized across contexts; fat people face extensive stigma in workplace, educational, and healthcare settings, as well as interpersonal relationships (see Rubino et al., 2020 for a review). The pervasive nature of fat stigma and related experiences of discrimination have significant consequences for fat people's physical and mental well-being. For example, experiences of discrimination on the basis of fatness are linked to outcomes including social isolation, depression, anxiety, disordered eating, and increased mortality (see Rubino et al., 2020). Fat stigma is perpetuated by a host of negative cultural stereotypes about fat people, including notions of fat people as disorganized, lazy, unhealthy, uneducated, pathological, blameworthy, unattractive, and gluttonous (e.g., Brochu & Esses, 2011; Puhl & Heuer, 2010; Rich & Evans, 2005; van Amsterdam, 2013). The highly visible nature of fatness – constituting a discredited identity as described by Goffman (1963) – renders fat bodies susceptible to constant policing, including stereotyping and discrimination (e.g., Harjunen, 2016).

Conversely, bisexuality is publicly invisible (Zivony & Saguy, 2018). Public awareness of bisexuality and focus on bisexual-specific issues is limited, including within broader queer communities (Gurevich et al., 2007; Zivony & Saguy, 2018). Social and academic movements for queer rights and inclusion have excluded bisexual people (see Rothblum, 2020; Weier, 2020). This lack of visibility arises

in part from bisexuality's defiance of both heterosexist and monosexist norms, which enforce binary understandings of sexual attraction to one gender, rendering the multiple attractions of bisexuality intangible (see Morgenroth et al., 2021; Oswald & Matsick, 2021; Roberts et al., 2015). Further, bisexuality is often rendered invisible on the individual level, as bisexual individuals in monogamous relationships with partners of any gender are often perceived as having "chosen a side" and thus no longer being bisexual (e.g., Hartman-Linck, 2014; Hayfield et al., 2018). Despite this invisibility (or perhaps because invisibility enhances adoption of stereotypes in the absence of further knowledge; see Zivony & Saguy, 2018), bisexual people face pervasive and extensive stigmatization and prejudice (e.g., Dodge et al., 2016; Herek, 2002; Matsick & Rubin, 2018).

Perceptions of Bisexuality as Mechanisms of Prejudice

Bisexual prejudice is perpetuated by a host of negative cultural stereotypes about bisexual people, including notions of bisexual identities as unstable and illegitimate (see Brewster & Moradi, 2010) as well as perceptions of bisexual people as promiscuous, hypersexual, sexually diseased, untrustworthy, confused, and immoral (Burke & LaFrance, 2016; Eliason, 2000; Friedman et al., 2014; Mohr & Rochlen, 1999; Spalding & Peplau, 1997; Zivony & Saguy, 2018). The concealable nature of bisexuality – constituting a discreditable identity as described by Goffman (1963) – may protect bisexual people from facing discrimination (when bisexuality is concealed), but concealment comes at personal cost (e.g., social anxiety, Cohen et al., 2016).

Many social stereotypes of bisexuality focus on sexuality-related traits (e.g., hypersexuality, non-monogamy; see Burke & LaFrance, 2016; Spalding & Peplau, 1997; Zivony & Saguy, 2018). Sexuality thus seems to be the dominant frame through which bisexuality is perceived; additional work suggests the primacy of sexuality in stereotypes about non-heterosexual people generally (Murphy et al., 2021). This primacy of sexuality in perceptions of bisexuality homogenizes and narrows perceptions of bisexual people, limiting them to existing within (hyper)sexual spheres. Like these social stereotypes, academic

understandings of bisexuality are similarly narrow in scope. Most literature on bisexual prejudice, particularly work aiming to measure and quantify attitudes toward bisexual people, has explored perceptions of “bisexuality” as opposed to perceptions of bisexual people (Friedman et al., 2014). Further, the literature predominantly takes the approach of grouping bisexual men and women with their gay and lesbian counterparts (where bisexual people are not entirely excluded; see Rothblum, 2020). Despite recognition of the importance of ingroup heterogeneity among sexual minority individuals (e.g., Rothblum, 2020), heterogeneity among bisexual people is largely uninterrogated, except for a small body of literature on differences between bisexual men and women (e.g., Friedman et al., 2014).

Indeed, bisexual prejudice is sized by the intersection of bisexuality with other social categories, including gender/sex³ and gender presentation (i.e., masculinity/femininity). Gender/sex is a particularly important lens of analysis in understanding attitudes toward bisexuality; bisexual men and women both face bisexual prejudice, but for different reasons (Matsick & Rubin, 2018). Male bisexuality is often perceived as inauthentic because bisexual men are seen as masking a true gay identity (e.g., avoiding “coming out” to maintain privilege and circumvent sexual stigma; Israel & Mohr, 2004); in contrast, bisexual women’s identities are construed as artificial in a performative fashion – that is, these women are understood to be performing their bisexuality for the male gaze (e.g., Alarie & Gaudet, 2013; see also Oswald & Matsick, 2020). In both cases, bisexuality is cast as androcentric (i.e., male-oriented) – bisexual men’s sexuality is oriented toward gay men, while bisexual women’s is oriented toward heterosexual men (Matsick & Rubin, 2018). It is unclear how bisexual transgender people might be

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 (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. Though we recognize that gender and gender/sex identities can and do branch from sex but assign all male bodies identities of “man/men” and all female bodies identities of “woman/women.”

specifically stereotyped given a lack of research relating to perceptions at this intersection, however, Hayfield (2020) suggests that, given the “overlaps between disrupting and blurring the boundaries of gender and of sexuality” (p. 183) this intersection is important to account for.

