**Explaining Public Support for Counterproductive Homelessness Policy:**

**The Role of Disgust**

Scott Clifford
Department of Political Science
University of Houston

Spencer Piston
Department of Political Science
Boston University

Forthcoming at *Political Behavior*

**Abstract**

Federal, state, and city governments spend substantial funds on programs intended to aid homeless people, and such programs attract widespread public support. In recent years, however, government has increasingly enacted policies, such as bans on panhandling and sleeping in public, which are counterproductive to alleviating homelessness. Yet, these policies also garner substantial support from the public. Given that programs aiding the homeless are so popular, why are these counterproductive policies also popular? We argue that disgust plays a key role in the resolution of this puzzle. While disgust does not decrease support for aid policies or even generate negative affect towards homeless people, it motivates the desire for physical distance, leading to support for policies that exclude homeless people from public life. We test this argument using survey data, including a national sample with an embedded experiment. Consistent with these expectations, our findings indicate that those respondents who are dispositionally sensitive to disgust are more likely to support exclusionary policies, such as banning panhandling, but no less likely to support policies intended to aid homeless people. Furthermore, media depictions of the homeless that include disease cues activate disgust, increasing its impact on support for banning panhandling. These results help explain the popularity of exclusionary homelessness policies and challenge common perspectives on the role of group attitudes in public life.

*"Homelessness remains one of the most misunderstood and least documented social policy issues of our time."*

-Ralph Nunez and Cybelle Fox

Over 600,000 people are homeless in the United States and 8% of the population has experienced homelessness at some point (Tompsett et al. 2006).[1] All levels of government devote substantial funds toward aiding homeless people, including through the U.S. Department of Housing and Urban Development, Homeless Assistance Grants, Veterans Administration Supported Housing, and Housing First. These aid programs are popular, consistent with decades of survey research finding that many programs attempting to assist the poor enjoy widespread public support (Free and Cantril 1967; Gilens 1999; Page and Jacobs 2009). Indeed, policies intended to benefit the homeless are substantially more popular than policies designed to benefit other social groups, such as foreigners or black people (Gilens 1999; Jacoby 2000; Toro and McDonell 1992).[2]

At the same time, however, cities and states are increasingly adopting policies that are counterproductive to the goal of helping homeless people (e.g., Amster 2003; Foscarinis, Cunningham-Bowers, and Brown 1999). These policies include bans on sleeping in public, loitering, lying down in public, living in vehicles, and panhandling. Some cities have even outlawed feeding homeless people in public.[3] These policies are harmful, causing homeless people to be regularly cycled through prisons and jails, in turn making it more difficult for them

[1] https://www.hudexchange.info/resources/documents/ahar-2013-part1.pdf

[2] See Hutchings and Piston 2011 for an overview of the role of racial prejudice in depressing white support for policies intended to aid black people.

[3] http://www.nlchp.org/documents/No_Safe_Place

to hold a job and escape from poverty. Indeed, these costly policies work in direct opposition to efforts to improve the lot of homeless people.

Strangely, however, these counterproductive policies are nearly as popular as policies designed to help homeless people (Link et al. 1995; Phelan et al. 1997). Pluralities of Americans support government prohibitions of behaviors that are impossible to avoid if one does not have a home, such as sleeping, lying down in public, and living in vehicles.[4] As will be seen, even among those respondents who support increased government aid to homeless people, a plurality also supports policies that exclude them from public life. Given that policies intended to help homeless people are so popular, why do these counterproductive policies also draw substantial public support?[5]

In resolving this puzzle, this manuscript also challenges a standard affective "like or dislike" approach to intergroup attitudes in the study of public opinion. While this common affective approach to intergroup attitudes can help explain attitudes towards homelessness policy, it cannot explain why so many people support both aid and counterproductive policies.

[4] For example, a 2002 Time/CNN/Harris poll finds that 47% of the public said it should be illegal for homeless people to sleep in public places, such as parks or sidewalks. Furthermore, we find strong support for these policies in our own data, presented below.

[5] We focus on two classes of policy attitudes – which we refer to as "aid" and "exclusionary" – because these policies are common in current political discourse, map on to two distinct motivations central to our theory, and are a common focus of past research (e.g., Knecht and Martinez 2009). However, there are other policy responses that we do not consider here that might serve different goals and motivations. For example, "aid" policies could have punitive effects (e.g., Soss 2005).

Nor can a "tough love" approach explain support for policies such as those banning sleeping in public or panhandling, since, as will be seen, positive affect towards homeless people predicts opposition to these policies. Moreover, these counterproductive policies are widely understood to harm rather than help homeless people.

Instead, we argue that these policies serve an *exclusionary* purpose, serving a common desire for the public to maintain physical distance from homeless people (Link et al. 1995; Phelan et al. 1997). In turn, support for exclusionary policies is best explained by disgust, an emotion that evolved to protect our health by keeping us away from potential contaminants. Thus, while most of the public wants to help homeless people, sensitivity to disgust drives many of these same people to support policies that facilitate physical distance from homeless people.

We test our theoretical expectations using experimental and observational evidence from two samples, including a large national sample. As predicted, we find that individuals who are most sensitive to disgust are more likely to support exclusionary policies, but are no less likely to support aid to homeless people. We also find evidence from an embedded experiment indicating that when political communication primes disease cues related to homelessness, this increases the impact of disgust sensitivity on opinion about banning panhandling – but, consistent with expectations, does not alter the null effect of disgust sensitivity on opinion about policies intended to provide aid to homeless people.

Our results provide novel insights into a topic that scholars know relatively little about: public opinion towards homeless policy. They also suggest that theories of intergroup attitudes that rely on general group affect are missing crucial variation in the structure of group attitudes, limiting the inferences that can be drawn about the impact of these attitudes on policy opinion.

**The Limits of Group Affect as an Explanation for Policy Attitudes about Homelessness**

Standard accounts of public opinion put forward the following logic for intergroup attitudes: if majorities of the public like a group, policies aiding that group should be popular and policies hurting that group should be unpopular. If majorities of the public dislike a group, the reverse should be true (Nelson and Kinder 1996; Sniderman, Brody, and Tetlock 1991). This approach[6] has made valuable contributions in a number of domains, increasing scholars' understanding of public opinion on issues related to race (Kalmoe and Piston 2013; Kinder and McConnaughy 2006; Krupnikov and Piston 2016; Strother, Piston, and Ogorzalek forthcoming), and civil rights (e.g., Chong 1993). Yet given the popularity of policies intended to aid homeless people, this perspective struggles to explain why policies that appear to hurt rather than help the homeless are also popular. Even more challenging to the group affect perspective is the observation, discussed in detail below, that policies with punitive effects are popular *even among those who favor policies that directly aid homeless people*.

One initially plausible explanation is that much of the public takes a "tough love" approach toward homeless people. That is, perhaps these exclusionary policies, such as banning sleeping in public, are seen as a way to help homeless people off of the street. On this view, the public may support exclusionary policies as reinforcing aid policies, and ultimately as a way to help the homeless. While this belief would conflict with the reality of these policies, it could help

[6] This approach has aided scholars' understanding of the determinants of vote choice as well. For example, much research suggests that negative attitudes toward black people undermine white support for black candidates in many cases (Krupnikov and Piston 2015a; Krupnikov, Piston, and Bauer 2016; Lupia et al. 2016), including recent presidential elections (Krupnikov and Piston 2015b; Piston 2010).

reconcile the group affect approach with these seemingly conflictual policy attitudes. However, as will be seen, there is scant evidence for this alternative explanation. Positive affect towards the homeless predicts support for aid policies, but *opposition* to exclusionary policies. Furthermore, an auxiliary test suggests that Americans view exclusionary policies as hurting homeless people, not helping them. Thus, the standard "like or dislike" model of intergroup attitudes cannot explain why so many people support policies with punitive effects even when they support aid to homeless people. We turn to our own explanation in the next section.

**The Role of Disgust in Exclusionary Attitudes towards the Homeless**

Various social groups are excluded from certain aspects of social life in America on the basis of their perceived characteristics or dispositions. In an evolutionary sense, exclusion plays a functional role by restricting social exchange and interaction with others who might pose some form of threat (e.g., Aarøe and Petersen 2014; Petersen 2012). One such threat is the possibility of contracting disease. To avoid these potential costs of social interaction, people have developed heuristics to detect the presence of pathogens in others. Individuals perceived as potential pathogen threats can then be avoided, along with the threat. Thus, the characteristic behavioral response towards potential carriers of pathogens is physical distance (Kurzban and Leary 2001; Park, Faulkner, and Schaller 2003). People are powerfully motivated to avoid contact with others who might pose a disease threat.

Disease avoidance motivations can have powerful effects even when we are unaware of them or when we consciously believe that a person or object does not pose a threat. According to evolutionary logic, it is safer to be prone to false alarms when a false negative could lead to illness or death (e.g., Johnson et al. 2013). As a benign example of this phenomenon, studies

show that people are reluctant to eat chocolate that is shaped like dog excrement even when they know it is safe (Rozin, Millman, and Nemeroff 1986). But this same phenomenon leads to prejudicial behavior towards a wide variety of groups, as deviations from norms of physical appearance (e.g., rashes) may be interpreted as evidence of a pathogen (e.g., Kurzban and Leary 2001). For example, AIDS patients, cancer patients, and the mentally ill are all frequently stigmatized and avoided (Greene and Banerjee 2008; Stier and Hinshaw 2007), which may be driven by disease avoidance motivations (Oaten, Stevenson, and Case 2009). Obese people are implicitly associated with disease, which drives stigmatization (Park, Schaller, and Crandall 2007). People with physical deformities and even those who are perceived as unattractive seem to cue disease threat and thereby motivate avoidance (Park, Faulkner, and Schaller 2003; Park, van Leeuwen, and Stephen 2012), as attractive, symmetric faces are an indicator of health (Rhodes et al. 2001). In short, disease avoidance motivates the stigmatization and avoidance of a large number of groups, including those who may be completely healthy.

