

Title: Additional methodological information appendix for “Attitudes towards COVID-19 vaccines may have ‘spilled over’ to other, unrelated vaccines along party lines in the United States”

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Note: The material contained herein is supplementary to the article named in the title and published in the Harvard Kennedy School (HKS) Misinformation Review.

Appendix: Additional methodological information

The pre- and post-pandemic samples were demographically similar, though both deviated from the general U.S. population in some ways (see Table A1). The two samples were close in age. While this difference was statistically significant (Welch’s $t[401] = 3.59, p < .001$), it amounted to a mere four-year age difference. Both samples were comparable to the general population in terms of age. Men were slightly overrepresented in the pre-pandemic sample relative to the post-pandemic one, while women were slightly overrepresented in the post-pandemic sample relative to the pre-pandemic sample, according to a chi-square test of independence, $\chi^2(1) = 5.26, p = .022$. Notably, both samples stayed close to a 50-50 split between men and women. White and non-White participants were neither under- nor overrepresented relative to each other in the pre- and post-pandemic surveys, according to the chi-square test of independence, $\chi^2(1) = 1.40, p = .237$. However, there were some differences in educational attainment between the pre- and post-pandemic surveys, according to the chi-square test of independence, $\chi^2(2) = 6.21, p = .045$. Both samples also fell well short of representing the approximately 62.20% of Americans aged 25 and above with no college degree and both samples overrepresented those with college degrees, post-graduate degree work, or post-graduate degrees. In summary, while the two convenience samples were largely similar to each other, they diverged from the general population by tending to have higher educational attainment.

Table A1. Demographic variables for the pre- and post-pandemic surveys, with standard deviations for age and percentages for all other variables in parentheses and U.S. Census data (education data for those 25 or above) for comparison.

Demographic variable	Pre-pandemic	Post-pandemic	U.S. Census
Age	34.96 (9.85)	39.18 (14.01)	38.8
Sex			
Male	92 (56.10%)	106 (43.98%)	49.5
Female	72 (43.90%)	135 (56.02%)	50.5
Ethnicity			
White	127 (76.97%)	173 (87.82%)	75.8
Non-White	38 (23.03%)	70 (35.53%)	24.2
Education			
No bachelor’s degree	64 (39.02%)	66 (27.27%)	62.2+
Bachelor’s degree	70 (42.68%)	124 (51.24%)	23.5+
Post-graduate work	30 (18.29%)	52 (21.49%)	14.4+

Note: + indicates percentages of people age 25 or older.

The vaccine attitude questionnaire was derived from a variety of sources (e.g., Jolley & Douglas, 2014; LaCour & Davis, 2020). We added semantic differential items anchored with contrasting adjectives (e.g., beneficial/harmful, wise/foolish). We planned on conducting factor analyses to determine whether the updated attitude questionnaire reflects distinct latent variables (e.g., perceived probability of adverse side

effects versus conspiracy beliefs about vaccine development). Our plan was to estimate factor scores reflecting these separate latent variables if the empirical factor structure results justified doing so. However, all but one of the items in the updated questionnaire loaded cleanly on a single latent variable. Thus, while the questions might prima facie reflect possibly different facets of vaccine attitudes, the empirical results suggest that they largely reflect the same underlying construct.

The questionnaires about vaccine attitudes used in the pre-pandemic survey repeated the same 14 questions for six different vaccines, all shown in a fixed order. To make the post-pandemic survey shorter and compensate for the fact that we were adding questions about the COVID-19 vaccines, we eliminated two of the pre-pandemic vaccine categories (Hepatitis B and DTAP). We chose to eliminate these vaccine categories because there was already a well-known childhood vaccine in the survey (MMR) and having extra ones seemed unnecessary. The remaining vaccines were diverse in terms of their recommended schedule and the public's familiarity with them. We shortened the number of attitude questions for each vaccine from 14 to 8, mostly by removing redundant items. For instance, we decided that "I worry about the short-term side effects of the chickenpox vaccine" and "I worry that the chickenpox vaccine might negatively affect people who take it" were similar enough to warrant keeping one and removing the other. These questions were presented to each participant with "chickenpox," "MMR," "HPV," and "influenza" substituted for the bold words in Table 1.