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[Mark Skidmore](#)^{*} and [Fernanda Alfaro](#)

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Article

COVID-19 Vaccination Experiences in Social Circles Influence Preferences for COVID-19 Vaccine Mandates: An Online Survey of the United States Population

Mark Skidmore ¹ and Fernanda Alfaro ^{2*}

¹ Michigan State University; mskidmor@msu.edu

² Michigan State University; alfarog3@msu.edu

* Correspondence: mskidmor@msu.edu; Tel.: +1-517-353-9172

Abstract: In response to the COVID-19 crisis, decisionmakers in countries around the world adopted policies such as lockdowns, mask requirements, and once vaccines became available, vaccine mandates and vaccine passports. However, political polarization and differences in risk perceptions in the populous generated strong support for and opposition to such measures. This research identifies the factors with support for and against vaccine mandates and vaccine passports. An online survey of COVID-19 health experiences in the United States population was conducted. The survey collected information regarding potential reasons for why respondents might favor or oppose COVID-19 vaccine mandates and vaccine passports, including experiences with COVID-19 illness and COVID-19 vaccinations by respondents and those in their social circles. Analysis using a Logit regression technique was conducted to identify factors influencing the likelihood of opposing vaccine mandates and vaccine passports. The survey was completed by 2,840 participants between December 18 and 23, 2021. Respondents who knew someone who experienced a health problem following vaccination were more likely to oppose vaccine mandates (OR: 2.040, 95% CI: 1.635-2.254, and vaccine passports (OR: 1.691, 95% CI: 1.361-12.101)) Twenty-two percent (612 of 2,840) of respondents reported that they knew at least one person who had experienced a health problem following COVID-19 inoculation. Perceptions of vaccine safety based on personal experiences appear to be an important determinant of opposition to vaccine mandates and vaccine passports.

Keywords: COVID-19; survey; vaccine mandate

1. Introduction

In the fall of 2023, health authorities in the United States and across the globe began to urge caution as reported cases of severe acute respiratory syndrome coronavirus (COVID-19 or SARS CoV-2) are on the rise. Authorities have also announced that an updated COVID-19 booster are available and are urging the populous to receive booster shots. Earlier in the pandemic, private businesses, universities, hospitals, and governments in the United States imposed vaccine mandates and, in some cases, required proof of vaccination for patrons and/or as a condition of employment. As concerns waned regarding the dangers of COVID-19 many entities lifted COVID-19 vaccine mandates. Although the COVID-19 crisis and associated policies are highly politicized, tensions were reduced as the pandemic period appeared to conclude. However, with the recent rise of reported COVID-19 cases, health authorities may again consider reimplementing vaccine mandates and proof of vaccination for a significant portion of society.

Several research articles have examined factors associated with COVID-19 vaccine hesitancy, noting concerns regarding safety as a consideration in vaccine hesitancy ((1), (2), (3), (4), (5)). Other factors such as age, education, political ideology, and misleading information have also been

examined. To illustrate, elderly people who are at greater risk of severe health effects from COVID-19 are potentially more likely to receive the COVID-19 inoculation. The historical medical experimentation on African-Americans (6) may dissuade African-Americans from being vaccinated. Where people obtain information about COVID-19 could also influence vaccination decisions.

A less studied related issue is the degree to which the populous supports/opposes COVID-19 vaccine mandates and vaccine passports. The decision to be vaccinated is a personal choice, which is distinct from supporting the requirement that others to also be vaccinated.

Some recent studies across a number of countries have examined public support for COVID-19 vaccine mandates, which have focused on socio-demographic and psychological characteristics, (7), political leaning (8); information sources and information campaigns ((9), (10), (11)), safety concerns and degree of trust in healthcare authorities (12), and use of coercion (13).

While concerns about the COVID-19 disease and COVID-19 vaccine risks are cited as factors in studies of vaccine hesitancy and preferences for vaccine mandates, little research has been conducted on the role that personal experiences with the COVID-19 illness and COVID-19 vaccine adverse events play in the decision to be vaccinated or in support for vaccine mandates. (1) shows that experiences in survey respondents' social circles regarding health problems following COVID-19 illness and COVID-19 inoculation are important factors in the vaccination decision. Specifically, health problems associated with the COVID-19 illness in respondent social circles increased the likelihood of being vaccinated whereas perceived health problems in social circles following COVID-19 vaccination reduced the likelihood of being vaccinated.