*Disgust as a Behavioral Immune System*

Humans have an extensive immune system that defends against pathogens that enter the body. The *behavioral* immune system is a complementary set of psychological mechanisms that prevent contact with pathogens in the first place (for a review, see Schaller and Park 2011). These psychological mechanisms involve detection of potential pathogen threats, emotional and cognitive responses to these potential threats, and behavioral avoidance of the pathogen source. Disgust carries out each of the functions of the behavioral immune system. Disgust helps in the detection of potential pathogen threats – indeed, nearly every common disease cue reliably generates feelings of disgust across cultures (Curtis and Biran 2001). Moreover, images

portraying a disease threat are rated as significantly more disgusting than similar photos that do not portray a disease threat (Curtis, Aunger, and Rabie 2004). Similarly, tactile cues that are associated with pathogen presence (e.g., moisture and consistency) trigger feelings of disgust (Oum, Lieberman, and Aylward 2011), as do various olfactory cues (e.g., Schnall et al. 2008).

Disgust is behaviorally manifested by avoidance and physical distancing (Rozin, Haidt, and McCauley 2008). People are reluctant to eat or even touch an object that is perceived as disgusting (Deacon and Olatunji 2007; Rozin et al. 1999). A unique feature of disgust is the ease with which a disgust-eliciting object can contaminate another, such as an item coming in contact with a toilet. Even very brief contact with a disgust-eliciting object is sufficient for perceptions of contamination, highlighting the importance of avoiding contact with disgust-eliciting objects (Rozin, Millman, and Nemeroff 1986). Feelings of disgust are also potent motivators of cleansing behavior, such as handwashing (Curtis et al. 2001; Pellegrino, Crandall, and Seo 2015, 2016), which can dramatically reduce rates of illness (e.g., Luby et al. 2005).

While everyone regularly experiences disgust, some people are dispositionally more *disgust sensitive* – that is, they react more readily and more powerfully to disgust elicitors. This individual difference in disgust sensitivity is stable over time (Olatunji et al. 2012) and genetic factors account for approximately half of the variability in this disposition (Sherlock et al. 2016).[7] Pathogen disgust sensitivity is one of three domains of disgust and it focuses specifically on pathogen cues, such as bodily fluids, mold, blood, and gore (Tybur, Lieberman, and Griskevicius 2009; Tybur et al. 2013). While there are other aspects of disgust sensitivity (e.g., moral, sexual), pathogen disgust sensitivity is argued to be conceptually identical to the

[7] Notably, there is also evidence that disgust sensitivity reacts to temporarily lowered immunity, serving a compensatory function (e.g. Fessler, Eng, and Navarrete 2005).

behavioral immune system (Lieberman and Patrick 2014), and thus most relevant to our argument here. Supporting this contention, pathogen disgust sensitivity predicts physiological responses to disgusting images, feelings of state disgust while carrying out aversive tasks, contamination threats, and washing symptoms of obsessive-compulsive disorder (Olatunji et al. 2012). In the health domain, pathogen disgust sensitivity has been shown to predict stigmatization of obese people (Lieberman, Tybur, and Latner 2012), discomfort with recycled wastewater (Wester et al. 2015), and opposition to 'unnatural' foods (Clifford and Wendell 2016; Scott, Inbar, and Rozin 2016). In short, individual differences in pathogen disgust sensitivity reliably predict responses to potential health threats.

*Attitudes towards Homeless People as a Response to Pathogen Threat*

The public's primary form of interaction with people who are homeless is through day-to-day interaction on the streets and through media portrayals. There are several reasons why homeless people may be implicitly or explicitly perceived as a pathogen threat. A major challenge to those facing homelessness is lack of access to proper healthcare and sanitation (Acorn 1993; Gelberg et al. 1990). As a result, homeless people suffer high rates of illness; notably higher than people living in shelters (Gelberg and Linn 1989). One of the most common reasons that homeless people seek medical treatment is for skin problems (Raoult, Foucault, and Brouqui 2001), which can serve as potent disease cues (Curtis, Aunger, and Rabie 2004; Schaller et al. 2010). Beyond actual pathogen threats, lack of access to sanitation can lead to poor hygiene, which also serves as a disease cue (Curtis and Biran 2001). Thus, homeless people who are completely healthy may implicitly trigger pathogen concerns among a wide swath of the

public. Indeed, some researchers have argued that that the public may "want to avoid homeless people because they are viewed as dirty, smelly, lice-ridden, or diseased" (Phelan et al. 1997).

Media coverage also plays a contributing role. Media accounts often portray the homeless as dirty, mentally ill, and deviant (Shields 2001). Discussions of public policy regarding homelessness often involve concerns about the cleanliness of parks, neighborhoods, and businesses. Such depictions reinforce perceptions that the homeless are a pathogen threat, leading to the desire to distance the homeless from public life. In short, media depictions of homeless people associate them with a variety of disease cues, such as lack of hygiene, mental illness, and drug use, further activating disgust.

Our theory based on pathogen threat helps explain the public's seemingly conflictual attitudes towards the homeless. Homeless people are associated with a variety of characteristics that signal the presence of pathogens, which should in turn elicit disgust among observers. Disgust's primary behavioral response is avoidance and thus these pathogen cues should cause people to want to maintain physical distance from homeless people. Policies such as bans on loitering, panhandling, or sleeping in public minimize the potential for interaction with the homeless. Similarly, while majorities of the public support subsidized public housing for homeless people, they are much less likely to support such housing in their own neighborhoods, again serving to maintain physical separation from the homeless (Shinn 1992; Toro and McDonell 1992). It is likely that in the case of homelessness, NIMBYism is motivated in no small part (though not exclusively) by disgust.

While existing literature on disgust provides a clear prediction regarding exclusionary attitudes, it is less clear on the role it should play in aid policies. One line of research based on the stereotype content model holds that groups perceived as low in warmth and competence traits

(such as homeless people) will elicit disgust and other negative emotions. Disgust should in turn cause "both active attack and passive neglect" (Fiske 2010, 700), which would imply that disgust motivates opposition to aid policies. While much of this research suggests a role of disgust in attitudes towards the homeless (Fiske, Cuddy, and Glick 2007; Fiske 2009, 2010; Harris and Fiske 2006), we are aware of no direct evidence regarding how disgust influences attitudes towards homeless people, much less policy attitudes regarding homelessness. Moreover, this research often conflates disgust with other negative emotions, such as contempt, both from a conceptual and empirical standpoint (e.g., Fiske et al. 2002). Finally, some of the most direct evidence available is contrary to the predictions of the stereotype content model (Cikara and Fiske 2011).

Our viewpoint differs from the stereotype content model. Pathogen threat stems entirely from physical contact, as opposed to economic or cultural forms of threat. As a result, while some forms of threat (e.g., criminality) cause complete social isolation, pathogen threat specifically motivates physical distance (Park, van Leeuwen, and Chochorelou 2013). This leads to the expectation that disgust sensitivity will *not* undermine support for aid to the homeless. Thus, the dual motivations of avoidance and aid can both be held at once. Just as one might want to avoid close contact with a sick person while still wanting to help that person, disgust should motivate avoidance of the homeless without necessarily undermining support for government efforts to help homeless people.

Based on the theory described above, we have four predictions that help explain public attitudes towards homelessness. First, people high in pathogen disgust sensitivity, who are more responsive to disease cues, will be more supportive of exclusionary policies, such as banning panhandling or sleeping in public (H1). Second, disgust sensitivity will *not* undermine support

for aid to homeless people (H2). Finally, descriptions of the homeless that include disease cues, such as those commonly encountered in the media, will strengthen the impact of disgust sensitivity on exclusionary attitudes (H3), but will not alter its (null) impact on support for aid policies (H4).

## Methods and Results

We now move to tests of our theoretical expectations. After describing the survey data, we present survey results illustrating the central puzzle of this research project. Consistent with previous research, we find that majorities of the American public support policies intended to aid homeless people. However, we also find widespread support for exclusionary policies that have become popular in U.S. cities and states in recent years. Following this section, we present our first key finding: that disgust sensitivity is a powerful predictor of support for exclusionary policies, but has no meaningful effect on aid policies. Our second contribution is to show that group affect cannot explain why so many people support both aid and exclusionary policies, nor can it explain the effects of disgust sensitivity. Finally, we then show experimental evidence that disease cues in the media can amplify the effect of disgust sensitivity on support for banning panhandling.

### *Data*[8]

We rely on two separate surveys; exact question wording for each survey can be found in Appendix 1. First, we collected data on attitudes towards the homeless in a national sample from

[8] Replication material for this article can be found at spencerpiston.com.

a module in the 2014 Cooperative Congressional Election Study (CCES; $N = 861$).[9] In the pre-election wave of the survey, we measured pathogen disgust sensitivity using four items from the seven-item pathogen disgust subscale of the Three Domains of Disgust Scale (TDDS; Tybur, Lieberman, and Griskevicius 2009).[10] We rely on this measure as it is argued to be the best available measure of pathogen disgust sensitivity and the behavioral immune system (Lieberman and Patrick 2014; Tybur, Frankenhuis, and Pollet 2014). In addition, we measured attitudes towards the homeless using a 101-point feeling thermometer. In the post-election wave, approximately one month later, we randomly assigned subjects to one of four experimental conditions, described further below. Our key outcome measures consist of two classes of policy attitudes – exclusionary policies and aid policies. Exclusionary policies include support for banning sleeping in public and banning panhandling. Aid policies consist of support for subsidized housing for the homeless and increased government aid to the homeless.

