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Moral Foundations Partially Explain the Associations of Machiavellianism, Grandiose Narcissism, and Psychopathy With Homonegativity and Transnegativity

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ABSTRACT

People with antagonistic (or "dark") personality traits (e.g., Machiavellianism, grandiose narcissism, and psychopathy) are reportedly more racist, sexist, and xenophobic than their non-antagonistic counterparts. In the present studies (N_1 = 709; N_2 = 267), we examined whether people with antagonistic personality traits are also more likely to express homonegative and transnegative attitudes, and, if so, whether this can be explained by their endorsement of the moral foundations. We found that people high in Machiavellianism, grandiose narcissism, and psychopathy are more likely to endorse homonegative and transnegative views. The associations of Machiavellianism and psychopathy with homonegativity and transnegativity were primarily explained by low endorsement of individualizing moral foundations (i.e., care and fairness), while the association of narcissism with these beliefs was primarily explained by high endorsement of the binding moral foundations (i.e., loyalty, authority, and purity). These findings provide insight into the types of people who harbor homonegative and transnegative attitudes, and how differences in moral foundations contribute to these associations.

Introduction

According to the FBI's *Uniform Crime Reporting Program* (United States Federal Bureau of Investigation, 2019), there were 1,395 hate crimes targeting individuals because of their sexual orientation in 2019 alone. That same year, the FBI reported that there were 224 hate crimes targeting individuals solely because of their gender identities. Although acceptance of members of the LGBTQ+ community has increased over the last several decades (Greenberg et al., 2019; Poushter & Kent, 2020), it is clear that homonegativity (i.e., discriminatory attitudes toward gay people; American Psychological Association, 2020) and transnegativity (i.e., discriminatory attitudes toward transgender people; American Psychological Association, 2020) are still all too prevalent in the United States.

An important first step in designing interventions to combat prejudiced beliefs is to identify both the types of people who are more likely to endorse these beliefs and why they are more likely to endorse these beliefs. In the present study, we examine the association of the so-called "Dark Triad" traits (Paulhus & Widows, 2002) with homonegativity and transnegativity. The Dark Triad comprises three antagonistic (i.e., low agreeableness; Vize et al., 2020, 2021) personality traits: Machiavellianism (characterized by manipulativeness and cynicism; Monaghan et al., 2016); grandiose narcissism (characterized by exploitativeness, exhibitionism, and a sense of superiority; Gentile et al., 2013); and psychopathy (characterized by callousness, impulsivity, and antisociality; Paulhus et al., 2016). We also investigate whether the associations of these antagonistic personality traits with homonegativity and transnegativity can be explained, in part, by a person's levels of the moral foundations. Moral Foundations Theory states that people have evolved the capacity to learn five or more moral foundations that are expressed and endorsed differently across individuals and cultures (Graham et al., 2013). The original iteration of the theory proposed five candidates for moral foundations: care (i.e., protect and prevent harm to those most vulnerable in society), fairness (i.e., prevent cheating, freeloading, and social inequality), loyalty (i.e., be loyal to and give preferential treatment to one's ingroups), authority (i.e., defend traditions and respect legitimate authorities), and purity (i.e., prevent contamination and degradation of that considered sacred and pure). Foundations concerned with protecting and providing for individuals (i.e., care and fairness) are called *individualizing* foundations, while foundations concerned with protecting and providing for groups (i.e., loyalty, authority, and purity) are called *binding* foundations (Graham et al., 2009; see also Zakharin & Bates, 2021). Here, we examine whether homonegativity and transnegativity among those with antagonistic personality traits can be explained by their weak endorsement of the individualizing and binding moral foundations.

Background

Little research has examined the association of antagonistic personality traits with homonegativity, and, to our knowledge, no research has examined the association of these traits with transnegativity. Moreover, of the existing research that has examined the association between antagonistic personality traits and homonegativity, much of it has been inconsistent. For example, some studies have found that psychopathy is associated with aggression toward gay men (Parrott & Zeichner, 2006) and collective narcissism is associated with prejudice toward both lesbian women and gay men (Marchlewska et al., 2021). Other studies have, however, found no association between any of the antagonistic personality traits and homonegative bullying (Nappa et al., 2019) and still others have found *negative* associations (at least

when examined at the zero-order level) between antagonistic personality traits and explicit homonegative attitudes (Moor et al., 2019).

And yet, there is still good reason to suspect that antagonistic traits may be positively associated with both homonegativity and transnegativity. Numerous studies have indicated that these traits are not only associated with higher levels of generalized prejudice but also negative attitudes toward specific marginalized groups. People high in Machiavellianism and psychopathy are, for example, more likely to hold racist or racism-adjacent beliefs (Jonason, 2015; Jonason et al., 2020; Koehn et al., 2019) and are more likely to identify with white supremacist groups and alt-right ideologues (Jones, 2013; Moss & O'Connor, 2020). All three of the traits have also been linked to holding prejudicial beliefs about immigrants and asylum seekers (Anderson & Cheers, 2018; Hodson et al., 2009), as well as being linked to holding sexist beliefs (Gluck et al., 2020). To the extent that racism, xenophobia, and sexism reflect an underlying prejudicial disposition (see Aosved et al., 2009), we might expect those scoring high in Machiavellianism, narcissism, and psychopathy to also show prejudice toward gay and transgender people.

Assuming for the moment that these antagonism-related traits *are* associated with homonegativity and transnegativity, the next question is whether differences in moral foundations underlie these associations. Although existing research has not examined this exact question, numerous studies have indicated that people with antagonistic personality traits weakly endorse individualizing moral foundations, and that people who weakly endorse individualizing moral foundations are, in turn, more likely to endorse homonegative and transnegative sentiments.

With respect to the former, people scoring high on all three of the antagonistic traits—but, most consistently, Machiavellianism and psychopathy—appear to dismiss the importance of moral principles related to care (e.g., Do No Harm) and fairness (e.g., the Golden Rule; Djeriouat & Trémolière, 2014; Jonason et al., 2015; Karandikar et al., 2019; Petrović, 2019). Moreover, those high in antagonistic traits regularly engage in (or are, at least, more accepting of) behaviors that involve inflicting harm on others, including abusing one's coworkers (Wisse & Sleebos, 2016), romantic partners (Kiire, 2017), and children (Blinkhorn et al., 2016). At the same time, they also engage in a number of behaviors that would act to undermine fairness, including cheating on tests (Nathanson et al., 2006; Williams et al., 2010) and laboratory tasks (Roeser et al., 2016).

Concerning the association between the individualizing moral foundations and homonegativity, there is substantial evidence to suggest that people who dismiss concerns about care and fairness are more likely to hold homonegative attitudes (Barnett et al., 2018; Rosik et al., 2013). Likewise, people who weakly endorse care and fairness as important moral considerations are more likely to hold implicit and explicit prejudicial attitudes about gay men, believe gay men

are irrational, and favor anti-LGBTQ+ policies and programs (e.g., conversion therapy), while also being less willing to support gay-rights organizations (Monroe & Plant, 2019). Even among people who identify as lesbian, gay, or bisexual, the tendency to discount care and fairness is associated with homonegative attitudes (Barnett et al., 2020; Maciel et al., 2017). In terms of transnegativity and genderism, people who weakly endorse the individualizing moral foundations are more likely to have old-fashioned views regarding gender and report feeling less comfortable around people who identify as transgender (Hatch, 2018). People with weak individualizing moral foundations are also more likely to support anti-transgender legislation, such as "bathroom bills" that require people to use restrooms that align with the sex they were assigned at birth (Cox et al., 2022; Vanaman & Chapman, 2020).

