Report E005R07

IS ANIMAL CRUELTY OR ABOLITIONIST MESSAGING MORE EFFECTIVE: A REANALYSIS

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EXECUTIVE SUMMARY This document presents a reanalysis of the data and conclusions reported on September 20, 2015, by Humane League Labs in the blog post titled *Is animal cruelty or abolitionist messaging more effective?* and the accompanying report titled *Report: Is Animal Cruelty, Environmental or Purity ("Abolitionist") Messaging More Effective At Inspiring People To Change Their Diet?* The study compared the effect of three animal advocacy messages on participants' self-reported intention to change their animal product consumption. Our reanalysis supports the original report's conclusion that a message focussing on the cruelty animals endure in factory farming systems is more effective than a message focussing on animal rights and moral consistency. In contrast to the original report, our reanalysis did not find significant differences between the message focussing on cruelty and a message focussing on the environmental impact of meat consumption. Results for the comparison of the environmental message with the animal rights messages were mixed. Overall, we recommend interpreting the findings with caution as there are several serious flaws in the design of the study.

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The research presented in this document displays the *Open Data* and *Open Materials* badges for open science practices. All data and materials are available in the associated Open Science Framework repository at <https://osf.io/wz4vt/>.

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INTRODUCTION

This document presents a reanalysis of the data and conclusions reported on September 20, 2015, by Humane League Labs in the blog post titled *Is animal cruelty or abolitionist messaging more effective?* [1, henceforth “blog post”] and the accompanying report titled *Report: Is Animal Cruelty, Environmental or Purity (“Abolitionist”) Messaging More Effective At Inspiring People To Change Their Diet?* [2, henceforth “original report”]. The reported data originated from a multi-part online survey conducted by Humane League Labs in 2014. The portion of the survey reanalyzed here examined three flyers with different animal advocacy messages focussing on animal cruelty, the environmental impact of animal agriculture, and animal rights and moral consistency. The flyers were assessed for their impact on participants’ self-reported intention to change their consumption of animal products. This reanalysis is intended to serve two purposes—first, to address any statistical and numerical oversights and errors reported in the blog post and the original report, and second, to identify any methodological limitations of the previously conducted study and clarify the range of possible inferences given the observations.

METHODS

Procedure

The original report is based on data from a multi-part online survey run by Humane League Labs between July and August 2014. The full survey included five relatively distinct parts; the results analyzed here come from the last part of the survey. The complete survey is described in [3] and we refer the reader to this publication for more details. Briefly, survey participants were recruited from three sources—the crowdsourced marketplace Mechanical Turk, the social media site Reddit, and the classified advertisement site Craigslist. The survey was administered

on an unknown web-based survey platform. At least some respondents were given a code to redeem on Mechanical Turk, presumably to collect a monetary incentive.

Participants were randomly presented with one of three flyers promoting a plant-based diet. The flyers had the same page layout, but used (partly) different imagery and different text—the first flyer described the cruelty that pigs and chickens endure in factory farming systems (“cruelty”); the second flyer described the environmental impact of meat consumption (“environment”); the third flyer focused on animal rights and moral consistency (“purity”). All flyers ended with a more or less direct ask to reduce or stop eating animal products. Images of the three flyers can be found in the original report [2].

After viewing the flyer, participants were asked to answer several questions assessing their intention to change their dietary habits. First, they were asked to indicate whether or not they generally intended to change their diet using a simple Yes/No question (question 84)¹. Subsequently, they were asked to indicate their planned future consumption of five animal products—red meat (beef and pork), poultry (chicken and turkey), fish, eggs, and dairy (questions 85–89). Answers were given on a 6-point Likert scale with the levels “eat more [animal product]”, “eat the same amount of [animal product]”, “eat a little less [animal product]”, “eat a lot less [animal product]”, “stop eating [animal product]”, and “I already do not eat [animal product]”. Finally, participants were asked whether they would like to receive a vegetarian recipe book, again using a simple Yes/No question (question 90).