Second, we replicated and extended our primary observational results with more robust measures using a convenience sample of adults recruited from Amazon's Mechanical Turk (MTurk; $N = 504$). While MTurk samples are not nationally representative, they replicate key

[9] YouGov-Polimetrix used a matching algorithm with respect to gender, age, race, education, party identification, ideology, and political interest to produce an internet sample that closely approximates the demographic makeup of known marginals for the general population of the United States from the U.S. Census Bureau's 2008 American Community Survey. The survey consisted of 1,000 respondents in wave 1: we analyze only those 861 respondents who completed both waves.

[10] These four items were selected on the basis of factor loadings from a factor analysis conducted on the full seven-item subscale in a dataset collected for an unrelated study.

findings on the psychological correlates of political ideology (Clifford, Jewell, and Waggoner 2015) and routinely replicate experimental results from nationally representative surveys (e.g., Berinsky, Huber, and Lenz 2012; Mullinix et al. 2016; Weinberg, Freese, and McElhattan 2014). Furthermore, MTurk respondents tend to be more attentive than respondents in many common samples (Hauser and Schwarz 2015; Weinberg, Freese, and McElhattan 2014). Subjects were asked about their support for the same four homelessness policies. At the end of the survey, we measured pathogen disgust sensitivity using the full seven-item TDDS subscale.

*The Strange Popularity of Policies Excluding Homeless People from Public Life*

We begin the empirical analyses by presenting distributions of policy attitudes in order to illustrate the central puzzle driving this project. We analyze only the 462 observations from the two control conditions (*No Stimulus, Neutral*: described further below), because results do not meaningfully differ across these two conditions and because doing so facilitates presentation and maximizes statistical power. We exclude data from our two treatment conditions because we expect the treatments to affect policy attitudes and our interest here is in baseline public opinion. Consistent with previous research, our CCES respondents strongly support helping homeless people, as shown in the left-hand panel of Figure 1.[11] Sixty percent support increasing aid to the homeless, while only 19% oppose it (the remainder neither support nor oppose it). Similarly, 65% favor providing subsidized housing to homeless people, while only 17% oppose it. At the

[11] For simplicity, we trichotomize responses in Figure 1 and the surrounding discussion, so that respondents who strongly, moderately, or slightly favor a policy (scoring 5-7 on a 1-7 scale) are all categorized as favoring the policy, while all respondents who strongly, moderately, or slightly oppose a policy (scoring 1-3 on a 1-7 scale) are all categorized as opposing the policy.

same time, however, a substantial proportion of the public also supports exclusionary policies: 52% support a ban on panhandling, while only 23% oppose a ban (the remainder neither support nor oppose a ban). Meanwhile, 46% support a ban on sleeping in public areas, and 30% oppose the ban. In fact, even when we restrict the analysis to those who support increased aid, we still find that a plurality support exclusionary policies. The middle and right-hand panel of Figure 1 displays support for exclusionary policies broken down by support for aid to homeless people. Even among those who support aid, a plurality (47%) support banning panhandling and a plurality (44%) also support banning sleeping in public. Given that, as previous research has found, aid to the homeless is such a popular proposition, it is puzzling that policies with punitive effects also attract such widespread support.

[Figure 1 about here]

*The Divergent Effects of Disgust Sensitivity*

We have argued that disgust sensitivity motivates support for exclusionary policies while leaving opinion about aid policies unaffected. If this is the case, we should observe positive associations between disgust sensitivity and support for exclusionary policies, and we should observe no such associations between disgust sensitivity and opinion about aid policies. In order to test these propositions, we conduct a series of OLS regressions predicting each policy attitude. Our control variables include partisan identification, ideological self-identification, and church attendance, variables that are likely correlated with both disgust sensitivity (Olatunji 2008; Terrizzi, Shook, and McDaniel 2013) and our outcome variables (e.g., Toro and McDonell

1992).[12] For the CCES analysis, since this dataset includes an experiment, we analyze data only from the two control conditions (*No Stimulus, Neutral*) in order to observe associations in the absence of a treatment effect. Our key independent variable of interest is disgust sensitivity, which is scored as an average of the items making up the TDDS pathogen disgust subscale (CCES: $\alpha = .75$; MTurk: $\alpha = .85$; the distribution of the variable can be found in Appendix 2). For these analyses, as in all analyses throughout the document, all statistical tests are one-tailed and all variables are coded from 0 to 1 in order to facilitate interpretation.

In the left-hand side of Figure 2, we plot the effect of shifting disgust sensitivity from the 10$^{th}$ percentile to the 90$^{th}$ percentile on exclusionary policy attitudes (full model details are shown in Appendix 3). The results indicate that, as expected, disgust sensitivity is positively and powerfully associated with support for exclusionary policies. Across both the CCES and MTurk studies, those who are more easily disgusted are more likely to support both banning sleeping in public areas and banning panhandling. This relationship is statistically significant, and the magnitude is meaningful in both samples, ranging from slightly more than one-half of a point to slightly more than one full point on the seven-point scale of the dependent variable in the CCES sample. Indeed, in the CCES sample the coefficient is the largest in both models, rivaled most closely by ideology.

[12] Unfortunately, due to space limitations we were unable to control for authoritarianism or related constructs that might be related to disgust sensitivity and attitudes towards homelessness. However, we believe that disgust sensitivity is causally prior to authoritarianism (Murray, Schaller, and Suedfeld 2013). On this view, disgust motivates adherence to traditions (e.g., involving food, hygiene, sex) that serve to protect against disease. Thus, authoritarianism may play a mediating role between disgust sensitivity and policy attitudes.

Also as expected, we find null relationships between disgust sensitivity and opinion about policies intended to aid the homeless. The right-hand side of Figure 2 shows the effect of shifting disgust sensitivity from the 10th percentile to the 90th percentile (model details shown in Appendix 4). The data reveal not merely absence of evidence but evidence of absence: the coefficients on disgust sensitivity are close to zero, and the standard errors are small, leading to a high level of confidence that those who feel disgust easily are no less likely than their counterparts to support government efforts to help the homeless.[13] Notably, these null findings are evident for both of the policies (aid to the homeless and subsidizing housing for the homeless) and across both the CCES module and the Mechanical Turk study.

[Figure 2 about here]

Disgust sensitivity has demonstrated considerable explanatory power as we have attempted to explain support for exclusionary policies, but consistently has no effect on aid policies. Also notable is the failure of traditional explanatory factors to do the same. Ideology, for example, predicts consistency in policy attitudes; conservatives are less likely to support aid than liberals, but they are more likely to support exclusionary policies. Furthermore, interactive analyses reveal no meaningful difference in the disgust sensitivity coefficient across ideological groups: among liberals and conservatives alike, disgust sensitivity is positively associated with support for exclusionary policy but not associated with opinion about policies intended to aid the

[13] We also examined whether the effect of disgust sensitivity had significantly different effects across policy attitudes using a seemingly unrelated regression and a series of Wald tests. As expected, we find that disgust sensitivity has a significantly larger effect on each exclusionary policy than on each aid policy (all $p$s < .05).

homeless. Finally, in our samples ideology is only weakly correlated with disgust sensitivity in any case ($r$ = .06, $p$ = .06; for similar results, see Tybur et al. 2010).

*Building on Previous Research: The Limited Explanatory Power of Group Affect*

So far, we have shown evidence from two separate surveys, including a large national sample, that disgust sensitivity predicts exclusionary attitudes towards the homeless without undermining support for aid. However, it is natural to wonder whether the group affect approach, which has been dominant in the literature, can explain these effects. According to our theory, this should not be the case. Disgust sensitivity should motivate the desire for physical distance without necessarily undermining the desire to help. Similarly, one might genuinely desire to help a sick friend, while still maintaining the physical distance necessary to avoid contracting the illness. We use the CCES data to test this claim in supplementary analyses in two ways.

As a first step, we predict feelings towards homeless people (rescaled to range from 0 to 1) as a function of disgust sensitivity and the same control variables used in previous models (full model results shown in Appendix 5). Affect was measured in the first wave of the survey, along with disgust sensitivity, and thus we analyze the full sample. Disgust sensitivity does have a suggestive, but weak, relationship with affect towards homeless people ($p$ = .09, one-tailed). While the coefficient is negative, as one might expect, it is substantively small ($b$ = -.05) and dwarfed by the effects of many other variables in the model, including ideology ($b$ = -.13), age ($b$ = .10), and church attendance ($b$ = .09). Thus, disgust sensitivity has little apparent effect on feelings towards the homeless, suggesting that antipathy cannot be a driver of the effects of disgust sensitivity.

