Beyond Categories: Perceiving Sexual Attraction from Faces

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Data availability statement:

The data that support the findings of these studies are openly available on the Open Science Framework at https://osf.io/mfc2s/

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Abstract

Although people can categorize others' sexual orientation (e.g., gay/lesbian vs. straight) from their facial appearance, not everyone defines their sexual orientation categorically. Indeed, many individuals within the same sexual orientation category experience different degrees of own- and other-gender attraction. Moving beyond sexual orientation categories, we found that perceivers' judgments of individuals' sexual attraction correlated with those individuals' self-reported degrees of attraction to women and men. Similar to past work on sexual orientation categories, facial affect cued sexual attraction in men whereas gender typicality cued sexual attraction in women. Moreover, asking participants to categorize the targets as "not straight" versus "straight" revealed a linear pattern distinct from the discrete category thresholds typical of other social groups (e.g., race). Facial appearance thus reveals nuances in sexual attraction that support sexual orientation categorizations. These findings refine understanding of social categorization more broadly.

Key words: sexual attraction, sexual orientation, social categorization, first impressions, face perception, person perception

Beyond Categories: Perceiving Sexual Attraction from Faces

People sort others into social categories throughout daily life, noting prominent characteristics such as their age, race, and gender (Fiske & Neuberg, 1990). People often perceive discrete boundaries between these categories, even when their borders are ambiguous (for example, faces morphed between Black and White racial groups are nonetheless perceived as either Black or White; e.g., Ho et al., 2011). Social categorization thus appears to follow a logistic pattern in which individuals either belong to a group or not (or to one group or another) with no possibilities in between. Such patterns are not unique to categorizations in the social realm but, rather, echo broader patterns in perception (e.g., color perception; Harnad, 1987). Research on social categorization has largely focused on social categories that people perceive as discrete, however (e.g., gender). What, then, of the more ambiguous categories that have less clear boundaries?

Sexual Orientation

Sexual orientation represents one such possibility. Although people often conceptualize sexual orientation in terms of categories (e.g., gay, straight), sexual orientation may be better represented by a spectrum (e.g., Kinsey et al., 1948; Savin-Williams, 2014). A wealth of research demonstrates the visibility of people's sexual orientation from nonverbal cues, including the face (for review, see Rule, 2017). Although perceivers can discern others' sexual orientation from facial appearance, the vast majority of research has tested this using dichotomous forced-choice paradigms (i.e., gay vs. straight, lesbian vs. straight, bisexual vs. not bisexual; Lick et al., 2015; Rule et al., 2008; Rule et al., 2009). Indeed, research using three categories (gay, bisexual, straight) found that perceivers could not distinguish between gay and bisexual individuals (Ding & Rule, 2012). These studies suggest that people may only conceptualize sexual orientation categorically (specifically, dichotomously).

But not everyone defines their sexual orientation categorically. Moreover, individuals' specific degree of *sexual attraction*[1] to people of different genders varies within each category. For example, among two women who both identify as heterosexual, one may feel attracted only to men whereas the other may experience some attraction to women but not to the degree that she sees herself as bisexual (Ellis et al., 2005; Hoburg et al., 2004). This partly stems from differences in how one defines sexual orientation. Past social perception studies have principally relied on *identification*, for example using individuals who identify as gay or straight as targets. However, Savin-Williams (2006) described sexual orientation as also consisting of *attraction* and *behavior*. These three components (attraction, behavior, and identity) do not mutually entail one another. Rather, one can have own-gender attraction or even behavior without identifying as gay (for example)—just as one could identify as gay absent an own-gender sexual experience/behavior. Yet, it would be highly unusual to imagine that one would genuinely identify as gay without own-gender attraction, just as it seems unlikely that individuals engaging in own-gender sexual behavior without attraction (e.g., as may occur in sex work) would consider themselves gay. Attraction therefore plays a unique role in sexual orientation.

Visibility of Sexual Attraction

Despite the benefits gleaned from past work on perceptions of sexual orientation from faces, none specifically considered nuances in sexual attraction—that is, sexual orientation as a continuous phenomenon. Addressing this gap is important because knowing someone's sexual attraction could provide more valuable information (for example, to a potential mate; e.g., Batres et al., 2020) than simply knowing their sexual orientation category. To date, one study found a correlation between perceived and self-reported sexual attraction using thin-slice videos (including full-body still frames; Ambady et al., 1999). This work included only

[1] Not to be confused with sexual attractiveness, or how attractive a person is to others.

a small sample of targets who primarily reported exclusive or near-exclusive attraction to one gender, however. Here, we substantially build upon that work by employing a much larger sample of targets with greater variation in their sexual attraction, focusing our investigation on the face (from which people very rapidly infer sexual orientation; Rule & Ambady, 2008; Rule et al., 2009; Tabak & Zayas, 2012).

Categorizations

The detectability of sexual orientation group membership (e.g., gay, straight) from facial appearance suggests that perceivers may be able to similarly detect sexual attraction. However, perceivers' difficulty distinguishing bisexual from gay individuals (Ding & Rule, 2012) may indicate that people do not perceive sexual orientation in terms of a spectrum and therefore may not be sensitive to nuances in sexual attraction. Furthermore, extant research indicating that perceivers tend to conceptualize sexual orientation dichotomously (i.e., as either straight or not; Ding & Rule, 2012) begs the question of how people along the sexual attraction continuum are perceived according to these binary categories. That is, how much own-gender attraction does a person have to experience to be perceived as *not* straight (in other words, as not belonging to the default category)? We therefore explored how sexual attraction relates to categorizations of sexual orientation (a concept closer to identity), testing whether the logistic patterns present in perceptions of other social identities (e.g., race, gender; Krosch & Amodio, 2014) would emerge here or, alternatively, whether sexual orientation categorizations would suggest greater tolerance for ambiguity compared to other group categorizations.

Cues to Sexual Attraction

Finally, if sexual attraction is detectable from facial appearance, how do perceivers extract this information—that is, what are the facial cues that enable sexual attraction's detection? Previous research found that gender typicality facilitates accurate dichotomous

sexual orientation judgments (i.e., more gender-atypical facial appearance related to both self-reported and perceived gay/lesbian sexual orientation; Freeman et al., 2010a; see also Kachel et al., 2020, for similar relations between gender-role conformity and self-reported and perceived sexual orientation). Extant research also shows that emotion or valance supplies another cue to men's (but not women's) sexual orientation, with gay men appearing happier, and happier-looking men judged as more likely to be gay (Bjornsdottir & Rule, 2020; Tskhay & Rule, 2015a). The question remains, however, whether these cues facilitating accurate dichotomous *categorization* might serve a similar function in perceptions of continuous sexual attraction.

The Current Research

We tested these questions in a series of three preregistered studies. In Study 1, we tested whether perceivers could detect targets' self-reported sexual attraction. Next, in Study 2, we tested how targets' sexual attraction relates to categorizations as "straight" or "not straight," seeking to determine the categorization threshold (i.e., the level of sexual attraction at which categorizations were equally likely to be "straight" and "not straight"). Finally, in Study 3, we tested two possible cues enabling detection of sexual attraction (gender typicality and affect). Because previous research has found that sexual minorities detect sexual orientation better than heterosexual perceivers and have less bias towards categorizing others as "straight" (Ambady et al., 1999; Johnson & Ghavami, 2011; Rule et al., 2007), we investigated the possible moderating role of perceiver sexual orientation in Studies 1 and 2. We make all data available on the Open Science Framework (OSF; https://osf.io/mfc2s/).

Study 1

Following previous work showing that people can categorize others' sexual orientation (i.e., identity) from their facial appearance, we sought to explore the potential for variability within these categories by assessing the visibility of sexual attraction. We

preregistered this study on the OSF and used two samples: one to test whether participants could detect sexual attraction from the face (https://osf.io/78dvz) and another to account for the participants' own sexual orientation in their judgments (https://osf.io/wb7qk).