At the end of the survey, participants were asked to answer a list of demographic questions. The only questions relevant for this reanalysis are one inquiring about participants’ age, using a multiple choice question with seven options (question 92), and another asking about their dietary identity, using a multiple choice question with the options “omnivore”, “meat reducer”, “semi-vegetarian”, “vegetarian”, and “vegan” (question 93). Finally, to reproduce one of the supplementary analyses in the original report (see below), we included a variable coding which types of animal advocacy messages had been presented to participants in an earlier part of the survey. During that part of the survey, participants had been asked to choose

¹ The question numbers represent the order in which the questions appeared in the multi-part online survey. For the exact formulation of the questions as well as more background information about the survey, see Peacock [3]

from a random selection of three pamphlet covers with the following messages: animal message; health message; animal and health message; animal, health, and environment message [see 4, for details].

Participants

The exact number of survey participants remains unclear. While the provided dataset contains 813 entries, these likely represent only a subset of all survey respondents. As described in a previous reanalysis of data from another part of the survey [5], we have reason to believe that the dataset was filtered to exclude participants who (a) did not live in the USA or Canada; (b) completed the survey in less than 7 minutes and 30 seconds; and (c) identified as a vegan or vegetarian. Interestingly, while the blog post suggests that only participants over the age of 18 years were included in the analysis, the dataset contains three cases that selected “Under 18 years” when asked for their age. Based on the available evidence, we believe that the total number of survey participants was approximately 1200 [5]. Of these participants, 784 answered the questions relevant to this reanalysis. (In the blog post, this number is erroneously reported as 638.) One participant did not indicate their age and was excluded from the reanalysis. Another participant did not answer any of the questions asking about participants’ intention to change their consumption of specific animal products and was excluded from the reanalysis of these outcome variables (see below).

Original analysis

The authors of the original report chose the following analysis strategy to examine a potential effect of the three flyers with different animal advocacy messages (cruelty, environment, and purity) on participants’ self-reported intention to change their consumption of animal products.

For the binary outcome variables (general intention to change dietary habits, Figure 1; ordering of a vegetarian recipe book, Figure 2), they reported contingency tables listing counts and percentages of “Yes” and “No” answers for the three flyer messages. They further reported a series of chi-squared tests for all combinations of the three messages (cruelty vs. purity; cruelty vs. environment; environment vs. purity), testing the null hypothesis of equal proportions. These analyses were then repeated for a subset of the full sample that only included participants aged 24 years or younger.

For the ordinal outcome variables—that is, participants’ intentions to change the consumption of five animal prod-

Figure 1 Percentages of “Yes” and “No” answers to the question asking for participants’ general intention to change their dietary habits, by flyer message. The upper panel displays data for the full sample; the lower two panels display data separated by age group.

uct categories (Figure 3)—the authors transformed the Likert-style responses into a measure of “days of suffering spared.” Individual responses were, first, converted to an estimated percentage increase or decrease in consumption (eat more, +20%; eat the same, 0%; eat a little less, –10%; eat a lot less, –35%; stop eating entirely, –100%; already do not eat, 0%) and, second, multiplied by an estimated number of days of animal suffering for the respective category (fish, 1500 days; chicken, 1220 days; eggs, 365 days; red meat, 113 days; dairy, 12 days). These numbers were presented as an “educated guess [...] given background knowledge about how much meat, eggs, and dairy the average American eats per year” [2, p. 3]. The average “days of suffering spared” was then computed for each of the five animal product categories. Along with an overall average for all animal products, these results were presented by flyer message in a descriptive table. Finally, a series of two-sample t-tests were used to compare the overall averages between all combinations of the three messages (cruelty vs. purity; cruelty vs. environment; environment vs. purity), testing the null hypothesis of equal means. Again, the analyses were repeated for a subset of the full sample that only included participants aged 24 years or younger.

Furthermore, the original analysis included two sup-

Figure 2 Percentages of “Yes” and “No” answers to the question asking participants whether they wanted to order a vegetarian recipe book by flyer message. The upper panel displays data for the full sample; the lower two panels display data separated by age group.

plementary analyses. First, the authors reported correlation coefficients between participants’ general intention to change their dietary habits and (a) the “overall days of suffering spared” and (b) whether participants had ordered a recipe book. Second, they reported an analysis addressing the possibility that pamphlet covers shown in a previous part of the survey had an impact on participants’ responses in this later part of the survey. To this end, the authors conducted an analysis of variance (ANOVA) with the computed variable “overall days of suffering spared” as the dependent variable and the cover messages shown in the previous part of the survey as the independent variable.

Reanalysis

After a general assessment of the original study’s methodology, this reanalysis first attempts to reproduce and validate all the statistics reported in the original report using the same methods described above. It then tries to improve upon the original study’s analysis strategy to clarify which inferences are possible given the observations.

