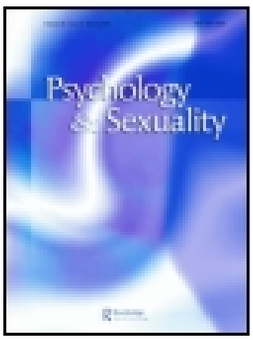

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When intergroup contact is uncommon and bias is strong: the case of anti-transgender bias

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ABSTRACT

In contrast to the centrality of 'coming out' in the gay rights movement, transgender people may be less likely to disclose their transgender status due to the severity of anti-transgender stigma, structural factors and differences in how transgender status and sexual identity are expressed. As a consequence, intergroup contact with transgender people may be less common than gay contact, which may limit its effectiveness. In Study 1 (N = 174), transgender contact was much less frequent than gay contact, and transgender contact frequency was not associated with anti-transgender bias, although more positive transgender contact was associated with lower anti-transgender bias, and gay contact frequency was also independently associated with lower anti-transgender bias. In Study 2 (N = 277), greater transgender 'media contact' was associated with increased empathy for transgender people and decreased anti-transgender bias. In addition, several participants left unsolicited anti-transgender comments at the end of the study, and these participants tended to have less transgender contact and were higher in right-wing authoritarianism and social dominance orientation. Our results suggest that increasing contact with the LGBT community and increasing media representations of transgender people may decrease anti-transgender bias. Future directions building on these results are discussed.

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KEYWORDS
Transgender; prejudice; intergroup contact; right-wing authoritarianism; social dominance orientation; intergroup emotions

Transgender rights and transgender visibility have recently shifted from a rarely discussed issue to a major issue of public and political debate (Da Silva, 2018; Tatum, 2018). There is increasing potential for contact between transgender people and cisgender people, both interpersonally (e.g. meeting a transgender co-worker) and through the media (e.g. transgender characters on television). What impact might transgender contact have on anti-transgender bias? The current literature is mixed, suggesting that transgender contact could be either relatively effective or relatively ineffective at decreasing bias. Although intergroup contact is generally associated with decreased intergroup bias, transgender contact may be relatively infrequent or lacking qualities that make contact effective at decreasing bias. Therefore, we examine how frequency and quality of transgender contact relate to anti-transgender bias and compare these results with a relatively similar group, gay men and lesbian women. For the purpose of this manuscript, we define 'transgender' as someone whose gender identity does not correspond to that person's biological sex assigned at birth, and 'cisgender' as someone whose gender identity corresponds to that person's biological sex assigned as birth. Following APA guidelines (American Psychological Association, 2010), 'gay men' refers men who are exclusively attracted to men, 'lesbian women' refers to women who are

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Supplemental data for this article can be accessed here.

exclusively attracted to women, 'gay' refers to both gay men and lesbian women and 'bisexuals' refers to men and women who are attracted to both men and women.

Allport (1954) argued that intergroup contact may reduce prejudice, particularly under ideal conditions (i.e. equal status, common goals, intergroup cooperation and support from authorities). Intergroup contact reduces prejudice towards a wide range of outgroups, even when ideal conditions are not met (Hodson & Hewstone, 2013; Pettigrew & Tropp, 2006). More frequent contact with gays and lesbians is associated with lower anti-gay bias and more support for gay rights (e. g. Herek & Capitanio, 1996; Herek & Glunt, 1993; Hodson, Harry, & Mitchell, 2009; Hoffarth & Hodson, 2016; MacInnis, Page-Gould, & Hodson, 2017). Indeed, of any target group examined in a large meta-analysis, intergroup contact had the strongest effect on improving attitudes towards gays and lesbians (Pettigrew & Tropp, 2006). There are many similarities between anti-gay and anti-transgender prejudice. Greater anti-gay prejudice is correlated with anti-transgender prejudice (Norton & Herek, 2013). Sexual identity and a transgender status are both to some extent concealable, and therefore, both sexual minorities and transgender people may have control over when they disclose their group membership. In addition, the factors underlying anti-gay and anti-transgender prejudice similarly involve perceived violation of gender roles and traditional moral beliefs (Adams, Nagoshi, Filip-Crawford, Terrell, & Nagoshi, 2016; Norton & Herek, 2013). Therefore, like gay contact, transgender contact may be effective in decreasing anti-transgender bias.