Further complicating the role of gender/sex as a critical lens for understanding bisexual prejudice is the potential role of gender presentation, which we conceptualize herein as dimensions of masculinity and femininity. Previous person perception work implicates gender atypicality as a nonverbal cue of bisexuality (Lick et al., 2015), though it is unclear whether a distinction is made in categorizing gender-atypical faces as bisexual versus lesbian/gay (see also Ding & Rule, 2012). The exclusion of bisexuality from most person perception research (see Lick et al., 2015) precludes conclusive theorizing about the potential role of gender atypicality in perceptions of bisexuality; we include a measure of perceived masculinity/femininity in the present work to better orient the literature on this potential dimension of interest.

In a similar fashion, we suggest that stereotypes of bisexuality, and thus bisexual prejudice, may also be critically examined through a lens of fatness. Fat and thin bodies are associated with different clusters of sexual traits (Oswald et al., 2020), and fat bodies are often seen, in White, Western contexts, as asexual and genderless (Murphy et al., 2021; Oswald et al., 2020). The stereotype of fat bodies as asexual contrasts with stereotypes of bisexual people as hypersexual and promiscuous; stereotypes of fat bodies as genderless similarly complicate gendered stereotypes of bisexual people which rely on traditional binary notions of gender. It is thus unclear how, for example, a fat bisexual woman would be stereotyped and whether stereotypes about this woman would differ from stereotypes of a thin bisexual woman (or a fat bisexual man). Further, it is unclear how this intersection of identities is shaped by other factors, including race, culture, and gender expression; some intersections have been deeply explored (e.g., fatness and gender expression among queer women of color; Macías, 2009; Maor, 2012; Wilson, 2009), yet the complexities of bisexual identity and body size remain underexamined (see also

Oswald & Matsick, 2021). The complexities of understanding this specific intersection arise, in part, from a lack of knowledge about prototypical bisexual people, which render it difficult to ascertain who stereotypes about bisexuality *do* describe.

The Prototypical Bisexual

Little is known about who the “prototypical bisexual” is. Lick et al. (2015) contribute, as reviewed above, that gender atypicality is associated with perceptions of bisexuality, though additional findings suggest gender atypicality is associated with non-heterosexuality generally rather than bisexuality specifically (Ding & Rule, 2012). Examining visual cues of bisexuality from a different perspective, LGBT appearance psychology literature has failed to find evidence of prototypical bisexuality. Hayfield (2013) demonstrated an inability of heterosexual participants to identify any distinctive appearance norms for bisexual people. Research with bisexual people has similarly failed to find uniform visual signals of bisexuality, though it has revealed that many bisexual individuals report making strategic attempts to signal their identities (e.g., Clarke & Turner, 2007; Daly et al., 2018; Davila et al., 2019; Hayfield et al., 2013; Huxley et al., 2014), for example, through displays of androgyny (thus breaking down multiple binaries; see Hartman, 2013). Daly and colleagues (2018) note that bisexual women report fluid and flexible signaling of their bisexuality, often dependent on context; this fluidity and context-dependency may further complicate the notion of a prototypical bisexual.

Thus, many questions remain regarding what factors signal bisexuality, or stated differently, what predicts perceptions of individuals as bisexual. We theorize that body size may be one important component of bisexual prototypicality. Given that body size demonstrates stereotypical associations with other sexual identities – fatter bodies are associated with masculinity and thus with lesbian identities among women (e.g., McPhail & Bombak, 2015; Silvia & Rios, 2021), and thin bodies are associated with femininity and thus with gay identities among men (Oswald et al., 2021) – it is possible

that body size may be stereotypically associated in some way with bisexuality, constituting a bisexual prototype.

Without an understanding of prototypical bisexuality, it is difficult to ascertain mechanisms of bisexual prejudice, such as understanding to whom stereotypes about bisexuality are applied. Typicality reliably informs social evaluations and as such is crucial for understanding perceptual processes (see Alt et al., 2019). Prototypicality has been demonstrated to be a protective factor for prejudice (Alt et al., 2019); individuals who meet expectations are evaluated more favorably (see Alt et al., 2019). Non-prototypicality, however, has also demonstrated protective effects where the non-prototypical identity is stigmatized (e.g., being fat [non-prototypical] buffers Asian Americans from prejudice against foreigners relative to thin [prototypical] Asian Americans, Handron et al., 2017). Prototypicality may thus be a risk factor or a protective factor for prejudice; in either case, it is important to understand prototypical bisexuality to inform interventions aiming to reduce bisexual prejudice.

The Current Study

Calls have been made for broader methods to approach visual identities in LGBT appearance psychology as well as for more inclusive literature on sexual orientation perception generally and increased work on bisexual perception specifically (Clarke et al., 2012; Lick et al., 2015). Further, the stereotyping literature, drawing from decades of feminist intersectional theorizing (see Crenshaw, 1989, 1991; hooks, 1984), has recently demanded greater attention to processes of stereotyping and prejudice as they apply to compound, multifarious identities (Petsko & Bodenhausen, 2019a, 2019b). In the present work, we answer these calls by bringing together, in a novel fashion, disparate literature on person perception and LGBT appearance psychology to investigate the relationship between body size and perceptions of bisexuality.