We used R, version 3.6.0, to process and analyze the data, generate figures and tables, and compile the output documents; i.e., this PDF report and the accompanying

HTML document containing Supplementary Materials². In keeping with our commitment to open code and data, all data and computer code used to produce this analysis are available in the Open Science Framework project <https://osf.io/wz4vt/>. Data and analysis code are organized as a research compendium [6] that can be installed as an R package from the associated GitLab repository³ or run in a web browser, using an interactive RStudio session via Binder⁴.

ASSESSMENT OF METHODOLOGY

Our assessment of the methodology is necessarily limited as the blog post and original report do not provide complete details of the study’s methodology. We reiterate concerns with the general methodology of the multi-part survey voiced in a previous reanalysis of data from another part of the survey [5]. These include the potential introduction of bias through inconsistencies in the incentivization of participants, the lack of items controlling for participants’ attention and sincerity, and the possible effect of preceding parts of the survey on participants’ responses in this part of the survey. Additionally, we have several concerns specific to the methodology of the part of the survey reanalyzed here.

First, variations in the design of the three competing flyers might have had an independent effect on participants’ responses which was confounded with the effect of the message. The flyers used different but partly overlapping imagery. While the cruelty and purity flyer shared one picture of pigs in gestation crates, the other picture differed, showing hens in cages on the cruelty and hens living in barns on the purity flyer. The images on the environment flyer were completely different from the other two flyers, displaying cattle farming in one and a polar bear in the other. The different images may have had an independent effect on the participants’ responses that was confounded with the flyers’ message in this design, making it impossible to ascribe potential differences between the flyers only to their message. Instead, a design using the same two images for all three flyers would have been preferable.

Furthermore, while all flyers ended by asking the reader

² <https://osf.io/qmupy/download>

³ <https://gitlab.com/humane-league-labs/e005r07>, for documentation of the R package, see <https://humane-league-labs.gitlab.io/e005r07/articles/E005R07.html>

⁴ <https://mybinder.org/v2/gl/humane-league-labs%2Fe005r07/master?urlpath=rstudio>

Figure 3 Percentages of selected answer alternatives on the Likert scales asking participants for their intention to change the consumption of specific animal products by flyer message. The upper panel displays data for the full sample; the lower two panels display data separated by age group.

to change their animal product consumption, the exact request differed greatly. While the cruelty flyer directly asked the reader to reduce or end their consumption of animal products, the other two flyers only indirectly pointed out the effects of cutting out animal products and did not mention a reduction of animal product consumption. Both direct vs. indirect requests [e.g., 7] and reduction vs. elimination requests [e.g., 8] have been shown to have different effects on participants' responses. Confounding these factors with the effect of a flyer's message again undermines the interpretability of the results.

Another potential methodological issue, especially for the analysis of the questions asking for participants' intentions to change their consumption of specific animal products, is that the cruelty flyer specifically talked about two species, pigs and chickens, while the other flyers talked about animal agriculture in general. This design choice might have influenced participants' responses to the questions asking for their intended future consumption of red meat and poultry products.

The primary outcome measures of the study rely on participants' self-reported intention to change their animal product consumption. This choice is problematic in several ways. First, self-reports of a participant's diet are prone to bias and have been shown to only loosely correlate with actual diet behavior [9]. The intention to change one's diet is an even more abstract concept and can be assumed to be even less directly related to actual diet behavior. Furthermore, the social desirability bias inherent to the study is likely to have influenced participants' reports of their intentions. Thus, from the results of the study, we cannot draw conclusions about how the flyer messages differentially affect diet change, but only about how they affect participants' reported intention to change. To answer questions about the effect of different messaging schemes on diet change, an outcome measure assessing participants' diet longitudinally and in an objective manner, e.g., through purchasing data, would be preferable.

Lastly, the Likert-like scale used to assess participants' intentions to change their consumption of specific animal products is asymmetric and unevenly spaced, with more answer alternatives indicating a reduction of animal product consumption than increases in consumption. In addition to the inferior psychometric properties associated with such a scale, the overrepresentation of answers indicating a reduction of animal product consumption might have biased participants' responses in this direction. Fur-

thermore, the design of the scale may have amplified the social desirability bias that was likely induced by the survey. As no measures were taken to control or at least measure the extent of social desirability bias, we suspect the survey data to be biased towards reporting an intention to reduce animal product consumption.

