

Research Article

Interpersonal Disgust, Ideological Orientations, and Dehumanization as Predictors of Intergroup Attitudes

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ABSTRACT—*Disgust is a basic emotion characterized by revulsion and rejection, yet it is relatively unexamined in the literature on prejudice. In the present investigation, interpersonal-disgust sensitivity (e.g., not wanting to wear clean used clothes or to sit on a warm seat vacated by a stranger) in particular predicted negative attitudes toward immigrants, foreigners, and socially deviant groups, even after controlling for concerns with contracting disease. The mechanisms underlying the link between interpersonal disgust and attitudes toward immigrants were explored using a path model. As predicted, the effect of interpersonal-disgust sensitivity on group attitudes was indirect, mediated by ideological orientations (social dominance orientation, right-wing authoritarianism) and dehumanizing perceptions of the out-group. The effects of social dominance orientation on group attitudes were both direct and indirect, via dehumanization. These results establish a link between disgust sensitivity and prejudice that is not accounted for by fear of infection, but rather is mediated by ideological orientations and dehumanizing group representations. Implications for understanding and reducing prejudice are discussed.*

A renewed interest in the role of emotions in prejudice has emerged recently. Many approaches consider emotions such as hate (Sternberg, 2003), fear and paranoia (Kramer & Jost, 2002), and intergroup anxiety (Stephan & Stephan, 1985). In this ar-

ticle, we explore the possibility that disgust, a basic emotion characterized by revulsion and withdrawal (Rozin, Haidt, & McCauley, 2000), is a meaningful predictor of negative intergroup attitudes. We demonstrate that interpersonal-disgust sensitivity in particular relates to ideological orientations and dehumanizing out-group perceptions in ways that can effectively account for prejudicial attitudes.

Disgust is associated with turning away from, avoiding, and distancing oneself from offensive stimuli, as opposed to instigating attack or fight responses (Rozin et al., 2000). Contemporary theorizing about prejudice often characterizes negative intergroup emotions as “discomfort, uneasiness, disgust, and sometimes fear, which tend to motivate avoidance” (Gaertner & Dovidio, 1986, p. 63). Although avoidant behavior is observed, as when Whites deny educational opportunities to Blacks (e.g., Hodson, Dovidio, & Gaertner, 2002), emotional responses such as disgust are implied but underassessed in research on prejudice. There are some exceptions. For example, the stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002) emphasizes reactions (e.g., disgust) in response to particular target groups characterized by low competence and low warmth (e.g., welfare recipients). Building on this link between disgust and prejudice, we consider disgust sensitivity as a predictor of rejection of various out-group types.

Disgust is one of the most basic and distinctly human of all emotions, instigating defense mechanisms to protect the body and self in ways that are theoretically relevant to out-group rejection. Rozin and his colleagues (e.g., Rozin et al., 2000; Rozin, Markwith, & McCauley, 1994) argue that disgust originated from oral distaste and has, over time, become culturally enriched and co-opted by other self-protection systems. In the process, disgust has become increasingly involved in moral issues (Haidt,

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Rozin, McCauley, & Imada, 1997; Rozin et al., 2000), playing a role in negative socialization (Rozin et al., 2000) by orienting people toward appropriate cultural norms, practices, and rules of contact.

Disgust is a complex construct, ranging from concerns about ingestion and protecting the body from disease and infection (core disgust), to distancing oneself from reminders of one's animal nature and mortality (sex and death disgust), to concerns with protecting not only the physical body, but also the soul and social order (interpersonal disgust; Rozin et al., 2000). Although several subdomains of disgust may relate to prejudice (see Crocker, Major, & Steele, 1998; Haidt, 2003), interpersonal disgust may be the most theoretically relevant predictor of intergroup attitudes because it pertains directly to other people (whereas sex, death, and core disgust can pertain to people, animals, insects, food, etc.). For example, people exhibit interpersonal revulsion toward wearing clothing from strangers, particularly morally offensive strangers (e.g., Hitler, murderers), and from individuals with contagious diseases. This disgust reaction may arise even if the clothing is sterilized and concerns with disease and death are irrelevant (see Rozin et al., 1994, 2000). Disgust-relevant concerns about interpersonal contamination, often irrational and psychologically distant from intergroup relations, presumably influence the rejection of out-groups, especially foreign groups (e.g., Muslims, for Westerners) and socially deviant groups (e.g., homosexuals). We expected individuals predisposed to heightened disgust sensitivity, especially interpersonal-disgust sensitivity, to exhibit heightened rejection of out-groups.