The goal of the current work was to develop a less homogenous and more extensive understanding of bisexual stereotypes to ultimately inform knowledge of mechanisms of bisexual

prejudice. We examined trait application to bisexual body stimuli of varying size and gender/sex to better understand specific stereotypes of bisexual people and how these stereotypes are sized by the intersection of bisexuality with other social identities. Further, we examined participants' perceptions of bisexual bodies' masculinity, femininity, and androcentric desire to better understand how body size influences bisexual prejudice. Finally, we examined prototypicality – the extent to which bodies of varying size are seen as typifying bisexuality – as a mediator of perceived prejudicial experiences, and as an index of typical bisexual appearance.

Methods

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

Participants

Individuals of any gender identity and any sexual orientation over the age of 16 years were eligible to take part in the study. Participant recruitment included a human research pool at a large Western Canadian university, and online sampling via multiple social platforms (Facebook, Instagram, Twitter, Reddit) and research recruitment sites for sexology and psychology studies⁴. The aggregate dataset comprised 1864 participants. From this aggregate, 324 participants were removed for completing only demographics, 12 for having completed the survey more than once, 63 for falling below a 51% survey completion cut-off, and 2 on suspicion of trolling. 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 bisexual condition; heterosexual, gay, and

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

lesbian conditions were included in the larger project, but data from these conditions is not analyzed or presented here. Given these exclusions, a final subset sample of 472 participants was analyzed for the present research study. Table 1 provides a detailed distribution of participant demographics.

Stimuli

The stimuli were 6 (3 male, 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 sizes (Hu et al., 2018). The stimuli were a subset of those utilized by Oswald et al. (2020). Stimuli for the present study represented a variety of body sizes, with each gendered set of 3 containing one “very skinny”, one “average”, and one “very fat” body. Each body was rendered from a frontal as well as a 45° profile view, displayed to participants side-by-side; all bodies were visualized under controlled illumination, background, and surface material conditions, which were chosen to maximize the realism and visibility of the stimuli. See Figure 1 in supplemental materials for all six stimuli. Each stimulus was presented on a white background with a bold, underlined label at the bottom of the image indicating the social identity of the individual (e.g., “Bisexual Woman”).

Measures

Demographic Questionnaire

Participants provided information about their age, gender, ethnic background, sexual orientation, relationship status, and education level. In addition, participants indicated how they perceived their own body size 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 generally (e.g., “How typical do you think this body is for a [bisexual woman];” response options ranged from 1 (*very atypical*) to 4 (*very typical*).

Trait Application

The list of traits was borrowed from Oswald et al. (2020) and included 30 descriptor terms which capture a wide variety of personality and sexuality-related characteristics (e.g., quarrelsome, sexually confident, agreeable). Upon presentation of each body size, participants indicated whether each trait descriptor applied to the body size by selecting one of two options – “*does not apply*” or “*applies*” (see also Hu et al., 2018). See supplemental materials for a full list of 30 personality and sexuality traits (Supplemental Tables, Table 1).

Perceived Masculinity/Femininity

Participants responded to two items, developed for the present study, that measured the extent to which they perceived the target to be masculine and the extent to which they perceived the target to be feminine (i.e., “How masculine [feminine] do you think this person is?”). Responses options included a 6-point Likert-type scale ranging from 0 (*not at all*) to 5 (*very*). Higher scores indicated heightened perceptions of the target’s masculinity and femininity.

Androcentric Desire

Borrowing from Matsick and Rubin (2018), participants responded to two items that measured the extent to which they believed the target to be attracted to *men* and the extent to which they believe the target to be attracted to *women* (i.e., “To what degree do you think this person is attracted to men [women]?”). Participants rated how likely they believed each item on a 6-point Likert-type scale ranging from 0 (*not at all*) to 5 (*very*). For each participant, we calculated an androcentric desire score by subtracting their rating of the target’s attraction to women from their rating of the target’s attraction to men (i.e., attraction to men scores minus attraction to women scores). Higher scores indicated heightened perceptions of the target’s attraction to men (i.e., androcentric desire) versus women.

Anticipated Prejudice

Participants responded to three items, developed for the present study, that measured the extent to which they perceived the target as experiencing prejudice because of their body size, sexual

orientation, and gender (e.g., “How much prejudice do you think this person faces as a result of their [body size]”). Responses were rated on a 4-point Likert-type scale ranging from 0 (*none*) to 3 (*an extreme amount*).

Procedure

The study was presented to participants as an investigation into perception of individuals belonging to difference social categories. Participants completed the entire study online using the Qualtrics survey platform. Participants provided informed consent⁵, after which they completed the demographics and underwent random assignment to view one out of the six body stimuli. The design was a 2 (gender/sex: male, female) x 3 (body size: skinny, average, fat); participants were thus assigned to one condition representing some combination of these traits (e.g., skinny male). All conditions analyzed in the present work additionally labelled the stimulus as bisexual.