As a second test, we re-analyze our policy models above, restricting the sample to the control conditions, while including a control for feelings towards the homeless (details shown in Appendix 5). As one would expect, positive feelings towards the homeless strongly predict support for aid policies (*p*s < .001). Notably, positive affect also strongly predicts *opposition* to exclusionary policies (*p*s < .01), providing evidence that these policies are widely seen as harmful (contrary to the "tough love" perspective[14]). Together, these results also reveal that group affect *cannot* explain the puzzle, as positive feelings towards the homeless predict supporting aid and opposing exclusionary policies. Most importantly though, controlling for group affect *does not* substantively affect any of the inferences we draw about the effect of disgust sensitivity on policy attitudes. Disgust sensitivity still has no apparent effect on attitudes towards aid policies (*p*s > .83), but large and statistically significant effects on supporting exclusionary policies (*p*s < .01). Moreover, the magnitudes of the effects of disgust sensitivity are on par with the effects of group affect, a remarkable finding given that we view group affect to be closer to the dependent variable in the causal chain. Thus, while support for exclusionary

[14] We also conducted an additional MTurk study (*N*=300) that asked respondents to rate how helpful or harmful each policy is for homeless people, each on a five-point scale ranging from one (not helpful/harmful at all) to five (extremely helpful/harmful). The aid policies were rated as much more helpful (*M* = 4.09) than the exclusionary policies (*M* = 1.60; *t*(295) = 27.21, *p* < .001), while the exclusionary policies were rated as much more harmful (*M* = 3.18, where 3 represents "moderately harmful") than the aid policies (*M* = 1.35; *t*(295) = 20.74, *p* < .001). Moreover, these results are substantively identical when restricted to only conservative respondents, who are more likely to approve of exclusionary policies.

policies seems to be driven in part by negative feelings towards homeless people, this antipathy cannot explain the effects of disgust sensitivity.

*What If Everyone Were Low on Disgust Sensitivity?*

We now examine another implication of our argument that disgust sensitivity helps explain the puzzling pattern of attitudes about homelessness policies: people low in disgust sensitivity should hold more consistent attitudes (e.g., support aid and oppose exclusionary policies). As a test of this hypothesis, we construct predicted values of policy support at different levels of disgust sensitivity (based on models in Appendices 3 and 4), holding all control variables at their means. The results of these simulations are presented in Figure 3: if our argument is correct, we should expect to see that it is among those high on disgust sensitivity that both aid policies and exclusionary policies are especially popular.

Indeed, we see that for a respondent scoring at the ninetieth percentile of the disgust sensitivity scale (0.96 on the 0-1 scale), the results look similar to those described above: this respondent is predicted to strongly support both aid policies and exclusionary policies. For a respondent scoring at the tenth percentile (0.46), in contrast, the results are quite different: support for aid policies is unaffected while support for exclusionary policies drops. Our simulations therefore suggest that if disgust sensitivity were low among the public at large, exclusionary policies would be less popular while aid policies would retain strong support. However, since many people in fact have a high propensity to feel disgust (indeed, 82% scored above the theoretical midpoint of the scale; see Appendix 2 for the distribution), this tendency motivates them to support policies that exclude the homelessness from public life – effectively criminalizing homelessness – even as disgust sensitivity leaves unaffected their support for

policies intended to aid the homeless. Disgust sensitivity, in short, helps explain why so many Americans who support aid to homeless people also support exclusionary attitudes.

[Figure 3 about here]

*Can News Media Depictions of the Homeless Activate Disgust Sensitivity?*

We have argued that media depictions of the homeless as diseased and unclean (Shields 2001) activate disgust sensitivity, shaping opinion about exclusionary policy. Such depictions are common: recent headlines include "Hospitals Discharging Sick Homeless Back onto the Street,"[15] "Homeless People Return to Camp in Same Area After Cleanup,"[16] "Bill Proposed for Shower Bus for Homeless,"[17] and "A Homeless Epidemic in New York?"[18]

To test whether such media depictions of the homeless exacerbate the effects of disgust sensitivity on policy opinion, our experimental manipulation embedded in the CCES survey consisted of four conditions. In three conditions, subjects received a short paragraph about cities struggling with how to cope with homelessness under shrinking budgets. In the fourth condition (*No Stimulus*), respondents did not read any text. In the *Neutral* condition, the issue was portrayed as a conflict between the desire to help the homeless and the desire to regulate

[15] Melinda Carstensen. "Patient Dumping in America: Hospitals Discharging Sick Homeless Back onto the Street." May 14, 2015. *Fox News.*

[16] CBS. "Homeless People Return to Camp in Same Area After Cleanup." *CBS Denver*.

[17] KRQE. "Bill Proposed for Shower Bus for Homeless." February 25, 2015. *Albuquerque Sun Times.*

[18] Ford Fessenden. "A Homeless Epidemic in New York? Thousands Hit the Cold Streets to Find Out." February 8, 2016. *The New York Times.*

homeless camps and maintain communities. This serves as an additional control condition to ensure that effects are not driven by standard discussion of the impact of homelessness on communities.[19] The *Disease Cues* condition was similar, but designed to prime disease concerns. The text mentioned concerns about public urination and littering, and keeping communities clean and sanitary; the purpose of this condition was to ascertain whether the association between disgust sensitivity and policy opinion can be magnified in the presence of disease cues. Finally, the *Threat Cues* condition mentioned concerns about aggressive panhandling and keeping communities safe and secure. This final treatment provides a placebo test, allowing us to rule out the possibility that *any* negative portrayal of the homeless would strengthen the impact of disgust sensitivity. In contrast, we expect that only the *Disease* condition will have this effect.

We estimate similar models as those described above, but for the full sample, and we also include dummy variables indicating the *Disease*, and *Threat* conditions. We also allow the effect of disgust sensitivity to vary by experimental condition by including interactions between disgust sensitivity and both the *Disease* and *Threat* conditions. We expect a positive interaction between disgust sensitivity and the *Disease* condition, indicating that in this condition – and only in this condition – the effect of disgust sensitivity on exclusionary policy attitudes was amplified. As shown in Appendix 7, the effect of disgust sensitivity is substantively identical across the *Control* and *Neutral* conditions, so for the purposes of statistical power we do not model an interaction between disgust sensitivity and the *Neutral* condition.

Figure 4 displays the effect of shifting disgust sensitivity from the $10^{th}$ to $90^{th}$ percentile by experimental condition for each policy outcome (coefficient estimates are presented in

[19] Indeed, one could argue that the "neutral" text is itself exclusionary because, like much media coverage, it frames homeless people as if they are not members of their community.

Appendix 5).[20] Starting at the left-hand side of Figure 4, disgust sensitivity has a strong effect on banning panhandling in the pooled control conditions (*No Stimulus* and *Neutral*), about one and one-half points of the seven-point scale of the dependent variable ($b = .22$, $p < .01$). Yet, the effect of disgust sensitivity is more than twice the size in the *Disease* condition, more than three points on the seven-point scale of the dependent variable ($b = .47$, $p < .001$). The interaction term between disgust sensitivity and experimental condition (details shown in Appendix 5) demonstrates that the effect of disgust sensitivity is significantly different across conditions ($p < 0.05$).[21] In contrast, the effect of disgust sensitivity in the *Threat* condition ($b = .28$, $p < .05$) is nearly identical to its effect in the control conditions ($b = .22$, $p < .01$) and the two effects are not statistically distinguishable ($p = .64$). Thus, the results suggest that the *Disease* cue dramatically increases the impact of disgust sensitivity on opinion about panhandling, while the placebo *Threat* condition has no such effect.

Moving to the right in Figure 4, the next set of plots displays the effects of disgust sensitivity on banning sleeping in public. Disgust sensitivity again has a large effect in the pooled control conditions ($b = .33$, $p < .001$). Consistent with our expectations, this effect increases by nearly half in the *Disease* condition ($b = .46$, $p < .001$), though the two effects are not statistically distinguishable ($p = .17$). Finally, the effect of disgust sensitivity actually decreases in the placebo *Threat* condition ($b = .28$, $p < .05$) relative to the control ($b = .33$, $p <$

[20] To reflect our directional hypotheses, 90% confidence intervals are used.

[21] Interestingly, these results are driven by both those on the low and the high end of the disgust sensitivity scale. The disgust cues appear to backfire for those respondents low on disgust sensitivity, consistent with findings that emotional frames are ineffective or even backfire when they fail to elicit the targeted emotion (Aarøe 2011; Gross 2008).

.001) and the effect is not statistically distinguishable from the control ($p$ = .71). Once again, we find suggestive evidence that the *Disease* cue, but not *Threat*, increases the magnitude of the effect of disgust sensitivity on exclusionary policies, though the results for this policy outcome are not definitive.

Finally, we turn to the effect of disgust sensitivity on aid policies. Here we do not expect to find any effects of disgust sensitivity, nor any interactions between the treatment conditions. Consistent with these expectations, the effect of disgust sensitivity on aid to the homeless is small and statistically indistinguishable from zero across all experimental conditions ($p$s > .46). Moreover, the effect of disgust sensitivity is nearly identical across the control and *Disease* conditions ($b$ = -.02, $b$ = -.04, respectively) and there is no evidence of an interaction effect ($p$ = .85). The results are similar for subsidized housing, with disgust sensitivity again having null effects across all experimental conditions ($p$s > .33). And again, the effect of disgust sensitivity does not vary meaningfully across the control and *Disease* conditions ($b$ = -.01, $b$ = -.07, respectively), nor is there any statistical support for an interaction ($p$ = .55).

[Figure 4 about here]

Overall, although disgust sensitivity already has powerful effects on exclusionary attitudes, our experiment provides some evidence that simple disease cues in media coverage, such as mentions of public urination and sanitation, can dramatically amplify this effect. Indeed, our *Disease* cue more than doubled the effect of disgust sensitivity on support for banning panhandling, and we also found suggestive evidence that it increased the effect of disgust sensitivity on support for banning sleeping in public by almost fifty percent. Notably, we did not find any evidence that the *Disease* cue simply increased negative feelings towards the homeless, as it did not change the already null effect of disgust sensitivity on either aid policy. This finding

reinforces our argument that the effects of disgust sensitivity on attitudes towards the homeless are primarily about avoiding possible pathogens, rather than simple antipathy. We also did not find any evidence that a placebo threat cue increased the impact of disgust sensitivity on attitudes towards any of the policies. Thus, consistent with our argument, it is not any negative portrayal of homeless people, but disease cues in particular, that activate dispositional differences in disgust sensitivity.

