DATA PAPER

Psychology Data from an Exploration of the Effect of Anticipatory Stress on Disgust vs. Non-Disgust Related Moral Judgments

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In this lab-based experiment ($N = 185$, Tilburg University students) we tested the effect of anticipatory stress on moral condemnation. The data covers severity ratings for vignettes of two content types: vignettes with an inherent disgust-eliciting element (e.g., eating human flesh) and without (e.g., lying on a resume), filled out on computers using the survey platform Qualtrics. Participants in the anticipatory stress condition rated the vignettes as more morally wrong, and disgust-eliciting vignettes were rated as more morally wrong. No moderation by disgust content was found. Private Body Consciousness (PBC) was positively associated with condemnation for disgust-eliciting vignettes (but not with non-disgust-eliciting vignettes). The data can be used, for example, in research on incidental vs. inherent emotions, to identify the strength of induced emotions on judgments, and to identify moderators (e.g., PBC).

(1) Overview
Context

Collection Date(s)
2014 (November 3rd – November 7th).

Background
This data includes moral condemnation ratings by college students at Tilburg University for six vignettes describing disgust-eliciting and non-disgust-eliciting moral violations [1]. Participants were assigned to either an anticipatory stress or control condition in a lab study, where they completed several questionnaires in individual cubicles. The aim of the study was to test whether anticipatory stress selectively amplifies the condemnation of disgust-eliciting moral violations, or whether it affects both types of moral violations equally (e.g., [2, 3]). Moral violations may elicit emotions and physiological changes (e.g., [4, 5]). Notably, immoral behaviors that involve a purity violation have been argued to be uniquely tied to the experience of disgust [6–9]. Experimentally induced stress may enhance the role of emotion in judgment [10], yet it may also interfere with emotional-intuitive signals coming from the body [11]. Furthermore, in a stressful situation

the need to reject and avoid anything that may pose a threat of contamination could be stronger than rejecting other immoral acts, leading to greater condemnation (e.g., [12, 13]). Data provide support for a general, but not disgust-specific, effect of anticipatory stress on moral condemnation—participants in the anticipatory stress condition showed more moral condemnation than control participants (see **Figure 1**), with no moderation by disgust content. A secondary aim was to explore whether people who are more perceptive of their own physiological changes are more condemning of disgust eliciting moral violations. Correspondingly, Private Body Consciousness [14] (measured in the control condition only, $n = 91$) correlated with condemnation of disgust eliciting vignettes but not with condemnation of non-disgust eliciting vignettes (see **Figure 2**). As ratings on moral vignettes are often skewed, these data may call for an analysis that takes this into account. We present the distribution of the ratings for the individual vignettes in **Figure 3**.