The body size stimuli were visualized from a frontal and 45° angle, following the work of Hu et al. (2018). To reduce participant fatigue and attrition only one out of six body size stimuli was presented. Participants first read a brief set of instructions detailing what they would see and respond to. Following these instructions, text above each body size stimulus directed the participant to “Please look closely at this body and then answer the following questions.” A label underneath each body size stimuli provided participants the social identity of the body (e.g., “Bisexual Woman”). Participants then rated how typical the body size was of someone with the described social identity (e.g., “Bisexual Woman”). Next, participants responded to a 30-item trait list, which instructed participants to judge whether the trait applied to the body size presented. Finally, participants again viewed the original body size stimulus (e.g., “Bisexual Woman”) and responded to one item each on perceived masculinity and femininity, two items pertaining to androcentric desire, and three items regarding anticipated prejudice. All measures and instructions are available in supplemental materials. Upon completion of responses, participants

⁵ University Research Ethics Board #2019-02.

were directed to a debriefing form. The entire experimental procedure was self-paced and took approximately 20 minutes to complete.

Results

Trait Application by Gender/Sex & Body Size

Correspondence Analysis

Following procedures outlined by Hu et al. (2018) and Oswald et al. (2020), we employed a correspondence analysis (CA) to visualize the application of the personality and sexuality-related traits to each gendered, bisexually identified body type. CA is a multivariate statistical method like Principal Components Analysis (PCA) developed for categorical data, which allows simultaneous visualization of the observations (body stimuli by gender/sex) and variables (traits) in a unitary multivariate space. To implement the CA, we tallied body and trait variables in a contingency table for body stimuli of each gender/sex, with the three body sizes (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 dimension or factor scores – one for the body stimuli and one for the traits. With these factor scores as coordinates, two-dimensional maps were formed to visualize the traits associated with each body. Body stimuli were inputted as the column variable and column principal normalization was utilized; thus, the relationships between the column variables (body stimuli) and the relationships between the row variables (traits) can be cautiously interpreted from proximity, noting that the vertical distances between these coordinates are exaggerated.

The CA spaces were interpreted for the male and female body stimuli separately by considering each axis in isolation. The vertical axis for both male and female bodies separated the traits by valence, with positive traits (e.g., passionate, confident) generally on the left side and negative traits (e.g., sexually repressed, closeminded) generally on the right. For the male body stimuli (see Figure 1), this dimension accounted for 87.0% of inertia; for the female body stimuli (see Figure 2), it accounted for

67.9% of inertia. Among the three male body sizes, the average and fat bodies were generally found on the positive side of the vertical axis (left), and the skinny body was found on the negative right side of the vertical axis. The pattern was reversed among the three female bodies; the average and skinny bodies were found on the negative right side of the vertical axis, and the fat body was found on the positive left side.

The horizontal axis separated traits by agency. For the male body stimuli, active personality and sexuality traits (e.g., confident, sexually experienced) were primarily in the top half of the space, and passive personality and sexuality traits (e.g., desperate, sexually diseased) were in the bottom half. This dimension accounted for 13.0% of inertia. For the female body stimuli, the reverse seemed true, with agentic, active traits (e.g., self-confident, passionate) in the bottom half of the space and passive traits (e.g., closeminded, innocent) in the top half of the space; this dimension accounted for 32.0% of inertia. Along the agency axis, the average male body occupied the agentic top half of the space, and the fat body occupied the lower, passive half of the space. The skinny male body was situated along the axis itself. For the female body stimuli, the fat and skinny bodies were in the top half of the space (passive), and the average woman occupied the agentic, bottom half – though all three female bodies were very close to the axis.

Categorical Principal Component Analysis

The CA was used to graphically visualize the relationship between personality and sexuality-related traits and body sizes. While this technique was important to describe which traits and body sizes coincided, follow-up statistical tests were necessary to discern statistically significance differences; as such, we applied principal component and multiple regression analyses (see Hu et al., 2018). A categorical principal component analysis (CATPCA) was used as a data reduction technique on the 30 sexuality-related traits that measured inferences about various body sizes. CATPCA is appropriate for data reduction when variables are categorical 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.

In the initial CATPCA, nine traits (quarrelsome, desperate, careless, fertile, promiscuous, innocent, sexist, sexually diseased, and careful) did not load properly (centroid coordinate means less than 1.00) and were removed; therefore, 21 traits were retained and entered in the CATPCA. An oblimin rotation with Kaiser normalization was employed to reveal two components which explained 6.29% and 4.0% of the variance. Given the personality and sexuality traits included in each loading, the components were labelled sexually extroverted (Component 1: seductive, hypersexual, intimate, sexually aggressive, extroverted, sexually open, self-confident, agreeable, curious, flirtatious, kinky, sexually experienced, sexually confident, passionate, and dominant; $\alpha = .87$) and sexually introverted (Component 2: prudish, sexually repressed, sexually shy, closeminded, sexually submissive, and anxious; $\alpha = .78$). Component loadings are available in supplemental materials (see Supplemental Tables, Table 1).

