SUPPLEMENTAL ONLINE MATERIAL

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RESEARCH DESIGN PROCEDURE

Specifically, we measured levels of change in skin conductance level (SCL) among study subjects in response to various visual stimuli. As explained and documented in previous research, this physiological indicator allows us to gage levels of automatic threat responses in human subjects. Each participant also completed a written questionnaire assessing a variety of political attitudes and self-identifications. Participants for this study were students recruited from general education and upper-level political science courses at Centre College, a selective liberal arts institution in the central south region of the United States, during the spring of 2013. The procedure was approved by the Centre College IRB Board. In total, 69 subjects completed the data collection procedure. (In all our analyses we exclude the two non-U.S. citizens who participated from the analyses in order to maintain consistency with previous samples and studies described in the main article literature review.) Due to unforeseen technical errors, SCL data was collected from 64 of those students.

Data on changes in SCL were obtained using a procedure similar to previous studies (Oxley et al., 2008). Participants were tested in groups of 15-20 in a classroom equipped with individual computers at each station. Each participant was comfortably seated and connected via electrode leads to equipment used to measure psychophysiological responses (vendor: BIOPAC 150). To measure changes in SCL via perspiration, electrodes were placed on the fingertips of the participant's non-dominant hand. As discussed previously, increases from baseline levels of SCL are associated with higher levels of threat arousal. SCL is traditionally measured in Hertz (Hz).

Participants were then exposed to a series of visual stimuli in the form of pictures embedded in a timed PowerPoint presentation projected on an overhead display. Participants were exposed to six images designed to elicit threat response and three images designed to elicit a non-threat response. Similar to previous studies, the threat response images included a spider on a man's face, an open wound filled with maggots, a man's face with a machete wound, etc. The non-threatening images included a family enjoying a meal together, a mother and daughter with flowers, etc. (Specific images reproduced below.) These were evenly distributed throughout a number of other neutral images taken from stock image collections. Each image was displayed for a total of 15 seconds and immediately followed by a 10 second interval while the projector displayed a blank white screen.

The variable representing change in SCL was computed using the following procedure, similar to that used by previous research (cited above): 1) take the natural log of each mean SCL level during the 10-second interval period preceding each stimulus image as well as the natural log of each mean SCL level during the 15-second stimulus period (similar to previous studies), 2) subtract the pre-stimulus logged SCL level from the stimulus logged SCL level to produce an SCL change measure, 3) take the mean of the 6 threat response change in SCL measures and 3

non-threatening response change in SCL measures to produce a single SCL threat response measure and a single SCL non-threat response measure.

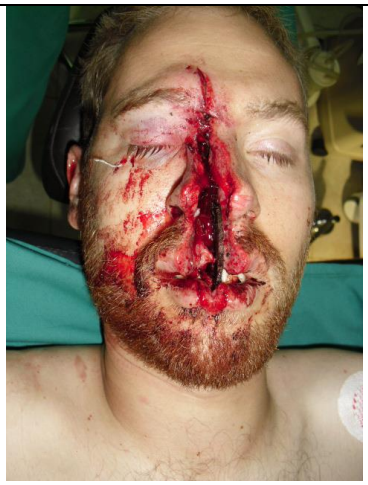
SCL change, threatening images
Mean: 0.00163
St. Dev.: 0.02187
Range: 0.19158

SCL change, nonthreatening images
Mean: -0.00013
St. Dev.: 0.00408
Range: 0.02873

SCL change, disgusting images
Mean: 0.00273
St. Dev.: 0.03251
Range: 0.29476

Political attitudes. Respondents were also given a paper questionnaire designed to measure a number of political and social attitudes and orientations. This survey included self-report measures of partisanship and ideology, views toward the Democratic and Republican parties, self-report personality traits, political policy preferences, child-rearing authoritarianism, and standard demographics including gender, family income, race/ethnicity, religious behavior/orthodoxy. (Complete question wording for policy preferences and authoritarianism measures can be found below.) Due to the fact that each subject was an enrolled college student, no questions were asked regarding age or level of education, as there would be no meaningful variation on these control variables. In all, our sample included 36 self-identified Democrats or Democratic leaners, 4 pure Independents, and 25 Republicans or Republican leaners. (This distribution is not too dissimilar, proportionally-speaking, from the national distribution of responses from U.S. adults in recent surveys: http://electionstudies.org/nesguide/toptable/tab2a_1.htm.)

