

How Disgust, Physiological Activity and Moral Foundations May Predict Political Attitudes and Religious Beliefs: A Systematic Review

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HOW DISGUST, PHYSIOLOGICAL ACTIVITY AND MORAL
FOUNDATIONS MAY PREDICT POLITICAL ATTITUDES AND RELIGIOUS
BELIEFS:
A SYSTEMATIC REVIEW

by

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A thesis submitted in partial fulfillment of the requirements
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Abstract

The goal of this research synthesis is to obtain evidence about a new and upcoming idea of how political ideology and religious beliefs may be predicted by disgust, moral codes and physiological activity. Previously, it was believed by some that politics and religion were a product of an individual's environment and influences of an individual's family and friend's beliefs. Current research is trying to explain how much a person's biology influences their beliefs. This thesis will aim to explain how it is possible to obtain these types of data and why this research is important.

Keywords: Disgust, Physiological Activity, Political Attitudes, Religious Beliefs, Moral Foundations

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Introduction

Political attitudes and religious beliefs are sometimes thought of as being related to how a person is influenced by their families, friends, and the political party in general. Several investigators have emerged that theorize biological (Ahn, Kishida, Gu, Lohrenz, Harvey, Alford, Smith, Yaffe, Hibbing, Dayan, & Montague et al., 2014) qualities influence our political attitudes and religious beliefs. Other studies concluded that self-conscious muscle movement in the face (Smith, Oxley, Hibbing, Alford, & Hibbing 2011) may predict political party affiliation and religious beliefs. Research conducted by Haidt, McCauley, and Rozin (1994) proposes that disgust is not only a feeling but a defensive emotion that reminds people of their animality, and their mortality.

The research discussed in this systematic review will help to understand not only one culture but many. The present systematic review aims to find evidence that demonstrates how disgust, moral foundations and physiological activity have a fundamental effect on the way individuals react to their political, and religious affiliations. It can then be understood how each of these topics will help us understand mass-scale human societies and how they interact with their own culture.

Disgust

Though the research on disgust as a predictor of social traits is relatively new, the topic of disgust is not. Talk of disgust dates to Darwin when he defined disgust as something that “refers to something revolting” (Darwin, 1872). Not only was disgust something revolting but disgust was another way for humans to survive (Smith et al., 2011). Generally, disgust is an oral defense

because it protects humans from ingesting anything that might make them ill. Haidt et al. (1993) have discovered that disgust is not only an oral defense but there are other domains of disgust that keeps us from polluting ourselves. Disgust is no longer just an oral defense but is now seen as a type of guard against contamination, impurity and degradation in social terms (Horberg, Keltner, Oveis & Cohen). The seven domains of disgust according to Haidt et al. (1993) are food, animals, body products, sex, body envelope violations, death, and hygiene. It is suggested that some of these disgust domains can help us predict political ideology, and religiosity. The disgust scale will be reviewed later. The disgust sensitivity scale is available in the appendix.

Physiological Activity

Using physiological activity Jonathan Haidt, Clark McCauley, & Paul Rozin (1993) developed the seven domains of disgust. There are numerous sources of evidence that suggest there may be strong links among physiological activity, disgust, and political attitudes/religious beliefs. In a study conducted by Amada Balzer and Carly M. Jacobs (2011) they found that when measuring the physiological effects of men and women, they could predict disgust sensitivity just by viewing a person's gender. Balzer and Jacobs (2011) also found that measuring physiological data is also a good way to see whether a person is answering dishonestly. They found that men will normally answer the Disgust Sensitivity Scale as though they are less disgusted than they are. When measuring a man's skin conductance, the data shows that he is reacting but his self-report will show the opposite. This shows that having a physiological measure available is very helpful because self-report data can be misleading. For more information please refer to table 3 in the appendix.

