Article

Seeing Gender: Perceptual Representations of Transgender Individuals

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Abstract

In four studies, we explored perceptual representations of the gender-typicality of transgender individuals. In Studies 1a and 1b, participants ($N = 237$) created an avatar based on an image of an individual who disclosed being transgender or did not. Avatars generated in the transgender condition were less gender-typical—that is, transmen were less masculine and transwomen were less feminine—than those created in the control condition. In Study 2 ($N = 368$), using a unique visual matching task, participants represented a target labeled transgender as less gender-typical than the same target labeled cisgender. In Study 3 ($N = 228$), perceptual representations of transwomen as less gender-typical led to lower acceptability of feminine behavior and less endorsement that the target should be categorized as female. We discuss how biased perceptual representations may contribute to the stigmatization and marginalization of transgender individuals.

Keywords

perceptual representations, transgender, social categorization

In 2015, Caitlyn Jenner publicly identified as transgender and famously appeared on the cover of *Vanity Fair*. Although she implored "Call me Caitlyn," many individuals continued to refer to her as man. Further, comments on Caitlyn's masculine physique suggested some individuals not only thought about Caitlyn as a man but *saw* her as masculine as well. In the present work, we ask whether knowing someone identifies as transgender affects individuals' perceptual experiences of them. We suggest people who learn an individual is transgender perceptually represent them as less gender-typical than people who do not. Moreover, we suggest these biased perceptual experiences may contribute to discrimination toward transgender people.

The transgender community faces tremendous stigmatization and marginalization (Norton & Herek, 2013). Yet, factors that predict anti-transgender discrimination remain underexplored. Some work suggests transgender individuals experience bigotry because people are uncomfortable with their gender nonconformity (Gerhardstein & Anderson, 2010; Stern & Rule, 2017). People reported feeling less comfortable with masculine-appearing transwomen utilizing gendered spaces compared to feminine-appearing transwomen (White & Jenkins, 2017). However, there is a dearth of research examining the underlying processes through which transgender discrimination occurs. In the present work, we explore how biases in perceptual representations may contribute to the negative experiences of transgender individuals.

Social Categorization and Perceptual Differences

Social categorization for well-practiced categories, such as sex, occurs without intention on the magnitude of milliseconds (Amodio & Bartholow, 2011; Cloutier, Mason, & Macrae, 2005). Importantly, categorization decisions depend in part upon perceptual cues such as skin tone and facial features. Indeed, small shifts in perceptual cues can lead to dramatic categorization differences. For example, subtle differences in body shape and motion can alter gender categorization decisions (Johnson & Tassinary, 2005). As work on person perception and social categorization suggests, people use visual information to categorize others (Kawakami, Amodio, & Hugenberg, 2017).

Past work also suggests perceptual judgments can be shaped by social category membership information (Ratner & Amodio, 2013; Xiao, Coppin, & VanBavel, 2016). For example, racially ambiguous individuals were perceived as darker when

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labeled as Black rather than White (Levin & Banaji, 2006). Other researchers using methods from psychophysics (i.e., configural face processing; Michel, Corneille, & Rossion, 2007) and neuroscience (i.e., functional magnetic resonance imaging; Golby, Gabrieli, Chiao, & Eberhardt, 2001) demonstrate top-down effects of group membership on face perception. For example, some work suggests social category information affects the perceptual integration of facial features; identical morphed faces were processed more holistically when they were described as same-race rather than other-race faces (Michel, Corneille, & Rossion, 2010). Information people learn about others influences the perceptual experiences they have, which can have implications for how people categorize and behave toward them.

Recent work explored people's memory for transgender targets. Participants shown an image of a face labeled transgender remembered the face as less gender-congruent than people who saw the same face labeled cisgender (Wittlin, Dovidio, Lafrance, & Burke, 2018). In the present studies, we extend past work to suggest people may also *perceptually represent* transgender individuals as less gender-congruent than their cisgender counterparts, and we link these perceptual biases to social categorization outcomes with policy implications.

In four studies, we used novel visual matching paradigms to test whether learning someone is transgender leads individuals to perceptually represent them as less gender-congruent—that is, represent a transwoman as less feminine and a transman as less masculine—than their cisgender counterparts. Additionally, we explored whether these biased representations led people to feel less comfortable with transgender individuals expressing themselves in accordance with their gender identity. Data and materials for all studies are available at https://osf.io/b3hxd/?view_only=9afb04a979b140729b58877c192c7916

Study 1a

In Study 1a, we explored how people perceptually represent a woman who identifies as transgender. Some participants learned the woman was transgender while others did not. Participants created an avatar to represent her. A separate sample then rated the avatars for how feminine they appeared. We hypothesized participants who knew the target was transgender would create less feminine avatars than participants who did not.

