

“Dirty Politics”: The Role of Disgust Sensitivity in Voting

Natalie J. Shook
West Virginia University

Benjamin Oosterhoff
University of Texas Health Science Center
at Houston

John A. Terrizzi Jr.
Texas Woman’s University

Kyla M. Brady
West Virginia University

A growing body of research indicates that disgust sensitivity plays an important role in politics. Indeed, preliminary evidence indicates that disgust sensitivity predicts voting behavior. However, the processes that explain this association are unknown. The purpose of this study was to determine whether disgust sensitivity predicted voting intentions and behavior in the 2012 U.S. presidential election and to test whether these associations were mediated by sociopolitical values, party affiliation, and attitudes toward political candidates. Prior to the 2012 election, participants completed measures of disgust sensitivity, right-wing authoritarianism, party affiliation, attitudes toward the political candidates (i.e., Barack Obama and Mitt Romney), and voting intentions. After the 2012 election, participants reported their voting behavior. After accounting for prejudice toward African Americans, greater disgust sensitivity was significantly associated with lower intention to vote for Obama versus Romney and lower likelihood of actually voting for Obama. Disgust sensitivity was also associated with more conservative sociopolitical values, a greater likelihood of Republican Party affiliation, a lower likelihood of Democratic Party affiliation, more negative attitudes toward Obama, and more positive attitudes toward Romney. Conservative sociopolitical values, party affiliation, and attitudes toward political candidates independently mediated the association between disgust sensitivity and voting intentions. Conservative sociopolitical values and political candidate attitudes mediated the association between disgust sensitivity and voting behavior. These findings demonstrate the importance of disgust sensitivity for political attitudes and behavior. Further, mechanisms through which disgust sensitivity is implicated within voting tendencies are identified.

What is the significance of this article for the general public?

Growing evidence indicates that emotions influence political attitudes and behavior. In this study, we demonstrate that disgust played a role in the 2012 U.S. presidential election. Individuals who were more sensitive to disgust endorsed more conservative sociopolitical values, were more likely to affiliate with the Republican Party than the Democratic Party, had more positive attitudes toward Romney and less positive attitudes toward Obama, had greater intentions to vote for Romney than Obama, and were less likely to have voted for Obama.

Keywords: behavioral immune system, disgust sensitivity, voting, political attitudes

Over the past several years, political scientists and psychologists have placed an increased emphasis on the role of affective and emotion

systems within politics. One of the more robust findings in this area is that individual differences in sensitivity to disgust are systematically

Natalie J. Shook, Department of Psychology, West Virginia University; Benjamin Oosterhoff, Department of Psychiatry and Behavioral Sciences, University of Texas Health Science Center at Houston; John A. Terrizzi Jr., Department of Psychology and Philosophy, Texas Woman’s University; Kyla M. Brady, Department of Psychology, West Virginia University.

Correspondence concerning this article should be addressed to Natalie J. Shook, Department of Psychology, West Virginia University, P.O. Box 6040, Morgantown, WV 26506-6040. E-mail: Natalie.Shook@mail.wvu.edu

associated with a variety of political values, beliefs, and attitudes (see [Terrizzi, Shook, & McDaniel, 2013](#), for a review). Specifically, those who are more sensitive to disgust are more likely to endorse political conservatism (e.g., [Inbar, Pizarro, Iyer, & Haidt, 2012](#); [Terrizzi et al., 2013](#)). Although several studies have demonstrated the implications of disgust sensitivity for political attitudes and values, less is known about the extent to which disgust sensitivity is associated with voting tendencies and behavior, or the processes underlying such associations. The present study examined whether disgust sensitivity was associated with voting intentions and voting behavior in the 2012 U.S. presidential election, and tested the extent to which these associations were explained by variation in sociopolitical values, political party affiliation, and attitudes toward political candidates.

The Evolutionary Role of Disgust

Disgust is believed to have originally evolved to reduce oral contamination and the ingestion of harmful substances by inducing nausea and gag reflexes (e.g., [Curtis & Biran, 2001](#); [Darwin, 1872](#); [Faulkner, Schaller, Park, & Duncan, 2004](#)). However, a number of stimuli not associated with oral contamination or ingestion (e.g., the smell of rotten garbage, the sight of blood, hearing someone clear his or her throat) evoke disgust. These stimuli are similar in that they are all potential sources of disease transmission or infection. The experience of disgust encourages individuals to distance themselves from the emotion eliciting source, thereby limiting contact and exposure to the potentially infectious or toxic target. Thus, disgust is proposed to serve a disease-avoidance function ([Curtis & Biran, 2001](#); [Faulkner et al., 2004](#); [Navarrete & Fessler, 2006](#)). Indeed, [Schaller \(2006\)](#) has proposed that disgust is a primary component of the behavioral immune system, a cluster of psychological mechanisms that serve as the first line of defense against pathogen transmission.

Although most people across cultures experience and recognize the emotion of disgust ([Ekman, 1970](#)), there is considerable variability in the extent to which individuals feel disgust, or react to potentially contaminated stimuli (e.g., [Haidt, McCauley, & Rozin, 1994](#); [Tybur,](#)

[Lieberman, & Griskevicius, 2009](#)). Individuals who are higher in disgust sensitivity are more likely to find stimuli disgusting and exhibit greater avoidance tendencies, thereby reducing exposure to potentially disease threatening stimuli. Conversely, those who are lower in disgust sensitivity are less easily disgusted and more inclined to approach potentially harmful stimuli. Thus, disgust sensitivity has been characterized as a stable personality trait, which motivates avoidant social behaviors and endorsement of beliefs that limit contact with stimuli that may pose disease threats ([Terrizzi et al., 2013](#)).

Disgust and Social Attitudes

Because other people are a source of contamination, disgust has important implications for social attitudes. For example, disgust sensitivity is associated with higher levels of ethnocentrism ([Navarrete & Fessler, 2006](#)), as well as prejudice toward sexual minorities ([Inbar, Pizarro, Knobe, & Bloom, 2009](#); [Terrizzi, Shook, & Ventis, 2010, 2012](#)) and foreigners ([Navarrete & Fessler, 2006](#)). Furthermore, inducing disgust results in subsequently higher levels of prejudice toward sexual minorities ([Terrizzi et al., 2010](#)) and foreigners ([Navarrete & Fessler, 2006](#)), demonstrating a causal relation. [Schaller and Duncan \(2007\)](#) have argued that the disease-avoidance function of disgust should encourage more negative attitudes toward outgroup members compared with ingroup members. As a primary means of disease transmission is through contact with other individuals, outgroup members pose a greater disease threat than ingroup members. Evolutionarily, outgroup members may have carried foreign pathogens for which the individual did not have immunity. Prejudice generally encourages individuals to avoid groups to which they have negative attitudes. Thus, disgust sensitivity may promote prejudice toward outgroup members as a means of disease avoidance.