Related research suggests that humans have evolved predispositions to avoid disabled persons (Park, Faulkner, & Schaller, 2003) and foreigners (Faulkner, Schaller, Park, & Duncan, 2004), in part because of concerns with contracting diseases. Although "disease-based prejudices are . . . likely to be linked with specific affective reactions (disgust)" (Schaller, Park, & Faulkner, 2003, p. 128), researchers typically do not attempt to tease apart the influences of disgust and disease concerns. Navarrete and Fessler (2006) examined vulnerability to disease and disgust sensitivity separately, in different studies. In addition, their ethnocentrism measure tapped evaluations of the in-group and evaluations of vague "other" countries and places simultaneously (Study 1), leaving it unclear whether disease avoidance related to pro-in-group or anti-out-group evaluations. In Study 2, subjects read essays from a pro-U.S. American or an anti-U.S. foreigner, so it is unclear whether the finding that disgust predicted disliking related to disliking of a foreigner or of a counterattitudinal (i.e., anti-American) individual. Also unexplored is how disgust predicts attitudes toward various types of out-groups (cf. Faulkner et al., 2004).

These studies provide insights into rejection responses toward out-groups. Missing from the literature, however, is an indication of the mechanisms through which disgust may affect intergroup attitudes. In addressing this question, it is important to consider two properties of disgust. First, disgust signals

danger and instigates withdrawal, removal, or avoidance responses to protect against contamination (Rozin et al., 2000). Disgust is therefore a relatively conservative environmental reaction prompting retreat from potentially offensive targets. Second, "disgust involves a vertical dimension of degradation-elevation and a link to notions of purity and sacredness" (Haidt et al., 1997, pp. 114–115). That is, disgust reactions connote the sense that one is better, purer, and less offensive than the offending target. In intergroup settings, "disgust serves as an ethnic or outgroup marker" (Rozin, Haidt, McCauley, & Imada, 1997, p. 73), increasing the salience of out-group boundaries and social hierarchies. Chronic experiences of heightened disgust, particularly interpersonal disgust, likely facilitate hierarchical thinking about human social organization and perceptions of out-groups as less human.

These properties of disgust sensitivity, and of interpersonal-disgust sensitivity in particular, may feed directly into ideological orientations toward intergroup relations. *Avoidance-orienting properties* focusing on danger, protection, and withdrawal presumably direct individuals toward an ideological orientation characterized by fear and perceptions of danger, such as right-wing authoritarianism (RWA; Altemeyer, 1996). Right-wing authoritarians follow social norms and traditions, are submissive to authorities, and are aggressive against individuals who threaten norms and social stability (Altemeyer, 1996). They also perceive the world as dangerous and chaotic (Duckitt, 2005). People high in RWA exhibit widespread revulsion toward "deviants," as demonstrated by their aversion to homosexuality, pornography, foreigners, and criminals (seeing the latter as "repulsive and disgusting"; Altemeyer, 1996, p. 22). We expected the *hierarchy-enhancing properties* of interpersonal disgust to predict increases in social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994). High-SDO individuals endorse social hierarchies and intergroup inequality and view the world as a competitive jungle (Duckitt, 2005) operating by zero-sum rules (Esses, Jackson, & Armstrong, 1998). Interpersonal disgust may promote SDO because it "discourages contact with other human beings who are not intimates, and can serve the purpose of maintaining social distinctiveness and social hierarchies" (Rozin et al., 2000, p. 643).

