

Table S1. Frequency and Odds of COVID-19 Disease by Vaccine Attitudes, Trust in CDC and HDs, and Sociodemographic Characteristics

Numbers in the "Total" column indicate the percentage of the total weighted sample providing the September 2021 survey response in each row. Numbers in the "COVID-19 Disease" columns indicate the percentage of those whose experience with COVID-19 disease match that of the column header who provided the survey response in each row. The numbers in the "OR (95%CI)" column indicate the Odds Ratio of ever being diagnosed with COVID-19 vs never being diagnosed with COVID-19 by the survey response in each row. The numbers in the final column indicate the p-value of this association, boldface indicating statistical significance ($p < 0.05$).

Survey Items	Total	COVID-19 Disease, % ^b		OR (95%CI) ^f	p-value ^c
	(%) ^a	Never Had	Ever Had		
All	100				
Constructs ^d					
Confidence in vaccines	65	69	54	0.52 (0.40-0.68)	<0.01
Trust in the Centers for Disease Control and Prevention (CDC)	47	52	36	0.54 (0.41-0.71)	<0.01
Trust in local and state health departments (HDs)	46	50	36	0.56 (0.43-0.74)	<0.01
Sociodemographic Characteristics					
Gender					0.12
Female	52	51	57	ref ^k	
Male	48	49	43	0.81 (0.62-1.05)	
Age (years)					<0.01
18-29	20	19	23	ref ^k	
30-44	25	23	31	1.14 (0.76-1.71)	0.53
45-59	24	24	26	0.90 (0.60-1.35)	0.61
60+	30	34	21	0.53 (0.35-0.80)	<0.01

Education (attained)					0.39
<High School	9	9	11	ref ^k	
High School	28	27	30	0.89 (0.55-1.45)	0.64
Some College	28	27	26	0.79 (0.49-1.27)	0.33
Bachelors or Higher	35	36	32	0.71 (0.44-1.14)	0.16
Race/Ethnicity					0.24
White, non-Hispanic	63	63	60	ref ^k	
Black, non-Hispanic	12	12	11	0.95 (0.65-1.38)	0.80
Hispanic	8	9	8	1.39 (1.04-1.86)	0.02
Other, non-Hispanic	17	16	21	0.97 (0.53-1.79)	0.93
Region					0.41
Northeast	17	18	19	ref ^k	
Midwest	21	20	21	1.01 (0.66-1.54)	0.96
South	38	39	34	0.79 (0.54-1.15)	0.22
West	24	24	26	1.00 (0.67-1.50)	0.98
Metropolitan Statistical Area status (metro vs non-metro)	87	87	85	0.83 (0.56-1.23)	0.35
Employment status (working vs not working)	62	58	72	1.79 (1.35-2.37)	<0.01
Household income					0.75
<\$50k	30	30	33	ref ^k	
\$50-85k	31	31	30	0.90 (0.65-1.25)	0.54
\$85-150k	19	19	19	0.91 (0.61-1.34)	0.63

\$150k+	20	21	18	0.81 (0.55-1.19)	0.28
Household size					<0.01
1	17	18	10	ref ^k	
2	35	37	34	1.68 (1.08-2.63)	0.02
3	19	19	15	1.42 (0.86-2.36)	0.17
4+	29	26	41	2.88 (1.84-4.49)	<0.01
Number of children (ages 2-17)					0.03
0	73	75	67	ref ^k	
1	11	9	13	1.52 (1.00-2.33)	0.05
2	11	10	13	1.51 (1.00-2.27)	0.05
3+	6	6	8	1.61 (0.99-2.64)	0.06
Political affiliation					0.78
Republican	26	26	26	ref ^k	
Democrat	34	36	34	0.92 (0.66-1.29)	0.63
Independent	30	29	29	0.96 (0.67-1.39)	0.84
Something else	10	9	11	1.17 (0.72-1.92)	0.52
Physical health (good vs not good)	84	84	84	1.00 (0.70-1.43)	0.98

Affirmative Responses to Survey Items

^c

COVID-19 Disease

How likely do you think it is that you will					
have COVID-19 over the next year?	20	18	21	1.24 (0.86-1.78)	0.26
When indoors in a crowded setting do you	80	83	76	0.67 (0.48-0.92)	0.01

(or would you) wear a mask?

I am concerned that I or my

family/friends will be exposed when

others do not wear masks in public.

61

64

56

0.69 (0.53-0.91)

0.01

COVID-19 Vaccine

How important do you think a COVID-19

vaccine is to stop the spread of infection

in the US?