Moral Foundations

The Moral Foundations Theory is a theory developed by Ditto, Graham, Haidt, Iyer, Koleva, Motyl, Sherman, and Wojcik. The theory is basically a way of explaining the different domains of a person's morality. The domains are care/ harm, fairness/cheating, loyalty/betrayal, authority/subversion, sanctity/degradation, and a candidate for "foundationhood" liberty/oppression (Moralfoundations.org, n.d.). Each of these domains is relatively vague because each culture around the world can add their own virtues, narratives, and institutions on top of these foundations. This theory is limited; however, as accounting for the full moral foundation of a given individual within sociocultural context could not possibly be applied equally to all people. To be accurate in collecting data for that large of a population a researcher would need an extensive sample size to find the research was valid at all. The moral foundations theory is the subject of new research articles because people are starting to realize that moral foundations are a very important and valid way to differentiate between a liberal and a conservative (Jesse Graham, Jonathan Haidt, & Brian A. Nosek, 2009). Figure 2 in the appendix shows how each of the moral foundations are distributed between liberals and conservatives.

Political Attitudes & Religious Beliefs

Political attitudes and religious beliefs are such sensitive subjects that they cause awkward situations even between the closest of people. In each study that Sousa and Pizarro (2014) conducted they found significant relationships between political conservatism and religiosity as well as Inbar, Pizarro and Bloom (2009). This area of research is important because it will help people to understand each other's differences more and it will help in understanding mass-scale human societies (Balzer, 2011).

Each of these topics shows that the idea of political attitudes and religious affiliation are determined by multiple factors. There is no definite area that specifically explains how individuals can begin to predict political attitudes and religious affiliations. This is because more research is needed on how each of these topics can effect political and religious affiliation. This systematic review then, aims to explain the relationships we have between these factors in current research.

Methods

Identification and Selection of Studies

The databases of PsychINFO and Google Scholar were utilized in obtaining articles for this research synthesis using key words such as: Politics, Religion, Physiological Responses, Disgust, Moral Foundations, politics and religion, politics and physiological activity etc.

Literature Search

Thirty-one articles were collected from PsychINFO and Google Scholar. Relevant information was pulled from each article by the researcher. Relevant information included a relevant year, relevant topics such as, politics and disgust, as well as moral foundations and religion etc. The articles were coded and some were removed and replaced with articles that best fit the research question. Six articles were removed because some of the articles did not relate to the main subjects of this research: disgust, physiological activity, moral foundations, and political and religious affiliation.

Results

The first goal of this systematic review is to demonstrate the relationship between disgust and political affiliation. In a study conducted by Inbar, Pizarro, and Bloom (2009) they found that although disgust was directionally higher for conservatism, it did not differ by religious affiliation. They concluded that because there was no significant difference in disgust sensitivity among religious groups that it would be very implausible that there would be a relationship between disgust sensitivity and political affiliation that could be explained by religion. While, a study done by Balzer (2011), suggests that, an individual that has the same moral intuitions that motivate both their political and religious beliefs, then there could be a shared source for the two belief systems that are inborn and socialized.

Disgust may seem like a very strange emotion to be discussing in terms of predicting judgements based on societal values, but it is a predictor of political orientation and of religious affiliation. Per many liberal, educated westerners, behavior should be judged only if it harms or infringes upon the rights of another human being and because a behavior is disgusting, does not mean it should be subject to moral condemnation (Inbar, Pizarro, & Bloom 2009). Disgust is a strong predictor of political attitudes in some cases. Disgust sensitivity does predict political conservatism, but it is viewed in some instances where disgust sensitivity does not predict political affiliation broadly. For instance, Inbar, Pizarro, and Bloom (2009), state that there were no significant differences by party affiliation but, disgust sensitivity did predict a directionally higher affiliation with political conservatism.

