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“Wait... we are the majority?": consequences of underestimating the bisexual population

Joseph D. Wellman^a, Ana C. Vieira Zaidan^a, C. Veronica Smith^a, Adam J. Beam^{a,b}, Ellen E. Newell^c and Clara L. Wilkins^d

^aDepartment of Psychology, University of Mississippi, University, MS, USA; ^bDepartment of Psychology, Wesleyan University, Middletown, CT, USA; ^cDepartment of Psychology, Wilkes University, Wilkes-Barre, PA, USA; ^dDepartment of Psychology, University of Washington, Seattle, WA, USA

ABSTRACT

Although, bisexual individuals comprise most of the LGBT community in the U.S. they report feeling invisible. Bisexual identity denial from out-group members is an established explanation for this effect, but we propose a novel explanation based on bisexuals' own perceptions. Two studies examined perceptions of the composition of the LGBT+ group (i.e. the relative proportion of bisexual individuals). In Study 1 ($N = 521$), heterosexual, gay, lesbian and bisexual individuals all consistently underestimated the proportion of bisexuals in the U.S. Bisexual individuals also reported lower LGBT identification than lesbian women and gay men even though the former constitute a majority of the U.S. LGBT population. Further, greater underestimation of the bisexual population was associated with lower group identification among Bisexual individuals. In Study 2 ($N = 249$), reading accurate information about the LGBT community's demographic composition, including bisexual majority status, increased bisexual individuals' LGBT identification and self-esteem. Thus, false beliefs about representation may be an explanation for lower group identification and well-being among bisexual individuals (relative to other sexual minorities).

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Group identification;
underestimation; bisexuals;
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Introduction

Bisexual identity is routinely denied by both heterosexual and sexual minority individuals, who suggest it is merely a cover, transitional, or not “real” stable sexual identity (e.g., Bailey et al., 2016; Diamond et al., 2017; Garr-Schultz & Gardner, 2021; McCole & Anderson, 2025; Rust, 2002). Yet, bisexual individuals themselves report identity certainty (e.g., Burke & LaFrance, 2016, 2018; Kirby et al., 2021). The disconnect between self and others' perceptions may pose a significant problem for bisexuals, perhaps explaining their reported lower well-being (McLean, 2008; Meyer, 2003; Ross et al., 2018) and greater depressive symptoms (Maimon et al., 2021), compared to other members of the LGBTQ community. Possessing a devalued or non-recognized identity is an aversive experience (Cheryan & Monin, 2005; Maimon, et al., 2021; Swan & Habibi, 2018). Given that social identity provides meaning,

purpose and helps solidify one's sense of self (e.g., Hogg, 2003; Tajfel, 1979), identity denial can have negative consequences for mental health and well-being, particularly among bisexual populations (e.g., Dyar et al., 2022; Salway et al., 2019). We argue that bisexuals' self-identity denial, in which they underestimate their group's relative proportion of the LGBTQ+ population, has serious, negative implications for bisexuals' well-being.

Identity denial and bi-erasure: by self and others

Bi-erasure is the process through which the existence and legitimacy of bisexuality is denied. This process has been explained through various political and social mechanisms (see Dyar et al., 2022; Eisner, 2013; McCole & Anderson, 2025; Rust, 2002; Yoshino, 2000). Yoshino (2000) proposed a model highlighting three ways bi-erasure occurs: through class erasure (bisexuality is denied as existing or seen as illegitimate), individual erasure (questioning whether individuals are "bisexual" or assuming a person to be heterosexual or gay/lesbian based on partner gender), and delegitimization (negative stereotyping of bisexual individuals) (also see McCole & Anderson, 2025 for review). The extent to which individuals assume sexual orientation on their partner's gender, may play a particularly important role in the underestimation of bisexual identity. If people use partner gender as the primary cue to sexuality, bisexuality will not be recognized without explicit disclosure. In other words, a bisexual man dating a woman will be assumed to be heterosexual, and a bisexual man dating another man will be assumed to be gay unless explicitly discussed.

While it is known that bisexual identity denial from others has negative consequences for bisexual individuals' well-being (Feinstein et al., 2019; Maimon et al., 2019), much less is known about whether bisexuals themselves inadvertently engage in bi-erasure by underestimating their population proportion and seeing themselves as less representative of the LGBT group than they are in reality.