Method

In exchange for course credit, 104 undergraduate students participated in a study about impression formation.[1] As this was a previously unexplored effect with no effect sizes on which to base a power analysis, we aimed to recruit 50 participants per cell of the experimental design, the recommended minimum sample size needed when effect sizes are unknown (Simmons, Nelson, & Simonsohn, 2013).

Participants viewed an ostensible dating profile that included a photograph of a White transwoman (i.e., an individual categorized as a man at birth who identifies and presents as a woman). The profile contained generic information (e.g., the individual describes herself as friendly and has a dog) as well as the experimental manipulation. Half of participants ($n = 52$) read that the target is a transwoman who volunteers with a transgender organization (*transgender condition*). The other half of participants ($n = 52$) read that the target is adopted and volunteers with an adoption organization (*control condition*). Adoption served as the control condition because it is disclosive but evaluatively neutral and does not reveal gender information. Pretesting revealed that when given the photograph and no gender information, the target was overwhelmingly categorized as female. All 48 participants in the pretest sample identified the target as "female" rather than "male" or "other."

Participants then created an avatar of the target using The Sims™ computer game (see Figure 1 for examples). Participants first viewed a short video demo where they learned they could manipulate nearly every aspect of the avatar they created, including their facial features, builds, and walks. Participants were incentivized to recreate the target accurately; the experimenter told participants they would receive a $25 USD prize if their avatar was rated most like the person in the picture. Participants had a photograph of the target to reference and had unlimited time to create the avatar. At the end of the study, participants were debriefed.

We recruited a sample of Amazon Mechanical Turk (MTurk) workers ($N = 220$, $M_{age} = 38.54$, 68.2% women; 79.1% White) to evaluate the avatars. Sensitivity power analyses suggest this sample is sufficient to detect a minimum effect size of $d = .19$ for a within-subjects design. MTurk workers each evaluated 14 avatars; half of the avatars were randomly selected from the transgender condition and half were randomly selected from the control condition. The coders did not see the original image of the target and did not learn any information about the gender of the avatars or the conditions under which they were created. They viewed a 30-s video clip of each avatar in which the avatar stands for 10s and walks for 20s. Participants then rated the gender-typicality of the avatar across six attributes (face, body, walk, clothes, muscles, and overall impression) on a scale of 1 (*extremely feminine*) to 10 (*extremely masculine*). The attributes were highly correlated ($\alpha = .91$ for the transgender avatars, $\alpha = .90$ for the control avatars) and the intra-avatar reliability was adequate (α's ranged from .63 to .93). We averaged the attribute ratings across coders to create one measure of gender-typicality for each avatar.

Results

To test our hypothesis that women who are labeled transgender are represented as less feminine than those who are not, we conducted a linear mixed model with condition as a fixed effect and coder as a random effect to account for the nested nature of the avatar evaluations. Coders rated the avatars created by participants in the transgender condition as less feminine ($M = 2.94$, $SD = 1.18$) than those created by participants in the control condition, $M = 2.77$, $SD = 1.10$, $b = .18$, $SE = .05$, $t(2{,}737.51) = 3.76$, $p < .001$, $d = .22$, 95% CI, [0.10, 0.35].[2]

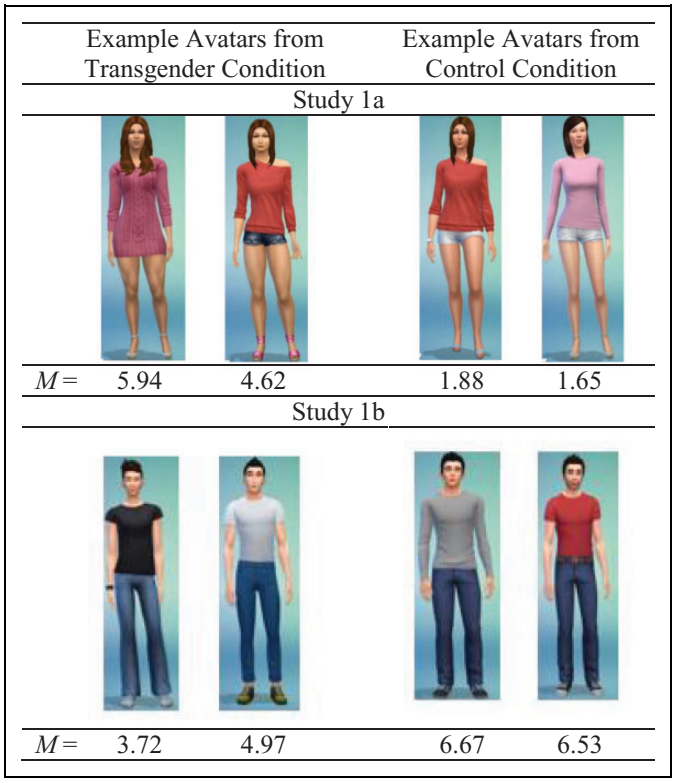

Figure 1. Example avatars created by participants across conditions. Means represent the average gender-typicality rating for each example avatar.

