

Is Disgust a “Conservative” Emotion?

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Abstract

Extant political–psychological research has identified stable, context-independent differences between conservatives and liberals in a wide range of preferences and psychological processes. One consistent finding is that conservatives show higher disgust sensitivity than liberals. This finding, however, is predominantly based on assessments of disgust to specific elicitors, which confound individuals’ sensitivity and propensity to the experience of disgust with the extent to which they find specific elicitors disgusting. Across five studies, we vary specific elicitors of disgust, showing that the relations between political orientation and disgust sensitivity depend on the specific set of elicitors used. We also show that disgust sensitivity is not associated with political orientation when measured with an elicitor-unspecific scale. Taken together, our findings suggest that the differences between conservatives and liberals in disgust sensitivity are context dependent rather than a stable personality difference. Broader theoretical implications are discussed.

Keywords

disgust, conservatism, liberalism, social norms

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Extant research suggests that political conservatives and liberals differ not only in their ideological preferences but also in various psychological dispositions and processes (e.g., Duckitt, 2001; Hibbing, Smith, & Alford, 2014; Jost, Glaser, Kruglanski, & Sulloway, 2003). One consistent finding is that conservatives are more disgust sensitive than liberals (Inbar, Pizarro, & Bloom, 2009; Terrizzi, Shook, & McDaniel, 2013). This finding is thought to underlie conservatives’ relatively higher ethnocentrism (Navarrete & Fessler, 2006), prejudice toward out-groups (e.g., Schaller, 2006), and voting preferences (Shook, Oosterhoff, Terrizzi, & Brady, 2017).

However, conceptual and theoretical uncertainties remain as it is not clear what “disgust sensitivity” actually describes (e.g., Olatunji, Cisler, Deacon, Connolly, & Lohr, 2007; van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006). Are conservatives more intensely disgusted than liberals by all stimuli/elicitors? Are they disgusted by a wider range of stimuli compared with liberals? Do they experience disgust as more unpleasant than liberals?

Most studies investigating the conservatism–disgust association examine the intensity of disgust reactions toward particular stimuli (e.g., Ahn et al., 2014; Haidt, McCauley, & Rozin, 1994; Olatunji, Williams, et al., 2007; Oosterhoff, Shook, & Ford, 2018; Shook, Ford, & Boggs, 2017; Shook, Oosterhoff, et al., 2017; Shook, Terrizzi, Clay, & Oosterhoff, 2015; Smith, Oxley, Hibbing, Alford, & Hibbing, 2011; Terrizzi et al., 2013). In doing so, these studies confound the

propensity/sensitivity to the experience of disgust with the extent to which individuals find particular stimuli disgusting (e.g., van Overveld et al., 2006). It is, therefore, unclear whether conservatives are more disgusted than liberals by the specific stimuli examined, or generally differ in the intensity, or unpleasantness, of the experience of disgust.

Moreover, the content of the specific disgust elicitors used in such studies may in itself produce overly generalized conclusions regarding the existence and direction of the relation between disgust sensitivity and conservatism. The disgust elicitors used in past research were mostly limited to specific elicitors within specific disgust domains (e.g., core disgust, animal reminders). Although these findings convincingly demonstrate the conservatism–disgust relation regarding specific elicitors, they do not allow for more generalized conclusions of context-independent differences between conservatives and liberals in disgust sensitivity.

The current project proposes that a cleaner examination of the conservatism–disgust association requires (a) a systematic variation in the stimuli used to measure disgust sensitivity and

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(b) a clearer distinction between general sensitivity to the experience of disgust and disgust reactions to specific stimuli. In five studies, we replicate previous findings suggesting that disgust sensitivity can be positively associated with conservatism, but show that it can also be negatively associated with conservatism or even unrelated to political orientation. This depends on whether disgust sensitivity is measured using elicitor-specific or elicitor-unspecific scales, and on the content of the chosen elicitors. Taken together, our findings demonstrate that the relation between political orientation and disgust sensitivity is context dependent, rather than reflecting general differences between liberals and conservatives.

Disgust Sensitivity and Political Orientation

Disgust is an evolved, cross-cultural human emotion, which involves the subjective feeling of revulsion and thoughts of potential contamination, as well as physiological, expressive, and behavioral reactions of avoiding or removing potentially contaminating entities (Darwin, 1872; Rozin, Haidt, & McCauley, 2008). Although disgust is rooted in evolution, it was also conceptualized as representing a more complex notion of “offensiveness,” extending to concerns about purity of the human body and soul (e.g., reminders of humans’ animalistic nature) and to concerns about the purity of society (e.g., societal transgressions; Haidt et al., 1994; Haidt, Rozin, McCauley, & Imada, 1997; Miller, 2004; Rozin & Fallon, 1987; Tybur, Lieberman, & Griskevicius, 2009; Tybur, Lieberman, Kurzban, & DeScioli, 2013). Although there is some debate on whether social transgressions evoke disgust per se (e.g., Bloom, 2004), brain and behavioral research suggests that disgust is triggered by violations of social norms alongside threats of pollution and body contamination (Chapman, Kim, Susskind, & Anderson, 2009; Marzillier & Davey, 2004; Moll et al., 2005; Schaich Borg, Lieberman, & Kiehl, 2008; Wheatley & Haidt, 2005).

In the past decade, research has shown positive relations between conservatism and disgust responses to various types of disgust elicitors (e.g., Ahn et al., 2014; Inbar et al., 2009; Inbar, Pizarro, Iyer, & Haidt, 2012; Oosterhoff et al., 2018; Smith et al., 2011; Tybur et al., 2016; Tybur, Inbar, Güler, & Molho, 2015; see Terrizzi et al., 2013, for a meta-analysis). Explanations for this association are based on two different lines of research. Moral foundations theory (MFT; Graham, Haidt, & Nosek, 2009) suggests that conservatives are more concerned with “purity”-related moral violations than liberals (e.g., Graham et al., 2009), which supposedly underlies their relatively higher disgust sensitivity (e.g., Inbar et al., 2009). According to the behavioral immune system (BIS) literature (Schaller & Duncan, 2007), disgust has evolved to facilitate the detection and avoidance of pathogens before they can enter the body (Terrizzi et al., 2013). To minimize the risk of contamination or infection, the BIS is characterized by hypersensitivity and overgeneralization toward

potential risk (Schaller & Duncan, 2007). Individuals with an active BIS tend to adopt more conservative worldviews, as an evolutionary disease-avoidance strategy.

Disgust Sensitivity and Political Orientation: Reasons for Skepticism

Closer inspection of these studies’ methodology raises some skepticism regarding the generalizability of the observed conservatism–disgust correlations and to the conclusions drawn from these findings. What are the possible interpretations of these seemingly consistent findings demonstrating higher levels of disgust among conservatives?

One interpretation is that conservatives have generally higher sensitivity and propensity to the experience of disgust. This interpretation has not been properly empirically examined, because disgust sensitivity was primarily measured with regard to specific elicitors. The experience of disgust toward a certain stimulus consists of two components (Olatunji, Williams, et al., 2007): the properties of the specific stimulus (whether one finds it disgusting, a “state” disgust component with regard to a specific stimulus) and one’s tendency to find disgusting experiences unpleasant or intense, over and above specific elicitors (general disgust propensity and sensitivity, a “trait” component). A similar argument has been made with regard to the experience of fear, which includes both fear toward the particular stimulus and the individual’s tendency to find the experience of fear distressing (Reiss & McNally, 1985). Responses to elicitor-specific disgust measures, thus, reflect both “trait” and “state” disgust, making it unclear whether the observed correlations reflect conservatives’ general tendency to be disgust sensitive or to respond strongly to particular disgust elicitors (Olatunji, Williams, et al., 2007). Because the “trait” component cannot be isolated from the “state” component in elicitor-specific disgust measures, one cannot conclude of a general (trait) difference, extending beyond the elicitors examined in a particular study. To summarize, whereas responses to elicitor-specific disgust measures are affected by general disgust sensitivity as well as elicitor-specific properties, elicitor-unspecific disgust measures (e.g., the Disgust Propensity and Sensitivity Scale–Revised [DPSS-R]; Olatunji, Cisler, et al., 2007) include only a general disgust component. Therefore, to properly show that conservatives are generally more disgust sensitive over and above the content of the stimulus, one should examine the association between political orientation and elicitor-unspecific, rather than elicitor-specific, disgust sensitivity.

Shook, Oosterhoff, et al. (2017) examined the relations between conservatism and the propensity and sensitivity toward the emotional reaction of disgust, independent of any specific elicitor, reporting relatively low correlations between social conservatism and disgust propensity/sensitivity ($r = .13-.14$). However, this study did not examine whether this correlation persists when controlling for elicitor-specific

disgust, as the elicitor-specific and elicitor-unspecific scales were used as a composite measure. As disgust experiences toward specific stimuli are based on the properties of the stimuli and the general sensitivity to the experience of disgust, elicitor-specific measures share a significant amount of variance with the elicitor-unspecific measure.