Method

Stimuli

We collected photos of 91 women and 79 men (M_{age} = 28.32 years, *SD* = 9.96; 82 White/Caucasian, 29 East Asian, 15 mixed race, 12 South Asian, 10 Black/African, 7 Hispanic/Latinx, 5 Middle Eastern, 4 Southeast Asian, 1 Indigenous/First Nations/Aboriginal/Native American, 1 Pacific Islander, 4 unreported ethnicity) posing neutral facial expressions at Toronto Pride and in the lab, which we converted to greyscale and cropped to the top of the head, bottom of the chin, and limits of the ears before standardizing in size. As part of a larger study, these targets provided sexual attraction information by reporting their attraction to women and men from 1 (*not at all*) to 7 (*very*) along two independent scales. We then combined these two measures by subtracting the value of reported attraction to each target's own gender from the value of reported attraction to the other gender, producing a score ranging from -6 (exclusive own-gender attraction) to 6 (exclusive other-gender attraction); on average, the targets were relatively balanced in own- and other-gender attraction (*M* = 0.37, *SD* = 4.25; see Figure S1 in Supporting Information for histograms and density plots). The 170 targets afforded 80% power in a correlation anticipating the average effect size in social psychology (*r* = .21; Richard et al., 2003) and over 95% power anticipating the average effect size in perceptions of perceptually ambiguous group membership (*r* = .29; Tskhay & Rule, 2013).

Participants

We aimed to recruit two samples of 60 participants. The first consisted of Canadian undergraduate students who completed the study in the lab; the second of participants

recruited online through Prolific Academic. For the second sample, only fluent English speakers who reported their sexual orientation to Prolific as nonheterosexual (i.e., homosexual, bisexual, or other) were eligible to participate. Participants in each sample rated either the men's or women's faces, with an average of 30 participants per sample rating each target—a sample size that has resulted in good interrater reliability in previous research on sexual orientation perception (e.g., Tskhay & Rule, 2015a) and stable averages for a broad variety of social perceptions (Hehman et al., 2018).

Procedure

After providing informed consent, participants learned that they would view a series of photos of people's faces and that they would be asked to rate their sexual orientation according to their first impressions. We randomly assigned participants to rate either the men's or women's faces. Photos appeared individually in random order atop a scale ranging from 1 (*exclusively attracted to men*) to 7 (*exclusively attracted to women*) with the midpoint (4) labelled *equally attracted to men and women*. Participants rated the photos at their own pace but were instructed not to spend too long deliberating over any one photo. After rating the photos, participants reported demographic information and any problems with the study, including whether they experienced any issues with photos loading and whether they made any ratings before a photo had loaded.

Results

Sample 1

Eighty-four participants completed the study, minus one who reported answering before the stimuli loaded (remaining n = 83; 62 female, 21 male; M_{age} = 18.60 years, SD = 1.87; 73 heterosexual, 6 bisexual, 2 gay/lesbian, 2 unreported sexual orientation; 34 East Asian, 14 White/Caucasian, 10 Southeast Asian, 7 Middle Eastern, 7 mixed race, 7 South Asian, 2 Caribbean, 2 Hispanic/Latinx). There was high interrater reliability for judgments of

both men's (Cronbach's α = .87) and women's faces (Cronbach's α = .94). We therefore averaged ratings across perceivers to obtain a perceived sexual attraction score for each target, which we reverse-scored for women's faces such that higher scores indicated greater perceived other-gender attraction across all targets (M = 4.94, SD = 0.76).

This perceived sexual attraction score significantly correlated with targets' self-reported sexual attraction, $r(168) = .34$, $p < .001$ (Figure 1), and applied equally to men, $r(77) = .35$, $p = .002$,[2] and women, $r(89) = .36$, $p < .001$, when analyzed separately. Removing the data of the eight gay/lesbian and bisexual participants produced no change in the relation between targets' perceived and actual sexual attraction, $r(168) = .35$, $p < .001$.[3] Thus, participants could detect others' sexual attraction from their faces.

Sample 2

Although 62 participants completed the study, seven reported their sexuality as heterosexual at the end of the study (in contrast with what they reported in the Prolific prescreening), one reported issues with the images loading, and one reported providing responses without waiting for the stimuli to load, resulting in 53 participants (31 female, 21 male, 1 nonbinary; M_{age} = 24.48 years, SD = 7.20; 33 bisexual, 12 gay/lesbian, 6 pansexual, 2 other; 44 White/Caucasian, 6 Latinx/Hispanic, 2 mixed race, 1 Southeast Asian). The high interrater reliability for ratings of both men's (Cronbach's α = .78) and women's faces (Cronbach's α = .92) enabled us to average ratings across perceivers (again reverse-scored for women's faces).

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[2] Although men photographed in the lab were younger, $t(49.55) = -7.80$, $p < .001$, $r_{\text{effect size}} = -.74$, and reported greater other-gender attraction, $t(69.60) = 5.94$, $p < .001$, $r_{\text{effect size}} = .58$, than those photographed at Pride, statistically adjusting for photo context (lab = 0, Pride = 1) did not change the pattern or significance of the main results, $r(77) = .27$, $p = .02$.

[3] Removing the data of participants who reported recognizing at least one target in the study, as planned in our preregistration, likewise did not change these results, $r(168) = .33$, $p < .001$.

As in Sample 1, the average sexual attraction scores for each target (M = 4.69, SD = 0.89) significantly correlated with their self-reported sexual attraction scores, $r(168) = .32$, $p < .001$. Separate analyses for men, $r(77) = .30$, $p = .007$,[4] and women, $r(89) = .35$, $p < .001$, showed a consistent pattern.

Combined Samples

We next combined the data from the two samples for a more rigorous (albeit unplanned) test of our hypotheses. Specifically, we built a cross-classified multilevel model in which targets' self-reported sexual attraction predicted perceivers' ratings (thereby testing the accuracy of perception) with random intercepts for both targets and perceivers, and included target gender and perceiver sample as predictors and interaction terms (see OSF for R syntax). We used lmer from the lme4 package (Bates et al., 2015) and lmerTest for significance tests (Kuznetsova et al., 2017) in R 3.5.2 (R Core Team, 2018).

Consistent with the results above, targets' self-reported sexual attraction significantly predicted perceivers' ratings, b = 0.07, SE = 0.01, $t(166.92) = 4.92$, $p < .001$, indicating that perceivers detected targets' sexual attraction. Perceiver sample did not moderate this effect, b = 0.003, SE = 0.003, $t(11261.29) = 0.80$, $p = .42$, and target gender did so only marginally, b = 0.02, SE = 0.01, $t(166.00) = 1.79$, $p = .08$, such that sexual attraction was perceived somewhat more accurately for women, b = 0.09, SE = 0.02, $t(89.00) = 3.73$, $p < .001$, than for men, b = 0.04, SE = 0.01, $t(77.00) = 3.20$, $p = .002$. Notably, perceiver sample marginally predicted perceiver ratings: Sample 1 perceivers rated targets as somewhat more other-gender attracted than Sample 2 perceivers did, b = -0.12, SE = 0.07, $t(123.33) = -1.76$, $p = .08$. Target gender did not predict perceiver judgments, however, b = 0.13, SE = 0.08, $t(368.07) = 1.65$, $p = .10$.

[4] Accounting for target context (lab, Pride) did not meaningfully change this result, $r(77) = .27$, $p = .02$.

Discussion

Perceptions of individuals' sexual attraction significantly related to their self-reported sexual attraction, suggesting that the face contains cues to the degree of one's sexual attraction rather than to just the categorical distinctions of sexual orientation observed in earlier research (e.g., lesbian, straight; Rule et al., 2008, 2009). Perceivers therefore seem to detect nuances in sexual orientation from static facial photos, in line with previous work using thin-slice videos (Ambady et al., 1999).

This pattern persisted across target gender, and regardless of the participant's sexual orientation. Indeed, the strength of correlations among the primarily heterosexual Sample 1 and the nonheterosexual Sample 2 did not differ when meta-analytically compared, $z = 0.22$, $p = .45$, and perceiver sample did not moderate the relation between targets' self-reported sexual attraction and perceivers' ratings in the multilevel analysis. Nonheterosexual perceivers therefore did not display an advantage over heterosexual perceivers when judging others' sexual attraction, distinct from some past work (e.g., Johnson & Ghavami, 2011; Rule et al., 2007). The research finding that gay/lesbian perceivers outperform heterosexual perceivers when inferring others' sexual orientation has primarily used dichotomous (i.e., gay vs. straight) judgments, however (cf. Ambady et al., 1999). This minority group advantage might therefore depend partly on the *intergroup* nature of categorical judgment tasks. However, we did find a slight tendency for heterosexual perceivers to rate targets as more other-gender attracted than nonheterosexual perceivers did, suggesting a difference in response bias according to perceiver sexual orientation (similar to Johnson & Ghavami, 2011).