Taken together, the existing literature indicates that those with antagonistic personality traits may be more likely to endorse homonegative and transnegative attitudes because they deemphasize individualizing moral foundations. At the same time, there is some evidence to suggest that this general apathy toward morality may actually serve to protect them from developing these attitudes. Namely, those with antagonistic personality traits appear to devalue certain aspects of the binding moral foundations, which are, in turn, associated with a greater endorsement of homonegative and transnegative attitudes.

That said, the prior research on the relation between antagonistic traits and the binding moral foundations is markedly less consistent than research concerning the relation between antagonistic traits and the individualizing moral foundations. While some researchers have identified a positive association between Machiavellianism and binding moral foundations (Petrović, 2019), others have identified a negative association (Karandikar et al., 2019). At the same time, narcissism has been shown to be positively associated with authority in some studies (Petrović, 2019) but not others (Karandikar et al., 2019). The most consistent evidence has been for a negative association between psychopathy and the binding moral foundations (see Marshall et al., 2018), but, notably, the size of the effect was less than that of the association between psychopathy and the individualizing moral foundations ($r \approx -.12$ vs. $r \approx -.22$).

In contrast, the relationship between the binding moral foundations and the endorsement of homonegative and transnegative views has been quite consistent. People scoring *higher* on measures of the binding moral foundations—especially purity—are *more* likely to hold homonegative attitudes (Barnett et al., 2018; Monroe & Plant, 2019; Rosik et al., 2013; Wang et al., 2019), including those who identify as lesbian, gay, or bisexual (Barnett et al., 2020; Maciel et al., 2017). The binding moral foundations have also been associated with beliefs that same-sex couples should not have the same rights as opposite-sex couples, that they should not be allowed to adopt, and that their marriages are morally wrong (Koleva et al., 2012; Milesi, 2016). With respect to

transnegativity, the binding moral foundations have been linked to having had less contact with—and feeling less comfortable around—people identifying as transgender; having less progressive views regarding gender; and espousing support for anti-transgender legislation (Cox et al., 2022; Hatch, 2018; Vanaman & Chapman, 2020). In sum, if people with antagonistic personality traits are less likely to subscribe to the binding moral foundations, they may also be less likely to harbor homonegative and transnegative attitudes.

The current study

Based on the prior literature, there is strong evidence to support the notion that people who are high in antagonistic personality traits—and especially Machiavellianism and psychopathy—would be more likely to hold homonegative and transnegative attitudes. There is also strong evidence to suspect that some of this association would be explained by the fact that people with antagonistic traits weakly endorse individualizing moral foundations. Additionally, there is some evidence, albeit less convincing, that the binding moral foundations may act to temper this association, weakening the overall effect between the antagonistic personality traits and both forms of prejudice. The present study aims to test these possibilities.

Study 1

In Study 1, we used a convenience sample of undergraduate students to examine whether the individualizing and binding moral foundations could account for the associations between the three antagonistic traits and (a) traditional homonegativity, (b) modern homonegativity, (c) general genderism/transnegativity, and (d) gender-bashing. Although we suspected the results would be consistent with the literature described in the previous section, Study 1 was intended as a general exploration of the associations between the variables and, as such, did not involve the preregistration of any hypotheses.

Method

Participants and procedures

One thousand thirty-two undergraduate students completed the following measures as part of a general survey administered at a large university in the Pacific Northwest.[1] All participants who failed the attention check items included as part of the Moral Foundations Questionnaire were excluded ($n = 99$).[2] Since we were interested in homonegativity and transnegativity specifically among people who do not identify as lesbian, gay, or transgender, we also excluded participants who did not identify as heterosexual ($n = 199$),

identified as non-binary ($n = 19$), or did not provide a response to the question assessing their gender identity ($n = 6$). The final sample comprised 709 participants (63.33% women; M age = 19.66; SD age = 2.38). The participants were mostly white (65.02%), Hispanic/Latinx (13.40%), or Asian (11.42%). The participants leaned liberal, with the mean response being 3.56 ($SD = 1.80$) to a single item measuring their political orientation on a scale from 1 ("strongly liberal") to 9 ("strongly conservative"). A zero-order correlation power analysis indicated that a sample of this size would have a 99.97% chance of detecting a moderate effect ($r = .20$, Funder & Ozer, 2019)—the smallest effect we judged to be of substantive interest—when such an effect existed.[3] Moreover, a parallel mediation power analysis (see Schoemann et al., 2017) indicated that a sample of this size would have a ~99.73% chance of detecting an indirect effect when there was a moderate association between the predictor and the mediators ($rs = .20$) and a moderate association between the mediators and the outcome variable ($rs = .20$).[4]

Materials

Unless otherwise noted, participants responded to all scales using a 6-point Likert scale (1 = "strongly disagree"; 6 = "strongly agree").

Antagonistic personality traits. Participants completed the *Two-Dimensional Mach-IV* (Monaghan et al., 2016; $\alpha = .64$, $\bar{r}_{ij} = .15$); the *Narcissistic Personality Inventory-13* (Gentile et al., 2013; $\alpha = .83$, $\bar{r}_{ij} = .27$); and the *Self-Report Psychopathy Scale-4-Short Form* (Paulhus et al., 2016; $\alpha = .90$, $\bar{r}_{ij} = .26$). The Two-Dimensional Mach-IV is a 10-item, two-factor measure of Machiavellianism, assessing Machiavellian tactics (e.g., "Honesty is the best policy in all cases (R)"; $\alpha = .63$, $\bar{r}_{ij} = .30$) and Machiavellian views (e.g., "It is hard to get ahead without cutting corners here and there"; $\alpha = .66$, $\bar{r}_{ij} = .24$). The Narcissistic Personality Inventory-13 is a 13-item, three-factor measure of grandiose narcissism, assessing leadership/authority (e.g., "I am a born leader"; $\alpha = .74$, $\bar{r}_{ij} = .42$), grandiose exhibitionism (e.g., "I like to look at my body"; $\alpha = .74$, $\bar{r}_{ij} = .36$), and entitlement/exploitativeness (e.g., "I find it easy to manipulate people"; $\alpha = .64$, $\bar{r}_{ij} = .30$). The Self-Report Psychopathy Scale-4-Short Form is a 29-item, four-facet measure of psychopathy, assessing the interpersonal (e.g., "I would get a kick out of 'scamming' someone"; $\alpha = .78$, $\bar{r}_{ij} = .34$), affective (e.g., "People sometimes say that I'm cold-hearted"; $\alpha = .74$, $\bar{r}_{ij} = .30$), lifestyle (e.g., "I rarely follow the rules"; $\alpha = .79$, $\bar{r}_{ij} = .35$), and antisocial (e.g., "I was convicted of a serious crime"; $\alpha = .69$, $\bar{r}_{ij} = .34$) aspects of the construct.

Homonegativity and transnegativity. The participants' levels of traditional homonegativity and modern homonegativity were measured using the

Homonegativity Scale (Morrison et al., 1999; e.g., "Gay people should not be allowed to work with children"; $\alpha = .77$, $r^-_{ij} = .45$) and the *Modern Homonegativity Scale* (Morrison & Morrison, 2002; e.g., "Gay people have become far too confrontational in their demand for equal rights"; $\alpha = .94$, $r^-_{ij} = .57$), respectively. Traditional homonegativity refers to a more "old-fashioned" form of homonegativity that is rooted in the belief that being gay is sinful and/or pathological. Modern homonegativity refers to a more "contemporary" form of homonegativity that is rooted in the belief that discrimination against gay people doesn't exist and gay people are too outspoken about their sexual orientations. For both scales, the phrase "gay people" was used instead of "homosexual", given the latter has traditionally been used to pathologize those who engage in same-sex relationships.

