Opposing views: associations of political polarization, political party affiliation, and social trust with COVID-19 vaccination intent and receipt

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ABSTRACT

Introduction Political polarization has increased in the USA within recent years. Studies have shown Republicans are less likely to accept COVID-19 vaccinations than Democrats; however, little is known regarding the association between COVID-19 vaccination acceptance and political polarization.

Methods We used data from a nationally-representative survey of 1427 participants conducted between 9 February 2021 and 17 February 2021. We estimated multivariate-adjusted odds ratios for COVID-19 vaccination intent and receipt according to perceived political polarization (measured as the perceived size of the ideological gap between Democrats and Republicans), political party affiliation, and social trust, controlling for demographic and socioeconomic factors.

Results Among participants perceiving high levels of polarization, Republicans (versus Democrats) reported a 90% lower odds of vaccination intent (OR = 0.10 [0.05, 0.19], P < 0.001). Participants with high (versus low) social trust and low perceived polarization had a 2-folder higher vaccination intent (OR = 2.39 [1.34, 4.21], P = 0.003); this association was substantially weaker in the high perceived polarization group.

Conclusions High perceived levels of political polarization appear to magnify the decrease in the odds of receiving the COVID-19 vaccine and the intent to get vaccinated among Republicans versus Democrats. Political polarization may further attenuate the protective associations of high social capital with vaccination.

Introduction

COVID-19 vaccination is critical to moving toward herd immunity in the ongoing pandemic. However, vaccination is not uniformly accepted, with varying degrees of vaccine hesitation across gender, racial and political party lines.1 Meanwhile, over the past decade, the political climate within the USA has grown increasingly polarized, with widening ideological gaps.2 Recent research has shown that higher perceived ideological differences are linked to an increased onset of mental and physical health conditions.3 Additionally, COVID-19 vaccines are trusted and distrusted by liberal and conservative party elites, respectively.4 Given concerns about a plateauing in COVID-19 vaccination rates among Americans while new more contagious variants emerge,5 this study aimed to understand the role perceived political polarization may play in the receipt of a COVID-19 vaccine and the intent to get vaccinated.

Methods

Study sample
This study was based on a nationally-representative, cross-sectional survey of English-speaking adults in the USA. The survey was administered online by Qualtrics, a national survey research firm, between 9 February 2021 and 17 February 2021. The overall survey response rate was 45%. Participants were compensated for their time. This study was approved by the Institutional Review Board at Northeastern University.
Outcomes
To measure COVID-19 vaccination intent, participants were asked to rate how likely they were to receive a vaccination once available. This measure was collapsed to create a dichotomous outcome. Published analyses on COVID-19 vaccination intent have applied a similar classification.6,7 Participants were further asked if they had already received at least one dose of a COVID-19 vaccine.

Exposures
Perceived mass polarization was measured as one’s perceived size of the ideological gap between Democratic and Republican voters in the USA.8 Using a 0–10 scale, with 0 being the most liberal and 10 being the most conservative, participants rated the average Democratic voter and Republican voter. Perceived mass polarization was calculated as the absolute difference between Democratic and Republican voter ratings. This variable was dichotomized into high versus low perceived political polarization using the sample median value.

Political party affiliation was self-reported as either Democrat, Republican, or Other political party. Social capital was measured by a survey item asking if others can be trusted, and modeled as a dichotomous variable.

Covariates
All models controlled for participant age, gender, race, marital status, educational attainment, employment status, income, health insurance status, nativity, state of residence and comorbidities. Data for <6% of covariates was missing, and the missing indicator method was used to handle missing data.

Statistical analysis
We fit multivariate logistic regression models to estimate the adjusted odds ratios between perceived political polarization, political party affiliation, and social capital with COVID-19 vaccination intent and receipt. We further tested for statistical interactions between political party affiliation and mass polarization, and stratified our results accordingly. All analyses were performed in R version 4.0.3 (R Foundation for Statistical Computing, Vienna, Austria).

Results
The survey sample consisted of 1427 participants (see Supplementary Table 1 for descriptive characteristics). The mean age of study participants was 45.3 (range 18–92) years. The study sample was predominantly female (53.6%) and non-Hispanic White (62.9%). Approximately one-quarter of participants reported trust in others (24.8%). The mean perceived ideological distance between Democratic and Republican voters was 2.9 points.

We observed a statistical interaction between political polarization and political party affiliation for vaccination intent (P for interaction <0.001) but not vaccination receipt (P for interaction = 0.97). Among respondents perceiving low levels of polarization, Republicans had a 41% lower odds of planning to get vaccinated (OR = 0.59 [0.34, 1.10], P = 0.055) than Democrats (Fig. 1A). Among participants perceiving high levels of polarization, this association was markedly stronger, with Republicans reporting a 90% lower odds of vaccination intent (OR = 0.10 [0.05, 0.19], P < 0.001) than Democrats (Fig. 1A). Similar patterns of association were observed for vaccination receipt but did not reach a 0.05 significance level (Fig. 1B).