Thus, the avoidance-orienting and hierarchy-enhancing properties of interpersonal disgust make it a likely predictor of more specific intergroup-relevant ideological orientations that may channel the effects of interpersonal disgust on prejudice. Increasingly, RWA and SDO are considered mediating ideological variables that tend to produce a negative orientation toward intergroup relations (Duckitt, 2005; Guimond, Dambrun, Michinov, & Duarte, 2003). Together, RWA and SDO account for approximately half of the variance in prejudice (Altemeyer, 1998; Hodson & Esses, 2005). These findings earmark RWA and SDO as potential conduits of the influence of interpersonal disgust on prejudice.

Recent research demonstrates that high SDO and RWA also indirectly predict negative attitudes toward out-groups through intergroup representations that rationalize prejudice. For instance, previous research has found that high-SDO individuals dehumanize refugees, and consequently express less admiration and more contempt for out-groups and less favorable out-group attitudes than do low-SDO individuals (Esses, Veenvliet, Hodson, & Mihic, in press). Thus, their negative attitudes can become rationalized through “legitimizing myths” indicating that out-groups deserve negative treatment because they are less human than others (see also Esses & Hodson, 2006; Hodson & Esses, 2005; Sidanius & Pratto, 1999). Similarly, authoritarian Nazis in Hitler’s regime rationalized that Jews were subhuman and therefore deserving of their fates. On the basis of such findings, we predicted that the influence of SDO and RWA on intergroup attitudes would be both direct and indirect (i.e., channeled through perceptions that other groups are less human than the in-group and therefore deserving of negative attitudes).

PREDICTIONS

We expected that heightened disgust sensitivity, particularly interpersonal-disgust sensitivity, would predict more negative attitudes toward out-groups, especially foreign (see Faulkner et al., 2004) and socially deviant out-groups. It remains an empirical question whether both interpersonal disgust and concerns about disease susceptibility are relevant to predicting intergroup attitudes. Disease concerns seem most related to core disgust, a rudimentary disgust reaction that functions to guard the body from disease and infection and that is elicited by concerns related to eating, body products, and animals (Rozin et al., 2000). In contrast, interpersonal disgust serves the function of guarding the “body, soul, and social order” (Rozin et al., 2000, p. 645) and is elicited by potential contact with unknown (foreign) and socially undesirable others. Pertaining directly to other people as offensive targets, interpersonal disgust may be particularly related to intergroup attitudes and ideological orientations. Given that people are disgusted even by sterilized objects associated with undesirable others (Rozin et al., 1994), modern intergroup attitudes may similarly exhibit strong associations with interpersonal disgust.

Our prime goal was to explore mechanisms through which disgust may operate on intergroup attitudes. We examined this question with regard to attitudes toward immigrants. We expected that as a general and distal avoidance orientation not linked to groups or intergroup relations, interpersonal disgust would predict intergroup attitudes indirectly. We hypothesized that it would directly predict increases in RWA because of its conservative danger-focused revulsion properties. We also hypothesized that it would directly predict SDO and dehumanizing perceptions of out-groups because of its hierarchy-enhancing social properties. These ideological orientations (RWA, SDO) were expected to exert both direct and indirect effects on in-

tergroup attitudes. That is, we expected they would be fundamental predictors of prejudice (Altemeyer, 1998; Duckitt, 2005) and that they would also predict dehumanizing of immigrants, which would rationalize prejudice (Esses & Hodson, 2006; Esses et al., in press; Sidanius & Pratto, 1999). Mental representations of out-groups as less human than in-groups can directly justify negative attitudes toward out-groups (Bandura, 1999), and were expected to be proximal predictors of attitudes toward immigrants.

METHOD

Psychology students participated for course credit. Four immigrants were omitted from analyses, leaving 103 English Canadian subjects (26 men, 77 women), with a mean age of 21.10 years ($SD = 4.85$).