The main goal of this research is to examine how experiences with the COVID-19 disease and COVID-19 vaccine injury within social circles, whether or not those perceptions are accurate, influence support for vaccine mandates and vaccine passports.

2. Materials and Methods

2.1. National Survey of COVID-19 Health Experiences

The survey and recruitment protocol of the National Survey of COVID-19 Health Experiences received an exemption determination from the Institutional Review Board (IRB) of the Michigan State University Human Research Protection Program (file number: STUDY00006960, date of exemption determination: November 17, 2021). The research was conducted in accordance with pertinent guidelines and regulations. Dynata, the world's largest first-party data platform and is representative of the US American population (14), obtained the survey sample. The Dynata sample is based on opt-in sampling where respondents provide high quality information and have honesty and accuracy as community norms (15). The survey was available to the Dynata panel until the needed number of responses was compiled from each category of the stratification based on age, sex, and income, to obtain a balanced set of response. The opt-in sampling approach does not generate a response rate as defined in classic survey research.

2.2. Development of Questionnaire and Pre-Test

The questionnaire was created in November 2021. The survey was validated by a medical doctor and survey research specialist. The survey structure was generally based on Shupp *et al.* (14). Of greatest interest in this study are questions that ask respondents about the health status of people in their social circles. Shupp *et al.* (14) included similar survey questions but in reference to prescription drug abuse. during December 6-9, 2021, a pre-test with 1,110 respondents was administered. Feedback from the pre-test was used to finalize the survey.

The survey included four sets of questions: 1) questions regarding respondents' experiences with the COVID-19 disease and COVID-19 vaccination, 2) questions regarding experiences with COVID-19 illness and COVID-19 vaccination in respondents' social circles, and 3) questions to collect socioeconomic data, political ideology, approximate size of social network, and 4) views on COVID-19 policies, such as vaccine mandates and vaccine passports. The survey is included in Supplementary Material 1.

2.3. Statistical Analysis of the Survey Data

Means and standard deviations for continuous variables and absolute numbers (percentages in parenthesis) for categorical variables are provided. A comparison between socioeconomic characteristics of survey participants and data from United States (US) Census and the US American Housing Survey (16, 17, 18) is made after and adjustment for age and gender.

Logistic regression analysis is used to identify variable associated with opposition to vaccine mandates and vaccine passports. The two independent variables are: 1) disagreement with the statement “vaccine mandates should be implemented across the nation”; and 2) disagreement with the statement “digital vaccine passports should be used to track COVID-19 vaccine status and enforce mandates”. The following confounders were included in the regressions: COVID-19 illness status, COVID-19 vaccination status, age, income, gender, political leaning (Democrat, Republican, Independent), urbanization using respondent self-assessments of whether they live in urban, suburban, or rural areas, race (Caucasian, African American, Hispanic, Asian, Native American/Pacific Islander, Other), educational attainment as per the US Census (19), information sources about COVID-19 (mainstream news, alternative news/other, peer-reviewed scientific literature, official government sources), reported COVID-19 illness problems in social circles, and reported COVID-19 vaccine adverse events in social circles. In the survey, social circles include “family, friends, church, work colleagues, and social networks”. Among those in social circles who are reported to have experienced health problems, respondents were asked to describe what happened to the person they know best.

The survey data and Stata code are available from the authors upon request.

3. Results

3.1. Characteristics of Survey Respondent and Survey Representativeness

The National Survey of COVID-19 Health Experiences was administered online between December 18 and 23, 2021. A total of 2,813 participants completed the survey after deleting the 216 respondents (6.5%) who did not consent to participate, 60 missing responses for age which is used to weight the data (1.9%), and 105 surveys that were incomplete (3.2%). There were 27 additional respondents who did not answer the question about race. There was a negligible item non-response for the following variables: age 1.9% (age), 0.9% (race), and 0.28% (size of social circles). Other questions used in this evaluation had no missing items.