To understand what it means to underestimate, it is useful to quantify the actual bisexual population. In fact, many have made calls for more consistent and reliable estimates of sexual and gender minority demographic data (American Public Health Association, 2021; Patterson et al., 2017). As such, different governmental agencies, research centers, and polling organizations use varied methodologies to estimate populations and converge in their estimation that bisexuals comprise the *majority* of the LGBT group (Gates, 2011). For example, a recent Gallup poll (Jones, 2024) found that bisexual individuals make up 56.3% of the LGBT+ population in the United States and 5.2% of the overall US adult population: representing more than double the proportion of gay, lesbian, or transgender individuals combined.

Given bisexual individuals experience the erasure of their identity, and they comprise the majority of the U.S. LGBTQ+ community, we were interested in assessing the extent to which bisexual individuals recognize this reality, how their estimates shape their connection to the broader LGBTQ community (their group identification), and how it might shape their well-being more broadly.

Group identification and self esteem

Group identification can be conceptualized as the self-relevance and importance of the in-group for one's sense of self (Ashmore et al., 2004; Leach et al., 2008; Luhtanen & Crocker, 1992). Thus, group identification is the psychological connection individuals have with

their group, and it has important implications for cognition, behavior, and well-being (Billig & Tajfel, 1973; Leach et al., 2008; Sellers et al., 1997; Turner et al., 1979). Importantly, group identification is protective for members of low-status groups who often face discrimination and stigmatization (e.g., Branscombe et al., 1999; Doyle & Molix, 2014; Haslam et al., 2018). Meaning, bisexual individuals well-being can either be bolstered or hindered based on their identification with the LGBT+ community.

When examining bisexual individuals group identification, relative to gay men and lesbian women, bisexual individuals often report lower group identification with their specific sexual identity group and the larger LGBT+ community (Herek et al., 2010; Kertzner et al., 2009; Pew Research Center, 2025). In a recent meta-analysis, bisexual individuals reported lower group identity centrality than gay and lesbian participants. Thus, bisexual individuals are less likely to experience the psychologically protective nature of group identification. Bisexuals' lower identification is particularly troubling given bisexuals experience greater rates of depression and anxiety than gay and lesbian individuals (Botswick et al., 2010; Ross et al., 2018; Russell & Fish, 2016).

Is bisexuals' lower LGBT identification related to their underestimation of their own population size? Demographic representativeness may be important for felt group connection as groups experience threat when they believe their representation is dwindling and in response to demographic change (e.g., Craig et al., 2018; Wilkins et al., 2022). If people believe they make up a minority, rather than the majority of a group, they may feel less connected to said group, as prototypicality predicts group identification (Wilkins et al., 2010). Thus, bisexuals who under-estimate their group representation may feel lower belonging and lower identification with the broader group because they are self-perceived to be less prototypical of the broader group.

The present work

In two studies, we examine whether population representation estimation has downstream consequences for group identification. In Study 1, we examined the propensity of individuals across sexuality groups to underestimate the proportion of bisexuals who make up the LGBT+ community. In addition, we explored differences in group identification between gay men, lesbian women, and bisexual individuals. In Study 2, we examined whether presenting bisexual individuals with accurate information about their representation increases their self-esteem and LGBT group identification using an experimental design.

Study 1

In Study 1, we examined whether individuals underestimate the proportion of bisexual individuals in the LGBT+ community. We embedded a question about perceived makeup of the LGBT+ community as an exploratory measure within a larger study on adult friendships. This allowed us to examine whether individuals underestimated the proportion in general and whether specific groups were particularly inclined toward underestimation. While this was an exploratory study, without preregister predictions, we expected participants (across groups) to underestimate the bisexual population.

Method

Participants and procedure

This study was approved by the Institutional Review Board at the [Removed for review] (Study 1 IRB ID: 21x-267; Replication IRB ID: 25x-259). A sample of men and women in the United States who identified as heterosexual, gay, lesbian and bisexual were recruited from Prolific, an online platform that maintains a large, diverse pool of individuals who voluntarily join the site to take part in research studies (Palan & Schitter, 2018). Sexual identity was identified through Prolific's prescreening system and confirmed with a self-report survey item in which participants selected their sexual orientation from a list of options (e.g., heterosexual/straight, gay, lesbian, bisexual).