Transnegativity and genderism were assessed using the *Genderism and Transphobia Scale-Short Form* (Tebbe et al., 2014; $\alpha = .91$, $r^-_{ij} = .47$). The Genderism and Transphobia Scale-Short Form includes 8 items assessing a participant's *general genderism/transnegativity* (e.g., "Sex change operations are morally wrong"; $\alpha = .90$, $r^-_{ij} = .55$) and 5 items assessing whether a participant has engaged in *gender-bashing* (e.g., "I have beat up men who act like sissies"; $\alpha = .87$, $r^-_{ij} = .60$). General genderism/transnegativity refers to discriminatory attitudes toward transgender and gender-nonconforming people, while gender-bashing refers specifically to violence against transgender and gender-nonconforming people.

Moral foundations. The degree to which participants emphasize different moral foundations was assessed using the 30-item *Moral Foundations Questionnaire* (Graham et al., 2011). The Moral Foundations Questionnaire assesses five moral foundations: care (e.g., "Compassion for those who are suffering is the most crucial virtue"; $\alpha = .66$, $r^-_{ij} = .27$), fairness (e.g., "Justice is the most important requirement for a society"; $\alpha = .72$, $r^-_{ij} = .31$), loyalty (e.g., "I am proud of my country's history"; $\alpha = .59$, $r^-_{ij} = .19$), authority (e.g., "Respect for authority is something all children need to learn"; $\alpha = .63$, $r^-_{ij} = .22$), and purity (e.g., "Chastity is an important and valuable virtue"; $\alpha = .64$, $r^-_{ij} = .23$). Consistent with its established scoring procedure, participants responded to half of the items from the Moral Foundations Questionnaire using the response scale described above and the other half by indicating how relevant certain considerations were to their decision of whether something was right or wrong (1 = "not at all relevant"; 6 = "extremely relevant"). In order to achieve more parsimonious models—and since we did not have separate expectations for the individual moral foundations—we collapsed care and fairness into an individualizing moral foundations composite ($\alpha = .81$, $r^-_{ij} = .29$) and loyalty, authority, and purity into a binding moral foundations composite ($\alpha = .82$, $r^-_{ij} = .20$).

Results and discussion

Descriptive statistics, gender comparisons, and zero-order correlations for all Study 1 variables can be found in the Supplementary Material.

As shown in Table 1, both Machiavellianism and psychopathy had strong positive associations with traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing. Narcissism had a moderate positive association with modern homonegativity, general genderism/transnegativity, and gender-bashing, but only a weak positive association with traditional homonegativity. These results indicate that the three antagonistic traits examined here are, as expected, associated with both homonegativity and transnegativity.

Machiavellianism and psychopathy also showed large negative associations with individualizing moral foundations. In contrast, Machiavellianism was not associated with binding moral foundations, and psychopathy showed a moderate *positive* association with binding moral foundations. Grandiose narcissism was not associated with individualizing moral foundations but did show a strong positive association with the binding moral foundations. As such, it appears that those high in Machiavellianism and psychopathy score lower on individualizing moral foundations while grandiose narcissism—and to a lesser extent psychopathy—score higher on the binding moral foundations.

Mediation models

For each of the three antagonistic personality traits, we fit a mediation model[5] predicting traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing (Figure 1).[6] All three models included the individualizing and binding moral foundations as mediators of the association between the antagonistic personality traits and the outcome variables. The mediators and outcome variables were allowed to covary in all models. Bootstrapping with 10,000 replications was used to estimate the standard errors for each model. Given we ran three models, we used a Bonferroni-corrected alpha level of .017 for all effects tested here.

All three of the antagonistic traits were positively associated with traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing (Table 2). Psychopathy demonstrated the largest total associations with traditional homonegativity ($\gamma_{31} = 0.40$), modern homonegativity ($\gamma_{41} = 0.45$), genderism/transnegativity ($\gamma_{51} = 0.46$), and gender-bashing ($\gamma_{61} = 0.57$). This was followed by Machiavellianism ($\gamma_{31} = 0.35$; $\gamma_{41} = 0.38$; $\gamma_{51} = 0.34$; $\gamma_{61} = 0.34$) and, finally, narcissism ($\gamma_{31} = 0.09$; $\gamma_{41} = 0.24$; $\gamma_{51} = 0.24$; $\gamma_{61} = 0.19$). Only the individualizing moral foundations explained a significant proportion of the association of Machiavellianism with the four prejudice measures. In contrast, only the binding moral foundations explained

Table 1. Zero-order correlations of the antagonistic personality traits with homonegativity, transnegativity, and the moral foundations (Study 1).

	Machiavellianism			Narcissism				Psychopathy				
	Tactics	Views	Total	LA	GE	EE	Total	Inter	Affect	Life	Anti	Total
Homonegativity and Transnegativity												
Traditional Homonegativity	.26**	.27**	.35**	.12*	.01	.13*	.09*	.30**	.35**	.18**	.54**	.40**
Modern Homonegativity	.12*	.42**	.38**	.29**	.11*	.22**	.24**	.43**	.46**	.21**	.39**	.45**
Transnegativity	.17**	.37**	.37**	.26**	.15**	.24**	.25**	.47**	.49**	.28**	.58**	.55**
General Transnegativity	.15**	.35**	.34**	.26**	.13**	.22**	.24**	.43**	.44**	.22**	.45**	.46**
Gender-bashing	.18**	.31**	.34**	.16**	.13**	.20**	.19**	.41**	.48**	.32**	.71**	.57**
Moral Foundations												
Individualizing	−.48**	−.13**	−.37**	−.01	.01	.02	.01	−.20**	−.27**	−.09*	−.37**	−.27**
Care	−.47**	−.19**	−.40**	−.04	−.00	−.04	−.03	−.24**	−.31**	−.13**	−.36**	−.31**
Fairness	−.42**	−.06	−.27**	.01	.01	.07	.03	−.13**	−.18**	−.05	−.31**	−.19**
Binding	−.22**	.26**	.07	.31**	.14**	.29**	.30**	.23**	.20**	.10*	.13**	.20**
Loyalty	−.21**	.22**	.04	.28**	.14**	.25**	.27**	.21**	.21**	.14**	.14**	.21**
Authority	−.21**	.22**	.05	.26**	.12*	.25**	.25**	.19**	.15**	.04	.05	.13*
Purity	−.14**	.22**	.09*	.27**	.11*	.24**	.24**	.19**	.16**	.08*	.15**	.17**