Descriptive statistics for the survey sample with a comparison to data from the US Census (18, 20) and the American Housing Survey (21) are provided in Table 1. For survey participants and the US population, 48% were male. The average age of respondents was 46.9 (CI 95% \pm 0.640) years. There were also small differences in political leaning, race, urbanization and education between the survey sample and the US population. Degree of urbanicity is similar to data from the American Housing Survey (21) with small differences in percent urban (30.8% vs. 27%), percent suburban (46.7% vs. 52%), and percent rural (22.5% vs. 21%). In terms of education, the survey had a higher percentage with “some college” (35.4% vs. 27.6%), a lower percentage of “college graduates” (18.9% vs. 22.1%), and a higher percentage with “more than a college degree” (14.2 vs. 12.7).

Table 1. Demographic characteristics of survey respondents compared to the US Census and the American Housing Survey 2020*.

Variable	Adjusted Survey	US Census/AHS
Age in adult population (years)	46.9	47.6
Sex (male)	48.7%	49.2%
Political affiliation		
Democrat	32.7%	33%
Republican	32.1%	29%

Independent	35.3%	34%
Race		
Caucasian	68.3%	71.0%
African American	15.4%	14.2%
Urbanization		
Urban	30.8%	27%
Suburban	46.7%	52%
Rural	22.5%	21%
Education		
Some College/2-Year Degree	35.4%	27.6%
College Degree	18.9%	22.1%
College Above Bachelors	14.2%	12.7%

*This table is also reported in (1).

Of particular interest in this evaluation are the two questions regarding whether the respondent knows someone who they perceive to have experienced problems with COVID-19 illness and the COVID-19 vaccine. Descriptions of problems in social circles with regard to the COVID-19 illness and the COVID-19 vaccine as reported by survey participants are provided in Supplementary Material 2 and Supplementary Material 3, which are also reported in (1). It is important to recognize that even though a respondent reports that someone they know experienced problems from the COVID-19 illness or the COVID-19 vaccine, it does not necessarily mean that their perception is accurate. The problems they reported may have been coincidental with the COVID-19 illness or with recent COVID-19 vaccination, and therefore not causal. For some cases of COVID-19 vaccine injury, Supplementary Material 3 shows that a person the respondent knows had heart problems after being vaccinated, though the reported heart problems could have been unrelated to inoculation. Nevertheless, these perceptions/experiences can influence policy respondent preferences.

3.2. Descriptive Statistics for Primary Variables

Summary statistics for the relevant questions answered by respondents are presented in Table 2. About 23% of survey participants indicate having had the COVID-19 disease, of which 28% reported ongoing health issues; most of these respondents reported ongoing respiratory/breathing or taste/smell issues. About 51% of survey participants indicated that they had been inoculated of which 15% reported that they had a health problem after vaccination. Comments from respondents describing the nature of health issues from the COVID-19 illness and COVID-19 vaccine adverse events are available from the author upon request.

Thirty-four percent (959 Of 2,840) of respondents indicated that they knew at least one person in their social circles who had problems linked to the COVID-19 illness. These reports include 165 deaths after the survey weighting adjustment. A word-cloud of respondent descriptions along with respondent comments are provided in Supplementary Material 2. The descriptions of problems include ongoing pulmonary issues, taste, and fatigue. Further, 23% of survey participants reported that they knew at least one person who experienced a COVID-19 vaccine adverse event, including 57 people who are reported to have died following vaccination. The range of health problems reported include serious problems such as cardiac arrests and other heart-related problems, blood clots and other circulatory problems, neurological issues as well as milder side effects such as feeling sick, headache, fever, etc. A word-cloud and comments for reported COVID-19 vaccine problems in respondent social circles are provided in Supplementary Material 3.