However, it is also possible that the effects of transgender contact on decreasing anti-transgender bias are quite limited. First, transgender contact may be too infrequent to exert effects. Transgender people make up less than 1% of the population by most estimates, whereas gays, lesbians and bisexuals are estimated to be 2–5% of the population combined (see Flores, Herman, Gates, & Brown, 2016; Gates, 2011). In addition, transgender people may be less likely than sexual minorities to publicly disclose their status. Many transgender people describe themselves in terms of their gender (e.g. man, woman) without specifying whether they are trans or cisgender and may not publicly disclose that they are transgender, despite a consistent internal sense of their gender that is inconsistent with their assigned gender (Levitt & Ippolito, 2014; Tate, 2014; Tate, Youssef, & Bettergarcia, 2014). Indeed, many (but not all) transgender people attempt to 'pass' as their identified gender to encourage others to recognise their gender identity and avoid stigma and discrimination (Billard, in press). Therefore, many cisgender people may interact with someone who is transgender without realising it, especially if the transgender person is able to 'pass' as a man or woman. Disclosure of one's status as a member of a stigmatised group involves a weighing of the risks and benefits of disclosure (Alderson, 2003, 2013; Hoffarth & Bogaert, 2017), and publicly disclosing transgender status is particularly risky. There tends to be less legal protection for transgender people (Transgender Law Center (2017), and anti-transgender prejudice and discrimination are particularly severe (James et al., 2016), meaning that transgender people have many reasons to not disclose their transgender status.

How might the infrequency of contact with transgender people relate to lower effectiveness of transgender contact? Only meeting a transgender person in passing may be inadequate to change attitudes. In addition, whereas frequent contact with an outgroup (e.g. cross-group friendships) is associated with decreased bias, casual encounters with a stranger from an outgroup may do little to decrease intergroup bias. In their model of intergroup interaction and intergroup contact, MacInnis and Page-Gould (2015) argue that there is a 'contact threshold' such that intergroup contact tends to be associated with negative emotions (e.g. anxiety) and is ineffective at decreasing prejudice at very low frequency of contact (and indeed, can even increase prejudice). Positive contact effects then emerge at intermediate levels of intergroup contact when intergroup emotions tend to improve (e.g. decreased intergroup anxiety, increased intergroup empathy), leading to decreased intergroup bias.

However, it may be possible to detect effects of transgender contact even if it is relatively infrequent. For instance, knowing someone who is asexual is associated with lower anti-asexual

prejudice (Hoffarth, Drolet, Hodson, & Hafer, 2016), despite asexuals comprising only a small per cent of the population. In addition, contact with bisexuals decreases anti-bisexual prejudice (Lytle, Dyar, Levy, & London, 2017; Mohr & Rochlen, 1999), even though bisexuals are less likely than gay men and lesbian women to publicly disclose their sexual identity (McLean, 2007) or adopt a specific sexual identity label (Diamond, 2006, 2014).

The literature on transgender contact has produced mixed results. In a Hong Kong sample, 31% reported some contact with transgender people, and those reporting transgender contact reported lower anti-transgender prejudice and more support for transgender rights (King, Winter, & Webster, 2009). Similarly, in a British sample, few reported any intergroup contact with transsexual (14%), transvestite (11%) or transgender (7%) people, yet those with contact with at least one member of these groups were less opposed to transgender rights (Tee & Hegarty, 2006); these results are consistent with the 'mere friend effect' (Hodson et al., 2009). However, the Tee and Hegarty results were no longer significant after accounting for right-wing authoritarianism (RWA) and other individual differences. In addition, a US study found that only 11% of participants knew a transgender person, and knowing a transgender person was not a significant predictor of anti-transgender bias (Flores, 2015). One limitation to the current body of research is that transgender intergroup contact has only been measured as a dichotomous measure (i.e. either the presence or absence of any contact with transgender people). Moreover, the intergroup contact literature often accounts for two aspects of intergroup contact: contact *frequency* and contact *quality* (Hodson, Costello, & MacInnis, 2013). Generally speaking, more frequent and more positive contact are associated with decreased outgroup bias (Pettigrew & Tropp, 2006). Therefore, we measure both frequency and quality of transgender contact.

Even if transgender contact is infrequent, however, there may be alternative ways to decrease anti-transgender prejudice. Past research suggests that contact with one group generalises to lower prejudice against similar groups, referred to as *secondary transfer* (Harwood, 2011; Lolliot et al., 2013; Pettigrew, 2009). For instance, Flores (2015) found that knowing someone who is gay or lesbian was associated with lower anti-transgender bias. Second, even if transgender contact is infrequent, the quality of the contact (e.g. positivity vs. negativity) may have an impact such that higher quality transgender contact might be associated with lower anti-transgender bias, compensating for low frequency of contact. Finally, 'indirect' forms of contact may decrease anti-transgender bias. For example, transgender media contact (i.e. seeing transgender characters on television) may decrease anti-transgender bias. Greater media contact (or 'para-social contact') tends to be associated with decreased prejudice (Aboud & Brown, 2013; Ortiz & Harwood, 2007; Schippa, Gregg, & Hewes, 2005). Galinec and Korajlija (2017) found that watching a video about a transgender person's transition decreased anti-transgender bias, and McDermott et al. (2018) found that an intervention involving both biographical media contact and a panel presentation reduced anti-transgender bias. In contrast, Solomon and Kurtz-Costes (2018) found that experimental exposure to negative media portrayals of transgender people increased anti-transgender bias but that positive media portrayals of transgender people had no effect. Flores et al. (2018) found mixed results, in that information about transgender issues accompanied by a picture of a transgender person decreased anti-transgender bias but did not increase support for transgender rights. We build on this body of research by examining the impact of transgender media contact in one's daily life.

