

How Do Mode and Frequency of Covid-19 Information Updates and Political Values Affect Attitudes to a Future Covid-19 Vaccine?

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Abstract

Background The effect of social media consumption on perceptions of the seriousness of the Covid-19 pandemic, attitudes to public health requirements, and intentions towards a future Covid-19 vaccine are of live public health interest. There are also public health and security concerns that the pandemic has been accompanied and arguably further amplified by an ‘infodemic’ spreading misinformation. Tests of the effect of social media consumption on future Covid-19 vaccine intentions using population samples have been relatively few to date. This study contributes to the evidence base by examining social media consumption and vaccine intentions using British and US population samples.

Methods Data were gathered on 1,663 GB adults and 1,198 US adults from an online panel on attitudes towards a future vaccine alongside self-reported social and legacy broadcast and print media consumption. Ordered and binomial logit models were used to assess reported intentions regarding a future Covid-19 vaccine, testing the effects of media consumption type. Respondents were categorised in terms of their media consumption using a fourfold typology, as less frequent social, less frequent legacy media consumers (low-low); high social, low legacy media consumers (high-low); low social, high legacy (low-high); and high social, high legacy (high-high).

¹ Data were shared by the Center for Countering Digital Hate for secondary analysis. No external funding source support was used for the secondary data analysis. No funders had any role in study design, data analysis, publication of a working version, or preparation of the manuscript.

Results In the British sample, regression results indicate that those who receive Covid-19 updates more frequently via legacy media (low-high), and those being updated more than daily via both online and legacy media consumers, tend to provide significantly less Covid-19 vaccine-hesitant responses than low-low consumers. There is no significant difference between high social, low legacy media consumers and low-low consumers. In the US sample, membership of the low-high group is associated with lower Covid-19 vaccine hesitancy compared with low-low consumers. However, respondents consuming both social and legacy media several times daily exhibit similar vaccine intentions on average to those consuming social media daily and legacy media less often, providing a contrast with the UK sample. We also identify differences in Covid-19 vaccine intentions relating to demographics and political values.

Conclusions Differences in vaccine attentions are associated with the extent and balance of consumption of news relating to Covid-19 and its source. Political values and ethnic identity also appear to structure attitudes to a future Covid-19 vaccine.

Introduction

The Covid-19 pandemic and public health requirements to mitigate its worst effects have exerted extraordinary personal, social and economic costs. In the UK, 46,210 Covid-19-associated deaths have been officially-acknowledged as of 3 August 2020, and 154,471 in the US.² An ‘infodemic’ has also been identified.¹⁻⁴ More frequent social media use has been found to be associated with higher levels of conspiracism in general.⁵ Conspiracist and critical narratives merge in the anti-vaccination online world;⁶ Kata’s online ethnography identified common tropes: ‘I’m not anti-vaccine, I’m pro-safe vaccines’; ‘vaccines are toxic’; ‘vaccines should be 100% safe’; ‘science was wrong before’; ‘you’re in the pocket of Big Pharma’; and ‘I’m an expert in my own child’ among several.⁷ Attitudes towards a putative Covid-19 vaccine have also been found to be affected by level of social media

² See <https://coronavirus.data.gov.uk> and <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html>

consumption: the most vaccine-resistant in Ireland and the UK are more likely to consume relatively more media content from social rather than traditional media sources.⁸ These emerging findings are consistent with pre-pandemic studies of online social networks and vaccine hesitancy relating to parental vaccine hesitancy,⁹ uptake of the Human Papilloma Virus vaccine,¹⁰⁻¹² and variable uptake of annual influenza vaccines.¹³⁻¹⁴ Further studies have identified that social media interventions can encourage vaccine uptake,¹⁵⁻¹⁶ or reduce traffic to anti-vaccination content.¹⁷ The Theory of Planned Behavior is one commonly-used psychological model explaining vaccine intentions, combining beliefs and attitudes, alongside perceived behavioural control, sense of self-efficacy, and locus of control, informing the ‘four C’ model of hesitancy as deriving from one or more of complacency, convenience, confidence and calculation.^{18, 14} Anti-vaccination activists online can enhance a sense that health risks associated with catching the virus are low and that vaccines are not safe, to increase complacency and reduce confidence. In sum, social media consumption and algorithmic content presentation have meaningful effects on vaccination attitudes, and are likely to structure attitudes towards a future Covid-19 vaccine.

Moreover, anti-vaccination attitudes are associated with low trust in scientific expertise and medical institutions, climate change denial, and authoritarian populism.¹⁹⁻²⁰ Recent work has demonstrated that Trump supporters are more likely to exhibit anti-vaccination attitudes both because of their conservatism and their higher tendency to conspiracist beliefs, with the latter a stronger predictor, and with the current US President’s anti-vaccination Tweets appearing to have a causal effect on anti-vaccination attitudes.²¹ Research using a representative sample of the US population confirms that free-market endorsement predicts vaccine rejection,²² while populist party vote share has been found to correlate at the national level with vaccine hesitancy across Western Europe.²³ Murphy et al identified that supporting Sinn Féin or independent candidates (namely, anti-establishment candidates) rather than no party was associated with vaccine hesitancy and resistance in an Irish sample; authoritarianism and social dominance traits were also found to vary significantly with vaccine hesitancy and resistance.⁸ By comparison, reporting having voted in the 2019 general election, and reporting having voted Leave, were not significant predictors of vaccine hesitancy or

resistance in their UK sample; and while social dominance traits were found to vary with vaccine hesitancy and resistance, authoritarianism was not.