Table 2. Covid-19 Health Survey Summary Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Covid-19 Factors					
Opposed to vaccine mandate (yes = 1, no = 0)	2,813	1.80	0.87	1	3
Opposed to vaccine passport (yes = 1, no = 0)	2,813	1.85	0.86	1	3
COVID-19 illness (yes = 1, no = 0)	2,813	0.24	0.43	0	1
COVID-19 illness problem (yes = 1, no = 0)	682	0.27	0.45	0	1
COVID-19 vaccinated (yes = 1, no = 0)	2,813	0.48	0.50	0	1
COVID-19 vaccination health problem (yes = 1, no = 0)	1,353	0.15	0.36	0	1
Social Circle Health Issues After COVID (yes = 1, no = 0)	2,813	0.34	0.47	0	1
Social Circle Health Issues After Vaccine (yes = 1, no = 0)	2,813	0.23	0.42	0	1
General					
Age	2,813	43.24	16.90	21	90
Average Income	2,813	59,027	50,391	10,000	200,000
Gender (male = 1, female = 0)	2,813	0.46	0.50	0	1
Political Affiliation					
Democrat (yes= 1, no = 0)	2,813	0.33	0.47	0	1
Republican (yes = 1, no = 0)	2,813	0.31	0.46	0	1
Independent/Other (yes = 1, no = 0)	2,813	0.37	0.48	0	1
Urbanicity					
Urban (yes = 1, no = 0)	2,813	0.32	0.47	0	1
Suburban (yes = 1, no = 0)	2,813	0.46	0.50	0	1
Rural (yes = 1, no = 0)	2,813	0.22	0.42	0	1
Race					
White/Caucasian (yes = 1, no = 0)	2,813	0.65	0.48	0	1
African American (yes = 1, no = 0)	2,813	0.17	0.38	0	1
Hispanic (yes = 1, no = 0)	2,813	0.08	0.27	0	1
Asian (yes = 1, no = 0)	2,813	0.04	0.19	0	1
Native American/Pacific Islander (yes = 1, no = 0)	2,813	0.03	0.16	0	1
Other/more than one race (yes = 1, no = 0)	2,813	0.04	0.19	0	1
Education					
Less Than High School (yes = 1, no = 0)	2,813	0.04	0.20	0	1
High School/GED (yes = 1, no = 0)	2,813	0.29	0.45	0	1
Some College (yes = 1, no = 0)	2,813	0.24	0.43	0	1
2-year College degree (yes = 1, no = 0)	2,813	0.11	0.31	0	1
4-year College degree (yes = 1, no = 0)	2,813	0.18	0.39	0	1
Master's Degree (yes = 1, no = 0)	2,813	0.09	0.29	0	1
Doctoral Degree (yes = 1, no = 0)	2,813	0.02	0.13	0	1
Professional Degree (JD, MD) (yes=1, no=0)	2,813	0.03	0.16	0	1
Information Sources About COVID-19					
Mainstream News Sources (yes = 1, no = 0)	2,813	0.58	0.49	0	1

Alternative News Sources (yes = 1, no = 0)	2,813	0.36	0.48	0	1
Peer Reviewed Scientific Literature (yes = 1, no = 0)	2,813	0.19	0.39	0	1
Official Gov't Sources Such as CDC (yes = 1, no = 0)	2,813	0.38	0.49	0	1

3.3. Factors Related to Opposition to Vaccine Mandates and Vaccine Passports

Table 3 reports the Logit regressions for opposition to vaccination mandates and vaccine passports, with the odds ratios with confidence intervals. Unweighted data are used in the regressions due to the inclusion of socio-economic controls used by Dynata to recruit a balanced sample. Beginning with health status, having had the COVID-19 illness is not associated with vaccine mandate preferences, but those who have been vaccinated are much less likely to oppose vaccine mandates relative to the unvaccinated (OR: 0.376, 95% CI: 0.305-0.460). Turning to socioeconomic factors, age is positively associated with opposition to vaccine mandates (OR: 1.015, 95% CI: 1.009–1.022). While income and gender are not associated with preferences for vaccine mandates, race is a strong predictor with minorities being less inclined to oppose mandates relative to Caucasians (African American OR: 0.534, 95% CI: 0.397-0.717; Hispanic OR: 0.497, CI: 0.337-0.732; Asian OR: 0.347, CI: 0.189-.636). Political identity is also important: Relative to Democrats, those who self-identify as Republicans are more likely to oppose mandates (OR: 5.049, 95% CI: 0.3865-6.595). Those who identify as Independent also tend to oppose vaccine mandates (OR: 3.521, 95% CI: 2.716-4.565). There are also urban-rural differences, where rural residents are more likely to oppose vaccine mandates (OR: 1.433, 95% CI: 1.110-1.849). While education is generally not a significant determinant of preferences for vaccine mandates, information sources are correlated with mandate preferences. Those reporting reliance on mainstream news and official government sources are more likely to oppose vaccine mandates (OR: 1.320, 95% CI: 1.078-1.616) as are those who rely on alternative news sources (OR: 1.729, 95% CI: 1.421-2.103). Reliance on official government information and the peer-reviewed scientific literature are unassociated with vaccine mandate preferences.