Subjects indicated their attitudes toward various groups (English Canadians, French Canadians, ethnic minorities, homosexuals, Jews, the poor, foreigners, Native Canadians, drug addicts, Muslims, AIDS patients, the obese) on a widely used and validated feelings thermometer (Esses, Haddock, & Zanna, 1993) with responses ranging from 0 °C (*extremely unfavorable*) to 100 °C (*extremely favorable*). Several out-group categories were created by aggregating attitudes across groups: (a) ethnic foreigners (foreigners, ethnic minorities, Muslims; $\alpha = .90$); (b) deviant and low-status groups (the poor, AIDS patients, homosexuals, drug addicts, the obese; $\alpha = .78$); and (c) familiar-traditional out-groups (Jews, French Canadians, Native Canadians; $\alpha = .72$).

Subjects also completed the seven-item Modern Racism Scale (MRS; McConahay, Hardee, & Batts, 1981), which was modified to tap immigrant attitudes ($\alpha = .80$). MRS items (e.g., “Immigrants are getting too demanding in their push for equal rights”) were rated along a 5-point scale (0 = *strongly disagree*, 4 = *strongly agree*).

The 32-item Disgust Scale 2 (Haidt, McCauley, & Rozin, 2002), assessed reactions to scenarios and disgusting stimuli. Ratings were made on scales from 1 (*strongly disagree/very untrue about me/not disgusting at all*) to 4 (*strongly agree/very true about me/very disgusting*; $\alpha = .88$). The scale contains four 8-item subscales, each assessing a different subdomain. We computed scores for *interpersonal disgust* (e.g., “You sit down on a public bus, and feel that the seat is still warm from the last person who sat there”; “I would have no problem buying and wearing shirts from used clothing stores”—reverse-scored; $\alpha = .61$),¹ *core disgust* (e.g., “I might be willing to try eating monkey meat, under some circumstances”—reverse-scored; “You see a bowel movement left unflushed in a public toilet”; $\alpha = .68$), *death/body-envelope disgust* (e.g., “It would bother me tremendously to touch a dead body”; “You see a man with his

¹The somewhat low reliability of interpersonal disgust attenuates its relations with dependent variables. The observed value falls within the range for self-report scales of similar brevity (cf. Costa & McCrae, 1992, Table 5) and presumably reflects diverse item content.

intestines exposed after an accident”; $\alpha = .78$), and *sex disgust* (e.g., “It is OK with me if people want to look at pornography involving animals”—reverse-scored; “You hear about an adult brother and sister who like to have sex with each other”; $\alpha = .73$).

We used the 18-item Perceived Vulnerability to Disease scale (Park et al., 2003) to tap perceptions of personal disease susceptibility and disease transmission (e.g., “I suffer quite intense symptoms when I do get sick”; “I avoid using public telephones because of the risk that I may catch something from the previous user”; $\alpha = .75$).² Ratings are made on a scale from 1 (*do not agree at all*) to 7 (*strongly agree*).

Whereas some researchers conceptualize dehumanization as fewer perceived “human” emotions in out-groups than in in-groups (Leyens et al., 2000), we based our approach on the observation that some personality factors are considered less applicable to animals than to humans (Gosling & John, 1999). Subjects completed the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), indicating how the Big Five personality factors (Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) apply to immigrants and Canadians. Pilot testing ($N = 18$) revealed Openness and Conscientiousness to be the most uniquely human factors (see also Gosling & John, 1999; Haslam, Bain, Douge, Lee, & Bastian, 2005), and Neuroticism and Agreeableness to be the least human. We computed an index of perceived relative dehumanization of the immigrant out-group relative to the in-group by subtracting the mean score for the nonhuman traits from the mean score for the human traits within each target group, and then subtracting the human-nonhuman score for immigrants from the corresponding score for the English Canadian in-group. Higher scores therefore reflect perceptions of the immigrant out-group as possessing fewer human relative to nonhuman attributes compared with the Canadian in-group. Thus, rather than explicitly reporting whether or not immigrants are subhuman, respondents rated immigrants and the in-group on traits previously rated (by other people) as more or less “human.” Our measure of dehumanizing is a relatively indirect measure comparable to that of Leyens et al. (2000).

