

Political Affiliation and Race Associated With Parents' Intentions to Have a COVID-19 Vaccination but Not With History of Refusing to Vaccinate a Child: A Cross-Sectional Study

Amira A. Roess (✉ aroess@gmu.edu)

George Mason University

Leah Adams

George Mason University

Kathi Huddleston

George Mason University

Grace N. Lawrence

George Mason University

Alyssa N. Wilson

George Mason University

Cheryl Oetjen

George Mason University

Edward Maibach

George Mason University

Research Article

Keywords: Political affiliation, COVID-19, hesitancy, vaccination

Posted Date: May 6th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-469429/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Abstract

Background: Parental attitudes about vaccinating themselves against COVID-19 may offer insights into their attitudes about vaccinating their children when the time comes. The objective was to identify parents with high COVID-19 vaccine hesitancy to prioritize for vaccine education interventions.

Methods. We conducted multiple logistic regression on data from a nationally representative sample to estimate the association between socio-demographic factors and COVID-19 vaccine intention and history of refusal to vaccinate a child.

Results. In the adjusted model, parents who were Black, female, Republican, and lower income had a significantly lower odds of COVID-19 vaccine intention (adjusted Odds Ratio [aOR]=0.47, 0.73, 2.59, 0.50, respectively). Only age was associated with previous vaccine refusal.

Conclusions. The results highlight the politicization of the pandemic and the possibility of continued disparities in COVID-19 health outcomes among those unlikely to get COVID-19 vaccination. Overall, a high proportion of parents and children may ultimately go unvaccinated given that parents' vaccine behavior is closely tied to that of their children. This is concerning given the role that younger adults and pediatric populations play in sustaining SARS-CoV-2 transmission.

Background

Vaccine hesitancy is prevalent in the U.S., which has significant ongoing and renewed public health implications in the context of the current COVID-19 pandemic. Indeed, a 2020 survey of adults conducted prior to COVID-19 vaccine availability found that 11% did not intend to be vaccinated and 31.6% were unsure.^[1] One's level of vaccine hesitancy is comprised of several factors, including perceived need for the vaccine, perceived risks associated with the vaccine, and perceived benefits of receiving a vaccine.^[2, 3] While vaccine hesitancy is not perfectly predictive of vaccine-related behavior, the two are correlated, and resolving hesitancy can aid in vaccine uptake.^[3] Previous research has explored sub-groups of people who endorse high levels of hesitancy in order to improve vaccine outreach and uptake.^[2] Parents of children and adolescents represent an important sub-population whose vaccine-related attitudes and behaviors have far-reaching implications. Parents are tasked not only with enacting decisions about vaccinating themselves, but also their children. Research suggests that on average, parents endorse more concerns about the safety of vaccinating children than non-parents do, highlighting the unique positioning of this group.^[4, 5] Currently, there are three COVID-19 vaccines approved and in use for adult populations in the U.S., with clinical trials for children in progress. Although children with COVID-19 generally present with mild symptoms,^[6] they play a key role in community spread of SARS-CoV-2, and are the subject of debates about the safety of school re-openings.

Extant literature on parental attitudes about vaccination primarily focuses on parents' beliefs and intentions to provide their children with routine childhood vaccines on a medical-provider recommended schedule, rather than their ideas about vaccines that are available for themselves and their children.

However, studies of influenza vaccine behaviors offer an analogue to the likely future of COVID-19 vaccines, given that they are recommended for both pediatric and adult populations. Data suggest that unvaccinated parents vaccinate their children against influenza at lower rates than vaccinated parents, and that among unvaccinated parents, overall hesitancy about vaccinations in general is a primary factor in decisions about vaccinating their children.[7] With regard to COVID-19, a study based in England found that parents had more favorable attitudes about vaccinating themselves than their children, citing children's lower risk for severe illness and questions about children's role in virus transmission.[8]

To date, no studies in the U.S. have focused on parental attitudes about vaccinating themselves against COVID-19, which may offer insights into their attitudes about vaccinating their children when the time comes. Therefore, this study examines predictors of parental likelihood to receive a COVID-19 vaccine. We also examined predictors of prior vaccine refusal for their children to identify whether those predictors were similar to those associated with parental decisions about vaccinating themselves.