(2) Methods
Sample
The sample consists of 188 students at Tilburg University who participated in return for course credit. Three
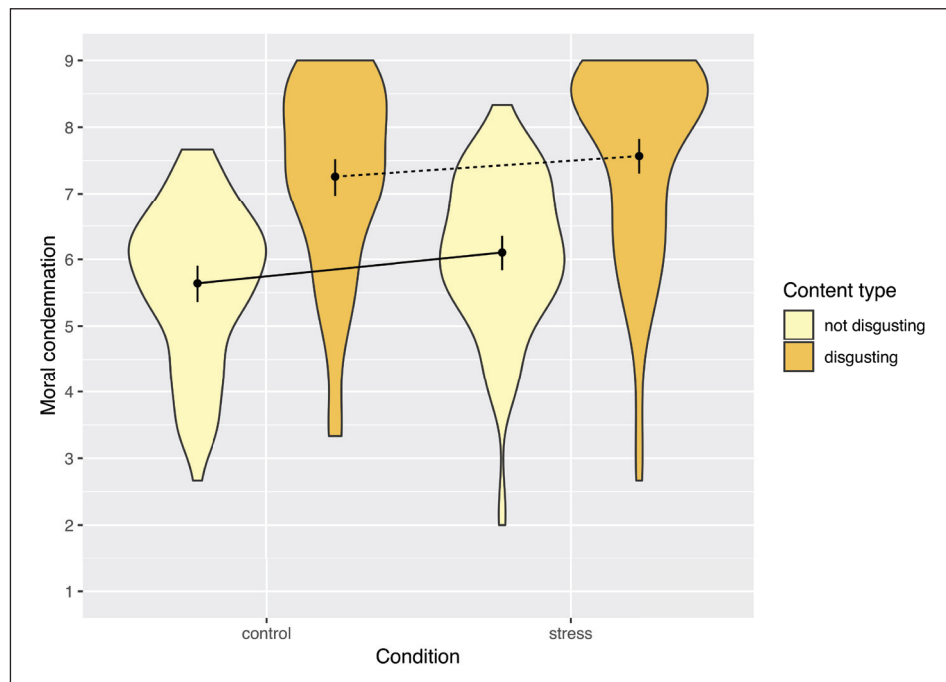
Figure 1: Mean condemnation ratings as a factor of condition and vignette content type. Anticipatory stress led to more moral condemnation, $b = 0.46$, $SE = 0.19$, $t(354.84) = 2.40$, $p = .017$, and disgust-eliciting vignettes were condemned more, $b = 1.61$, $SE = 0.17$, $t(187.78) = 9.26$, $p < .001$. Analysed with a linear mixed effects model (LMM) with condition (anticipatory stress vs. control), vignette content type (disgusting vs. not disgusting), and their interaction as fixed effects. The analysis was conducted with the lme4 [15] and lmerTest [16] packages, and confirmed with a robust LMM using the robustlmm package [17], see analysis scripts. Error bars indicate 95% bootstrapped confidence intervals of the estimated means. Colored areas (violins) show kernel probability density at different values of moral condemnation.
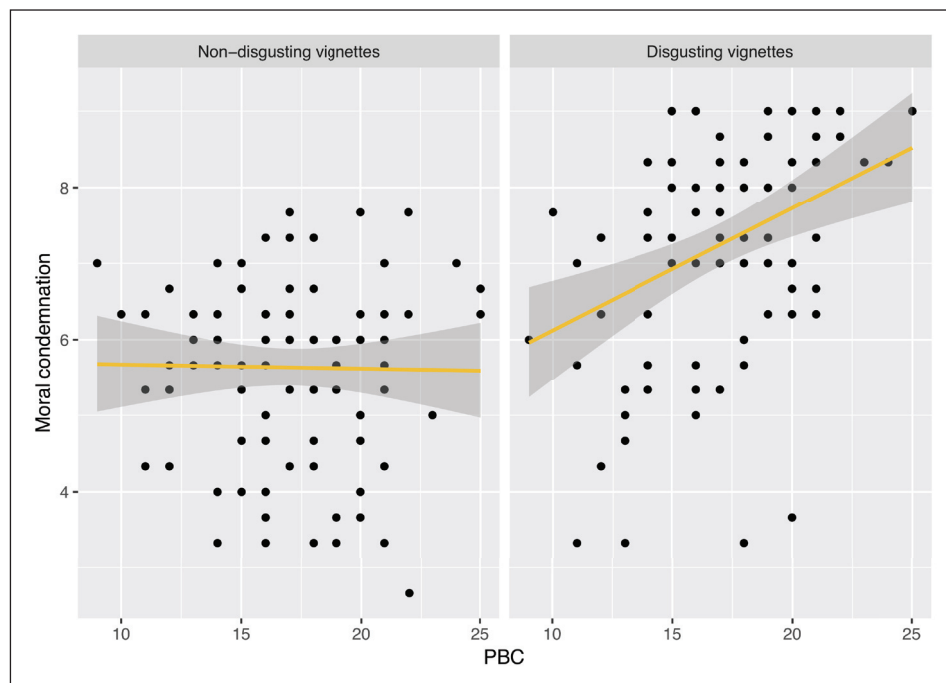