Another possible interpretation is that conservatives are more disgusted than liberals by all disgust elicitors, which can be easily disconfirmed by identifying stimuli by which liberals are more disgusted than conservatives. Physiological and behavioral research demonstrating a positive relation between conservatism and disgust responses focused primarily on the contamination/core domains (e.g., mutilated body parts, dog feces; Ahn et al., 2014; Oosterhoff et al., 2018; Smith et al., 2011). These findings convincingly demonstrate a positive correlation between conservatism and disgust toward specific elicitors within these domains, but the question remains whether it extends to other elicitors or domains.

Other studies used self-report disgust measures which cover a wider range of disgust domains (Crawford, Inbar, & Maloney, 2014; Inbar et al., 2009; Inbar et al., 2012; Terrizzi et al., 2013; Tybur et al., 2016; Tybur et al., 2015). One example is the Three-Domain Disgust Scale (TDDS; Tybur et al., 2009), which measures disgust on the pathogen, moral, and sexual domains. This scale produced mixed findings regarding the relations between pathogen disgust and conservatism (e.g., Shook, Ford, & Boggs, 2017; Shook et al., 2015 and Tybur et al., 2016 vs. Tybur, Merriman, Hooper, McDonald, & Navarrete, 2010). In fact, in one study, this relation was fully mediated by sexual disgust (Tybur, Inbar, Güler, & Molho, 2015). Authors explain that pathogen avoidance leads to more monogamous (vs. promiscuous) mating strategies that steer individuals to adopt socially conservative ideologies to support their reproductive interests. Openness to norm violations in the sexual domain is, however, strongly confounded with political ideology, as unconventional sexual practices are considered a conservative norm violation (e.g., Wilson, 1973). Thus, measuring disgust sensitivity to sexual norm violations confounds disgust sensitivity with political ideology, although sexual disgust elicitors are not explicitly political.

Such elicitors (e.g., homosexuality) were also included in the frequently used 32-item Disgust Scale (DS; Haidt et al., 1994). Acknowledging this potential political bias, some studies (e.g., Inbar et al., 2009) demonstrated that the positive correlation between disgust sensitivity and conservatism remained even after removing these items (see also the 25-item revised version of the DS [DS-R]; Olatunji, Williams, et al., 2007). However, if one constructs a disgust sensitivity scale using politically loaded items (e.g., homosexuality) as “criteria” (Cronbach & Meehl, 1955), it is likely that other items on the scale share common variance with these politically biased items. In such cases, the disgust–conservatism correlations will remain even if one would delete the “criteria” items from the scale (Olatunji, Williams, et al., 2007),

and even if other elicitors included in the scale do not correlate with conservatism.

A more rigorous examination of the association between elicitor-specific disgust sensitivity and conservatism must therefore be based on a broader range of stimuli. Furthermore, if indeed social conservatism helps promote disease avoidance by maintaining group norms and traditions (Terrizzi et al., 2013; Thornhill & Fincher, 2014), this relation should also be demonstrated with regard to norm violations that are not associated with conservatism, and particularly to those associated with liberalism. One may argue, of course, that counterexamples in which conservatism is unrelated or negatively related to disgust reactions are merely exceptions to the rule, which, in fact, prove the rule. Indeed, single examples of liberals being more disgusted by specific stimuli hardly disprove a general tendency. However, evidence for a systematic reverse correlational pattern between political orientation and disgust sensitivity indeed disproves such general assumptions by indicating that the direction of this association is elicitor dependent, rather than general. However, no studies have been conducted yet to examine this hypothesis.

The Present Research

The present research examines the hypothesis that the measures used to assess disgust sensitivity affect the observed association between disgust and political orientation. Across five studies, we examined whether liberals’ and conservatives’ experience of disgust is independent or dependent on the nature of the disgust elicitors chosen to measure disgust sensitivity. In Studies 1 to 4, we also examined whether conservatism and disgust sensitivity are related once disgust sensitivity is measured independent of specific elicitors.

Studies 1 and 2

Studies 1 and 2 tested two hypotheses:

Hypothesis 1: Disgust sensitivity and political orientation will not be correlated when disgust sensitivity is measured independent of specific elicitors, using a scale assessing the general propensity and sensitivity to the experience of disgust.

Hypothesis 2: Conservatism can be either positively or negatively correlated with disgust toward specific elicitors, depending on the content of these elicitors.

To examine the second hypothesis, we created two sets of disgust elicitors. The first set included elicitors, which potentially trigger stronger disgust in liberals (e.g., environmental pollution, animal abuse, tax evasion, nationalistic symbols). As this was based on our intuitions, this set of “liberal”-disgust elicitors was pilot tested in Study 1 among students, and used in Study 2 with a more diverse sample. Study 2

examined participants' disgust reactions to a second set of elicitors, which was hypothesized to evoke stronger disgust reactions among conservatives (e.g., drug use, homeless people, homosexuality). Conservatism was hypothesized to correlate positively with disgust toward "conservative"-disgust elicitors and negatively with disgust toward "liberal"-disgust elicitors.

To isolate the unique relations between political orientation and the distinct emotion of disgust, we controlled for participants' anger responses, as anger is often highly correlated with disgust (Chapman et al., 2009; Russell & Giner-Sorolla, 2013; Simpson, Carter, Anthony, & Overton, 2006; Tybur et al., 2009). Despite these correlations, individuals are able to make clear distinctions between anger and disgust (e.g., Hutcherson & Gross, 2011).

Method

Participants. Study 1 was conducted among 112 German psychology students, in exchange for course credit: 83% female, $M_{\text{age}} = 22.06$ years ($SD = 2.53$ years), 55% leftists, 33% centrists, 12% rightists.¹

Study 2 aimed to replicate the findings of Study 1 with a more politically diverse sample, using a snowball online sample of students from disciplines outside psychology. Our sample included 118 participants: 39% female, $M_{\text{age}} = 22.81$ years ($SD = 2.78$ years), 36.6% leftists, 31.5% centrists, 32% rightists. Ninety-two percent of the participants from Study 2 were students, most of them studying economics, business administration, or engineering (79%).

Power analysis using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) indicated that sample sizes were sufficient for detecting a medium-sized effect (0.5) in a dependent sample t test ($N = 34$), a medium-sized effect (0.3) in a bivariate normal model ($N = 84$), and a medium-sized effect in multiple regression ($N = 55$) based on standard alpha (.05) and power (80%). The same analysis was used to determine sample sizes in subsequent studies.

Procedure and materials. In Study 1, participants rated their disgust and anger responses to various disgust-eliciting scenarios, completed an elicitor-unspecific disgust sensitivity scale, and rated their political orientation. In Study 2, the disgust-eliciting scenarios and the elicitor-unspecific disgust scale were counterbalanced (see Supplemental Appendix for all items).

Reactions to disgust-eliciting scenarios. Two sets of disgust elicitors were used: "liberal"-disgust elicitors were used in Studies 1 and 2 and "conservative"-disgust elicitors were used in Study 2 only.

Thirteen "liberal"-disgust elicitors were used in Study 1, referring to topics such as tax evasion, environmental pollution, animal abuse, xenophobia, racism, and capitalism (e.g., "During the last ten years a large industrial company has

evaded taxes to the tune of millions"). Based on the findings of Study 1, nine of these scenarios were used in Study 2. In Study 2, participants also read nine "conservative"-disgust elicitors, referring to homosexuality, consuming illegal drugs, disturbing a church service, or a homeless person begging for money (e.g., "A person has sex with same-sex partners"). Items from both sets of elicitors were presented in random order. In addition, we included "control" (nondisgusting) scenarios (two items in Study 1 and four items in Study 2; e.g., "A person donates a large amount of money to Doctors without Borders"). These items were used as a comparison standard for the liberal/conservative disgust items.

- a. *Disgust* toward each scenario was measured using two items ("I feel disgusted" and "It disgusts me"; State Disgust Scale; Ihme & Mitte, 2009), rated on a scale ranging from 1 (*not at all*) to 4 (*strongly*). Both items were moderately to highly correlated for all scenarios ($.62 < r_s < .89$ in Study 1, $.57 < r_s < .92$ in Study 2) and were averaged for each scenario. Composite disgust scores were computed for all "liberal"-disgust scenarios ($\alpha = .88$ for Study 1, $\alpha = .82$ for Study 2), for all "conservative"-disgust scenarios ($\alpha = .75$ for Study 2), and for all control scenarios ($r = .75$ for Study 1, $\alpha = .75$ for Study 2).²
- b. *Anger* at each scenario was measured using two items ("I am angry" and "It enrages me"), rated on a scale ranging from 1 (*not at all*) to 4 (*strongly*). Both items were highly correlated for all scenarios ($.78 < r_s < .91$ in Study 1, $.70 < r_s < .97$ in Study 2) and were averaged for each scenario. Composite anger scores were computed for all "liberal"-disgust scenarios ($\alpha = .86$ for Study 1, $\alpha = .78$ for Study 2), "conservative"-disgust scenarios ($\alpha = .71$ for Study 2), and control scenarios ($r = .72$ for Study 1, $\alpha = .75$ for Study 2).