Disgust sensitivity is also associated with several different forms of social conservatism ([Shook, Terrizzi, Clay, & Oosterhoff, 2015](#); [Terrizzi et al., 2013](#)), such as collectivism (e.g., [Clay, Terrizzi, & Shook, 2012](#)), right-wing authoritarianism (e.g., [Hodson & Costello, 2007](#)), and religious fundamentalism (e.g., [Terrizzi et al., 2012](#)). Individuals who are higher in disgust

sensitivity tend to more strongly endorse socially conservative beliefs, which promote adherence to social norms, ingroup cohesion, and avoidance of outgroup members. These characteristics of social conservatism may be adaptive strategies for avoiding potentially contaminated outgroup members. Indeed, evidence indicates that social conservatism mediates the relation between disgust sensitivity and prejudice (Hodson & Costello, 2007; Olatunji, 2008; Terrizzi et al., 2012). That is, disgust sensitivity encourages individuals to endorse socially conservative beliefs, which in turn promote avoidance of and negative attitudes toward outgroups. In sum, disgust sensitivity may encourage individuals to endorse more general prejudicial and socially conservative attitudes as a means of avoiding potentially contaminated outgroup members.

Disgust and Politics

Growing evidence has linked disgust with politics. Individuals who are higher in disgust sensitivity tend to endorse a more conservative political ideology (e.g., Inbar, Pizarro, & Bloom, 2009; Inbar et al., 2012; Shook et al., 2015; Terrizzi et al., 2010). Self-reported conservatives also exhibit a stronger physiological response, as assessed by skin conductance and neural activity, to disgusting stimuli than self-reported liberals (Ahn et al., 2014; Smith, Oxley, Hibbing, Alford, & Hibbing, 2011). Furthermore, disgust sensitivity and inducing disgust are both associated with more severe moral judgments that align with politically conservative beliefs (e.g., Horberg, Oveis, Keltner, & Cohen, 2009; Schnall, Haidt, Clore, & Jordan, 2008).

Although a great deal of research has demonstrated the implications of disgust sensitivity for political values and attitudes, less research has examined whether disgust sensitivity is associated with actual voting behavior. Retrospective reports from the Netherlands suggests that participants who reported voting for the conservative “Freedom Party” in a previous election were more sensitive to disgust compared with participants who reported voting for other political groups (Brenner & Inbar, 2015). In the United States, disgust sensitivity significantly correlated with intentions to vote for the Republican candidate (i.e., John McCain) in the 2008

presidential election (Inbar et al., 2012). Moreover, aggregate disgust sensitivity scores by state (i.e., average disgust sensitivity scores of participants from each state) predicted Barack Obama’s margin of victory in each state. States with participants who reported higher levels of disgust sensitivity on average were less likely to vote for Obama over McCain. These studies provide initial evidence that disgust sensitivity may have implications for actual voting behavior. However, no research to date has directly tested whether disgust sensitivity prospectively predicts how individuals vote in national elections. Further, potential mechanisms underlying the association between disgust sensitivity and voting behavior have not been examined.

Explaining the Association Between Disgust Sensitivity and Voting

Voting decisions may be based on several distinct psychological factors, such as sociopolitical values, party affiliation, and attitudes toward a candidate. Although generally related, these variables are unique constructs (e.g., Crowson, Thoma, & Hestevold, 2005). For example, sociopolitical values (e.g., right-wing authoritarianism) represent broader belief and motivational systems, whereas party affiliation represents how an individual identifies with a political organization. Moreover, these factors independently predict voting behaviors (e.g., Friese, Smith, Plischke, Bluemke, & Nosek, 2012). As many of these factors have been associated with disgust sensitivity, voting behavior may be influenced by disgust sensitivity through multiple mechanisms.

One likely explanation for the link between disgust sensitivity and voting is that those who are more sensitive to disgust have a greater tendency to endorse conservative sociopolitical values, such as right-wing authoritarianism (e.g., Shook et al., 2015; Terrizzi et al., 2013). However, disgust sensitivity may also be connected to other political processes that have important implications for voting. For instance, some evidence suggests that disgust sensitivity is associated with political party affiliation (Tybur, Inbar, Guler, & Molho, 2015), which is one of the strongest predictors of voting choice (e.g., Finn & Glaser, 2010). Additionally, disgust sensitivity may be related to attitudes toward political candidates. Although no research

has directly examined whether disgust sensitivity is related to evaluations of political candidates, numerous studies have demonstrated associations between disgust sensitivity and evaluations of different social groups (e.g., Inbar et al., 2009; Navarrete & Fessler, 2006; Terrizzi et al., 2010, 2012; Vartanian, 2010). It is possible that those who are more sensitive to disgust endorse more favorable attitudes toward Republicans (and less favorable attitudes toward Democrats), which has been shown to predict voting choice, even when accounting for political beliefs and party affiliation (Friese et al., 2012).

Sociopolitical values (e.g., right-wing authoritarianism), political party affiliation, and attitudes toward political candidates are all significant predictors of voting behavior. These variables are also generally associated with one another. However, despite their shared association, each factor independently predicts voting behavior (e.g., Friese et al., 2012). Thus, disgust sensitivity may be an important individual difference in a range of political processes that have implications for voting, including the values individuals form, how they affiliate with different political parties, and evaluations of political candidates.

Current Research

In sum, several studies have demonstrated that disgust sensitivity is an important individual difference in political attitudes and values, yet less research has examined the extent to which disgust sensitivity is associated with voting intentions and behavior. Moreover, the potential mechanisms underlying the association between disgust sensitivity and voting behavior have not been explored. Elucidating these mechanisms would contribute to theory and demonstrate the translational implications of disgust in political processes.

The purpose of this study was to determine whether disgust sensitivity was related to intentions to vote and actual voting behavior in the 2012 U.S. presidential election (Barack Obama and Mitt Romney), and to test whether variation in sociopolitical values, party affiliation, and candidate attitudes explain these effects. It was expected that individuals higher in disgust sensitivity would have lower intentions and be less inclined to vote for Obama. Individuals higher

in disgust sensitivity were also hypothesized to endorse more conservative sociopolitical values, be more likely to identify as a Republican, be less likely to identify as Democrat, have more favorable attitudes toward Romney, and have less favorable attitudes toward Obama. These links were expected to at least partially explain associations between disgust sensitivity and voting intentions/behavior.

Method

Participants

A total of 157 undergraduate students ($M_{\text{age}} = 19.95$ years, $SD = 5.66$) from a public university in the mid-Atlantic region of the United States participated for course credit. The sample was primarily female (63.1%) and predominantly White (90.4%). With regard to political party affiliation, 38.2% identified as Democrat, 29.3% as Republican, 20.4% as Independent, 4.5% as Libertarian, and 7.6% as "Other." Data from 3 participants were excluded from all analyses involving indices from the affect misattribution procedure due to missing data or ability to speak/read Asian languages.