**Conclusion**

Our results help resolve an apparent contradiction both in policy and public opinion – governments pass policies that criminalize homelessness even as they spend substantial amounts trying to lift people out of homelessness, and the public supports these exclusionary policies even as they also support policies intended to aid homeless people. Across two samples, we find strong evidence that disgust sensitivity motivates support for exclusionary policies that keep homeless people out of the public sphere. We also find experimental evidence suggesting that when media depictions of homeless people prime disease concerns, this strengthens the impact of disgust sensitivity on support for exclusionary policies.

Critically, disgust does not simply operate by motivating antipathy towards the homeless. Across both samples, we find that the disgust sensitive are no less likely than their counterparts to support policies that provide aid to the homeless. Moreover, our experimental disease prime did not heighten the impact of disgust sensitivity on aid policies as it did on exclusionary policies. We also tested this claim more directly. Disgust sensitivity did not significantly predict affect towards the homeless, nor did controlling for group affect explain away the effects of disgust sensitivity. Thus, similar to how one might react to a sick person, disgust motivates the

desire for physical distance from the homeless, but does not necessarily cause people to desire to withdraw aid from them.

Our findings pose difficulties for two popular alternative theoretical accounts of group attitudes and thus speak to the benefits of linking policy features to their social functional goals. According to the group affect model, policy attitudes can be explained by how positively or negatively a person feels about that target group. The group affect model can help explain consistent attitudes, but cannot explain why so many people simultaneously support aid policies on one hand and exclusionary policies on the other. Moreover, our findings hold up even after controlling for affect towards homeless people. Another alternative theoretical account, the stereotype content model, predicts that disgust will motivate "both active attack and passive neglect" (Fiske 2010, 700) of homeless people. Thus, our results conflict with this model as well, which would predict opposition to aid to go hand-in-hand with support for exclusionary policies. By integrating research on the origins and function of disgust, we have generated new insights into its role in policy attitudes. More generally, our findings speak to the promise of utilizing evolutionary theory and social functional approaches to group attitudes to understand public opinion (for overviews, see Cottrell and Neuberg 2005; Neuberg and Schaller 2016; Petersen and Aarøe 2014).

While disgust does not undermine the public's willingness to support aid to homeless people, it may create substantial barriers to enacting these policies. Many cities have faced backlash from the public when trying to site camps or temporary housing for homeless people (e.g., Dear and Gleeson 1991). Our research suggests that this NIMBY reaction may be, in part, motivated by disgust. While other concerns, such as physical safety and property values, surely play a role as well, our evidence suggests that disgust is a powerful motivator of physical

distance, and thus likely plays an important role in NIMBY attitudes. It is important to point out that these disgust-driven attitudes are not mere aesthetic preferences. They are deeply rooted (and likely implicit) concerns about one's own health. Thus, policymakers ought to take seriously how concerns about cleanliness and sanitation may motivate opposition to local housing projects.

Our research contributes to our understanding of political communication and media framing as well. An alternative approach for our experimental study would have been to examine whether media depictions of the homeless are negative and then attempting to identify the consequences of these negative depictions of the homeless for public opinion. For example, we could manipulate whether homeless people are portrayed as deserving or undeserving (Katz 2013). We argue, however, that not all negative depictions are created equal. Media portrayals of the homeless often highlight issues of sanitation and cleanliness, contributing to the impact of disgust sensitivity on opinion about exclusionary policies but not aid policies. Media accounts that portray homeless people as dangerous, for example, are likely to have very different effects, as our experiment demonstrates.

In our view, it is likely that this pattern of media disease cues triggering disgust applies to other social groups as well. For example, in recent debates over child immigrants, some lawmakers and media accounts have portrayed immigrants as unvaccinated and carrying disease over the border. Perhaps unintentionally, this framing likely activated disgust sensitivity, potentially increasing support for exclusionary attitudes among some citizens. Greater attention to the use of disgust in political communication may aid our understanding of group attitudes as well as the impact of policy framing on public opinion.

The effects of disgust are difficult to overcome, but there may be some methods to reduce them. High-quality contact with homeless people can create more positive attitudes toward them (Aberson and McVean 2008). Even imagining intergroup contact can create more positive attitudes towards groups that sometimes elicit disgust (Turner, Crisp, and Lambert 2007; Turner and Crisp 2010), including the homeless (Hodson, Dube, and Choma 2015). On the other hand, other research finds that contact with the homeless may change attributions without changing policy attitudes (Knecht and Martinez 2012; Knecht and Martinez 2009), consistent with our argument that exclusionary policy attitudes are not a simple reflection of negative affect. Thus, the effects of contact are variable and may depend on the nature and quality of the contact. Moreover, such interventions may be difficult to implement, as they are likely to be aversive to those who are the most disgust sensitive.

While our research has focused on homelessness, it has implications for attitudes towards a variety of other groups as well. Disgust most clearly applies to attitudes towards groups associated with visible cues of pathogen threat. For example, disgust and disease concerns have been shown to predict attitudes towards the obese (Lieberman, Tybur, and Latner 2012), the mentally ill, people with deformities, and AIDS and cancer patients (Park, Faulkner, and Schaller 2003; Park, van Leeuwen, and Stephen 2012). Perhaps more surprisingly, a large body of literature in psychology demonstrates that disgust motivates xenophobic attitudes (e.g., Faulkner et al. 2004; Huang et al. 2011; Navarrete, Fessler, and Eng 2007; Navarrete and Fessler 2006). Because disgust sensitivity also helps weigh the costs and benefits of sexual activity, which is a common source of disease, disgust also predicts negative attitudes towards members of the LGBTQ community (Inbar, Pizarro, and Bloom 2012; Inbar et al. 2009; Smith et al. 2011). Thus,

disgust seems to play a role in attitudes towards many social groups and evolutionary psychology may help spur new insights into the influence of group attitudes on public policy.

## References


Aarøe, Lene. 2011. "Investigating Frame Strength: The Case of Episodic and Thematic Frames." *Political Communication* 28(2): 207–26.

Aarøe, Lene, and Michael Bang Petersen. 2014. "Crowding Out Culture: Scandinavians and Americans Agree on Social Welfare in the Face of Deservingness Cues." *The Journal of Politics* 76(03): 684–97.

Aberson, Christopher L., and Aaron D. W. McVean. 2008. "Contact and Anxiety as Predictors of Bias Toward the Homeless 1." *Journal of Applied Social Psychology* 38(12): 3009–35.

Acorn, Sonia. 1993. "Mental and Physical Health of Homeless Persons Who Use Emergency Shelters in Vancouver." *Psychiatric Services* 44(9): 854–57.

Amster, Randall. 2003. "Patterns of Exclusion: Sanitizing Space, Criminalizing Homelessness." *Social Justice* 30(1): 195–221.

Berinsky, Adam J., Gregory A. Huber, and Gabriel S. Lenz. 2012. "Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk." *Political Analysis* 20(3): 351–68.

Cikara, Mina, and Susan T Fiske. 2011. "Bounded Empathy: Neural Responses to Outgroup Targets' (Mis)fortunes." *Journal of cognitive neuroscience* 23(12): 3791–3803.

Clifford, S., R. M. Jewell, and P. D. Waggoner. 2015. "Are Samples Drawn from Mechanical Turk Valid for Research on Political Ideology?" *Research & Politics* 2(4).

Clifford, Scott, and Dane G. Wendell. 2016. "How Disgust Influences Health Purity Attitudes." *Political Behavior* 38(1): 155–78.

Cottrell, Catherine A., and Steven L. Neuberg. 2005. "Different Emotional Reactions to Different Groups: A Sociofunctional Threat-Based Approach to 'Prejudice'." *Journal of Personality and Social Psychology* 88(5): 770–89.

Curtis, Valerie, Robert Aunger, and Tamer Rabie. 2004. "Evidence That Disgust Evolved to Protect from Risk of Disease." *Proceedings. Biological sciences / The Royal Society* 271 Suppl(Suppl_4): S131–33.

Curtis, Valerie, and Adam Biran. 2001. "Dirt, Disgust, and Disease: Is Hygiene in Our Genes?" *Perspectives in Biology and Medicine* 44(1): 17–31.

Deacon, Brett, and Bunmi O Olatunji. 2007. "Specificity of Disgust Sensitivity in the Prediction of Behavioral Avoidance in Contamination Fear." *Behaviour research and therapy* 45(9): 2110–20.

Dear, Michael, and Brendan Gleeson. 1991. "Community Attitudes Toward The Homeless." *Urban Geography* 12(2): 155–76.

Faulkner, J., M. Schaller, J. H. Park, and L. A. Duncan. 2004. "Evolved Disease-Avoidance Mechanisms and Contemporary Xenophobic Attitudes." *Group Processes & Intergroup Relations* 7(4): 333–53.

Fessler, Daniel M.T., Serena J. Eng, and C. David Navarrete. 2005. "Elevated Disgust Sensitivity

in the First Trimester of Pregnancy." *Evolution and Human Behavior* 26(4): 344–51.

Fiske, Susan T. 2009. "From Dehumanization and Objectification to Rehumanization: Neuroimaging Studies on the Building Blocks of Empathy." *Annals of the New York Academy of Sciences* 1167: 31–34.