Figure 2: Association of Private Body Consciousness (PBC) with moral condemnation for non-disgust-eliciting vignettes (left panel, $r(89) = .02$, $p = .88$) and disgust-eliciting vignettes (right panel, $r(89) = .38$, $p < .001$). The bands represent 95% confidence intervals.

participants did not take part in the stress manipulation (i.e., giving a presentation), and were excluded from data analysis, leaving a total sample of 185, $M_{age} = 19.6$, $SD_{age} = 2.09$, 78.9% female. Participants were recruited via the Tilburg University student recruitment website and flyers distributed on campus.
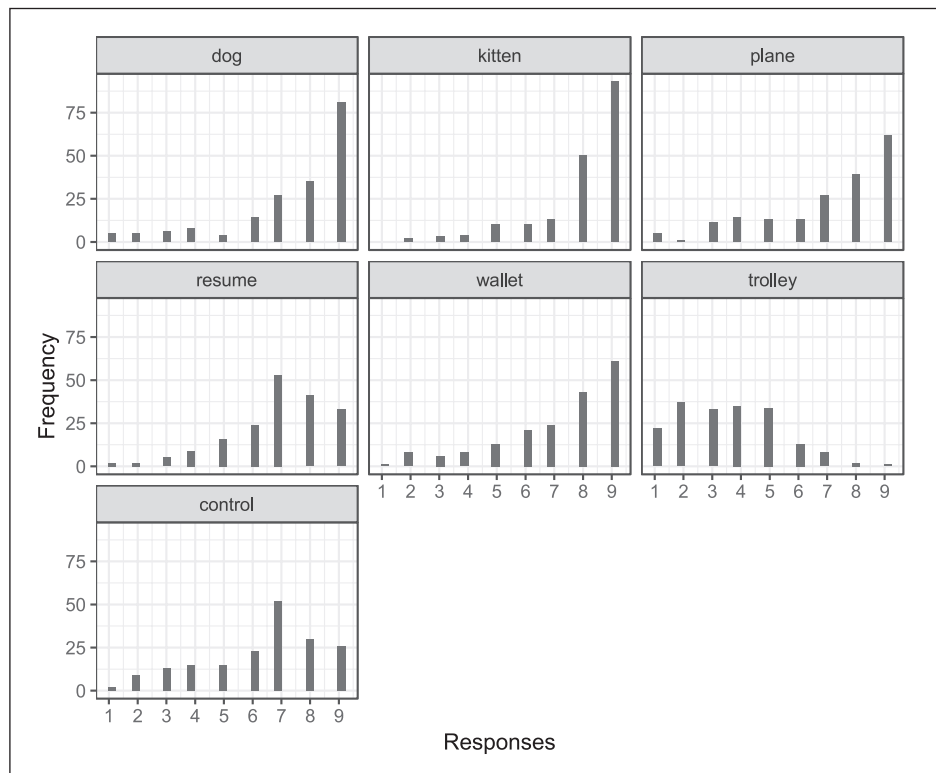
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Figure 3: Frequency distribution of the ratings for the individual vignettes (6 moral vignettes and 1 neutral control vignette).

Logbook notes are included for 10 participants who indicated to be skeptical about whether the presentation would actually take place.

Questionnaire data (Private Body Consciousness, Rational-Experiential Inventory, Multidimensional Assessment of Interoceptive Awareness, see materials) was collected in the control condition ($n = 91$).

Materials

Anticipatory stress was manipulated in a between-subjects design (anticipatory stress vs. control). Participants in the anticipatory stress condition were instructed to prepare a public speech and were given 3 minutes to do so; participants in the control condition were asked to think of positive and negative aspects of their previous holiday for three minutes. Participants in the anticipatory stress condition were told the speech had to be about their own presentation skills and that the psychologists listening to the speech would evaluate them on psychological functioning. Participants were then informed (in the anticipatory stress condition only) that there was another participant giving the speech right now so 'please fill out these other materials until it's your turn'.