82

87

72

0.37 (0.27-0.52)

<0.01

Are you worried that the COVID-19

vaccine is not safe for adults?

26

20

37

2.29 (1.72-3.05)

<0.01

Have you discussed getting vaccinated

with your healthcare provider?

36

37

37

0.99 (0.75-1.30)

0.94

Of those who have: the provider

encouraged getting the vaccine.

70

74

59

0.51 (0.33-0.80)

<0.01

COVID-19 in Children

COVID-19 can be a serious disease for

some children.

86

88

83

0.64 (0.45-0.93)

0.02

I am concerned about the safety of

COVID-19 vaccine in children.

62

58

73

1.95 (1.46-2.60)

<0.01

Vaccinating children against COVID-19 is

important to end the pandemic and get

back to normal.

71

76

58

0.44 (0.33-0.58)

<0.01

It is better for children to develop

immunity to COVID-19 by getting sick

rather than by getting a shot.

29

23

46

2.92 (2.22-3.85)

<0.01

COVID-19 in children is no worse than a

32

28

40

1.72 (1.31-2.26)

<0.01

cold or the flu.

Vaccines Other than COVID-19

Had flu vaccination, past 12 months.	55	60	44	0.54 (0.41-0.70)	<0.01
--------------------------------------	----	----	----	------------------	-----------------

Of parents: Have you ever delayed having your child get a shot other than the flu for reasons other than illness or allergy?

16	12	24	2.28 (1.21-4.29)	0.01
----	----	----	------------------	-------------

Of parents: Have you ever decided not to have your child get a shot other than the flu for reasons other than illness or

allergy?	11	9	13	1.56 (0.72-3.37)	0.26
----------	----	---	----	------------------	------

Have you or anyone you know ever had a serious reaction to a vaccine?

8	7	10	1.38 (0.89-2.15)	0.15
---	---	----	------------------	------

Healthcare and Science in General

Received high quality care from healthcare provider, past 12 months.

91	93	87	0.48 (0.31-0.74)	<0.01
----	----	----	------------------	-----------------

In general, would you say that you trust science?

90	91	88	0.73 (0.47-1.14)	0.16
----	----	----	------------------	------

Among Vaccinated: Boosters^j

If the CDC were to recommend a booster dose so your body can continue to protect you against COVID-19, how likely are you to get one? ⁱ

87	75	12	0.52 (0.35-0.79)	<0.01
----	----	----	------------------	-----------------

Of Unvaccinated: Mandates and Incentivesⁱ

Of employed: If my employer required me

14	16	17	1.01 (0.44-2.33)	0.99
----	----	----	------------------	------

to get the COVID-19 vaccine... I would
get vaccinated. ⁱ

Of those who would not:

I would quit my job. ⁱ	29	24	37	1.81 (0.87-3.77)	0.11
I would protest. ⁱ	32	26	33	1.38 (0.68-2.82)	0.37
I would consider legal action. ⁱ	43	36	53	2.00 (1.03-3.90)	0.04
I am not sure what I would do. ⁱ	42	50	38	0.61 (0.31-1.19)	0.14

If I was offered a \$25-\$100 gift card for
getting fully vaccinated... I would be more
likely to get vaccinated. ⁱ

5	7	4	0.51 (0.15-1.76)	0.28
---	---	---	------------------	------

If I was automatically enrolled in a lottery
when I got fully vaccinated that made me
eligible to win at least \$100K... I would be
more likely to get vaccinated. ⁱ

6	6	8	1.37 (0.53-3.54)	0.51
---	---	---	------------------	------

Seeing fewer people wear masks in public
makes me more likely to get vaccinated. ⁱ

13	12	17	1.47 (0.73-2.98)	0.28
----	----	----	------------------	------

*Of Unvaccinated: Knowledge and Decision-
Making re: COVID-19 Vaccination ⁱ*

I am knowledgeable about COVID-19
vaccines for adults. ⁱ

75	76	78	1.07 (0.57-1.99)	0.83
----	----	----	------------------	------

I still have many unanswered questions
about COVID-19 vaccines for adults. ⁱ

68	70	67	0.87 (0.51-1.49)	0.62
----	----	----	------------------	------

I still cannot decide whether getting the
COVID-19 vaccine is best for me. ⁱ

47	53	46	0.76 (0.46-1.26)	0.28
----	----	----	------------------	------

Talking with other people is important in
helping me make up my mind about
COVID-19 vaccination for myself. ⁱ