Study 1b

Study 1a provided initial evidence that information about a woman's transgender identity influenced representations of gender-congruence. Even with an accuracy incentive, participants who learned a woman identified as transgender represented her as less feminine than participants who did not know that information. Study 1b sought to test the effect with transmen and to explore whether perceiver gender affects representations. We predicted men labeled transgender would be represented as less masculine than the same individuals without the transgender label. We had no a priori hypotheses regarding the role of perceiver gender in representations of transgender individuals.

Method

In exchange for course credit, 133 students ($M_{age} = 20.67$, $SD = 2.91$; 66.2% women) viewed a profile that included a photograph of a White transman. Sample size was again based off field norms for minimum cell sizes. Participants followed the same protocol described in Study 1a. In addition, at the end of the study, they reported their age and gender. Three avatars were excluded from analysis. One participant was under 18 years old and two completed the study twice, so only their first avatar was used in analyses.

We recruited a sample of Amazon MTurk workers ($N = 271$; $M_{age} = 35.14$; 61.6% women; 78.6% White) to rate the avatars for gender-typicality. Sensitivity analyses suggest this sample size is sufficient to identify an effect size of $d = .17$ for a within-subjects design. Coders followed the same protocol described in Study 1a; they rated the avatars on several dimensions using a scale of 1 (*extremely feminine*) to 10 (*extremely masculine*). Intra-avatar reliability was adequate (α's ranged from .61 to .94).

Results

To test our hypothesis that learning a man identifies as transgender will lead participants to represent him as less masculine, we conducted a linear mixed model with condition, perceiver gender, and their interaction as fixed effects and coder as a random effect to account for the nested nature of the evaluations. Coders evaluated the avatars created in the transgender condition as less masculine ($M = 6.02$, $SD = 1.06$) than the avatars created in the control condition ($M = 6.13$, $SD = 1.12$), $b = .18$, $SE = .06$, $t(3{,}426.89) = 3.27$, $p = .001$, $d = .22$, 95% CI [0.08, 0.36]. There was no main effect of perceiver gender, $b = .10$, $SE = .07$, $t(3{,}470.39) = 1.46$, $p = .15$, nor was there a significant interaction between condition and perceiver gender, $b = -.18$, $SE = .10$, $t(3{,}466.47) = -1.77$, $p = .08$.

Study 2

In Study 1, the same individual was viewed as less gender-typical when they were labeled transgender. In Study 2, we sought to extend and replicate this effect using a different

visual matching methodology. Moreover, we explored possible perceiver gender effects in representations of transwomen.

In Study 2, we used a paradigm that more directly captures participants' perceptual experiences and does not rely on outside raters to subjectively evaluate gender-typicality. To construct the stimuli, we used Abrasoft Fantamorph 5 software to morph the faces of transwomen to appear more masculine and feminine. We first morphed the transgender target face with a highly feminine female exemplar selected from the Chicago Face Database. We then morphed the face with a highly masculine male exemplar. The process produces a continuum of faces that range from 100% target face to 100% feminine/masculine exemplar face (see Cole, Trope, & Balcetis, 2016, for more detail about this method). We extracted a series of photographs that represented the target face morphed at 7% increments with the hyperfeminine and hypermasculine faces, respectively. The result was an array of faces in which the target's face is subtly more masculine and more feminine.

Method

Four hundred six heterosexual Amazon MTurk workers participated in an online study for $0.60. Because the Gender × Condition interaction neared significance in Study 1b, we increased sample size to be able to detect a two-way interaction with a small-medium effect size ($f = 0.15$) at 80% power. Participants ($n = 38$) were excluded from analyses if they incorrectly answered both attention check questions, resulting in a final sample of 368 participants ($M_{age} = 37.70$, $SD_{age} = 12.46$, 66.8% women, 79.6% White).

Participants viewed an internship application that included a photograph of an individual paired with demographic information. In half of the profiles, the target identified as female ($n = 175$). In the other half, the target identified as transgender female ($n = 193$). Other pieces of profile information (i.e., race, age, major, grade point average, scores on a personality inventory) were held constant across conditions.

After viewing the application, participants completed the visual matching task. At the top right corner of the screen, participants saw the target's original photograph that accompanied the profile. On the rest of the screen, they saw a random array of 11 morphed variants of the target's face. Five faces were progressively more masculine versions of the target's face, five faces were progressively more feminine versions, and one was the target's true face. Participants indicated which face matched the target's real face. We coded participants' choices on a −5 (*face most prototypically masculine*) to 5 (*face most prototypically feminine*) scale where 0 represented the true face. Participants had an unlimited amount of time to decide. We recorded the duration of time participants spent making their selection and how confident they were in their choice from 0 (*not at all confident*) to 100 (*completely confident*). Participants also completed two attention checks (e.g., "I will select strongly disagree if I am reading this."). Finally, participants completed additional nonrelated items for use in another study (see Bonagura, Howansky, Albuja, & Cole, 2018), reported demographic information, were probed for suspicion of hypotheses, and debriefed.