Ideological orientations were assessed using the 16-item Social Dominance Orientation Scale (e.g., “In getting what you want, it is sometimes necessary to use force against other groups”; Pratto et al., 1994) and a shortened 12-item version of the Right-Wing Authoritarianism Scale (e.g., “Our country will be destroyed someday if we do not smash the perversions eating away at our moral fiber and traditional beliefs”; Altemeyer, 1996). Both scales were answered along 7-point scales (1 = *do not agree at all*, 7 = *strongly agree*; SDO $\alpha = .89$, RWA $\alpha = .87$).

After completing the feeling thermometers, MRS, Disgust Scale 2, Perceived Vulnerability to Disease scale, Ten-Item Personality Inventory, and measures of ideological orientation,

subjects provided demographic information, were debriefed, and were thanked.

RESULTS

As expected, increased overall disgust sensitivity significantly predicted decreased liking of immigrants, assessed using the MRS ($r = -.25, p = .011, p_{\text{rep}} = .947^3$), and decreased liking of foreign ethnic groups, assessed with the feeling thermometers ($r = -.29, p = .003, p_{\text{rep}} = .974$), and marginally predicted less liking of deviant and low-status groups, also assessed with the feeling thermometers ($r = -.17, p = .092, p_{\text{rep}} = .826$). Disgust sensitivity was unrelated to attitudes toward familiar-traditional out-groups ($r = -.08, p = .412, p_{\text{rep}} = .562$), but was positively related to liking of the dominant English Canadian in-group ($r = .27, p = .005, p_{\text{rep}} = .966$). This latter finding suggests that disgust may also evoke pull or approach tendencies.

In a series of regression analyses in which the four disgust-sensitivity subdomains (interpersonal, core, death, sex) were entered simultaneously to predict attitudes toward the target groups, interpersonal disgust uniquely predicted attitudes toward immigrants, foreign ethnic groups, and deviant and low-status groups ($ps < .05$; see Table 1). No other subdomain uniquely predicted attitudes toward these groups, and no subdomain uniquely predicted attitudes toward familiar out-groups or English Canadians. Because interpersonal disgust was the only significant unique predictor, we explored this disgust subdomain in subsequent analyses.

Other researchers argue that perceived vulnerability to disease (PVD) contributes to intergroup attitudes. In the present study, PVD correlated with interpersonal-disgust sensitivity ($r = .57, p < .001, p_{\text{rep}} > .999$), a result that suggests conceptual overlap. To tease apart interpersonal disgust and concerns with acquiring diseases, we examined the influence of each variable in predicting intergroup attitudes, controlling statistically for the other. As the top portion of Table 2 shows, interpersonal-disgust sensitivity demonstrated significant negative associations with favorable attitudes toward immigrants, foreign groups, and low-status and deviant groups, even after controlling for PVD. However, PVD related only to attitudes toward foreign groups (see also Faulkner et al., 2004), and this effect did not remain after controlling for interpersonal-disgust sensitivity. Holding negative attitudes toward out-groups, particularly immigrants, foreigners, and deviant groups, is more strongly predicted by interpersonal disgust than by concerns with contracting disease.

As the lower portion of Table 2 shows, individuals higher in interpersonal-disgust sensitivity scored significantly higher in both SDO and RWA ($ps < .001, p_{\text{rep}}s > .999$) and rated immigrants as less human ($p < .01, p_{\text{rep}} = .980$). These relations held

²The scale is available for download at <http://neuron4.psych.ubc.ca/~schallerlab/pvd.htm>.

³The p_{rep} statistic represents the probability of replicating an effect (Killeen, 2005).