Participants were recruited as part of a larger study which examined friendship and well-being. Participants completed an online survey, which included exploratory questions regarding group identification with the LGBT community and the perceived makeup of the LGBT community followed by a set of demographic questions. Data was initially collected from 601 participants, with a sample size determined by available funding. Data were removed for 34 participants who indicated inconsistent sexual orientation (on the survey vs. in Prolific pre-screen survey), from 47 participants who failed 2 or more attention checks. The final sample included 521 participants (See Table 1 for demographics and variable means).

Transparency and openness

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study, and we follow JARS (Kazak, 2018). All data, analysis code, and research materials are available at https://osf.io/en82z/?view_only=bff3a8c25ece4dcb85bbbd4951ccb33b. Data were analyzed using SPSS, version 29.0.2.0.

Table 1. Sample demographic characteristics and descriptive statistics for Study 1 and Study 1.

Variable	Study 1		Study 2	
	n	%	n	%
Total Sample Size	521		249	—
Gender Identity				
Women	263	50.5	112	45.0
Men	258	49.5	120	48.2
Non-binary	—	—	15	6.0
Not specified	—	—	2	0.8
Sexual Orientation				
Heterosexual	203	38.9	—	—
Bisexual	140	26.9	249	100
Lesbian	87	16.7	—	—
Gay	96	18.4	—	—
Race/Ethnicity				
White	367	70.4	157	63.1
Mixed/Multi-racial	51	9.8	18	7.2
Black/African American	49	9.4	36	14.5
Asian	31	6.0	16	6.4
Latino/Hispanic	21	4	19	7.6
Other	2	0.4	3	1.2
Age	$M = 35.73$	$SD = 13.15$	$M = 34.65$	$SD = 11.17$
Group Identification LGBT	$M = 4.38$	$SD = 1.59$	$M = 4.21$	$SD = 1.72$
Group Identification Sexuality	$M = 4.58$	$SD = 1.44$	$M = 4.16$	$SD = 1.72$
Self-Esteem	—	—	$M = 5.03$	$SD = 1.56$

Procedure

Measures

Group identification

Six items assessed participants' identification with the LGBT community (adapted; Luhtanen & Crocker, 1992; McCoy & Major, 2003). Sample items include, *"Being a member of the LGBT community is an important reflection of who I am."*; *"When people derogate members of the LGBT community it feels like a personal insult."* ($\alpha = .91$). The same 6 items were also worded for specific sexualities (e.g., *"Being a lesbian [gay man; bisexual] is an important reflection of who I am."* ($\alpha = .89$). Participants responded to each statement using a 1 = strongly disagree to 7 = strongly agree response scale. Scores were calculated by averaging the responses across the 6 items for each participant. Mean identification scores ranged from 1 to 7.

Makeup of the LGBT community

To assess perceptions regarding the percentage that each sub-group of the LGBT represents we asked participants to how much of the LGBT+ community is comprised of lesbian women, gay men, bisexual individuals, transgender individuals, and other-identifying individuals (i.e.: *"Please indicate how much you perceive each group listed below to account for the entire LGBT+ community. There are no right or wrong answers but your estimate must total to 100%"*). This measure was developed specifically for this study.

Results

Group identification

To examine differences in identification across minority sexual identification groups, ANOVAs were conducted for each measure of group identification. There were significant differences across sexual identity groups for identification with the LGBT community, $F(2,320) = 5.39$, $p = .005$; $\eta^2 = .033$. Pairwise comparisons revealed that bisexual individuals ($M = 4.05$, $SE = .13$) identified less with the LGBT community than both gay men ($M = 4.55$, $SE = .16$; $M_{Diff} = .50$ $SE_{diff} = .21$, $p = .016$, CI: .10 to .91) and lesbian women ($M = 4.69$, $SE = .17$; $M_{Diff} = .64$ $SE_{diff} = .21$, $p = .003$, CI: .22 to 1.06). There were no differences in identification between gay men and lesbian women ($M_{Diff} = -.14$ $SE_{diff} = .23$, $p = .55$, CI: $-.60$ to $.32$).¹ See Figure 1.