Results

We conducted a 2 (*perceiver gender*) × 2 (*transgender label*) between-subjects *analysis of variance* (*ANOVA*) to test for differences among groups on representations of the target's face. As predicted, participants perceived the woman labeled transgender as significantly less feminine ($M = 0.59$, $SD = 2.69$) than the same woman without the transgender label, $M = 1.10$, $SD = 2.30$, $F(1, 364) = 4.55$, $p = .03$, $\eta_p^2 = 0.01$, 95% CI [0.01, 0.04]; Figure 2. There was no main effect of perceiver gender, $F(1, 364) = 0.03$, $p = .87$, nor was there an interaction between condition and perceiver gender, $F(1, 364) = 0.89$, $p = .35$.

There were no differences among groups regarding how confident participants felt in their selections, $ps > .29$, nor in time spent choosing the morph, $ps > .19$. Four outliers ($\pm$ 3 *SD*s from the mean) were excluded in duration analyses. Inclusion of these outliers resulted in a significant main effect of perceiver gender, $F(1, 364) = 3.96$, $p = .047$, $\eta_p^2 = 0.01$, 95% CI [0.01, 0.04], such that men spent a longer time choosing the face ($M = 42.34$s, $SD = 68.41$s) than women ($M = 32.03$s, $SD = 29.90$s).

Study 3

Our previous studies demonstrated that people labeled transgender were represented as less gender-congruent than those who were not.[3] In Study 3, we tested whether perceptual biases have implications for gender classification outcomes. Past work suggests visual perception is an important predictor of social categorization and subsequent behavior toward individuals (Krosch & Amodio, 2014). Additionally, how individuals are categorized influences whether they are afforded category-relevant privileges (Allan, 2015). In Study 3, we predicted participants would perceive a woman described as transgender as less gender-typical than the same woman described as cisgender which in turn would predict how comfortable they felt with the woman representing herself in a feminine way.

Method

In exchange for monetary compensation ($0.35), 375 heterosexual men participated in a two-part study on Mturk. We aimed to recruit approximately 350 participants to have 80% power to detect a small-medium effect size ($f = 0.15$), oversampling to account for attrition. Part 1 of the survey contained two attention check questions. Nine participants were not invited to participate in Part 2 because they incorrectly responded to both attention check items. Of the 366 men who were invited to Part 2, 228 completed the study and received an additional $0.65 (62.30% retention; $M_{age} = 26.17$, SD_{age}

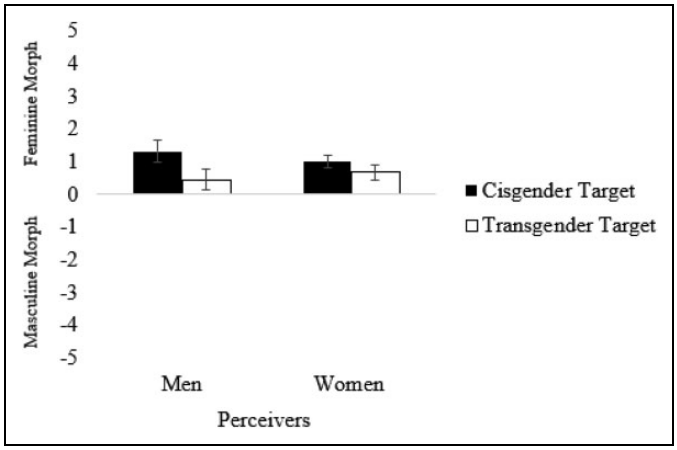

Figure 2. Targets in the transgender condition were perceptually represented as less gender-typical than targets in the control condition. Error bars represent standard error.

= 5.46; 66.7% White). The final sample was adequately powered to detect a minimum effect size of $\eta^2 = 0.03$.

Part 1

Participants learned that they would be participating in an online study evaluating dating profiles. They viewed two ostensible profiles of women along with their photographs. After viewing each profile, participants completed the visual matching task described in Study 2. Participants saw 11 faces on the screen in a random array and indicated which face matched the target's real face.

After the visual matching tasks, participants responded to a variety of measures to engage them in the ostensible dating profile task and to assess baseline differences between targets. Participants reported their attitudes toward the target on a 0 (*cold*) to 100 (*warm*) feelings thermometer and evaluated the target across 12 attributes from 1 (*not at all*) to 7 (*extremely*). These attributes were organized into two components: warmth (e.g., friendly, gentle; $\alpha = .88$) and competence (e.g., intelligent, independent; $\alpha = .75$). Additionally, participants reported the degree to which they felt the target was masculine, feminine, and attractive from 1 (*not at all*) to 7 (*extremely*). Following, participants reported whether they would be likely to behaviorally engage with the target (e.g., date, get coffee with, work with; $\alpha = .86$) on a scale from 1 (*very unlikely*) to 7 *(very likely*).