Threatening images:



Non-threatening images:

Oxley, et al. 2008 Reproduction: Details and Variable Constructions

Specifically, Oxley, et al. (2008) found that:

1. There is a statistically significant difference ($t=1.98$; $p=0.05$) in SCL change levels in response to threatening visual stimuli between those who have high levels of support for "protective policies" and those who have low levels of support. Those who have high levels of support for protective policies also have higher levels of SCL change.
2. There is no corresponding statistically significant difference in SCL change levels in response to non-threatening visual stimuli ($t=0.284$; $p=0.77$).
3. When included in an OLS model with income, education, age, and gender, SCL change levels in response to threatening images are a significant predictor of support for socially protective policies ($p<0.05$).
4. When included in an OLS model with income, education, age, and gender, SCL change levels in response to non-threatening images failed to achieve statistical significance ($p<0.05$).

For their dependent variable, Oxley, et al. (2008) created an "additive index of 18 issues based on a standard Wilson-Patterson battery." This additive index measured whether or not respondents indicated support or opposition to items such as "school prayer," "pacifism," "pornography," "war," "marriage," "Patriot Act," "death penalty," etc. with higher values corresponding to agreement with more "protective" societal policies. The additive index was then split the scale at its median, resulting in a binomial variable with values indicated either high or low support for "protective policies." (See Supporting Online Materials for Oxley et al. (2008), pages 5-9 for a detailed discussion.)

We attempted to create an equivalent measure that approximates Oxley et al. (2008)'s protective policy scale as closely as possible. It is based on five public policy questions that are routinely employed in the Pew Values Survey (see Kohut et al., 2012). For our purposes, we asked respondents whether they strongly agree, somewhat agree, somewhat disagree, or strongly disagree with each of the five statements, including "gays and lesbians should be allowed to marry legally," "the growing number of newcomers from other countries threaten traditional American customs and values," and "abortion should be illegal in all or most cases." We then coded responses to each question so that higher values correspond to socially conservative policy preferences. (The supplemental reporting material for Oxley et al.'s coding scheme makes it clear that they defined "protective" policies as specifically "socially protective policy positions," which did not include economic policy positions.) Following Oxley, et al. (2008), we then created an additive scale combining responses to each of the five questions and then split the scale in half at the median point to create a binomial variable that indicates whether the respondent is has "high" or "low" levels of support for protective (socially conservative) political policies.

We note that Oxley, et al. (2008) also measured blink aptitude responses to startling noises. Our procedure measured SCL change levels but not blink amplitude responses, thus only the findings related to SCL change levels will be reproduced.

We also note that Oxley, et al. (2008) use individual income, education, age, and gender as control variables. Given that our sample consists exclusively of undergraduate students of the same approximate level of education and age, we exclude these variables from the models. We also substitute family income for individual income as students are not working full-time.

Smith, et al. 2011 Reproduction: Details and Variable Constructions

Specifically, Smith, et al. (2011) report:

1. Change in SCL in response to disgusting images is a statistically significant predictor of self-reported political ideology in an OLS model, controlling for age, education, and gender. (Table 1; page 4.)
2. Change in SCL in response to disgusting images is a statistically significant predictor of attitudes toward gay marriage in an OLS model, controlling for age, education, and gender. (Table 1; page 4.)
3. SCL increases in response to disgusting images. (Figure 2; page 6.)

Here, we approximate Smith, et al. (2011)'s SCL measure because our stimuli included four images that correspond to Smith, et al. (2011)'s disgusting images, specifically two images of maggots in open wounds, an image of an emaciated face, and an image of a bloody face (see images reproduced above). We constructed an SCL measure consisting of the average change in SCL levels from the pre-stimuli to the stimuli periods to these specific four images, following the procedure discussed in the data and methods section. Our study also measured respondents' self-report ideology (7-point ordinal variable) and attitudes toward gay marriage ("Gays and lesbians should be allowed to marry legally," completely/mostly agree; completely/mostly disagree.)