Methods

To approximate a nationally representative sample of US adults (age 18+), we used a stratified nonprobability sample to survey 3853 online panel (Climate Nexus) participants between December 22, 2020 - January 2, 2021. Analyses were restricted to parents and guardians 18–64 years old who currently have a child < 18 years old at home (n = 1,181). The sample was weighted based on the U.S. Census Bureau's Voting and Registration Supplement to the Current Population Survey for adults in the United States based on age, gender, race, educational attainment, census region, and Hispanic ethnicity. The outcomes of interest were 1) history of refusing to vaccinate their child and 2) parent's intention to get the COVID-19 vaccine. Bivariate analysis estimated the odds of each of the outcomes by socio-demographic variables of interest (race/ethnicity, political affiliation, income status, urban residence, and sex and age of respondent), history of receiving the influenza vaccine, and history of vaccine hesitancy. Variables that were associated with the outcome at a p-value < .05 or that were found to be important from the literature were included in the multivariate model. Stata 16.0 was used for all data analysis (StataCorp, LP, College Station, TX). Variables significantly associated with the outcomes were included in the logistic regression model. Informed consent was obtained from all participants and the study was deemed exempt by the George Mason University Institutional Review Board (#1684418-1).

Results

The survey participation rate was 68.5% and this is in line with American Association of Public Opinion Research (AAPOR) standards. 69.3% of respondents had never refused to vaccinate their child (Table 1). The oldest group of parents (50–64 years old) had a significantly higher odds of never refusing to vaccinate their child compared to the youngest group of parents (18–29 years old) (adjusted odds ratio [aOR] = 1.83, 95% Confidence Interval [CI], 1.05–3.21) as did those who live in semiurban areas compared to those who live in rural areas (aOR = 1.71, 95% CI, 1.11–2.65). When asked about intention to get the COVID-19 vaccine, only 58.5% of parents were "somewhat likely" or "likely". Multivariate analysis

(Table 2) found that older parents (50–64 years old) were more likely to intend to get the COVID-19 vaccine compared to the youngest parents (18–29 years old) ($aOR = 1.73$, 95%CI, 1.02–2.94). Non-Hispanic Blacks (NHB) were less likely than Non-Hispanic Whites (NHW) to have COVID-19 vaccine intention (39.7% versus 61.5%, $aOR = 0.47$, 95%CI, 0.30–0.74). Fewer mothers than fathers were likely to intend to get the COVID-19 vaccine (51.4% versus 65.5%, $aOR = 0.73$, 95%CI, 0.54–0.98). City dwellers were more likely than those in rural settings (68.6% versus 39.0%, $aOR = 2.04$, 95%CI, 1.24–3.09) as were Democrats compared to their Republican counterparts (69.4% versus 49.6%, $aOR = 2.37$, 95%CI, 1.71–3.29). Parents who had never received the influenza vaccination were significantly less likely to intend to get the COVID-19 vaccine (33.1%) compared to 64.7% of parents who had previously received the influenza vaccine ($aOR = 0.37$, 95%CI, 0.25–0.55). Parents who had ever hesitated to vaccinate their child(ren) were less likely to intend to get the COVID-19 vaccine compared to parents who had never hesitated to give a childhood vaccine (56.4% versus 65.2%, $aOR = 0.56$, 95%CI, 0.42–0.76).

Table 1

Characteristics of parents who had never refused to vaccinate their child, US December 22, 2020-January 2, 2021

	Study population		Never refused to vaccinate child	
	Unweighted no (weighted %)	Unweighted no (weighted %)	Adjusted Odds Ratio (95% CI)	
Total	1181 (100)	770 (69.3)	NA	
Age				
18–29	226 (22.0)	133 (69.3)	ref	
30–49	802 (65.3)	517 (66.9)	0.92 (0.63–1.36)	
50–64	153 (12.7)	120 (81.4)	1.83 (1.05–3.21)	
Sex respondent				
Male	578 (49.5)	364 (65.9)	ref	
Female	603 (50.5)	406 (72.7)	1.19 (0.90–1.58)	
Race/ethnicity				
Non Hispanic White	799 (60.9)	531 (70.8)	ref	
Non Hispanic Black	155 (11.2)	104 (72.6)	1.12 (0.71–1.75)	
Hispanic	44 (2.6)	104 (63.6)	0.71 (0.48–1.05)	
Non Hispanic Other	183 (25.3)	31 (73.1)	1.30 (0.63–2.69)	
Education				
Less than high school	78 (7.6)	47 (71.8)	ref	
High school	234 (21.2)	155 (76.2)	1.20 (0.62–2.32)	
Some College	335 (29.0)	235 (74.1)	1.01 (0.53–1.93)	
College	341 (26.3)	218 (64.5)	0.78 (0.40–1.53)	
Advanced	193 (15.83)	115 (59.5)	0.63 (0.31–1.29)	
Income				
<\$20,000	168 (15.6)	104 (73.5)	ref	
\$20,000–49,999	313 (26.9)	215 (76.1)	1.27 (0.78–2.07)	