There were also significant group differences for specific sexuality group identification, $F(2,320) = 12.45$, $p < .001$; $\eta^2 = .072$. Pairwise comparisons revealed that bisexual individuals ($M = 4.16$, $SE = .12$) identified less with their specific sexuality group (other bisexuals) than gay men identified with gay men ($M = 4.73$, $SE = .14$; $M_{Diff} = .58$ $SE_{diff} = .19$, $p = .002$, CI: .21 to .94) and lesbian women identified with lesbian women ($M = 5.08$, $SE = .15$; $M_{Diff} = .92$ $SE_{diff} = .19$, $p < .001$, CI: .54 to 1.29). There were no differences in identification between gay men and lesbian women ($M_{Diff} = -.34$ $SE_{diff} = .21$, $p = .10$, CI: $-.75$ to $.07$).²

Makeup of the LGBT community

To examine how individuals of different sexual orientations perceived the makeup of the LGBT+ community, a Mixed ANOVA of Perceived Percentage of Sexual Identity making up



Figure 1. LGBT group identification by sexual orientation. Note: The vertical black line indicates the estimated standard error around the mean, which is represented by the black dot. The width of the shaded area of the violin plot represents the proportion of the data located there.

LGBT+ community 5 (Repeated Measure: lesbian women, gay men, bisexual individuals, transgender individuals, other identifying) by sexual orientation of participants 4 (Between Subjects: heterosexuals, gay men, lesbian women, bisexuals) was conducted.

There was a significant difference in perceptions of how much of the LGBT+ community is comprised of each sexuality groups ($F(4, 2068) = 314.52, p < .001; \eta^2 = .378$; lesbian women ($M = 26.39, SE = .44$), gay men ($M = 30.55, SE = 11.50$), bisexual individuals ($M = 20.82, SE = .51$), transgender individuals ($M = 12.63, SE = .34$) and other identifying ($M = 9.61, SE = .43$)) and a significant interaction between both factors, perception and participants' sexual orientation ($F(12, 2068) = 3.64, p < .001; \eta^2 = .021$) (See Figure 2).

All groups, regardless of sexual orientation, significantly underestimated the proportion of bisexual individuals, estimating it at 20.79% compared to the Gallup poll figure of 56.30%, $t(520) = -73.22, p < .001, d = 3.21$. Participants underestimated the proportion of transgender individuals to a lesser extent (12.63% vs. 13.90%; $t(520) = -3.92, p < .001, d = .17$). In contrast, participants *overestimated* the proportion of lesbians (26.63% vs. 14.6%; $t(520) = 28.582, p < .001, d = 1.26$), gay men (30.49% vs. 21.1%; $t(520) = 19.34, p < .001, d = .85$), and those identifying as "other" (12.69% vs. 6.4%; $t(520) = 7.55, p < .001, d = .33$). This same pattern of underestimation was observed even restricting the analysis to only bisexual participants, who also substantially underestimated the proportion of bisexual individuals (21.45% vs. 56.30%; $t(139) = -40.25, p < .001, d = .34$) while overestimating the proportions of lesbians (26.01% vs. 14.60%; $t(139) = 18.22, p < .001, d = 1.54$), gay men (29.08% vs. 21.10%; $t(139) = 10.24, p < .001, d = .87$), and those identifying as "other" (9.24% vs. 6.40%; $t(139) = 4.21, p < .001, d = .36$). Bisexuals' estimates of the transgender population did not differ from the Gallup poll estimates (14.03% vs. 13.90%; $t(139) = .20, p = .846, d = .02$).

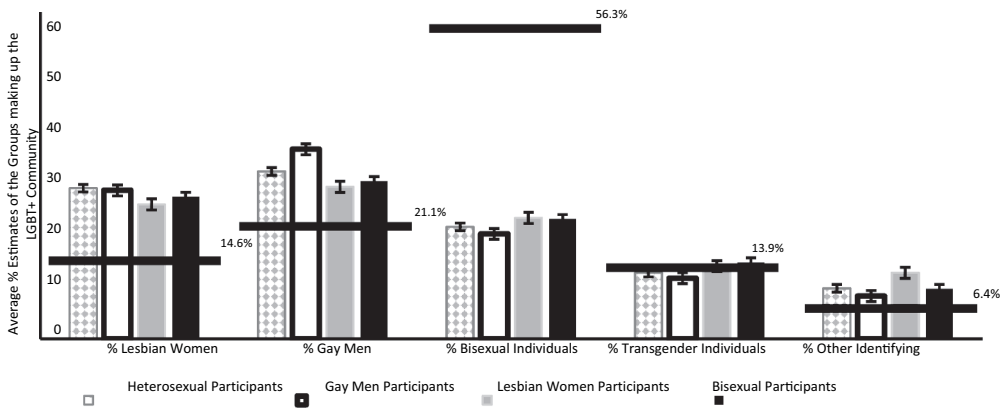


Figure 2. Percentage estimates of the makeup of LGBT+ community by sexual orientation. Note: Horizontal black bars are actual representation of LGBT groups within the LGBT community according to 2022 Gallup poll. Error bars indicate estimated standard error.⁵

Is bisexual underestimation a methodological artifact?