Rold and Honeycutt (2016), tested many emotional reactions to a republican candidate's campaign commercial in 2012. They suggest that Democrats and Independents could feel disgust

when viewing politically charged stimuli. The authors asked participants to report what they were feeling after watching Rick Perry's commercial, which notes Perry's disgust towards gays being able to serve openly in the military and his view that American citizens can't celebrate Christmas openly. When participants could freely express their emotions about the commercial, they reported feeling many different emotions including: disgust, accepting, and the highest rating, surprised. Rold and Honeycutt (2016) found that Republicans felt significantly less disgust towards Rick Perry's extremely offensive commercial towards gays, than did Democrats or Independents. Republican's felt more positively towards the commercial than did Democrats and Independents. In this study, the data presented that there could actually be a relationship between disgust sensitivity and the ideologies of liberals and independents. They showed that Democrats and Independents can feel disgust but only if stimuli that threatens their morality is presented. Although, there was a significant relationship between felt emotions and political party there was no significant relationship between a person's religion and felt emotions.

When disgust scales are combined with the moral foundations theory, findings are somewhat more meaningful in terms of predicting a political party or religious ideology. Moral foundations can relate to disgust sensitivity independent of political ideology. Leeuwen, Dukes, Tybur, and Park (2016), clarified the relationship of moral foundations and disgust sensitivity without the influence of political ideologies. They concluded that ideology did not confound correlations between disgust sensitivity and moral judgment. They admit that they could have controlled for ideology in a better way. The authors believe they obtained inadequate reliabilities of the moral foundations scores. Because of this, they can't pinpoint where the effects came from. They believe that associations between disgust sensitivity and the moral foundations are

similar across countries and the current findings will suggest that they are not limited to the U.S. and the U.K.

Moral domains are a way for us to explain the cultural war and extreme polarization of American politics (Bloom, 2014). Political campaigns spend a vast amount of money trying to convince voters based on self-interest but research usually shows a very weak relationship to voting behavior (Graham, Haidt, & Nosek, 2009). For instance, in an article authored by Koleva, Graham, Iyer, Ditto, and Haidt (2012), they mention that if an individual believed that a policy was proposed by their own political party that they would react favorably towards that specific political policy. Graham, Haidt, and Nosek (2009), found throughout the course of four studies liberals are mostly concerned with the harm/care and fairness/reciprocity foundations and conservatives evenly distribute their moral judgement throughout each of the domains (care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, sanctity/degradation). For a table representing this information, refer to the appendix. The one moral foundation that stood out in the Koleva et al. (2012), study was purity. Purity was a predictor of disapproval for conservatives on issues dealing with sexuality like, relationships before marriage or a child out of wedlock. On the other hand, harm was the strongest predictor of disapproval for liberals when dealing with the medical testing of animals and the death penalty. Purity ended up being a unique predictor of political orientation.

Horberg, Oveis, Keltner, and Cohen (2009) were the first to find that disgust predicts criticism of purity violations but not in other violations. When comparing the Horberg et al. (2009) results with the results of Feinberg, Antonenko, Willer, Horberg, and John (2014), it can be assumed that there is some underlying relationship between the moralization of purity and

being a conservative. Feinberg et al. (2014) found that when a liberal goes through survey questions they are more likely to reappraise their answer to a question and conservatives are less likely to do so. For example, conservatives are very different in the specific way they look at disgust. Liberals are more likely to reappraise their disgust and conservatives are less likely. They usually stick with their first opinion especially about impure acts, such as being sexual.

Day, Fiske, Downing, and Trail (2014) exposed liberals and conservatives to sociopolitical issues that were framed in terms of five moral foundations. Over the duration of the study, they found that political attitudes can be strengthened if the participant is presented with instances that highlight their own political party. This can be applied to individuals who watch specific media outlets that sway their coverage towards a specific political party. If a person watches a media source all the time, a person's views may strengthen quite a bit.

According to Prior (2013), there are clear signs that people prefer the media news outlet that has a general support for their political views and values. If conservative-relevant moral frames of liberal issues were shown to conservatives it would increase their liberal attitudes (Day et al, 2014).