The present research

In Study 1, we examined the relation between transgender contact and anti-transgender prejudice. For comparison purposes, we also examine how gay contact related to transgender contact and anti-transgender prejudice. In Study 2, we also examined the relation between transgender contact and emotions (e.g. empathy) towards transgender people and examined transgender media contact as a potential alternative to real-world contact. Consistent with the intergroup contact literature, we predicted that more frequent and more positive transgender contact would be

associated with lower anti-transgender prejudice. Consistent with the secondary transfer effect literature (Pettigrew, 2009), we also predicted that more frequent and more positive gay contact would be associated with lower anti-transgender prejudice. Following the media contact literature (see Aboud & Brown, 2013; Sharples, 2013), we also predicted that greater transgender media contact would be associated with lower anti-transgender prejudice.

Given that those ideologically opposed to transgender people would avoid contact (Tee & Hegarty, 2006), we also accounted for individual differences relevant to contact avoidance. Right-wing ideologies are particularly important to account for, as those ideologically opposed to a group tend to avoid contact (Altemeyer, 1998; Hodson, 2011; Hodson et al., 2009; Pettigrew, 1998). RWA and social dominance orientation (i.e. SDO) are two primary aspects of right-wing ideology (Jost, Glaser, Kruglanski, & Sulloway, 2003) and are associated with greater anti-transgender prejudice (Adams et al., 2016; Makwana et al., in press; McDermott et al., 2018; Tebbe, Morandi, & Ege, 2014). Therefore, we measured RWA and SDO to account for potential individual differences in contact avoidance.

Data analytic strategy

We analysed data using Mplus version 7.0 (Muthén & Muthén, 1998–2012), with full-information maximum likelihood to estimate missing data. Robust standard errors were used when calculating *p* values. For correlations, all variables indicated by 3 or more items were modelled using latent variable modelling.[1] Manifest variables were used for mean-level comparisons (e.g. gay contact frequency vs. transgender contact frequency).

Study 1

Method

Participants

A heterosexual cisgender sample of Canadian undergraduates was recruited from the Psychology Department participant pool (N = 174, Mage = 21.90, SD = 15.25, 84% female, 78% White).[2]

Materials

Ideologies

RWA (12-item, 7-point measure, α = .88). Participants indicated the extent to which they support tradition (vs. social change) and submit to authority figures, with higher scores indicating greater RWA (Altemeyer, 1998). A sample item reads 'Our country will be destroyed someday if we do not smash the perversions eating away at our moral fibre and traditional beliefs'.

SDO (16-item, 7-point measure, α = .90). Participants indicated the extent to which they support group dominance and inequality (vs. social equality), with higher scores indicating greater SDO (Pratto, Sidanus, Stallworth, & Malle, 1994). A sample item reads 'If certain groups of people stayed in their place, we would have fewer problems'.

Contact

Transgender contact frequency (4-item, α = .89). Participants indicated how frequently they interact with transgender people in their daily life (modified from Hodson et al., 2009; Voci & Hewstone, 2003). A sample item reads 'How frequently do you have contact with transgender men and women?' Participants were provided with our operational definition of 'transgender' at the top of the page before completing this measure.

Transgender contact quality (3-item, α = .70). Participants indicated the extent to which their contact with transgender people has been pleasant, cooperative and superficial/insincere (reverse-coded), with

higher scores indicating more positive (vs. negative) transgender contact (modified from Hodson et al., 2009; Voci & Hewstone, 2003).

Gay contact frequency (4-item, α = .82). Participants indicated how frequently they interact with gay men and lesbian women in their daily life (following Hodson et al., 2009).

Gay contact quality (3-item, α = .77). Participants indicated the extent to which their contact with gay men and lesbian women has been pleasant, cooperative and superficial/insincere (reverse-coded), with higher scores indicating more positive (vs. negative) gay contact (following Hodson et al., 2009).

Bias measures

Transphobia (17-item, α = .94). Participants completed the revised and abbreviated form of the Genderism and Transphobia Scale (Tebbe et al., 2014; based on Hill & Willoughby, 2005). Higher scores reflect more negative attitudes and greater fear-based reactions towards transgender people[3] (e.g. 'women who see themselves as men are abnormal').

Attitude thermometers. Participants completed separate measures indicating how much they like (vs. dislike) transgender men and how much they like (vs. dislike) transgender women, on 0–100 scales (inter-item $r = .99$), following Hoffarth and Hodson (2016). We also measured like (vs. dislike) of gay men or lesbian women using similar scales (inter-item $r = .98$).

Discrimination intentions. Participants completed two separate items indicating their willingness to rent to or hire a transgender person on 11-point scales (0 = not at all willing, 10 = very willing). Scores were reverse-coded and averaged (inter-item $r = .83$), with higher scores indicating greater anti-transgender discrimination intentions. We also measured discrimination intentions towards gays and lesbians using a similar scale (inter-item $r = .82$).