Vaccine hesitancy is of urgent importance for Covid-19 vaccines, both regarding recruitment of clinical trial volunteers and future uptake.²⁴ With the virus highly-transmissible, it has been estimated that 55-82 percent of the population will need immunity to confer herd immunity.²⁵ Since the immunocompromised cannot be vaccinated, a vaccine refusal rate above 10 percent could threaten the population benefits of widespread vaccination.²⁶ Accordingly, this study examined attitudes towards a future vaccine in Great Britain and the US using secondary data, focusing on reported media consumption and political values, to assess the extent of potential threat to uptake and its possible media consumption-related and ideological drivers.

Methods

Data were drawn from the UK and US YouGov online panels, forming national samples representative of their respective populations on key sociodemographic variables. The surveys were commissioned by the Center for Countering Digital Hate, a non-profit campaigning organisation with interests in anti-vaccination messaging online and its development during the course of the Covid-19 pandemic. YouGov panel members are recruited via diverse campaigns, with 2 million US and 1.2 million UK members in each panel. The survey was fielded 24-25 June 2020 in both countries, to 1663 British and 1198 US respondents, who were asked,

When a Coronavirus (COVID-19) vaccine becomes available, do you think you will or will not get vaccinated?

Response options comprised ‘definitely will get vaccinated; probably will get vaccinated; probably will not get vaccinated; definitely will not get vaccinated’, breaking down as summarised in Table 1. 69 percent of British respondents and 59 percent of American respondents indicate that they probably or definitely will get vaccinated; 15 percent indicate that they do not know in both. For our multiple regression analyses we removed those responding ‘don’t know’, though note it is a substantial

category potentially susceptible to misinformation and accordingly worthy of attention by public health authorities.

- Table 1 here -

Explanatory variables

Respondents were also asked,

How often, if ever, do you get news and updates on the Coronavirus (COVID-19) outbreak from each of the following places? Social media (e.g., Facebook, Twitter, YouTube, WhatsApp, etc.); Mainstream/traditional media, including through their websites and online (i.e., print, digital, radio and TV news).

Response options for each medium type comprised ‘several times a day; once a day; a few times a week; less often than a few times a week; never’. Our interest is in both the effects of extent of exposure to Covid-19 information and also the relative balance of media consumption affected attitudes. We accordingly categorised respondents as daily or less social/daily or less legacy media consumers (low-low), more than daily social/more than daily legacy consumers (high-high), lower social/more than daily legacy (low-high), and more than daily social/lower legacy consumption (high-low). The proportions break down as follows for Britain and the US as reported in Table 2. The percentage of each media consumption type indicating they definitely or probably will not take up a Covid-19 vaccine or do not know is also reported, highest in both the British and American samples for those who are low-low types, followed by high-low, then high-high, and lowest for those who are relatively low social media, high legacy media consumption types. The percentage of respondents indicating vaccine hesitancy or uncertainty accordingly varied by media consumption type in both the British sample ($X^2 [3, 1663] = 45.46, p < 0.001$) and the American sample ($X^2 [3, 1198] = 21.44, p < 0.001$).

Reported vote choice in December 2019, and European Union Referendum vote choice in 2016, was provided for the British sample, as summarised in Table 3. For our analyses we grouped Labour voters, Conservative voters, other voter and non-voters; we also distinguished Leave voters from

Remain voters and those who did not vote/do not remember. In the American sample, both political ideology and vote choice in the 2016 Presidential election were available; for our analyses we selected the behavioural over the attitudinal measure, namely whether the respondent indicated they voted for Clinton, Trump, or another candidate/did not vote. The percentage of respondents indicating vaccine hesitancy or uncertainty varied by party political support in the British sample ($\chi^2 [3, 1656] = 37.62, p < 0.001$); we also observe variation by EU Referendum vote choice retaining non-voting as a third category ($\chi^2 [2, 1663] = 41.44, p < 0.001$). Similarly, in the US sample we observe significant variation by 2016 presidential vote choice ($\chi^2 [2, 1198] = 76.99, p < 0.001$).

- Tables 2 and 3 here -

Sociodemographic controls

Additional controls were drawn from the YouGov ‘profile’ variables stored on each panel member. For the British sample these comprised age in years, sex, National Readership Survey social grade (a six-fold classification based on the occupation of the head of the household, recoded here to differentiate ABC1 from C2DE), education (differentiating those who achieved a tertiary qualification from others) and ethnic minority versus majority status. For the American sample these comprised age in years, sex, marital status (recoded to differentiate those married or partnered from others), whether the respondent has any children aged under 18, census region (Northeast, West, South, Mid-West), race/ethnicity (recoded to differentiate White, Black, and Other), and education (recoded to distinguish whether the respondent had at least some college education versus high-school only or less). The dataset also includes the number of social media platforms on which the respondent indicated membership (ranging 0-14), summarised in Table A1 (appendix).