After reviewing these articles, it can be concluded that it is possible to sway an individual's attitude towards either side of the political spectrum. Helzer and Pizarro (2011) found relevance in swaying individual's moral views to the conservative side by placing hand sanitizer near a survey station. This article adds to the growing collection of research on moral foundations, purity and disgust and how they can affect political attitudes. Helzer and Pizarro (2011) found that individuals who stood by a hand sanitizer when taking a survey were more likely to have more conservative views than when they were not reminded of physical purity.

Behavioral data is not only seen in situations like Helzer and Pizarro's study, it is also seen when collecting physiological and political ideology data. Collecting data physiologically to predict political beliefs is a new and upcoming science. Haidt, McCauley and Rozin (1993) developed the disgust sensitivity scale using self-report, physiological activity data. Renshon, Lee, and Tingley (2015) used physiological data to focus on anxiety and how it relates to the political decision making process. They wanted to separate emotions from political processes to try and demonstrate the effect that anxiety has on these types of decisions. They induced anxiety by showing a video unrelated to political issues and then asked political questions. They measured their physiological processes instead of relying on self-report measures because there are certain emotions a person feels without even realizing it. Renshon et al (2015) found that, emotions that are part of a decision-making process can have an important effect on political beliefs. Their research suggests that individuals who have anxiety when it comes to political orientation will be more threatened by certain subjects that normally wouldn't affect them. Their research aids the rising evidence that emotional pathways are extremely important in determining political affiliation.

As stated above, disgust assists in predicting political orientations. Disgust can even be measured by using physiological data. Smith, Oxley, Hibbing, Alford, and Hibbing (2011) found when showing disgusting images to participants (unrelated to politics), the images evoked various levels of physiological stimuli. Individuals who identified as conservative were somewhat more physiologically responsive to disgusting stimuli than were people who identified as liberals. Smith et al. (2011) have not found whether political orientation predicts biological

processes or biological processes predict political orientation. They have found that certain political orientations at an unknown time become a part of our biology.

Smith et al. (2011), stated that there needed to be a way to control for gender effects because that might be the only way for a relationship to show between physiological responses and disgust sensitivity. Balzer and Jacobs (2011) found that gender could shift the relationship of disgust sensitivity predicting social attitudes. For their study, they tested individuals by comparing self-report data and physiological data. They found that women were more likely to provide accurate self-report measures, while men did not report as much disgust as they felt. Suppressing the way, someone feels about something causes that person to react more physiologically (skin-conductance).

Smith et al. (2011) suggested that cardiovascular and gastric readings have been found to correlate with neural activity in disgust centers of the brain, and each type of disgust will have its own distinctive physiological and neural signatures. Other studies suggest that neural happenings do play a part in disgust sensitivity and political ideologies. In fact, a study done by Keil, Bradley, Hauk, Rockstroh, Elbert and Lang (2002) suggest that by studying neural correlates in different brain responses to emotionally arousing images, a relationship can be found between emotional pictures and greater positivity, in terms of electric potentials. So, when it is suggested that nonpolitical images may evoke reactions that predict political ideologies, it does not come as a surprise (Ahn et al., 2014). Keil et al. (2002), made it clear that picture processing is rooted in the human biology and Ahn et al. (2014), is only building on that idea. Ahn et al. (2014) found that there is evidence that proposes disgusting images will generate neural responses that can predict political orientations. These results, however, are inconsistent with a person's conscious

ratings, which is why it is necessary to have some way to measure physiological data or brain activity. In this study, brain responses to a single disgusting stimulus were adequate to make accurate calculations about a subject's political ideology (liberal, moderate, or conservative). Conservatives, much like other results mentioned, had higher disgust sensitivity than the liberal group. Ahn et al. (2014) determined that there are differences in liberals and conservatives in terms of areas of the brain like the basal ganglia, thalamus, periaqueductal gray, hippocampus, prefrontal insula, precentral gyrus etc. The sub condition of disgust, animal reminder, was the only area of disgust that was a firm predictor of political attitudes.