Elicitor-unspecific disgust sensitivity was measured using the German translation of the 16-item DPSS-R (Olatunji, Cisler, et al., 2007). This scale measures propensity and sensitivity to the experience of disgust independent of specific elicitors (e.g., "I avoid disgusting things" and "I am easily disgusted"). Participants rated each item on a scale ranging from 1 (*never*) to 5 (*always*), such that higher scores indicate higher disgust sensitivity ($\alpha = .82$ for Study 1, $\alpha = .79$ for Study 2).³

Political orientation was assessed using two measures: (a) an ideological self-placement item ranging from 1 (*political left*) to 7 (*political right*) and (b) as the BIS should only be correlated with social (but not economic) conservatism (Terrizzi et al., 2013), we also used the German version of the 24-item Wilson-Patterson Conservatism Scale (Schiebel, Riemann, & Mummendey, 1984; Wilson & Patterson, 1968), which assesses different facets of social conservatism. Each item represents a certain topic (e.g., "abortion," "lifelong marriage"), which participants rated on a scale ranging from

Table 1. Means, Standard Deviations, and Zero-Order Correlations Between the Study Variables (Study 1).

	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6
1. DPSS-R	2.69 (0.51)	1					
2. Disgust toward liberal scenarios	3.01 (0.51)	.22*	1				
3. Disgust toward control (nondisgusting) scenarios	1.06 (0.16)	-.18	-.26**	1			
4. Anger at liberal scenarios	3.01 (0.51)	.20*	.80**	-.26**	1		
5. Anger at control (nondisgusting) scenarios	1.02 (0.12)	-.19*	-.13	.69***	-.21*	1	
6. Political orientation	0.01 (0.92)	-.00	-.60***	.02	-.57***	-.08	1

Note. DPSS-R = Disgust Propensity and Sensitivity Scale-Revised.
* $p < .05$. ** $p < .01$. *** $p < .001$.

1 (*total disapproval*) to 5 (*total approval*). Some items were reverse-coded, such that higher scores indicate higher conservatism ($\alpha = .81$ for Study 1, $\alpha = .78$ for Study 2).

In both studies, the two measures were strongly and positively correlated (Study 1: $r = .64$, $p < .001$; Study 2: $r = .48$, $p < .001$), indicating that leftists in our samples are relatively liberal and rightists relatively conservative. Therefore, we calculated a mean “political orientation” score (based on standardized scores) to be used in subsequent analyses, with higher scores representing more conservative/rightist orientation.

Results

Preliminary analyses. Table 1 (Study 1) and Table 2 (Study 2) show means, standard deviations, and zero-order correlations. Disgust toward “liberal”-disgust scenarios and disgust toward “conservative”-disgust scenarios were positively correlated ($r = .33$, $p < .001$; Table 2). DPSS-R was positively correlated with disgust toward “liberal”-disgust scenarios ($r = .22$, $p = .020$ in Study 1; $r = .17$, $p = .070$ in Study 2) and disgust toward “conservative”-disgust scenarios ($r = .21$, $p = .020$ in Study 2), suggesting that elicitor-unspecific disgust sensitivity is related to higher ratings of disgust toward specific elicitors, regardless of their content. Finally, as expected, anger and disgust toward “liberal”-disgust and “conservative”-disgust scenarios were highly correlated in both studies ($r > .70$).

Paired samples t tests revealed significantly stronger disgust to “liberal”-disgust elicitors compared with control scenarios (Study 1: $t(111) = 36.18$, $p < .001$, 95% confidence interval [CI] of difference = [1.54, 2.06]; Study 2: $t(117) = 26.53$, $p < .001$, 95% CI of difference = [1.33, 1.54]), and significantly stronger disgust to “conservative”-disgust elicitors compared with control scenarios (Study 2: $t(117) = 19.61$, $p < .001$, 95% CI of difference = [0.85, 1.04]).⁴ Disgust toward the control scenarios did not correlate with political orientation in both studies. These findings suggest that the “liberal”-disgust and “conservative”-disgust scenarios seemed to work well as elicitors of disgust.⁵ A paired t test also revealed that in Study 2, disgust toward liberal

elicitors was significantly higher than disgust toward conservative elicitors ($t(117) = 8.73$, $p < .001$, 95% CI of difference = [0.38, 0.60]). However, this main effect was qualified by opposite correlations between political ideology and disgust toward each set of elicitors, as will be discussed below.

Hypotheses testing. As hypothesized, political orientation was negatively correlated with disgust toward “liberal”-disgust elicitors in Studies 1 and 2 ($r_s > -.41$, $p_s < .001$), such that the more conservative participants were, the lower their disgust was to these elicitors. In contrast, political orientation was positively correlated with disgust toward “conservative”-disgust elicitors in Study 2 ($r = .41$, $p < .001$), indicating that the more conservative participants were, the higher their disgust was to these elicitors. As hypothesized, political orientation showed no significant correlation with DPSS-R in both studies (see Tables 1 and 2).⁶

Finally, we conducted multiple regression analyses to test whether DPSS-R, disgust toward “liberal”-disgust scenarios, and disgust toward “conservative”-disgust scenarios predict political orientation, controlling for anger at both sets of scenarios (see Table 3). As expected, disgust toward “liberal”-disgust elicitors negatively predicted political orientation (Studies 1 and 2), whereas disgust toward “conservative”-disgust elicitors positively predicted political orientation (Study 2), controlling for elicitor-unspecific disgust and anger toward both sets of scenarios. In both studies, DPSS-R did not significantly predict political orientation when all other predictors were controlled for.⁷

We then collapsed the “liberal”- and “conservative”-disgust elicitors used in Study 2 to create one disgust sensitivity scale ($\alpha = .80$) and one anger scale ($\alpha = .74$). The combined disgust scale was not correlated with political orientation ($r = .02$, $p = .833$). A multiple regression analysis revealed that neither the combined disgust scale ($b = 0.32$, $SE = 0.27$, $\beta = .16$, $t = 1.19$, $p = .238$) nor the combined anger scale ($b = -0.48$, $SE = 0.30$, $\beta = -.21$, $t = -1.61$, $p = .109$), or DPSS-R ($b = 0.10$, $SE = 0.17$, $\beta = .05$, $t = 0.570$, $p = .570$), predicted political orientation when all predictors were included.

Table 2. Means, Standard Deviations, and Zero-Order Correlations Between the Study Variables (Study 2).

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1. DPSS-R	2.42 (0.47)	1							
2. Disgust toward liberal scenarios	2.50 (0.53)	.17	1						
3. Disgust toward conservative scenarios	2.01 (0.52)	.21*	.33***	1					
4. Disgust toward control (nondisgusting) scenarios	1.07 (0.20)	.17	.01	.17	1				
5. Anger at liberal scenarios	2.71 (0.52)	.06	.70***	.09	-.01	1			
6. Anger at conservative scenarios	1.94 (0.46)	.19*	.13	.79***	.11	.15	1		
7. Anger to control (nondisgusting) scenarios	1.04 (0.14)	.04	.05	.11	.66***	.05	.03	1	
8. Political orientation	0.00 (0.86)	.06	-.41***	.38***	.13	-.47***	.41***	.03	1

Note. DPSS-R = Disgust Propensity and Sensitivity Scale–Revised.

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

Table 3. Results of Regression Analysis Predicting Political Orientation (Studies 1 and 2).

	Study 1 ($R^2 = .40$)						Study 2 ($R^2 = .50$)					
	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95% CI	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95% CI
DPSS-R	0.26	0.14	.14	1.87	.064	[-0.02, 0.53]	0.04	0.13	.02	0.33	.743	[-0.21, 0.29]
Anger at liberal scenarios	-0.40	0.22	-.27	-2.18	.032	[0.04, 0.93]	-0.48	0.18	-.29	-2.67	.009	[-0.83, -0.12]
Disgust toward liberal scenarios	-0.75	0.22	-.41	-3.32	.001	[0.30, 1.19]	-0.51	0.18	-.33	-2.77	.007	[-0.87, -0.14]
Anger at conservative scenarios				—			0.51	0.23	.28	2.23	.028	[0.05, 0.94]
Disgust toward conservative scenarios				—			0.50	0.22	.30	2.22	.028	[0.06, 0.97]

Note. Anger to and disgust toward conservative scenarios were only measured in Study 2. DPSS-R = Disgust Propensity and Sensitivity Scale–Revised; CI = confidence interval.