Analysis

Since it is arguable that the significant differences perceptible in Tables 2 and 3 might be driven by sociodemographic confounders, we ran ordered logit regressions to test whether associations continue to hold taking third variables into account. We treat ‘low-low’ as the reference category and compare each consumption type to this reference point in terms of attitudes to a future vaccine.³ To assess how explanatory and control variables predict vaccine hesitancy defining the ‘don’t know’ category as potentially indicating some doubt, we grouped those who responded ‘don’t know’ with those who indicated they probably or definitely would not get a vaccine, and respecified the model with the same explanatory variables as a binary logistic regression. Results are given in Tables 4 and 5. In this way we retain the information on strength of commitment to or rejection of a potential vaccine in the first set of models, while making use of the potentially-important information on the ‘don’t know’ respondents in the second.

- Tables 4-5 here -

For the British sample, gender and NRS grade have no significant association with reported Covid-19 vaccine intentions in the ordinal logistic regression model results. However, older respondents are more likely to say they would probably or definitely be vaccinated, perhaps driven by social generation rather than age itself and likely mediated by trust and health concerns. Regarding the political variables, those who report they voted Labour in December 2019 give significantly lower scores on the four-point scale (controlling for third variables) than Conservative voters. This is not due to confounding by education; indeed, those who have tertiary qualifications (including nurses, teachers and those with university diplomas) are not found to give higher scores. It may however be confounded by Left-liberal political values: disentangling the effects of party support and political values would be worthy of further study with fresh samples. Those reporting they voted Leave rather

³ We also treated the media consumption measures as continuous and included both measures plus as interaction term. Results were essentially identical, although more complex to interpret and present, and accordingly we selected a simpler typology.

than Remain are significantly more likely to give a more vaccine-hesitant response. Taking the Labour 2019 and Leave findings together, it seems less plausible that a particular vote choice *causes* differences in vaccine attitudes; rather, differences in political values on both social and economic values dimensions more likely drive both electoral choices and vaccine attitudes. We accordingly interpret this finding as relating to vote choice serving as a proxy for political values. Equally, it is possible that attitudes towards scientific and medical expertise in general have become more politicised, and that scientific, medical and institutional trust form important intervening variables which we do not observe here.

Regarding media consumption type, in the first model taking strength of hesitancy as the dependent variable and screening out the ‘don’t knows’, membership of the low-high and high-high groups is associated with giving significantly less vaccine-hesitant responses on the four-point scale than those who are low-low consumers. Those following Covid-19 updates online several times a day, and legacy media updates daily or less, are not significantly different to the low-low consumers. In the binary logistic regression, where we group the ‘don’t knows’ with the vaccine-hesitant reporting that they probably or definitely will not have a vaccine, similar patterns are found: the high-low consumers are not significantly different to the low-low consumers, while the low-high and high-high consumers remain significantly less likely to be vaccine hesitant than the low-low consumers. This suggests that receiving media updates on Covid-19 very frequently buttresses the trust-dampening effect of very frequent Covid-19 updates via social media. Moreover, the negative effect of social grade (ABC1 vs C2DE) on hesitancy becomes significant, while the positive Leave effect loses significance in this larger sample. In this second model, the finding that ethnic minority respondents are more likely to be more vaccine-hesitant becomes insignificant ($p = 0.079$), although the coefficient has the same sign. The number of ethnic minority respondents in the sample is admittedly small, however, so that low statistical power may be at issue.

We repeated the analyses for the US sample, summarised in Table 5 (note that a larger array of variables was available in this dataset). Here, we observe that female respondents are on average more vaccine-hesitant than men in both models; age is negatively and significantly associated with giving a

more vaccine-hesitant response in the first model, though loses significance in the second. Those living in the Northeast are significantly less vaccine-hesitant than those in the Midwest, South or West. African Americans are notably and significantly more vaccine-hesitant than White Americans, perhaps reflecting historical distrust of the health care system, exemplified by the notorious Tuskegee study run between 1932 and 1972.²⁷ (The distrust arising from revelation of the study has recently been identified as having cut life expectancy by 1.5 years for Black men conditional on reaching the age of 45, an effect in size comparable to that of smoking.)

The coefficient for having at least some college education is negative in both models, and statistically-significant in the binary logistic regression. Those who report they voted for Hillary Clinton in 2016 are significantly less vaccine-hesitant than those who supported a third candidate or did not vote in both models; those who report they voted for Donald Trump are significantly more vaccine-hesitant in the first, although it loses significance in the second. It is again an open question as to whether partisanship *causes* differences in vaccine attitudes. Replacing 2016 presidential vote choice with a liberalism-conservatism scale generates the expected result that the more conservative are relatively more hesitant in both models (see Table A2 in the appendix). Being registered on a larger number of social media platforms is associated with being significantly less Covid-19 vaccine-hesitant.

Regarding media consumption type, membership of the low-high group is associated with lower vaccine hesitancy compared with those who get Covid-19 news updates less than several times a day (low-low) in the first model; membership of the other two groups (high-low and high-high) is not associated with significantly-different attitudes compared with low-low consumers. In the binary logistic regression model, the terms for each consumption type became insignificant.