Participants then learned that they would have the opportunity to obtain more information about one of the people at Time 2 of the study and indicated which individual they would like to learn more about. Ninety-eight participants chose to learn more about Target 2, and 128 chose to learn more about Target 1. Participants then responded to a variety of individual difference scales to explore moderators of the perceptual effect. These scales and subsequent exploratory analyses are included in the Supplemental Materials.[4]

Part 2

Two weeks later, participants were invited to complete Part 2 of the study. Participants learned that they would receive more information about the person they chose in Part 1. Participants then viewed a dating profile in which their chosen target identified as either *transgender* ($n = 112$) or *adopted* ($n = 116$). Following the profile, participants completed the visual matching task in which they selected the targets' true face from a random array of faces morphed to range in masculinity and femininity. Participants were given an accuracy incentive; they learned they would enter a raffle to win a $25 prize if they identified the target's true face. Participants then reported their evaluations, attitudes, and behavioral intentions toward the target using the same scales from Part 1. Participants also indicated how comfortable they would feel if the target expressed themselves as feminine across 2 items (i.e., wear dresses, makeup; $\alpha = .90$) from 1 (*extremely uncomfortable*) to 7 (*extremely comfortable*). Finally, participants indicated their agreement that the target should be categorized as a woman across 2 items (i.e., use the women's restroom, mark female on their driver's license; $\alpha = .92$) from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants were then debriefed and thanked.

Results

Baseline Target Differences

We compared baseline evaluations of targets with the intentions of collapsing across target in our primary analyses should no significant differences emerge. Targets 1 and 2 did not differ on evaluations of attractiveness, $t(365) = -0.38$, $p = .70$, nor femininity, $t(365) = 0.77$, $p = .44$. However, participants reported significantly more favorable attitudes toward Target 1 ($M = 60.64$, $SD = 20.67$) compared to Target 2, $M = 55.57$, $SD = 20.11$, $t(365) = 3.77$, $p < .001$, $d = .25$, 95% CI [−7.71, −2.42]. Further, participants evaluated Target 1 ($M = 2.78$, $SD = 1.45$) as less masculine than Target 2, $M = 3.19$, $SD = 1.61$, $t(365) = -4.39$, $p < .001$, $d = .23$, 95% CI [0.23, 0.60]. Since it is feasible that participants' positive attitudes toward Target 1 or Target 1's lower levels of masculinity could play a role in subsequent effects, we treated target chosen as an independent variable in subsequent analyses.

Representations of Gender-Typicality

To test for the perceptual differences found in the previous studies, we conducted a 2 (*target*) × 2 (*transgender label*) between-subjects *ANOVA* predicting representations of gender-typicality. Replicating previous studies, participants represented the target who identified as transgender as less feminine ($M = 0.71$, $SD = 2.80$) than the target who did not, $M = 1.38$, $SD = 2.68$, $F(1, 222) = 4.06$, $p = .045$, $\eta_p^2 = 0.02$, 95% CI [0.00, 0.07]. There was also a main effect of target such that participants represented Target 1 as less feminine ($M = 0.51$, $SD = 2.55$) than Target 2, $M = 1.74$, $SD = 2.87$, $F(1, 222) = 11.14$, $p = .001$, $\eta_p^2 = 0.05$, 95% CI [0.01,

0.11]. Finally, there was a significant interaction between condition and target, $F(1, 222) = 4.60$, $p = .03$, $\eta_p^2 = 0.02$, 95% CI [0.00, 0.07]. For Target 2, participants selected a significantly less feminine morph to represent the target in the transgender condition ($M = 0.96$, $SD = 2.98$) compared to the control condition, $M = 2.44$, $SD = 2.60$, $F(1, 96) = 6.95$, $p = .01$, $\eta_p^2 = 0.07$, 95% CI [0.004, 0.179]. In other words, the predicted perceptual differences emerged for one target but not the other.

Perceptual Differences and Social Categorization Outcomes

To link perceptual experiences to social categorization outcomes, we tested whether the transgender label influenced representations of gender-typicality which in turn was related to participants' beliefs about the acceptability of dressing femininely (Figure 3, Panel A). Since the predicted perceptual effects only emerged for Target 2, we tested the mediation only with this target. We used the PROCESS macro (Hayes, 2012) to test the significance of the indirect effect using bootstrapping procedures in which the unstandardized indirect effect was computed for each of 10,000 bootstrapped samples. Indeed, perceptions of less gender-typicality mediated the relationship between the transgender label and acceptability of feminine displays, 95% CI [−0.207, −0.005]. Transwomen were represented as less gender-typical than ciswomen, which led participants to think it was less acceptable for them to dress femininely.

