

# Consumer Trust in Public and Private Organizations to Use Their Digital Data for COVID-19 Control



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## INTRODUCTION

Public health and government officials are now using digital platforms to reduce public harm from COVID-19.<sup>1</sup> Many US states have launched digital contact tracing programs powered by features in smartphone operating systems.<sup>2</sup> Researchers and commercial companies have used digital data to track COVID-19 symptoms and measure behaviors relevant to disease transmission.<sup>3</sup>

Though consumer data are commonly collected and repurposed by commercial entities, public health departments historically have not used consumer data to advance their work. We administered a survey to a nationally representative sample of US consumers to assess their trust in nine public and private organizations to protect their digital health information related to COVID-19. Understanding trust in organizations is important for designing digital programs for public health emergencies.

## METHODS

The survey was administered in English and Spanish between July 10 and July 31, 2020. Survey respondents were sampled and recruited from the Ipsos KnowledgePanel®, a panel representative of the US population.<sup>4</sup> We oversampled Hispanic and African American respondents. This study was reviewed and declared exempt by the Institutional Review Board at the University of Pennsylvania.

Respondents rated nine types of public and private organizations (Fig. 1). Ipsos provided sociodemographic data for each respondent and we linked the respondent's county of residence to local COVID-19 rates ([usafacts.org](https://usafacts.org)) at the time of the survey. We also asked respondents if they had a family history of a COVID-19 diagnosis and their political ideology on a 7-point scale (ranging from extremely liberal to extremely conservative).

We calculated descriptive statistics for the ratings of all nine organizations. We used post-stratification weights to account

for oversampling to make the findings representative of the U.S. adult population. We used multivariable logistic regression models to estimate associations with respondent characteristics we hypothesized would be associated with support for public health mitigation measures. We utilized multiple imputation to account for incomplete survey responses (n=158).

## RESULTS

We received 3547 survey responses (response rate, 56%). Figure 1 shows the percentage of responses for each response category for all nine organizations. Respondents expressed the strongest confidence in university researchers and local and state public health departments—ranging from 57 to 59% reporting that they were at least somewhat confident in these organizations. Support was consistently lower for commercial entities—as low as 15% for Facebook and as high as 36% for a health-focused technology company (maker of smart thermometers).

In multivariable models estimating the proportion of consumers that were at least somewhat confident (Table 1) in public health agencies, there were large differences by political ideology of the respondent—71% of self-identified liberals expressed confidence in state health departments to protect digital health information compared to 57% of moderates ( $p<0.001$ ) and 45% of conservatives ( $p<0.001$ ). These differences were similar for local public health departments and federal health agencies. We did not observe greater confidence among those with a family history of COVID-19 or those living in a higher incidence county. We did not find significant differences between Black vs. White respondents. Hispanic respondents reported higher confidence than non-Hispanic respondents (61% vs. 56%,  $p=0.04$ ). Differences by income, geography, and age were small and generally not statistically significant.

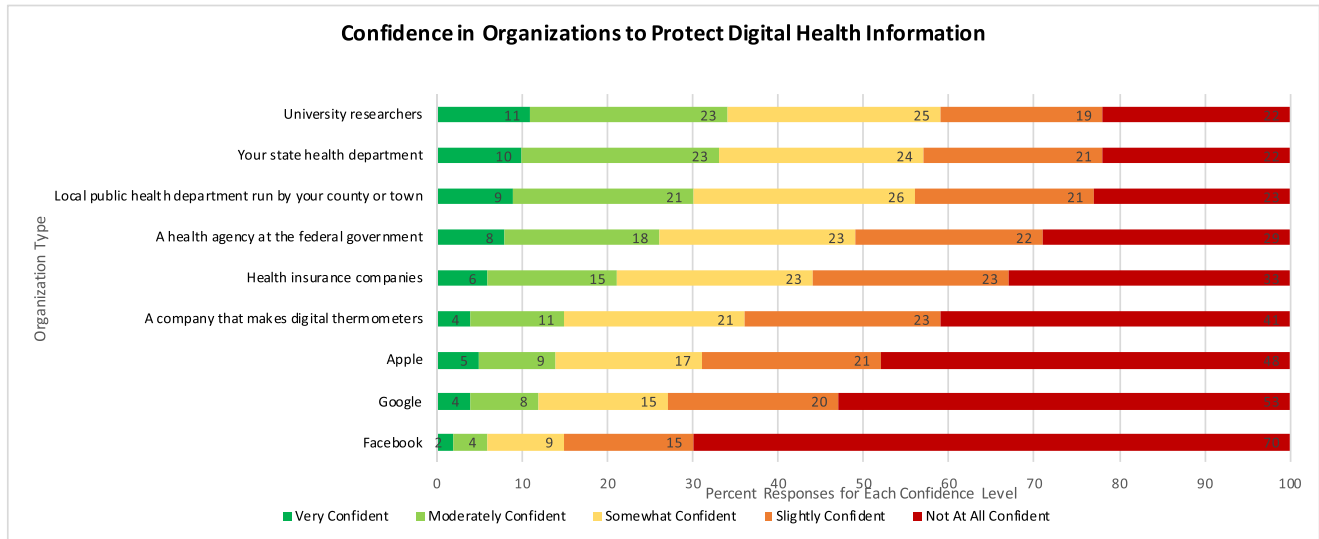
## DISCUSSION

A majority of respondents reported confidence in local and state public health agencies and universities to responsibly use consumer digital data for COVID-19 mitigation. However, our data suggest that even these most trusted organizations must overcome significant distrust among a sizable share of the population if programs will be successful.