Kanai, Feilden, Firth, and Rees (2011) found that recent studies have started to identify biological attributes that may be linked to a person's political orientation. Using an MRI scanner, Kanai et al. (2011), had participants self-report their political parties and they would look for differences in gray matter in the amygdala and the anterior cingulate cortex. They found that an anterior cingulate cortex containing more gray matter meant a significant relationship with liberalism. They also found that increased gray matter in the amygdala is significantly associated with conservatism; this is usually true across cultures (Kanai et al., 2011). This is a valid assumption because a larger anterior cingulate cortex is sometimes associated with the accepting of uncertain conflicts which, in this case, means that people will be more accepting of liberal views. A larger amygdala is correlated with an individual being more sensitive to fear and being more likely to have conservative views. For further evidence pertaining to the relation between disgust and conservatism, Kanai et al. (2011) found that people with conservative values will more than likely have sensitivity to disgust.

Zamboni, Gozzi, Krueger, Sirigu, and Grafman (2009), used a multidimensional approach because they did not want to assume that political preference relied only on a conservative/liberal scale. They suggest that political orientations are far too complex to apply only to liberals or conservatives. Zamboni et al. (2009) examined how political beliefs are organized in terms of their communalities and differences and how this is reflected in brain activations. During their fMRI study, they presented participants with political statements. They could respond by either saying they mostly agreed or disagreed. The conservatism dimension, which corresponds to the liberal-to-conservative criterion, was associated with activity in the right dorsolateral prefrontal cortex. The association between this area and conservatism can be explained by claiming that conservative statements require a more complex social judgment. Zamboni et al. (2009), also suggests that the activation of this sight could have just been liberal participants reacting to the more conservative statements. If there is to be future research they should control for the liberal participant's and their reactions to the statements. Radicalism and Individualism activated the posterior cingulate/ precuneus and prefrontal cortex. These results show that there are many parts of the brain that are involved in various political decision making.

Discussion

There is an extreme diffusion in American politics in the present day and what better way to successfully obtain cohesiveness than to understand exactly why people are so one sided. This systematic review sought to collect literature that is aiming to conclude that the extreme polarization in politics, mass-scale human societies, and various cultures can be explained by viewing a few complex factors.

The importance in finding more about how disgust, physiological activity, and moral foundations predict political and religious beliefs is not just about better understanding the way individuals work but understanding whole cultures. Many of the articles found have similarities that all point to one large picture: Moral foundations, disgust, and physiological activity can predict political attitudes and religious beliefs independent of each other or together. This is because something that may predict political preference may not predict religiosity and something that may predict religiosity may not predict political preference. Because this is such a new area of study, there is not an established conclusion to this idea that political ideologies and religious beliefs can be predicted by disgust, moral foundations, and physiological activity. New articles continue to provide more information about the various subjects discussed in this article.

It is important to continue investigating this area of psychology and political science because this specific topic will allow individuals to not only understand one specific culture, but it will allow individuals to understand different types of societies from all over the world just by looking at their preference of political parties, what kind of moral foundations that political party follows, and religious affiliation.

APPENDIX A: RELEVANT TABLES

Table 1

Analysis of Relative Importance of Research Articles

Citation	Impact Factor	Citations	Citations per Year	Citation Impact	Nature of Article
Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. <i>Journal of personality and social psychology</i> , 96(5), 1029.	4.736	1391	173.88	823.47	Psychometric
Kanai, R., Feilden, T., Firth, C., & Rees, G. (2011). Political orientations are correlated with brain structure in young adults. <i>Current biology</i> , 21(8), 677-680.	8.983	243	40.50	363.81	Neuroscience / Psychophysiology
Horberg, E. J., Oveis, C., Keltner, D., & Cohen, A. B. (2009). Disgust and the moralization of purity. <i>Journal of personality and social psychology</i> , 97(6), 963.	4.736	282	35.25	166.94	Psychometric