Discussion

Two studies assessed disgust sensitivity toward various elicitors and independent of any specific elicitor (i.e., DPSS-R). Consistent with our first hypothesis, elicitor-unspecific disgust sensitivity was not significantly correlated with political orientation in either of the two studies. Consistent with our second hypothesis, conservatism and disgust correlated positively when using one set of elicitors (e.g., homosexuals, drug abuse) and negatively when using another set of elicitors (e.g., animal abuse, environmental pollution). When these disgust elicitors were collapsed into one disgust sensitivity scale, no significant correlation emerged. Finally, we found that disgust toward the two sets of elicitors had unique and opposite effects on political orientation, even when controlling for anger toward these elicitors and for elicitor-unspecific disgust sensitivity. Taken together, these results challenge the notion that conservatives are generally more disgust sensitive than liberals. Instead, the conservatism–disgust association can be either positive or negative, or non-significant, depending on the nature of the disgust sensitivity scale used and the specific content of disgust elicitors.

One may argue that these results were obtained because the scenarios we constructed evoked moral disgust rather than core disgust. Insofar as these scenarios represent violations of societal norms associated with liberalism or conservatism, one may argue, they are politically biased in nature and, thus, do not reflect the relations between ideology and disgust per se. We certainly agree that some of these items may be seen as norm violations, but argue that they are seen as such precisely because they represent the disgust elicitors that serve as the basis on which such moral norms are created. In line with the BIS literature (Terrizzi et al., 2013; Terrizzi, Shook, & Ventis, 2010), we argue that disgust sensitivity facilitates the adoption of norms that promote avoidance of exposure or contact with the disgust eliciting stimuli. Disgust sensitivity thus influences ideological preferences precisely because it renders certain acts or stimuli as socially and morally unacceptable. Hence, even core-disgust elicitors transfer into the moral domain via the norms they create. Although some core-disgust elicitors (e.g., maggots) may not seem to bear ideological content, we can never know for certain that individuals' disgust

reaction to such elicitors are not tainted by political opinions, as these disgust elicitors are so intrinsically related to preexisting ideologically related social norms. Therefore, just as conservative value systems function as a means to avoid certain disgust elicitors (e.g., bodily contamination) by encouraging adherence to certain social norms (e.g., out-group avoidance; Terrizzi et al., 2013), liberal value systems may help protect against other elicitors (e.g., environmental pollution, animal husbandry) by promoting a different set of norms (e.g., environmental and animal protection).

Study 3

Study 3 aimed to replicate the findings of Studies 1 and 2 using additional elicitor-specific disgust measures that do not include explicit socio-moral content. Again, we hypothesized that conservatism will be either positively related, negatively related, or unrelated to disgust sensitivity depending on the nature and content of the disgust sensitivity measure used, rather than showing a general systematic positive correlation.

Extending Studies 1 and 2, this study included the German version of the Haidt et al. (1994) Disgust Scale and the Pathogen Disgust subscale of the Three-Domain Disgust Scale (TDDS-P; Tybur et al., 2009). We examined the correlation between conservatism and total disgust scores on these scales, and also conducted item-by-item analyses to examine whether these correlations apply to all elicitors included in these scales, or rather limited to specific elicitors.

Method

Participants. Study 3 was conducted among 190 German students: 60% female, $M_{\text{age}} = 23$ years ($SD = 4.6$ years), 71% leftists, 19% centrists, and 10% rightists.

Procedure and materials. Participants completed the disgust sensitivity scales (in random order), followed by measures of political orientation (see Supplemental Appendix for all items).

Reactions to disgust-eliciting scenarios. Participants read eight “liberal”-disgust scenarios, eight “conservative”-disgust scenarios, and one control scenario, taken from Studies 1 and 2.⁸ Participants rated their disgust (two items; $.55 < rs < .89$) and anger (two items; $.73 < rs < .89$) toward these scenarios. Composite disgust scores and composite anger scores were computed for all “liberal”-disgust scenarios (disgust: $\alpha = .76$, anger: $\alpha = .81$) and for all “conservative”-disgust scenarios (disgust: $\alpha = .67$, anger: $\alpha = .64$).

Elicitor-unspecific disgust sensitivity was measured using the German version of the 16-item DPSS-R (Olatunji, Cisler, et al., 2007; $\alpha = .84$), as in Studies 1 and 2.

The German version of the *Disgust Scale* (Schienle, Dietmaier, Leutgeb, & Ille, 2010) includes 37 items measuring core (i.e., body products, food) and animal reminder (i.e., death, envelope violations) disgust (e.g., “you see a person not washing their hands after visiting the toilet”), rated on a 1 (*not at all disgusting*) to 5 (*very disgusting*) scale ($\alpha = .93$).⁹

Pathogen disgust was assessed using the Pathogen subscale of the TDDS (TDDS-P; Tybur et al., 2009), which includes seven disgust elicitors (e.g., “standing close to a person who has body odor”) rated on a 1 (*not at all disgusting*) to 5 (*very disgusting*) scale ($\alpha = .73$).

Political orientation was assessed using the conservatism scale ($\alpha = .82$) and ideological self-placement used in Studies 1 and 2 ($r = .61$, $p < .001$). A mean “political orientation” score was calculated with higher scores representing conservative/rightist orientations ($\alpha = .85$).

Results

Preliminary analyses. Table 4 shows means, standard deviations, and zero-order correlations. Consistent with Studies 1 and 2, disgust toward “liberal”-disgust and disgust toward “conservative”-disgust scenarios were marginally positively correlated, and both were positively correlated with DPSS-R. In addition, the DS and the TDDS-P were highly positively correlated ($r = .79$, $p < .001$) and both were correlated with the DPSS-R scale ($rs \geq .51$, $ps < .001$), with disgust toward “conservative” scenarios ($rs \geq .39$, $ps < .001$), and more weakly with disgust toward “liberal” scenarios ($.10 \leq rs \leq .17$, $ps \geq .021$).

As in Study 2, paired samples *t* tests revealed that participants reported higher disgust to “liberal”-disgust scenarios compared with the control scenario, $t(189) = 53.81$, $p < .001$, 95% CI of difference = [2.01, 2.16], and to “conservative”-disgust scenarios compared with the control scenario, $t(189) = 27.33$, $p < .001$, 95% CI of difference = [0.77, 0.86].¹⁰ Disgust toward the control scenario did not correlate with political orientation.

As in Study 2, a paired *t* test revealed that disgust toward “liberal” scenarios was significantly higher than disgust toward “conservative”-disgust scenarios, $t(189) = 29.52$, $p < .001$, 95% CI of difference = [1.18, 1.34]. However, this main effect was qualified by opposite correlations between political ideology and disgust toward each set of elicitors, as will be discussed below.

Hypotheses testing. Consistent with Studies 1 and 2, political orientation correlated negatively with disgust toward “liberal”-disgust scenarios ($r \geq -.38$, $p < .001$) and positively with disgust toward “conservative” scenarios ($r = .45$, $p < .001$). Again, political orientation showed no significant correlation with DPSS-R.

Consistent with previous studies (see Terrizzi et al., 2013), DS and TDDS-P showed relatively low but significant

Table 4. Means, Standard Deviations, and Zero-Order Correlations Between the Study Variables (Study 3).

	M (SD)	1	2	3	4	5	6	7	8	9	10
1. DPSS-R	2.53 (0.54)	I									
2. German version of Disgust Scale	2.89 (0.64)	.64***	I								
3. TDDS-P	2.87 (0.69)	.51***	.79***	I							
4. Disgust toward liberal scenarios	3.13 (0.47)	.19**	.17*	.10	I						
5. Disgust toward conservative scenarios	1.87 (0.41)	.21**	.41***	.39***	.12	I					
6. Disgust toward control (nondisgusting) scenario	1.04 (0.21)	.03	-.03	.08	-.09	.25**	I				
7. Anger at liberal scenarios	3.07 (0.55)	.10	.13	.06	.75***	.03	-.14	I			
8. Anger at conservative scenarios	1.79 (0.41)	.16*	.36***	.30***	.12	.77***	.16*	.27***	I		
9. Anger at control (nondisgusting) scenario	1.03 (0.12)	.05	-.03	.07	-.14	.21**	.90***	-.17*	.12	I	
10. Political orientation	0.00 (0.46)	.06	.20*	.22**	-.38***	.44***	.13	-.37***	.32***	.14	I

Note. DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; TDDS-P = Three-Domain Disgust Scale-pathogen disgust elicitors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

correlations with political orientation ($.20 \leq r_s \leq .22$, $p_s \geq .008$). Item-by-item correlations (see Supplemental Appendix) revealed, however, that only 13 of the 37 DS items, and only three of the seven TDDS-P items were significantly correlated with political orientation (DS: $-.00 \leq r_s \leq .35$, TDDS-P: $.02 \leq r_s \leq .21$).