*p < .05; **p < .001. LA = leadership/authority; GE = grandiose exhibitionism; EE = entitlement/exploitativeness; Inter = interpersonal; Affect = affective, Life = lifestyle; Anti = antisocial.
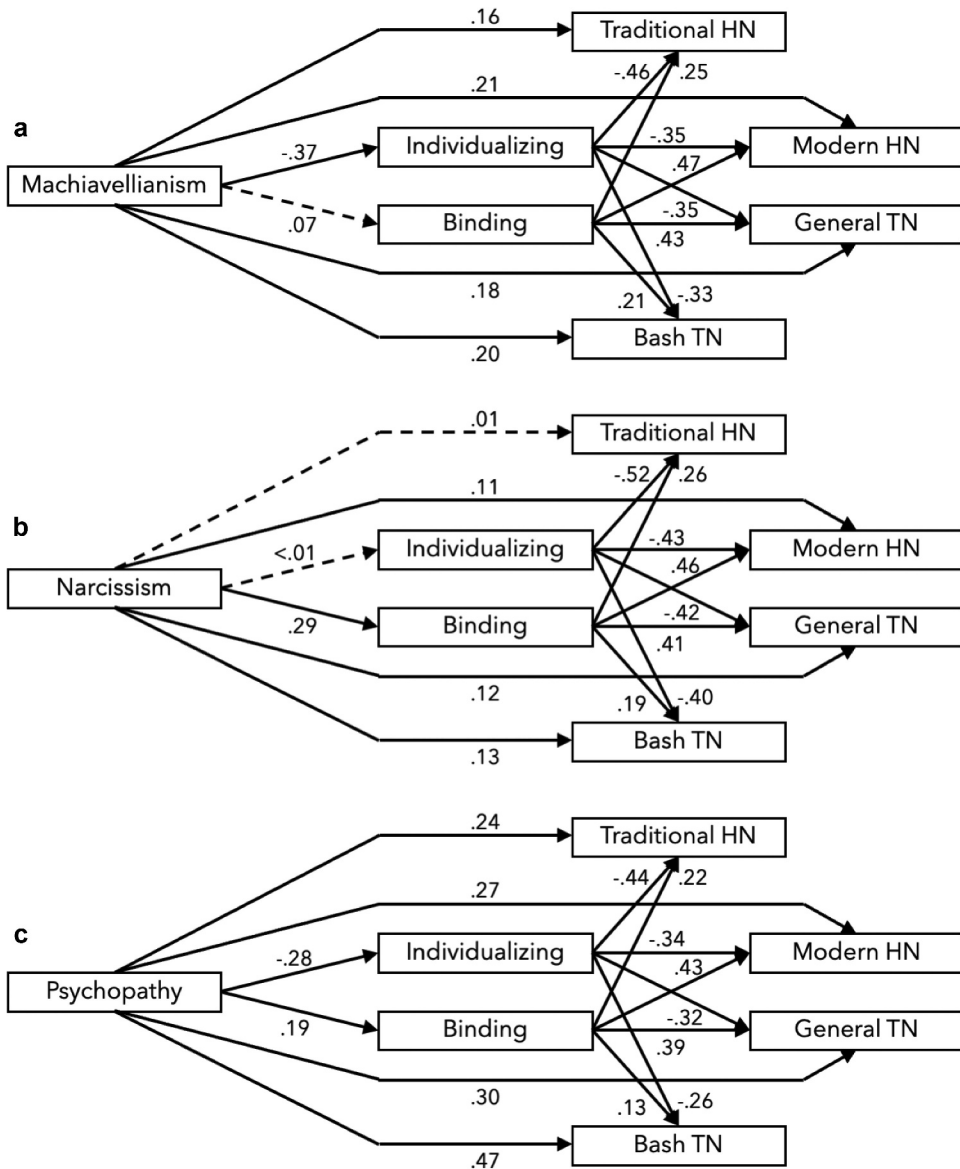
Figure 1. Study 1 multiple mediation models for the association of (A) Machiavellianism, (B) narcissism, and (C) psychopathy with homonegativity (HN) and transnegativity (TN). All coefficients are standardized. Dashed paths are not significant at p < .017. Correlated residuals among the mediators and outcome variables are not shown.

a significant proportion of the association of narcissism with the four prejudice measures. Both the individualizing moral foundations *and* the binding moral foundations explained a significant proportion of the association of psychopathy with the four prejudice measures. That said, the individualizing moral foundations accounted for a greater proportion of the association of psychopathy with traditional homonegativity than did the binding moral
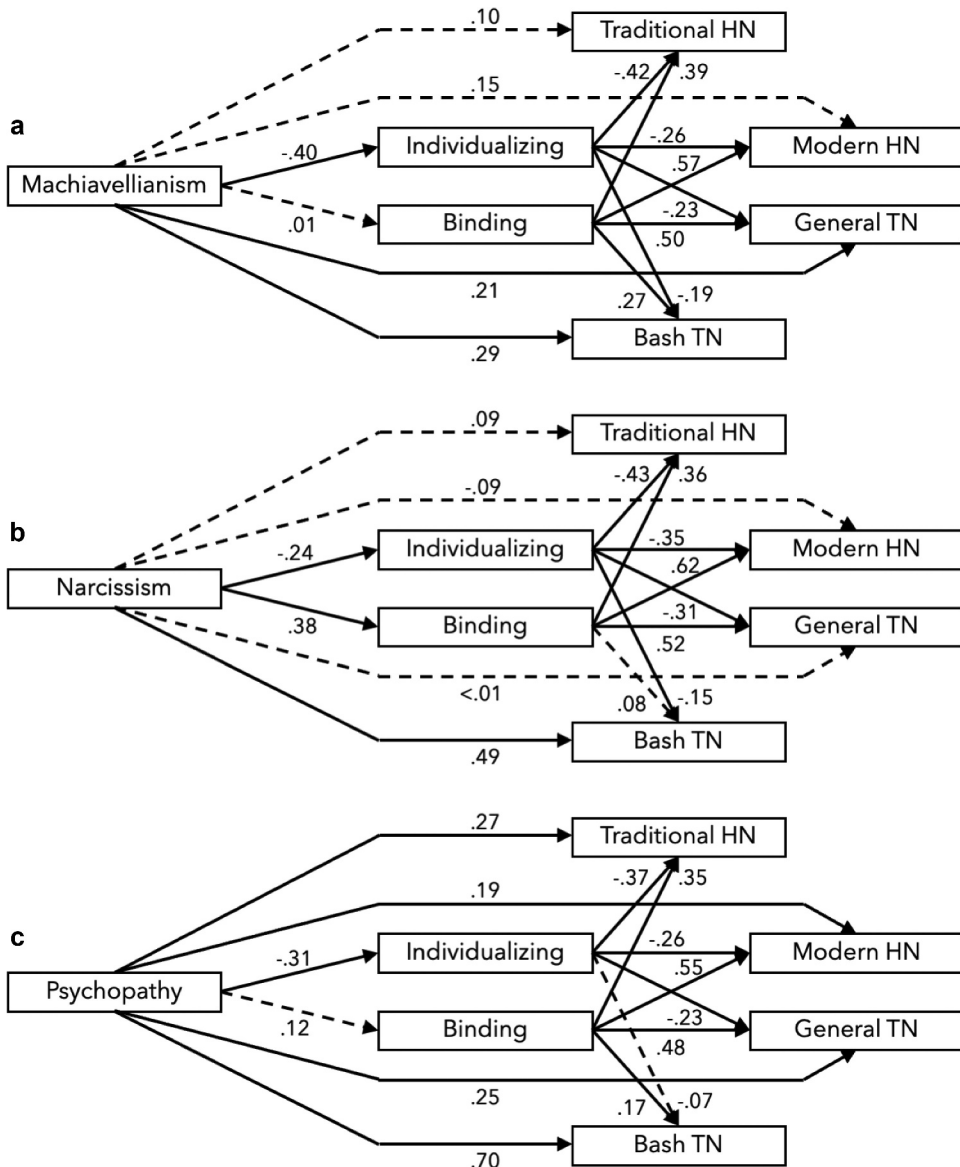
Figure 2. Study 2 multiple mediation models for the association of (A) Machiavellianism, (B) narcissism, and (C) psychopathy with homonegativity (HN) and transnegativity (TN). All coefficients are standardized. Dashed paths are not significant at p < .017. Correlated residuals among the mediators and outcome variables are not shown.

foundations. The individualizing moral foundations accounted for no more or less of the association of psychopathy with modern homonegativity, general genderism/transnegativity, and gender-bashing than did the binding moral foundations. Taken together, these results indicate that, although all three of the antagonistic traits are associated with traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing, the

Table 2. Standardized total, direct, and indirect effects of the antagonistic personality traits on homonegativity and transnegativity (Study 1).