Measures

Three-Domain Disgust Scale. Disgust sensitivity was assessed using the Three-Domain Disgust Scale (TDDS; Tybur et al., 2009). The 21-item questionnaire consists of three subscales: pathogen disgust (e.g., "Accidentally touching a person's bloody cut"), sexual disgust (e.g., "Performing oral sex"), and moral disgust (e.g., "Stealing from a neighbor"). Participants indicate how disgusting each item is on a scale from 0 (*not at all disgusting*) to 6 (*extremely disgusting*). A composite score was created by averaging all of the items together ($\alpha = .89$). Composite scores for each subscale were also created: pathogen disgust ($\alpha = .81$), sexual disgust ($\alpha = .87$), and moral disgust ($\alpha = .89$). Higher scores indicated greater disgust sensitivity.

Sociopolitical values. The 20-item Right-Wing Authoritarianism scale (Altemeyer, 1998) was used to assess sociopolitical values. Participants indicate the extent to which they agree with each item (e.g., "Our country will be

greater if we honor the ways of our forefathers and do what authorities tell us to do”) on a scale from 1 (*strongly disagree*) to 9 (*strongly agree*). Higher scores indicated greater endorsement of conservative values ($\alpha = .91$).

Attitudes toward political candidates. The affect misattribution procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005) was used to assess attitudes toward the 2012 U.S. presidential candidates, Barack Obama and Mitt Romney. The AMP is an indirect measure of attitudes. This method was preferred over self-report measures because it reduces common-method variance, a source of bias that is especially pronounced in research on attitudes (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The AMP has reliably assessed attitudes toward presidential candidates ($\alpha = .90$) and predicted voting intentions (Payne et al., 2005).

The AMP entails supraliminally priming participants with a target stimulus followed by a novel stimulus (Chinese ideograph). Participants are asked to judge the novel stimulus as pleasant or unpleasant. The evaluative response (positivity or negativity) evoked by the target stimulus is misattributed to the novel stimulus, influencing participants’ responses and providing an indirect assessment of attitudes. To assess attitudes toward Obama and Romney, images of the two presidential candidates were gathered from Internet searches. Per the procedures outlined by Payne et al. (2005), the images were matched on “whether the candidates were (a) smiling, (b) speaking, (c) gesturing, or (d) facing toward or away from the camera” (p. 284). The images were also matched on background (e.g., presence of the American flag, signs, or people in the photograph), the extent to which the candidate’s head, shoulders, and torso were included in the photograph, and candidate’s attire (i.e., all images presented the candidates in suits). Twelve matching images of each candidate were selected.

For this study, the AMP consisted of two blocks of 28 trials (56 trials total). During a given trial, participants were presented with a picture of either Obama, Romney, or a neutral gray square for 75 ms, a blank screen for 125 ms, and a Chinese ideograph for 100 ms. Participants were instructed to indicate whether the Chinese ideograph was “pleasant” or “unpleasant” by pressing one of two labeled letters on the computer keyboard. Participants were in-

structed that the images preceding the Chinese ideographs simply served to signal the onset of the Chinese ideograph and that only the ideograph was to be judged. Each block consisted of 12 trials with images of Obama, 12 trials with images of Romney, and 4 trials with a gray square presented in a random order. The same 12 images of Obama and Romney, as well as the gray square, were used in both blocks. However, 56 unique Chinese ideographs were used for each trial. The proportion of “pleasant” responses to Obama trials, Romney trials, and neutral trials were calculated separately. Thus, higher numbers represented more positivity toward the target stimulus, or a more positive attitude.

Voting intentions and behavior. Before the 2012 U.S. presidential election, participants were asked for whom they would vote (Obama or Romney) in the presidential election. After the 2012 U.S. presidential election, participants were asked if they voted in the election (yes or no). For those who voted, they were then asked to indicate for whom they voted (Obama, Romney, or Other).

Prejudice toward African Americans. To ensure findings were not due to racial differences in political candidates, 6 items from the Symbolic Racism 2000 Scale (Henry & Sears, 2002) were included. Participants rated their agreement with each item (e.g., “Discrimination against Blacks is no longer a problem in the U.S.”) on a scale from 1 (*disagree strongly*) to 5 (*agree strongly*). Mean scores were calculated with higher values indicating greater prejudice toward African Americans ($\alpha = .75$).

Demographics. Participants were asked to provide their age, sex, race/ethnicity, and political party affiliation.¹

Procedure

Participants registered for a two-part study about political beliefs and voting. The first part of the study occurred between September 6 and

¹ Age, race, and sex were not significantly associated with any of the outcome measures. Females ($M = 4.26$, $SD = .86$) did report higher levels of disgust sensitivity than males ($M = 3.17$, $SD = 1.16$), $t(155) = 6.72$, $p < .001$, which is consistent with previous research (e.g., Terrizzi et al., 2014). However, disgust sensitivity did not differ by age or race (p values $> .10$). As such, none of the demographic variables were entered as covariates in the subsequent analyses.

October 19, 2012. The second part occurred between November 7 (the day after the 2012 U.S. presidential election) and December 7, 2012. Upon arrival to the lab for the first session, participants were seated in individual rooms with computer workstations. They were given an overview of the study and asked to provide informed consent. Participants first completed the AMP and a second computer task for an unrelated study. Participants then completed the questionnaires in the following order: voting intentions questions, TDDS, conservative values, prejudice toward African Americans, and demographics questions. After completing the questionnaires, participants were thanked and dismissed.

The second part of the study consisted of an online survey. After the 2012 U.S. presidential election, participants received notification that they could complete the second part of the study and were provided with a secure link to an online survey administered through SurveyMonkey. The survey consisted of a number of questionnaires about social attitudes and emotions for an unrelated study. Of relevance for the current study, participants were asked about their voting behavior during the presidential election.

Results

Means and standard deviations for all study variables are displayed in Table 1. To assess the simple associations among all study variables, bivariate correlations were estimated (see Table 1). All of the political indices were significantly correlated in the expected direction. Prejudice toward African Americans was correlated with all political indices, such that those who endorsed greater prejudice reported more conservative sociopolitical values, were less likely to be Democrat and more likely to be Republican, had less positive attitudes toward Obama and more positive attitudes toward Romney, had less intention to vote for Obama versus Romney, and were less likely to have voted for Obama. General disgust sensitivity was significantly correlated with sociopolitical values, party affiliation, and attitudes toward the political candidates. Those who were more sensitive to disgust more strongly endorsed conservative sociopolitical values, were less likely to affiliate with the Democratic Party but marginally more likely to affiliate with the Republican Party, had more negative attitudes toward Obama, and had marginally more positive attitudes toward Romney. This general pat-