The current data therefore help to refine current understanding of social categorization more broadly. Whereas past research has shown that perceptions of other social categories (such as race and gender; Campanella et al., 2001; Freeman et al., 2010b; Krosch & Amodio,

2014; Tskhay & Rule, 2015b) separate at distinct thresholds, the continuous nature of sexual attraction allowed us to observe that not all social categories may be perceived as dichotomously as previous research suggests. Rather, people seem to possess the capacity for subtle perception of a gradient of differences (e.g., sexual attraction) that map onto otherwise discrete group boundaries (e.g., sexual orientation identity). Perceivers therefore show a willingness to tolerate ambiguity in others' sexual orientation (vs. strict group membership with clearly defined boundaries) not observed in perceptions of other social categories—perhaps because sexual orientation is *perceptually* ambiguous or due to sexual orientation categories' less clear-cut boundaries compared to other social groups.

Study 2

Consistent with previous work on the perception of sexual orientation categories, the results of Study 1 show the legibility of sexual attraction from individuals' faces. Recognizing that previous research has found that perceivers tend to conceptualize sexual orientation dichotomously (Ding & Rule, 2012), we next tested how individuals across the sexual attraction spectrum might be perceived within a similar identity-based dichotomy.

Specifically, where is the categorization threshold for individuals who fall between "gay" and "straight" (according to their self-reported sexual attraction)? Because many of our targets consider themselves neither gay/lesbian nor straight, we used the categories "straight" and "not straight" to examine the degree of own-gender attraction needed for a person to be categorized as not straight (a.k.a. queer), thereby overriding the default tendency to categorize people as straight demonstrated in a volume of previous work (e.g., Lick & Johnson, 2016).

We again recruited two samples to test the possible moderating role of perceiver sexual orientation, as in Study 1. We preregistered this study on the OSF (Sample 1: https://osf.io/8v3ur; Sample 2: https://osf.io/g85mz).

Method

Stimuli

We used the same 170 targets as in Study 1.

Participants

We recruited two samples of 60 fluent English-speaking participants online through Prolific Academic. The second sample consisted only of people who reported their sexual orientation to Prolific as nonheterosexual (i.e., homosexual, bisexual, or other). This sample size of perceivers, combined with the number of targets, afforded over 95% power to detect the average effect size in social psychology (r = .21; Richard et al., 2003) in a cross-classified linear multilevel model (Westfall et al., 2014) to approximate the multilevel logistic model that we used.

Procedure

After providing informed consent, we randomly assigned participants to categorize either women's or men's faces individually and in random order, using the categories "straight" (defined as exclusively attracted to the opposite sex, i.e., heterosexual) and "not straight" (defined as having at least some same-sex attraction, including people who consider themselves gay/lesbian or bisexual). We counterbalanced the order of these two response options across participants. Participants categorized each target on two separate trials, thus providing more stable estimates of each target. As in Study 1, participants worked at their own pace, but we instructed them to respond according to their first impressions and not to spend too much time deliberating.

After categorizing all of the targets once, participants read instructions informing them that they were halfway through the study and then proceeded to categorize each target a second time (mean correlation between the two categorization blocks across both samples, r = .90). Following this, participants provided demographic information, reported whether any

images had failed to load, and whether they categorized any images before they had fully loaded onto the screen.

Results

We excluded the data of three Sample 1 participants who reported issues viewing the stimuli, resulting in 57 participants (32 female, 25 male; M_{age} = 29.63 years, *SD* = 11.62; 41 heterosexual, 8 bisexual, 4 gay/lesbian, 2 other, 2 unreported sexual orientation; 45 White/Caucasian, 4 Middle Eastern, 3 Latinx/Hispanic, 2 mixed race, 1 South Asian, 1 Southeast Asian, 1 other), and of 10 Sample 2 participants (seven of whom reported their sexual orientation at the end of the study as heterosexual—in contrast with what they reported on the prescreening—and three of whom reported issues viewing the photos or having responded before photos loaded), resulting in 50 participants (35 female, 10 male, 5 nonbinary; M_{age} = 23.42 years, *SD* = 6.83; 35 bisexual, 9 gay/lesbian, 5 other, 1 unreported sexual orientation; 38 White/Caucasian, 4 Latinx/Hispanic, 3 mixed race, 1 Middle Eastern, 1 Southeast Asian, 1 East Asian, 1 Indigenous/First Nations/Aboriginal/Native American, 1 other).

We built separate cross-classified multilevel logistic regressions for each sample and each target gender (Judd et al., 2012) with targets' self-reported sexual attraction predicting perceivers' categorizations of targets as *straight* or *not straight* and categorization block (coded 1 for the first block and -1 for the second block) included as an additional predictor and an interaction term (we thus used both categorizations of each target from each perceiver). We included random intercepts for targets and perceivers and a random slope for perceivers. We used glmer from the lme4 package (and lmerTest for significance tests) in R 3.5.2 (Bates et al., 2015; Kuznetsova et al., 2017; R Core Team, 2018).

We report the fixed effects in Table 1 (see Table S1 in Supporting Information for Sample 1 with 14 nonheterosexual participants excluded). We next generated a sequence of

100 linearly spaced points ranging from -6 to 6 (exclusive own-gender to exclusive other-gender attraction) and entered them into each model. We then examined the categorization likelihood and determined the point along the -6 to 6 sexual attraction scale closest to .50, the "point of subjective equality" or decision boundary (see Krosch & Amodio, 2014; Tskhay & Rule, 2015b), plotting this using ggeffects and ggplot2 (Lüdecke, 2018; Wickham, 2016; R syntax available on the OSF). As illustrated in Figure 2, categorizations did not show a sharp threshold but, instead, displayed a continuous pattern. Comparing these results by target gender and perceiver sample revealed that perceivers in Sample 1 showed similar boundaries for women's and men's faces, but perceivers in Sample 2 showed a less conservative threshold for women than for men.[5] Furthermore, for categorizations of women's faces, Sample 1 perceivers showed a somewhat more conservative threshold compared to Sample 2 perceivers (see Table 2).[6]

Discussion

Unlike categorizations of other group memberships, such as race (e.g., Krosch & Amodio, 2014; Tskhay & Rule, 2015b) or gender (e.g., Campanella et al., 2001; Freeman et al., 2010b), we found that sexual orientation categorization follows a continuous (rather than logistic) pattern (see also Tskhay, 2012). Perceptions of sexual orientation may therefore operate somewhat differently than perceptions of other social categories (for which sharper divisions have been reported in past research; e.g., Krosch & Amodio, 2014), adhering less to

[5] Exploratory cross-classified multilevel logistic regressions for each sample with data from both target genders and target gender included as a predictor confirmed this pattern. Both samples still showed a significant fixed effect of self-reported sexual attraction, bs = 0.10, Zs ≥ 4.70, ps < .001. Moreover, Sample 2 returned a significant fixed effect of target gender, b = -0.28, SE = 0.14, Z = -2.04, p = .04, whereas Sample 1 did not, b = -0.07, SE = 0.12, Z = -0.56, p = .58.

[6] Additional cross-classified multilevel logistic regressions for each gender using data from both samples and including perceiver sample as a predictor revealed a significant fixed effect of sample only for women's faces, b = -0.19, SE = 0.09, Z = -2.16, p = .03 (men's faces, b = 0.01, SE = 0.11, Z = 0.09, p = .93). Both target genders still showed a significant fixed effect of self-reported sexual attraction, bs ≥ 0.07, Zs ≥ 3.25, ps ≤ .001.

strict group boundaries and perhaps reflecting greater tolerance of ambiguity for sexual orientation than for other group memberships. We report this tentatively, however, because we have not quantified the magnitude of these descriptive differences (nor do we see a clear approach to testing for significant differences between them).