We then tested for whether high social/low legacy news consumption types are significantly-different to other media consumption types, by re-running the models with high-low types as the reference category (Table 6). Other coefficients (other than the thresholds) naturally remain as reported in Tables 4 and 5. For the British sample, in the ordinal logistic regression high-low consumers are not significantly different to low-high or high-high consumers. In the binary logistic regression, with the addition of the ‘don’t know’ respondents, we find that they are significantly more likely to indicate

vaccine hesitancy or that they do not know compared with low-high and high-high consumers (to reiterate, the results in Table 5 indicated no significant difference between high-low and low-low consumers). For the US sample, Table 6 demonstrates that high-low consumers are significantly more vaccine-hesitant than low-high consumers. They are not significantly different to high-high consumers. In the binary logistic regression, neither the low-high nor the high-high are significantly different than the ‘extremely online’ high-low. This is interesting because it suggests that frequent legacy media consumption does not provide a buffering effect against frequent social media consumption of Covid-19 news updates with regard to vaccine attitudes in the US.

The models generate predictions of the following rates of Covid-19 vaccine response option for each media consumption type, as reported in Figures 1-2. Predicted probabilities are given for a ‘representative respondent’ characterised as female, White, and aged 50, for each media consumption type in turn. Although the models admittedly differ for the US and UK, the predictions are suggestive that there is a generally-higher level of Covid-19 vaccine hesitancy in the US than Britain, a difference which was not perceptible with regard to vaccines in general in the Wellcome Global Monitor 2018 (analysis available on request).

- Figures 1-2 here -

Discussion

The predicted probabilities illustrate that media consumption type differentiates Covid-19 vaccine intentions. The British results suggest that the high-high consumers are more similar to low-high consumers (namely, relatively more confident) and high-low to low-low consumers (relatively less confident). In the US, more frequent social media consumption appears to increase vaccine hesitancy regardless of legacy media consumption frequency. Notably, there is some mixed evidence that ethnic minority members in Britain are more likely to be more vaccine-hesitant or uncertain compared with Whites, a difference also found for African American respondents in the US sample. This raises important questions regarding potential breakdowns in public health communication, perhaps poorly-

tailored to ethnic minority community members; potentially lower medical trust due to poorer or substandard care; lower trust in government, known to be a driver of confidence in vaccines²⁰; ethnic and racial differences in social media consumption; ethnic minority respondents reasonably assuming that they may already have had Covid-19 at a higher rate than White respondents; and other potential mediators of this difference.

There are mixed effects for partisanship in both contexts depending on the model specification. If these effects are real in the population, it is likely because political values and ideology structures both partisanship and vaccine intentions, although in the US case it is also plausible that political leadership and cues do matter, as found in previous literature.²¹ In the US, there is wider evidence in the literature that vaccination attitudes are bound up with broader political distrust and polarisation, and individuals adhering to beliefs congruent with their identities even when they know and understand evidence against them.²⁸ These findings do raise the question of whether generalised politicisation of areas hitherto governed by expert or disinterested practitioner knowledge, accelerated by the importance of identity differentiation for social media, is now affecting public health. Moreover, timing of the political cycle, and voice enjoyed by insurgent and populist politicians, should be considered as relevant variables for public health campaigns.

The differences in vaccine hesitancy between Britain and the US - although admittedly identified in separate models, rather than a single modelling framework - may arise because the legacy media ecosystems are different in both contexts; and because ideology in general sorts both electoral choices and vaccination attitudes to a greater extent in the US than Britain, with its online and legacy media serving as critical sorting and affect-generating technologies.

In both, however, we do observe that those consuming legacy media at least several times a day and online media less frequently exhibit lower vaccine hesitancy than the low-low (although the result is shy of significance in the second US model). We also observe that when we take ‘don’t know’ responses into account in the binary logistic regression models, high-low consumers (who are more ‘extremely online’ than engaged with legacy media) are not significantly different to the low-low consumers. These results may well arise due to the nature and valence of news consumed via new

media sources; equally, it may result due to the less trusting worldviews of those who are more heavily-online.

This study naturally has a number of limitations. Measures of legacy media consumption would ideally distinguish broadcast and print media, given differences in regulation applying to each mode. Measures of social media consumption would ideally differentiate between platforms with a sufficient sample size that we can estimate whether vaccine confidence varies with time spent on particular platforms. We have also interpreted ‘don’t know’ as potentially-reflecting low vaccine confidence, but it is admittedly difficult for respondents to form and report a reliable intention given that a workable vaccine is still not available. ‘Don’t know’ may reflect any of the following: generalised vaccine hesitancy; low scientific and institutional trust as it relates to the management of the pandemic; concerns regarding testing of a Covid-19 vaccine in particular; or genuine uncertainty regarding eligibility or applicability (for example, if the respondent turns out to have immunity already). Relatedly, respondents are poor at predicting future behaviour given the extent of remaining unknowns and common slippage between intentions and behaviour. Nevertheless, we use the measure as an indicator of potential non-compliance risk.