We then tested whether the transgender label influenced representations of gender-typicality, which in turn was related to the degree to which the participant felt comfortable with the target categorizing herself as a woman (Figure 3, Panel B). Indeed, representations of gender-typicality mediated the relationship between the transgender label and acceptability of categorization as a woman, 95% CI [−0.209, −0.007]. Transwomen were represented as less gender-typical than ciswomen, which affected perceivers' evaluations of how acceptable it was for the target to categorize herself as a woman.

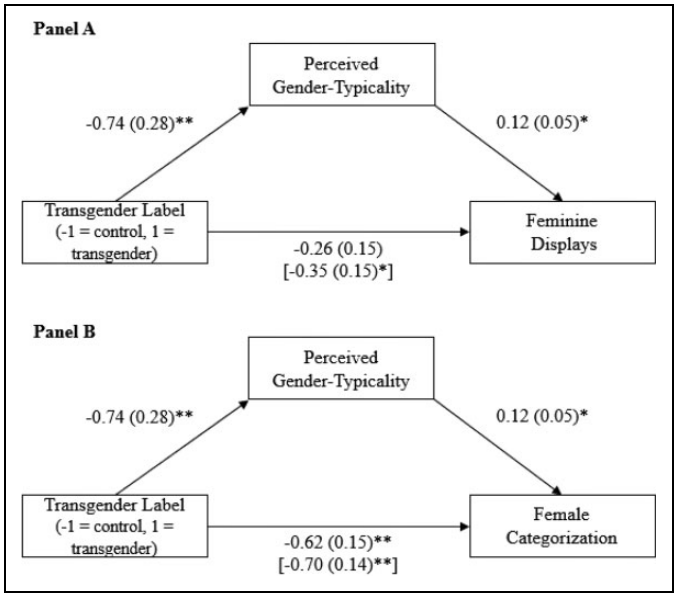

Figure 3. Unstandardized regression coefficients (and standard errors) from the mediation model in which the transgender label predicted the extent to which it was acceptable for the target to display herself in a feminine way or categorize herself as a woman as a function of perceived gender-typicality. Values in brackets represent the direct associations; values without brackets represent indirect associations when all variables are included in the model. *$p < .05$. **$p < .01$.

Discussion

Across four studies, people perceptually represented transgender individuals as less gender-typical than their cisgender counterparts. In Studies 1a and 1b, people represented both men and women who identified as transgender as less gender-typical than the same target without the transgender label. In Study 2, both men and women represented a transwoman as less feminine than her cisgender counterpart. In Study 3, we partially replicated the perceptual effect and established that representations of less gender-congruence were associated with the extent to which participants felt comfortable with the transgender target categorizing and representing herself in accordance with her gender identity.[5]

This work is consistent with past work suggesting social category labels influence perceptual experiences (Kawakami et al., 2017). Although there is a large body of work on stereotype-induced biases toward members of other social categories such as race, gender, or sexual orientation, social processes involved in the perception of one social category do not necessarily generalize to other social categories (Ito & Urland, 2003). The existing literature often conflates the experiences of transgender people with sexual minority populations, despite meaningful differences (Worthen, 2013). The clear evidence that transgender people are uniquely stigmatized (Hughto, Reisner, & Pachankis, 2015) underscores the importance of this work, as it can potentially inform future interventions to reduce specific bias against transgender people.

Moreover, the present work examines the effects of multiple social categories on perceptual representation. Participants in the transgender condition learned several pieces of social category information—natal sex group membership, gender identity group membership, and transgender group membership. Additionally, the target overwhelmingly "passed" as female when no category membership information was present. Participants weighted natal sex social category information in their representations, even when bottom-up visual information and gender identity were contrary. Thus, the present work suggests even in the face of disconfirming evidence individuals continue to "see" transgender individuals as less gender-congruent, which may be caused by and further perpetuate stereotypes that transgender people look different from cisgender people with the same identity (Gazzola & Morrison, 2014; Howansky, Wilton, Young, Abrams, & Clapham, 2019). This has powerful implications, reflecting identity denial on an implicit level, and

helps provide insight into how transgender individuals are implicitly categorized.

Future Directions

While the primary perceptual effect was replicated across studies, in Study 3, the effects emerged for only one of the two targets. At baseline, participants reported significantly more favorable attitudes toward Target 1 than Target 2 and evaluated Target 1 as less masculine than Target 2. It is possible that Target 1's higher likeability or baseline gender-typicality may have played a role in mitigating perceptual differences. Importantly, effects emerged in five unique targets across studies, which provide evidence that the observed perceptual differences were not unique to any specific target. However, future research could systematically explore boundary conditions that would explain why some transgender individuals elicit biases in perceptual experiences while others do not.