We observed differences in categorization by target gender in one sample. Among nonheterosexual perceivers (Sample 2), the decision boundary was more conservative for men's faces than for women's. That is, these perceivers were less inclined to categorize men, compared to women, as *not straight*. We also observed one difference in categorization by perceiver sample: For women's faces, nonheterosexual perceivers, compared to heterosexual perceivers (Sample 1), were more willing to categorize targets as *not straight.*

Study 3

Finally, to better understand how participants detect targets' sexual attraction from their faces, we examined the facial cues that explain the perceptual accuracy observed in Study 1. We tested gender typicality as one possible cue, given its role in distinguishing gay/lesbian and straight individuals in previous research (Bjornsdottir & Rule, 2020; Freeman et al., 2010a). Moreover, because past studies have shown that neutral faces carry signals of emotion (e.g., Adams et al., 2012; see also Albohn et al., 2019) and that facial affect helps to facilitate accurate perceptions of sexual orientation in men (but not women; Bjornsdottir & Rule, 2020; Tskhay & Rule, 2015a), we also tested affect as a cue. We therefore expected that targets reporting more other-gender attraction would appear more gender typical whereas targets reporting more own-gender attraction would appear more gender atypical; and that men reporting greater own-gender attraction would show more positive affect in their neutral faces. We preregistered the affect ratings and all analyses on the OSF (https://osf.io/rnwqb).

Method

Stimuli

We used the same 170 neutral targets as in Studies 1 and 2, affording 80% power for correlations based on the average effect size in social psychology (r = .21; Richard et al., 2003).

Participants

We recruited 30 participants through Prolific Academic to rate the targets' affect and 121 participants through Amazon's Mechanical Turk to rate gender typicality (femininity or masculinity). As in Study 1, an average of 30 perceivers rated each target on each attribute, a sample size ensuring high interrater reliability (e.g., Bjornsdottir & Rule, 2020; Tskhay & Rule, 2015a) and stable averages for similar perceptions in previous work (i.e., gender typicality, happiness; Hehman et al., 2018).

Procedure

Affect Ratings. After providing informed consent, the 30 Prolific Academic participants learned that they would rate a series of photos of people's faces as to how they thought each was feeling. They rated all 170 target photos (91 women, 79 men) individually in random order, responding to the question "How does this person feel right now?" along a scale ranging from 1 (*negatively*) to 7 (*positively*). Although participants provided their ratings at their own pace, we instructed them to base their ratings on their first impression and not to spend too much time on any one face. After rating all targets, participants reported demographic information, any issues with images not loading, and whether they rated any images before they loaded onto the screen.

Gender Typicality Ratings. We randomly assigned the 121 Mechanical Turk participants to rate the targets on either masculinity or femininity from 1 (*not at all*) to 7 (*very*). This study included a larger set of 262 photos, including the 170 used in Studies 1 and 2. Participants rated a random subset of half of the photos to avoid fatigue, resulting in an

average of 30 participants rating each target on each attribute (femininity, masculinity). The procedure otherwise followed that of the affect ratings.

Results

Among the affect ratings, we excluded two participants who reported issues viewing the photos. This resulted in 28 participants (19 male, 9 female; M_{age} = 24.86 years, *SD* = 6.33; 24 heterosexual, 2 bisexual, 1 gay/lesbian, 1 unreported sexual orientation; 20 White/Caucasian, 2 Latinx/Hispanic, 2 South Asian, 2 Black/African/Caribbean, 1 Middle Eastern, 1 mixed race) who showed excellent interrater reliability (Cronbach's α = .97), enabling us to average their ratings to form an affect score for each target (*M* = 3.79, *SD* = 0.82).

Among the gender typicality ratings, we excluded eight participants who either reported trouble viewing the photos or having provided ratings without waiting for photos to load (remaining *n* = 113; 51 female, 62 male; M_{age} = 36.55 years, *SD* = 11.57; 100 heterosexual, 7 gay/lesbian, 6 bisexual; 86 White/Caucasian, 8 Black/African, 6 Asian, 6 Hispanic/Latinx, 2 mixed race, 2 Native American, 3 unreported ethnicity). We observed excellent interrater reliability for both masculinity and femininity ratings (average ICCs ≥ .98), enabling us to average the ratings across participants. Furthermore, because masculinity and femininity strongly correlated (*r* = -.97), we averaged the two ratings for each target to form a gender typicality score (*M* = 5.32, *SD* = 0.92), reverse-coding masculinity for women's faces and femininity for men's faces such that higher scores indicated greater gender typicality.

Observing no significant differences across the two samples in Study 1, we averaged the sexual attraction ratings from participants in both Study 1 samples to form one measure of perceived sexual attraction. We then correlated the affect and gender typicality scores with both self-reported and perceived sexual attraction for men, women, and both target genders

combined (Table 3). In the combined set of women's and men's faces, this returned a significant positive correlation between perceived sexual attraction and gender typicality, indicating that more gender-typical targets looked as if they would be more attracted to people of another gender. Self-reported sexual attraction did not significantly relate to gender typicality or affect, however; nor did affect significantly relate to perceived sexual attraction. To understand these associations better, we examined them for women and men in separate lens models (Brunswik, 1956).[7]

Women's Faces

Self-reported sexual attraction and gender typicality positively correlated for women's faces, indicating that more gender-typical women reported greater other-gender attraction. Perceived sexual attraction and gender typicality likewise positively correlated, indicating that more gender-typical women were perceived to have greater other-gender attraction. Affect did not significantly relate to self-reported or perceived sexual attraction, as expected (Bjornsdottir & Rule, 2020). Gender typicality thus served as both a valid and utilized cue to sexual attraction, whereas affect did neither (Figure 3).

Men's Faces

Self-reported sexual attraction and affect negatively correlated for men's faces, indicating that men who reported greater own-gender attraction looked more positive. Perceived sexual attraction and affect likewise negatively related, indicating that more positive-looking men looked more attracted to their own gender, as in past work (Bjornsdottir & Rule, 2020; Tskhay & Rule, 2015a). Gender typicality and perceived sexual attraction also positively correlated, such that more gender-typical men looked as if they experience greater other-gender attraction. Surprisingly, however, gender typicality and self-reported sexual

[7] We also conducted mediation analyses as part of our preregistered analysis plan, returning the same pattern of results (see Supporting Information).

attraction *negatively* correlated: thus, more gender-typical men reported greater own-gender attraction.[8] In other words, although gender typicality and affect both served as valid cues to sexual attraction, only affect was *correctly* utilized (Figure 3).

Noting the unexpected pattern for men's gender typicality and self-reported sexual attraction, we coded facial hair to explore possible different patterns in men with or without facial hair. Previous research has primarily used only clean-shaven men's faces (e.g., Rule et al., 2008), leaving the possible role of facial hair untested. The correlation between gender typicality and self-reported sexual attraction was negative for both groups but significant only for clean-shaven men, $r(39) = -.38$, $p = .02$ (men with facial hair: $r[36] = -.13$, $p = .45$). More feminine men, particularly those who were clean-shaven, therefore reported greater other-gender attraction in this target sample, contrasting with previous work that also examined clean-shaven men (e.g., Bjornsdottir & Rule, 2020; Freeman et al., 2010a; Tskhay & Rule, 2015a).

As an additional exploratory check, we examined the variance in men's gender typicality. Men's faces were fairly constrained in their gender typicality ($M = 5.93$, $SD = 0.43$, range: 4.49–6.50), and a Levene's test revealed significantly greater variance among women's than men's gender typicality, $F(1, 168) = 29.17$, $p < .001$, $r_{\text{effect size}} = .38$. This limited variance in gender typicality among men's faces could help explain the unexpected relation we observed with self-reported sexual attraction.

Discussion

Similar to past research on categorical judgments of sexual orientation as an identity, affect served as a valid and utilized cue to men's, but not women's, sexual attraction. Men who appeared to express more positive affect (although all faces were neutral) were correctly

[8] Although this negative correlation was largely driven by targets collected in the lab, $r(36) = -.21$, targets collected at Pride also did not show a positive correlation, $r(39) = -.03$.

perceived as experiencing greater own-gender attraction. For women, on the other hand, gender typicality was a utilized and valid cue to sexual attraction: Women who appeared less gender typical were accurately perceived as experiencing greater own-gender attraction. These data align with previous findings (Bjornsdottir & Rule, 2020; Freeman et al., 2010a; Tskhay & Rule, 2015a).