The results have implications for public health strategies in the event effective vaccines are discovered, and also the question of media regulation more broadly. For the former, in the event of a workable vaccine coming to market, public health authorities will need to consider communication strategies to reduce uncertainty and complacency, and enhance confidence. Such strategies may need to be segmented by age given the age effects apparent in Tables 4 and 5 as well as the lower severity of Covid-19 experienced by the young, with many likely to calculate that a vaccine is a costly use of time. They should also be mindful of potential ethnic and racial differences in vaccine confidence. They may also need to consider interventions to enhance confidence online. In turn, social media platforms and media regulators alike should consider measures to reduce the health risks of misinformation. Explicit strategies and policies may be necessary to confront particular online accounts or sites, not least because social media accounts promoting anti-vaccination messages on Facebook and Twitter have been building follower counts during the crisis.²⁹ Equally, direct

confrontation risks false equivocation, a strategy used effectively by Russian troll accounts giving equal attention to pro- and anti-vaccination arguments to undermine scientific consensus and increase political division.³⁰ Nuanced and sensitive communication strategies will be required to emphasise scientific consensus and individual and population benefits of vaccination while avoiding amplification of anti-vaccination narratives.

What is already known

Vaccine hesitancy is known to be affected by social media consumption and by political ideology. What is still being established is whether Covid-19 attitudes are similarly-structured, with only a few studies yet available using representative population samples.

What this study adds

Covid-19 vaccine attitudes in Britain and the US are found to be associated with relative frequency of social and legacy media consumption, controlling for third variables. Findings should inform public health campaign messaging. There is also mixed evidence for conservative values, proxied by past vote choices, and ethnicity structuring Covid-19 vaccine attitudes in both Britain and the US.

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Table 1

Future Covid-19 vaccine intentions	UK (%)	Base (unweighted) N	US	Base (unweighted) N
Definitely will get vaccinated	38.0	669	34.2	409
Probably will get vaccinated	31.0	528	25.0	300
Probably will not get vaccinated	10.5	165	9.7	115
Definitely will not get vaccinated	5.9	95	15.6	187
Don't know	14.6	206	15.4	187
Total	100	1663	100	1198

Table 1: Future Covid-19 vaccine intentions. Source: YouGov data.

Table 2

Media consumption type	Percentage of British sample (%)	Base N	Percentage indicating they would not vaccinate/do not know %	Percentage of US sample (%)	Base N	Percentage indicating they would not vaccinate/do not know %
Low social, low legacy	61.2	980	36.8	55.6	659	45.8
Low social, high legacy	19.3	352	16.1	17.4	210	29.1
High social, low legacy	8.3	136	36.5	12.9	157	42.8
High social, high legacy	11.3	195	20.7	14.1	172	33.2
Total	100	1663	1663	100	1198	1198

Table 2: Media consumption type; percentage of each type indicating they definitely or probably do not intend to take up a future Covid-19 vaccine/do not know. Source: YouGov data.

Table 3

Political variables British sample	Percentage % or mean (SD)	Unweighted N	Percentage indicating they would not vaccinate/did not know %
Supported Conservatives December 2019	34.1	629	27.8
Supported Labour	24.9	459	20.9
Supported another party	18.9	347	27.7
Did not vote	22.1	221	43.4
Respondent reports they voted Leave 2016	39.6	699	31.3
Respondent reports they voted Remain	37.1	747	21.0
Respondent reports they did not vote/cannot remember	23.3	217	41.5
American sample			
Voted Clinton 2016	30.9	378	22.5
Voted Trump 2016	25.8	302	48.3
Third candidate/did not vote	43.3	518	49.8

Table 3: Political variables. Source: YouGov data.

Table 4

GB sample	<i>Ordered logit regression</i>			<i>Logistic regression</i>		
	Coefficient	Standard error	p-value	Coefficient	Standard error	p-value
Female vs male	-0.014	0.118	0.908	0.020	0.135	0.883
Age	-0.020	0.004	<0.001	-0.018	0.005	<0.001
C2DE vs ABC1	-0.187	0.131	0.155	-0.464	0.142	0.001
Respondent is ethnic minority member	0.634	0.295	0.032	0.584	0.333	0.079
Tertiary education	-0.094	0.128	0.462	-0.145	0.145	0.318
Labour	-0.351	0.173	0.043	-0.489	0.205	0.017
Other party	-0.069	0.172	0.687	-0.059	0.200	0.769
Did not vote	0.214	0.238	0.368	0.263	0.225	0.243
Leave	0.479	0.145	0.001	0.293	0.171	0.086
Did not vote EU Ref	0.054	0.226	0.810	0.155	0.240	0.518
Low/high vs low/low	-0.599	0.150	<0.001	-0.892	0.188	<0.001
High/low vs low/low	-0.509	0.266	0.055	-0.069	0.250	0.782
High/high vs low/low	-0.487	0.185	0.009	-0.691	0.229	0.003
Threshold 1	-2.054	0.391				
Threshold 2	-0.284	0.389				
Threshold 3	0.911	0.402				
Constant				0.999	0.457	0.029
N	1446			1646		
Wald $X^2(13)$	101.56		<0.001	98.77		<0.001
Pseudo-R^2	0.036			0.073		

Table 4. Ordinal and binary logistic regression models of UK Covid-19 vaccine intentions. Reference category: male, ABC1, secondary/vocational/no qualifications, White, respondent reports they voted Conservative in December 2019, respondent reports they voted Leave in June 2017, respondent engages with Covid-19 information daily or less on both social and legacy media (low/low).