Our initial approach to examining population estimates could be criticized for requiring that estimates total 100% given overlap between gender identity and sexual orientation (e.g., some women can identify as both transgender and lesbians). To address this, we collected a new sample of $N = 218$ bisexual individuals asking them to “Please indicate below how much you perceive each group listed to account for (% make up of) the entire LGBT+ community.” We placed no restrictions on the total percentage. Furthermore, we used the labels “gay, lesbian, bisexual, transgender, and other” (without also referring to gender, i.e., “lesbian women”). More than half the participants provided estimates across the 5 categories that totaled more than 150%. We used 150% as a cutoff for data inclusion in analyses as more indicated a lack of understanding about the question.

The remaining 105 participants replicated underestimation findings relative to the Gallup poll; they estimated that bisexuals make up 28.27% of the LGBT population, $t(104) = -15.54$, $p < .001$, $d = 1.52$. Additionally, they estimated transgender individuals made up 11.72% of the LGBT population ($t(104) = -2.87$, $p = .005$, $d = .28$). In contrast, participants *overestimated* the proportion of lesbians (27.07% vs. 14.6%; $t(104) = 10.70$, $p < .001$, $d = 1.04$), gay men (27.03% vs. 21.1%; $t(104) = 5.40$, $p < .001$, $d = .53$), and those identifying as “other” (10.94% vs. 6.4%; $t(104) = 3.52$, $p < .001$, $d = .34$).³

Discussion

Thus, using two approaches (more and less restrictive), we found that the proportion of bisexuals is consistently underestimated relative to other groups (that are consistently overestimated). While this likely has interesting consequences for all groups, it is perhaps most troubling among bisexuals themselves.

Bisexual individuals identified less with their LGBT identity than both gay men and lesbian women. This is troubling as group identification often protects well-being in the face of discrimination (e.g., Branscombe et al., 1999). Thus, bisexuals relative to gay men

and lesbian women, are less likely to experience the protective benefits of group identification. Additionally, given that bisexual individuals often experience discrimination and stigmatization, this lower group identification may partially account for decrements in well-being and self-esteem among bisexuals.

To what extent does the underestimation of bisexual individuals' representation within the LGBT+ community impact their group identification? Accuracy of estimates (the difference between estimate and actual number of bisexuals) among bisexual participants was positively correlated with identification with other bisexuals ($r(140) = .23$, $p = .006$) and identification with the larger LGBT community ($r(140) = .19$, $p = .025$), which demonstrates more accurate estimation is associated with higher in group identification. Could correcting misperceptions regarding the makeup of the LGBT community increase their identification with the group and perhaps even boost their self-esteem?

Study 2

Study 2 examined whether providing accurate information about the extent to which bisexual individuals makeup the LGBT community would influence bisexuals' group identification and self-esteem. We hypothesized that providing bisexual participants with the correct percentages of LGBT subgroups would increase bisexuals' self-esteem and LGBT identification, relative to a control condition.

Participants and procedure

This study was approved by the Institutional Review Board at the University of Mississippi 24x-093. Bisexual men and women in the United States were recruited from Prolific to participate in a study about "Responses to Gallup Poll Data." Participants were randomly assigned to view a table produced by Gallup and a brief summary of the table. In the *Representation* condition, participants reviewed information about Americans' self-identification as lesbian, gay, bisexual, transgender and other (e.g., queer) and the percentages of the LGBT population that are comprised of each group, with bisexuals making up 56.8% of the LGBT population (Gallup poll data at time of collection; Jones, 2022). The *Control* condition asked participants to review information about the average number of books people read by different subgroups (gender, age bracket, college degree) in the US. As a manipulation check, participants answered a question about the table ("which group has the largest representation in the table?" with the correct answer either being "bisexuals" or "18–34 year olds"). Participants completed a measure of state self-esteem and the LGBT group identification measures from Study 1. Finally, participants provided demographic information.