	Study population	Never refused to vaccinate child	
\$50,000-100,000	361 (30.1)	235 (66.7)	1.14 (0.68–1.90)
>\$100,000	339 (27.5)	216 (63.8)	1.33 (0.75–2.34)
Urban residence			
Rural	205 (16.7)	151 (80.0)	ref
Urban	542 (46.3)	329 (63.9)	1.23 (0.90–1.67)
Semiurban	434 (27.0)	290 (71.4)	1.71 (1.11–2.65)
Political affiliation			
Republican	393 (33.7)	268 (72.0)	ref
Democrat	616 (51.8)	390 (66.7)	0.89 (0.65–1.22)
Independent	172 (14.5)	112 (72.4)	0.99 (0.64–1.55)
Previous influenza vaccination			
Yes	950 (84.1)	622 (68.7)	ref
Never	189 (15.9)	130 (70.5)	0.82 (0.56–1.21)

Table 2
Characteristics of Study Sample, Likelihood of Getting the COVID-19 Vaccine Among Parents, US
December 22, 2020–January 2, 2021

	Study population		Likely to get COVID vaccine
	Unweighted no (weighted %)	Unweighted no (weighted %)	Adjusted Odds Ratio (95% CI)
Total	1181 (100)	691 (58.4)	NA
Age			
18–29	226 (22.0)	100 (44.9)	ref
30–49	802 (65.3)	504 (63.2)	1.45 (0.98–2.15)
50–64	153 (12.7)	87 (57.0)	1.73 (1.02–2.94)
Sex respondent			
Male	578 (49.5)	387 (65.5)	ref
Female	603 (50.5)	304 (51.4)	0.73 (0.54–0.98)
Race/ethnicity			
Non Hispanic White	799 (60.9)	495 (61.5)	ref
Non Hispanic Black	155 (11.2)	62 (39.7)	0.47 (0.30–0.74)
Hispanic	44 (2.6)	109 (59.6)	1.14 (0.74–1.76)
Non Hispanic Other	183 (25.3)	25 (55.0)	0.83 (0.41–1.69)
Education			
Less than high school	78 (7.6)	35 (48.1)	ref
High school	234 (21.2)	91 (40.6)	0.77 (0.41–1.46)
Some College	335 (29.0)	164 (50.1)	0.75 (0.40–1.39)
College	341 (26.3)	236 (68.7)	1.19 (0.61–2.33)
Advanced	193 (15.83)	165 (85.5)	2.29 (1.05–5.00)
Income			
<\$20,000	168 (15.6)	60 (38.4)	ref
\$20,000–49,999	313 (26.9)	132 (43.4)	1.15 (0.72–1.85)

	Study population	Likely to get COVID vaccine	
\$50,000-100,000	361 (30.1)	235 (64.8)	1.87 (1.12–3.10)
>\$100,000	339 (27.5)	264 (77.5)	2.00 (1.12–3.59)
Urban residence			
Rural	205 (16.7)	80 (39.0)	Ref
Urban	542 (46.3)	373 (68.6)	2.04 (1.24–3.09)
Semiurban	434 (27.0)	238 (54.4)	1.45 (0.97–2.17)
Political affiliation			
Republican	393 (33.7)	190 (49.6)	ref
Democrat	616 (51.8)	432 (69.4)	2.37 (1.71–3.29)
Independent	172 (14.5)	69 (39.6)	0.91 (0.59–1.42)
Ever hesitated to give child a vaccine			
No	610 (55.8)	398 (65.2)	ref
Yes	474 (44.2)	264 (56.4)	0.56 (0.42–0.76)
Previous influenza vaccination			
Yes	950 (84.1)	618 (64.7)	ref
Never	189 (15.9)	62 (33.1)	0.37 (0.25–0.55)