———. 2010. "Envy Up, Scorn down: How Comparison Divides Us." *The American psychologist* 65(8): 698–706.

Fiske, Susan T, Amy J C Cuddy, and Peter Glick. 2007. "Universal Dimensions of Social Cognition: Warmth and Competence." *Trends in cognitive sciences* 11(2): 77–83.

Fiske, Susan T., Amy J. C. Cuddy, Peter Glick, and Jun Xu. 2002. "A Model of (Often Mixed) Stereotype Content: Competence and Warmth Respectively Follow from Perceived Status and Competition." *Journal of personality and social psychology* 82(6): 878–902.

Foscarinis, Maria, Kelly Cunningham-Bowers, and Kristen E. Brown. 1999. "Out of Sight - Out of Mind: The Continuing Trend toward the Criminalization of Homelessness." *Georgetown Journal on Poverty Law and Policy* 6(2): 145–64.

Free, Lloyd A., and Hadley Cantril. 1967. *The Political Beliefs of Americans: A Study of Public Opinion*. Rahway, N.J.: Rutgers University Press.

Gelberg, Lillian, and Lawrence S. Linn. 1989. "Assessing the Physical Health of Homeless Adults." *JAMA: The Journal of the American Medical Association* 262(14): 1973.

Gelberg, Lillian, Lawrence S. Linn, Richard P. Usatine, and Mary H. Smith. 1990. "Health, Homelessness, and Poverty." *Archives of Internal Medicine* 150(11): 2325.

Gilens, Martin. 1999. *Why Americans Hate Welfare : Race, Media, and the Politics of Antipoverty Policy*. University of Chicago Press.

Greene, Kathryn, and Smita C. Banerjee. 2008. "Disease-Related Stigma." *Journal of Homosexuality* 50(4): 185–209.

Gross, Kimberly. 2008. "Framing Persuasive Appeals: Episodic and Thematic Framing, Emotional Response, and Policy Opinion." *Political Psychology* 29(2): 169–92.

Harris, L. T., and S. T. Fiske. 2006. "Social Groups That Elicit Disgust Are Differentially Processed in mPFC." *Social Cognitive and Affective Neuroscience* 2(1): 45–51.

Hauser, David J, and Norbert Schwarz. 2015. "Attentive Turkers: MTurk Participants Perform Better on Online Attention Checks than Do Subject Pool Participants." *Behavior research methods*.

Hodson, Gordon, Blaire Dube, and Becky L. Choma. 2015. "Can (Elaborated) Imagined Contact Interventions Reduce Prejudice among Those Higher in Intergroup Disgust Sensitivity (ITG-DS)?" *Journal of Applied Social Psychology* 45(3): 123–31.

Huang, Julie Y, Alexandra Sedlovskaya, Joshua M Ackerman, and John A Bargh. 2011. "Immunizing against Prejudice: Effects of Disease Protection on Attitudes toward out-Groups." *Psychological science* 22(12): 1550–56.

Hutchings, Vincent H., and Spencer Piston. 2011. "The Determinants and Political

Consequences of Prejudice." In James N. Druckman, Donald P. Green, James H. Kuklinski, and Arthur Lupia (Eds.), *The Cambridge Handbook of Experimental Political Science*. Cambridge University Press.

Inbar, Yoel, David A. Pizarro, and Paul Bloom. 2012. "Disgusting Smells Cause Decreased Liking of Gay Men." *Emotion* 12(1): 23–27.

Inbar, Yoel, David A. Pizarro, Joshua Knobe, and Paul Bloom. 2009. "Disgust Sensitivity Predicts Intuitive Disapproval of Gays." *Emotion* 9(3): 435–39.

Jacoby, William G. 2000. "Issue Framing and Public Opinion on Government Spending." *American Journal of Political Science* 44(4): 750.

Johnson, Dominic D P, Daniel T Blumstein, James H Fowler, and Martie G Haselton. 2013. "The Evolution of Error: Error Management, Cognitive Constraints, and Adaptive Decision-Making Biases." *Trends in ecology & evolution* 28(8): 474–81.

Kalmoe, Nathan, and Spencer Piston. 2013. "Is Implicit Prejudice toward Blacks Politically Consequential? Evidence from the AMP." *Public Opinion Quarterly* 77: 305-322.

Knecht, Thomas, and Lisa M. Martinez. 2012. "Engaging the Reluctant? Service Learning, Interpersonal Contact, and Attitudes toward Homeless Individuals." *PS: Political Science & Politics* 45(01): 106–11.

Knecht, Tom, and Lisa M. Martinez. 2009. "Humanizing the Homeless: Does Contact Erode Stereotypes?" *Social Science Research* 38(3): 521–34.

Krupnikov, Yanna, and Spencer Piston. 2015a. "Accentuating the Negative: Candidate Race and Campaign Strategy." *Political Communication* 32: 152-173.

Krupnikov, Yanna, and Spencer Piston. 2015b. "Racial Prejudice, Partisanship, and White Turnout in Elections with Black Candidates." *Political Behavior* 37: 397-418.

Krupnikov, Yanna, and Spencer Piston. 2016. "The Political Consequences of Latino Prejudice against Blacks." *Public Opinion Quarterly* 80: 480-509.

Krupnikov, Yanna, Spencer Piston, and Nichole Bauer. 2016. "Saving Face: Identifying Voter Responses to Black and Female Candidates. *Political Psychology* 37: 253-273.

Kurzban, Robert, and Mark R. Leary. 2001. "Evolutionary Origins of Stigmatization: The Functions of Social Exclusion." *Psychological Bulletin* 127(2): 187–208.

Lieberman, Debra L, Josh M Tybur, and Janet D Latner. 2012. "Disgust Sensitivity, Obesity Stigma, and Gender: Contamination Psychology Predicts Weight Bias for Women, Not Men." *Obesity* 20(9): 1803–14.

Lieberman, Debra, and Carlton Patrick. 2014. "Are the Behavioral Immune System and Pathogen Disgust Identical?" *Evolutionary Behavioral Sciences* 8(4): 244–50.

Link, Bruce G. et al. 1995. "Public Knowledge, Attitudes, and Beliefs about Homeless People: Evidence for Compassion Fatigue?" *American Journal of Community Psychology* 23(4): 533–55.

Luby, Stephen P et al. 2005. "Effect of Handwashing on Child Health: A Randomised Controlled

Trial." *The Lancet* 366(9481): 225–33.

Lupia, Arthur, Logan S. Casey, Kristyn L. Karl, Spencer Piston, Timothy J. Ryan, and Christopher Skovron. 2015. "What Does It Take to Reduce Racial Prejudice in Individual-Level Candidate Evaluations? A Formal Theoretic Perspective." *Political Science Research and Methods* 3: 1-20.

Mullinix, Kevin J., Thomas J. Leeper, James N. Druckman, and Jeremy Freese. 2016. "The Generalizability of Survey Experiments." *Journal of Experimental Political Science* 2(02): 109–38.

Murray, Damian R., Mark Schaller, and Peter Suedfeld. 2013. "Pathogens and Politics: Further Evidence That Parasite Prevalence Predicts Authoritarianism." *PLoS ONE* 8(5).

Navarrete, Carlos David, and Daniel M.T. Fessler. 2006. "Disease Avoidance and Ethnocentrism: The Effects of Disease Vulnerability and Disgust Sensitivity on Intergroup Attitudes." *Evolution and Human Behavior* 27(4): 270–82.

Navarrete, Carlos David, Daniel M.T. Fessler, and Serena J. Eng. 2007. "Elevated Ethnocentrism in the First Trimester of Pregnancy." *Evolution and Human Behavior* 28(1): 60–65.

Neuberg, Steven L, and Mark Schaller. 2016. "An Evolutionary Threat-Management Approach to Prejudices." *Current Opinion in Psychology* 7: 1–5.

Oaten, Megan, Richard J. Stevenson, and Trevor I. Case. 2009. "Disgust as a Disease-Avoidance Mechanism." *Psychological Bulletin* 135(2): 303–21.

Olatunji, Bunmi O et al. 2012. "The Three Domains of Disgust Scale: Factor Structure, Psychometric Properties, and Conceptual Limitations." *Assessment* 19(2): 205–25.

Olatunji, Bunmi O. 2008. "Disgust, Scrupulosity and Conservative Attitudes about Sex: Evidence for a Mediational Model of Homophobia." *Journal of Research in Personality* 42(5): 1364–69.

Oum, Robert E., Debra Lieberman, and Alison Aylward. 2011. "A Feel for Disgust: Tactile Cues to Pathogen Presence." *Cognition & Emotion* 25(4): 717–25.

Page, Benjamin I., and Lawrence R. Jacobs. 2009. *Class War? What Americans Really Think about Economic Inequality*. Chicago: University of Chicago Press.

Park, Justin H, Florian van Leeuwen, and Ypapanti Chochorelou. 2013. "Disease-Avoidance Processes and Stigmatization: Cues of Substandard Health Arouse Heightened Discomfort with Physical Contact." *The Journal of social psychology* 153(2): 212–28.

Park, Justin H., Jason Faulkner, and Mark Schaller. 2003. "Evolved Disease-Avoidance Processes and Contemporary Anti-Social Behavior: Prejudicial Attitudes and Avoidance of People with Physical Disabilities." *Journal of Nonverbal Behavior* 27(2): 65–87.

Park, Justin H., Florian van Leeuwen, and Ian D. Stephen. 2012. "Homeliness Is in the Disgust Sensitivity of the Beholder: Relatively Unattractive Faces Appear Especially Unattractive to Individuals Higher in Pathogen Disgust." *Evolution and Human Behavior* 33(5): 569–77.