With regard to the main hypotheses, reported health problems within respondent social circles has a significant influence on vaccine mandate preferences. While knowing someone who experienced a significant health issue from the COVID-19 disease is unassociated with vaccine mandate preferences, knowing someone who is perceived to have had a health problem following COVID-19 inoculation increases the likelihood of opposition to vaccine mandates (OR: 2.033, 95% CI: 1.629-2.538).

The second set of regression results in Table 3 reports regression findings for opposition to vaccine passports. However, those findings closely match the vaccine mandate estimates presented above and are therefore not discussed.

Table 3. Logit Regressions—Opposition to COVID-19 Vaccine Mandate and Vaccine Passport.

	Opposed to Vaccine Mandate (yes = 1, no = 0)					Opposed to Vaccine Passport (yes = 1, no = 0)				
	OR	SE	95% CI		p	OR	SE	95% CI		P
COVID-19 illness No	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
COVID-19 illness Yes	1.201	-0.130	0.971	1.485	0.091	1.187	-0.126	0.965	1.461	0.105
COVID-19 vaccinated No	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
COVID-19 vaccinated Yes	0.375***	-0.0395	0.305	0.460	0	0.442***	-0.0452	0.362	0.540	0
Social circle health issues after COVID No	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Social circle health issues after COVID Yes	0.917	-0.0932	0.752	1.119	0.396	0.964	-0.0954	0.794	1.170	0.712
Social circle health issues after vaccine No	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Social circle health issues after vaccine Yes	2.033***	-0.230	1.629	2.538	0	1.685***	-0.187	1.357	2.094	0
Age	1.015***	-0.00324	1.009	1.022	0	1.012***	-0.00315	1.006	1.018	0
Combined income	1	-0.00000108	1	1	0.369	1	-0.00000104	1	1	0.078
Female	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Male	1.041	-0.0996	0.863	1.256	0.672	1.025	-0.0959	0.854	1.232	0.789
Democrat	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Republican	5.049***	-0.688	3.865	6.595	0	4.494***	-0.591	3.473	5.815	0
Independent/Other	3.521***	-0.466	2.716	4.565	0	3.269***	-0.417	2.546	4.199	0
Urban	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Suburban	1.08	-0.122	0.866	1.349	0.494	1.165	-0.129	0.939	1.447	0.166
Rural	1.433**	-0.186	1.110	1.849	0.006	1.379*	-0.177	1.073	1.773	0.012
White/Caucasian	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
African American	0.534***	-0.0805	0.397	0.717	0	0.522***	-0.0772	0.391	0.698	0
Hispanic	0.497***	-0.0982	0.337	0.732	0	0.520***	-0.0998	0.357	0.757	0.001
Asian	0.347***	-0.107	0.189	0.636	0.001	0.420**	-0.118	0.242	0.728	0.002
Native American/Pacific Islander	0.960	-0.268	0.556	1.659	0.884	0.992	-0.272	0.580	1.696	0.976

Other/more than one	1.092	-0.267	0.676	1.765	0.719	1.034	-0.248	0.645	1.656	0.890
Less than HS	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
HS/GED	1.183	-0.278	0.746	1.874	0.475	1.129	-0.261	0.718	1.775	0.598
Some College	1.678*	-0.401	1.051	2.68	0.03	1.612*	-0.378	1.019	2.551	0.042
2-year CD	1.578	-0.411	0.947	2.629	0.08	1.440	-0.368	0.872	2.376	0.154
4-year CD	1.329	-0.337	0.809	2.185	0.262	1.416	-0.351	0.871	2.300	0.161
Master's	0.863	-0.246	0.494	1.508	0.605	0.750	-0.21	0.433	1.298	0.304
Doctoral	0.48	-0.248	0.174	1.324	0.156	0.519	-0.253	0.2	1.347	0.178
Professional (JD, MD)	0.586	-0.253	0.251	1.367	0.216	0.509	-0.216	0.221	1.171	0.112
No new source*	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
Mainstream news sources Yes	1.320**	-0.136	1.078	1.616	0.007	1.115	-0.112	0.916	1.358	0.277
Alternative/Other news sources Yes	1.729***	-0.173	1.421	2.103	0	1.712***	-0.167	1.414	2.073	0
Peer reviewed scientific literature Yes	1.19	-0.144	0.939	1.510	0.150	1.338*	-0.156	1.064	1.683	0.013
Official gov't sources such as CDC Yes	1.143	-0.113	0.941	1.388	0.179	1.06	-0.103	0.876	1.282	0.550
Observations			2813					2813		
LR Chi ²			599.82					526.84		
Pseudo R ²			0.175					0.152		