Table 1
Zero-Order Correlations Among Measures

Measures	M (N)	SD (%)	2	3	4	5	6	7	8	9	10	11	12
1. Prejudice	1.56	.76	-.07	.05	-.08	-.11	.43***	-.25**	.32**	-.36***	.27**	-.31***	-.33**
2. Overall disgust	3.86	1.11		.73***	.84***	.75***	.25***	-.20*	.15#	-.20*	.14#	-.17*	-.24*
3. Pathogen disgust	4.24	1.18			.49***	.29**	.27**	-.20*	.19*	-.21**	.09	-.13	-.08
4. Sex disgust	1.48	1.61				.39**	.28**	-.14#	.12	-.15#	.06	-.13	-.25*
5. Moral disgust	3.85	1.51					.04	-.14#	.06	-.12	.17*	-.14#	-.18
6. RWA	4.05	1.37						-.33***	.51***	-.47***	.51***	-.52***	-.58***
7. Democrat	(60)	(38.2)							-.51***	.49***	-.55***	.55***	.48***
8. Republican	(46)	(29.3)								-.42***	.52***	-.58***	-.58***
9. Obama AMP	.49	.32									-.44***	.61***	.65***
10. Romney AMP	.58	.32										-.57***	-.58***
11. Intend to vote Obama	(87)	(55.4)											.80***
12. Vote Obama [†]	(36)	(52.9)											

Note. RWA = right-wing authoritarianism; AMP = affect misattribution procedure.

[†] Sample size was $N = 68$.

$p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2
Partial Correlations Among Disgust Sensitivity and Political Indices After Controlling for Prejudice

Measures	Overall disgust	Pathogen disgust	Sexual disgust	Moral disgust
Sociopolitical values				
RWA	.31**	.27**	.34**	.10
Party affiliation				
Democrat	-.23**	-.19*	-.17*	-.17*
Republican	.18*	.18*	.15 [#]	.15
Attitudes toward candidates				
Obama AMP	-.24**	-.20*	-.19*	-.17*
Romney AMP	.16*	.08	.08	.21*
Voting				
Intend to vote Obama	-.21*	-.12	-.16*	-.19*
Vote Obama [†]	-.24*	-.02	-.25*	-.23 [#]

Note. RWA = right-wing authoritarianism; AMP = affect misattribution procedure.

[†] Sample size was $N = 68$.

[#] $p < .10$. * $p < .05$. ** $p < .01$.

tern of findings was consistent across the different domains of disgust.

As prejudice was significantly associated with all of the political indices, the simple correlations with the political variables may have been confounded. Partial correlations were conducted among disgust sensitivity and all political indices, controlling for prejudice toward African Americans (see Table 2). The pattern of results remained the same, and in some instances, the strength of associations slightly increased. In fact, the association between disgust sensitivity and both attitudes toward Romney and likelihood of affiliating with the Republican Party reached conventional significance levels when controlling for prejudice.

Disgust Sensitivity and Voting

During the first session of the study, participants were asked whether they would vote for Obama or Romney in the upcoming presidential election. Responses were forced-choice and coded 0 (Romney) and 1 (Obama). Bivariate and partial correlations were used to examine associations among disgust sensitivity and voting intentions. Participants higher in disgust sensitivity reported lower intentions to vote for Obama (see Table 1), even after controlling for prejudice toward African Americans (see Table 2). When examining correlations among specific domains of disgust and intention to vote, the associations were all approaching significance and in the anticipated

direction, suggesting that this relation is not concentrated within a specific domain.

During the second session ($N = 104$), a subset of participants ($n = 68$) actually voted in the election. Participants who were higher in disgust sensitivity were more likely to have voted, even when controlling for prejudice, $r = .24$, $p < .05$. Of those who voted, 36 participants voted for Obama, 23 participants voted for Romney, and 9 participants wrote in a candidate.² Responses were dummy coded such that 0 = did not vote for Obama and 1 = voted for Obama.³ After controlling for prejudice, participants who were higher in disgust sensitivity were less likely to have voted for Obama (see Table 2). When examining correlations among specific domains of disgust and voting behavior, sexual disgust was significantly associated with a lower likelihood of having voted for Obama and moral disgust was marginally associated with a lower likelihood of having voted for Obama.

² All of the primary analyses regarding voting behavior were run with and without the 9 participants who voted for candidates other than Romney or Obama. The pattern of results was consistent with or without these individuals. Thus, all reported analyses include these participants to increase sample size and statistical power.

³ The pattern of results are the same if coded 0 = did not vote for Romney and 1 = voted for Romney.

Explaining Associations Between Disgust Sensitivity and Voting

Two mediation models were used to test whether associations between disgust sensitivity and voting intentions (Model 1) and voting behavior (Model 2) were independently mediated by sociopolitical values, Democratic Party affiliation, Republican Party affiliation, attitudes toward Obama, and attitudes toward Romney, controlling for prejudicial attitudes. All mediators were tested simultaneously in *Mplus* via model indirect, and 95% bias-corrected confidence intervals for the indirect effects were calculated using 10,000 bootstrapped resamples.

In the first mediation model, general disgust sensitivity was specified as the primary independent variable and voting intentions as the primary dependent variable. Sociopolitical values (i.e., RWA), Republican Party affiliation, Democratic Party affiliation, attitudes toward Romney, and attitudes toward Obama were specified as observed mediators. Prejudice toward African Americans was specified as an observed covariate.⁴ Figure 1 presents the unstandardized estimates and standard errors for the model. After controlling for prejudice, disgust sensitivity was associated with greater endorsement of conservative sociopolitical values, a lower likelihood of affiliating with the Democratic Party, a higher likelihood of affiliating with the Republican Party, more positive attitudes toward Romney, and less positive attitudes toward Obama. Conservative values, Republican affiliation, and positive attitudes toward Romney were associated with a lower intention to vote for Obama. Democratic affiliation and positive attitudes toward Obama were associated with a higher intention to vote for Obama. All of the indirect effects were significant (i.e., zero did not fall within the confidence intervals), indicating that the association between disgust sensitivity and voting intentions was partially explained through sociopolitical values, party affiliation, and attitudes toward Obama and Romney independently. The direct effect from disgust sensitivity to voting intentions remained significant, even when accounting for the indirect effects.