Helzer, E. G., & Pizarro, D. A. (2011). Dirty liberals! Reminders of physical cleanliness influence moral and political attitudes. <i>Psychological science</i> .	4.94	141	23.50	116.09	Psychometric
Keil, A., Bradley, M. M., Hauk, O., Rockstroh, B., Elbert, T., & Lang, P. J. (2002). Large-scale neural correlates of affective picture processing. <i>Psychophysiology</i> , 39(5), 641-649.	2.986	558	37.20	111.08	Neuroscience / Psychophysiology
Haidt, J., McCauley, C., & Rozin, P. (1994). Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. <i>Personality and Individual differences</i> , 16(5), 701-713.	1.861	1188	51.65	96.12	Psychometric
Koleva, S. P., Graham, J., Iyer, R., Ditto, P. H., & Haidt, J. (2012). Tracing the threads: How five moral concerns (especially Purity) help explain culture war attitudes. <i>Journal of Research in Personality</i> , 46(2), 184-194.	2.264	185	37.00	83.77	Psychometric
Inbar, Yoel, David A. Pizarro, and Paul Bloom. "Conservatives are more easily disgusted than liberals." <i>Cognition and emotion</i> 23, no. 4 (2009): 714-725.	1.571	386	48.25	75.80	Psychometric
Smith, K. B., Oxley, D., Hibbing, M. V., Alford, J. R., & Hibbing, J. R. (2011). Disgust sensitivity and the neurophysiology of left-right political orientations. <i>PloS one</i> , 6(10), e25552.	3.234	136	22.67	73.30	Neuroscience / Psychophysiology

Ahn, W. Y., Kishida, K. T., Gu, X., Lohrenz, T., Harvey, A., Alford, J. R., ... & Montague, P. R. (2014). Nonpolitical images evoke neural predictors of political ideology. <i>Current Biology</i> , 24(22), 2693-2699.	8.983	23	7.67	68.87	Neuroscience / Psychophysiology
Piazza, J., & Sousa, P. (2014). Religiosity, political orientation, and consequentialist moral thinking. <i>Social Psychological and Personality Science</i> , 5(3), 334-342.	2.325	37	12.33	28.68	Psychometric
Renshon, J., Lee, J. J., & Tingley, D. (2015). Physiological arousal and political beliefs. <i>Political Psychology</i> , 36(5), 569-585.	2.089	21	10.50	21.93	Neuroscience / Psychophysiology
Day, M. V., Fiske, S. T., Downing, E. L., & Trail, T. E. (2014). Shifting liberal and conservative attitudes using moral foundations theory. <i>Personality and Social Psychology Bulletin</i> , 40(12), 1559-1573.	2.56	24	8.00	20.48	Psychometric
Zamboni, G., Gozzi, M., Krueger, F., Duhamel, J. R., Sirigu, A., & Grafman, J. (2009). Individualism, conservatism, and radicalism as criteria for processing political beliefs: a parametric fMRI study. <i>Social Neuroscience</i> , 4(5), 367-383.	2.738	47	5.88	16.09	Neuroscience / Psychophysiology
Feinberg, M., Antonenko, O., Willer, R., Horberg, E. J., & John, O. P. (2014). Gut check: Reappraisal of disgust helps explain liberal-conservative differences on issues of purity. <i>Emotion</i> , 14(3), 513.	3.383	10	3.33	11.28	Psychometric

Ben-Nun Bloom, P. (2014). Disgust, harm, and morality in politics. <i>Political Psychology</i> , 35(4), 495-513.	2.089	5	1.67	3.48	Psychometric
Balzer, A., & Jacobs, C. M. (2011). Gender and physiological effects in connecting disgust to political preferences. <i>Social Science Quarterly</i> , 92(5), 1297-1313.	0.791	18	3.00	2.37	Neuroscience / Psychophysiology
Knoll, B. R., O'Daniel, T. J., & Cusato, B. (2015). Physiological responses and political behavior: three reproductions using a novel dataset. <i>Research & Politics</i> , 2(4), 2053168015621328.	2.525	1	0.50	1.26	Neuroscience / Psychophysiology
van Leeuwen, F., Dukes, A., Tybur, J. M., & Park, J. H. (2017). Disgust sensitivity relates to moral foundations independent of political ideology. <i>Evolutionary Behavioral Sciences</i> , 11(1), 92.		1	0.00	0.00	Psychometric

