**Scales**

**Prejudice**

-How cold to warm do you feel about [ingroup]?

-How cold to warm do you feel about [outgroup]?

-How negative to positive do you feel about [ingroup]?

-How negative to positive do you feel about [outgroup]?

-How much do you like [ingroup]?

-How much do you like [outgroup]?

Response Scale: 1-Not at all, 2, 3, 4-Somewhat, 5, 6, 7-Very much

**Belief in a Just World**

-I am confident that justice always prevails over injustice

-I think basically the world is a just place

-I am convinced that, in the long run, people will be compensated for injustices

-I firmly believe that injustices in all areas of life (e.g., professional, family, politics) are the exception rather than the rule.

-I believe that, by and large, people get what they deserve

-I think that people try to be fair when making important decisions

Response Scale: 1-Strongly disagree, 2-Disagree, 3-Slightly disagree, 4-Neutral, 5-Slightly agree, 6-Agree, 7-Strongly agree

**Big Five Agreeableness**

-I see myself as someone who is generally trusting

-I see myself as someone who tends to find fault with others (Reversed)

Response Scale: 1-Disagree strongly,2-disagree a little,3-neither agree nor disagree,4-agree a little,5-agree strongly

**Big Five Openness**

-I see myself as someone who has an active imagination

-I see myself as someone who has few artistic interests (Openness, Reversed)

Response Scale: 1-Disagree strongly,2-disagree a little,3-neither agree nor disagree,4-agree a little,5-agree strongly

**Contact**

*Quantity*

-How often do you interact with [outgroup]?

Response Scale: 1-Never, 2-Less than once a year, 3-Yearly, 4-A few times in a year, 5-Monthly, 6-Weekly, 7-Daily

-How many [outgroup] do you know, at least as acquaintances?

Response Scale: Zero,1,2,3,4,5,6,7,8,9,10 or more

*Positive*

-When you interact with [outgroup], the contact is friendly

-When you interact with [outgroup], you cooperate well with each other

-When you interact with [outgroup], you interact as equals

Response Scale: 1-Strongly disagree, 2,3,4,5,6,7-Strongly agree

*Absence of negative contact*

-When you interact with [outgroup], the contact is negative (Reversed)

-When you interact with [outgroup], the contact is unpleasant (Reversed)

Response Scale: 1-Strongly disagree, 2,3,4,5,6,7-Strongly agree

*Number of outgroup friends*

-How many of your friends are [outgroup]?

Response Scale: 1-None of my friends, 2, 3, 4, 5, 6, 7-All of my friends

*Frequency of meeting outgroup friends*

-How often do you meet your [outgroup] friends?

Response Scale: 1-Never, 2, 3, 4, 5, 6, 7-Daily

**Controllability**

-How much control do you think [outgroup] has over being [outgroup]?

Response Scale: 1-No control, 2,3, 4, 5, 6, 7-Full control

**Entitativity**

-To what extent do [outgroup] interact with each other?

-To what extent can behaviors of [outgroup] be controlled or influenced by other [outgroup] members?

-To what extent do [outgroup] have formal and informal rules?

-To what extent do [outgroup] have strong interpersonal bonds among the people in the group?

-To what extent do [outgroup] share knowledge and information?

Response Scale: 1-Not at all, 2,3,4,5,6,7,8,9-Very much

**Generalized Threat**

-In general, I feel that [outgroup] pose a challenge to people like me

-In general, I feel that [outgroup] pose problems for people like me

Response Scale: 1-Strongly disagree,2,3,4,5,6,7,8,9-Strongly agree

**Identification**

*Self-Investment- Solidarity*

-I feel a bond with [In-group].

-I feel solidarity with [In-group].

-I feel committed to [In-group].

*Self-Investment- Satisfaction*

-I am glad to be [In-group].

-I think that [In-group] have a lot to be proud of.

-It is pleasant to be [In-group].

-Being [In-group] gives me a good feeling.

*Self-Investment- Centrality*

-I often think about the fact that I am [In-group].

-The fact that I am [In-group] is an important part of my identity.

-Being [In-group] is an important part of how I see myself.

*Self-Definition- Individual Self-Stereotyping*

-I have a lot in common with the average [In-group] person.

-I am similar to the average [In-group] person.

*Self-Definition- Ingroup Homogeneity*

-[In-group] people have a lot in common with each other.

-[In-group] people are very similar to each other.

Response Scale: 1-Strongly disagree,2,3,4,5,6,7-Strongly agree

**Loneliness**

-How often do you feel that you lack companionship

-How often do you feel left out?

-How often do you feel isolated from others?

Response Scale: Often, Some of the time, Hardly ever

**Need for Cognition**

-I would prefer complex to simple problems.