Results

Comparisons between transgender and gay contact and bias

First, we conducted paired-sample *t*-tests with the manifest variables to determine whether mean levels of contact frequency, contact quality, liking and discrimination intentions differed between transgender and gay targets. On average, transgender contact frequency ($M = 1.53$, SD = .86) was notably lower than gay contact frequency ($M = 4.36$, SD = 1.87), a very large effect size (mean difference = 2.82, $t(171) = 19.89$, $d = 2.07$, $p < .001$). Most participants had very low levels of transgender contact, and the distribution of transgender contact frequency was extremely skewed (skewness coefficient = 6.59) and leptokurtic (kurtosis coefficient = 53.08).[4] In contrast, there was a high level of variability in gay contact (see Figure 1). Transgender contact quality ($M = 5.16$, SD = 1.30) also tended to be less positive than gay contact quality ($M = 5.67$, SD = 1.09), a medium effect size (mean difference = −.51, $t(132) = -6.23$, $d = .43$, $p < .001$). Following Norton and Herek (2013), there tended to be greater expressions of bias against transgender (vs. gay people). On the attitude thermometers, liking of transgender people ($M = 71.35$, SD = 29.04) was lower than liking of gay people ($M = 76.02$, SD = 26.45), representing a small effect (mean difference = 4.68, $t(171) = 5.25$, $d = .17$, $p < .001$). Anti-transgender discrimination intentions ($M = 2.43$, SD = 2.25) tended to be higher than anti-gay discrimination intentions ($M = 2.04$, SD = 1.88), representing a small effect (mean difference = .39, $t(172) = 4.70$, $d = .19$, $p < .001$).

Relations among variables

Next, bivariate correlations were calculated among all relevant variables (see Table 1). Both RWA and SDO were associated with more negative transgender attitude thermometer scores ($rs = -.44$, −.45, respectively), greater transphobia ($rs = .80$, .54, respectively) and greater anti-transgender discrimination intentions ($rs = .48$, .36, respectively), all $ps < .01$, see Table 1. Following the contact literature, more positive transgender contact was associated with more positive transgender attitude thermometer scores ($r = .58$), lower transphobia ($r = -.56$) and lower anti-transgender

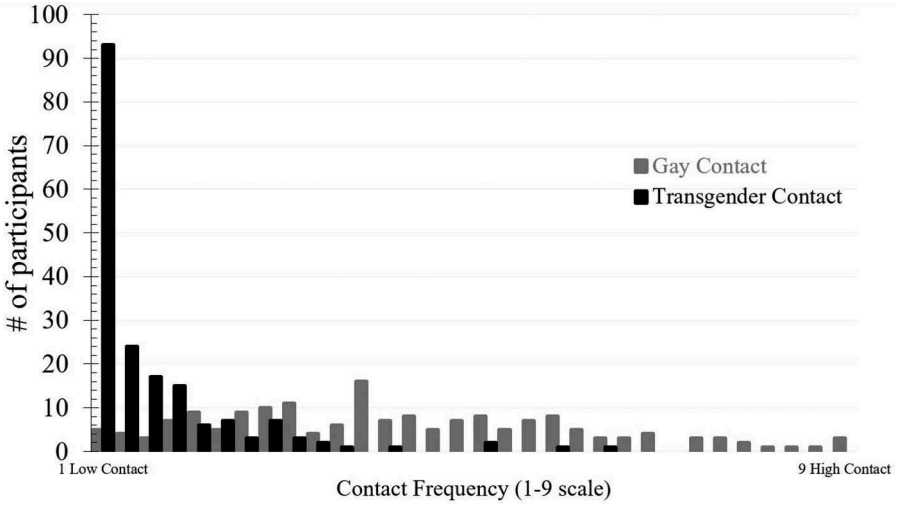

Figure 1. Frequency distributions of gay and transgender contact frequency, Study 1.

Table 1. Bivariate correlations (Study 1, Canadian University sample).

	1	2	3	4	5	6	7	8	9	10
Right-wing authoritarianism	–									
Social dominance orientation	.43***	–								
Trans contact frequency	−.03	−.11	–							
Trans contact quality[1]	−.46***	−.54**	.25*	–						
Gay contact frequency	−.23**	−.24**	.22**	.43***	–					
Gay contact quality	−.37***	−.46***	.11	.73***	.55***	–				
Transphobia	.80***	.54***	−.08	−.56***	−.35***	−.49***	–			
Trans attitude thermometer	−.44***	−.45***	.03	.58***	.34***	.44***	−.70***	–		
Trans discrimination intentions	.48***	.36**	.05	−.51***	−.31***	−.45***	.58***	−.81***	–	
Gay attitude thermometer	−.45***	−.35***	.04	.50***	.27***	.44***	−.63***	.83***	−.76***	–
Gay discrimination intentions	.46***	.29**	−.03	−.39***	−.24***	−.42***	.55***	−.72***	.82***	−.91***

$N = 172$. [1]$N = 123$ for trans contact quality due to missing data. *$p < .05$; **$p < .01$; ***$p < .001$. All variables indicated by three or more items were modelled using latent variable modelling.