	Total		Direct		Indirect (Individualizing)		Indirect (Binding)	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Machiavellianism								
Traditional Homonegativity	0.35**	[0.29,0.41]	0.16**	[0.10,0.22]	0.17$_A$**	[0.13,0.21]	0.02$_B$	[−0.00,0.04]
Modern Homonegativity	0.38**	[0.31,0.44]	0.21**	[0.15,0.28]	0.13$_A$**	[0.10,0.16]	0.03$_B$	[−0.00,0.07]
General Transnegativity	0.34**	[0.28,0.41]	0.18**	[0.12,0.25]	0.13$_A$**	[0.10,0.16]	0.03$_B$	[0.00,0.07]
Gender-Bashing	0.34**	[0.28,0.39]	0.20**	[0.14,0.26]	0.12$_A$**	[0.09,0.15]	0.02$_B$	[0.00,0.03]
Narcissism								
Traditional Homonegativity	0.09*	[0.02,0.16]	0.01	[−0.05,0.08]	−0.00$_A$	[−0.06,0.05]	0.08$_B$**	[0.05,0.10]
Modern Homonegativity	0.24**	[0.17,0.30]	0.11**	[0.04,0.17]	−0.00$_A$	[−0.05,0.04]	0.13$_B$**	[0.10,0.17]
General Transnegativity	0.24**	[0.18,0.31]	0.12**	[0.06,0.19]	0.00$_A$	[−0.04,0.04]	0.12$_B$**	[0.09,0.16]
Gender-Bashing	0.19**	[0.13,0.25]	0.13**	[0.08,0.19]	0.00$_A$	[−0.04,0.04]	0.06$_A$**	[0.03,0.08]
Psychopathy								
Traditional Homonegativity	0.40**	[0.33,0.48]	0.24**	[0.17,0.31]	0.12$_A$**	[0.08,0.16]	0.04$_B$**	[0.02,0.06]
Modern Homonegativity	0.45**	[0.39,0.51]	0.27**	[0.21,0.33]	0.09$_A$**	[0.06,0.13]	0.08$_A$**	[0.05,0.12]
General Transnegativity	0.46**	[0.40,0.52]	0.30**	[0.23,0.36]	0.09$_A$**	[0.06,0.12]	0.08$_A$**	[0.05,0.11]
Gender-Bashing	0.57**	[0.52,0.63]	0.47**	[0.41,0.53]	0.07$_A$**	[0.04,0.10]	0.03$_A$**	[0.01,0.04]

*$p < .017$; **$p < .001$. Different subscripts indicate that the indirect effects through the individualizing and binding moral foundations were significantly different at $p < .017$.

association for Machiavellianism is primarily explained by lower levels of the individualizing moral foundations, the association for narcissism is primarily explained by higher levels of the binding moral foundations, and the association for psychopathy is explained by both lower levels of the individualizing moral foundations and higher levels of the binding moral foundations.

Study 2

In Study 1, we demonstrated that all three of the antagonistic traits are associated with (a) traditional homonegativity, (b) modern homonegativity, (c) general genderism/transnegativity, and (d) gender-bashing. We also showed that, in most cases, the individualizing moral foundations explained more of the association of Machiavellianism with homonegative and transnegative attitudes than did the binding moral foundations, whereas the binding moral foundations explained more of the association of narcissism with homonegative and transnegative attitudes than did the individualizing moral foundations. With the exception of traditional homonegativity, both the individualizing and binding moral foundations explained comparable amounts of the association of psychopathy with homonegative and transnegative attitudes.

Although it was well-powered, this first study had a clear limitation. By relying on a sample of participants that were overwhelmingly young and liberal, it is unclear whether the findings would generalize to the average US adult. In Study 2, we preregistered (https://osf.io/ac3bx/?view_only= ed2c1bb5d1b649fe9999c006ed805c4c) and tested whether the findings from Study 1 would replicate in a more generalizable sample. We expected the same pattern of results in Study 2 as in Study 1: (a) All three of the antagonistic personality traits would be associated with the measures of homonegativity and transnegativity, with psychopathy exhibiting the strongest associations, Machiavellianism exhibiting the second-strongest associations, and narcissism exhibiting the weakest associations; (b) the individualizing moral foundations would account for more of the association of Machiavellianism with the measures of homonegativity and transnegativity than would the binding moral foundations; (c) the binding moral foundations would account for more of the association of narcissism with the measures of homonegativity and transnegativity than would the individualizing moral foundations; and (d) both the individualizing and binding moral foundations would account for the association of psychopathy with the measures of homonegativity and transnegativity.[7]

Method

Participants and procedures

The survey for the present study was posted to Amazon's Mechanical Turk with two qualifications: (a) Participants had to be 18 years of age or older and (b) participants had to be living in the US. Nine hundred eighty-three people started taking the present survey, but 85 people did not finish the survey. Moreover, the surveys for 586 people were prematurely terminated as a result of tripping the attention check items on more than two pages of the survey (see the Supplementary Material for a full list of the attention check items used). As in Study 1, we excluded participants who identified as non-binary ($n = 1$) or did not identify as heterosexual ($n = 41$). We also excluded all participants who did not identify with the sex they were assigned at birth ($n = 5$). The final sample included 267 participants (42.32% women; M age = 39.65; SD age = 11.06). The participants were mostly white (74.53%), Black (12.73%), Asian (4.12%), or Hispanic/Latinx (4.12%). The sample leaned slightly liberal, with participants providing an average response of 4.78 ($SD = 2.74$) to a single item measuring their political orientation on a scale from 1 ("strongly liberal") to 9 ("strongly conservative"). Most participants also self-identified as a Democrat (59.93%). A zero-order correlation power analysis indicated that a sample of this size would have a 90.98% chance of detecting a moderate effect ($r = .20$) when such an effect existed.[8] Moreover, a parallel mediation power analysis indicated that a sample of this size would have a ~73.80% chance of

detecting an indirect effect when there was a moderate association between the predictor and the mediators ($rs = .20$) and a moderate association between the mediators and the outcome variable ($rs = .20$).[9]

Materials

As in Study 1, participants responded to all scales using a 6-point Likert scale (1 = "strongly disagree"; 6 = "strongly agree"), unless otherwise stated.

Antagonistic personality traits. The participants' levels of Machiavellianism (α = .64, r^-_{ij} = .15), narcissism (α = .91, r^-_{ij} = .44), and psychopathy (α = .93, r^-_{ij} = .33) were assessed using the same scales used in Study 1.

Homonegativity and transnegativity. The participants' levels of traditional homonegativity (α = .93, r^-_{ij} = .53), modern homonegativity (α = .97, r^-_{ij} = .58), general genderism/transnegativity (α = .91, r^-_{ij} = .57), and gender-bashing (α = .89, r^-_{ij} = .63) were assessed using the same scales used in Study 1. To differentiate the homonegativity directed toward people of different genders, the homonegativity items were administered twice, once in relation to lesbian women (e.g., "Lesbians are immoral") and once in relation to gay men (e.g., "Gay men are immoral"). However, subsequent analyses indicated that the traditional homonegativity directed toward lesbian women was nearly perfectly correlated with the traditional homonegativity directed toward gay men (r = .93, p < .001) and the modern homonegativity directed toward lesbian women was nearly perfectly correlated with the modern homonegativity directed toward gay men (r = .96, p < .001). Consequently, we averaged together all of the traditional homonegativity items to form a single index of traditional homonegativity and all of the modern homonegativity items to form a single index of modern homonegativity.

Moral foundations. The individualizing (α = .81, r^-_{ij} = .28) and binding (α = .90, r^-_{ij} = .35) moral foundations were assessed using the same scale used in Study 1.