TABLE 1*Results of Regressions of Group Attitudes on the Four Disgust-Sensitivity Subdomains*

Target group	Disgust-sensitivity subdomain											
	Interpersonal			Core			Death			Sex		
	β	r_{sp}	p_{rep}	β	r_{sp}	p_{rep}	β	r_{sp}	p_{rep}	β	r_{sp}	p_{rep}
Immigrants (MRS)	-.33**	-.27	.96	.19	.14	.78	-.18	-.14	.77	-.01	-.01	.50
Foreign groups	-.30*	-.24	.95	.01	.01	.50	.03	.02	.50	-.13	-.10	.66
Deviant, low-status groups	-.33**	-.26	.96	.18	.13	.75	-.05	-.04	.50	-.04	-.03	.50
Familiar groups	-.21	-.17	.82	.17	.13	.72	-.10	-.07	.51	.02	.01	.50
English Canadians	.06	.05	.50	.17	.13	.73	.08	.06	.50	.04	.03	.65

Note. Modern Racism Scale (MRS) scores were reverse-coded (higher scores represent more positive evaluations); all other group attitudes were measured with feeling thermometers. r_{sp} = semipartial correlation.

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

after controlling for PVD. In contrast, PVD did not predict dehumanization, and PVD-ideology relations did not remain significant after controlling for interpersonal disgust.

Interpersonal disgust clearly relates to intergroup attitudes, but why? We were able to directly test our proposal that interpersonal disgust predicts intergroup attitudes indirectly through ideological orientations and out-group dehumanization because subjects completed a widely used measure of prejudice (the MRS) tapping attitudes toward immigrants, as well as our measure of dehumanization of immigrants.

Results from our test of the mediated influence of interpersonal disgust on intergroup attitudes are presented in Figure 1. The tested model was saturated, or “just identified” (i.e., $df = 0$), representing perfect fit by definition by testing all possible paths (only significant directional paths are shown for clarity). Interpretation of the path analysis centers on the magnitudes and statistical significance of the path coefficients. As expected, predispositions to interpersonal-disgust sensitivity predicted

attitudes toward immigrants via several indirect (not direct) paths. Interpersonal disgust uniquely predicted increases in both ideological variables, SDO and RWA, and also directly predicted increasingly dehumanized perceptions of immigrants. SDO exhibited both a direct path to attitudes toward immigrants and an indirect path through dehumanization (RWA predicted attitudes only directly). Thus, as predicted, interpersonal disgust was expressed through SDO, RWA, and out-group dehumanization, all of which were associated with less favorable attitudes toward immigrants. Virtually all variance between interpersonal-disgust sensitivity and attitudes toward immigrants was directed through these three intervening variables.

DISCUSSION

We expected disgust sensitivity, which is characterized by revulsion, to predict particular intergroup attitudes. English Canadians exhibiting heightened disgust sensitivity expressed

TABLE 2*Intergroup Correlates of Interpersonal-Disgust Sensitivity and Perceived Vulnerability to Disease*

Measure	Interpersonal-disgust sensitivity	Perceived vulnerability to disease
Liking of target groups		
Immigrants (MRS)	-.31** [-.33**]	-.07 [.14]
Foreign groups	-.35*** [-.25**]	-.26** [-.08]
Deviant, low-status groups	-.27** [-.22*]	-.17 [-.02]
Familiar groups	-.15 [-.14]	-.06 [.03]
English Canadians	.20* [.14]	.15 [.05]
Ideological individual differences		
Social dominance orientation	.36*** [.26**]	.27** [.08]
Right-wing authoritarianism	.54*** [.42***]	.39*** [.11]
Dehumanization of immigrants	.31** [.25**]	.18 [.00]

Note. Liking of immigrants was measured by Modern Racism Scale (MRS) scores, which were reverse-coded (higher scores represent more positive evaluations); liking of the four other target groups was measured by feeling thermometers. Numbers in brackets represent correlations after covarying out variance from the variable in the adjacent column. $N = 103$.

* $p < .05$, $p_{rep} > .88$. ** $p < .01$, $p_{rep} > .95$. *** $p < .001$, $p_{rep} > .99$.