*It is possible that a respondent chooses multiple news sources so that this reference category is the baseline for each individual news category.

4. Discussion

The contribution of this study to the literature is to shed light on the role that health experiences within social circles play in preferences for/against policies such as vaccine mandates and vaccine passports. Findings so that knowing someone who experienced a COVID-19 vaccine adverse event is important. Further, there are a relatively large number of COVID-19 vaccine adverse events within respondent social circles in the survey, indicating that these perceptions are important in vaccine hesitancy as shown in Skidmore (1) as well as in the formation of policy preferences.

In line with prior work, the analysis shows that respondent characteristics are associated with vaccine hesitancy and support for or opposition to vaccine mandates. As summarized by Nguyen *et al.* (22) and Prematunge *et al.* (23), several studies have examined vaccine hesitancy in the context of influenza. In these studies, vaccination status is influenced by beliefs regarding vaccine safety, effectiveness in infection prevention, and the gravity of the illness. As highlighted earlier, several studies examine support for COVID-19 vaccine mandates, focusing on political inclination (8), information sources and information campaigns (9, 10, 11), safety concerns and degree of trust in healthcare authorities (12), and use of coercion (13). The present study adds to this body of work by showing that perception of experiences within social circles regarding potential COVID-19 vaccine injury is associated with opposition to vaccine mandates and vaccine passports.

The COVID-19 vaccine hesitancy studies also provide evidence of how important perceptions and beliefs regarding vaccine risk and effectiveness are in inoculation decisions. (22, 23, 24, **Error! Reference source not found.**). Antivaccine attitudes and beliefs, and mistrust, which are correlated with low educational attainment are also important considerations (26, 27). General trust in science and COVID-19 vaccination intentions are also positively associated (28). Vaccination status and socioeconomic status are linked (1, 2, 3, 4). Recently, Skidmore (1) demonstrated that observed health problems in social circles from the COVID-19 disease and the COVID-19 vaccine in social circles are also important determinants in the COVID-19 vaccination decision. According to this study, knowing someone who had health problems following the COVID-19 illness increased the likelihood of vaccination, but knowing someone who experienced a health problem following COVID-19 inoculation reduced the likelihood of vaccination. According to a recent survey by Rasmussen (29), “almost as many Americans believe someone close to them died from side effects of the COVID-19 vaccine as died from the disease itself.” This finding taken together with the present study suggests that opposition to COVID-19 mandates and passports may have increased over time. Further, it may be difficult for policymakers to engender a general consensus in the population around the adoption of vaccine mandates and vaccine passports.

The strengths of this research are that the sample maps closely the US population and that it provides novel analysis of the degree to which experiences with potential COVID-19 vaccine adverse events, actual or imagined, influence COVID-19 inoculation decisions. These findings can be used to inform vaccination policies.

The limitations of the study are: 1) With 2,840 respondents, the sample is small; 2) a clinical setting was not used in the reporting and diagnosis of COVID-19 vaccine injuries; and 3) there is bias in health survey responses. To illustrate, the study demonstrates that due to the highly politicized nature of the COVID-19 crisis, respondents interpret events with bias, and depend on political views and other cultural factors. To illustrate, a Republican respondents interpret health issues in social circles differently than Democrat respondents (1). While the regression analysis controls for such factors, bias could still be present.

5. Conclusions

The survey and analysis provide new information about factors associated with support for or opposition to COVID-19 vaccine mandates and passports. The evaluation shows that those who believe friends and family may have been harmed by the COVID-19 vaccine are more likely to oppose vaccine mandates and passports, offering an important insight for health authorities and policymakers who make critical health policy decisions.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org. Supplementary Material 1, Supplementary Material 2, and Supplementary Material 3.