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**Figure 1 Confidence in organizations to protect digital health information.** The figure reflects the weighted distribution of responses to the nine survey questions evaluating confidence in public and private organizations to protect digital health information. Participants were asked: “If digital technology like phones and computers are used to track COVID-19 exposures or infection, please rate your confidence in the following companies or organizations to protect this digital health information and make sure it is used responsibly.”

**Table 1 Confidence in Public Health Agencies by Respondent Characteristics**

Political ideology	Local public health department		State health department		Federal health agency	
	%	CI	%	CI	%	CI
Liberal	70.5	(67.3, 73.7)	71	(67.8, 74.1)	60.8	(57.4, 64.1)
Moderate	54.6	(51.5, 57.7)	56.9	(53.9, 60.0)	49.1	(46.0, 52.1)
Conservative	44.1	(40.9, 47.3)	44.9	(41.7, 48.2)	40.4	(37.2, 43.6)
			Prior COVID-19			
Yes/May	45.2	(35.1, 55.3)	44.6	(34.1, 55.2)	42.4	(31.8, 53.0)
No	56.1	(54.3, 57.9)	57.4	(55.6, 59.2)	49.9	(48.0, 51.7)
			Race			
White	54.3	(52.2, 56.4)	55.5	(53.4, 57.6)	48.1	(46.0, 50.2)
Black/African American	58.1	(53.3, 57.9)	59.5	(55.2, 63.7)	50.9	(46.6, 55.3)
Other	65.4	(57.0, 73.8)	66.3	(58.3, 74.2)	61.3	(53.0, 69.6)
2+ races	58.1	(48.2, 68.0)	62.2	(52.6, 71.9)	54.4	(44.6, 64.3)
			Ethnicity			
Hispanic	59.7	(55.7, 63.7)	61	(57.1, 65.0)	51.7	(47.7, 55.8)
Non-Hispanic	54.9	(52.9, 57.0)	56.2	(54.1, 58.2)	49.2	(47.1, 51.3)
			Household income			
<\$24,999	55.9	(50.9, 60.9)	58	(52.9, 63.1)	51.8	(46.7, 56.9)
\$25,000–\$49,999	57.4	(53.1, 61.8)	59.5	(55.2, 63.8)	48.5	(44.1, 52.9)
\$50,000–\$99,999	54.1	(51.0, 57.2)	55.1	(52.0, 58.2)	48.1	(45.0, 51.2)
>\$100,000	56.1	(53.1, 59.0)	56.9	(53.9, 59.8)	50.5	(47.5, 53.5)
			State of residence			
Northeast	58.6	(53.1, 64.1)	57.8	(52.2, 63.5)	50.2	(44.5, 56.0)
Midwest	55.3	(51.0, 59.5)	54.5	(50.2, 58.8)	47.7	(43.3, 52.0)
South	53.5	(50.1, 56.9)	56.8	(53.5, 60.1)	48.7	(45.3, 52.1)
West	57.5	(53.9, 61.2)	58.8	(55.1, 62.4)	52.2	(48.4, 56.0)
			Age			
18–29	59.5	(54.5, 64.5)	61.2	(56.3, 66.1)	54.6	(49.6, 59.6)
30–44	56.7	(53.1, 60.2)	56.8	(53.1, 60.4)	50.9	(47.2, 54.5)
45–59	53.7	(50.4, 56.9)	55.9	(52.7, 59.1)	48.4	(45.1, 51.7)
60+	53.9	(51.0, 56.9)	55.2	(52.2, 58.1)	46	(43.0, 49.0)
			MSA status			
Non-metropolitan	50.9	(45.6, 56.2)	52.9	(47.5, 58.2)	44.9	(39.4, 50.3)
Metropolitan	56.5	(54.5, 58.4)	57.6	(55.7, 59.5)	50.3	(48.4, 52.3)
			COVID-19 incidence			
<48 per 10,000	55.1	(50.6, 59.6)	59	(54.6, 63.5)	48.6	(44.1, 53.2)
48–95 per 10,000	54.9	(51.2, 58.6)	55.6	(51.9, 59.3)	47.9	(44.1, 51.6)
95–186 per 10,000	56.4	(52.6, 60.3)	55.8	(51.9, 59.7)	50.9	(47.0, 54.9)
>186 per 10,000	56.5	(52.2, 60.7)	57.2	(53.0, 61.4)	51.3	(47.1, 55.6)

Adjusted predicted probabilities from multivariable logistic regression models. The percent column reflects adjusted percentages that report being at least “somewhat confident” in public health departments to protect digital health information and use it responsibly stratified by respondent characteristics

Public health agencies also face a large political divide in public confidence for these digital strategies. We found views were strongly moderated by political ideology—conservatives reported much lower confidence in public health agencies compared to liberals. Surprisingly, we observed little variation based on sociodemographic or geographic COVID-19 risk factors (e.g., race, income, age, county incidence).

As public health agencies deploy digital tools to mitigate COVID-19 transmission and other future public health threats, public trust is essential to increase support and participation in programs, including digital contact tracing. Prior research suggests that consumers value strong data protections.<sup>5</sup> Public health agencies should consider program policies that would align with consumers' desires for protections and then clearly communicate these policies to the public.<sup>6</sup> The high level of distrust of digital technology companies—partners in many digital epidemiology strategies—is important to recognize and address as programs are designed and deployed to overcome a skeptical public.

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