A second mediation model was used to test predictors of voting behavior. This model was similar to the model above, with voting behavior (dummy coded such that 1 = voted for

Obama and 0 = did not vote for Obama) replacing voting intention. Figure 2 presents the unstandardized estimates and standard errors. After controlling for prejudice toward African Americans, greater endorsement of conservative sociopolitical values, Republican Party affiliation, and positive attitudes toward Romney significantly predicted a lower likelihood of voting for Obama. Democratic Party affiliation and positive attitudes toward Obama predicted a higher likelihood of voting for Obama. Significant indirect effects indicated that disgust sensitivity was indirectly associated with a lower likelihood of voting for Obama through greater conservative sociopolitical values and less positive attitudes toward Obama. The direct effect between disgust sensitivity and voting behavior was not significant.⁵ These findings should be interpreted with caution, given the small sample size ($n = 68$) and low statistical power.⁶

To increase statistical power (post hoc power analysis range: 61%–99%), a simpler mediation model was tested. Instead of testing multiple mediators, a single political attitudes composite variable was created by standardizing and averaging sociopolitical values, attitudes toward Obama (reverse coded), and attitudes toward Romney. Political party affiliation variables were not included due to their dichotomous scaling. In this model, the indirect effect of disgust sensitivity on voting behavior through the political attitudes composite variable was tested, controlling for prejudice toward African Americans. Greater disgust sensitivity was significantly associated with more conser-

⁴ To ensure the current sample provided sufficient power to test the full model, a priori Monte Carlo simulations using effect size estimates from prior research (Inbar et al., 2012) were conducted. Based on $N = 10,000$ simulations, a sample size of $N = 157$ resulted in unbiased parameter estimates (<5%) and standard errors (<5%) and provides sufficient power (80%–100%) to detect anticipated effects of $\beta = .25$ assuming $\alpha = .05$ (Muthén & Muthén, 2002). *Mplus* syntax for this analysis is available upon request.

⁵ The direct effect between disgust sensitivity and voting intentions was not significant, but it was in the opposite direction indicating a potential suppression effect (Darlington, 1968).

⁶ Post hoc Monte Carlo power analyses were performed to test whether the sample ($N = 68$) provided sufficient power to test the full mediation model. Based on 10,000 simulations, a sample size of 68 resulted in unbiased parameter estimates (<5%) and standard errors (<5%) and provided insufficient power (41%–80%) to detect the anticipated $\beta = .25$ effects size assuming $\alpha = .05$ (Muthén & Muthén, 2002).

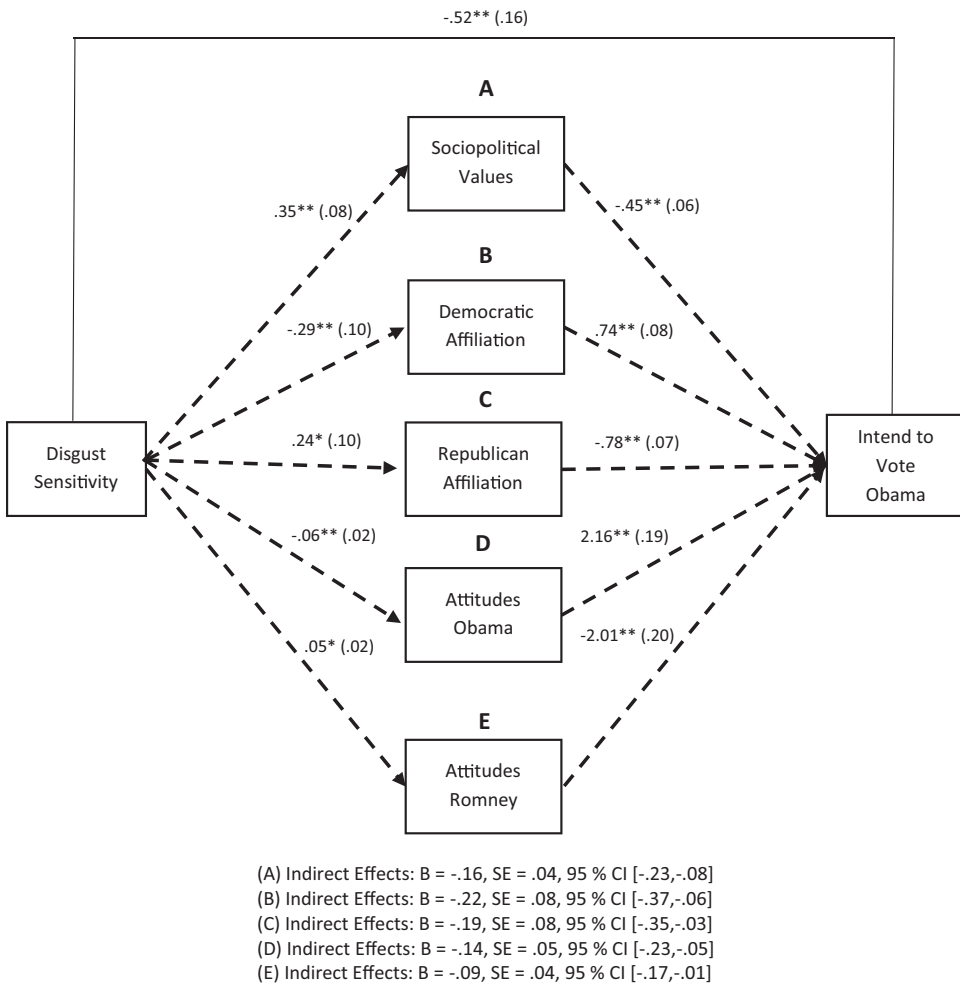
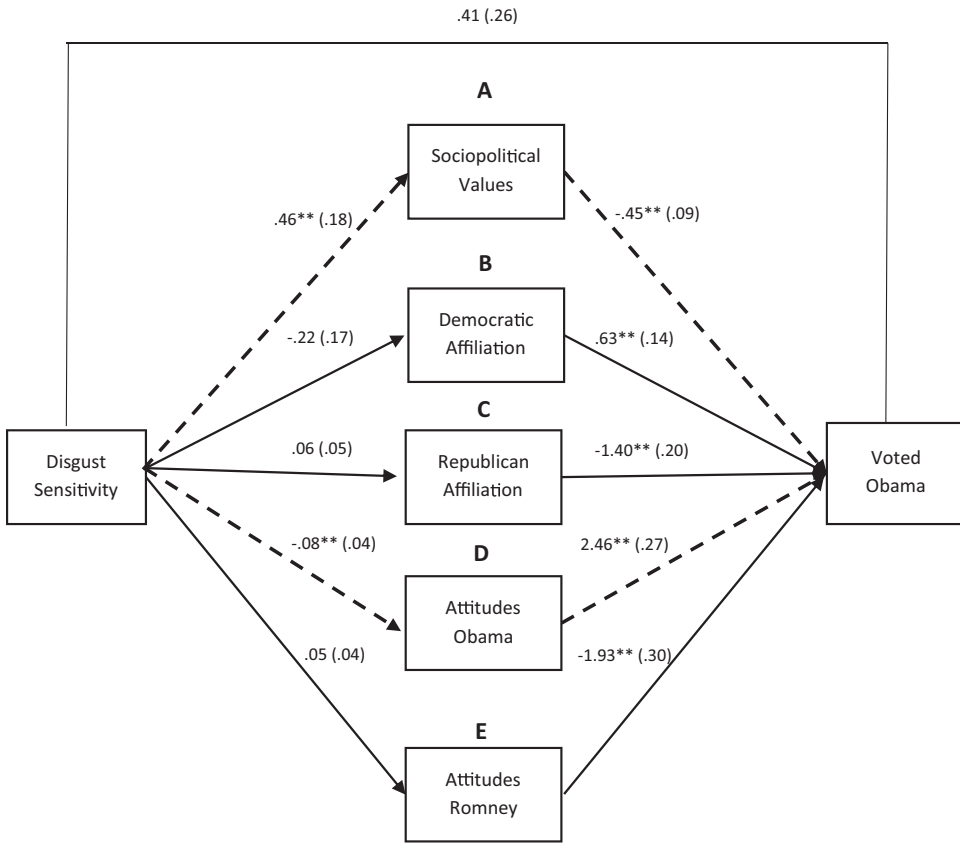