VERIFICATION OF NUMERICAL CLAIMS

After running some checks to ensure data sanity (see Supplementary Materials), we tried to reproduce all descriptive and inferential statistics in the original report using the original methods. We were able to exactly reproduce the two contingency tables listing counts and percentages of “Yes” and “No” answers for the variables coding participants’ general intention to change their dietary habits as well as whether they ordered a vegetarian recipe book (Supplementary Tables S4 and S6). In contrast, our reproduction of the descriptive table listing the average days of suffering spared deviated from the original table in several ways (Supplementary Table S5). While the differences in the computed averages for red meat, poultry, eggs, and dairy products were negligible and probably due to rounding, the averages for fish deviated markedly from the original analysis. The averages reported in the original analysis were between 12 and 70 percent higher than the averages computed in our reanalysis. Consequently, the overall averages of days of suffering spared reported in the original report also deviated from those computed in our reanalysis.

We were not successful at exactly reproducing any of the inferential analyses from the original report. For the three analyses involving the overall average of days of suffering spared⁵, this is not surprising as the dependent variable, days of suffering spared, differed between the original report and the reanalysis. In addition, the within-group degrees of freedom of the ANOVA, the degrees of freedom of the t-test comparing the cruelty against the environment message in the full sample, and the degrees of freedom for the correlation between days of suffering spared and general intention to change dietary habits deviated from our reanalysis.

⁵ That is, the ANOVA assessing the potential influence pamphlet covers in a previous part of the survey on overall days of suffering spared (Supplementary Table S7), the series of t-tests comparing overall days of suffering spared between the different flyer messages (Supplementary Table S9), and the correlation between days of suffering spared and general intention to change dietary habits (Supplementary Table S10).

Interestingly, we also found partly deviating results in the remaining analyses that did not involve the computed variables assessing days of suffering spared. In the series of chi-squared tests comparing the general intention to change dietary habits between pairs of different flyer messages, the p-value for the comparison between the cruelty and the environment flyers in the full sample was erroneously reported as < 0.01 , but was actually only 0.025; furthermore, we found two negligible differences in the chi-squared statistics (Supplementary Table S8). The correlation coefficient between participants’ general intention to change their dietary habits and ordering of a vegetarian recipe book was reported as negligibly higher in the original report. Finally, the degrees of freedom were reported incorrectly for both correlations (Supplementary Table S10).

ASSESSMENT OF INFERENTIAL CLAIMS

Assessment of original analysis strategy

The analysis strategy that was applied in the original report is suboptimal in several ways. First, the authors chose to report a series of inferential tests (chi-squared tests and t-tests) that directly compared pairs of flyer messages. Typically, one would first conduct an omnibus test including all levels of the independent variable (for example, a chi-squared test testing the hypothesis of equal proportions of “Yes” and “No” answers between the cruelty, environment, and purity messages). Only if the hypothesis of equality can be rejected by the omnibus test, post-hoc tests comparing pairs of different levels of the independent variable should be performed (for example, Fisher’s exact tests comparing proportions of “Yes” and “No” answers between all pairs of flyer messages). Additionally, conducting several statistical tests increases the likelihood of Type I errors (i.e., “false positives” or erroneous conclusions that there is an effect) and multiple comparison correction should be applied.

Another issue is the implementation of the subgroup analyses investigating differences in the treatment effect between younger and older participants. The authors of the original report chose to repeat the different analyses for a subset of the full sample that only included participants aged 24 years or younger. This analysis strategy does not directly assess whether the flyer messages affected younger and older participants’ behavior differently which presumably was the goal of this subgroup analysis, and leads to more frequent Type I errors [10]. A more appropriate way

to assess age-specific treatment effects would be to include the participants' age in the model and test for an interaction with the main predictor variable.

Finally, while translating participants' responses into suffering experienced by farmed animals is valuable, the construction of the computed variables assessing "days of suffering spared" is questionable. Besides being based on questions asking about participants' intention rather than their actual consumption (see above), the percentage increases and decreases that were associated with the Likert-style response scale were chosen arbitrarily. The metric further did not account for participants' baseline levels of animal product consumption. Additionally, the authors do not describe based on which theoretical and empirical basis the specific days of animal suffering resulting from the consumption of different animal products were chosen. Taken together, these issues render inferences based on the computed variable "days of suffering spared" questionable.