Park, Justin H., Mark Schaller, and Christian S. Crandall. 2007. "Pathogen-Avoidance Mechanisms and the Stigmatization of Obese People." *Evolution and Human Behavior*

28(6): 410–14.

Pellegrino, Robert, Philip G Crandall, and Han-Seok Seo. 2016. “Using Olfaction and Unpleasant Reminders to Reduce the Intention-Behavior Gap in Hand Washing.” *Scientific reports* 6: 18890.

Pellegrino, Robert, Philip G. Crandall, and Han-Seok Seo. 2015. “Hand Washing and Disgust Response to Handling Different Food Stimuli between Two Different Cultures.” *Food Research International* 76: 301–8.

Petersen, Michael Bang. 2012. “Social Welfare as Small-Scale Help: Evolutionary Psychology and the Deservingness Heuristic.” *American Journal of Political Science* 56(1): 1–16.

Petersen, Michael Bang, and Lene Aarøe. 2014. “Evolutionary Theory and Political Behavior.” (April): 1–24.

Phelan, Jo, Bruce G. Link, Robert E. Moore, and Ann Stueve. 1997. “The Stigma of Homelessness: The Impact of the Label ‘Homeless’ on Attitudes Toward Poor Persons.” *Social Psychology Quarterly* 60(4): 323–37.

Raoult, Didier, Cédric Foucault, and Philippe Brouqui. 2001. “Infections in the Homeless.” *The Lancet Infectious Diseases* 1(2): 77–84.

Rhodes, Gillian et al. 2001. “Do Facial Averageness and Symmetry Signal Health?” *Evolution and Human Behavior* 22(1): 31–46.

Rozin, Paul et al. 1999. “Individual Differences in Disgust Sensitivity: Comparisons and Evaluations of Paper-and-Pencil versus Behavioral Measures.” *Journal of Research in Personality* 33(3): 330–51.

Rozin, Paul, Jonathan Haidt, and Clark R. McCauley. 2008. “Disgust.” In *Handbook of Emotions2*, eds. Michael Lewis, Jeannette M. Haviland-Jones, and Lisa Feldman Barrett. New York: Guilford Press, 757–76.

Rozin, Paul, Linda Millman, and Carol Nemeroff. 1986. “Operation of the Laws of Sympathetic Magic in Disgust and Other Domains.” *Journal of Personality and Social Psychology* 50(4): 703–12.

Schaller, M. et al. 2010. “Mere Visual Perception of Other People’s Disease Symptoms Facilitates a More Aggressive Immune Response.” *Psychological Science* 21(5): 649–52.

Schaller, M., and J. H. Park. 2011. “The Behavioral Immune System (and Why It Matters).” *Current Directions in Psychological Science* 20(2): 99–103.

Schnall, Simone, Jonathan Haidt, Gerald L Clore, and Alexander H Jordan. 2008. “Disgust as Embodied Moral Judgment.” *Personality & social psychology bulletin* 34(8): 1096–1109.

Scott, S. E., Y. Inbar, and P. Rozin. 2016. “Evidence for Absolute Moral Opposition to Genetically Modified Food in the United States.” *Perspectives on Psychological Science* 11(3): 315–24.

Sherlock, James M., Brendan P. Zietsch, Joshua M. Tybur, and Patrick Jern. 2016. “The Quantitative Genetics of Disgust Sensitivity.” *Emotion* 16(1): 43.

Shields, Todd G. 2001. “Network News Construction of Homelessness: 1980–1993.” *The Communication Review* 4(2): 193–218.

Shinn, Marybeth. 1992. “Homelessness: What Is a Psychologist to Do?” *American Journal of Community Psychology* 20(1): 1–24.

Smith, Kevin B et al. 2011. “Disgust Sensitivity and the Neurophysiology of Left-Right Political Orientations.” *PloS one* 6(10): e25552.

Stier, Andrea, and Dr Stephen P. Hinshaw. 2007. “Explicit and Implicit Stigma against Individuals with Mental Illness.” *Australian Psychologist* 4: 367–93.

Strother, Logan, Spencer Piston, and Thomas Ogorzalek. "Pride or Prejudice? Racial Prejudice, Southern Heritage, and White Support for the Confederate Battle Flag." Forthcoming at *The DuBois Review*.

Terrizzi, John A., Natalie J. Shook, and Michael A. McDaniel. 2013. “The Behavioral Immune System and Social Conservatism: A Meta-Analysis.” *Evolution and Human Behavior* 34(2): 99–108.

Tompsett, Carolyn J. et al. 2006. “Homelessness in the United States: Assessing Changes in Prevalence and Public Opinion, 1993-2001.” *American Journal of Community Psychology* 37(1-2): 29–46.

Toro, Paul A., and Dennis M. McDonell. 1992. “Beliefs, Attitudes, and Knowledge about Homelessness: A Survey of the General Public.” *American Journal of Community Psychology* 20(1): 53–80.

Turner, R. N., R. J. Crisp, and E. Lambert. 2007. “Imagining Intergroup Contact Can Improve Intergroup Attitudes.” *Group Processes & Intergroup Relations* 10(4): 427–41.

Turner, Rhiannon N, and Richard J Crisp. 2010. “Imagining Intergroup Contact Reduces Implicit Prejudice.” *The British journal of social psychology / the British Psychological Society* 49(Pt 1): 129–42.

Tybur, Joshua M et al. 2010. “Extending the the Behavioral Immune System to Political Psychology: Are Political Conservatism and Disgust Sensitivity Really Related?” *Evolutionary psychology : an international journal of evolutionary approaches to psychology and behavior* 8(4): 599–616.

Tybur, Joshua M., Willem E. Frankenhuis, and Thomas V. Pollet. 2014. “Behavioral Immune System Methods: Surveying the Present to Shape the Future.” *Evolutionary Behavioral Sciences* 8(4): 274–83.

Tybur, Joshua M., Debra Lieberman, and Vladas Griskevicius. 2009. “Microbes, Mating, and Morality: Individual Differences in Three Functional Domains of Disgust.” *Journal of Personality and Social Psychology* 97(1): 103–22.

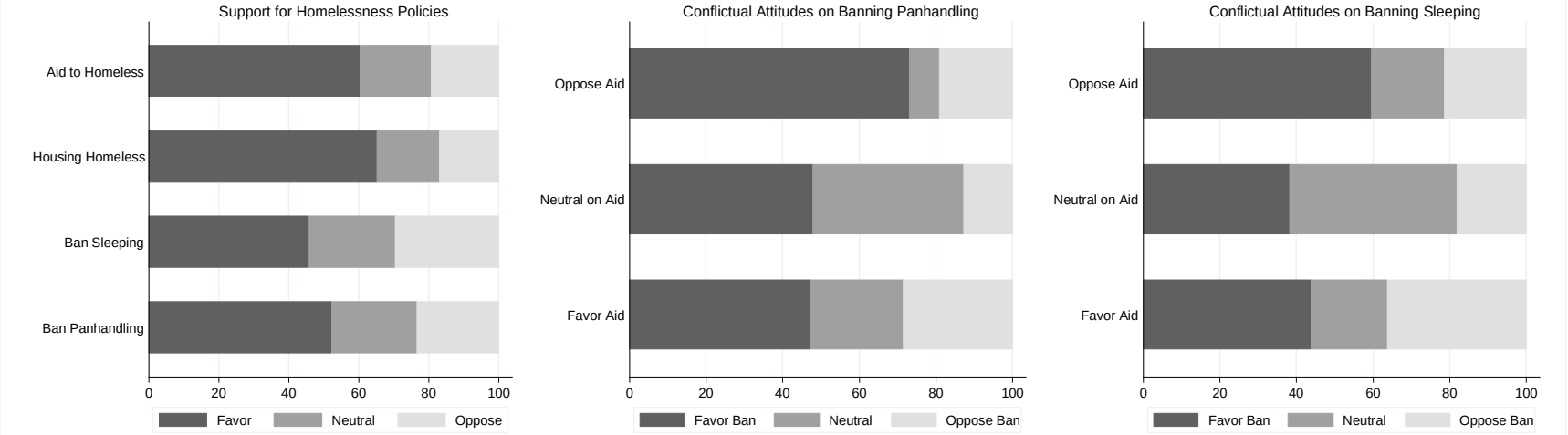
Tybur, Joshua M., Debra Lieberman, Robert Kurzban, and Peter DeScioli. 2013. “Disgust: Evolved Function and Structure.” *Psychological Review* 120(1): 65–84.

Weinberg, Jill D., Jeremy Freese, and David McElhattan. 2014. “Comparing Data Characteristics and Results of an Online Factorial Survey between a Population-Based and Crowdsource-

Recruited Sample." *Sociological Science* 1: 292–310.