-I like to have the responsibility of handling a situation that requires a lot of thinking

-Thinking is not my idea of fun. (Reversed)

-I would rather do something that requires little thought than something that is sure

to challenge my thinking abilities. (Reversed)

-I really enjoy a task that involves coming up with new solutions to problems.

-I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

Response Scale: Very strong disagreement, strong disagreement, moderate disagreement, slight disagreement, Neither agreement nor disagreement, Slight agreement, Moderate agreement, Strong agreement, Very strong agreement

**Protestant Work Ethic**

-Most people spend too much time in unprofitable amusements

-Our society would have fewer problems if people had less leisure time

-Money acquired easily is usually spent unwisely

-Most people who don't succeed in life are just plain lazy

-Anyone who is willing and able to work hard has a good chance of succeeding

-People who fail at a job have usually not tried hard enough

-Life would have very little meaning if we never had to suffer

-The person who can approach an unpleasant task with enthusiasm is the perosn who gets ahead

-If people work hard enough they are likely to make a good life for themselves

-I feel uneasy when there is little work for me to do

-A distaste for hard work usually reflects a weakness of character

Response Scale: -3 I disagree strongly, -2, -1, 1, 2, +3 I agree strongly

**Racial Position**

*Inferiority*

-To what extent are [outgroup] seen as inferior or superior in U.S. society?

Response Scale: 1- Very inferior, 2, 3, 4, 5, 6, 7-Very superior

*Foreignness*

-To what extent are [outgroup] seen as foreign or American in U.S. society?

Response Scale: 1- Very foreign, 2, 3, 4, 5, 6, 7-Very American

**Right Wing Authoritarianism**

*Conservatism or Authoritarian Submission*

-It’s great that many young people today are prepared to defy authority (Reversed)

-What our country needs most is discipline, with everyone following our leaders in unity

*Traditionalism or Conventionalism*

-God’s laws about abortion, pornography, and marriage must be strictly followed before it is too late.

-There is nothing wrong with premarital sexual intercourse. (Reversed)

*Authoritarianism or Authoritarian Aggression*

-Our society does NOT need tougher government and stricter laws. (Reversed)

-The facts on crime and the recent public disorders show we have to crack down harder on troublemakers, if we are going preserve law and order.

Response Scale: Very strongly disagree, strongly disagree, somewhat disagree, slightly disagree, unsure or neutral, slightly agree, somewhat agree, strongly agree, Very strongly agree

**Religiosity**

-How often do you think about religious issues?

-How often do you experience situations in which you have the feeling that God or something divine allows for an intervention in your life?

Response Scale: Never, Rarely, Occasionally, Often, Very Often

-To what extent do you believe that God or something divine exists?

Response Scale: Not at all, Not very much, Moderately, Quite a bit, Very much so

-How often do you take part in religious services?

Response Scale: Never, Less often, A few times a year, one or three times a month, once a week, more than once a week

-How often do you pray?

Response Scale: Never, Less often, A few times a year, one or three times a month, once a week, more than once a week, Once a day, Several times a day

**Values Threat**

-In general, I feel that [outgroup] promote values that directly oppose the values of people like me

-In general, I feel that [outgroup] advocate values that are morally inferior to the values of people like me

Response Scale: 1-strongly disagree,2,3,4,5,6,7,8,9-strongly agree

**Social Dominance Orientation**

*Protrait Dominance*

-How much do you favor or oppose this idea? An ideal society requires some groups to be on top and others to be on the bottom

-How much do you favor or oppose this idea? Some groups of people are simply inferior to other groups.

*Contrait Dominance*

-How much do you favor or oppose this idea? No one group should dominate in society

-How much do you favor or oppose this idea? Groups at the bottom are just as deserving as groups at the top

*Protrait anti-egalitarianism*

-How much do you favor or oppose this idea? Group equality should not be our primary goal

-How much do you favor or oppose this idea? It is unjust to try to make groups equal

*Contrait anti-egalitarianism*

-How much do you favor or oppose this idea? We should do what we can to equalize conditions for different groups

-How much do you favor or oppose this idea? We should work to give all groups and equal chance to succeed

Response Scale: 1-Strongly oppose, 2-Somewhat oppose, 3-Slightly oppose, 4-Neutral, 5-Slightly favor, 6-Somewhat favor, 7-Strongly favor

**Symbolic Threat**

-American norms and family values are being threatened because of the presence of [outgroup].

-[Outgroup] are a threat to the American culture.

-America’s cultural life is generally enriched by [outgroup]. (Reversed)

-I am worried that our rights and freedoms are threatened by the presence of [outgroup].

Response Scale: 1-Strongly disagree, 2,3, 4, 5, 6, 7-Strongly agree

**System Justification**

-In general, you find society to be fair.

-In general, the American political system operates as it should.

-American society needs to be radically restructured. (Reverse)

-The United States is the best country in the world to live in.