Multiple Regression: Male Bodies

Next, to investigate the effects of the three different male body sizes (i.e., skinny, average, fat) on predicting extroverted and introverted sexual traits, two independent multiple regressions were employed. The regression model for extroverted sexual traits was statistically significant, $F(2, 469) = 33.56, p < .001; R^2 = .13$. Examination of the coefficients indicated that the skinny male body significantly predicted greater extroverted sexual traits compared to the average body. There was no significant difference between the average and fat body sizes in predicting extroverted sexual traits (see Table 2). The second multiple regression for introverted sexual traits was also statistically significant, $F(2, 469) = 228.35, p < .001; R^2 = .49$. Examination of these coefficients indicated that the skinny and fat male body

stimuli significantly predicted greater introverted sexual traits compared to the average body size (see Table 2).

Multiple Regression: Female Bodies

A similar technique was employed for the female body stimuli to determine the effects body size on extroverted and introverted sexual traits. Again, two independent multiple regressions were conducted. The regression model for extroverted sexual traits was not significant, $F(2, 469) = .690$, $p < .001$; $R^2 = .003$, indicating no difference between the skinny, average, and fat body sizes in predicting extroverted sexual traits. However, the second multiple regression for introverted sexual traits was statistically significant, $F(2, 469) = 23.82$, $p < .001$; $R^2 = .09$. Both the skinny and fat female body stimuli significantly predicted less introverted sexual traits relative to the average body (see Table 3).

Masculinity & Femininity

We conducted two independent one-way ANOVAs to explore differences in perceptions of both masculinity and femininity among gendered bisexual body stimuli of differing size. The first analysis examining masculinity ratings revealed statistically significant differences were found among the gendered body stimuli, $F(5, 466) = 24.42$, $p < .001$, $\eta p^2 = .21$. The average male ($M = 2.43$; $SE = .11$) and fat male ($M = 2.40$; $SE = .12$) bodies were evaluated as most masculine, with Bonferroni pairwise comparisons ($p = .008$) indicating significant differences between all male body sizes relative to all female body sizes, but no differences among male nor among female bodies (see Table 4 and Figure 3a). That is, bisexual male bodies were perceived as more masculine than bisexual female bodies, overall.

The second ANOVA examined femininity ratings among the body stimuli and reached significance, $F(5, 466) = 20.69$, $p < .001$, $\eta p^2 = .18$. Findings revealed a reverse trend from the masculinity ratings, with the skinny female body ($M = 3.01$; $SE = .12$) evaluated as the most feminine. Bonferroni follow-up comparisons ($p = .008$) indicated that all female body sizes differed significantly relative to all

male body sizes, but with no differences among female bodies, or among male bodies, overall (see Table 4 and Figure 3b).

Androcentric Desire

A one-way ANOVA examined differences in perceptions of androcentric desire among gendered bisexual body stimuli of differing size. Statistically significant differences were found among the groups, $F(5, 466) = 4.33, p < .001, \eta p^2 = .04$. Pairwise comparisons with a Bonferroni corrected alpha of $p = .008$ indicated a statistically significant ($p = .003$) difference between the skinny male ($M = 0.15; SE = .13$) and the average female body ($M = -0.53; SE = .12$), suggesting that participants perceived the skinny male to have greater androcentric desire than the average female (see Figure 4; for additional information see Table 2 in online supplemental materials). No other pairwise comparisons reached significance.

Bisexual Typicality as a Mediator for Perceived Experiences of Prejudice

A one-way ANOVA explored the extent to which body stimuli of varying size were seen as typifying bisexuality. Results revealed significant differences for typicality among bisexual gendered body stimuli, $F(5, 466) = 26.64, p < .001, \eta p^2 = .22$, with the average male ($M = 2.88; SE = .07$) and average female ($M = 2.99; SE = .06$) bodies perceived as more typical of bisexuality than all other body conditions. Table 5 illustrates Bonferroni post hoc pairwise comparisons ($p = .008$) among the gendered body conditions.

Next, two mediation models were used to examine whether male and female bisexual body stimuli of varying sizes would be perceived as facing prejudice on the basis of body size. The data were analyzed with a regression-based path analysis using Hayes' (2018) PROCESS model 4, with 10,000 bias-corrected 95% bootstrap confidence intervals to determine whether perceived typicality would mediate

perceived experiences of prejudice based on body size for: (1) bisexual male body stimuli and (2) bisexual female body stimuli.⁶

A multicategorical independent variable with three dummy coded (D_1 and D_2) body type conditions (i.e., skinny and fat) were created and average body type condition was used as the reference condition. 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).

Male Bodies

Statistically significant relative total effects of body size on perceived prejudice for the skinny (D_1 : $\beta_{c1} = .37$, $SE = .11$, $t = 3.30$, $p < .01$, $CI_{95} = [.15 \text{ to } .59]$) and fat male body conditions (D_2 : $\beta_{c2} = .98$, $SE = .11$, $t = 8.59$, $p < .001$, $CI_{95} = [.76 \text{ to } 1.21]$) versus the average male body were found. Overall, relative to the average male body condition (i.e., the reference category), the skinny and fat male body conditions scored significantly higher on perceived prejudice. Further, we expected typicality to mediate perceptions of prejudice. Small 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 ($a_1b = .07$, $SE_{(Boot)} = .04$, $CI_{(95\% Boot)} = [.01 \text{ to } .15]$) and fat male bodies ($a_2b = .13$, $SE_{(Boot)} = .06$, $CI_{(95\% Boot)} = [.02 \text{ to } .27]$) were perceived as less typical, and less typical bodies were rated higher on perceived prejudice. The full model was statistically significant, $F(2, 218) = 37.39$, $p < .001$ and explained 25% of the variance in prejudice scores. Pathway coefficients are presented in Figure 5a.