Table 5

US sample	<i>Ordered logit regression</i>			<i>Logistic regression</i>		
	Coefficient	Standard error	p-value	Coefficient	Standard error	p-value
Female	0.355	0.126	0.005	0.336	0.133	0.011
Age	-0.011	0.005	0.025	-0.009	0.005	0.061
Married/partnered	-0.047	0.136	0.728	-0.181	0.145	0.212
Has children under 18	0.364	0.175	0.037	0.362	0.177	0.040
Midwest	0.704	0.203	0.001	0.445	0.221	0.044
South	0.435	0.175	0.013	0.393	0.191	0.039
West	0.502	0.194	0.010	0.432	0.208	0.038
Black	0.623	0.207	0.003	0.637	0.224	0.004
Other heritage	0.084	0.161	0.605	0.027	0.175	0.877
Some college education	-0.204	0.140	0.145	-0.514	0.140	<0.001
Voted Clinton 2016	-0.875	0.156	<0.001	-1.093	0.175	<0.001
Voted Trump 2016	0.532	0.190	0.005	0.216	0.189	0.255
Number of platforms	-0.070	0.031	0.025	-0.088	0.033	0.008
Low/high	-0.439	0.172	0.011	-0.361	0.193	0.061
High/low	0.046	0.202	0.819	-0.044	0.204	0.830
High/high	-0.351	0.208	0.091	-0.306	0.204	0.135
Threshold 1	-0.447	0.364				
Threshold 2	0.948	0.365				
Threshold 3	1.650	0.365				
Constant				0.035	0.388	0.928
N	1011			1198		
Wald $X^2(16)$	140.29		<0.001	124.64		<0.001
Pseudo-R^2	0.059			0.095		

Table 5. Ordinal and binary logistic regression model of US Covid-19 vaccine intentions. Source: YouGov data and author's analysis. Reference category: male, unmarried, no children under-18, lives in Northeast, is White, has a high school education or less, voted for a third candidate/did not vote in 2016, respondent engages with Covid-19 information daily or less often on both social and legacy media (low/low).

Table 6

British model of Covid-19 vaccine intentions: comparing different media consumption groups to high social media, lower legacy media consumers						
	<i>Ordinal logistic model</i>			<i>Logistic regression</i>		
Media type	Coefficient	SE	<i>p</i> -value	Coefficient	SE	<i>p</i> -value
Low-high vs high-low	-0.090	0.288	0.755	-0.823	0.292	0.005
High/high vs high-low	-0.022	0.301	0.942	-0.622	0.315	0.048
American model of Covid-19 vaccine intentions						
Media type	Coefficient	SE	<i>p</i> -value	Coefficient	SE	<i>p</i> -value
Low-high vs high-low	-0.486	0.245	0.048	-0.318	0.257	0.216
High/high vs high-low	-0.398	0.265	0.133	-0.262	0.258	0.311

Table 6. Coefficients for media type in re-specified models of Covid-19 vaccine intentions, to test differences between high-low media consumers and other groups.

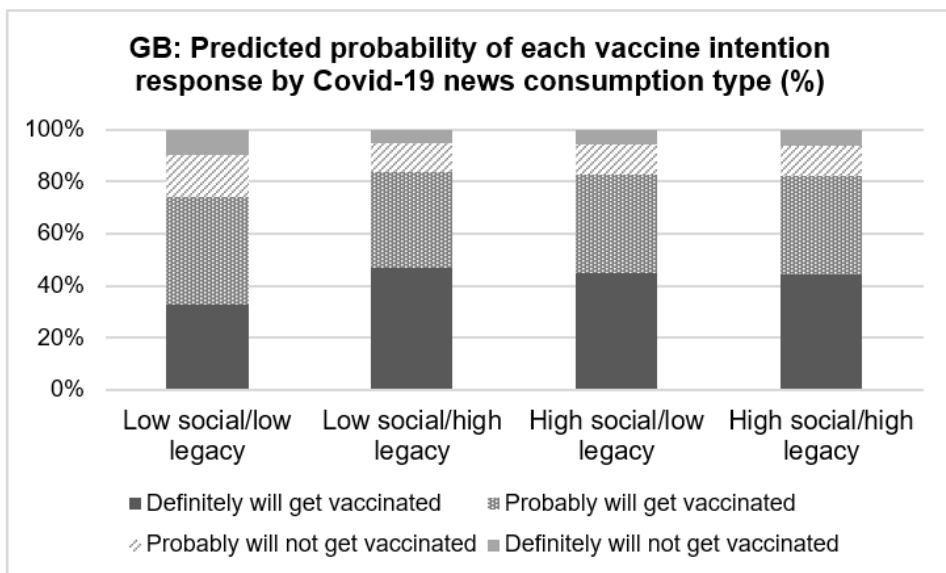


Figure 1(a) Predicted probabilities of giving each Covid-19 vaccine intention response option by media consumption type (UK). Source: Table 4. PPs estimated for a respondent who is female, aged 50, of C2DE social grade, secondary-level qualifications, White, voted Conservative in 2019, voted Leave in 2016.