Future work could also consider antecedents of individuals' perceptual experiences. For example, ongoing work in our lab is testing whether biased attention contributes to biased representations of transgender individuals. People often have goals to confirm preexisting expectations and may focus attention on category-distinguishing information (Jonas, Schulz-Hardt, Frey, & Thelen, 2001; Miller & Turnbull, 1986). Upon learning a target is transgender, individuals may direct their attention toward features of the body that correspond to the target's assumed natal sex, which in turn may produce biased perceptual experiences.

"Perceptual" Differences

Studying perceptual representations can help elucidate early stage processing that guides behavior. In the present work, we suggest transgender individuals are perceptually represented as less gender-congruent than cisgender targets, and we link those representations to social categorization and gender affordance outcomes. We broadly use the term "perception" to refer the organization and interpretation of sensory information to represent the environment (Schacter, Gilbert, Wegner, & Hood, 2011). While the exact nature of "perception" versus "cognition" is debated in the literature (e.g., see Firestone & Scholl, 2016 and 34 commentary responses), in the present studies, we sought to address potential methodological pitfalls that have characterized some other studies in this area. For example, the current studies included a referent of the target *during* the visual matching task limiting interpretations of these results as memory based rather than perceptual. Moreover, participants were given incentives to represent the target accurately, limiting response bias alternatives. In addition, the between-subjects designs decreased the possibility of participants knowing the full purpose of the study, limiting the role of demand effects. Thus, the present work took several steps to ensure that it was not subject to the methodological pitfalls that typically preclude a perception-based conclusion. However, we acknowledge that the specific nature of the bias, particularly where it falls along the perception–cognition continuum, is difficult to pinpoint. Additional work can do more to further elucidate the effect, for example, by exploring neural mechanisms (e.g., Stolier & Freeman, 2017) to identify a truly perceptual (vs. cognitive) effect.

Concluding Remarks

Across four studies, an individual labeled as transgender was represented as less gender-congruent than the same individual without the transgender label. Further, perceptions of transgender individuals as less gender-typical affected the extent to which participants felt it was acceptable for the target to express and socially categorize herself according to her gender identity. Many policy issues surrounding transgender individuals (e.g., bathroom use, scholarship allocation) are contingent on how transgender people are categorized. Being perceived as less gender-typical may be one more hurdle transgender individuals face in their struggle to be recognized in accordance with their gender identities.

Declaration of Conflicting Interests

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Supplemental Material

The supplemental material is available in the online version of the article.

Notes

1. We did not collect demographic information in this study. The typical demographics of our undergraduate samples are 59.9% female, $M_{age} = 19.06$, $SD_{age} = 1.47$.
2. Twenty three of the 2,960 total avatar evaluations were three *SD*s above the mean and thus excluded from analyses. Inclusion of these evaluations does not change results, $t(2{,}762.51) = 3.97$, $p < .001$.
3. We replicated the perceptual bias effect with a fully crossed design. There were no interactions among target gender, participant gender, and the transgender label. See Supplemental Materials for full write-up.
4. Individuals high in precarious manhood or gender essentialism were particularly likely to exhibit perceptual biases. Belief in traditional gender roles, attitudes toward transgender individuals, and gender concept clarity did not moderate the effect.
5. We note up-front that several p values in this line of work near .05 and our mean observed power in some studies were lower than current field norms. Therefore, we conducted a p-curve and mini meta-analysis to test for the robustness of the effect. The p-curve analysis indicates the data show evidential value, and the meta-analysis

suggests perception significantly differed between conditions across studies. The full results of these analyses appear in the Supplemental Materials.

References

Allan, K. (2015). When is a slur not a slur? The use of nigger in "Pulp Fiction." *Language Sciences*, *52*, 187–199.

Amodio, D. M., & Bartholow, B. D. (2011). Event-related potential methods in social cognition. In A. Voss, C. Stahl, & C. Klauer (Eds.), *Cognitive methods in social psychology* (pp. 303–339). New York, NY: Guilford Press.

Bonagura, D., Howansky, K., Albuja, A., & Cole, S. (2018). Is "she" the right person for the job? The use of pronouns when considering transgender job applicants. *Presented at the Eastern Psychological Association Conference*, Boston, MA, March 12–14.

Cloutier, J., Mason, M. F., & Macrae, C. N. (2005). The perceptual determinants of person construal: Reopening the social-cognitive toolbox. *Journal of Personality and Social Psychology*, *88*, 885–894.

Cole, S., Trope, Y., & Balcetis, E. (2016). In the eye of the betrothed: Perceptual downgrading of attractive alternative romantic partners. *Personality and Social Psychology Bulletin*, *42*, 879–892.