Author Contributions: Mark Skidmore developed the survey instrument, conceptualized the research methodology and design, served as project administrator, and prepared the original draft of the manuscript. Fernanda Alfaro managed the data and conducted the empirical analysis. She also helped review the manuscript as assisted with reviewing and editing the manuscript.

Funding: Catherine Austin Fitts provided funding to cover the \$11,000 cost of the online survey seven weeks after the survey was administered.

Institutional Review Board Statement: The survey instrument and recruitment protocol of the National Survey of COVID-19 Health Experiences were approved via exemption determination by the Institutional Review Board (IRB) of the Michigan State University Human Research Protection Program (file number: STUDY00006960, date of approval: November 17, 2021, name of IRB: Michigan State University Human Research Protection Program). All participants gave written informed consent by reading a written consent statement and clicking "I Agree" before being allowed to take the online survey. All methods were carried out in accordance with relevant guidelines and regulations.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The survey dataset and corresponding Stata code are available from the authors upon request.

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Conflicts of Interest: Catherine Austin Fitts provided input on survey questions, but played no role in study design, in collection, analyses, or interpretation of the data; in writing of the manuscript; or in the decision to publish the results. There are no other potential conflicts of interest.

References

1. Skidmore, M. COVID-19 illness and vaccination experiences in social circles affect COVID-19 vaccination decisions. 2023 Forthcoming in *Sci, Publ Health Pol & Law*. 2023
2. Dubé È, Ward JK, Verger P, Macdonald NE. Vaccine Hesitancy, Acceptance, and Anti-Vaccination: Trends and Future Prospects for Public Health. *Annu Rev Public Health*. 2020;42:175–91.
3. Hyland P, Vallières F, Shevlin M, Bentall RP, McKay R, Hartman TK, et al. Resistance to COVID-19 vaccination has increased in Ireland and the United Kingdom during the pandemic. *Public Health*. 2021;195:54–6.
4. Kreps SE, Goldfarb JL, Brownstein JS, Kriner DL. The relationship between us adults' misconceptions about covid-19 vaccines and vaccination preferences. *Vaccines*. 2021;9(8):1–8.
5. Yoda T, Katsuyama H. Willingness to receive covid-19 vaccination in Japan. *Vaccines*. 2021;9(1):1–8.
6. Gamble V. A Legacy of Distrust: African Americans and Medical Research. *Am J Prev Med*. 1993;9(6):35–8.
7. Graeber, D., Schmidt-Petri, C., & Schröder, C. (2021). Attitudes on voluntary and mandatory vaccination against COVID-19: Evidence from Germany. *PloS one*, 16(5), e0248372.
8. Gagneux-Brunon, A., Botelho-Nevers, E., Bonneton, M., Peretti-Watel, P., Verger, P., Launay, O., Ward J.K. (2022). Public opinion on a mandatory COVID-19 vaccination policy in France: a cross-sectional survey, *Clinical Microbiology and Infection*, 28(3): 433-439. <https://doi.org/10.1016/j.cmi.201.10.016>.
9. Attwell, K., Ward, J. K., & Tomkinson, S. (2021). Manufacturing consent for vaccine mandates: a comparative case study of communication campaigns in France and Australia. *Frontiers in Communication*, 6, 20.
10. Jovanovic, V., Milic, M., Dotlic, J., Cvjetkovic, S., Jeremic Stojkovic, V., Maksimovic, N., . . . Gazibara, T. (2023). Mandatory and seasonal vaccination against COVID-19: Attitudes of the vaccinated people in Serbia. *Epidemiology & Infection*, 151, E83. doi:10.1017/S0950268823000614
11. Attwell, K., & C. NAVIN, M. A. R. K. (2019). Childhood vaccination mandates: scope, sanctions, severity, selectivity, and salience. *The Milbank Quarterly*, 97(4), 978-1014.