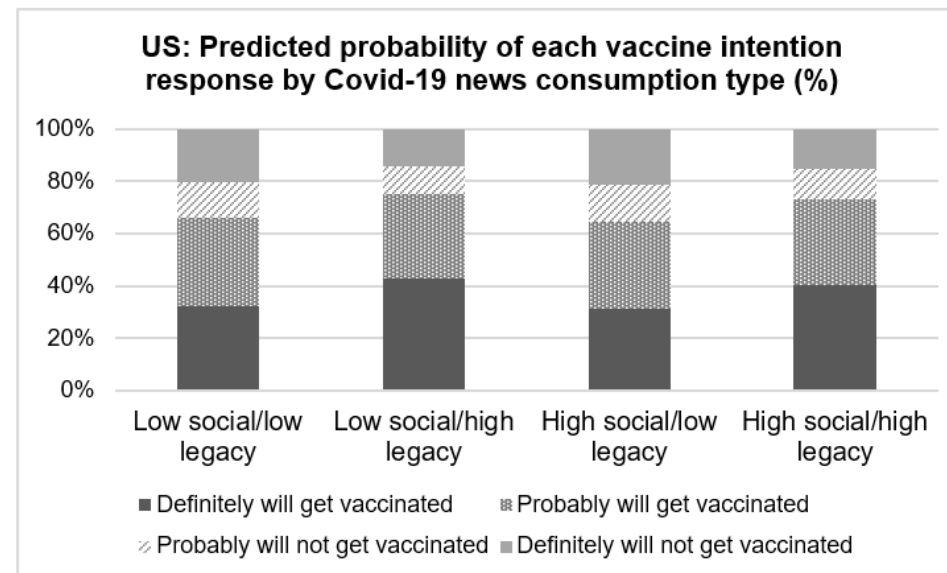


Figure 1(b) Predicted probabilities of giving each Covid-19 vaccine intention response option by media consumption type (US). Source: Table 5. PPs estimated for a respondent who is female, aged 50, has a partner and children under-18, lives in the Northeast, White, has at least some college education, voted Trump in 2016, registered on 5 social media platforms.

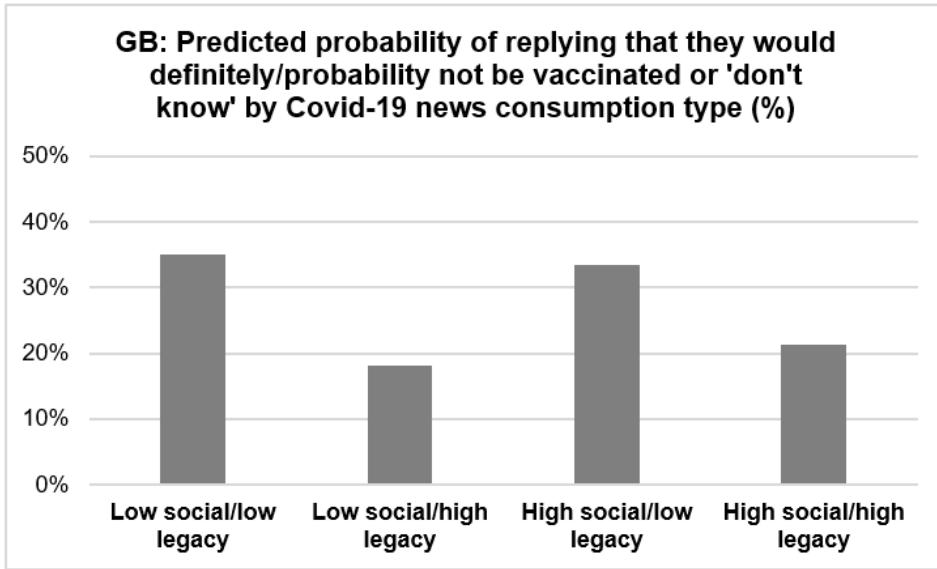


Figure 2(a) Predicted probability of respondent reporting they would probably or definitely not be vaccinated, or 'don't know', by media consumption type (UK). Source: Table 4. PPs estimated for a respondent who is female, aged 50, of C2DE social grade, secondary-level qualifications, White, voted Conservative in 2019, voted Leave in 2016.