35	37	35	0.92 (0.54-1.55)	0.74
----	----	----	------------------	------

Of Unvaccinated: Specific Concerns and Other

Reasons For Not Getting a COVID-19

Vaccineⁱ

How fast COVID-19 vaccines were developed and made available to the public. ⁱ	59	60	56	0.84 (0.51-1.40)	0.51
COVID-19 vaccines are new. ⁱ	80	82	78	0.80 (0.43-1.47)	0.47
The safety of COVID-19 vaccines has not been studied for a long enough period of time. ⁱ	83	83	78	0.72 (0.38-1.36)	0.31
A lot of people who get the vaccine feel tired, achy and get headaches and fever. ⁱ	74	73	75	1.10 (0.62-1.97)	0.75
Some people have had allergic reactions to COVID-19 vaccines. ⁱ	77	75	81	1.41 (0.76-2.63)	0.28
I am not sure the ingredients in COVID-19 vaccines are safe. ⁱ	76	78	71	0.69 (0.39-1.21)	0.19
COVID-19 vaccines might change my genes or DNA (cause mutations). ⁱ	33	30	36	1.32 (0.78-2.23)	0.30
COVID-19 vaccines might affect my fertility or ability to have children. ⁱ	34	29	36	1.37 (0.80-2.33)	0.25
There were not enough people of my race/ethnicity who were a part of the vaccine studies. ⁱ	16	16	19	1.19 (0.62-2.29)	0.59
They are experimenting on people with the COVID-19 vaccine. ⁱ	69	70	66	0.82 (0.48-1.41)	0.48
The drug companies are making a lot of money off of COVID-19 vaccines. ⁱ	70	70	69	0.95 (0.55-1.65)	0.86

Some COVID-19 vaccines are made from aborted fetuses. ⁱ	23	18	32	2.11 (1.19-3.75)	0.01
I have a health condition that might make me at increased risk of having a bad reaction to the COVID-19 vaccine. ⁱ	29	26	38	1.78 (1.05-3.02)	0.03
I have a health condition that would prevent the COVID-19 vaccine from being effective. ⁱ	16	16	20	1.35 (0.72-2.51)	0.34
I am worried about severe vaccine side effects such as myocarditis (heart swelling), Guillain Barre Syndrome (paralysis), or severe blood clots. ⁱ	74	75	75	1.04 (0.58-1.86)	0.90
Vaccine recommendations are influenced more by politics than by science. ⁱ	83	80	86	1.52 (0.79-2.93)	0.21
I am worried about the safety of COVID-19 vaccines. ⁱ	86	85	87	1.20 (0.59-2.45)	0.61
I do not trust how quickly the COVID-19 vaccine was developed. ⁱ	86	86	88	1.18 (0.59-2.37)	0.64
I worry that I would have a reaction to the vaccine. ⁱ	78	79	81	1.15 (0.61-2.13)	0.67
I worry about having to provide personal information (name, address, phone number, insurance card) to get the vaccine. ⁱ	26	24	28	1.20 (0.68-2.11)	0.52
Those I trust (friends, family, or religious leaders) do not want to get the vaccine. ⁱ	53	50	59	1.40 (0.85-2.32)	0.19
I have seen posts on social media that make me wary of the vaccine. ⁱ	51	53	50	0.89 (0.54-1.47)	0.64

I want to wait to see what happens to others who are vaccinated. ⁱ	73	75	73	0.90 (0.51-1.58)	0.71
I need more time to learn and think more about it. ⁱ	59	64	56	0.73 (0.44-1.21)	0.22
Of pregnant women: I do not think the COVID-19 vaccine is safe for me or my baby. ⁱ	39	37	64	3.09 (0.55-17.48)	0.19
<i>Of Unvaccinated: Reasons to Get COVID-19 Vaccination ⁱ</i>					
COVID-19 vaccines are likely to protect me from the COVID-19 strains circulating. ⁱ	24	28	21	0.71 (0.40-1.25)	0.23
COVID-19 vaccines are likely to protect me from new variants of COVID-19 that may appear in the future. ⁱ	22	25	23	0.91 (0.50-1.65)	0.76
It's important for me to get vaccinated so I don't accidentally give COVID-19 to other people in my family. ⁱ	21	24	20	0.81 (0.43-1.53)	0.52
It's important for me to get vaccinated to help get my community back to normal. ⁱ	17	19	17	0.91 (0.48-1.73)	0.78
The government is acting in my or my family's best interest when it comes to COVID-19. ⁱ	18	20	21	1.05 (0.58-1.91)	0.87
<i>Of Unvaccinated: Barriers to COVID-19 Vaccination ⁱ</i>					
I cannot get transportation to where	5	6	1	0.16 (0.02-1.26)	0.05