Discussion

This survey, conducted after the COVID-19 vaccination program was launched, found a substantial proportion of parents were not inclined to get the COVID-19 vaccine, especially younger, NHB, lower-income, rural and Republican parents. In contrast there were no such differences in a parent's race/ethnicity, or political affiliation and their history of refusing to vaccinate their child. This highlights the politicization of COVID-19 vaccination and a new challenge for vaccination programmers to tailor vaccine education programs by political party affiliation. This has not been observed previously. In fact, in one literature review, the primary factors associated with parental refusal to vaccinate were income and education status-with those in the lowest groups reporting higher vaccine refusal and hesitancy.[9] Regarding race, the literature points to significant differences in reason for parental vaccine hesitancy by racial group with Black populations reporting higher historically- and contemporarily- grounded distrust of the medical establishment compared to other race groups.[10, 11] However, recent childhood vaccination rates did not differ significantly by race/ethnicity, suggesting that initial hesitation may not lead to overall vaccine rejection.[9]

The rapid development and implementation of the COVID-19 vaccine and the continued disparities in COVID-19 infection and disease outcomes has likely further enforced distrust towards the medical establishment among Black parents.[12] At the same time, vaccine distribution has been inequitable, with Black populations most affected by the pandemic having less access to COVID-19 vaccines than white populations, even when they want them.[13, 14] Concurrently, the politicization of COVID-19 has been manifested in poor adherence to mitigation strategies throughout the pandemic among some Republicans, [15, 16] and in our study in lower intention to get the COVID-19 vaccination. This highlights the importance of tailoring messaging and vaccine uptake strategies to particular populations, as the motivating reasons for hesitancy about the vaccine likely differ between Black populations and Republicans, along with access to vaccination.

Those who had ever hesitated to vaccinate their child or had never received the influenza vaccine themselves also had lower COVID-19 vaccine intention. This raises concerns because prior research shows parental vaccination beliefs and behaviors are significantly associated with child immunization status; children of parents who report being “hesitant about childhood shots” had 26% lower flu vaccine coverage than children of non-hesitant parents. [17] The results suggest that a high proportion of children and parents may ultimately not get the COVID-19 vaccine, unless special efforts are made. This is of note given the important role that younger adults and pediatric populations play in sustaining SARS-CoV-2 transmission.

The data were collected after the FDA (U.S. Food and Drug Agency) emergency use authorization of two COVID-19 vaccines, thus responses captured information about the use of an existing COVID-19 vaccine and not of a hypothetical vaccine. The survey is the largest representative one of its kind to include a multivariate model that accounts for socio-demographic factors, thus identifying key groups that vaccination education campaigns should prioritize. Tailored health education and trust-building interventions and for these groups must be prioritized to address vaccine hesitancy and reach herd immunity.

Conclusions

The findings highlight the urgent need to address parents’ COVID-19 vaccine hesitancy in preparation for the expected approval of a COVID-19 vaccine for pediatric populations late in 2021 or early 2022. Further, a high proportion of parents and children may ultimately not get the COVID-19 vaccine given that parents vaccine behavior is closely tied to that of their children. This is concerning given the important role that younger adults and pediatric populations play in sustaining SARS-CoV-2 transmission. COVID-19 vaccine hesitancy continues to be highest among Black populations and those in the lowest income bracket and this will lead to a possibility of continued disparities in COVID-19 related health outcomes. Concerns for COVID-19 vaccine hesitancy among these populations must be explored in-depth to inform the development of vaccine education and communication interventions. Interventions must be fully tested *prior* to scale up in order to maximize their effectiveness. Finally, while politicization of health issues is not new, the scale of this for COVID-19 threatens to jeopardize our ability to get the pandemic under

control, given that mitigation strategies including vaccination differ significantly by political party affiliation.

List Of Abbreviations

aOR = adjusted odds ratio

CI = Confidence Interval

NHB = Non-Hispanic Blacks

NHW = Non-Hispanic Whites

Declarations

Ethics approval

This study was deemed exempt by the George Mason Institutional Review Board (#1684418-1).

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

None reported.

Funding/Support

The authors would like to thank the Institute for Biohealth Innovation at George Mason University and the TD Charitable Foundation for financial support.

Role of the Funder/Sponsor: The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data

Author Contributions

Dr. Roess had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Roess, Huddleston, Lawrence, Oetjen, Wilson

Acquisition, analysis, or interpretation of data: Roess, Adams, Huddleston, Lawrence, Oetjen, Wilson, Maibach

Drafting of the manuscript: Roess, Adams, Wilson, Huddleston

Critical revision of the manuscript for important intellectual content: Oetjen, Lawrence, Roess, Adams, Maibach

Statistical analysis: Roess

Obtained funding: Roess, Maibach

Acknowledgments

The authors wish to thank our colleagues at Climate Nexus for their support, including James Wyatt, Molly Fisch-Friedman and Reece Rushing.