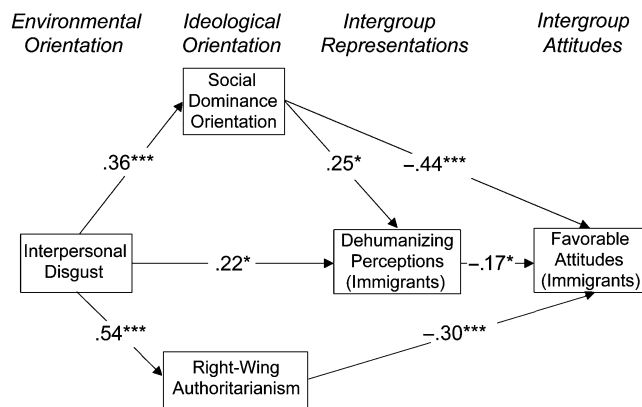


Fig. 1. Results of the test of the fully saturated model with all possible paths tested. For ease of interpretation, disturbances and nonsignificant paths are not shown. Social dominance orientation and right-wing authoritarianism were significantly related at .37 ($p < .001$, $p_{rep} > .999$), with no causal relation stipulated. Significant coefficients are indicated by asterisks, * $p < .05$, $p_{rep} > .88$; *** $p < .001$, $p_{rep} > .99$.

heightened disliking of immigrants and foreign groups (e.g., Muslims). Disgust sensitivity did not predict attitudes toward familiar out-groups (e.g., French Canadians); given their high status and similarity to the in-group, these groups may be opposed for reasons other than disgust, such as resource threat (LeVine & Campbell, 1972) or identity threat (Tajfel & Turner, 1979). These disgust-attitude patterns are similar to those obtained in research on the relation between disease avoidance and prejudice (e.g., Faulkner et al., 2004). The positive relation between disgust sensitivity and attitudes toward the dominant in-group (English Canadians) suggests that disgust may orient a “pull” toward one’s own, perhaps to rally support under threat (Navarrete & Fessler, 2006).

Of the disgust subdomains, such as disease-based repulsion (core disgust) and mortality reminders (death disgust), only interpersonal disgust uniquely predicted attitudes toward immigrants, foreigners, and deviant and low-status groups (e.g., homosexuals; see Table 1). Comparisons of interpersonal disgust and PVD revealed that only the former was significantly and uniquely related to intergroup attitudes, ideological orientations, and dehumanizing perceptions of immigrants (see Table 2). Individuals disgusted by interpersonal “contamination” (e.g., wearing used but clean sweaters, sitting on warm bus seats vacated by strangers, and sitting on clean public-toilet seats) are predisposed to prejudice and its antecedents, and this sensitivity supersedes death disgust or concerns about contracting disease. Squeamishness about contact with others meaningfully predicts prejudices in a manner consistent with its purported function of protecting purity of the soul and social order (Rozin et al., 2000).

This study addressed a gap in the literature, exploring mechanisms explaining the relation between disgust and intergroup attitudes. Results of the path analysis (Fig. 1) support the assertion that interpersonal disgust relates to attitudes to-

ward immigrants indirectly, channeled through individual differences in ideological orientations (RWA, SDO) and dehumanizing perceptions of the out-group. The avoidance-orienting and hierarchy-enhancing properties of interpersonal-disgust sensitivity predict negative ideologies and intergroup representations that themselves predict increasingly negative attitudes, as expected.