Table 1

Table 2

Moral Foundations

Political Party	Care/Harm	Fairness/Cheating	Loyalty/Betrayal	Authority/Subversion	Sanctity/Degradation
Liberal	×	×			
Conservative	×	×	×	×	×

Table 2

Table 3

*Physiological Responses in Each Article
Concerning Physiological Responses*

Article & Author	Physiological Responses
<p>Individual Differences in Sensitivity to Disgust: A Scale Sampling Seven Domains of Disgust Elicitors Authors: Haidt, J., McCauley, C., & Rozin, P.</p>	<p>Eysenck Personality Questionnaire (EPQ) Neuroticism Scale</p>
<p>Gender and Physiological Effects in Connecting Disgust to Political Preferences Authors: Balzer, A., & Jacobs, C. M.</p>	<p>Skin Conductance, Electrodes attached to the distal phalanges (to measure sympathetic nervous system) Electromyographic technology, corrugator (EMG),</p>
<p>Emotion and Motivation II: Sex Differences in Picture Processing Authors: Bradley, M. M., Codispoti, M., Sabatinelli, D., & Lang P. J.</p>	<p>heart rate, zygomatic (EMG), skin conductance, startle blink reflexes, orbicularis oculi (EMG), and evaluative judgments</p>

Disgust Sensitivity and the
Neurophysiology of Left-Right Political
Orientations

Authors: Smith, K. B., Oxley D., Hibbing M.
V., Alford, J. R., & Hibbing, J. R.

Startle blink EMG, skin conductance

Physiological Arousal and Political Beliefs

Authors: Renshon, J., Lee, J. J., &
Tingley, D.

Table 3

Electrodermal activity: skin conductance

APPENDIX B: RELEVANT SCALES

Disgust Scale:

Please indicate how much you agree with each of the following statements, or how true it is about you. Please write a number (0-4) to indicate your answer:

0 = Strongly disagree (very untrue about me)

1 = Mildly disagree (somewhat untrue about me)

2 = Neither agree nor disagree

3 = Mildly agree (somewhat true about me)

4 = Strongly agree (very true about me)

- ___ 1. I might be willing to try eating monkey meat, under some circumstances.
- ___ 2. It would bother me to be in a science class, and to see a human hand preserved in a jar.
- ___ 3. It bothers me to hear someone clear a throat full of mucous.
- ___ 4. I never let any part of my body touch the toilet seat in public restrooms.
- ___ 5. I would go out of my way to avoid walking through a graveyard.
- ___ 6. Seeing a cockroach in someone else's house doesn't bother me.
- ___ 7. It would bother me tremendously to touch a dead body.
- ___ 8. If I see someone vomit, it makes me sick to my stomach.
- ___ 9. I probably would not go to my favorite restaurant if I found out that the cook had a cold.
- ___ 10. It would not upset me at all to watch a person with a glass eye take the eye out of the socket.
- ___ 11. It would bother me to see a rat run across my path in a park.
- ___ 12. I would rather eat a piece of fruit than a piece of paper
- ___ 13. Even if I was hungry, I would not drink a bowl of my favorite soup if it had been stirred by a used but thoroughly washed flyswatter.
- ___ 14. It would bother me to sleep in a nice hotel room if I knew that a man had died of a heart attack in that room the night before.