Of the original 315 participants, 29 failed the manipulation check, seven individuals failed both attention check items, and 30 individuals were excluded for reporting a sexual orientation other than bisexual, resulting in a final sample of 249 participants (See Table 1 for demographics and variable means).

Transparency and openness

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study, and we follow JARS (Kazak, 2018). All data, analysis

code, and research materials are available at https://osf.io/en82z/?view_only=bff3a8c25e4e4dcb85bbbd4951ccb33b. Data was analyzed using SPSS, version 29.0.2.0 and PROCESS, version 4.0 (Hayes, 2022). This study's design and its analysis were preregistered https://osf.io/kubg6/?view_only=b0b46ef25828449e8e75f0ce965c9868. We have labeled analyses which were not preregistered as exploratory.

Measures

Group identification

The same measures of LGBT Group Identification and Bisexual Group Identification from Study 1 were used in Study 2. The presentation of these two scales were counterbalanced (LGBT group identification, $\alpha = .93$; bisexual group identification, $\alpha = .93$).

State self-esteem

The Rosenberg Self-esteem scale was reworded to measure participants' state self-esteem (Rosenberg, 1965). The scale included 10 items, including "*At the moment, I feel that I have a number of good qualities.*" and "*Right now, I feel that I'm a person of worth, at least on an equal plane with others.*" Participants responded using a scale points of 1 = Strongly Disagree to 7 = Strongly Agree ($\alpha = .96$). Scores were calculated by averaging the responses across for each participant. Mean group identification scores ranged from 1 to 7.

Results

Primary analyses

Primary preregistered hypotheses were examined using one-tailed independent samples *t*-tests to compare conditions (consistent with Hales, 2023). Consistent with predictions, bisexuals who read about their actual representation within the LGBT community reported higher self-esteem ($M = 5.25$, $SD = 1.52$) than those in the control condition ($M = 4.75$, $SD = 1.56$; $t(247) = -2.55$, $p = .006$; $CI: -.89$ to $-.11$; $d = 0.33$) suggesting that learning bisexual comprise a majority of the larger LGBT community increased their self-esteem (Figure 3(a)).

Bisexual individuals reported greater identification with their bisexuality ($M = 4.38$, $SD = 1.77$) and the LGBT community ($M = 4.40$, $SD = 1.77$) when they read about their representation relative to control condition (bisexual ID: $M = 3.88$, $SD = 1.61$; $t(247) = -2.27$, $p = .012$; $CI: -.92$ to $-.07$; $d = .29$; LGBT ID: $M = 3.97$, $SD = 1.63$; $t(247) = -1.98$, $p = .024$; $CI: -.86$ to $-.002$; $d = .25$) (See Figure 3(b,c)) suggesting that knowing how many bisexuals make up the LGBT community increased the importance of (identifying with) bisexuals and the larger LGBT community.⁴

Exploratory analysis

We conducted a mediation analysis using PROCESS (Model 4, Hayes, 2017), 5000 bootstrapped samples testing whether the conditional effects on self-esteem were mediated by bisexual participants' group identification. Significant indirect effects were determined by the confidence not including 0. While this mediation was not preregistered, it is consistent with previous theorizing about the protective role of group identification (Branscombe et al., 1999;

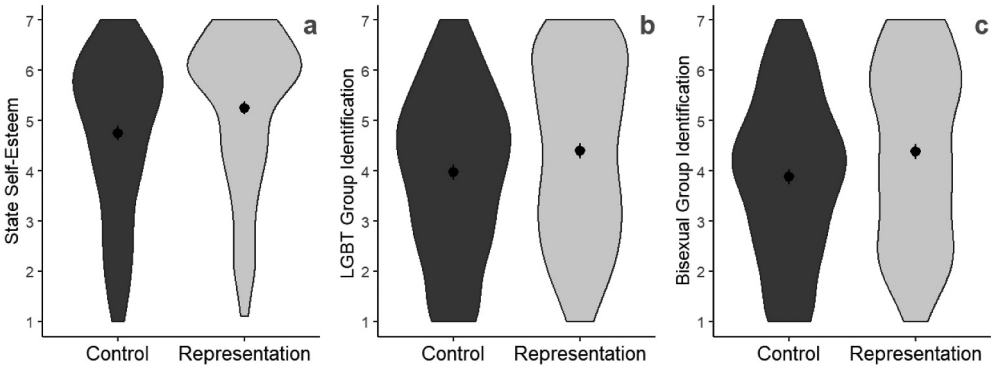


Figure 3. Self-esteem and group identification by condition. Note: The vertical black line indicates the estimated standard error around the mean, which is represented by the black dot. The width of the shaded area of the violin plot represents the proportion of the data located there.