However, although perceivers rated less gender-typical men as experiencing greater own-gender attraction (consistent with previous findings), men who reported experiencing greater own-gender attraction here actually looked *more* gender-typical (a result not readily explained by including men with facial hair as targets). This unexpected pattern may be an artifact of the limited variance in gender typicality in this sample. We therefore hesitate to draw any strong conclusions from this surprising pattern.

General Discussion

Judgments of people's sexual attraction from photos of their faces correlate with their self-reported sexual attraction. This novel finding builds upon a wealth of previous research on the visibility of sexual orientation from nonverbal cues (see Rule, 2017, for review) by showing that perceivers can not only distinguish members of different sexual orientation categories from their faces, but can also detect the finer nuances of sexual attraction. The perception of social categories therefore does not wholly rely on sharp bifurcations between group lines. Rather, the cognitive-perceptual mechanisms that support social categorization also appear sensitive to subtle differences that may cluster and accumulate into group distinctions. The present research thus suggests that there may be more tolerance for ambiguity in social categorizations than existing work indicates.

Specifically, perceptually obvious dimensions (e.g., race and gender) may differ from perceptually ambiguous dimensions (e.g., sexual orientation) in how much ambiguity is tolerated in their categorization. The current results show a more graded pattern of

categorization for perceptually ambiguous groups compared to perceptually obvious groups, which show sharp category boundaries (e.g., race; Krosch & Amodio, 2014). These different patterns may be attributable to less clearly defined group boundaries, necessitating greater ambiguity tolerance in categorizations of perceptually ambiguous dimensions. That is, because people have clear ideas of what constitutes membership in race and gender groups, they can enforce sharp boundaries in their perceptions of these social categories. In contrast, because sexual orientation is perceptually ambiguous (i.e., the visual cues to sexual orientation are not as obvious as the cues to categories like race and gender) and sexual orientation group membership is not always clearly defined (i.e., is it based on identification, behavior, attraction?), the boundaries between sexual orientation categories are less defined. This lack of clarity may in turn allow for more graded perceptions of sexual orientation and, thus, more ambiguity in perceptions of group membership. Future work could test this more directly, for example by examining agreement in mental representations of perceptually obvious and perceptually ambiguous group memberships and testing whether this agreement predicts boundaries in categorization.

The present work provides additional benefits for increasing understanding of sexual orientation perception more directly, addressing concerns raised by some researchers about extant sexual orientation perception research (e.g., Miller, 2018). To start, participants' demonstrated sensitivity to sexual attraction cues in faces extends earlier work showing that perceptions of a small sample of targets' self-reported Kinsey scale scores correlated with observers' perceptions from thin-slice videos (Ambady et al., 1999). Sexual attraction may therefore be robustly detectable from various nonverbal cues. Moreover, these data also add nuance to past research in which participants confused gay and bisexual individuals' faces (Ding & Rule, 2012). There, participants appeared to perceive gay and bisexual individuals' faces similarly, suggesting that perceivers merely distinguish between heterosexuals and

nonheterosexuals. However, subsequent research revised this conclusion by demonstrating that perceivers could discern a difference between gay and bisexual individuals when asked to categorize them as "bisexual" or "not bisexual" (Lick et al., 2015). In combination with the present results, this collection of findings suggests that the presentation of the question about a person's sexual orientation may have a meaningful impact on the outcome of their response (i.e., their perceptual accuracy). Namely, the present data show that people's perceptual apparatus can attune to the gradient of sexual attraction and does not exclusively employ discrete categorical distinctions, as described above.

More fundamentally, the current work operationalized sexual orientation in terms of sexual attraction. Arguably the most foundational component of sexual orientation, focusing on sexual attraction rather than sexual identity (or simply leaving sexual orientation undefined) provided higher resolution about how people perceive the components that define sexual orientation. Most previous work has conflated attraction, behavior, and identity when testing perceptions of sexual orientation (see Rule et al., 2017). Differences in the present findings compared to previous work could stem from this specification. Thus, the results reported here suggest that deeper consideration of sexual orientation's subcomponents may be warranted in future work examining sexual orientation.

Indeed, this work's findings add a new perspective on the gay/lesbian advantage in perceptions of sexual orientation. Here, heterosexual and nonheterosexual perceivers showed equivalent levels of accuracy. In multiple previous studies, however, gay and lesbian perceivers demonstrated greater sensitivity to others' self-identified sexual orientation than heterosexual perceivers did (Johnson & Ghavami, 2011; Rule et al., 2007; but see also Brewer & Lyons, 2017). Speculating, we wonder whether the particularly intergroup nature of thinking about sexual orientation in terms of categories (vs. as a continuum of attraction, as done here) may help to stimulate the group-based thinking necessary to lead to a minority-

group advantage. For instance, Rule et al. (2010) found that participants cognizant of the Mormon versus gentile group distinction demonstrated an ingroup memory advantage for those groups, whereas a difference did not emerge among participants for whom the intergroup boundary was not salient. Similarly activating one's own group identity by reminding participants of the intergroup category distinction may therefore be necessary to shift attention towards ingroup members and to trigger Rodin's (1987) "cognitive disregard" of outgroups. In contrast, thinking about others in terms of sexual attraction (i.e., an attitude, rather than an identity) may not stimulate group-based thinking, leading to the similar performance of heterosexual and nonheterosexual participants that we observed here. Indeed, although one might expect nonheterosexual individuals to perform more accurately in perceiving sexual attraction because they tend to think about sexual orientation fluidly and less categorically than heterosexuals do (Scheffey et al., 2019), explicitly asking perceivers to rate targets on a continuous scale might have provoked heterosexual participants to think about sexual orientation less dichotomously and thus detect finer distinctions in targets' sexual attraction.

Despite the lack of minority-group advantage in judging sexual attraction, we nonetheless observed some differences between heterosexual and nonheterosexual participants in their categorizations of targets' sexual orientation. Specifically, nonheterosexual perceivers were somewhat more willing, compared to heterosexual perceivers, to rate targets as own-gender attracted in Study 1 and to categorize women's faces as "not straight" in Study 2. This aligns with studies showing that sexual minority perceivers and individuals from cultures with more accepting attitudes towards nonheterosexual behavior are more likely to categorize targets as gay (Brewer & Lyons, 2016; Rule et al., 2007; Rule et al., 2011). Future research could explore whether this categorization threshold varies according to other individual differences, such as political affiliation or homophobic

attitudes (see Brewer & Lyons, 2017; Rule et al., 2015). Furthermore, among nonheterosexual perceivers, women categorized as "not straight" reported less own-gender attraction than men categorized as "not straight," indicating these participants' greater inclination to categorize women, compared to men, as nonheterosexual. This could relate to lay understanding of women's greater sexual fluidity (e.g., Diamond, 2016; Kinnish et al., 2005).

The present work also found that gender typicality and affect served as cues to sexual attraction similarly to how they do for sexual orientation categories. Specifically, gender typicality served as both a valid and utilized cue to women's sexual attraction (i.e., women who looked less-gender typical reported more own-gender attraction and were perceived as such; see also Bjornsdottir & Rule, 2020; Freeman et al., 2010a). Likewise, subtle affective variations in men's neutral faces cued their sexual attraction, such that men who reported more own-gender attraction appeared more positive, and more positive-looking men were perceived to be more own-gender attracted (see also Bjornsdottir & Rule, 2020; Tskhay & Rule, 2015a). But, strangely, the robust relation between men's gender typicality and sexual orientation demonstrated in previous work (e.g., Freeman et al., 2010a) did not emerge here. Although people *perceived* less gender-typical men as experiencing more own-gender attraction, less gender-typical men actually experienced more other-gender attraction here. Although this could be an artifact of the particular target sample (limited variance in gender typicality, as discussed above), future research should address the relation between men's gender typicality and their sexual attraction to clarify this.