Results and discussion

Descriptive statistics, gender comparisons, and zero-order correlations for all Study 2 variables can be found in the Supplementary Material.

As in Study 1, Machiavellianism and psychopathy showed strong positive associations with traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing (Table 3). Grandiose narcissism again showed positive associations with the four outcome variables. However, while the association of narcissism with modern homonegativity

Table 3. Zero-order correlations of the antagonistic personality traits with homonegativity, transnegativity, and the moral foundations (Study 2).

	Machiavellianism			Narcissism				Psychopathy				
	Tactics	Views	Total	LA	GE	EE	Total	Inter	Affect	Life	Anti	Total
Homonegativity and Transnegativity												
Traditional Homonegativity	.09	.28**	.27**	.25**	.32**	.31**	.33**	.41**	.37**	.28**	.41**	.42**
Modern Homonegativity	−.05	.36**	.27**	.18*	.22**	.22**	.23**	.38**	.34**	.21**	.24**	.33**
Transnegativity	.02	.44**	.37**	.31**	.40**	.41**	.42**	.56**	.50**	.41**	.47**	.56**
General Transnegativity	.04	.36**	.31**	.20*	.28**	.28**	.28**	.41**	.35**	.26**	.27**	.37**
Gender-bashing	−.01	.47**	.37**	.44**	.52**	.54**	.56**	.66**	.63**	.59**	.71**	.74**
Moral Foundations												
Individualizing	−.44**	−.22**	−.40**	−.22**	−.23**	−.20**	−.24**	−.29**	−.25**	−.22**	−.32**	−.31**
Care	−.46**	−.23**	−.42**	−.18*	−.22**	−.20*	−.22**	−.30**	−.28**	−.19*	−.32**	−.31**
Fairness	−.36**	−.18*	−.33**	−.24**	−.21**	−.18*	−.23**	−.24**	−.19*	−.22**	−.27**	−.27**
Binding	−.35**	.23**	.01	.37**	.35**	.31**	.39**	.18*	.13*	.07	.03	.12
Loyalty	−.32**	.28**	.07	.46**	.45**	.39**	.48**	.23**	.18*	.17*	.14*	.21**
Authority	−.30**	.22**	.03	.32**	.28**	.25**	.32**	.19*	.14*	.04	−.01	.10
Purity	−.31**	.14*	−.05	.24**	.23**	.19*	.25**	.09	.03	−.01	−.04	.02

*p < .05; **p < .001. LA = leadership/authority; GE = grandiose exhibitionism; EE = entitlement/exploitativeness; Inter = interpersonal; Affect = affective, Life = lifestyle; Anti = antisocial.

($r_1 = .24$ vs $r_2 = .23$) and general genderism/transnegativity ($r_1 = .24$ vs $r_2 = .28$) were similar to those seen in Study 1, the associations for traditional homonegativity ($r_1 = .09$ vs $r_2 = .33$) and gender-bashing ($r_1 = .19$ vs $r_2 = .56$) were noticeably larger. Taken in concert, the present findings again indicate that the three antagonistic traits are associated with homonegativity and transnegativity but that narcissism is particularly associated with modern homonegativity and gender-bashing when not studied in a university sample.

Turning to the moral foundations, Machiavellianism and psychopathy again showed strong negative associations with the individualizing moral foundations and weaker and/or non-significant positive associations with the binding moral foundations. Consistent with Study 1, narcissism showed a strong positive association with the binding moral foundations, but, inconsistent with Study 1, it had a moderate-to-strong negative association with the individualizing moral foundations ($r_1 = .01$ vs $r_2 = -.24$). Nonetheless, these results are consistent with the general pattern of results identified in Study 1: Machiavellianism and psychopathy are primarily characterized by low endorsement of the individualizing moral foundations whereas narcissism is primarily characterized by high endorsement of the binding moral foundations.

Mediation models

The models specified in Study 2 are identical to the models specified in Study 1 (Figure 2).[10] These models do, however, differ from those described in the preregistration in three key ways. First, as noted in the Materials section above, we collapsed (a) the measure of traditional homonegativity toward lesbian women and the measure of traditional homonegativity toward gay men into a single index of traditional homonegativity and (b) the measure of modern homonegativity toward lesbian women and the measure of modern homonegativity toward gay men into a single index of modern homonegativity. Second, given the substantial—but not entirely unexpected (see Muris et al., 2017)—intercorrelations among the three antagonistic personality traits ($r = .40-.60$), we modeled each trait separately (as opposed to running a single omnibus mediation model). We ultimately made this change in order to avoid falling victim to the perils of partialling, whereby each of the antagonistic personality trait variables no longer reflects its intended construct when accounting for the other two antagonistic personality traits (C.E. Vize et al., 2018). Third, in response to a comment from an anonymous reviewer and to streamline the results, we included traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing as outcomes in a single model. Nevertheless, we have included the full results for the preregistered models in the Supplementary Material. We encourage readers to compare and contrast the results obtained using both approaches. As in Study 1, we used a Bonferroni-corrected alpha level of .017 for all effects tested here.

Table 4. Standardized total, direct, and indirect effects of the antagonistic personality traits on homonegativity and transnegativity (Study 2).

	Total		Direct		Indirect (Individualizing)		Indirect (Binding)	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Machiavellianism								
Traditional Homonegativity	0.27**	[0.15,0.40]	0.10	[−0.02,0.22]	0.17_A**	[0.11,0.23]	0.01_B	[−0.05,0.06]
Modern Homonegativity	0.27**	[0.13,0.41]	0.15	[0.02,0.29]	0.10_A**	[0.06,0.15]	0.01_A	[−0.07,0.08]
General Transnegativity	0.31**	[0.19,0.43]	0.21**	[0.09,0.33]	0.09_A**	[0.04,0.14]	0.01_A	[−0.06,0.07]
Gender-Bashing	0.37**	[0.28,0.47]	0.29**	[0.18,0.40]	0.08_A*	[0.03,0.13]	0.00_A	[−0.03,0.04]
Narcissism								
Traditional Homonegativity	0.33**	[0.21,0.45]	0.09	[−0.05,0.23]	0.10_A**	[0.05,0.16]	0.14_A**	[0.08,0.19]
Modern Homonegativity	0.23**	[0.10,0.36]	−0.09	[−0.22,0.03]	0.09_A**	[0.04,0.14]	0.24_B**	[0.16,0.32]
General Transnegativity	0.28**	[0.15,0.41]	0.00	[−0.13,0.14]	0.08_A*	[0.03,0.12]	0.20_B**	[0.13,0.27]
Gender-Bashing	0.56**	[0.49,0.62]	0.49**	[0.41.57]	0.04_A*	[0.01,0.07]	0.03_A	[−0.00,0.06]
Psychopathy								
Traditional Homonegativity	0.42**	[0.32,0.53]	0.27**	[0.16,0.37]	0.11_A**	[0.06,0.17]	0.04_A	[0.00,0.08]
Modern Homonegativity	0.33**	[0.24,0.43]	0.19**	[0.10,0.28]	0.08_A**	[0.04,0.12]	0.06_A	[0.00,0.12]
General Transnegativity	0.37**	[0.28,0.47]	0.25**	[0.16,0.34]	0.07_A**	[0.03,0.11]	0.06_A	[0.00,0.11]
Gender-Bashing	0.74**	[0.68,0.81]	0.70**	[0.63,0.78]	0.02_A	[−0.00,0.05]	0.02_A	[0.00,0.04]

*$p < .017$; **$p < .001$. Different subscripts indicate that the indirect effects through the individualizing and binding moral foundations were significantly different at $p < .017$.