discrimination intentions ($r = -.51$), all ps $< .001$. However, frequency of transgender contact was not associated with the transgender attitudes thermometer ($r = .03$, $p = .793$), transphobia ($r = -.08$, $p = .402$) or anti-transgender discrimination intentions ($r = .05$, $p = .701$). There was also a secondary transfer of gay contact to reductions in anti-transgender bias. That is, more *frequent* or more *positive* gay contact was associated with more positive transgender attitude thermometer scores ($rs = .34$, $.44$, respectively), lower transphobia ($r = -.35$, $-.49$, respectively) and lower anti-transgender discrimination intentions ($r = -.31$, $-.45$, respectively), all ps $< .001$.

We next examined whether gay or transgender contact was associated with anti-transgender bias when accounting for RWA and SDO. These results were largely consistent with the bivariate correlations. Transgender contact frequency was not associated with any of the indicators of anti-transgender bias when accounting for RWA and SDO (all ps $> .35$). In addition, more positive transgender contact was associated with more positive transgender attitude thermometer scores ($\beta = .40$, $p = .002$) and lower anti-transgender discrimination intentions ($\beta = -.41$, $p < .001$) but was not uniquely associated with transphobia ($\beta = -.14$, $p = .198$). When accounting for RWA and SDO, greater gay contact frequency was associated with more positive attitude thermometer scores ($\beta = .15$, $p = .026$), lower transphobia ($\beta = -.14$, $p = .029$) and lower anti-transgender discrimination intentions ($\beta = -.19$, $p = .004$). Further, when accounting for RWA, SDO and transgender contact frequency, gay contact frequency was still uniquely associated with more positive attitude thermometer scores ($\beta = .22$,

p = .004), lower transphobia (β = −.14, p = .037) and lower anti-transgender discrimination intentions (β = −.21, p = .001). Similarly, when accounting for RWA and SDO, more positive gay contact was associated with more positive attitude thermometer scores (β = .26, p = .005), lower transphobia (β = −.17, p = .008) and lower anti-transgender discrimination intentions (β = −.28, p = .001). In contrast to gay contact frequency, when we also accounted with transgender contact quality, gay contact quality was not uniquely associated with the transgender attitude thermometer (β = −.14, p = .418), transphobia (β = −.15, p = .170) or anti-transgender discrimination intentions (β = .09, p = .606).

Study 1 discussion

Some of our findings were consistent with the literature. Specifically, RWA, SDO and less positive transgender contact quality were significantly associated with greater anti-transgender bias. However, transgender contact frequency was not related to anti-transgender bias, likely due to very infrequent transgender contact in this sample (see Figure 1). About half of the sample reported almost no contact with transgender people, and virtually all scored below the scale midpoint. Consistent with the secondary transfer hypothesis (Pettigrew, 2009; see also Hodson et al., 2013), more frequent gay contact was associated with lower anti-transgender bias, even when accounting for RWA and SDO. However, gay contact quality was not associated with anti-transgender bias when accounting for transgender contact quality. The differences in these findings are likely because gay and transgender contact quality were strongly correlated (r = .73), whereas gay and transgender contact frequency were more modestly correlated (r = .22). Overall, transgender contact is much less frequent and somewhat lower quality than gay contact, and there is slightly greater anti-transgender bias than anti-gay bias, on average.

The university sample used in Study 1 may underestimate levels of anti-transgender bias in the Canadian population because the sample was disproportionately (84%) female, and men express more anti-transgender bias than women (e.g. Adams et al., 2016). In addition, although the sample size for Study 1 had 80% power to detect a correlation of .21 (the average correlation in social psychology, see Richard, Bond, & Stokes-Zoota, 2003), it may not be large enough to detect small effects. Therefore, we collected an online community sample (through Amazon Mechanical Turk) in Study 2 with a somewhat larger sample. In Study 2, we focus on transgender contact and anti-transgender bias and therefore do not include measures of gay contact or anti-gay bias. In addition, we expand on Study 1 by assessing transgender *media* contact as a potential alternative for real-world contact. We also examine how intergroup contact with transgender people relates to intergroup emotions towards transgender people, specifically anxiety, empathy and disgust. In Study 2, we focus on contact with and attitudes towards transgender people.

Study 2

Method

Participants

A US sample was recruited through Amazon Mechanical Turk (i.e. Mturk), a widely used online recruitment pool (Burhmester, Kwang, & Gosling, 2011). A heterosexual cisgender US sample was recruited (N = 277, Mage = 35.42, SD = 12.29, 49% female, 85% White/Caucasian).[5]

Materials

Ideologies and contact

Following Study 1, we measured RWA (α = .94) and SDO (α = .96), as well as transgender contact frequency (α = .91) and quality (α = .74). As in Study 1, participants were provided with our

operational definition of 'transgender' before completing the transgender contact frequency measure.