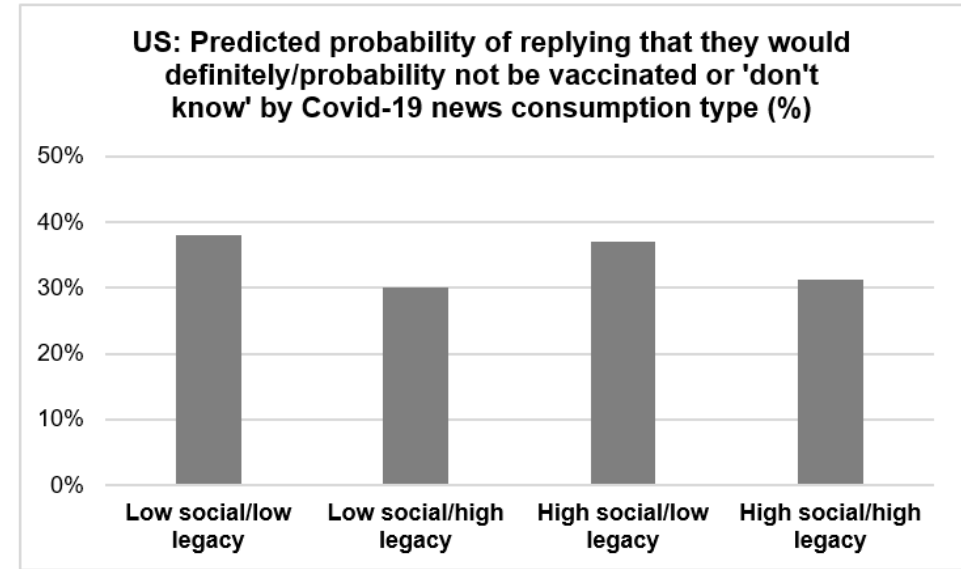


Figure 2(b) Predicted probability of respondent reporting they would probably or definitely not be vaccinated, or 'don't know', by media consumption type (US). Source: Table 5. PPs estimated for a respondent who is female, aged 50, has a partner and children under-18, lives in the Northeast, White, has at least some college education, voted Trump in 2016, registered on 5 social media platforms.

Appendix

Table A1

Descriptive statistics

UK sample	Percentage % or mean (SD)	Unweighted N
Female	51.4	916
Age	48.6 (17.1)	1663
ABC1 NRS social grade	57.0	1031
C2DE NRS social grade	43.0	632
White	95.5	1571
Ethnic minority group member	12.0	164
Secondary/vocational/no qualifications	55.1	883
At least some tertiary qualifications/bachelor's degree or higher	44.9	780
Never engages with social media	34.3	578
Engages less often than a few times a week	16.2	251
A few times a week	12.5	214
Once a day	17.5	289
Several times a day	19.6	331
Never engages with legacy media	8.1	108
Engages less often than a few times a week	8.6	131
A few times a week	17.1	273
Once a day	35.5	604
Several times a day	30.6	547
US sample		
Female	51.3	640
Age	47.6 (16.8)	1198
Married/partnered	54.4	656
Has children under 18	20.8	256
Northeast	17.8	253
Midwest	21.0	209
South	37.6	443
West	23.6	293
White	65.7	779
Black	12.0	165
Other heritage	22.3	254
At least some college education	59.7	747
Number of social media platforms on which respondent has registered	2.8 (2.2)	1198
Never engages with social media	25.0	297
Engages less often than a few times a week	11.6	138
A few times a week	18.3	214
Once a day	18.0	220
Several times a day	27.1	329
Never engages with legacy media	11.3	130
Engages less often than a few times a week	10.5	125
A few times a week	20.4	241
Once a day	26.4	320
Several times a day	31.5	382

Table A1: Descriptive Statistics for British and US Samples. Source: YouGov Online Panels.

Table A2

US sample	<i>Ordered logit regression</i>			<i>Logistic regression</i>		
	Coefficient	Standard error	p-value	Coefficient	Standard error	p-value
Female	0.372	0.125	0.003	0.366	0.133	0.006
Age	-0.016	0.004	<0.001	-0.018	0.005	<0.001
Married/partnered	-0.125	0.135	0.355	-0.253	0.145	0.082
Has children under 18	0.342	0.174	0.050	0.315	0.174	0.070
Midwest	0.564	0.197	0.004	0.347	0.217	0.109
South	0.381	0.171	0.026	0.360	0.186	0.053
West	0.355	0.193	0.066	0.355	0.206	0.086
Black	0.461	0.190	0.016	0.534	0.212	0.012
Other heritage	0.061	0.164	0.708	0.032	0.174	0.855
Some college education	-0.245	0.139	0.078	-0.568	0.138	<0.001
Political ideology	0.456	0.062	<0.001	0.438	0.066	<0.001
Number of platforms	-0.068	0.030	0.022	-0.087	0.032	0.008
Low/high	-0.553	0.167	0.001	-0.458	0.187	0.014
High/low	-0.006	0.202	0.978	-0.152	0.209	0.467
High/high	-0.394	0.213	0.064	-0.395	0.204	0.053
Threshold 1	0.596	0.387				
Threshold 2	1.989	0.392				
Threshold 3	2.693	0.396				
Constant				-0.965	0.424	0.023
N	1011			1198		
Wald $X^2(15)$	117.34		<0.001	107.20		<0.001
Pseudo-R^2	0.056			0.089		

Table A2. Ordinal and binary logistic regression model of US Covid-19 vaccine intentions. Source: YouGov data and author's analysis. Reference category: male, unmarried, no children under-18, lives in Northeast, is White, has a high school education or less, respondent engages with Covid-19 information daily or less often on both social and legacy media (low/low). A higher score on the 1-5 ideology scale indicates the respondent is more conservative, a lower score that they are more liberal, with those indicating 'moderate' or 'not sure' scoring 3.