Female Bodies

Statistically significant relative total effects of body size on perceived prejudice for the skinny (D_1 : $\beta_{c1} = -.31$, $SE = .12$, $t = -2.70$, $p < .01$, $CI_{95} = [-.54 \text{ to } -.08]$) and fat female body conditions (D_2 : $\beta_{c2} =$

⁶ The results from two additional mediation models for whether perceived typicality would mediate perceived experiences of prejudice based on sexual orientation and gender for male and female bisexual bodies of varying sizes is included in the online supplemental materials.

1.10, $SE = .12$, $t = 9.66$, $p < .001$, $CI_{95} = [.87 \text{ to } 1.32]$) versus the average female body were found. Relative to the average female body condition (i.e., the reference category), the fat female body conditions scored significantly higher on perceived prejudice. The opposite effect was found for the skinny female body condition. Relative to the average female body condition, the skinny condition scored significantly lower on perceived prejudice. Again, we expected typicality to mediate perceptions of prejudice. No significant relative indirect effects of typicality were found for either D_1 or D_2 conditions versus the average body condition. The full model was statistically significant, $F(2, 248) = 81.10$, $p < .001$ and explained 40% of the variance in prejudice scores. Pathway coefficients are presented in Figure 5b.

Discussion

In a sample of 472 participants, we examined several research questions pertaining to perceptions of bisexual targets (i.e., vertex-based computer modeled body stimuli) with varying social identities along the axes of body size (skinny, average, fat) and gender/sex (male, female). We examined trait application, perceptions of these vertex-based bisexual body stimuli' masculinity, femininity, and androcentric, and prototypicality – the extent to which body stimuli of varying size are seen as typifying bisexuality – as a mediator of perceived prejudicial experiences, and as an index of typical bisexual appearance.

Trait Application

Our correspondence analyses revealed little overall variation in the location of bisexual male body stimuli in the trait space. The skinny male body stimulus was associated with slightly more negative and active traits, the average male body stimulus with slightly more positive and active traits, and the fat male body stimulus with slightly more positive and passive traits; overall, the body stimuli were located relatively close together in the trait space. Our correspondence analysis for bisexual female body stimuli again revealed little overall variation in the location of female body stimuli in the trait space. The skinny female body stimulus was associated with slightly more negative and passive traits,

the average female body stimulus with slightly more positive and active traits, and the fat female body stimulus with slightly more positive and passive traits. Overall, the body stimuli were clustered closely together in the trait space. These findings contrast with prior work using similar approaches, which has found greater variability in associations of body size with trait clusters (Oswald et al., 2020). It is possible that, given the saliency of sexuality-related traits in stereotypes about bisexuality, the purported bisexuality of the target stimuli may have overwhelmed the contributions of body size to trait judgements (see also Oswald & Matsick, 2021).

Our regression analyses did reveal some differences in trait application by body size. Among bisexual male body stimuli, the skinny male body size significantly predicted greater extroverted sexual traits compared to the average and fat size. Further, the skinny and fat male body sizes significantly predicted greater introverted sexual traits compared to the average body size. Among bisexual female body stimuli, our regression analyses revealed no differences between the skinny, average, and fat female body sizes in predicting extroverted sexual traits. However, both the skinny and fat female body sizes significantly predicted less introverted sexual traits relative to the average female body size.

In tandem with our findings indicating the average body as the prototypical bisexual for both males and females, the prototypical (i.e., average) bisexual appears to be associated with low levels of introverted sexuality and personality traits, while divergence from the prototype (i.e., skinniness or fatness) is associated with heightened introversion for both males and females. These introverted traits included such traits as prudish, sexually repressed, and sexually shy. Given that these traits contrast with common stereotypes about bisexual people as promiscuous, sexually aggressive, and sexually experimental (e.g., Brewster & Moradi, 2010; Friedman et al., 2014), it is perhaps unsurprising that these sexually introverted traits are not associated with prototypical bisexuality. Our findings do suggest, however, that skinny and fat (i.e., non-prototypical) bisexual people are perceived as being

more associated with these introverted traits, which may, to some extent, protect them from bisexual prejudice given the contrast of these traits with the stereotypes underlying bisexual prejudice.

Among bisexual female body stimuli, the observation that no differences by body size were found in attributions of extroverted sexuality and personality traits – many of which mirror stereotypes about bisexuality (e.g., as hypersexual, sexually open, and kinky; see Meyer, 2010; Zivony & Saguy, 2018) – suggests that any protection against bisexual prejudice offered by body size may be limited. Among bisexual male body stimuli, however, we did find the skinny body size – but not the average or fat body – to be associated with heightened extroverted traits, suggesting that skinny male bodies might be particularly associated with clusters of traits typical of bisexual stereotypes, despite not being the most prototypical bisexual bodies. This association should be examined in future research.