In addition, we also measured *transgender media contact*. Participants indicated how frequently they watched three popular television shows with prominent transgender characters (i.e. 'Orange is the New Black', 'Transparent' and 'I Am Cait'), from 1 (never) to 5 (I am a regular viewer), as well as a single item indicating how frequently they see transgender characters on television in general, from 1 (never) to 5 (often) (4 items, α = .63), with higher scores indicating greater transgender media contact.

Bias measures

Following Study 1, we also measured *transphobia* (α = .97), *transgender attitude-thermometer* (inter-item r = .98) and *transgender discrimination intentions* (inter-item r = .88).

Intergroup emotions

Trans anxiety (10-item, α = .94). Participants indicated how they would feel if they interacted with a group of transgender people (e.g. 'I would feel awkward', 'I would feel suspicious') (Stephan & Stephan, 1985; modified from Hoffarth & Hodson, 2016; Study 1), with higher scores indicating greater transgender anxiety.

Transgender empathy (6-item, α = .97). Participants indicated how strongly they felt sympathy, compassion, softheartedness, warmness and moved by transgender people (Batson et al., 1997; modified from Hodson, Choma, & Costello, 2009), with higher scores indicating great transgender empathy.

Transgender disgust (8-item, α = .91). Participants indicated whether they would experience disgust after coming into contact with a transgender person (e.g. 'I would feel disgusted if a transgender person invaded my personal space.'), with higher scores indicating greater transgender disgust. This measure was modified from a previous eight-item measure of intergroup disgust sensitivity (Hodson et al., 2013).

After completing all the measures, participants were asked to indicate the purpose of the study, and any other thoughts about the study.

Results

Bivariate correlations among the variables were then examined using latent variables. As in Study 1, greater RWA and SDO were associated with greater transphobia (rs = .75, .53), less positive transgender attitude thermometer scores (rs = −.56, −.47) and greater anti-transgender discrimination intentions (rs = .61, .56), all ps < .001, see Table 2. In addition, following Study 1, higher quality transgender contact was associated with lower transphobia (r = −.71), more positive transgender attitude thermometer scores (r = .72) and lower anti-transgender discrimination intentions (r = −.71), all ps < .001, see Table 2.

We next examined transgender contact frequency. Consistent with Study 1, transgender contact frequency tended to be very infrequent (M = 1.95 on a 1–9 scale), and the distribution of transgender contact frequency was skewed (skewness coefficient = 2.13) and leptokurtic (kurtosis coefficient = 4.73), though violations of normality were less extreme than in Study 1. In contrast to Study 1, but consistent with the broader contact literature (e.g. Pettigrew & Tropp, 2006), more frequent transgender contact was associated with more positive transgender attitude thermometer scores (r = .18, p = .001) and lower anti-transgender discrimination intentions (r = −.11, p = .041). However, transgender contact frequency was not related to transphobia (r = −.08, p = .210), see Table 2. In addition, transgender media contact was associated with lower transphobia (r = −.18, p = .027) and higher transgender attitude thermometer scores (r = .26, p < .001), though transgender media contact was unrelated to anti-transgender discrimination intentions (r = −.11, p = .133).

Table 2. Bivariate correlations (Study 2, American Mechanical Turk sample).

	1	2	3	4	5	6	7	8	9	10
Right-wing authoritarianism	–									
Social dominance orientation	.57***	–								
Trans contact frequency	−.03	.11	–							
Trans contact quality[1]	−.44***	−.46***	.32***	–						
Trans media exposure	−.08	.00	.26**	.20*	–					
Trans anxiety	.52***	.53***	−.03	−.72***	−.08	–				
Trans empathy	−.44***	−.51***	.21***	.65***	.21**	−.63***	–			
Trans disgust	.73***	.60***	−.05	−.70***	−.12	.79***	−.61***	–		
Transphobia	.75***	.53***	−.08	−.71***	−.18*	.78***	−.65***	.99***	–	
Trans attitude thermometer	−.56***	−.47***	.18**	.72***	.26***	−.69***	.76***	−.73***	−.79***	–
Discrimination intentions	.61***	.56***	−.11*	−.71***	−.11	.74***	−.66***	.81***	.81***	−.79***

$N = 277$. [1]$N = 246$ for trans contact quality due to missing data. *$p < .05$; **$p < .01$; ***$p < .001$. All variables indicated by three or more items were modelled using latent variable modelling.