The materials consisted of six vignettes that describe a moral dilemma. Three vignettes did not have disgust-eliciting content (i.e., "Trolley", "Wallet", "Resume"), and three did (i.e., "Kitten", "Plane crash", and "Dog", taken from [1]). Participants indicated for all six vignettes the extent to which they found the described act morally wrong. Answer scale from 1 (*perfectly OK*) to 9 (*extremely wrong*). We included one neutral (non-moral) control vignette (for which ratings did not differ statistically between stress and control condition, *ns*).

One mood item was then administered: 'At this moment, I feel:' slider scale from 1 (*very bad*) to 100 (*very good*). The state part (20 items) of the State Trait Anxiety Inventory (STAI; [18]) was assessed as a manipulation check (see [19]), and includes items like "I am tense" and "I feel pleasant" (reversed coded) using a 4 point Likert-type scale ranging from 1 (*Not at all*) to 4 (*very much so*). A manipulation check indicated that participants in the anticipated stress condition felt more stress ($M = 44.97$, $SD = 11.32$) than the participants in the control condition ($M = 36.78$, $SD = 7.99$), $t(167.55) = 5.7$, $p < .001$.

Additional scales that were administered (control condition only) consist of the Private Body Consciousness scale (5 items; [14]), the The Rational-Experiential Inventory (40 items; [20], some missing sum score values due to listwise deletion), the Multidimensional Assessment of Interoceptive Awareness (32 items; [21]).

For the Dutch translation of the vignettes and scales, see the Supplemental Materials.

Procedures

Data was collected in the Tilburg University lab over the course of one week (as was determined by a predefined stopping rule). Participants were recruited via an online enrollment system and received course credit for participation. Upon arrival in the lab, participants were seated in a waiting room that was situated next to the room where the speeches were given (providing additional proof that the speech was real), and also right next to the entrance of 11 closed cubicles in which participants filled out the surveys via the survey platform Qualtrics. Before this experiment began, participants provided informed consent and

completed several other unrelated surveys. After the stress [control] induction, participants completed an unrelated experiment that also relied on the stress induction, and then filled out the mood item, the STAI, their gender and age, and the vignettes. Hereafter, participants in the stress condition performed the speech (individually) in the adjoining room in front of two or more psychologists and were complimented on it no matter the quality. Lastly, they returned to their cubicle to fill out the STAI again (allowing for verification that stress levels after the speech would return to normal). While participants in the stress condition were performing the speech, participants in the control condition filled out additional test materials in this order: PBC, REI, MAIA.

Quality Control
Experienced experimenters oversaw the data collection. The R script includes code to filter out three participants who did not perform the speech. Although these participants did fill out the materials, it is likely they were not influenced by the stress induction as intended. Notes were taken during the lab sessions to document anything unusual, including whether participants mentioned not believing the speech would actually take place (see logbook.csv).

Ethical issues
The study followed the ethical standards by the American Psychological Association. In addition, identifying questions and open-ended responses were removed from the data file (including student's ID number), as participants provided consent for sharing de-identified data.

(3) Dataset description
Object name
Repository contains:

1_data_preparation.R
2_data_analysis.R
codebook_prepared_data.docx
codebook_raw_data.docx
data_report.docx
figure1.pdf
figure2.pdf
logbook.csv
prepared_data.csv
raw_data.csv
results.csv
session_info_data_analysis.txt
session_info_data_preparation.txt
supplemental_material.docx

Data type
Contains raw and prepared data, and scripts for preparation and analysis:

- raw data.csv contains the raw data, with accompanying codebook_raw_data.docx
- prepared data.csv contains data after preparation (renaming variables, item recoding, creating scale

sum scores, merging raw and logbook data) with "1_data_preparation.R", with accompanying codebook_prepared_data.docx
- results.csv contains an organized data file of the results of analyses in 2_data_analysis.R made with the tidystats package in R (see: https://github.com/WillemSleegers/tidystats)
- logbook data.csv contains comments written down by experimenter per subject and whether subject was excluded for analysis
- data_report.docx contains metadata as filled out for DataverseNL
- session_info_*.txt files contain session information of the R session used to prepare the data (e.g., which versions of the packages were used).