Finally, we conducted a hierarchical regression analysis to predict political orientation from all disgust scales, controlling for anger toward “conservative”-disgust and “liberal”-disgust elicitors. First, we excluded DS and TDDS-P from the analysis to replicate the results of Study 2 (Model 1; Table 5) and subsequently included these scales (Model 2; Table 5). Consistent with Studies 1 and 2, in both models, disgust toward “liberal”-disgust scenarios negatively predicted political orientation, whereas disgust toward “conservative”-disgust elicitors positively predicted political orientation, controlling for other disgust scales and for anger. In both models, DPSS-R, DS, and TDDS-P did not significantly predict political orientation when other predictors were controlled for.¹¹

Discussion

Study 3 replicates the results of Studies 1 and 2 by demonstrating that conservatism can be either positively or negatively related to disgust sensitivity, depending on the content of the disgust elicitors. These opposite correlation patterns

remained when controlling for anger responses to these elicitors and for other disgust scales assessed in this study. Finally, disgust sensitivity was not correlated with conservatism when measured using an elicitor-unspecific scale.

Our results replicate previous findings (Terrizzi et al., 2013) demonstrating positive correlations between conservatism and total disgust scores on scales measuring core disgust (TDDS-P; DS) and animal reminders disgust (DS). These correlations, however, were relatively low, particularly compared with the positive and negative correlations between political orientation and disgust toward “conservative”-disgust elicitors and “liberal”-disgust elicitors, respectively. Furthermore, a closer inspection of the correlations between disgust reactions and conservatism for each individual elicitor within these scales revealed that only a minority of them were significantly correlated with political orientation, most of which were associated with bad personal hygiene (see Supplemental Appendix). Finally, total disgust scores on the DS and TDDS-P did not predict political orientation when controlling for other disgust sensitivity measures.

Although these findings suggest that conservatism may indeed be positively associated with disgust toward certain elicitors in certain domains, they do not support the general conclusion of a systematic, context-independent positive association between conservatism and disgust sensitivity. One could argue that our findings suggest that conservatives

Table 5. Results of Regression Analysis Predicting Political Orientation (Study 3).

	Model 1 ($R^2 = .41$)						Model 2 ($R^2 = .44$)					
	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95% CI	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95% CI
DPSS-R	-0.02	0.05	-.02	-0.311	.757	[-0.12, 0.09]	-0.07	0.07	-.08	-1.04	.300	[-0.14, 0.73]
Anger at liberal scenarios	-0.15	0.09	-.18	-1.73	.086	[-0.32, -0.02]	-0.21	0.09	-.25	-2.34	.021	[-0.38, -0.03]
Disgust toward liberal scenarios	-0.31	0.09	-.32	-3.30	.001	[-0.50, -0.13]	-0.27	0.10	-.28	-2.78	.006	[-0.46, -0.08]
Anger at conservative scenarios	0.10	0.12	.09	0.842	.401	[-0.13, 0.33]	0.11	0.12	.10	0.951	.343	[-0.12, 0.34]
Disgust toward conservative scenarios	0.50	0.12	.44	4.33	.000	[0.27, 0.73]	0.43	0.12	.38	3.67	.000	[0.20, 0.67]
German version of Disgust Scale							0.07	0.08	.09	0.848	.398	[-0.09, 0.22]
TDDS-P							0.05	0.07	.08	0.805	.422	[-0.08, 0.18]

Note. CI = confidence interval; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; TDDS-P = Three-Domain Disgust Scale-pathogen disgust elicitors.

are disgusted by more disgust domains compared with liberals. Although this is possible, it contradicts the claim that conservatives are in general more disgust sensitive than liberals. A proper test of this claim would necessitate assessing the broadest possible range of disgust elicitors and domains, and showing that conservatives show stronger disgust reactions to a wider range of stimuli than liberals. However, the use of a broad range of disgust elicitors, as in the present study, reveals nonsignificant and even negative relations between conservatism and disgust sensitivity.

Another potential critique is that in Europe (particularly in Germany), political conservatives may not typically show higher disgust sensitivity compared with liberals. As most relevant studies were conducted in the United States (see Terrizzi et al., 2013), it is possible that Europeans diverge from these theoretical intuitions. Naturally, if only conservatives from the United States show a general tendency toward higher disgust sensitivity, it cannot be claimed that such a trend is context independent. Nevertheless, we set out to replicate the findings of Study 3 using a U.S. sample.

Study 4

Study 4 replicates the findings of Study 3 using a U.S. sample. Again, we hypothesized that conservatism can be positively related, negatively related, or unrelated to disgust sensitivity, depending on the nature and content of the disgust sensitivity measure. As an extension of Study 3, we included two additional disgust sensitivity measures: disgust in the sexual domain (TDDS-S), which was found to be positively related to conservatism (Tybur et al., 2015), and moral disgust (TDDS-M), which supposedly represents “politically neutral” socio-moral content. Finally, as the English version

(as opposed to the German version) of the conservatism scale also includes items assessing economic conservatism, we included an additional conservatism measure in this study, which distinguishes social from economic conservatism.

Method

Participants. Study 4 was conducted online among 202 American MTurk workers, 43% female, $M_{age} = 37$ years ($SD = 11.24$ years), 39% liberals, 16% centrists, and 45% conservatives.

Procedure and materials. Participants completed disgust sensitivity scales and four political orientation measures, in random order (see Supplemental Appendix for all items).

Reactions to disgust-eliciting scenarios. Participants rated the extent to which they experienced disgust (two items; $.72 < r_s < .91$) and anger (two items; $.71 < r_s < .92$) toward nine “liberal”-disgust scenarios, nine “conservative”-disgust scenarios, and four control scenarios, as in Study 2. Composite disgust scores and composite anger scores were computed for all “liberal”-disgust scenarios (disgust: $\alpha = .80$; anger: $\alpha = .84$), for all “conservative”-disgust scenarios (disgust: $\alpha = .84$; anger: $\alpha = .87$), and for all control scenarios (disgust: $r = .96$; anger: $r = .97$).

Elicitor-unspecific disgust sensitivity was measured using the DPSS-R (Olatunji, Cisler, et al., 2007a), as in Studies 1 to 3 ($\alpha = .92$).

DS (Haidt et al., 1994; Part I) included 16 items describing elicitors of core and animal reminder disgust, which were rated on a 0 (*not at all disgusting*) to 100 (*very disgusting*) scale ($\alpha = .82$).

For the TDDS (Tybur et al., 2009), participants rated the extent to which they are disgusted by seven sexual disgust elicitors (TDDS-S; e.g., “Watching a pornographic video”; $\alpha = .89$), seven moral disgust elicitors (TDDS-M; e.g., “A student cheating to get good grades”; $\alpha = .94$), and seven pathogen disgust elicitors (TDDS-P; e.g., “Shaking hands with a stranger who has sweaty palms”; $\alpha = .88$) on a 1 (*not at all disgusting*) to 7 (*very disgusting*) scale.

Political orientation was assessed using the 28-item Wilson–Patterson Conservatism Scale (Wilson & Patterson, 1968; $\alpha = .86$) and ideological self-placement item used in Studies 1 to 3 ($r = .70, p < .001$). A mean “political orientation” score was calculated such that higher scores represent more conservative/rightist orientation ($\alpha = .88$).

Social and economic conservatism was measured using the 12-item Social and Economic Conservatism Scale (SECS), which was validated using a U.S. sample (Everett, 2013). Participants rated the extent to which they feel *negatively* (0) or *positively* (100) toward seven items representing social conservatism (e.g., the family unit, religion; $\alpha = .90$) and five items representing economic conservatism (e.g., business; gun ownership; $\alpha = .75$).

Results

Preliminary analyses. Table 6 shows means, standard deviations, and zero-order correlations. Political orientation was highly correlated with social conservatism ($r = .71$) and with economic conservatism ($r = .66$).

Consistent with Studies 1 to 3, disgust toward “liberal”-disgust scenarios and by “conservative”-disgust scenarios were positively correlated, and both were positively correlated with DPSS-R. DS and TDDS-P were very highly correlated ($r = .71, p < .001$). DS and all subscales of the TDDS (moral, sexual, pathogen) were correlated with the DPSS-R scale ($.25 \leq rs \leq .52, ps < .001$), with disgust toward “conservative” scenarios ($.31 \leq rs \leq .59, ps < .001$), and with disgust toward “liberal” scenarios ($.17 \leq rs \leq .40, ps \geq .018$).

As in Studies 2 to 3, paired samples *t* tests revealed that participants were more disgusted by “liberal”-disgust scenarios compared with the control scenarios, $t(197) = 26.76, p < .001$, 95% CI of difference = [1.37, 1.58], and by “conservative”-disgust scenarios compared with the control scenarios, $t(197) = 16.63, p < .001$, 95% CI of difference = [0.65, 0.82].¹² Disgust toward control scenarios did not correlate with political orientation, social conservatism, or economic conservatism.¹³

Again, a paired *t* test revealed higher disgust toward liberal scenarios than disgust toward conservative scenarios, $t(197) = 14.27, p < .001$, 95% CI of difference = [0.64, 0.84]. However, this main effect was qualified by opposite correlations between political ideology and disgust toward each set of elicitors, as will be discussed below.