12. Giannouchos, T. V., Steletou, E., Saridi, M., & Souliotis, K. (2021). Mandatory vaccination support and intentions to get vaccinated for COVID-19: results from a nationally representative general population survey in October 2020 in Greece. *Journal of evaluation in clinical practice*, 27(4), 996-1003.
13. McCoy, C. A. (2019). Adapting coercion: how three industrialized nations manufacture vaccination compliance. *Journal of Health Politics, Policy and Law*, 44(6), 823-854.
14. Shupp R, Loveridge S, Skidmore M, Green B, Albrecht D. Recognition and stigma of prescription drug abuse disorder: Personal and community determinants. *BMC Public Health*. 2020;20(1):1–9.
15. Tsai J, Shen J, Southwick SM, Greenberg S, Pluta A, Pietrzak RH. Public attitudes and literacy about posttraumatic stress disorder in U.S. adults. *J Anxiety Disord* [Internet]. 2018;55(February):63–9. Available from: <https://doi.org/10.1016/j.janxdis.2018.02.002>
16. United States Census Bureau. QuickFacts United States [Internet]. [cited 2022 Apr 11]. Available from: <https://www.census.gov/quickfacts/fact/table/US/PST045221>
17. United States Census Bureau. National Demographic Analysis Tables: 2020 [Internet]. [cited 2022 Apr 11]. Available from: <https://www.census.gov/data/tables/2020/demo/popest/2020-demographic-analysis-tables.html>
18. Pew Research Center. What the 2020 electorate looks like by party, race and ethnicity, age, education and religion [Internet]. [cited 2022 Apr 11]. Available from: <https://www.pewresearch.org/fact-tank/2020/10/26/what-the-2020-electorate-looks-like-by-party-race-and-ethnicity-age-education-and-religion/>
19. United States Census Bureau. About Educational Attainment [Internet]. 2021 [cited 2022 Jun 16]. Available from: <https://www.census.gov/topics/education/educational-attainment/about.html>
20. VAERS. VAERS Summary for COVID-19 Vaccines through 01/14/2022 [Internet]. 2022 [cited 2022 Apr 10]. Available from: <https://vaersanalysis.info/2022/01/21/vaers-summary-for-covid-19-vaccines-through-01-14-2022/>
21. Bucholtz S. Urban. Suburban. Rural. How Do Households Describe Where They Live? [Internet]. The Edge, PD&R's online magazine. 2020 [cited 2022 Jun 16]. Available from: <https://www.huduser.gov/portal/pdredge/pdr-edge-frm-asst-sec-080320.htm>
22. Nguyen T, Henningsen KH, Brehaut JC, Hoe E, Wilson K. Acceptance of a pandemic influenza vaccine: A systematic review of surveys of the general public. *Infect Drug Resist*. 2011;4(1):197–207.
23. Prematunge C, Corace K, McCarthy A, Nair RC, Pugsley R, Garber G. Factors influencing pandemic influenza vaccination of healthcare workers-A systematic review. *Vaccine* [Internet]. 2012;30(32):4733–43. Available from: <http://dx.doi.org/10.1016/j.vaccine.2012.05.018>
24. Anderson S. CBER Plans for Monitoring COVID-19 Vaccine Safety and Effectiveness [Internet]. 2020. Available from: <https://www.fda.gov/media/143557/download>
25. Stiller J, Dunbar RIM. Perspective-taking and memory capacity predict social network size. *Soc Networks*. 2007;29(1):93–104.
26. Bendau A, Plag J, Petzold MB, Str A. COVID-19 vaccine hesitancy and related fears and anxiety. *Int Immunopharmacol*. 2021;97(107724).
27. Luo C, Yang Y, Liu Y, Zheng D, Shao L. Intention to COVID-19 vaccination and associated factors among health care workers: A systematic review and meta-analysis of cross-sectional studies. *Am J Infect Control*. 2021;49(9):1295–1304.
28. Agle J, Xiao Y, Thompson EE, Golzarri-Arroyo L. Factors associated with reported likelihood to get vaccinated for COVID-19 in a nationally representative US survey. *Public Health* [Internet]. 2021;196:91–4. Available from: <https://doi.org/10.1016/j.puhe.2021.05.009>
29. Rasmussen Reports (2023). COVID-19: Virus deaths vs. vaccine deaths: https://www.rasmussenreports.com/public_content/politics/public_surveys/covid_19_virus_deaths_vs_vaccine_deaths. (Accessed on September 19, 2023)

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