-Most policies serve the greater good.

-Everyone has a fair shot at wealth and happiness.

-Our society is getting worse every year. (Reverse)

-Society is set up so that people usually get what they deserve

Response Scale: 1- I completely disagree, 2-I strongly disagree, 3-I moderately disagree, 4-I do not disagree, nor agree, 5-I moderately agree, 6-I strongly agree, 7-I completely agree

**Unpredictability**

-The behavior of [outgroup] is unpredictable

-[Outgroup] often do unexpected things

-In general, you cannot predict how [outgroup] will behave

Response Scale: -4- Very strongly disagree, -3, -2, -1, 0, 1, 2, 3, 4 -Very strongly agree

**Model Fit Statistics, Studies 1 – 3**

Model fit statistics for the multi-item constructs used for analysis in Studies 1-3. For scales with only two items, a Pearson’s *r* is instead reported.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Construct** | **Prejudice** | **CFI** | **RMSEA** | **SRMR** | **Pearson's *r*** |
| Bias | Black | 1.000 | 0.000 | 0.000 |  |
|  | Gay | 1.000 | 0.000 | 0.000 |  |
|  | Extremely Wealthy | 1.000 | 0.000 | 0.000 |  |
| Outgroup Attitudes | Black | 1.000 | 0.000 | 0.000 |  |
|  | Gay | 1.000 | 0.000 | 0.000 |  |
|  | Extremely Wealthy | 1.000 | 0.000 | 0.000 |  |
| Symbolic Threat | Black | 1.000 | 0.000 | 0.007 |  |
|  | Gay | 1.000 | 0.019 | 0.009 |  |
|  | Extremely Wealthy | 0.994 | 0.063 | 0.021 |  |
| Need For Cognition | Black | 0.987 | 0.072 | 0.019 |  |
|  | Gay | 0.989 | 0.069 | 0.017 |  |
|  | Extremely Wealthy | 0.989 | 0.065 | 0.019 |  |
| Protestant Work Ethic | Black | 0.839 | 0.102 | 0.068 |  |
|  | Gay | 0.806 | 0.125 | 0.079 |  |
|  | Extremely Wealthy | 0.851 | 0.110 | 0.068 |  |
| Unpredictability | Black | 1.000 | 0.000 | 0.000 |  |
|  | Gay | 1.000 | 0.000 | 0.000 |  |
|  | Extremely Wealthy | 1.000 | 0.000 | 0.000 |  |
| Loneliness | Black | 1.000 | 0.000 | 0.000 |  |
|  | Gay | 1.000 | 0.000 | 0.000 |  |
|  | Extremely Wealthy | 1.000 | 0.000 | 0.000 |  |
| Religiosity | Black | 0.976 | 0.110 | 0.028 |  |
|  | Gay | 0.950 | 0.177 | 0.037 |  |
|  | Extremely Wealthy | 0.979 | 0.115 | 0.026 |  |
| Social Dominance Orientation | Black | 0.954 | 0.093 | 0.039 |  |
|  | Gay | 0.959 | 0.108 | 0.037 |  |
|  | Extremely Wealthy | 0.976 | 0.074 | 0.029 |  |
| System Justification | Black | 0.918 | 0.103 | 0.066 |  |
|  | Gay | 0.887 | 0.129 | 0.071 |  |
|  | Extremely Wealthy | 0.865 | 0.129 | 0.076 |  |
| Identification | Black | 0.964 | 0.062 | 0.038 |  |
|  | Gay | 0.936 | 0.086 | 0.051 |  |
|  | Extremely Wealthy | 0.950 | 0.071 | 0.063 |  |
| Contact | Black | 1.000 | 0.000 | 0.018 |  |
|  | Gay | 0.989 | 0.052 | 0.023 |  |
|  | Extremely Wealthy | 0.984 | 0.065 | 0.030 |  |
| Belief in a Just World | Black | 0.994 | 0.034 | 0.027 |  |
|  | Gay | 0.960 | 0.096 | 0.033 |  |
|  | Extremely Wealthy | 0.963 | 0.090 | 0.036 |  |
| Entitativity | Black | 0.984 | 0.036 | 0.034 |  |
|  | Gay | 0.902 | 0.090 | 0.061 |  |
|  | Extremely Wealthy | 0.989 | 0.032 | 0.029 |  |
| Right Wing Authoritarianism | Black | 0.923 | 0.148 | 0.073 |  |
|  | Gay | 0.880 | 0.192 | 0.077 |  |
|  | Extremely Wealthy | 0.925 | 0.151 | 0.067 |  |
| Agreeable | Black |  |  |  | 0.320 |
|  | Gay |  |  |  | 0.350 |
|  | Extremely Wealthy |  |  |  | 0.470 |
| Openness | Black |  |  |  | 0.440 |
|  | Gay |  |  |  | 0.510 |
|  | Extremely Wealthy |  |  |  | 0.380 |
| Values Threat | Black |  |  |  | 0.720 |
|  | Gay |  |  |  | 0.870 |
|  | Extremely Wealthy |  |  |  | 0.700 |
| Generalized Threat | Black |  |  |  | 0.760 |
|  | Gay |  |  |  | 0.740 |
|  | Extremely Wealthy |  |  |  | 0.750 |