Reanalysis strategy

To overcome at least some of the issues of the original analysis strategy and to provide more robust inferences, we reanalyzed the data as follows. For the binary outcome variables (general intention to change dietary habits and ordering of a vegetarian recipe book), we fitted generalized linear models with logit link functions (logistic regression), with the flyer message as the predictor variable (Equation (1a)). In a second step, to investigate potential age-related effects, we added a variable splitting participants into younger (< 25 years of age) and older (> 24 years of age) groups and its interaction with the flyer message to the model (Equation (1b)).

The full model can be described as

$$\ln\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} \quad (1a)$$

$$+ \beta_3 X_{3i} + \beta_4 X_{1i} X_{3i} + \beta_5 X_{2i} X_{3i} \quad (1b)$$

where

- $\frac{\pi_i}{1-\pi_i}$ is the odds of a "Yes" response for participant i ;
- $\beta_0 \dots \beta_5$ are the regression coefficients to be fit during the estimation of the model;
- X_{1i} is a dummy variable that is 1 if participant i was presented with the environment flyer message, 0 otherwise;

- X_{2i} is a dummy variable that is 1 if participant i was presented with the cruelty flyer message, 0 otherwise;
- X_{3i} is a dummy variable that is 1 if participant i was under 25 years old, 0 if over 24 years of age.

For participants' intentions to change the consumption of five specific animal products, we fitted ordinal logistic regression models (also known as proportional odds linear regression), again with flyer message as a predictor variable (Equation (2a)). As before, we added a variable splitting participants into younger and older groups and its interaction with the flyer message to the model (Equation (2b)).

The full model can be described as

$$\ln\left(\frac{\pi_{1i} + \dots + \pi_{ji}}{\pi_{(j+1)i} + \dots + \pi_{5i}}\right) = \alpha_j + \beta_1 X_{1i} + \beta_2 X_{2i} \quad (2a)$$

$$+ \beta_3 X_{3i} + \beta_4 X_{1i} X_{3i} + \beta_5 X_{2i} X_{3i} \quad (2b)$$

where

- $\frac{\pi_{1i} + \dots + \pi_{ji}}{\pi_{(j+1)i} + \dots + \pi_{5i}}$ is the odds of a Likert scale response of j or lower, with $j = 1 \dots (5 - 1)$, for participant i ;
- α_j is the intercept for Likert scale item j
- $\beta_1 \dots \beta_5$ are the other regression coefficients to be fit during the estimation of the model;
- $X_{1i} \dots X_{3i}$ are identical to Equation (1).

Before computing the ordinal logistic regression model for a given animal product, we removed all participants who responded "I already do not eat [animal product]" to the particular question.⁶

Results for both the logistic and ordinal logistic regression models are presented in Supplementary Tables S11, S14, S16, S19, S22, S24 and S27. The tables list the model coefficients in exponentiated form (odds ratios) as well as their 95% confidence intervals (CIs) and p-values computed based on the Wald z-statistic. We adjusted the p-values for multiple testing by setting the false discovery rate (FDR) to 0.05 using the FDR procedure by Benjamini and Hochberg [11].

As the fitted models are nested within each other, we used the likelihood ratio test to select the best fitting model for each of the outcome variables. We first tested whether

⁶ The number of observations included in a given model is listed in the regression tables in the Supplementary Materials.

the model including flyer message as the only predictor (Equations (1a) and (2a)) fit the data significantly better than a model containing only the intercept term, but no predictor variables. If this test was significant at $p < 0.05$, we tested whether including coefficients for the age group and the interaction between age group and flyer message (Equations (1b) and (2b)) was a significant improvement over the model including flyer message as the only predictor. The results of the model comparisons are listed in Supplementary Tables S12, S15, S17, S20, S23, S25, and S28.

For cases in which including predictors in the model significantly improved model fit over the intercept-only model, we computed post-hoc pairwise comparisons for the selected model. More specifically, if the model including only a predictor for flyer message was selected (Equations (1a) and (2a)), pairwise comparisons between the three flyer messages were computed. If the model also including coefficients for the age group and the interaction between age group and flyer message was selected (Equations (1b) and (2b)), pairwise comparisons between the three flyer messages were computed within each of the two age groups. For logistic regression models, the pairwise comparisons are expressed as risk ratios comparing the probability of a “Yes” response between two flyer messages. For ordinal logistic regression models, the pairwise comparisons are expressed as risk ratios comparing the probability of an answer j or lower on a Likert scale with five items between two flyer messages. For both models, the tables listing the pairwise comparison results present risk ratios as well as 95% CIs and p-values computed based on the Wald z-statistic. All p-values and CIs were adjusted for multiple comparisons using Tukey’s method [12].