Figure 1. Model of the association between disgust sensitivity and voting intentions, mediated by sociopolitical values, Democratic and Republican Party affiliations, and attitudes toward the political candidates. The confidence intervals for the indirect effects are based on bootstrapping with 10,000 resamples. The model controlled for prejudice toward African Americans. Dashed lines represent significant indirect effects. * $p < .05$. *** $p < .01$.

vative attitudes ($B = .25$, $SE = .10$, $p = .01$), and more conservative attitudes were significantly associated with a lower likelihood of voting for Obama ($B = -.94$, $SE = .12$, $p < .001$). The indirect effect was significant ($B = -.24$, $SE = .11$, $p = .03$, 95% CI: $-.49, -.05$). The direct effect of disgust sensitivity on voting for Obama was not significant ($B = -.11$, $SE = .15$, $p = .44$). Thus, political attitudes significantly mediated the relation between disgust sensitivity and voting behavior.

As disgust sensitivity, sociopolitical values, party affiliation, and attitudes toward the candi-

dates were measured at the same time point, causal or chronological direction cannot be discerned. Although theoretically disgust sensitivity influences political and social attitudes, it is possible that disgust sensitivity mediated the relation between the political factors and voting behaviors. Alternative models were tested in which disgust sensitivity was the mediator between each political factor (i.e., sociopolitical values, party affiliation, and candidate attitudes) and voting intentions or behavior. However, none of the indirect effects were significant (i.e., zero was included in all of the confidence intervals). Thus, there was no ev-



- (A) Indirect Effects: B = -.21, SE = .09, 95 % CI [-.37, -.04]
- (B) Indirect Effects: B = -.17, SE = .12, 95 % CI [-.40, .05]
- (C) Indirect Effects: B = -.09, SE = .08, 95 % CI [-.24, -.07]
- (D) Indirect Effects: B = -.20, SE = .09, 95 % CI [-.02, -.38]
- (E) Indirect Effects: B = -.10, SE = .08, 95 % CI [-.25, -.05]

Figure 2. Model of the association between disgust sensitivity and voting for Obama, mediated by sociopolitical values, political affiliation, and attitudes toward the political candidates. The confidence intervals for the indirect effects are based on bootstrapping with 10,000 resamples. The model controlled for prejudice toward African Americans. Dashed lines represent significant indirect effects. ** $p < .01$.

idence that disgust sensitivity mediated any of the relations between political factors and voting behavior.

Discussion

Disgust is an emotional response that has important implications for numerous politically related processes (Terrizzi et al., 2013). The goal of the present research was to examine the extent to which disgust sensitivity predicted voting intentions and behavior, and test the po-

tential processes that explain these associations. As expected, disgust sensitivity was significantly associated with voting intentions and voting behavior in the 2012 U.S. presidential election. Those who were more sensitive to disgust had lower intentions to vote for Obama rather than Romney, and they were less likely to have voted for Obama in the election. Further, these associations were explained by systematic variation among sociopolitical values, political party affiliation, and attitudes toward the political candidates. Importantly, these relations re-

mained after controlling for prejudice toward African Americans.

The current findings replicate and extend prior research (e.g., Brenner & Inbar, 2015; Inbar et al., 2012) by demonstrating that disgust sensitivity has implications for individuals' voting intentions and actual voting behavior. Consistent with previous work and as hypothesized, those who were more sensitive to disgust had a greater intention to vote for a more conservative political candidate (i.e., Mitt Romney) over the more liberal candidate (i.e., Barak Obama). Further, prospective analyses indicated that disgust sensitivity predicted actual voting behavior, with those more sensitive to disgust being less likely to have voted for Obama, even after accounting for prejudice. These findings demonstrate that the political implications of disgust sensitivity extend beyond political values, attitudes toward specific issues, and political party affiliation (Terrizzi et al., 2012; Tybur et al., 2015), and translate into social action that can shape public policy.

This study is novel and makes an important contribution to the existing literature in that this is the first demonstration of multiple independent mechanisms underlying the association between disgust sensitivity and political behavior. As hypothesized, disgust sensitivity was indirectly associated with voting intentions through greater endorsement of conservative sociopolitical values, affiliation with different political parties, and attitudes about specific political candidates. Those who were more sensitive to disgust were more likely to endorse conservative sociopolitical values, affiliate with the Republican Party, and have more positive attitudes toward the Republican political candidate, while also being less likely to affiliate with the Democratic Party and having less positive attitudes toward the Democratic candidate. Disgust sensitivity may motivate the adoption of political attitudes and values conducive of outgroup avoidance (Terrizzi et al., 2012), which might subsequently result in support for candidates that enact similar policies. Importantly, each of these factors *independently* predicted voting intentions and partially explained why disgust sensitivity is linked with voting. The independent contribution for each of these indirect effects demonstrates the nuanced complexity and multiple channels through which disgust may affect the political process and public policy.

The indirect effect of disgust sensitivity on voting through evaluations of political candidates is especially intriguing given the paucity of research on this area and the importance of candidate evaluations for campaigning, polling, and voting (Brady, Johnston, & Sides, 2006).

Although disgust sensitivity was indirectly associated with voting intentions through all of the proposed mediators in the intentions model, the behavior model only partially replicated this pattern. Specifically, the association between disgust sensitivity and actual voting behavior was partially mediated by greater endorsement of conservative sociopolitical values and less positive attitudes toward Obama. Post hoc power analyses indicated that the low number of participants who voted in the election and completed the follow-up assessment may not have provided sufficient power for all estimates. It is important to note that the direction and magnitude of all effects in this model were strikingly similar to the model predicting intentions, suggesting that party affiliation and attitudes toward Romney may still have played a role in explaining the link between disgust sensitivity and voting behavior.

Implications for Practice and Theory

Demonstrating that disgust sensitivity is associated with voting intentions and predicts voting behavior has important implications for research and practice. Connecting individual differences in sensitivity to disgust to political behavior exemplifies the far-reaching implications of the emotion of disgust, suggesting that this emotion may motivate actions that have consequences for public policy and legislation. These results underscore disgust sensitivity as an especially salient individual difference that is implicated in the political process, and adds to the growing body of evidence that demonstrates the importance of emotional and affective systems for political behaviors. Those interested in understanding the intersection between emotion-related processes and political behaviors may benefit from incorporating disgust sensitivity into their theoretical models.