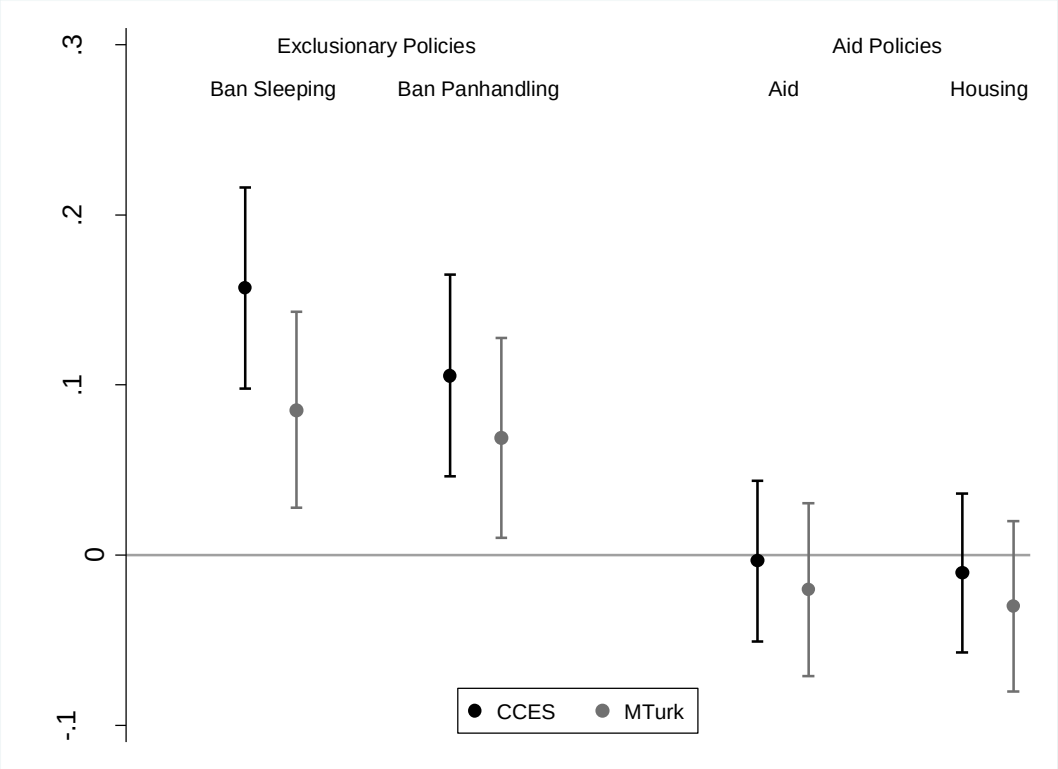
Wester, Julia et al. 2015. "Psychological and Social Factors Associated with Wastewater Reuse Emotional Discomfort." *Journal of Environmental Psychology* 42: 16–23.

## Figure 1. Pluralities of Those Who Support Aiding Homeless People also Support Exclusionary Policies



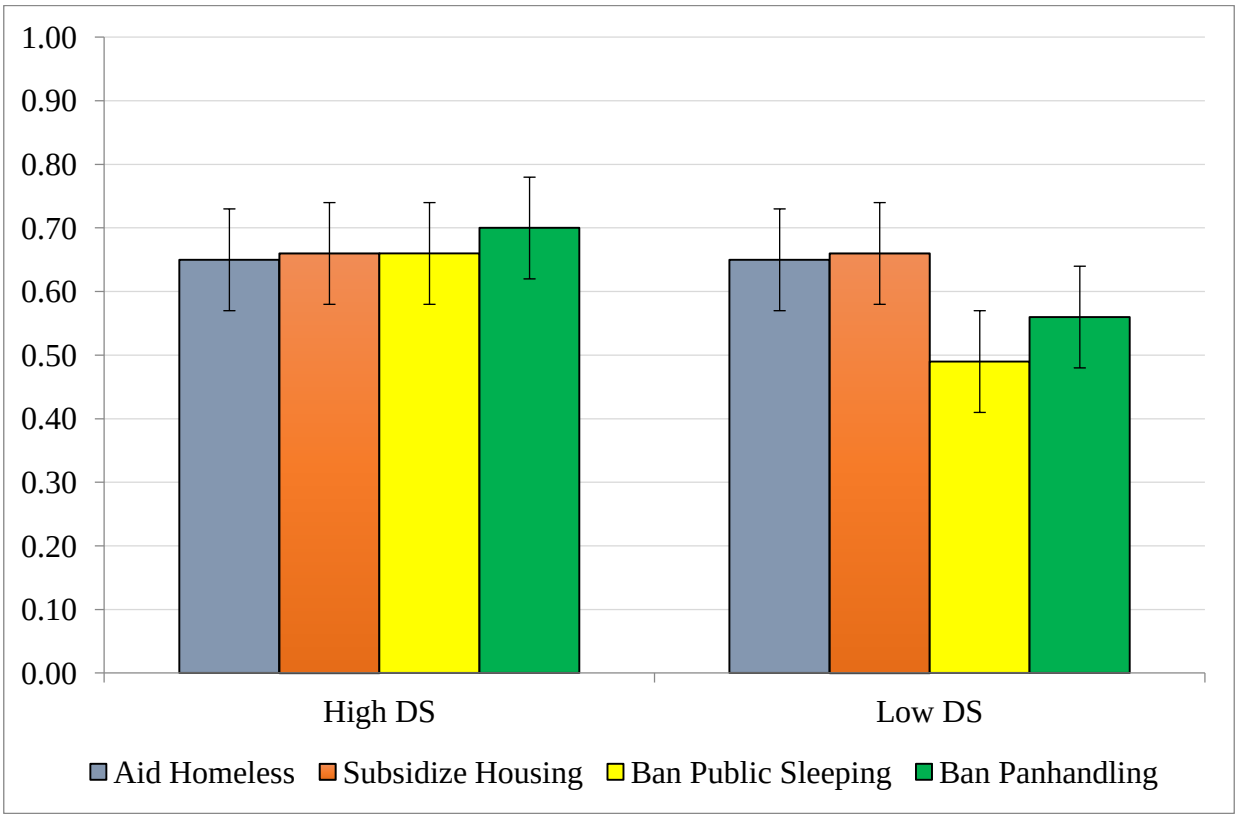

Note: Policy attitudes are trichotomized. The favor category in this figure includes respondents who 'strongly favor,' 'somewhat favor,' and 'slightly favor' each policy. The oppose category includes respondents who 'strongly oppose,' 'moderately oppose,' or 'slightly oppose' each policy. The neutral category represents respondents who 'neither favor nor oppose' the policy.

**Figure 2. Disgust Sensitivity Predicts Exclusionary, but not Aid Policy Attitudes**



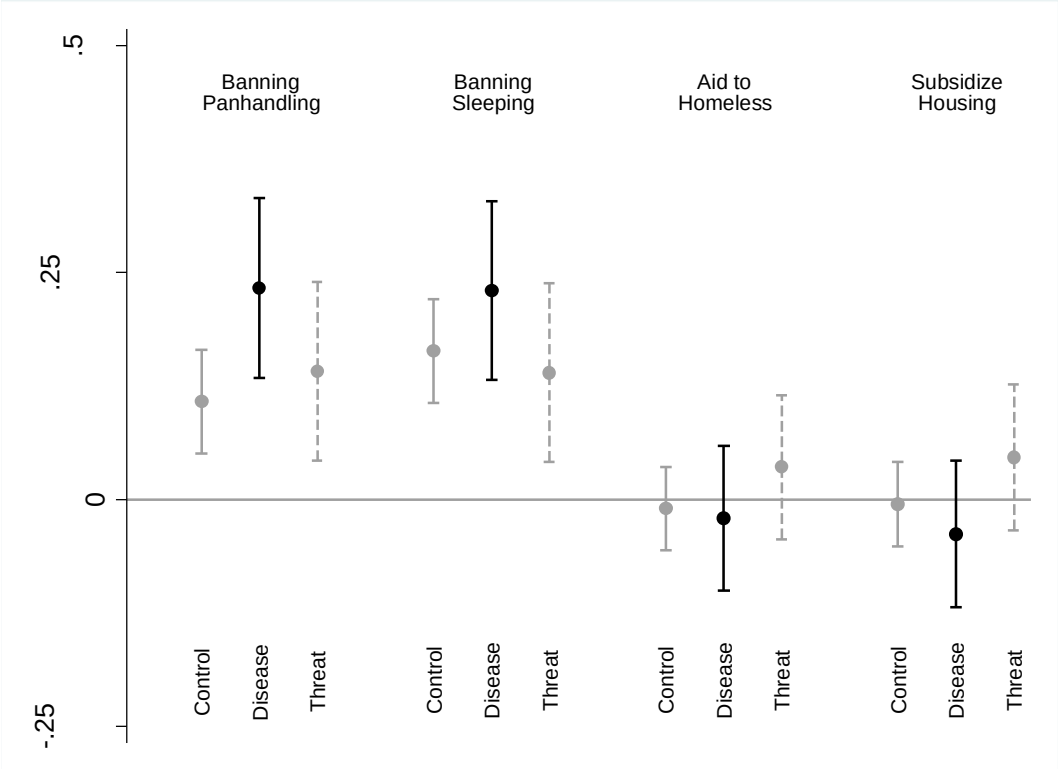

*CCES Module. Effects are estimated from models in Appendices 3 and 4 and represent the effect of movement on the disgust sensitivity scale from the 10th percentile to the 90th percentile. 90% confidence intervals are used to reflect the one-tailed (directional) hypothesis tests.*

**Figure 3. Predicted Policy Attitudes, at High and Low Disgust Sensitivity**




*CCES Module. Predicted values are constructed based on Appendix 3. "High DS" represents the ninetieth percentile of disgust sensitivity (0.46 on the 0-1 scale); "Low DS" represents the tenth percentile (0.96). All other variables set to their means. 95% confidence intervals shown.*

**Figure 4. Disease Cues Increase the Effect of Disgust Sensitivity on Exclusionary Attitudes**




*CCES Module. Effects and 90% confidence intervals are estimated from models in Appendix 5 and represent the effect of movement on the disgust sensitivity scale from the 10$^{th}$ percentile to the 90$^{th}$ percentile. "Control" pools the effects across both the pure control and the Neutral conditions.*