Results

In line with the results of the original report, we found that both the cruelty message and the environment message led to significantly more “Yes” responses than the purity message to the question asking participants whether they generally intended to change their animal product consumption (Supplementary Table S13). The model predicts that the probability of a “Yes” response is 1.87 (95%-CI = 1.41–2.47) times higher for the cruelty and 1.51 (95%-CI = 1.13–2.02) times higher for the environment message. In contrast with the original report, we cannot conclude that the cruelty message led to significantly more “Yes” responses than the environment message. Including the age

group and the interaction between the age group and the flyer message into the model did not lead to a significant increase in model fit (Supplementary Table S12). The differences between flyer messages thus appear to be similar between younger and older participants.

The analysis of participants’ interest in ordering a vegetarian recipe book also led to results comparable to the original study. As adding predictors to the model did not improve the model fit over the model containing only the intercept (Supplementary Table S15), participants’ responses seem to be independent of which flyer message was presented to them.

As we decided against translating participants’ intended future consumption of specific animal products into a measure of animal suffering due to the above-mentioned methodological issues, our reanalysis of these questions cannot be directly compared to the original analysis. Nevertheless, we found significant differences between the flyer messages for the intended consumption of beef and pork, poultry, and eggs.

For both beef and pork (Supplementary Table S18) and poultry products (Supplementary Table S21), the cruelty message performed significantly better than the purity message. The estimated probability of a respectively lower response on the Likert scale, representing a higher intended animal product consumption, was 24 percentage points lower (risk ratio = 0.76; 95%-CI = 0.61–0.94) for beef and pork products and 25 percentage points lower (risk ratio = 0.75; 95%-CI = 0.62–0.91) for poultry products. Neither of the two other flyer message comparisons resulted in significant differences.

For eggs, the model including predictors for the age group and the interaction between age group and flyer message was selected as the best fitting model. This was due to the cruelty message performing significantly better than the environment message (risk ratio = 0.79; 95%-CI = 0.63–1) in the group of younger participants (Supplementary Table S26; Supplementary Figure S1), while all other flyer message comparisons within the younger and within the older group of participants did not result in significant differences.

For participants’ intended consumption of fish (Supplementary Table S23) and dairy products (Supplementary Table S28), including predictor(s) into the model did not significantly improve model fit over the model with only intercept terms. Participants’ intended consumption of these two animal products thus appears to be independent

of the presented flyer message.

CONCLUSION

We reanalyzed data from Humane League Labs' blog post titled *Is animal cruelty or abolitionist messaging more effective?* and the accompanying report titled *Report: Is Animal Cruelty, Environmental or Purity ("Abolitionist") Messaging More Effective At Inspiring People To Change Their Diet?* We provide more robust inferences and CIs for the comparison of three animal advocacy messages on participants' self-reported intentions to change their animal product consumption. Our reanalysis supports the original report's conclusion that the flyer message focussing on animal cruelty is more effective than the purity message focussing on animal rights and moral consistency. In contrast to the original report, our reanalysis did not find significant differences between the message focussing on cruelty and the one focussing on the environmental impact of meat consumption. Results for the comparison of the environmental message with the animal rights messages were mixed. Overall, we recommend interpreting the findings of this study cautiously as there are several serious flaws in the study design.

CONFLICTS OF INTEREST

The Humane League Labs (THLL) performs scientific research to inform animal advocacy strategy. THLL is a program of, and currently fully funded through, The Humane League (THL), a 501(c)(3) nonprofit organization that "exists to end the abuse of animals raised for food." THLL is editorially independent from THL, and any other potential funders, in reporting research results. The design, execution, analysis, interpretation, and reporting of THLL research is performed entirely by THLL staff, without oversight by other THL staff or leadership. To further mitigate potential conflicts of interest, THLL demonstrates commitment to transparency by adhering to open science practices, including public preregistration of studies and analysis plans as well as publication of supporting data, computer code, and materials for all THLL research.

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