From an applied perspective, evoking disgust is often used as a tactic within advertising campaigns advocating for specific political issues, particularly those concerning public health. Recent examples of this include campaigns seek-

ing to reduce smoking by demonstrating the effects it may have on lungs or lower obesity by visualizing the fat content of sugary drinks and fast food (e.g., Lupton, 2015). Findings from the current study and previous work suggest that disgust-related experiences may be connected with sociopolitical values, party affiliation, and evaluations of political candidates, and each of these processes may have bearing on political decisions. As such, the release and prevalence of disgust-inducing advertisements may affect election results and voting tendencies. Indeed, recent evidence suggests that the release of information concerning pathogenic threats (i.e., Ebola) affected attitudes toward gay marriage (Inbar, Westgate, Pizarro, & Nosek, 2016) and support for Republican candidates, particularly in Republican states (Beall, Hofer, & Schaller, 2016). Thus, policymakers should consider the implications of disgust and disease-related experiences on political attitudes and behavior.

Limitations and Future Directions

Despite the strengths of this study, including the multimethod approach and longitudinal design, findings should be taken in light of certain limitations. Data were correlational, and thus, causal interpretations cannot be made. Research designs that experimentally manipulate disgust are needed to examine if experiencing disgust has a causal effect on voting. The sample was relatively homogenous and consisted of college students. Thus, the findings may not generalize broadly. However, the consistency between these findings and previous research (i.e., Brenner & Inbar, 2015; Inbar et al., 2012) should alleviate some concern regarding generalizability. Moreover, the current study utilized different measures than previous research (Brenner & Inbar, 2015; Inbar et al., 2012) further demonstrating the robustness of these findings. The small number of participants who completed the second part of the study and voted results in analyses that were slightly underpowered, and future research is needed to replicate these findings using larger samples.

In the current study, disgust sensitivity was not significantly associated with prejudice toward African Americans. This seems inconsistent with theory regarding the disease-avoidance role of disgust and previous findings (Hodson et al., 2013). It is not clear why this

correlation was not significant in the current data. Disgust should only be predictive of prejudice toward individuals who pose a disease threat or within a context of heightened disease threat (see Schaller & Neuberg, 2012). Potentially, participants did not perceive African Americans as a disease threat. The measure of prejudice in this study only included a subset of items from the Symbolic Racism Scale, which may have been limited and resulted in a smaller effect. Future research may be needed to examine the breadth of the association between disgust sensitivity and prejudice toward different groups. Although we incorporated several different mediators within our primary model, other mechanisms may also explain links between disgust sensitivity and voting, including religiosity (Terrizzi, Clay, & Shook, 2014), beliefs concerning outgroup members (Faulkner et al., 2004), and support for specific political policies (Terrizzi et al., 2010). Future research may benefit from including these constructs.

Conclusions

Overall, this study builds on previous research demonstrating that disgust sensitivity has political ramifications rather than just protecting individuals from oral contaminants or infectious disease. Furthermore, disgust sensitivity is uniquely associated with attitudes toward specific political figures and political party affiliations, and has important implications for societal decisions (i.e., voting). These findings highlight the importance of understanding the role of disgust sensitivity in political attitudes and behavior.

References

- Ahn, W. Y., Kishida, K. T., Gu, X., Lohrenz, T., Harvey, A., Alford, J. R., . . . Montague, P. R. (2014). Nonpolitical images evoke neural predictors of political ideology. *Current Biology*, *24*, 2693–2699. <http://dx.doi.org/10.1016/j.cub.2014.09.050>
- Altemeyer, B. (1998). The other authoritarian personality. *Advances in Experimental and Social Psychology*, *30*, 47–92.
- Beall, A. T., Hofer, M. K., & Schaller, M. (2016). Infections and elections: Did an Ebola outbreak influence the 2014 U.S. federal elections (and if so, how)? *Psychological Science*, *27*, 595–605. <http://dx.doi.org/10.1177/0956797616628861>