COVID-19 vaccines are being given. ⁱ

The times when COVID-19 vaccines are
being given conflict with my daily
schedule. ⁱ

12 13 9 0.68 (0.29-1.60) 0.38

I do not know how to register to get a
vaccine appointment. ⁱ

11 11 9 0.76 (0.31-1.89) 0.56

I know how to register to get a vaccine
appointment but it is too difficult. ⁱ

14 13 16 1.26 (0.63-2.52) 0.52

I cannot miss work to get vaccinated. ⁱ

18 18 21 1.22 (0.63-2.36) 0.56

At least one of the above. ⁱ

34 32 36 1.16 (0.68-1.98) 0.59

Political Activities and Support

People may be involved in civic and
political activities. In the past 12 months,
have you...

Attended a political protest or rally

7 7 5 0.81 (0.47-1.41) 0.46

Contacted a government official

15 15 14 0.89 (0.6-1.31) 0.54

Volunteered or worked for a Presidential
campaign

3 3 3 1.03 (0.45-2.39) 0.94

Volunteered or worked for a political
candidate other than a Presidential
campaign

2 3 2 0.65 (0.22-1.88) 0.42

Volunteered or worked for a political
party, issue, or cause

4 4 2 0.49 (0.24-1.00) 0.05

Served on a committee for a civic, non-
profit or community organization

5 5 7 1.38 (0.78-2.42) 0.27

Written a letter or email to a
newspaper/magazine or called a live

4 5 4 0.78 (0.36-1.70) 0.53

radio or TV show					
Commented about politics on a message board or internet site	19	20	19	0.95 (0.68-1.32)	0.74
Shared your opinion about a town or community issue at a public meeting	4	4	5	1.12 (0.59-2.13)	0.74
Held a publicly elected office	<1	<1	<1	1.11 (0.19-6.58)	0.91
Signed a petition	26	26	25	0.94 (0.70-1.28)	0.71
Ran for a publicly elected office	<1	<1	0		0.34
None of these	60	60	63	1.10 (0.84-1.44)	0.49
Do you identify with or actively support any of the following political movements?					
Tea Party (Taxed Enough Already)	6	6	5	0.77 (0.43-1.39)	0.38
Environmental Rights	20	20	19	0.89 (0.64-1.25)	0.51
Women's Rights/ Me Too	23	24	23	0.93 (0.68-1.27)	0.65
Racial Equality	26	27	24	0.87 (0.64-1.17)	0.35
Right to Life	15	14	17	1.25 (0.87-1.80)	0.22
Peace/Anti-War	11	11	12	1.08 (0.72-1.64)	0.70
Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ) Rights	19	20	18	0.89 (0.62-1.26)	0.50
Indivisible	2	2	2	0.94 (0.39-2.26)	0.89
Black Lives Matter	25	25	26	1.07 (0.78-1.45)	0.69
Men's Rights	4	5	3	0.61 (0.29-1.30)	0.20
Alt-right	1	0	1	2.49 (0.63-9.80)	0.18
Boogaloo movement	0	0	1	4.71 (0.48-45.94)	0.14
Antifa	2	2	2	0.81 (0.33-2.00)	0.65
QAnon	1	1	1	1.22 (0.27-5.55)	0.80
Anti-gun violence	16	17	14	0.79 (0.55-1.14)	0.21
None of these	53	52	54	1.08 (0.83-1.41)	0.57

Do you identify with or actively support
any of the following organizations?

National Rifle Association (NRA)	13	11	15	1.37 (0.94-2.01)	0.10
Heritage Foundation	3	3	3	0.85 (0.40-1.78)	0.66
Planned Parenthood	19	20	18	0.90 (0.64-1.26)	0.53
National Right to Life Committee	5	5	4	0.91 (0.50-1.65)	0.76
Greenpeace	6	6	6	0.95 (0.54-1.67)	0.87
Sierra Club	8	8	5	0.58 (0.31-1.09)	0.09
Amnesty International	6	6	5	0.83 (0.46-1.49)	0.52
National Education Association Foundation	6	7	7	0.98 (0.58-1.67)	0.95
American Civil Liberties Union (ACLU)	12	12	12	0.96 (0.64-1.45)	0.86
Americans for Prosperity	1	1	2	2.25 (0.83-6.09)	0.10
MoveOn.org	7	7	6	0.78 (0.47-1.30)	0.34
The NAACP/National Association for the Advancement of Colored People	12	12	14	1.16 (0.79-1.69)	0.45
American Red Cross	23	23	24	1.06 (0.77-1.45)	0.72
Chamber of Commerce	3	3	3	0.92 (0.42-2.01)	0.84
Freedom Caucus	2	2	2	1.19 (0.52-2.75)	0.68
None of these	53	54	53	0.95 (0.73-1.23)	0.69

Sources of Health Information

Which of the following sources have you
used to look for health and wellness
related information or education in the
past 12 months?