Firestone, C., & Scholl, B. J. (2016). Cognition does not affect perception: Evaluating the evidence for "top-down" effects. *Behavioral and Brain Sciences*, *4629*, 1–77.

Gazzola, S. B., & Morrison, M. A. (2014). Cultural and personally endorsed stereotypes of transgender men and transgender women: Notable correspondence or disjunction? *International Journal of Transgenderism*, *15*(2), 76–99.

Gerhardstein, K. R., & Anderson, V. N. (2010). There's more than meets the eye: Facial appearance and evaluations of transsexual people. *Sex Roles*, *62*, 361–373.

Golby, A. J., Gabrieli, J. D. E., Chiao, J. Y., & Eberhardt, J. L. (2001). Differential fusiform responses to same- and other-race faces. *Nature Neuroscience*, *4*, 845–850.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White Paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Howansky, K., Wilton, L. S., Young, D. M., Abrams, S., & Clapham, R. (2019). (Trans)gender stereotypes and the self: Content and consequences of gender identity stereotypes. *Self & Identity*, 1–18.

Hughto, J. M. W., Reisner, S. L., & Pachankis, J. E. (2015). Transgender stigma and health: A critical review of stima determinants, mechanisms, and interventions. *Social Science & Medicine*, *147*, 222–231.

Ito, T. A., & Urland, G. R. (2003). Race and gender on the brain: Electrocortical measures of attention to the race and gender of multiply categorizable individuals. *Journal of Personality and Social Psychology*, *85*, 616–626.

Johnson, K. L., & Tassinary, L. G. (2005). Perceiving sex directly and indirectly. *Psychological Science*, *16*, 890–897.

Jonas, E., Schulz-Hardt, S., Frey, D., & Thelen, N. (2001). Confirmation bias in sequential information search after preliminary decisions: An expansion of dissonance theoretical research on selective exposure to information. *Journal of Personality and Social Psychology*, *80*, 557–571.

Kawakami, K., Amodio, D. M., & Hugenberg, K. (2017). *Intergroup perception and cognition: An integrative framework for understanding the causes and consequences of social categorization (Advances in Experimental Social Psychology*, 1st ed., Vol. *55*). Amsterdam, the Netherlands: Elsevier.

Krosch, A. R., & Amodio, D. M. (2014). Economic scarcity alters the perception of race. *PNAS*, *111*, 9079–9084.

Levin, D. T., & Banaji, M. R. (2006). Distortions in the perceived lightness of faces: The role of race categories. *Journal of Experimental Psychology*, *135*, 501–512.

Michel, C., Corneille, O., & Rossion, B. (2007). Race categorization modulates holistic encoding. *Cognitive Science*, *31*(5), 911–924.

Michel, C., Corneille, O., & Rossion, B. (2010). Holistic face encoding is modulated by perceived face race: Evidence from perceptual adaptation. *Visual Cognition*, *18*(3), 434–455.

Miller, D. T., & Turnbull, W. (1986). Expectancies and interpersonal processes. *Annual Review of Psychology*, *37*, 233–256.

Norton, A. T., & Herek, G. M. (2013). Heterosexuals' attitudes toward transgender people: Findings from a national probability sample of U.S. adults. *Sex Roles*, *68*, 738–753.

Ratner, K. G., & Amodio, D. M. (2013). Seeing "us vs. them": Minimal group effects on the neural encoding of faces. *Journal of Experimental Social Psychology*, *49*, 298–301.

Schacter, D., Gilbert, D., Wegner, D., & Hood, B. (2011). *Psychology: European Edition*. Basingstoke, UK: Palgrave Macmillan.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2013). Life after p-hacking. *Advances in Consumer Research*, *41*, 775.

Stern, C., & Rule, N. O. (2017). Physical androgyny and categorization difficulty shape political conservatives' attitudes toward transgender people. *Social Psychological and Personality Science*, *9*(1), 24–31.

Stolier, R. M., & Freeman, J. B. (2017). A neural mechanism of social categorization. *Journal of Neuroscience*, *37*, 5711–5721.

White, C. R., & Jenkins, D. D. (2017). College students' acceptance of trans women and trans men in gendered spaces: The role of physical appearance. *Journal of Gay and Lesbian Social Services*, *29*, 41–67.

Wittlin, N. M., Dovidio, J. F., Lafrance, M., & Burke, S. E. (2018). About face: Memory for transgender versus cisgender targets' facial appearance. *Journal of Experimental Social Psychology*, *78*, 77–92.

Worthen, M. G. (2013). An argument for separate analyses of attitudes toward lesbian, gay, bisexual men, bisexual women, MtF and FtM transgender individuals. *Sex Roles*, *68*, 703–723.

Xiao, Y. J., Coppin, G., & Van Bavel, J. J. (2016). Perceiving the world through group-colored glasses: A perceptual model of intergroup relations. *Psychological Inquiry*, *27*, 255–274.

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