Masculinity & Femininity

Evaluating perceptions of masculinity and femininity, we found that bisexual male body stimuli overall were perceived as more masculine than bisexual female body stimuli, while bisexual female body stimuli overall were perceived as more feminine than bisexual male bodies. We found no differences in masculinity or femininity ratings by body size within gender. Our findings contrast with the notion that skinny and fat male bodies are associated with less masculine traits than average male bodies (Oswald et al., 2020), as well as findings suggesting that fatness feminizes men and masculinizes women, minimizing gender differences in masculinity and femininity (Murphy et al., 2021). It is possible that bisexuality uniquely impacts these associations; for example, a bisexual identity may overwhelm other aspects of identity (e.g., body size) in informing perceptions of a target individual given the saliency of negative stereotypes about bisexual people (Oswald & Matsick, 2021).

Our findings also point to a lack of gender inversion in perceptions of bisexual people. Implicitly held “gender inversion” theories of homosexuality (Kite & Deaux, 1987) link lesbians with masculinity and gay men with femininity; this perceived inversion underlies stereotypes about gay men and lesbians

as gender-atypical and underlies processes of sexual orientation perception (Dunkle & Francis, 1990; Freeman et al., 2010; see also Rule, 2017). It has also been suggested that gender atypicality influences perceptions of bisexuality (Lick et al., 2015). The lack of gender inversion herein – demonstrated by the stereotypical association of men with masculinity and women with femininity – suggests that social information processing mechanisms underlying perceptions of bisexual men and women may differ from those underlying perceptions of their gay and lesbian counterparts. This may be due to unique cognitive conceptualizations which rely on distinctive features of bisexuality to *perceive* bisexuality.

Androcentric Desire

One stereotype underpinning unique prejudice toward bisexual individuals is that of androcentrism (e.g., Matsick & Rubin, 2018). Our measure of androcentric desire assessed the degree to which participants perceived bisexual targets (i.e., computer modeled body stimuli) to be attracted to men more so than to women. We found that participants perceived the skinny male target to have greater androcentric desire than the average female target, though no other comparisons were significant. The evaluation of the skinny male as particularly androcentric may be related to the association of skinny male bodies with gay identities (e.g., Alt et al., 2019; Oswald et al., 2021). Further, the general trend was such that bisexual male body stimuli were perceived as having slightly heightened androcentric desire relative to bisexual female body stimuli; this trend is supported by recent research finding that bisexual men, but not bisexual women, are perceived as more attracted to men than to women (Morgenroth et al., 2021). Given endorsement of androcentric desire is associated with explicit prejudice toward bisexual men (Morgenroth et al., 2021), the current findings lend support to the necessity of interventions to reduce bisexual prejudice specifically by targeting beliefs about androcentric desire.

Typicality & Perceived Prejudice

Our examination of typicality determined that average bisexual male and average bisexual female body stimuli were perceived as more typical of bisexual people than were skinny or fat body stimuli of either gender/sex. This suggests that the “prototypical bisexual” has an average body size – or may indicate the lack of salient stereotypes about the body size of bisexual individuals and thus a deference to population averages. Given typicality acts as a protective factor for prejudice (see Alt et al., 2019), our findings suggest the potential for greater marginalization of bisexual people when their bodies diverge from this average size, necessitating increased attention to the intersection of bisexual identities and body size.

Indeed, we found relatively robust evidence for the role of typicality as a mediator of perceived prejudice on the basis of body size. For male bisexual body stimuli, we found both skinny and fat body stimuli to be perceived as less typical, which mediated perceptions of prejudice such that these body stimuli were perceived as facing greater prejudice based on body size. For female bisexual body stimuli, we found this same effect for fat body stimuli; skinny body stimuli, however, despite being perceived as less typical, were perceived as experiencing significantly less prejudice than average body stimuli based on body size. This pattern of results suggests that among bisexual women, having a skinny body – despite being non-prototypical – may protect an individual from facing prejudice. These findings are novel in suggesting that a non-prototypical but non-stigmatized identity may produce more favorable evaluations than a prototypical identity. That this same effect did not hold for bisexual male body stimuli suggests that greater attention may be needed to how thinness is stigmatized among men, and bisexual men in particular. We ran additional exploratory mediation analyses with the perceived prejudice outcomes pertaining to prejudice on the basis of sexual orientation and gender; these analyses are available in supplemental materials.

Limitations & Future Directions

A primary limitation of the current work arises from the use of computer-modelled stimuli. Though these models provide the ability to control for a wide variety of extraneous factors and are relatively realistic given they are generated from full-body laser scans of 3,600 individuals (see Robinette et al., 1999), they remain fundamentally different from bodies that individuals would naturally encounter in everyday life (see also Oswald et al., 2020). Further, our stimuli varied on only two dimensions: body size and gender/sex. Future work should aim to examine further within-group variation and its implications for perceptions of bisexual bodies; for example, weight-to-hip ratio and fat distribution may make unique bodily contributions to informing the intersecting stigmas of body size and bisexuality, while other identities such as race and age may further influence perception. Further, attributes such as gender expression, and particularly androgyny, should be prioritized in additional perceptual work on bisexuality given the availability of androgynous appearance ideals, particularly as a queer or even specifically bisexual signal (see Hartman, 2013). Going beyond the binary notions of gender/sex reproduced here through the display of only male and female body stimuli would produce more ecologically valid findings with greater applicability to the lives of bisexual people. Broadly, it would be beneficial to examine manipulations of additional identities as they intersect with bisexuality. Integrating additional social identities into similar paradigms would provide a more holistic and generalizable understanding of processes of person perception and stereotyping as they inform bisexual prejudice.