Despite these valuable advances, this research is certainly not without limitations. First, this work focused on sexual attraction, leaving the other two subcomponents of sexual orientation (behavior, identity) unaddressed. Although previous studies have directly considered identity, most have not considered the granularity of how their targets define their

sexual orientation. Considering that these data and indications from some others (e.g., Tskhay & Rule, 2017) suggest that meaningful differences in definitions of individuals' sexual orientation may exist, a fulsome study contrasting targets who uniquely base their sexual orientation on one of the three components seems worthwhile to truly appreciate distinctions arising from this heterogeneity.

Likewise, targets and perceivers here originated primarily from Western nations, leaving the question of whether sexual attraction may be perceived similarly across cultures. Previous work finds cross-cultural consensus in categorizations of sexual orientation from facial appearance, but also cultural differences in accuracy and response bias (Rule et al., 2011), indicating that there may be cultural variations in sexual attraction perception. It furthermore remains possible that perceivers from cultures less accepting of nonheterosexuality might show a more logistic pattern in their perceptions of sexual orientation because the intergroup lines may be more tightly policed. Additionally, although the current target and perceiver samples contained racial diversity, most targets and perceivers were White, constraining exploration of possible moderation by race. However, previous research has found comparable accuracy in categorizing sexual orientation across both target and perceiver race (Rule, 2011), suggesting that perceptions of sexual attraction should operate similarly; this remains a question for future research to test directly, however.

The current sample of targets also differed in their distribution of sexual attraction by gender. The distribution of women's sexual attraction was fairly even, whereas the men showed a bimodal distribution (with most targets reporting near-exclusive own- or other-gender attraction; see Figure S1 in Supporting Information). This could represent a bias in the sample or may simply reflect gender differences in experienced sexual attraction; for example, population measures indicate that more women than men identify as bisexual and that more men than women identify as gay/lesbian (e.g., Office for National Statistics, 2020).

Finally, another possible bias in the sample resulted from collecting photos in two contexts: in the lab and at Pride. Nearly all of the women were photographed at Pride, but half of the men were photographed in each context. The men photographed in the lab were university students (and, thus, younger) and reported greater other-gender attraction than the men photographed at Pride. Although these demographic differences could introduce confounds, targets' affect (which facilitated detection of men's sexual attraction) did not differ between the two contexts and statistically accounting for context did not change the results, indicating that these demographic differences do not explain the association between targets' perceived and self-reported sexual attraction. The comparable and consistent accuracy for women's and men's faces also bolsters confidence in the results. Future work could nevertheless address this shortcoming by collecting targets in only one context or by ensuring balanced demographic characteristics between the different photographic contexts.

Overall, the present findings provide a valuable and novel contribution to better understanding the nature of perceiving sexual orientation and sexual attraction, and social categorization, more broadly. The demonstrated visibility of sexual attraction from the face shows that perceivers can detect others' sexual preferences along a subtle gradient (rather than only as discrete categories) from minimal nonverbal cues. The facial cues enabling this moreover largely echo those that facilitate the detection of sexual orientation categories, clarifying the intersection between (perceptions of) continuous measures of sexual attraction and categorical measures of sexual orientation identity. Our finding that sexual orientation categorizations do not display a sharp threshold furthermore highlights the potential importance of ambiguity tolerance when perceiving other people's social categories. Thus, these findings help to tweak existing understanding of the perception of sexual orientation and the categorization of social groups and illuminate avenues for future research that might further disentangle their underlying cognitive processes.

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Table 1

Logistic Regression Fixed Effect Model Coefficients in Study 2

	b	*SE*	*Z*	Odds ratio [95% CI]	*p*
Sample 1: Women's faces					
Self-reported sexual attraction	.13	.03	3.76	1.13 [1.06, 1.21]	< .001
Categorization block	-.03	.03	-0.92	0.97 [0.91, 1.04]	.36
Self-reported sexual attraction × categorization block	-.01	.01	-1.00	0.99 [0.97, 1.01]	.32
Sample 1: Men's faces					
Self-reported sexual attraction	.07	.02	2.71	1.07 [1.02, 1.12]	.01
Categorization block	.02	.04	0.57	1.02 [0.95, 1.09]	.57
Self-reported sexual attraction × categorization block	-.01	.01	-1.37	0.99 [0.98, 1.00]	.17
Sample 2: Women's faces					
Self-reported sexual attraction	.12	.03	3.64	1.13 [1.06, 1.21]	< .001
Categorization block	-.03	.04	-0.77	0.97 [0.91, 1.04]	.44

Self-reported sexual attraction × categorization block	-.01	.01	-1.04	0.99 [0.97, 1.01]	.30
Sample 2: Men's faces					
Self-reported sexual attraction	.07	.02	3.04	1.08 [1.03, 1.13]	.002
Categorization block	-.02	.04	-0.41	0.99 [0.92, 1.06]	.68
Self-reported sexual attraction × categorization block	-.004	.01	-0.56	1.00 [0.98, 1.01]	.58

Note. Perceivers in Sample 1 were primarily heterosexual and perceivers in Sample 2 were nonheterosexual.

Table 2

Sexual Attraction Values Closest to the Point of Subjective Equality in Study 2

	Women's faces	Men's faces
Sample 1	-5.52	-6
Sample 2	-2.24	-6

Note. The values for men's faces do not represent a perfect point of subjective equality (.50 predicted likelihood of categorization as straight) but rather represent .62 likelihood in Sample 1 and .60 likelihood in Sample 2 of categorization as straight.

Table 3

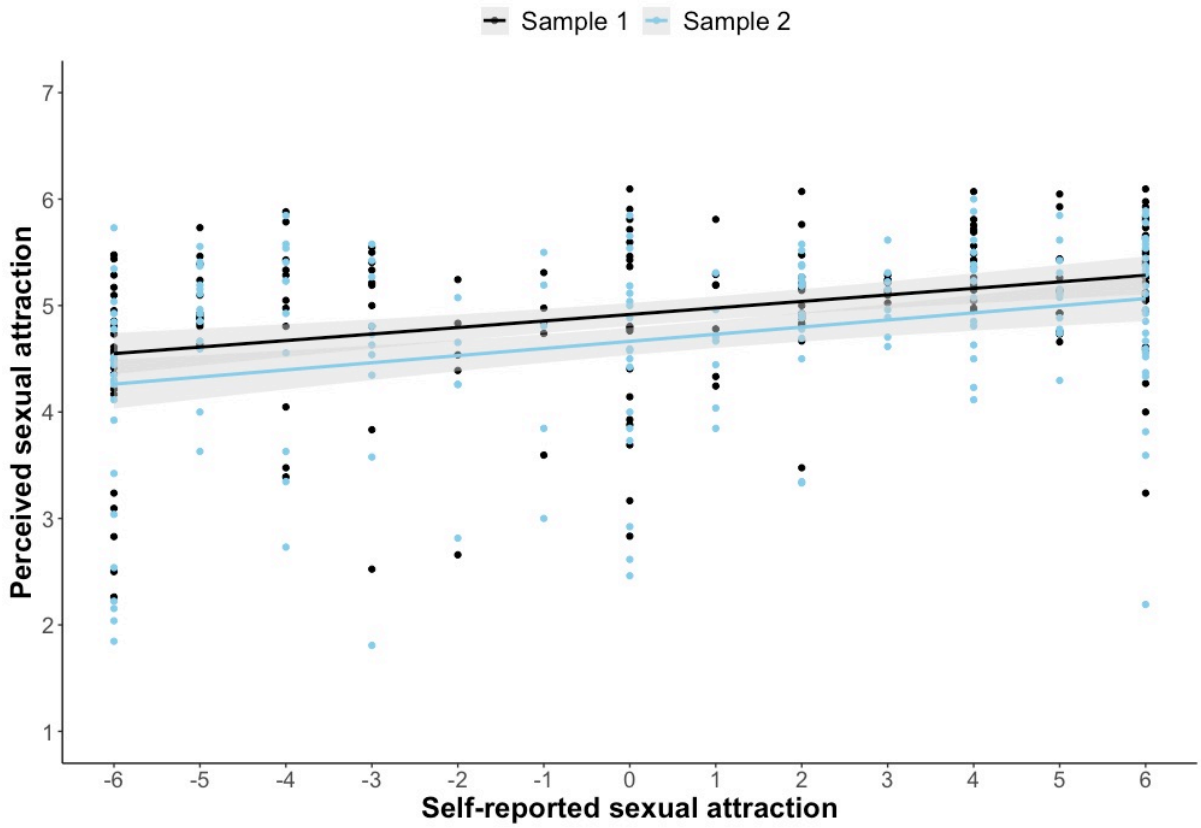
Correlations Between Targets' Affect, Gender Typicality, and Self-reported and Perceived Sexual Attraction in Study 3