References

1. Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes Toward a Potential SARS-CoV-2 Vaccine. *Ann Intern Med* 2020;173:964–73. <https://doi.org/10.7326/M20-3569>.
2. Salmon DA, Dudley MZ, Glanz JM, Omer SB. Vaccine Hesitancy: Causes, Consequences, and a Call to Action. *Am J Prev Med* 2015;49:S391–8. <https://doi.org/10.1016/j.amepre.2015.06.009>.
3. Brewer NT, Chapman GB, Rothman AJ, Leask J, Kempe A. Increasing Vaccination: Putting Psychological Science Into Action. *Psychol Sci Public Interest J Am Psychol Soc* 2017;18:149–207. <https://doi.org/10.1177/1529100618760521>.
4. Truven Health Analytics. NPR Health Poll: Vaccinations 2015.
5. McCoy CA. The social characteristics of Americans opposed to vaccination: beliefs about vaccine safety versus views of U.S. vaccination policy. *Crit Public Health* 2020;30:4–15. <https://doi.org/10.1080/09581596.2018.1501467>.
6. Stawicki SP, Jeanmonod R, Miller AC, Paladino L, Gaiseski DF, Yaffee AQ, et al. The 2019–2020 Novel Coronavirus (Severe Acute Respiratory Syndrome Coronavirus 2) Pandemic: A Joint American College of Academic International Medicine-World Academic Council of Emergency Medicine Multidisciplinary COVID-19 Working Group Consensus Paper. *J Glob Infect Dis* 2020;12:47–93. https://doi.org/10.4103/jgid.jgid_86_20.
7. Lama Y, Hancock GR, Freimuth VS, Jamison AM, Quinn SC. Using classification and regression tree analysis to explore parental influenza vaccine decisions. *Vaccine* 2020;38:1032–9. <https://doi.org/10.1016/j.vaccine.2019.11.039>.

8. Bell S, Clarke R, Mounier-Jack S, Walker JL, Paterson P. Parents' and guardians' views on the acceptability of a future COVID-19 vaccine: A multi-methods study in England. *Vaccine* 2020;38:7789–98. <https://doi.org/10.1016/j.vaccine.2020.10.027>.
9. Gowda C, Dempsey AF. The rise (and fall?) of parental vaccine hesitancy. *Hum Vaccines Immunother* 2013;9:1755–62. <https://doi.org/10.4161/hv.25085>.
10. Manning KD. More than medical mistrust. *The Lancet* 2020;396:1481–2. [https://doi.org/10.1016/S0140-6736\(20\)32286-8](https://doi.org/10.1016/S0140-6736(20)32286-8).
11. Griffith D, Bergner E, Fair A, Wilkins C. Using Mistrust, Distrust, and Low Trust Precisely in Medical Care and Medical Research Advances Health Equity. *Am J Prev Med* 2020;60. <https://doi.org/10.1016/j.amepre.2020.08.019>.
12. Lopez L III, Hart LH III, Katz MH. Racial and Ethnic Health Disparities Related to COVID-19. *JAMA* 2021;325:719–20. <https://doi.org/10.1001/jama.2020.26443>.
13. Corbie-Smith G. Vaccine Hesitancy Is a Scapegoat for Structural Racism. *JAMA Health Forum* 2021;2:e210434. <https://doi.org/10.1001/jamahealthforum.2021.0434>.
14. Walker AS, Singhvi A, Holder J, Gebeloff R, Avila Y. Pandemic's Racial Disparities Persist in Vaccine Rollout. *N Y Times* 2021.
15. Painter M, Qiu T. Political Beliefs affect Compliance with Government Mandates. Rochester, NY: Social Science Research Network; 2021. <https://doi.org/10.2139/ssrn.3569098>.
16. Kerr J, Panagopoulos C, van der Linden S. Political polarization on COVID-19 pandemic response in the United States. *Personal Individ Differ* 2021;179:110892. <https://doi.org/10.1016/j.paid.2021.110892>.
17. Santibanez TA, Nguyen KH, Greby SM, Fisher A, Scanlon P, Bhatt A, et al. Parental Vaccine Hesitancy and Childhood Influenza Vaccination. *Pediatrics* 2020;146. <https://doi.org/10.1542/peds.2020-007609>.