Greater RWA and SDO were associated with greater transgender anxiety (*r*s = .52, .53), lower transgender empathy (*r*s = −.44, −.51) and greater transgender disgust (*r*s = .73, .60), all *p*s < .001, see Table 2. Higher quality transgender contact was associated with lower transgender anxiety ($r = -.72$), greater transgender empathy ($r = .65$) and lower transgender disgust ($r = -.70$), all *p*s < .001, see Table 2. More frequent transgender contact was associated with greater transgender empathy ($r = .21$, $p < .001$) but was unrelated to transgender anxiety or disgust, see Table 2. Likewise, greater transgender media contact was associated with greater transgender empathy ($r = .21$, $p = .004$) but was also unrelated to anxiety or disgust, see Table 2.[6]

Analyses of open-ended anti-transgender comments

At the end of the study, 14 participants left open-ended anti-transgender comments (see Online Supplemental for details about coding). Participants who left anti-transgender comments were higher in RWA ($d = 1.28$) and SDO ($d = 1.31$) and had less frequent ($d = -.42$) and lower quality ($d = -1.10$) transgender contact (all *p*s < .009) but did not differ in terms of transgender media contact, see Table 3. Participants who left anti-transgender comments were also lower in transgender empathy ($d = -1.10$, $p = .005$) and higher in transgender disgust ($d = 1.35$, $p = .019$) but did not differ in terms of transgender anxiety, see Table 3. Finally, participants who left anti-transgender comments had greater transphobia ($d = 1.28$), more negative transgender thermometer scores ($d = .99$) and greater anti-transgender discrimination intentions ($d = 1.50$, all *p*s < .002). We then conducted a logistic regression with making an anti-transgender comment as the dichotomous outcome, and RWA, SDO, transgender contact frequency, transgender contact quality and transgender media contact as simultaneous predictors. Higher SDO was uniquely associated with a

Table 3. Differences between participants who writing an open-ended anti-transgender comment (vs. those who did not).

	Group means				
Variable	No anti-trans comment	Anti-trans comment	*t*	*d*	*p*
Right-wing authoritarianism	2.92	4.92	4.67	1.28	<.001
Social dominance orientation	2.56	4.49	4.63	1.31	<.001
Trans contact frequency	1.99	1.39	−2.99	−.42	.007
Trans contact quality	4.61	2.94	−3.21	−1.10	.008
Trans media contact	1.84	1.66	−.87	−.24	.401
Trans anxiety	3.05	3.71	.93	.43	.381
Trans empathy	4.76	2.78	−3.42	−1.10	.005
Trans disgust	2.80	4.48	2.98	1.35	.019
Transphobia	2.94	5.14	4.89	1.28	<.001
Trans attitude thermometer	57.99	25.86	−4.06	.99	.001
Anti-trans discrimination intentions	3.34	7.82	6.13	1.50	<.001

$N = 266$. Trans: transgender. Due to unequal sample sizes, equal variances were not assumed.

greater probability of leaving an anti-transgender comment (b = .65, SE = .41, Wald = 5.19, p = .023), whereas RWA (b = .17, Wald = .37, p = .541), transgender contact frequency (b = −.25, Wald = .49, p = .483), transgender contact quality (b = −.23, Wald = .57, p = .449) and transgender media contact (b = −.20, Wald = .13, p = .717) were not unique predictors.

General discussion

Intergroup contact provides promise for decreasing intergroup bias and discrimination, with a large literature indicating that more frequent and more positive intergroup contact is associated with decreased bias (Hodson & Hewstone, 2013; Pettigrew & Tropp, 2006). However, transgender contact may be relatively uncommon because transgender people make up a smaller percentage of the population and may not frequently disclose their transgender status. Transgender contact may have little impact on anti-transgender bias if it is very infrequent (MacInnis & Page-Gould, 2015) or may be statistically undetectable due to very low variability. Yet, we found fairly consistent evidence that more positive transgender contact is associated with less anti-transgender bias. We found mixed evidence for the effectiveness of transgender contact frequency in terms of predicting anti-transgender bias, with an effect of transgender contact frequency only found in one of two studies, and only for some outcomes (e.g. attitudes and empathy) but not others (e.g. transphobia, anxiety). In two samples, we find that transgender contact tends to be very infrequent, and in Study 1, transgender contact frequency was much lower than gay contact frequency. Transgender contact frequency may still be too infrequent to be associated with decreased anti-transgender bias to the same extent that gay contact frequency is associated with decreased anti-gay bias. These findings may be interpreted as suggesting that transgender contact is not as effective as contact with other groups (e.g. gays and lesbians).

Yet, there is potential for contact to be an effective means of decreasing anti-transgender bias. The generally strong correlations between transgender contact quality and decreased anti-transgender bias suggest that promoting positive contact with transgender people may be an effective strategy for decreasing anti-transgender bias. Contact with transgender people may be very difficult to promote due to a combination of high levels of prejudice against transgender people, structural barriers that discourage transgender people from being open about being transgender (e.g. lack of anti-discrimination laws) and the relatively small percentage of the population that identifies as transgender. Researchers should consider interventions that potentially address these barriers, including more indirect forms of transgender contact, including transgender media contact, which was associated with lower anti-transgender bias in Study 2. Thus, consistent with some of the experimental research on increasing transgender visibility (Galinec & Korajlija, 2017; McDermott et al., 2018), increasing the visibility of transgender people and characters in the media may decrease anti-transgender bias, although negative portrayals on transgender people may have the opposite effect (see Solomon & Kurtz-Costes, 2018). Given that gay contact was associated with decreased anti-transgender bias in Study 1, promoting greater contact with the LGBT community in general may promote decreases in anti-transgender bias. Sexual minorities tend to be more open about their sexual identity at work when they perceive that their coworkers and managers would be more accepting (Griffith & Hebl, 2002; Sandfort, Bos, & Vet, 2006). Thus, one way to decrease anti-transgender bias would be to make sexual minorities and transgender people feel comfortable openly discussing their stigmatised group memberships by designing workplace policies that are inclusive, accepting and discourage discrimination against both sexual minorities and transgender people.