*Note.* CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square Residual

**Bayes Factor Tables**

Phase III tested coefficients from the predictive models in two sets of out-of-sample data. Estimating Bayes factors was adopted as a framework to estimate just how far off the predictions were from the coefficients observed, using the R packages brms (Bürkner, 2017) and bayestestR (Makowski et al., 2019). This approach assigns a score (i.e., Bayes factor) to each parameter, which represents a likelihood ratio of the marginal likelihood of two competing hypotheses (Ly et al., 2016). Here the hypothesis being tested was whether the estimates of the parameters in our new data were meaningfully different than the parameter values of the predictive models. Essentially, the larger the value of a Bayes factor, the more evidence that the alternative model is supported by the data than the null model (i.e., our predictive models). For reference, a value of 1 essentially meaning there is no evidence against the null, 3-10 is considered moderate evidence, and greater than 30 very strong evidence against the null (Andraszewicz et al., 2015). Results for the four models are presented below (Table S1).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Bias, Black** |  |  |  |  | **Outgroup Attitudes, Black** |  |  |  |
| Parameter | Predicted | Observed | Bayes Factor | | Parameter | Predicted | Observed | Bayes Factor |
|  |  |  |  |  |  |  |  |  |
| Contact: Number of Friends | -0.11 | -0.19 | 27 |  | Contact: Number of Friends | -0.11 | -0.14 | 1 |
| Contact: Quality | -0.19 | -0.29 | 19 |  | Contact: Quality | -0.44 | -0.69 | 3180000000 |
| Generalized Threat | 0.10 | 0.09 | 3 |  | Generalized Threat | 0.22 | 0.18 | 4 |
| Self-Investment | 0.64 | 0.45 | 551000000 |  | Big 5: Agreeable | -0.13 | -0.35 | 54 |
| Values Threat | 0.04 | 0.04 | 1 |  |  |  |  |  |
| Symbolic Threat | 0.16 | 0.28 | 15 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Bias, Gay** |  |  |  |  | **Outgroup Attitudes, Gay** |  |  |  |
| Parameter | Predicted | Observed | Bayes Factor | | Parameter | Predicted | Observed | Bayes Factor |
|  |  |  |  |  |  |  |  |  |
| Contact: Number of Friends | -0.11 | -0.16 | 1 |  | Contact: Number of Friends | -0.11 | -0.13 | 1 |
| Contact: Quality | -0.19 | -0.04 | 8 |  | Contact: Quality | -0.44 | -0.47 | 9330 |
| Generalized Threat | 0.10 | 0.17 | 22 |  | Generalized Threat | 0.22 | 0.39 | 10500000 |
| Self-Investment | 0.64 | 0.36 | 25700 |  | Big 5: Agreeable | -0.13 | -0.24 | 2 |
| Values Threat | 0.04 | 0.07 | 1 |  |  |  |  |  |
| Symbolic Threat | 0.16 | 0.16 | 2 |  |  |  |  |  |

Several large Bayes factors emerged, indicating the estimates from the predictive models did not match the values observed. For example, the largest was for Contact: Quality in the Outgroup Attitudes model relative to Black people. The predicted estimate was smaller than that observed by .25. The opposite was true in the case of the Bias model relative to Black people, in which the predicted estimate of Self-Investment exceeded that observed by .19. Yet is the majority of cases, Bayes factors indicated that our predicted estimates had limited evidence to reject the null, or when the evidence was more substantial, comparison of point estimates revealed minor deviation (e.g., Contact: Quality in the Outgroup Attitudes model relative to gay people with a Bayes Factor of 9330 yet deviating from the prediction by .03).

**Fixed coefficients.** A related but distinct approach focusing on overall variance explained was also explored. In this approach we fixed the coefficients of the predictive models (derived from Phases I and II) and examined overall variance explained in the new, out-of-sample data. The model-predicted estimates correlated highly with the observed data, explaining a substantial portion of variance in both the Black (Bias *r* = .75, *R2* = .56, Outgroup Attitudes *r* = .70, *R2* = .49) and Gay dataset (Bias *r* = .66, *R2* = .44, Outgroup Attitudes *r* = .73, *R2* = .53).

Overall, we concluded that our models did generalize beyond the training set, but that the models could be further improved with additional data to adjust some of the larger predictions that were likely too extreme.

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