Table 2. Group identification mediated condition differences in self-esteem.

Outcome: Self-Esteem	Mediator: LGBT Identification		Mediator: Bisexual Identification	
Model Summary	b (SE)	CI	b (SE)	CI
Condition	.40 (.19)	.02 to .78	.38 (.19)	.01 to .76
(1 = Representation)				
Mediator	.23 (.06)	.12 to .34	.24 (.06)	.13 to .35
Direct Effect	.40 (.19)	.02 to .78	.38 (.19)	.01 to .76
Indirect Effect	.10 (.06)	.001 to .24	.12 (.06)	.01 to .27
Model R^2	.09		.10	
F(df)	12.34 (2, 246)		12.92 (2, 246)	

See Table 2). The overall model was significant when either bisexual ($F(2, 246) = 12.92$, $p < .001$, $r^2 = .10$) or LGBT ($F(2, 246) = 12.34$, $p < .001$, $r^2 = .09$) group identification was entered as a mediator. There was a significant indirect effect for both group identification measures (Bisexual: $b = .12$, $SE = .06$; CI: .01 to .27; LGBT: $b = .10$, $SE = .06$; CI: .003 to .24), suggesting that learning about representation increased identification which in turn predicted higher self-esteem among bisexuals.

Discussion

Study 2 experimentally demonstrated that presenting bisexual participants with accurate information about their representation within the LGBT community influences their state self-esteem and identification with both bisexuals as a group and with the LGBT community as a whole (relative to the control condition). Exploratory mediation revealed that group identification mediated the condition effect on state self-esteem. This is consistent with research suggesting group identification functions as a protective factor for well-being. Correcting bisexual's underestimation of their representation within the LGBT community appears to influence the extent to which they identify with an important aspect of their self-concept.

General discussion

Multiple researchers have argued that bisexuality is invisible (e.g., Monro et al., 2017; Swan & Habibi, 2018). Our data reveals that regardless of sexual orientation, individuals significantly underestimate the proportion of bisexual individuals, and even bisexuals themselves underestimate their groups' proportion within the LGBT community. Importantly, for bisexual participants underestimation corresponded with lower group identification (Study 1).

Bisexual individuals have worse health outcomes (Botswick et al., 2010; Feinstein & Dyar, 2017; Friedman et al., 2014) and lower group identification (Balsam & Mohr, 2007; Hayfield et al., 2014; McLean, 2008) than other members of the LGBT community. Feeling unseen, or believing your group only makes up a small part of the larger community, may contribute to lower identification with one's group (Frale et al., 1998). Study 2 demonstrated that presenting bisexual participants with accurate information about their population proportion caused higher identification and higher state self-esteem (relative to the control condition). These differences in group identification mediated the increase in state self-esteem (Study 2). Taken together, these findings suggest that bisexual individuals being aware of their numeric representation within the broader LGBT community may help address discrepancies in bisexual well-being relative to gay and lesbian individuals.

Limitations and future directions

While we demonstrated a causal effect of accurate information on bisexual self-worth, future research should examine other, more direct, measures of well-being (e.g., hedonic and eudemonic well-being (Disabato et al., 2016) or decreases in ill-being, like depression and anxiety. Future work should also test whether there is a lasting impact of information on well-being by utilizing longitudinal approaches or examine behavioral consequences of increased bisexual representation. Do more accurate bisexual representation perceptions lead bisexuals to engage more with the LGBT community, become more vocal, or seek out ingroup members? Could "outness" moderate the effect of information on group identification and state-self-esteem? Thus, future research should consider other variables that might predict or moderate bisexual underestimation, and its relationship to group identification and wellbeing.

Here we focused on the consequences of underestimation, but future research could examine the consequences of *overestimating* one's group size. Might overestimation be beneficial for gay men, lesbian women, and transgender individuals' group identification and well-being? There is power in numbers, particularly for those who are often in the numeric minority relative to broader society. Afterall, representation matters for self and other perceptions (Fryberg & Eason, 2017).