Format names and versions
All data and results are available in .csv format which is easily imported in data analysis software (e.g., Excel, SPSS, R).

Data Collectors
Experimenters
Anna van 't Veer, PhD-student at Tilburg University at time of data collection.

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Language
English

License
CC-BY-4

Embargo
Authors declare the dataset is not under embargo.

Repository location
The dataset is available on DataverseNL: https://dataverse.nl/dataset.xhtml?persistentId=hdl:10411/FBOVXA and can also be approached via the Open Science Framework: https://osf.io/x6n9p/.

Publication date
16/08/2018

(4) Reuse potential
This dataset can be used in (meta) research on, for instance, moral judgment and incidental vs. inherent emotions (e.g., meta analysis on the effect of affect manipulations or on the effect of feelings elicited by vignettes on responding to moral dilemmas) and possible moderators (current data include several interoceptive/intuitive individual difference measures). Moreover, future research could use this

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data for comparisons of different stress manipulations (e.g., to identify the effect strengths of manipulations on (moral) judgments). Next to this, the correlational data may inspire future confirmatory studies looking at the relationship between interoceptive awareness and condemnation of disgust-eliciting (vs. non disgust-eliciting) acts. To facilitate reuse, the data is accompanied by an organized data file of the statistical results of our initial analyses, which was produced using tidystats (https://github.com/WillemSleegers/tidystats). Further exploratory analyses and future collaborations are encouraged.

Additional File
The additional file for this article can be found as follows:

· **Supplemental material.** van 't Veer, A.E. & Sleegers, W. (2019). Psychology data from an exploration of the effect of anticipatory stress on disgust vs. non-disgust related moral judgments. DOI: https://doi.org/10.5334/jopd.43.s1

Competing Interests
The authors have no competing interests to declare.

Author Contribution
Conceptualization, A.E.V.; Methodology, A.E.V.; Investigation, A.E.V.; Formal Analysis, W.W.A.S. and A.E.V.; Data Curation, W.W.A.S. and A.E.V.; Writing – Original Draft, A.E.V. and W.W.S.; Writing – Review & Editing, W.W.S. and A.E.V.; Visualisation, W.W.A.S. and A.E.V.