Consistent with Study 1, all three of the antagonistic traits were positively associated with traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing (Table 4). The total effects were all in the moderate-to-large range, with psychopathy demonstrating the largest associations ($\gamma_{31} = 0.42$; $\gamma_{41} = 0.33$; $\gamma_{51} = 0.37$; $\gamma_{61} = 0.74$). Machiavellianism ($\gamma_{31} = 0.27$; $\gamma_{41} = 0.27$; $\gamma_{51} = 0.31$; $\gamma_{61} = 0.37$) and narcissism ($\gamma_{31} = 0.33$; $\gamma_{41} = 0.23$; $\gamma_{51} = 0.28$; $\gamma_{61} = 0.56$) possessed a mix of the second and third largest associations. For the most part, only the individualizing moral foundations explained a significant proportion of the associations of both Machiavellianism and psychopathy with the four forms of prejudice. The one exception was that neither the individualizing moral foundations nor the binding moral foundations explained a significant proportion of the association of psychopathy with gender-bashing. The individualizing moral foundations explained a greater proportion of the association of Machiavellianism with traditional homonegativity than did the binding moral foundations; this was not true for the other three prejudice measures nor for the association of psychopathy with the four prejudice measures. Both the individualizing and binding moral foundations explained a significant proportion of the association of narcissism with traditional homonegativity, modern homonegativity, and general genderism/transnegativity, but the

binding moral foundations accounted for more of the association of narcissism with modern homonegativity and general genderism/transnegativity than did the individualizing moral foundations. Interestingly, the individualizing moral foundations—but not the binding moral foundations—accounted for a significant proportion of the association of narcissism with gender-bashing, but this effect was rather small. In sum and generally consistent with Study 1, all three of the antagonistic personality traits appear to be associated with heightened levels of traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing, but, whereas the associations for Machiavellianism and psychopathy seem to be primarily due to weak individualizing moral foundations, the association for narcissism seems to be primarily due to strong binding moral foundations.

General discussion

We conducted two studies to test whether those with antagonistic personality traits (e.g., Machiavellianism, grandiose narcissism, and psychopathy) are more likely to express homonegative and transnegative views, and, if so, whether this could be explained by their endorsement of the moral foundations. Study 1 used a convenience sample of 709 undergraduate students drawn from a university Human Subjects Pool. It was exploratory, in the sense that we specified no formal hypotheses. That said, we suspected that those with antagonistic personality traits would be more likely to hold homonegative and transnegative attitudes and that they may do so because they dismiss individualizing moral concerns (e.g., do no harm; treat others fairly). At the same time, we suspected that those with antagonistic personality traits would also be less likely to endorse the binding moral foundations (e.g., be loyal to your ingroup; respect authority; avoid contaminants, even those that are metaphysical), weakening any observed associations of the antagonistic personality traits with both homonegativity and transnegativity. The purpose of Study 2 was to examine whether the findings identified in Study 1 would generalize beyond a sample of undergraduate students. Since we had no reason to suspect the results would differ between Study 1 and Study 2, our preregistered hypotheses for Study 2 were that we would observe the same pattern of results identified in Study 1.

There was clear evidence across both studies that those high in the three antagonistic personality traits were more likely to endorse statements that were reflective of traditional homonegativity, modern homonegativity, general genderism/transnegativity, and gender-bashing. All of these associations were moderate-to-large in magnitude (Funder & Ozer, 2019), save for the association between narcissism and traditional homonegativity in Study 1. These results indicate that, on top of harboring racist (Jones, 2013), xenophobic (Hodson et al., 2009), and sexist (Gluck et al., 2020) attitudes, those high in

antagonistic personality traits are also more likely to harbor homonegative and transnegative attitudes.

Psychopathy consistently showed the largest associations with the measures of homonegativity and transnegativity. This is not surprising, as psychopathic individuals tend to engage in more socially-aversive behaviors than either Machiavellian or narcissistic individuals (see Jonason et al., 2021). This finding also aligns with previous work showing that psychopathic individuals exhibit more aggression toward gay men than their non-psychopathic counterparts (Parrott & Zeichner, 2006; but see also Nappa et al., 2019). Interestingly, Machiavellianism had the second-greatest associations with all four indices of homonegativity and transnegativity in Study 1, but grandiose narcissism was more strongly associated with traditional homonegativity and gender-bashing in Study 2. As such, we only found partial support for our hypothesis that Machiavellianism would be the second most socially aversive trait in Study 2. It is yet unclear why narcissism showed such a large association with traditional homonegativity and gender-bashing only in Study 2. One possibility is that the average undergraduate student (being younger and generally more liberal) considers traditional homonegativity and gender-bashing to be more socially undesirable than the average MTurk worker (being older and generally less liberal). In an effort to appear more socially desirable and uphold their grandiose sense of self, narcissistic undergraduate students may moderate their responses so as to downplay their levels of traditional homonegativity and gender-bashing. They may not feel the same pressure when it comes to modern homonegativity and general genderism/transnegativity, as they may view these forms of prejudice as more socially acceptable.

We found strong evidence across both studies that the individualizing moral foundations explain a significant proportion of the associations of Machiavellianism and psychopathy with the measures of homonegativity and transnegativity. This indicates that one of the reasons that those high in Machiavellianism and psychopathy hold homonegative and transnegative views is because they are apathetic about acts of harm and injustice perpetrated against members of the LGBTQ+ community. That said, there was a curious exception to this finding: The association between psychopathy and gender-bashing could not be accounted for by the individualizing moral foundations in Study 2. This was unexpected, given that gender-bashing definitionally involves inflicting direct physical violence on another person. Again, it is unclear why this would be the case, but, considering the results presented in Figure 2, it appears that the failure to find an effect may be due to the relatively weak association between the individualizing moral foundations and gender-bashing. One reason for this may be that some participants in Study 2 see gender-bashing as no more-or-less harmful than a person identifying as transgender (perhaps because they see being gay or transgender as

harmful to children and society; Schein et al., 2016). For example, among Democrats in Study 2, we found a large negative association between the individualizing moral foundations and gender-bashing ($r = -.36$, $p < .001$), but we found no such association among those identifying as Republicans ($r = -.02$, $p = .887$). As such, it is possible that the relatively weak association between the individualizing moral foundations and gender-bashing in Study 2 is a result of Study 2 including a greater number of social conservatives. Nevertheless, follow-up research will be necessary to disentangle the true nature of the relations among morality, political orientation, and gender-bashing.

Given our review of the prior literature, we also expected that the tendency for those high in antagonistic personality traits to dismiss the binding moral foundations would act to temper the associations of the traits with homo-negativity and transnegativity. This was not supported by the present findings. If anything, those high in the antagonistic traits were *more* likely to endorse the binding moral foundations and, as a result, were more likely to endorse homonegative and transnegative attitudes. This was especially true for narcissism. People high in narcissism were more likely to have strong moral concerns about staying loyal to one's ingroup, respecting authority, and avoiding degradation and, consequently, were more likely to endorse homonegative and transnegative attitudes. In other words, the tendency for narcissistic people to endorse the binding moral foundations may have actually led them to endorse more socially aversive beliefs and behaviors. Turning our attention beyond narcissism, the binding moral foundations also explained some of the association of psychopathy with the measures of homonegativity and transnegativity in Study 1. Considering the zero-order correlations, this result appears to primarily owe to an elevated positive association between psychopathy and loyalty. This finding is, of course, antithetical to many—but not all—conceptualizations of psychopathy (see Lilienfeld et al., 2015). However, given we only used a single measure of psychopathy in the present studies, we would caution against drawing too broad conclusions about what this finding says about the true nature of psychopathy. Finally, the binding moral foundations explained relatively little of the association between Machiavellianism and the measures of homonegativity and transnegativity. This could be a case where the tendency for those high in Machiavellianism to eschew conventional moral norms (see Christie & Geis, 1970) may have actually resulted in them endorsing less socially-aversive behavior.