How disgusting would you find each of the following experiences? Please write a

number (0-4) to indicate your answer:

0 = Not disgusting at all

1 = Slightly disgusting

2 = Moderately disgusting

3 = Very disgusting

4 = Extremely disgusting

- ___ 15. You see maggots on a piece of meat in an outdoor garbage pail.
- ___ 16. You see a person eating an apple with a knife and fork
- ___ 17. While you are walking through a tunnel under a railroad track, you smell urine.
- ___ 18. You take a sip of soda, and then realize that you drank from the glass that an acquaintance of yours had been drinking from.
- ___ 19. Your friend's pet cat dies, and you have to pick up the dead body with your bare hands.
- ___ 20. You see someone put ketchup on vanilla ice cream, and eat it.
- ___ 21. You see a man with his intestines exposed after an accident.
- ___ 22. You discover that a friend of yours changes underwear only once a week.
- ___ 23. A friend offers you a piece of chocolate shaped like dog doo.
- ___ 24. You accidentally touch the ashes of a person who has been cremated.
- ___ 25. You are about to drink a glass of milk when you smell that it is spoiled.
- ___ 26. As part of a sex education class, you are required to inflate a new unlubricated condom, using your mouth.
- ___ 27. You are walking barefoot on concrete, and you step on an earthworm.

The DS-R (Disgust Scale-Revised), Haidt, McCauley, & Rozin, 1994; Modified by Olatunji et al., in press.

To calculate your score: First, put an X through your responses to items 12 and 16 (these items don't count). Then "reverse" your score on items 1, 6, and 10 by subtracting what you wrote from the number 4, and write those numbers in the margin. Finally, add up your responses to all 25 items (using your "reversed" scores on 1, 6, and 10). The total will be a number between 0-100. For more information see: <http://people.virginia.edu/~jdh6n/disgustscale.html>

Moral Foundations Scale:

Part 1. When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please rate each statement using this scale:

[0] = not at all relevant (This consideration has nothing to do with my judgments of right and wrong)

[1] = not very relevant

[2] = slightly relevant

[3] = somewhat relevant

[4] = very relevant

[5] = extremely relevant (This is one of the most important factors when I judge right and wrong)

- _____ Whether or not someone suffered emotionally
- _____ Whether or not some people were treated differently than others
- _____ Whether or not someone's action showed love for his or her country
- _____ Whether or not someone showed a lack of respect for authority
- _____ Whether or not someone violated standards of purity and decency
- _____ Whether or not someone was good at math
- _____ Whether or not someone cared for someone weak or vulnerable
- _____ Whether or not someone acted unfairly
- _____ Whether or not someone did something to betray his or her group
- _____ Whether or not someone conformed to the traditions of society
- _____ Whether or not someone did something disgusting
- _____ Whether or not someone was cruel
- _____ Whether or not someone was denied his or her rights
- _____ Whether or not someone showed a lack of loyalty
- _____ Whether or not an action caused chaos or disorder
- _____ Whether or not someone acted in a way that God would approve of

Part 2. Please read the following sentences and indicate your agreement or disagreement:

[0]	[1]	[2]	[3]	[4]	[5]
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

_____ Compassion for those who are suffering is the most crucial virtue.

_____ When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.

- _____ I am proud of my country's history.
- _____ Respect for authority is something all children need to learn.
- _____ People should not do things that are disgusting, even if no one is harmed.
- _____ It is better to do good than to do bad.
- _____ One of the worst things a person could do is hurt a defenseless animal.
- _____ Justice is the most important requirement for a society.
- _____ People should be loyal to their family members, even when they have done something wrong.
- _____ Men and women each have different roles to play in society.
- _____ I would call some acts wrong on the grounds that they are unnatural.
- _____ It can never be right to kill a human being.
- _____ I think it's morally wrong that rich children inherit a lot of money while poor children inherit nothing.
- _____ It is more important to be a team player than to express oneself.
- _____ If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty.
- _____ Chastity is an important and valuable virtue.

The Moral Foundations Questionnaire (full version, July 2008) by Jesse Graham, Jonathan Haidt, and Brian Nosek.

For more information about Moral Foundations Theory and scoring this form, see:
www.MoralFoundations.org

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