Doctor	60	61	57	0.84 (0.65-1.10)	0.21
Pharmacist	21	22	19	0.82 (0.59-1.14)	0.23

Nurse, nurse practitioner or physician's assistant	29	29	29	0.97 (0.73-1.30)	0.86
Relative, friend or co-worker	23	23	26	1.19 (0.87-1.63)	0.27
Someone you know who has a particular medical condition	8	8	11	1.43 (0.93-2.20)	0.10
Disease-related association or society	5	6	5	0.85 (0.46-1.58)	0.60
Patient support group or foundation	2	2	2	1.19 (0.49-2.86)	0.70
Educational forum at a local clinic, hospital, community center or other location	3	4	3	0.81 (0.38-1.71)	0.57
Pharmaceutical company	1	1	2	2.15 (0.86-5.37)	0.09
Health insurance company	7	7	7	0.98 (0.61-1.60)	0.95
Newspapers or magazines	7	6	7	1.17 (0.71-1.94)	0.54
Television	6	6	7	1.06 (0.66-1.70)	0.80
The internet	48	47	51	1.16 (0.90-1.51)	0.26
Social Media (such as Facebook, Twitter)	6	5	8	1.72 (1.03-2.88)	0.04
Healthcare app for smartphone or tablet	6	6	6	1.10 (0.64-1.88)	0.74
Have not looked for information in the past 12 months	21	21	20	0.98 (0.70-1.35)	0.89

Barriers, Specific Concerns and Other Reasons

For Not Getting the Flu Vaccine

Of those who did not get a flu shot this past year: this is because...ⁱ

The flu is not a serious illness	9	8	10	1.33 (0.66-2.65)	0.42
I'm healthy	22	23	20	0.88 (0.55-1.40)	0.58
I just didn't think about it	22	24	17	0.65 (0.41-1.05)	0.08

I didn't know where to get it	1	1	0	0.29 (0.03-2.49)	0.23
I didn't have health insurance	3	3	3	0.87 (0.36-2.10)	0.75
I didn't have time	5	6	5	0.76 (0.32-1.82)	0.54
I don't believe in vaccines	6	5	8	1.72 (0.85-3.50)	0.13
I'm afraid of the side effects	11	10	12	1.18 (0.65-2.15)	0.58
I'm afraid of needles	4	4	4	0.79 (0.33-1.89)	0.59
I prefer alternative (homeopathic) medicine to vaccines	11	10	9	0.93 (0.47-1.84)	0.83
I have never had the flu	13	14	9	0.60 (0.31-1.15)	0.12
The vaccine will make me sick with the flu	9	8	14	1.78 (1.01-3.13)	0.04
I got a flu shot the year before so I didn't need it	2	2	5	3.56 (1.29-9.82)	0.01
Another reason	27	25	31	1.35 (0.89-2.05)	0.16

Red text indicates survey items reflecting negative vaccine attitudes

^a Column percentages (of total sample), weighted according to survey weights to achieve national representativeness

^b Column percentages (of diagnosis categories) (except for first row "All" which is a row percentage), weighted according to survey weights to achieve national representativeness

^c using the Pearson chi-square test at significance level of $\alpha=5\%$; bold indicates statistical significance ($p<0.05$). For non-dichotomous categorical variables, p-values for differences between all categories included in top row with variable name, and p-values for differences between individual categories and reference category included in individual category row.

^d Construct scales combine scores for each relevant survey item (reversing negative items) and divide by maximum (e.g., 100 being complete trust and 0 being complete distrust); after dichotomizing at median, binary variable represents high vs low score (e.g., 1 being high trust and 0 being low trust)

^e Likert scale response options (strongly agree, agree, disagree, strongly disagree, don't know) dichotomized to agree/disagree (don't know coded as disagree), results for agreement shown; other scale response options dichotomized to reflect affirmative/negative, results for affirmative shown

^f Odds Ratio (95% Confidence Interval) of being diagnosed with COVID-19 ever vs never for affirmative survey response vs not

ⁱ asked only to unvaccinated respondents

^j asked only to vaccinated respondents

^k Reference category for logistic regression of categorical variables