In addition, an intervention requiring cisgender people to reflect on the fact that they likely interact with more transgender people in their daily lives than they realise may decrease anti-transgender bias. On a similar note, imagined contact (i.e. imagining interacting with transgender people) may be an effective strategy. Imagined contact tends to be associated with both decreased prejudice (Crisp, Miles, & Husnu, 2014; Turner, Crisp, & Lambert, 2007) and increased contact

intentions (Turner, West, & Christie, 2013). In addition, imagined contact with sexual minorities may be more effective among those who lack real-world contact with the group (Hoffarth & Hodson, 2016), suggesting imagined transgender contact may be particularly effective in contexts in which real-world contact is uncommon.

Unexpectedly, several participants expressed open-ended, anti-transgender comments at the end of Study 2. Despite having run multiple Mturk studies on intergroup topics, we have rarely observed derogatory comments at the end of studies. Predictors of anti-transgender bias (e.g. contact, RWA, SDO) also tended to predict making an anti-transgender comment. Interestingly, these finding may reflect the particularly strong and severe levels of bias expressed towards transgender people relative to other groups. These findings may also reflect how transgender rights have become a central issue of debate and 'pushback' on the political right. The data for Study 2 were collected in February 2016, when transgender 'bathroom bills' were being hotly debated in many US states (Madhani, 2016). There was also a particularly contentious presidential election campaign taking place in the United States during this time period, with a presidential candidate (Donald Trump) who made intergroup comments that many regarded as insensitive, which may have encouraged the use of derogatory language.

It should be noted that although we account for potential confound of transgender contact effects (i.e. RWA, SDO), all results are correlational. Experimental research (e.g. using an imagined contact paradigm) may fruitfully build on this research. In addition, although we used both a student sample in Canada and an online sample in the USA, the samples are not representative and may not generalise to other domains. Research in locations where transgender contact would be more frequent (e.g. a campus with a high percentage of transgender students) may find more variability in frequency of transgender contact and find stronger evidence for a link between transgender contact frequency and anti-transgender bias. Research in locations where anti-transgender bias is very severe may also be informative. We also assessed contact frequency and contact quality towards transgender men and women as a single measure, and we only asked about transgender media exposure involving transgender women due to a lack of media representations in television shows that were both frequently watched and were considered primarily positive portrayals of transgender men. In addition, our attitude thermometers for transgender men and women were largely redundant (r = .99 in Study 1, .98 in Study 2, respectively), which may represent consistency effects and not allow for meaningful comparisons. Future research would benefit from examining potential differences between contact with and attitudes towards subsets of the transgender community (e.g. transgender men, transgender women, individuals with non-binary gender identities). For instance, participants could be randomly assigned to media representations of transgender men, transgender women and nonbinary individuals as three separate conditions.

Following the broader intergroup contact literature, we examined the potential for contact with transgender people to decrease anti-transgender bias. We found that transgender contact is much less frequent than gay contact, and perhaps as a consequence, there are only small or null effects of transgender contact frequency on anti-transgender prejudice. In addition, bias against transgender people tends to be particularly severe. Given the potential difficulties of promoting real-world transgender contact, alternative strategies (e.g. promoting contact with the broader LGBT community, media contact, imagined contact) may be fruitful avenues for reducing anti-transgender bias.

Notes

1. Scales with six or more items were modelled using three to five parcels, which were created by averaging items with similar skewness and kurtosis values.
2. An additional four non-cisgender and 24 non-heterosexual participants were excluded from the analyses.
3. Five items representing a second 'gender bashing' factor had extreme skewness and kurtosis. Almost all participants scored at the low end of the scale (M = 1.14 on a 1–7 scale), 82% of participants responded 'strongly disagree' to all five items, and the maximum observed score (4) reflected the midpoint of the scale. Therefore, the second factor is not included in the analyses.

4. Due to the skewed distribution of the transgender contact frequency variable, we also ran analyses with a Log10-transformed transgender contact frequency variable, in both Study 1 and Study 2. The results were nearly identical regardless of which version of the variable was used.
5. Four non-cisgender and 30 non-heterosexual participants were excluded from the analyses.
6. As in Study 1, we also examined whether transgender contact frequency, quality and media contact were associated with anti-transgender bias and intergroup emotions when simultaneously accounting for RWA and SDO. The same results that were significant at a bivariate level were also significant when controlling for RWA and SDO, except that transgender contact frequency was not associated with transphobia at a bivariate level ($p = .21$), whereas transgender contact frequency was marginally associated with lower transphobia when RWA and SDO were included as predictors ($\beta = .08$, $p = .053$).

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