Our research provides insight into the types of people who are more likely to endorse homonegative and transnegative attitudes and also how moral dispositions may contribute to these prejudices. Specifically, we found that those high in antagonistic personality traits (e.g., Machiavellianism, narcissism, and psychopathy) are more likely to endorse both homonegative and transnegative beliefs. While Machiavellian and psychopathic people seem to

hold these beliefs because they *are not* concerned about protecting and providing for individuals, narcissistic people seem to hold these beliefs because they *are* concerned about protecting and providing for their ingroups (or, at least, maintaining a social hierarchy where they will be protected and provided for). These findings provide two clear implications when it comes to combating homonegativity and transnegativity. First, it indicates that it may be useful to focus on individuals with antagonistic personality traits, as they appear to be more likely to endorse these attitudes in the first place. Second, it suggests that one way to decrease homonegativity and transnegativity among people with antagonistic personality traits is to reframe issues of intolerance and discrimination in terms of moral beliefs that they would be more likely to appreciate (see Feinberg & Willer, 2013). For example, psychopathic people may be indifferent to discrimination when it is described in terms of being harmful or unfair to an individual but not when the discrimination is described in terms of being unfair to one's ingroup.

Limitations and future directions

The present study had a number of strengths (e.g., it was well-powered, provided a replication of initial exploratory results, and indexed multiple aspects of both homonegative and transnegative beliefs). It was not, however, without its limitations.

First, some of the variables included in the present studies failed to reach conventionally acceptable levels of reliability (i.e., $\alpha = .70$; Nunnally, 1978; but see also Lance et al., 2006). For instance, only 64% of the variance in the Two-Dimensional Mach-IV could be attributed to *true* variation in Machiavellianism across the two studies ($\alpha_1 = .64$; $\alpha_2 = .64$). Therefore, the effects observed for Machiavellianism in the present studies may be attenuated to some degree. We would encourage researchers to make use of measures with greater reliability in future work to produce more accurate estimates of these effects.

Second, Study 2 was conducted in order to examine whether the results of Study 1 generalized beyond an undergraduate population. However, it is still unclear whether the present results would generalize to a population that was not drawn from a Western, educated, industrialized, rich, and democratic society (WEIRD; Henrich et al., 2010). Examining these associations in non-WEIRD cultures is an important next step for this research program.

Third, the moral foundations explained only part of the association of the three antagonistic personality traits with homonegativity and transnegativity. Future work should consider whether other mechanisms (such as a greater willingness to admit to having socially-undesirable beliefs) may underlie these associations.

Fourth, the present study leveraged only one measure of each of the three antagonistic personality traits. As such, these findings are tied to only one conceptualization of the trait and should not be presumed to generalize to all other conceptualizations of the traits. Relatedly, the present study only assessed one taxonomy of moral beliefs (i.e., Moral Foundations Theory; Graham et al., 2013); future work could use other conceptualizations of moral values (e.g., the Model of Moral Motives; Janoff-Bulman & Carnes, 2013) to further develop our understanding of the interplay among antagonistic personality traits, morality, homonegativity and transnegativity.

Finally, the mediation models presented above were selected to test the present hypotheses, but alternative models exist and should not be dismissed out of hand. While we were interested in examining whether the moral foundations can account for the association of the antagonistic personality traits with homonegativity and transnegativity, other researchers may be interested in examining whether the antagonistic personality traits can account for the association of the moral foundations with homonegativity and transnegativity. We encourage researchers to examine alternative models using our data.

Conclusion

In the introduction to this paper, we stated that an important first step in designing interventions to combat homonegativity and transnegativity is to identify (a) people who are more likely to hold these beliefs and (b) the mechanisms that underlie these beliefs. The results of the present study were illuminating on both fronts. First, those high in Machiavellianism, narcissism, and, especially, psychopathy were more likely to hold homonegative and transnegative beliefs. Second, among those high in Machiavellianism and psychopathy, these beliefs were primarily explained by an apathy about harm and fairness. In contrast, among those high in narcissism, these beliefs were primarily explained by a greater focus on loyalty toward one's ingroup, a greater respect for authority, and a belief that purity is an important virtue. In sum, although Machiavellianism, narcissism, and psychopathy are all associated with feelings of hostility toward gay and transgender people, different moral beliefs seem to underlie these associations.

Notes

1. Study 1 (09072010.006) and Study 2 (STUDY00000097) were both approved by the Institutional Review Board at the University of Oregon. Participants provided informed consent prior to starting all surveys relevant to the present studies.
2. In this case, failing the attention check involved responding (a) "slightly agree" to "strongly agree" to the item stating that math ability is relevant to one's judgment of

right from right and wrong and (b) "slightly disagree" to "strongly disagree" to the item stating that it is better to do good than bad.

3. For the zero-order correlation power analysis, we set the number of observations to 709, the correlation coefficient to .20, and the alpha level to .05 (two-tailed).

4. For the parallel mediation power analysis, we set the number of observations to 709, the correlations between the predictor and the mediators to .20, the correlations between the mediators and the outcome variable to .20, the residual correlation between the mediators to .00, and the standard deviation for each variable to 1.00. A 95% confidence interval based on 10,000 Monte Carlo resamples was used to determine whether the indirect effects were significant for each of 25,000 replications.

5. The *lavaan* package (Rosseel, 2012) in *R* (R Core Team, 2020) was used to fit all models.

6. The results of models using the facets of Machiavellianism, grandiose narcissism, and psychopathy instead of the composite variables can be found in the Supplementary Material.

7. These hypotheses differ somewhat from those specified in our preregistration. As noted in the Results and Materials sections for Study 2, our current models depart from those specified in our preregistration in three ways. First, we (a) collapsed traditional homonegativity toward lesbian women and gay men into a single variable because the measures appeared to be assessing the same construct and (b) collapsed modern homonegativity toward lesbian women and gay men into a single variable because, again, the measures appeared to be assessing the same construct. Second, we modeled each of the three antagonistic traits separately so as to avoid the partialling issues common to these traits (see C.E. Vize et al., 2018). Third, at the request of an anonymous reviewer and to streamline the results, we modeled the four outcome variables together instead of specifying one model with the homonegativity outcome variables and a second model with the transnegativity outcome variables. For consistency between Study 1 and Study 2, we went back and updated the models used in Study 1 to align with the models used in Study 2. This, however, caused a disconnect, whereby our general approach to generating the hypotheses for Study 2 was the assumption that the pattern of results would be the same in Study 2 as in Study 1, but the preregistered hypotheses were suggesting that the pattern of results would be different between Study 2 and Study 1. Although we feel that the current hypotheses align with the general spirit of the hypotheses specified in the preregistration (i.e., that the results from Study 2 would replicate the results from Study 1), we would encourage readers to compare and contrast the current hypotheses with the preregistered hypotheses to make their own determination.

8. For the zero-order correlation power analysis, we set the number of observations to 267, the correlation coefficient to .20, and the alpha level to .05 (two-tailed).

9. For the parallel mediation power analysis, we set the number of observations to 267, the correlations between the predictor and the mediators to .20, the correlations between the mediators and the outcome variable to .20, the residual correlation between the mediators to .00, and the standard deviation for each variable to 1.00. A 95% confidence interval based on 10,000 Monte Carlo resamples was used to determine whether the indirect effects were significant for each of 25,000 replications.

10. The results of models using the facets of Machiavellianism, grandiose narcissism, and psychopathy instead of the composite variables can be found in the Supplementary Material.

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