Much of the explanatory power of our path analysis stems from contributions by SDO and RWA. Past research focused largely on outcomes of these measures, not precursors (for exceptions, see Duckitt, 2005, and Guimond et al., 2003). Understanding how emotions link to ideological orientations is crucial to comprehending prejudiced individuals. As expected, RWA was particularly related to disease concerns (Table 2);⁴ this finding confirms that people who endorse a high level of RWA are particularly afraid of disease and danger (Duckitt, 2005). However, ideological orientations and intergroup attitudes correlated with interpersonal disgust even after controlling for disease concerns (Table 2). Therefore, interpersonal disgust may be particularly relevant to symbolic-ideational (rather than realistic) intergroup threats, especially among ideologues. Indeed, in our model, almost 30% of the variance in RWA was explained by interpersonal-disgust sensitivity. Efforts to reduce disgust sensitivity, through controlled positive contact and desensitization interventions, would presumably reduce prejudice by lowering SDO, RWA, and dehumanizing perceptions of out-groups.

These findings highlight dehumanization as a cognitive antecedent to intergroup attitudes (Bandura, 1999; Esses et al., in press). We introduced an indirect method of assessing dehumanization based on the perceived relative absence in out-groups of traits seen as uniquely human. Increases in SDO uniquely predicted dehumanization of immigrants, and both SDO and RWA uniquely predicted negative attitudes. Prejudice-rationalizing beliefs are problematic because they perpetuate negative attitudes toward immigrants (Esses & Hodson, 2006; Sidanius & Pratto, 1999). In the path analysis, dehumanizing perceptions were predicted by interpersonal disgust both directly and indirectly, via SDO. Desensitizing individuals to disgust reactions would presumably diminish out-group dehumanization through several mechanisms.

We wanted to investigate how these conceptually associated variables relate to one another in order to clarify whether people who are sensitive to disgust are prone to disliking immigrants, and if so, why. Given our focus on stable individual differences as predictors of dehumanization and attitudes, our approach suited our goals. Because the data are correlational, causality can only be inferred. However, we have presented a theoretical rationale that includes general environmental predispositions (interpersonal-disgust sensitivity), more specific ideological orientations (SDO, RWA) theoretically intensified by the prop-

⁴When both RWA and SDO were entered as predictors of PVD, only RWA remained significant ($\beta = .33$, $p = .002$, $p_{rep} = .979$).

erties of interpersonal disgust, and specific cognitive representations of the out-group. On the basis of past research, we predicted that ideological orientations would predict attitudes both directly and indirectly, via dehumanization (as a legitimizing rationalization). Our model is therefore theoretically logical. To explore causal relations further, future researchers can manipulate variables in the model (e.g., disgust, dehumanization). For instance, manipulations that enhance dehumanization perceptions create negative attitudes toward refugees (Esses et al., in press).

We have explored how interpersonal disgust and concerns with disease (core disgust, death disgust, PVD) predict intergroup attitudes. We are not arguing that concerns with disease are irrelevant to prejudice; indeed, disease-avoidance models predict prejudice against foreign groups (Faulkner et al., 2004) and disabled people (Park et al., 2003). However, concerns with contracting diseases may pertain to evolutionary models of group contact (Schaller et al., 2003), whereas disgust sensitivity may reflect powerful symbolic cultural forces (Rozin et al., 2000) that socialize withdrawal strategies to protect the self from potentially offensive objects, including social groups. Just as some cultures encourage eating dogs and others find this practice abhorrent, cultural factors influence which social groups are considered disgusting. Thus, the increasing acceptance of homosexuals in Western countries is more likely driven by cultural determinants than by evolutionary forces. Evolutionary pressures may promote caution in approaching foreign others for disease-prevention reasons, whereas cultures may be powerful orienting forces guiding people toward group-based ideologies and dehumanizing mental representations. Interpersonal disgust and disease-related concerns are related constructs, and both undoubtedly influence intergroup relations. Future research can explore their similarities and differences.

Researchers have called for examination of negative factors interfering with intergroup contact (Pettigrew & Tropp, 2006). The present investigation highlights the neglected role of interpersonal-disgust sensitivity. Heightened interpersonal disgust predisposes individuals toward ideologies and intergroup representations that impede positive group attitudes, and therefore is a strong candidate to consider. As a defensive emotion modifiable through training and desensitization intervention (McKay, 2006), disgust warrants further consideration in studies of prejudice.

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