References
1. **Schnall, S, Haidt, J, Clore, G L** and **Jordan, A H** 2008 Disgust as embodied moral judgment. *Personality and social psychology bulletin*, 34(8): 1096–1109. DOI: https://doi.org/10.1177/0146167208317771
2. **Starcke, K, Wolf, O T, Markowitsch, H J** and **Brand, M** 2008 Anticipatory stress influences decision making under explicit risk conditions. *Behavioral neuroscience*, 122(6): 1352. DOI: https://doi.org/10.1037/a0013281
3. **Starcke, K, Ludwig, A C** and **Brand, M** 2012 Anticipatory stress interferes with utilitarian moral judgment. *Judgment and Decision Making*, 7(1): 61. http://journal.sjdm.org/11/11729/jdm11729.html
4. **Cannon, P R, Schnall, S** and **White, M** 2011 Transgressions and expressions: Affective facial muscle activity predicts moral judgments. *Social psychological and personality science*, 2(3): 325–331. DOI: https://doi.org/10.1177/1948550610390525
5. **Chapman, H A, Kim, D A, Susskind, J M** and **Anderson, A K** 2009 In bad taste: Evidence for the oral origins of moral disgust. *Science*, 323(5918): 1222–1226. DOI: https://doi.org/10.1126/science.1165565
6. **Horberg, E J, Oveis, C** and **Keltner, D** 2011 Emotions as moral amplifiers: An appraisal tendency approach to the influences of distinct emotions upon moral judgment. *Emotion Review*, 3(3): 237–244. DOI: https://doi.org/10.1177/1754073911402384
7. **Inbar, Y, Pizarro, D A** and **Bloom, P** 2009 Conservatives are more easily disgusted than liberals. *Cognition and emotion*, 23(4): 714–725. DOI: https://doi.org/10.1080/02699930802110007
8. **Rozin, P, Lowery, L, Imada, S** and **Haidt, J** 1999 The CAD triad hypothesis: a mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of personality and social psychology*, 76(4): 574. DOI: https://doi.org/10.1037/0022-3514.76.4.574
9. **Wagemans, F, Brandt, M J** and **Zeelenberg, M** 2018 Disgust sensitivity is primarily associated with purity-based moral judgments. *Emotion*, 18(2): 277. DOI: https://doi.org/10.1037/emo0000359
10. **Youssef, F F, Dookeeram, K, Basdeo, V, Francis, E, Doman, M, Mamed, D, Legall, G,** et al. 2012 Stress alters personal moral decision making. *Psychoneuroendocrinology*, 37(4): 491–498. DOI: https://doi.org/10.1016/j.psyneuen.2011.07.017
11. **Preston, S D, Buchanan, T W, Stansfield, R B** and **Bechara, A** 2007 Effects of anticipatory stress on decision making in a gambling task. *Behavioral neuroscience*, 121(2): 257. DOI: https://doi.org/10.1037/0735-7044.121.2.257
12. **Tybur, J M, Lieberman, D, Kurzban, R** and **DeScioli, P** 2013 Disgust: Evolved function and structure. *Psychological review*, 120(1): 65. DOI: https://doi.org/10.1037/a0030778
13. **Inbar, Y** and **Pizarro, D A** 2014 Pollution and purity in moral and political judgment. In J. Wright and H. Sarkissian (Eds.), *Advances in experimental moral psychology* (pp. 112–129). London, UK: Bloosmbury Academic.
14. **Miller, L C, Murphy, R** and **Buss, A H** 1981 Consciousness of body: Private and public. *Journal of personality and social psychology*, 41(2): 397. DOI: https://doi.org/10.1037/0022-3514.41.2.397
15. **Bates, D, Maechler, M, Bolker, B** and **Walker, S** 2015 Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, 67(1): 1–48. DOI: https://doi.org/10.18637/jss.v067.i01
16. **Kuznetsova, A, Brockhoff, P B** and **Christensen, R H B** 2017 lmerTest Package: Tests in Linear Mixed Effects Models. *Journal of Statistical Software*, 82(13): 1–26. DOI: https://doi.org/10.18637/jss.v082.i13
17. **Koller, M** 2016 robustlmm: An R Package for Robust Estimation of Linear Mixed-Effects Models. *Journal of Statistical Software*, 75(6): 1–24. DOI: https://doi.org/10.18637/jss.v075.i06
18. **Spielberger, C D, Gorsuch, R L** and **Lushene, R E** 1970 Manual for the state-trait anxiety inventory. Palo Alto, CA: Consulting Psychologists, 22.
19. **Starcke, K** and **Brand, M** 2012 Decision making under stress: A selective review. *Neuroscience & Biobehavioral Reviews*, 36(4): 1228–1248. DOI: https://doi.org/10.1016/j.neubiorev.2012.02.003

20. **Pacini, R** and **Epstein, S** 1999 The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology*, 76(6): 972–987. DOI: https://doi.org/10.1037/0022-3514.76.6.972

21. **Mehling, W E, Price, C, Daubenmier, J J, Acree, M, Bartmess, E** and **Stewart, A** 2012 The Multidimensional Assessment of Interoceptive Awareness (MAIA). *PloS One*, 7(11), e48230. DOI: https://doi.org/10.1371/journal.pone.0048230