	Affect	Gender typicality	Self-reported sexual attraction
Women's faces			
Affect	-		
Gender typicality	.28**	-	
Self-reported sexual attraction	.002	.28**	-
Perceived sexual attraction	.15	.63***	.37**
Men's faces			
Affect	-		
Gender typicality	.05	-	
Self-reported sexual attraction	-.26*	-.31**	-
Perceived sexual attraction	-.39***	.34**	.34**
All targets			
Affect	-		
Gender typicality	.11	-	
Self-reported sexual attraction	-.13	.13	-
Perceived sexual attraction	-.02	.49***	.34***

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Figure 1

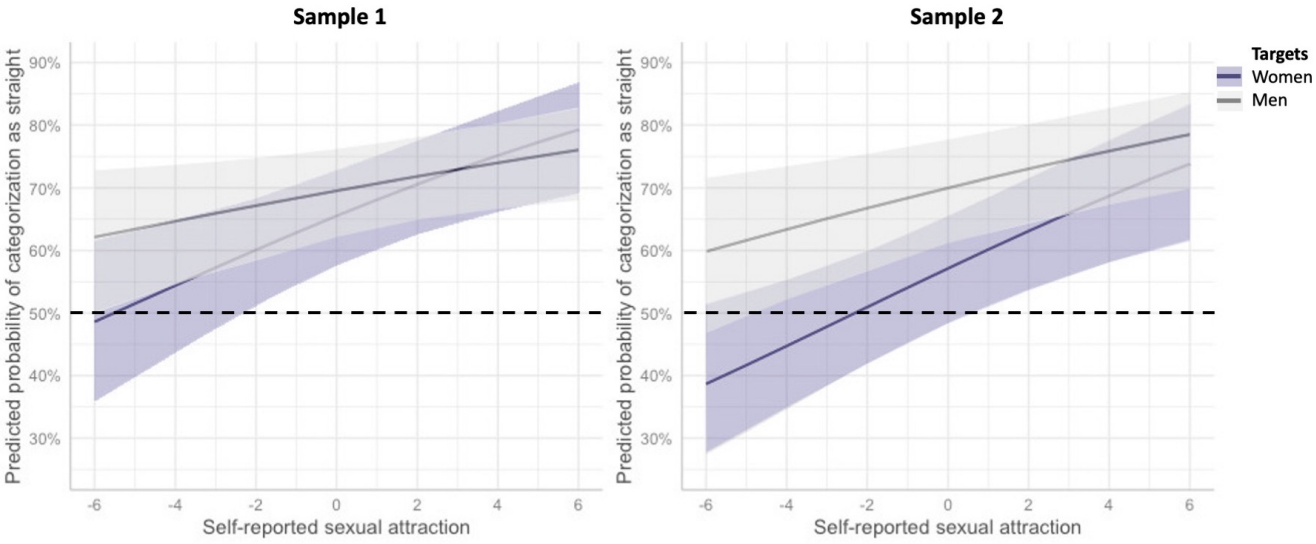
Targets' Self-Reported and Perceived Sexual Attraction in Study 1



Note. Lower numbers indicate greater own-gender attraction. Perceivers in Sample 1 were primarily heterosexual and perceivers in Sample 2 were nonheterosexual. Grey bands represent 95% confidence intervals.

Figure 2

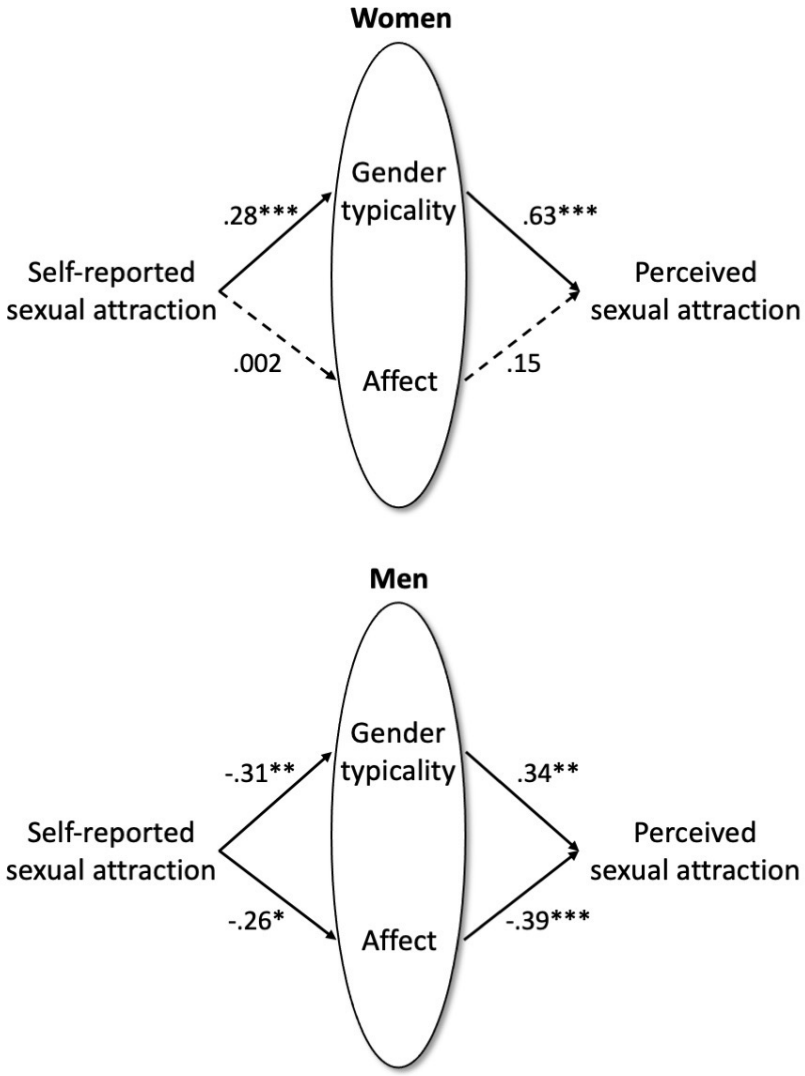
Predicted Probability of Categorization as Straight Based on the Logistic Regression Models for Each Sample's Categorizations of Women's and Men's Faces in Study 2



Note. Perceivers in Sample 1 were primarily heterosexual and perceivers in Sample 2 were nonheterosexual. The dashed line marks the point of subjective equality where it intersects with each model. Bands represent 95% confidence intervals.

Figure 3

Lens Models for Women's and Men's Faces in Study 3



Note. Dashed lines denote nonsignificant relations; * $p < .05$, ** $p < .01$, *** $p < .001$.