Smith et al. (2011) include age and education as additional control variables. Given our subject population of college students, however, we do not include these variables given the lack of substantive variation on these indicators (see previous discussion of Oxley, et al. 2008 reproduction).

Dodd, et al. 2012 Reproduction: Details and Variable Constructions

Specifically, Dodd, et al. (2011) report:

1. In an MANOVA analysis, there is a statistically significant difference in SCL change to threatening ("aversive") and non-threatening ("appetitive") images between those on the left and right sides of the political orientation scale ($F=5.60$; $p<0.05$). (Figure 1; page 643.)
2. In an OLS analysis, SCL changes in response to threatening ("aversive") images significantly predicts levels on the political orientation scale, controlling for age, gender, income, and education. (Table 1; page 643.)

We are able to create an approximation of the same "political orientation" scale using similar (although not identical) questions asked to our particular sample. Following Dodd, et al. (2012), we also combine partisanship (7-point ordinal variable), ideology (7-point ordinal variable), political policy preferences (the additive scale described previously for the Oxley, et al. 2008 reproduction, but including all 12 policy questions found below), and authoritarianism (4-point additive scale based on answers to child-rearing preferences from the ANES survey, see below for full question wording). Similar to Dodd, et al. (2012), these four variables are strongly related, with bivariate correlations ranging from 0.482 to 0.910 ($p<0.05$) and a factor analysis confirmed that each of these variables loads on a single factor, explaining 79.8% of the variance and with factor loadings of 0.716 or higher (0.716 for authoritarianism, 0.926 for partisanship, 0.960 for ideology, and 0.948 for policy preferences). Each of these four variables was recoded on a 0-1 scale and then added together and again recoded to a final 0-1 scale (mean 0.406, median 0.340, SD=0.250, N=62).

For the t-test, we define "left"-ward political orientations as being below the median on the scale (0.34) and "right"-ward as being above the median. Results remain substantively unchanged when substituting the mean (0.41) for the median.

As with the reproductions of the previous two studies, we omit age and education from the multivariate analysis due to the nature of our student sample with little meaningful variation in either age or education levels.

Question wording based on surveys regularly conducted by the Pew Values Survey (Kohut et al., 2012). *Respondents were asked to indicate whether they completely agree, mostly agree, mostly disagree, or completely disagree with each of the following twelve statements.*

- There need to be stricter laws and regulations to protect the environment.
- The government should help more needy people even if it means going deeper in debt.
- The growing number of newcomers from other countries threaten traditional American customs and values.

- I never doubt the existence of God.
- Business corporations make too much profit.
- Gays and lesbians should be allowed to marry legally.
- The government needs to do more to make health care affordable and accessible.
- One parent can bring up a child as well as two parents together.
- Government regulation of business usually does more harm than good.
- Abortion should be illegal in all or most cases.
- Labor unions are necessary to protect the working person.
- Poor people have become too dependent on government assistance programs.

Authoritarianism scale questions based on child-rearing preferences from the ANES survey. *This is the same scale used to operationalize authoritarianism as found in Hetherington and Weiler* (2009).

Although there are a number of qualities that people feel that children should have, every person thinks that some are more important than others. We are going to show you pairs of desirable qualities.

- Please tell us which one you think is more important for a child to have: independence or respect for elders?
- Which one you think is more important for a child to have: obedience or self reliance?
- Which one you think is more important for a child to have: curiosity or good manners?
- Which one you think is more important for a child to have: being considerate or well behaved?