Our measurement paradigm also produces several limitations. First, our measurement of masculinity and femininity entailed a binary masculine-feminine dichotomy, failing to capture the diversity of ways in which masculinity, femininity, androgyny, and other gendered expressions can be embodied (e.g., van Anders, 2015). This may be particularly relevant when addressing perceptions of bisexuality given high rates of bisexual identities among gender diverse populations (e.g., James et al., 2016; Meyer et al., 2017), necessitating negotiations of the binaries of both gender and sexuality (see

Hayfield, 2020). Future work on perceptions of bisexuality should thus aim to include more encompassing assessments and displays of gender expression and identity, which would provide more ecologically valid understandings of perceptions of bisexuality. It is unclear at present how androgynous bodies of varying sizes might be perceived, particularly in their interaction with bisexual identities and with regard to bisexual stereotyping (which often operates along gendered lines; see Morgenroth et al., 2021). However, analogous to how the adoption of fat identities can be used to resist hegemonic beauty standards (see Oswald & Matsick, 2021; Taylor, 2020), androgynous expressions can be embodied as a challenge to beauty norms (Cusack et al., 2020; Galupo et al., 2021). Some people who adopt androgynous expressions report employing body shape to meet androgynous appearance ideals, for example, losing weight or otherwise hiding feminine bodily attributes (e.g., through chest binding) in order to appear more androgynous (see Cusack et al., 2020; Galupo et al., 2021). Thus, it is important for future research to examine how gender expression – including androgyny – influences perceptions of body size, particularly as they intersect with (bi)sexual orientation.

Our measurement paradigm was also limited by the lack of inclusion of an assessment of perceived weight for the body stimuli. That is, we are unable to ascertain whether participants truly perceived the body stimuli as intended – the “skinny” body as skinny, the “average” body as average, and the “fat” body as fat. However, the patterns of perceived weight-based prejudice that we uncovered lend themselves to the notion that the body stimuli were perceived as intended. Additionally, though our intention in the current work was to better understand within-group homogeneity among bisexual targets, future work should assess how perceptions of targets differ by sexual orientation via direct comparison of perceptions of bisexual targets to targets of other sexual orientations (e.g., heterosexual, pansexual, lesbian, gay). Such comparison would allow for a better understanding of how perception of bisexual targets may be unique. Relatedly, future work may wish to parse judgements from participants of varying social identities (e.g., sexual orientation, weight, gender) to assess how

these individuals might differently perceive bisexual targets.

Further, we inquired only about perceived prejudice in the current work, which may not be representative of actual prejudice experienced by bisexual people. Future work should aim to assess actual stigma, both by directly assessing prejudice toward targets with relevant identities and by highlighting the experiences of bisexual people to understand how they experience stigma related to both their sexual identity and their body size. Relatedly, future work may wish to incorporate measures of bisexual prejudice when assessing perception of bisexual individuals to form a stronger understanding of how the endorsement of prejudiced attitudes toward bisexual people might inform perceptions of bisexuality. Our use of a mediation analysis with cross-sectional data also presents limitations regarding temporal dimensions (see Hayes, 2018). Although, Hayes (2018) has stated that a solid theoretical framework may help to preclude alternative “causal directions” (p. 130). Future studies should aim to gather longitudinal data to confirm the sequence of events that lead to perceived experiences of prejudice.

Conclusion

The current experimental study provides initial insight into a less homogenous and more extensive understanding of bisexual stereotypes as they vary along other axes of identity. Answering calls for a more inclusive literature on sexual orientation perception, multifarious person perception, and issues specific to bisexuality, we examined a number of research questions pertaining to perceptions of bisexual targets with varying social identities along the axes of body size (skinny, average, fat) and gender/sex (male, female). We found that average body sizes were perceived as most prototypical of both bisexual men and bisexual women, and that body stimuli diverging from this prototype (i.e., skinny and fat) were more associated with clusters of traits which contrast with common stereotypes about bisexuality. These findings suggest that non-prototypical bodies may, to some extent, protect people from bisexual prejudice.

Additionally, we found that bisexual men body stimuli were associated with increased masculinity and decreased femininity relative to bisexual women body stimuli; these findings contrast with perceptions of gay and lesbian people which often invert this traditional ascription of masculinity to men and femininity to women, suggesting that that social information processing mechanisms underlying perceptions of bisexual men and women may differ from those underlying perceptions of their gay and lesbian counterparts. We also found a general, though nonsignificant trend such that bisexual men were perceived as having slightly heightened androcentric desire relative to women. Finally, we found relatively robust evidence for the role of typicality as a mediator of perceived prejudice, such that less prototypical bodies were perceived as experiencing greater prejudice on the basis of body size. However, we did find that skinny female body stimuli were perceived as experiencing less prejudice than average body stimuli, despite their non-prototypicality, suggesting skinny bodies may buffer bisexual women from body-size based prejudice; these findings are novel in suggesting that a non-prototypical but non-stigmatized identity may produce more favorable evaluations than a prototypical identity. Taken together, the current work provides an initial step in diversifying our understandings of bisexual experience. We hope that this and future work aiming to heterogenize understandings of bisexuality can ultimately inform knowledge of mechanisms of bisexual prejudice and assist in the development of effective interventions.

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