Supporting Information

Figure S1

Histograms and Density Plots of Targets' Self-Reported Sexual Attraction with Means Represented by Dashed Lines

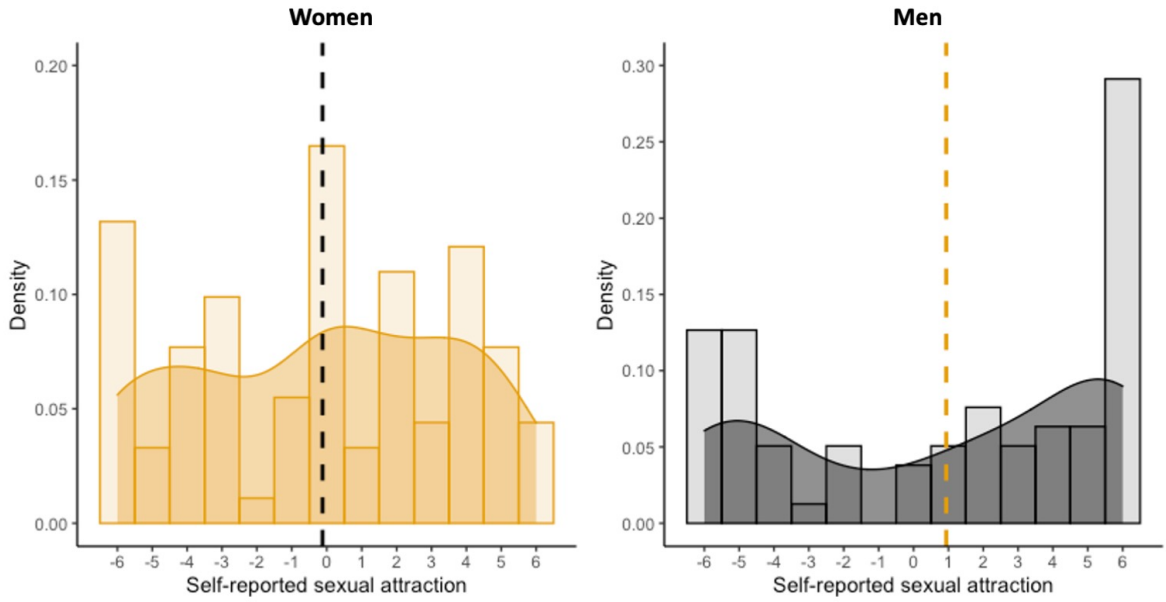


Table S1

Logistic Regression Fixed Effect Model Coefficients for Sample 1 Heterosexual Perceivers in Study 2

	b	*SE*	*Z*	*p*
Women's faces				
Self-reported sexual attraction	.13	.04	3.37	< .001
Categorization block	.03	.04	0.78	.44
Self-reported sexual attraction × categorization block	.002	.01	0.17	.86
Men's faces				
Self-reported sexual attraction	.06	.02	2.36	.02
Categorization block	.005	.04	0.13	.90
Self-reported sexual attraction × categorization block	-.005	.01	-0.57	.57

Study 3 Mediation Analysis

Consistent with our preregistered analyses, we built a multiple mediation model to test affect and gender typicality as mediators of the association between self-reported and perceived sexual attraction to provide a thorough test of the cues (note that we do not view this as a *causal* model). Using the *mediation* package in R (Tingley et al., 2014), we used bootstrapping to estimate the size and standard errors of both indirect pathways (Preacher & Hayes, 2008) with 5,000 bootstrap resamples to provide stable estimates, testing separate models for women's and men's faces because of the gender differences we observed in the correlations.[9]

For women's faces, the total indirect effect for the two mediators was significant, f = .04, SE = .02, 95% CI [.01, .08], the total effect of self-reported sexual attraction was significant, c = .09, SE = .03, 95% CI [.04, .14], $p < .001$, and the direct effect was significant but smaller in magnitude, c' = .05, SE = .02, 95% CI [.01, .09], p = .02. More pertinent, the indirect effect through gender typicality was significant, a_1b_1 = .04, SE = .02, 95% CI [.01, .08], p = .01, but the indirect effect through affect was not, a_2b_2 = -.000005, SE = .002, 95% CI [-.004, .00], $p > .99$. Gender typicality thus partially mediated the association between women's self-reported and perceived sexual attraction (Figure S2, upper panel).

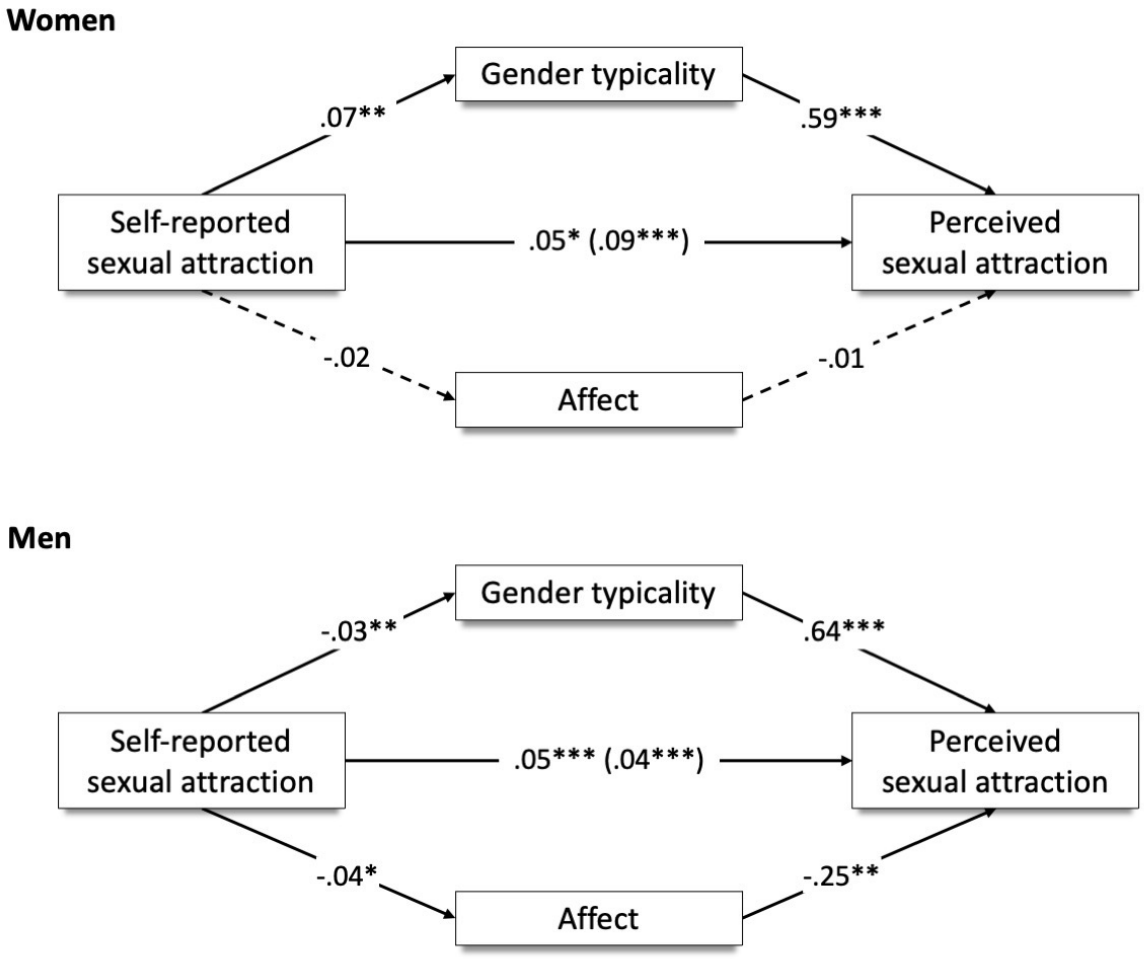
For men's faces, the paths through gender typicality, a_1b_1 = -.02, SE = .01, 95% CI [-.03, -.01], p = .001, and affect were both significant a_2b_2 = .01, SE = .01, 95% CI [.001, .02], p = .03, but the (combined) total indirect effect of the two mediators was not, f = -.01, SE = .01, 95% CI [-.03, .01]. The total effect of self-reported sexual attraction was significant, c =

[9] We had over 95% power to detect mediation through gender typicality for women's faces and over 90% power to detect mediation through either gender typicality or affect for men's faces based on the correlations observed in our primary analysis (Schoemann et al., 2017).

.04, *SE* = .01, 95% CI [.02, .07], *p* = .004, and the direct effect was also significant, *c'* = .05, *SE* = .01, 95% CI [.03, .08], *p* < .001. There was therefore no mediation (Figure S2, lower panel). Removing gender typicality from the model, however, revealed a reduced direct effect, *c'* = .03, *SE* = .01, 95% CI [.01, .06], *p* = .008, and significant partial mediation through affect.[10]

Figure S2

Mediation Models for Women's and Men's Faces in Study 3



Note. Dashed lines denote nonsignificant paths; * *p* < .05, ** *p* < .01, *** *p* < .001

[10] This result does not change when adjusting for target photo context (lab, Pride).

References

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