TABLE 1: SUMMARY OF LITERATURE ON SCL AND POLITICAL BEHAVIOR

Study	Topic	Sample Description
Oxley, et al. (2008)	SCL threat response, blink response, and political attitudes	48 individuals recruited in the Lincoln, Nebraska area May 2007; pre-screened for strong political opinions (Oxley, et al. 2008, SOM)
Smith, et al. (2011)	SCL disgust response, political orientations, and gay marriage attitudes	51 individuals recruited in the Lincoln, Nebraska area May 2007, participated in lab summer 2008; separate from those analyzed in Oxley, et al. (2008) study (Smith, et al. 2011, 2-3).
Balzer and Jacobs (2011)	SCL disgust response, gender, and gay marriage attitudes	Same subjects analyzed by Smith, et al. (2011) as described above. (Balzer and Jacobs 2011, 1304).
Dodd, et al. (2012)	SCL threat response, attentional responses, and political attitudes	Same subjects analyzed by Oxley, et al. (2008) as described above. (Dodd, et al. 2012, 641-642).
Gruszczynski, et al. (2013)	SCL threat response and political participation	Subset of 37 individuals culled from the 48 analyzed by Oxley, et al. (2008) combined with the 51 individuals analyzed in Smith, et al. (2011), a total of 88 individuals (Gruszczynski, et al. 2013, 142-143).
Renshon, et al. (2014)	Emotion, SCL anxiety response, and immigration attitudes	138 men from the Cambridge, Massachusetts area, average age ±1 SD 18.2 – 27.4 (Renshon, et al. 2014, 4).
Wagner, et al. (2014)	SCL Obama response and intensity of Obama and health care attitudes	343 people recruited from a "mid-size Midwestern city" summer 2010 (Wagner, et al. 2014, 5).

TABLE 2: SUMMARY OF STUDY REPRODUCTIONS

Publication	Original finding	Successful reproduction?
Oxley, et al. (2008)	SCL levels increase in response to threatening images but not non-threatening images.	YES
Oxley, et al. (2008)	Higher threatening SCL change predicts high support for "protective" political policies; t-test	NO
Oxley, et al. (2008)	No relationship between non-threatening SCL change and support for "protective" policies; t-test	YES
Oxley, et al. (2008)	Threating SCL change predicts high support for "protective" policies; OLS with demographic controls	NO
Oxley, et al. (2008)	Non-threating SCL change does NOT predict "protective" policies; OLS with demographic controls	YES
Smith, et al. (2011)	Higher disgusting SCL change predicts self-report ideology; OLS with demographic controls	NO
Smith, et al. (2011)	Higher disgusting SCL change predicts gay marriage attitudes; OLS with demographic controls	NO
Smith, et al. (2011)	SCL increases in response to disgusting images	YES
Dodd, et al. (2012)	Higher aversive SCL change predicts right-ward political orientation scale; MANOVA	NO
Dodd, et al. (2012)	Higher aversive SCL change predicts right-ward political orientation scale; OLS with demographic controls	NO

DISCUSSION AND CONCLUSION SECTION: DISCUSSION OF ALTERANTIVE EXPLANATION, REFERENCED IN FOOTNOTE 3

An alternative explanation for the divergence of these results with those in previous research is that the respondents for the original Oxley, et al. (2008) data collection were those specifically identified as having "strong political attitudes (regardless of the content of those attitudes)" (1667, see also page 2 of Supplementary Online Material for details on the screening process) while our subjects were recruited from college classes without pre-screening for strength of political attitudes. This might suggest an interactive relationship: physiology predicts political attitudes among those with high levels of political interest or partisan convictions but not among those with more moderate or varying levels of political interest/convictions.

We argue, however, that even though we did not pre-screen for those with strong political attitudes, our sample had higher-than-average levels of political interest and commitment. We asked respondents in the survey if there was an issue that they "feel strongly about." 89% of our sample reported "yes." We also asked, on a 0-10 scale, how strongly they felt about that issue and received an average response of 8.22 (SD=1.568). We also point out that more than half of our sample (57%) was composed of upper-level political science majors, who arguably have an above-average interest in political matters.

Based on this evidence, we argue that our sample is likely comparable in political interest to the sample analyzed by Oxley, et al. (2008), and others and thus we also are dubious as to whether this is a likely explanation for our failure to reproduce their findings.

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