Hypotheses testing. Consistent with Studies 1 to 3, all conservatism scales were negatively correlated with disgust toward “liberal”-disgust scenarios ($-.27 \leq rs \leq -.19, ps < .009$), and positively with disgust toward “conservative”-disgust scenarios ($.34 \leq rs \leq .54, ps < .001$). Again, elicitor-unspecific disgust sensitivity was not significantly correlated with political orientation or economic conservatism, but marginally correlated with social conservatism ($r = .14, p = .047$).

Consistent with Study 3, DS and the three TDDS scales correlated with political orientation ($.13 \leq rs \leq .34, ps \leq .081$). All four scales were more strongly correlated with social conservatism ($.19 \leq rs \leq .40, ps \leq .009$) than with economic conservatism ($.04 \leq rs \leq .16, .026 \leq ps \leq .630$; see Terrizzi et al., 2013; Tybur et al., 2016). Nevertheless, item-by-item correlations revealed that political orientation was only correlated with three of the 16 DS items, with the homosexuality item showing the highest correlation ($r = .55, p < .001$). Consistently, political orientation correlated with five of the seven TDDS-S items, with one of the seven TDDS-M items, and with two of the seven TDDS-P items.

Social conservatism was correlated with 13 of 16 of the DS items, whereas economic conservatism was correlated with four of the 16 items, again with the homosexuality item correlating highest with both conservatism scales (social: $r = .58, p < .001$; economic: $r = .29, p < .001$). The Social Conservatism Scale was also correlated with most items in the TDDS scales, whereas the economic conservatism scale correlated with a minority of the items (see Supplemental Appendix).

Finally, we conducted three multiple regression analyses to predict political orientation, social conservatism, or economic conservatism from all disgust scales, controlling for anger responses to “conservative”- and “liberal”-disgust scenarios (Table 7). Consistent with Studies 1 to 3, disgust toward “liberal”-disgust scenarios negatively predicted all conservatism scales, whereas disgust toward “conservative”-disgust scenarios positively predicted all conservatism scales, controlling for all other disgust scales and for anger toward both sets of scenarios. DS positively predicted social conservatism, and the TDDS-P positively predicted both social and economic conservatism, when other predictors were controlled for.¹⁴ As in Studies 1 to 3, DPSS-R was not associated with political orientation when controlling for other predictors, and was even *negatively* associated with social and economic conservatism, such that liberals showed higher sensitivity and propensity to the experience of disgust.

Discussion

Using a U.S. sample, Study 4 provides further evidence that the relation between conservatism and disgust sensitivity can be positive, negative, or nonsignificant depending on the nature and content of the disgust sensitivity measure. As an extension of Studies 1 to 3, Study 4 shows that the measures

Table 6. Means, Standard Deviations, and Zero-Order Correlations Between the Study Variables (Study 4).

	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. DPSS-R	2.51 (0.79)	I													
2. Disgust Scale	52.08 (18.35)	.45***	I												
3. TDDS-P	4.51 (1.33)	.46***	.72***	I											
4. TDDS-M	3.96 (1.68)	.25***	.21**	.38***	I										
5. TDDS-S	3.36 (1.64)	.52***	.55***	.63***	.50***	I									
6. Disgust toward liberal scenarios	2.70 (0.59)	.33***	.17*	.28***	.40***	.29***	I								
7. Disgust toward conservative scenarios	1.96 (0.66)	.47***	.31***	.35***	.41***	.59***	.32***	I							
8. Disgust toward control (nondisgusting) scenarios	1.23 (0.58)	.47***	.09	.11	.20**	.28***	.13	.50***	I						
9. Anger at liberal scenarios	2.58 (0.65)	.35***	.23**	.30***	.39***	.33***	.87***	.37***	.17*	I					
10. Anger at conservative scenarios	1.79 (0.68)	.50***	.35***	.36***	.38***	.59***	.29***	.90***	.54***	.45***	I				
11. Anger at control (nondisgusting) scenarios	1.24 (0.64)	.46***	.10	.10	.20**	.28***	.10	.49***	.94***	.16*	.54***	I			
12. Political orientation	-0.01 (0.47)	.14	.21**	.14*	.13	.34***	-.27***	.54***	.12	-.16*	.51***	.12	I		
13. Social conservatism	61.92 (26.05)	.14*	.39***	.37***	.19**	.40***	-.19**	.51***	.02	-.07	.48***	-.00	.71***	I	
14. Economic conservatism	60.04 (21.17)	.02	.16*	.16*	.04	.13	-.27***	.34***	-.03	-.21**	.29***	-.01	.66***	.64***	I

Note. CI = confidence interval; DPSS-R = Disgust Propensity and Sensitivity Scale–Revised; TDDS-P = Three-Domain Disgust Scale–pathogen disgust elicitors; TDDS-M = Three-Domain Disgust Scale–moral disgust elicitors; TDDS-S = Three-Domain Disgust Scale–sexual disgust elicitors. **p* < .05. ***p* < .01. ****p* < .001.

chosen to assess conservatism also affect the conservatism–disgust association: Social conservatism demonstrates the strongest relations (both positive and negative) to all disgust measures compared with a general political orientation and to an economic conservatism measure (see Terrizzi et al., 2013). Social conservatism was also weakly correlated with elicitor-unspecific disgust sensitivity, as opposed to the other two indicators of conservatism. However, when controlling for all other disgust sensitivity scales, the effects of elicitor-unspecific disgust sensitivity on conservatism reversed, such that liberals were more disgust sensitive than conservatives. Because Study 4 included many disgust sensitivity measures, which were administered in random order, rating the elicitor-specific disgust items may have primed participants with specific disgusting stimuli, and thus affected ratings on the elicitor-unspecific measure. By controlling for the elicitor-specific measures, we could control for these methodological effects and isolate the effects of the elicitor-unspecific (“trait”) component on ideology. The direction of these effects can be attributed to the fact that most of these elicitor-specific disgust scales are positively related to conservatism (in terms of total disgust scores), and by controlling for these scales, we in fact controlled for “conservative content.”

Although the findings of Study 4 provide further support for our hypotheses in another sociocultural context, the following objection may arise: The “liberal”-disgust scenarios, the only set of elicitors showing a systematic negative relation to conservatism in Studies 1 to 4, included (but was not limited to) items bearing explicit politically related content. It has been suggested (e.g., Olatunji, Williams, et al., 2007b) that such items (e.g., homosexuality) should be omitted from disgust sensitivity scales to produce a nonbiased examination of the conservatism–disgust relation. Indeed, Study 4 demonstrates that the strongest positive correlations between conservatism and disgust sensitivity were obtained with elicitors describing homosexuality. Nevertheless, it has been shown that after omitting such items from the disgust sensitivity scale, the positive correlation between political conservatism and disgust sensitivity remains (e.g., Inbar et al., 2009). It is not surprising, however, that this correlation remains even after removing politically loaded items from these scales, if they were constructed such that these items serve as reliability criteria (e.g., internal consistency, factor structure). In such cases, total disgust scores may be positively associated with conservatism even if many of the included elicitors do not correlate (or even correlate

Table 7. Results of Regression Analyses Predicting Political Orientation, Social Conservatism, and Economic Conservatism (Study 4).

	Political orientation ($R^2 = .53$)					Social conservatism ($R^2 = .50$)					Economic conservatism ($R^2 = .32$)							
	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95%CI	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95%CI	<i>b</i>	<i>SD</i>	β	<i>t</i>	<i>p</i> value	95%CI
DPSS-R	-0.03	0.04	-0.05	-0.771	.441	[-0.11, 0.05]	-5.64	2.22	-.17	-2.58	.011	[-9.96, -1.34]	-3.63	2.09	-.13	-1.73	.085	[-7.75, 0.50]
Disgust toward conservative scenarios	0.44	0.10	.59	4.48	.000	[0.25, 0.63]	22.88	5.47	.57	4.18	.000	[12.09, 33.67]	17.38	5.16	.53	3.37	.001	[7.20, 27.57]
Anger at conservative scenarios	0.04	0.10	.05	0.373	.709	[-0.16, 0.24]	-1.17	5.75	-.03	-0.204	.839	[-12.52, 10.18]	0.36	5.45	.01	0.067	.947	[-10.38, 11.11]
Disgust toward liberal scenarios	-0.42	0.10	-.54	-4.29	.000	[-0.62, -0.23]	-22.65	5.52	-.52	-4.11	.000	[-33.54, -11.76]	-12.21	5.21	-.34	-2.34	.020	[-22.49, -1.92]
Anger at liberal scenarios	0.04	0.09	.05	0.379	.705	[-0.15, 0.22]	4.95	5.30	.12	0.934	.352	[-5.50, 15.40]	-2.81	5.03	-.09	-0.559	.577	[-12.73, 7.11]
Disgust Scale	0.00	0.00	.09	1.11	.267	[-0.00, 0.01]	0.27	0.11	.19	2.46	.015	[0.05, 0.49]	0.08	0.11	.07	0.729	.467	[-0.13, 0.29]
TDDS-P	-0.03	0.03	-.07	-0.869	.386	[-0.08, 0.03]	3.61	1.64	.19	2.20	.029	[0.38, 6.85]	3.21	1.56	.20	2.06	.041	[0.13, 6.29]
TDDS-M	0.01	0.02	.03	0.499	.618	[-0.03, 0.04]	0.62	0.99	.04	0.62	.535	[-1.34, 2.58]	0.02	0.95	.00	0.02	.985	[-1.86, 1.90]
TDDS-S	0.03	0.02	.12	1.44	.153	[-0.01, 0.08]	0.65	1.30	.04	0.495	.621	[-1.93, 3.22]	-1.98	1.25	-.15	-1.58	.115	[-4.45, 0.49]