The association of social capital with vaccination intent differed by level of polarization (P for interaction = 0.11). Participants with high (versus low) social capital had a 2-fold higher vaccination intent (OR = 2.39 [1.34, 4.21], P = 0.003) in the low polarization group. This relationship was weaker in the high polarization group (OR = 1.40 [0.74, 2.66], P = 0.30) (Fig. 1A). We identified qualitatively similar patterns for vaccination receipt (Fig. 1B).

Discussion
Main findings
In this nationally-representative study, Republicans reported less vaccination intent and receipt than Democrats, similar to findings from other studies.6,9,10 High perceived levels of political polarization substantially magnified the size of the association for decreased vaccination intent in Republicans versus Democrats. Republicans perceiving high levels of polarization may view COVID-19 vaccine acceptance as a partisan political issue rather than a public health concern, thereby diminishing vaccine acceptance in this group. We further found evidence that political polarization may attenuate the protective effects of social capital. Respondents with high levels of social capital and low perceived political polarization showed greater odds of vaccination intent, but this was not observed in the high polarization group. High levels of political polarization may negate the salutary effects of high social capital.

What is already known
COVID-19 vaccination acceptance varies greatly varies by political party. Republicans are more inclined to accept conspiratorial disinformation about COVID-19 vaccines
and express hesitancy and distrust in vaccines.\textsuperscript{6} Political partisanship is linked to reduced vaccine uptake among conservatives. Meanwhile, high social capital has been previously associated with greater uptake of protective health behaviors during the COVID-19 pandemic and higher vaccination rates during the H1N1 pandemic.\textsuperscript{11,12}
What this study adds
This study adds new evidence on political polarization to the growing body of research on societal factors that may influence COVID-19 vaccination. Understanding factors associated with COVID-19 vaccination is critical for expanding vaccination coverage in the USA.

Study limitations
There are several limitations to our study. The cross-sectional study design does not provide evidence for causal relationships between political polarization, political affiliation, and social capital with COVID-19 vaccination. The subsample reporting having received the COVID-19 vaccine was relatively small (n = 292), thereby limiting the statistical power to detect associations. While we controlled for multiple covariates, residual confounding may have been present and biased our findings. Future research that investigates the influences of political polarization and social capital on COVID-19 vaccination acceptance is needed.

Supplementary data
Supplementary data are available at the Journal of Public Health online.

References
1. Khubchandani J, Sharma S, Price JH et al. COVID-19 vaccination hesitancy in the United States: a rapid National Assessment. J Commun Health 2021;46(2):270–7.
2. Lu X, Gao J, Szymanski BK. The evolution of polarization in the legislative branch of government. J R Soc Interface 2019;16(156):20190010.
3. Nayak SS, Fraser T, Panagopoulos C et al. Is divisive politics making Americans sick? Associations of perceived partisan polarization with physical and mental health outcomes among adults in the United States. Soc Sci Med 2021;284:113976.
4. Jamison AM, Broniatowski D, Dredze M et al. Not just conspiracy theories: vaccine opponents and proponents add to the COVID-19 ‘infodemic’ on Twitter. Harvard Kennedy School Misinformation Review 2020;1:1–22.
5. Centers for Disease Control and Prevention. COVID Data Tracker: Vaccination Trends. Georgia USA: CDC, 2021. Available from: https://covid.cdc.gov/covid-data-tracker/#vaccination-trends.
6. Ruiz JB, Bell RA. Predictors of intention to vaccinate against COVID-19: results of a nationwide survey. Vaccine 2021;39(7):1080–6.
7. Wong LP, Alias H, Wong PF et al. The use of the health belief model to assess predictors of intent to receive the COVID-19 vaccine and willingness to pay. Hum Vaccin Immunother 2020;16(9):2204–14.
8. Lelkes Y. Mass polarization: manifestations and measurements. Public Opin Q 2016;80(S1):392–410.
9. Weisel O. Vaccination as a social contract: the case of COVID-19 and US political partisanship. Proc Natl Acad Sci U S A 2021;118(13):e2026745118.
10. Kreps S, Prasad S, Brownstein JS et al. Factors associated with US adults’ likelihood of accepting COVID-19 vaccination. JAMA Netw Open 2020;3(10):e2025594.
11. Borgonovi F, Andrieu E. Bowling together by bowling alone: social capital and COVID-19. Soc Sci Med 2020;265:113501.
12. Ronnerstrand B. Contextual generalized trust and immunization against the 2009 A(H1N1) pandemic in the American states: a multilevel approach. SSM Popul Health 2016;2:632–9.