In Study 1, we did not consider a variety of individual difference factors that researchers might be interested in controlling (e.g., age, income, education, or geographic location). While demographic factors may underlie some differences between gay, lesbian, and bisexual individuals, they cannot explain our results. Condition differences among bisexuals in Study 2 are robust to potential individual differences, because we utilized random assignment to experimental conditions.

Future research should examine whether the patterns we have highlighted in this manuscript vary based on bisexual subgroups. For example, do bisexual individuals of

different racial or gender groups display similar or different identification and well-being patterns? We footnoted throughout whether results varied based on participant gender, but we did not plan these comparisons and thus were not sufficiently powered to draw conclusions based on our data. Future work should purposely recruit diverse samples to examine subgroup differences.

That said, we want to acknowledge that bisexuals' experiences are not a monolith, factors such as race and gender undoubtably impact both visibility and bisexual erasure (see McCole & Anderson, 2025 for systematic review). For example, perceivers may be less likely to perceive Black men partnered with women as bisexual than White men with women due to the stereotypes about Black men's masculinity (e.g., Williams et al., 2022; Young, 2021). Further, bisexual women are often fetishized (e.g., McCole & Anderson, 2025; Serpe et al., 2020), and bisexual men often derogated for violating social norms (e.g., Morgenroth et al., 2022). These patterns may lead to greater erasure of bisexual men than women, which may in turn vary by race.

The underestimation of bisexuals by non-bisexuals may exacerbate the tendency to deny bisexuality. To the extent that bisexual individuals are not perceived as being a real group, people may feel justified in expressing prejudice toward them (Burke et al., 2023; Crandall & Eshleman, 2003). Being presented with accurate information, in contrast, might reduce stigma and prejudice directed at bisexuals. Thus, bias expression is an important outcome to consider in future research. For example, are heterosexuals, gay men, or lesbian women less likely to discount bisexuality if they are cognizant of bisexuals' actual representation?

The current research contributes to a small but growing body of research examining the consequences of representation. Most work in this domain examines prototypicality threat – concern about not being the best representation of a group – felt by *majority* group members (e.g., Danbold & Huo, 2015; Danbold et al., 2023). Generally, perceiving that one's (dominant) group is not most representative numerically, or is decreasing in representation, leads to anxiety, bias against out-groups, and efforts to reestablish the ingroups' dominance (e.g., Craig et al., 2018; Danbold & Huo, 2015; Danbold et al., 2023). Less is known about non-dominant groups. We are the first, to our knowledge, to examine these effects for a minority group that comprises the majority of their subgroup.

Conclusion

Across two studies, we found a clear tendency among American adults to underestimate the proportion of bisexual individuals who make up the LGBT community. Population underestimation among bisexual individuals was detrimental for both their sense of self-esteem and group identification. A concerted effort to decrease this misperception particularly among bisexual individuals may have meaningful impacts on their well-being and sense of self. More broadly, understanding the influence of individuals' perceptions of group representation may provide insight into both group processes and individual sense of self.

Notes

1. The reader might wonder whether bisexual men and women had similarly low LGBT identification relative to gay men and lesbian women since the previous analyses collapsed bisexuals across gender. Exploratory analyses revealed that lesbian women did not differ

from bisexual women in LGBT identification ($p = .97$), but gay men reported higher LGBT identification than bisexual men ($p < .001$).

2. The pattern of bisexual identification was the same for bisexual men and bisexual women.
3. Materials and data for this supplemental study can be found on OSF at https://osf.io/en82z/?view_only=bff3a8c25ece4dcb85bbbd4951ccb33b.

Exploratory analyses revealed that in general, men and women participants showed similar patterns in their estimates. Only estimates of transgender individuals differed between men and women participants.

4. There were no significant differences in group identification for bisexual men and women, and gender did not interact with condition. However, we cannot say with certainty whether there are truly no gender effects because we did not power to examine gender differences.
5. We instructed individuals that the categories should sum to 100 for ease of understanding regarding individual's perceptions of the proportion of various groups within the community but realize that it is possible for people to identify in multiple categories within the LGBT+ community. In the Gallup poll of individuals identifying with multiple groups within the LGBT + community, categories totaled 105.7% suggesting some overlap across categories in one's personal identification. However, the accuracy gap in perceptions of the how much bisexual individual's makeup the LGBT community cannot be accounted for by multiple-category identification.

Disclosure statement

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