Note. CI = confidence interval; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; TDDS-P = Three-Domain Disgust Scale-pathogen disgust elicitors; TDDS-M = Three-Domain Disgust Scale-moral disgust elicitors; TDDS-S = Three-Domain Disgust Scale-sexual disgust elicitors.

negatively) with conservatism. Study 5 aimed to demonstrate that elicitor-specific disgust sensitivity scales can be positively or negatively associated with conservatism, even when items bearing political content are removed from these scales.

Study 5

The goal of the study was to construct two distinct and internally consistent disgust sensitivity measures, which correlate either positively or negatively with conservatism, even when items bearing political content are removed from these scales. Construction of these scales included four stages: First, we created a diverse pull of disgust elicitors representing as little political content as possible. Second, participants rated the extent to which they are disgusted by these stimuli, alongside two clearly politically loaded items: one related to homosexuality (perceived as more disgusting by conservatives; e.g., Haidt et al., 1994) and one to Nazism (perceived as more disgusting by liberals), to be used as anchors for the “conservative”-disgust and “liberal”-disgust scales, respectively. Third, we chose the “politically neutral” items that correlated most positively and loaded most strongly onto one factor with either of the political anchors, to create a “liberal”-disgust scale (negatively associated with conservatism) and “conservative”-disgust scale (positively associated with conservatism). Fourth, we removed the politically loaded anchors from these scales, to demonstrate that even in their absence, the scales are internally consistent and correlate as expected (either negatively or positively) with political orientation.

Method

Participants. Study 5 was conducted among 114 German psychology students in exchange for course credit, 82% female, $M_{\text{age}} = 21.17$ years ($SD = 2.75$ years).

Procedure and materials. Participants rated their disgust toward various scenarios and their political orientation, in random order (see Supplemental Appendix for all items).

Reactions to disgust eliciting scenarios. Participants rated the extent to which they feel disgusted by 50 disgust elicitors on a scale ranging from 1 (*not at all*) to 7 (*to a great extent*). Two of these elicitors were politically loaded and used as anchors for the “conservative”-disgust and “liberal”-disgust scales (“watching a male homosexual couple having sex” and “sitting next to a person covered in Nazi tattoos on the subway,” respectively). The politically neutral items included items generated by a group of experts with the goal of creating the widest possible range of nonpolitical disgust elicitors (e.g., cleaning the bottom of an old man, eating a dish prepared from nonspoiled products taken out of garbage bins), alongside 15 nonpolitical items taken from the original DS (Haidt et al., 1994).

Political orientation was measured using the two scales used in Studies 1 to 4: the German version of the 24-item Wilson–Patterson Conservatism Scale ($\alpha = .80$) and an ideological self-placement item ranging from 1 (*political left*) to 7 (*political right*). Both correlated highly ($r = .63, p < .001$) and were used as a composite measure with higher scores representing more conservative/rightist ideology.

Results

Disgust toward the “conservative anchor” and disgust toward the “liberal anchor” were more strongly correlated with political orientation than the other 48 items (homosexuality: $r = .41, p < .001$; Nazism: $r = -.37, p < .001$).

We first constructed initial “conservative”-disgust and “liberal”-disgust scales, each including the relevant “anchor” item and all items that positively correlated with the anchor item (total of 18 “conservative”-disgust items and 13 “liberal”-disgust items).

Next, we conducted a factor analysis for all 31 items using principal component analysis with varimax rotation, set on a two-factor solution. We removed all items that loaded below .500 on each of the factors to create two scales. The final scales (see Supplemental Appendix) included seven “conservative”-disgust items ($\alpha = .79$) and nine “liberal”-disgust items ($\alpha = .81$). The “conservative”-disgust and “liberal”-disgust scales were not significantly correlated ($r = .07, p = .458$), but were correlated with political orientation in the expected directions ($r = .46, p < .001$ and $r = -.23, p = .013$, respectively).

Finally, we removed the “anchor” items from the scales to create politically neutral “conservative”-disgust ($\alpha = .75$) and “liberal”-disgust ($\alpha = .78$) scales. These final scales correlated very highly with the original scales (the ones which included the “anchor” items; $r = .98, p < .001$ and $r = .99, p < .001$, respectively). After removing the anchor items, political orientation correlated positively with the “conservative”-disgust scale ($r = .42, p < .001$) and negatively with the “liberal”-disgust scale ($r = -.19, p = .046$).

Discussion

The goal of this study was to demonstrate that elicitor-specific disgust sensitivity scales can be constructed such that they correlate either positively or negatively with conservatism, even after removing political content from the scales.

The items of these internally consistent disgust sensitivity scales can retrospectively be grouped into broader disgust domains: The “liberal”-disgust scale included elicitors associated with animal body parts, personal hygiene, environmental pollution, and moral violations such as child abuse. The “conservative”-disgust scale included elicitors associated with sex, exposure to a threat of infectious disease, and moral violations such as drug use. In retrospect, some of these elicitors (e.g., child abuse, sexual fetishism) may

appear consistent with norms associated with either liberalism or conservatism. Indeed, and consistent with BIS (Terrizzi et al., 2013), we would argue that these elicitors, as do disgust elicitors in general, serve the basis for the creation of norms aimed at minimizing exposure to these elicitors. Nevertheless, as opposed to Nazism and homosexuality, these items did not represent explicit political content. More precisely, if sexuality or harming the weak can be seen as representing political content just because they serve as basis for norm creation, a similar claim can be made regarding pathogens. These findings, therefore, reveal how one can construct disgust sensitivity scales that correlate either positively or negatively with conservatism (i.e., are consistent with conservative or liberal norms), even when their final version does not include explicit political content.

General Discussion

Extant political–psychological research suggests that disgust is predominantly a conservative emotion, such that conservatives are generally “more easily disgusted than liberals” (e.g., Inbar et al., 2009, p. 714). We raised conceptual and methodological skepticism concerning this generalized conclusion and addressed it in five studies.

Our main critique is that most previous studies examined the relation between conservatism and disgust sensitivity with regard to specific disgust elicitors in specific disgust domains (Ahn et al., 2014; Shook, Ford, & Boggs, 2017; Shook et al., 2015; Terrizzi et al., 2013). Far from questioning the validity of these findings, we argue that the conclusions drawn from them regarding systematic positive correlations between conservatism and disgust sensitivity may be too generalized. The present research was based on the assumption that a deeper examination of the relations between conservatism and disgust sensitivity requires (a) distinguishing disgust reactions to specific stimuli from the general tendency to respond strongly to disgusting stimuli (over and above specific elicitors) and (b) closely examining the relation between conservatism and disgust toward a wider range of domains and stimuli, which may uncover more complex correlation patterns.

Across five studies, using a variety of disgust elicitors and different indicators of conservatism, we show that the relation between conservatism and elicitor-specific disgust can be positive or negative depending on the content of the disgust elicitors. We find that conservatives and liberals are disgusted by different stimuli, rather than demonstrating context-independent, general differences in disgust sensitivity. In addition, we show (Studies 1–4) that disgust sensitivity does not predict conservatism when measured using an elicitor-unspecific scale, and may even negatively predict conservatism (Study 4) when controlling for its shared variance with elicitor-specific scales, which correlate positively with conservatism.

Taken together, our findings suggest that elicitor-specific disgust sensitivity measures should be used with caution when investigating the disgust–conservatism association, as the chosen elicitors may conceptually overlap with ideology and determine the direction of the relation. More broadly, any measurement of elicitor-specific emotions should consider the distinction between general sensitivity or propensity to the emotional experience (“trait” emotion) and the nature of a given emotion-eliciting stimulus, which may conceptually overlap with the dependent variable in question (e.g., psychopathology, as in Van Overveld et al., 2006). With regard to disgust and conservatism, our findings suggest that even scales that do not seem to include politically loaded socio-moral content may inflate the relations between political orientation and conservatism if politically loaded items are used as criteria in constructing these scales and later removed from their final version (Study 5).