- Brady, H. E., Johnston, R., & Sides, J. (2006). The study of political campaigns. In H. E. Brady & R. Johnston (Eds.), *Capturing campaign effects* (pp. 1–26). Ann Arbor, MI: University of Michigan Press.
- Brenner, C. J., & Inbar, Y. (2015). Disgust sensitivity predicts political ideology and policy attitudes in the Netherlands. *European Journal of Social Psychology, 45*, 27–38. <http://dx.doi.org/10.1002/ejsp.2072>
- Clay, R., Terrizzi, J. A., Jr., & Shook, N. J. (2012). Individual differences in behavioral immune system and the emergence of cultural systems. *Social Psychology, 43*, 174–184. <http://dx.doi.org/10.1027/1864-9335/a000118>
- Crowson, H. M., Thoma, S. J., & Hestevold, N. (2005). Is political conservatism synonymous with authoritarianism? *The Journal of Social Psychology, 145*, 571–592. <http://dx.doi.org/10.3200/SOCP.145.5.571-592>
- Curtis, V., & Biran, A. (2001). Dirt, disgust, and disease. Is hygiene in our genes? *Perspectives in Biology and Medicine, 44*, 17–31. <http://dx.doi.org/10.1353/pbm.2001.0001>
- Darlington, R. B. (1968). Multiple regression in psychological research and practice. *Psychological Bulletin, 69*, 161–182.
- Darwin, C. (1872). *The expression of the emotions in man and animals*. Chicago, IL: University of Chicago Press. <http://dx.doi.org/10.1037/10001-000>
- Ekman, P. (1970). Universal facial expressions of emotion. *California Mental Health Research Digest, 8*, 151–158.
- Faulkner, J., Schaller, M., Park, J., & Duncan, L. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes & Intergroup Relations, 7*, 333–353. <http://dx.doi.org/10.1177/1368430204046142>
- Finn, C., & Glaser, J. (2010). Voter affect and the 2008 US presidential election: Hope and race mattered. *Analyses of Social Issues and Public Policy, 10*, 262–275. <http://dx.doi.org/10.1111/j.1530-2415.2010.01206.x>
- Friese, M., Smith, C. T., Plischke, T., Bluemke, M., & Nosek, B. A. (2012). Do implicit attitudes predict actual voting behavior particularly for undecided voters? *PLoS One, 7*, e44130. <http://dx.doi.org/10.1371/journal.pone.0044130>
- Haidt, J., McCauley, C., & Rozin, P. (1994). Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. *Personality and Individual Differences, 16*, 701–713. [http://dx.doi.org/10.1016/0191-8869\(94\)90212-7](http://dx.doi.org/10.1016/0191-8869(94)90212-7)
- Henry, P. J., & Sears, D. O. (2002). The Symbolic Racism 2000 Scale. *Political Psychology, 23*, 253–283. <http://dx.doi.org/10.1111/0162-895X.00281>
- Hodson, G., Choma, B. L., Boisvert, J., Hafer, C. L., MacInnis, C. C., & Costello, K. (2013). The role of intergroup disgust in predicting negative outgroup evaluations. *Journal of Experimental Social Psychology, 49*, 195–205. <http://dx.doi.org/10.1016/j.jesp.2012.11.002>
- Hodson, G., & Costello, K. (2007). Interpersonal disgust, ideological orientations, and dehumanization as predictors of intergroup attitudes. *Psychological Science, 18*, 691–698. <http://dx.doi.org/10.1111/j.1467-9280.2007.01962.x>
- Horberg, E. J., Oveis, C., Keltner, D., & Cohen, A. B. (2009). Disgust and the moralization of purity. *Journal of Personality and Social Psychology, 97*, 963–976. <http://dx.doi.org/10.1037/a0017423>
- Inbar, Y., Pizarro, D. A., & Bloom, P. (2009). Conservatives are more easily disgusted. *Cognition and Emotion, 23*, 714–725. <http://dx.doi.org/10.1080/02699930802110007>
- Inbar, Y., Pizarro, D., Iyer, R., & Haidt, J. (2012). Disgust sensitivity, political conservatism, and voting. *Social Psychological and Personality Science, 3*, 537–544. <http://dx.doi.org/10.1177/1948550611429024>
- Inbar, Y., Pizarro, D. A., Knobe, J., & Bloom, P. (2009). Disgust sensitivity predicts intuitive disapproval of gays. *Emotion, 9*, 435–439. <http://dx.doi.org/10.1037/a0015960>
- Inbar, Y., Westgate, E. C., Pizarro, D. A., & Nosek, B. A. (2016). Can a naturally occurring pathogen threat change social attitudes? Evaluations of gay men and lesbians during the 2014 Ebola epidemic. *Social Psychological and Personality Science, 7*, 420–427. <http://dx.doi.org/10.1177/19485506166639651>
- Lupton, D. (2015). The pedagogy of disgust: The ethical, moral and political implications of using disgust in public health campaigns. *Critical Public Health, 25*, 4–14. <http://dx.doi.org/10.1080/09581596.2014.885115>
- Muthén, L. K., & Muthén, B. O. (2002). How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling, 9*, 599–620. http://dx.doi.org/10.1207/S15328007SEM0904_8
- Navarrete, C. D., & Fessler, D. M. T. (2006). Disease avoidance and ethnocentrism: The effects of disease vulnerability and disgust sensitivity on intergroup attitudes. *Evolution and Human Behavior, 27*, 270–282. <http://dx.doi.org/10.1016/j.evolhumbehav.2005.12.001>
- Olatunji, B. (2008). Disgust, scrupulosity and conservative attitudes about sex: Evidence for a mediational model of homophobia. *Journal of Research in Personality, 42*, 1364–1369. <http://dx.doi.org/10.1016/j.jrp.2008.04.001>
- Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of*

- Personality and Social Psychology*, 89, 277–293. <http://dx.doi.org/10.1037/0022-3514.89.3.277>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903. <http://dx.doi.org/10.1037/0021-9010.88.5.879>
- Schaller, M. (2006). Parasites, behavioral defenses, and the social psychological mechanisms through which cultures are evoked. *Psychological Inquiry*, 17, 96–137.
- Schaller, M., & Duncan, L. A. (2007). The behavioral immune system: Its evolution and social psychological implications. In J. P. Forgas, M. G. Haselton, & W. von Hippel (Eds.), *Evolution and the social mind: Evolutionary psychology and social cognition* (pp. 293–307). New York, NY: Psychology Press.
- Schaller, M., & Neuberg, S. L. (2012). Danger, disease, and the nature of prejudice(s). *Advances in Experimental Social Psychology*, 46, 1–54. <http://dx.doi.org/10.1016/B978-0-12-394281-4.00001-5>
- Schnall, S., Haidt, J., Clore, G. L., & Jordan, A. H. (2008). Disgust as embodied moral judgment. *Personality and Social Psychology Bulletin*, 34, 1096–1109. <http://dx.doi.org/10.1177/0146167208317771>
- Shook, N. J., Terrizzi, J. A., Jr., Clay, R., & Oosterhoff, B. (2015). In defense of pathogen disgust and disease avoidance: A response to Tybur et al. *Evolution and Human Behavior*, 36, 498–502. <http://dx.doi.org/10.1016/j.evolhumbehav.2015.06.003>
- Smith, K. B., Oxley, D. R., Hibbing, M. V., Alford, J. R., & Hibbing, J. R. (2011). Linking genetics and political attitudes: Reconceptualizing political ideology. *Political Psychology*, 32, 369–397. <http://dx.doi.org/10.1111/j.1467-9221.2010.00821.x>
- Terrizzi, J. A., Jr., Clay, R., & Shook, N. J. (2014). Does the behavioral immune system prepare females to be religiously conservative and collectivistic? *Personality and Social Psychology Bulletin*, 40, 189–202. <http://dx.doi.org/10.1177/0146167213508792>
- Terrizzi, J. A., Jr., Shook, N. J., & McDaniel, M. A. (2013). The behavioral immune system and social conservatism: A meta-analysis. *Evolution and Human Behavior*, 34, 99–108. <http://dx.doi.org/10.1016/j.evolhumbehav.2012.10.003>
- Terrizzi, J. A., Jr., Shook, N. J., & Ventis, W. L. (2010). Disgust: A predictor of social conservatism and prejudicial attitudes toward homosexuals. *Personality and Individual Differences*, 49, 587–592. <http://dx.doi.org/10.1016/j.paid.2010.05.024>
- Terrizzi, J. A., Jr., Shook, N. J., & Ventis, W. L. (2012). Religious conservatism: An evolutionarily evoked disease-avoidance strategy. *Religion, Brain & Behavior*, 2, 105–120. <http://dx.doi.org/10.1080/2153599X.2012.695514>
- Tybur, J. M., Inbar, Y., Guler, E., & Molho, C. (2015). Pathogen disgust requires no defense: A response to Shook, Terrizzi, Clay, & Oosterhoff. *Evolution and Human Behavior*, 36, 502–504. <http://dx.doi.org/10.1016/j.evolhumbehav.2015.06.004>
- Tybur, J. M., Lieberman, D., & Griskevicius, V. (2009). Microbes, mating, and morality: Individual differences in three functional domains of disgust. *Journal of Personality and Social Psychology*, 97, 103–122. <http://dx.doi.org/10.1037/a0015474>
- Vartanian, L. R. (2010). Disgust and perceived control in attitudes toward obese people. *International Journal of Obesity*, 34, 1302–1307. <http://dx.doi.org/10.1038/ijo.2010.45>

Received June 28, 2016

Revision received December 13, 2016

Accepted March 7, 2017 ■