One could argue that the observed reverse correlations between conservatism and disgust sensitivity can be attributed to our particular selection of stimuli. This, however, was precisely our intention, as we set out to demonstrate that the selection of stimuli is what determines the direction of this relation. More broadly, sampling across a broader range of issues is necessary for confirming or challenging general relations between constructs (Wells & Windschitl, 1999). Of course, some of the elicitors that we used to demonstrate a negative relation between conservatism and disgust can be seen as representing socio-moral content consistent with liberal norms (e.g., Nazi symbols). Nevertheless, other elicitors, which were rather politically neutral (e.g., seeing the decapitated head of a dead lion hanging on someone’s wall, drinking from the common cup in church), showed a similar pattern. More generally, and consistent with BIS (Terrizzi et al., 2013; Terrizzi et al., 2010), we would argue that any disgust elicitor (even in the core-disgust domain) can be seen as representing some societal norm violation, as disgust sensitivity transfers into the moral domain via the creation of certain norms aimed at minimizing exposure to these particular elicitors.

Interestingly, we found that participants were on average more disgusted but “liberal”-disgust elicitors compared with “conservative”-disgust elicitors, in all studies. One potential explanation stems from MFT, according to which liberals and conservatives are relatively equally concerned with violations of individualizing moral foundations (e.g., Graham et al., 2009). Another possibility could be that our “liberal”-disgust scenarios were more severe, or more intense, than the “conservative”-disgust scenarios. Although making both types of scenarios equal in terms of intensity would not have changed the general correlation patterns, as the assumption of homoscedasticity is central to linear regression models, we encourage future studies to compare disgust scenarios which are parallel in terms of emotionality and frequency to increase the generalizability of our findings.

Importantly, the correlations between disgust toward these scenarios and conservatism remained significantly positive or negative with or without controlling for anger toward these scenarios. Furthermore, when controlling for anger responses to the “liberal”-disgust and “conservative”-disgust scenarios, we did control not only for their shared “affect” component but also for the “political content” component that anger toward these scenarios shares with disgust toward these scenarios. Thus, controlling for anger produced a relatively clean examination of the emotional experience of disgust.

In addition to demonstrating reverse correlations between conservatism and disgust sensitivity, our findings suggest that the positive correlations between conservatism and disgust apply only to specific elicitors in the animal reminder and core domains, but not to others (Studies 3 and 4). These findings further support our conclusion that the choice of elicitors plays a central role in determining the direction and even the existence of the conservatism–disgust correlation. A wider sampling of stimuli in these domains could potentially reveal more instances of systematic reverse correlations.

Considering our results, the following question arises: Where do these strong intuitions about disgust sensitivity and political orientation originate from? Proponents of MFT (Graham et al., 2009; Haidt & Graham, 2007) argue that conservatives are more sensitive to disgust because they are more concerned with purity-related norms than liberals. A closer inspection of the items that measure the purity foundation (Graham et al., 2009) reveals, however, that they cover a relatively restricted range of purity domains, focusing primarily on violations of conservative norms (e.g., “Chastity is an important and valuable virtue”). Although not all possible norm violations can be considered, including a wider range of purity violations (e.g., environmental pollution) is necessary to properly examine this claim.

Another explanation for the conservatism–disgust association originates in the idea that adopting conservative worldviews serves as an evolutionary disease avoidance strategy by individuals who are particularly sensitive to disgust (Terrizzi et al., 2013). Accordingly, to avoid any risk of contamination or infection with pathogens (Schaller & Duncan, 2007), individuals develop a hypersensitivity to norm violations, which is considered a conservative (rather than liberal) tendency. What is considered a norm violation is, however, a function of the norms individuals endorse. Whereas conservatives might consider being a homosexual or a foreigner a norm violation, liberals might consider being homophobic or xenophobic a norm violation. This would imply that the BIS theory could have broader areas of application, as both conservatives and liberals may act in ways consistent with the theory, depending on the norms that are being violated.

Finally, our findings have broader implications for research on individual differences. Following Wells and Windschitl (1999), sampling stimuli is as important as sampling participants to rule out confounds and to generalize scientific findings (see also Elad-Strenger & Shahar, 2017; Proch,

Elad-Strenger, & Kessler, 2019, with regard to political ideology). Therefore, any study that aims to identify general differences between individuals should promote broad stimuli sampling, in both measurement and scale construction.

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Supplemental Material

Supplemental material is available online with this article.

Notes

1. These percentages are based on ratings on an ideological self-placement item (1 = *left*, 4 = *center*, 7 = *right*).
2. Disgust and anger ratings for the “control” scenarios were also used to create scales serving as comparison standards for the conservative/liberal disgust scales despite their low reliability, which can be attributed to the low variance in their scoring ($M_s < 1.15$, $SD_s < 0.35$).
3. Because factor analyses revealed that the Disgust Sensitivity (DS) and Disgust Propensity (DP) subscales did not load onto two distinct factors in any of the studies, we used the composite Disgust Propensity and Sensitivity Scale–Revised (DPSS-R) score in our analyses.
4. Anger at the liberal scenarios was also higher than anger at neutral scenarios, Study 1: anger $t(111) = 36.18$, $p < .001$, 95% confidence interval (CI) of difference = [1.84, 2.05]; Study 2: anger $t(117) = 36.66$, $p < .001$, 95% CI of difference = [1.62, 1.81], and anger at conservative scenarios was also higher than anger at neutral scenarios, Study 2: anger $t(117) = 20.09$, $p < .001$, 95% CI of difference = [0.80, 0.98].
5. Paired t tests revealed that in Study 1, “liberal”-disgust scenarios evoked similar levels of anger and disgust, $t(117) = 0.232$, $p = .817$, 95% CI of difference = [−0.05, 0.07]. In Study 2, “liberal”-disgust scenarios evoked more anger than disgust, $t(117) = -5.70$, $p < .001$, 95% CI of difference = [−0.29, −0.14], whereas the conservative scenarios evoked more disgust than anger, $t(117) = 2.49$, $p = .014$, 95% CI of difference = [0.02, 0.13]. These mixed results are not surprising, as “disgust” and “anger” are often highly correlated (Hutcherson & Gross, 2011). The fact that anger ratings were higher than disgust ratings for some scenarios is also not surprising, as individuals tend to perceive anger as a more benign and generalized emotion than disgust, and tend to use it more frequently as a description of negative emotional experiences (Averill, 1983).
6. Although Terrizzi, Shook, and McDaniel (2013) criticized the use of single-item ideology measures to assess the

conservatism–disgust relation, we also conducted these analyses using the ideological self-placement item only, arriving at similar results to the ones obtained using the combined ideology measure in all studies. Using the two DPSS-R subscales instead of the composite DPSS-R score evinced similar results to the ones obtained with DPSS-R as a composite measure, in all studies.

7. The regression analyses in all studies evinced similar results when DS and DP were entered into the regression analyses instead of the composite DPSS-R, when a single-item ideology measure was entered as the dependent variable instead of the composite political ideology measure, and when we excluded anger from the analyses.
8. As we introduced two additional scales to this study, we only used 17 of the 26 disgust-eliciting scenarios used in Studies 1 and 2 to keep the survey relatively short and decrease participant dropout.
9. This version of the scale does not include sexual disgust items, similar to the DS-R (Olatunji, Williams, et al., 2007).
10. Anger at the liberal scenarios was also higher than anger at the neutral scenario, $t(189) = 48.57, p < .001$, 95% CI of difference = [1.96, 2.12], and anger at the conservative scenarios was also higher than anger at the neutral scenario, $t(189) = 25.05, p < .001$, 95% CI of difference = [0.70, 0.82]. Paired samples t tests revealed that the “liberal” scenarios and “conservative” scenarios evoked significantly more disgust than anger, $t(189) = 2.45, p = .015$, 95% CI of difference = [0.01, 0.12]; $t(189) = 4.19, p < .001$, 95% CI of difference = [0.05, 0.13], respectively.
11. Similar results were obtained when only DS or Pathogen Disgust subscale of the Three-Domain Disgust Scale (TDDS-P) was included in the model, and when both were removed from the model.
12. Anger at the liberal scenarios was also higher than anger at the neutral scenarios, $t(197) = 22.52, p < .001$, 95% CI of difference = [1.22, 1.45], and anger at conservative scenarios was also higher than anger at the neutral scenarios, $t(197) = 12.24, p < .001$, 95% CI of difference = [0.46, 0.64].
13. Paired samples t tests revealed that as in Study 3, the “liberal” and “conservative” scenarios evoked significantly more disgust than anger, $t(197) = 5.39, p < .001$, 95% CI of difference = [0.08, 0.17]; $t(197) = 7.94, p < .001$, 95% CI of difference = [0.13, 0.21], respectively.
14. Similar results were obtained when Three-Domain Disgust Scale–sexual disgust elicitors (TDDS-S) and Three-Domain Disgust Scale–moral disgust elicitors (TDDS-M) were excluded from the analyses, or when the DS and all TDDS scales were excluded from the analyses.

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