Microsoft Research

COVID19 Data Donation Survey Methodology Summary

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For the latest information, please see
https://www.microsoft.com/en-us/research/project/descriptive-ethics-for-covid19-apps/

Overview

Two survey samples were used in this academic research about data donation during the coronavirus pandemic, a 1000-respondent general population survey and a 300-respondent crowdsourced follow up survey.

General Population Survey

Sample Details. Survey of 1,000 Americans conducted by Cint, Inc. in May 2020. Survey was quota sampled on age, race, gender, education and income to be representative of US census demographics within 5%. Survey participants were compensated according to their agreement with Cint.

Questionnaire Validation & Ethics Approval. Survey questions were pre-tested following survey methodology best practice through piloting, cognitive interviews, and expert reviews with external researchers. Survey research was approved by the Microsoft Research IRB.

Survey question about data donation.

Which of the following features would make you want to install a coronavirus app? Please select all that apply.

If the app let you donate data to researchers about your...
- *symptoms*
- *coronavirus test results*
- *locations over the past two weeks*
- *other: <text entry>*
- *none of the above features would make me want to install a coronavirus app.*

Data Analysis. Survey data analyzed descriptively and via a logistic regression model (Table 1).

Variable	Odds Ratio	95% CI	p value
(Intercept)	0.09	[0.01, 0.52]	0.01**
Age	0.98	[0.97, 0.99]	< 0.01***
Gender: female	0.78	[0.58, 1.05]	0.1
Race: Black	0.93	[0.65, 1.34]	0.71
Ethnicity: Hispanic	1.10	[0.78, 1.56]	0.6
Lives in Urban location	1.33	[0.96, 1.87]	0.09
Education: Bachelors or above	1.07	[0.72, 1.57]	0.75
Education: Some College	0.98	[0.66, 1.44]	0.91
Income (log)	1.60	[1.09, 2.36]	0.02*
Political Leaning: Democrat	1.99	[1.47, 2.7]	< 0.01***
Know someone diagnosed with COVID	1.83	[1.22, 2.78]	< 0.01**
Essential worker	1.40	[0.94, 2.09]	0.1
Healthcare worker (self or household)	2.10	[1.13, 4.12]	0.02*
Internet Skill (Hargittai measure)	1.06	[1.03, 1.08]	< 0.01***

Table 1: Logistic regression model of likelihood to report that a survey respondent reported that a data donation related feature would make them want to install a coronavirus app. Model is significant ($X^2 = 142.53$, $p < 0.001$) with Cragg-Uhler Pseudo-$R^2 = 0.19$.

Crowdsourced Follow-up Survey

Sample Details. In this survey of 300 U.S. Amazon Mechanical Turk crowd workers who received a 95% approval rating and above (per Eyal et al. 2014 recommendations), we evaluated how people's reported willingness to install proximity-based contact tracing coronavirus apps that

allow for supplementary opt-in location data donation varied based on the beneficiary of the data donation: scientific researchers, themselves, or others.

Questionnaire Validation & Ethics Approval. Survey questions were pre-tested following survey methodology best practice through piloting, cognitive interviews, and expert reviews with external researchers. Survey research was approved by the Microsoft Research IRB.

Survey questions. Our survey had three scenarios, respondents saw only one scenario:

1) A numeric benefit to others scenario.

> *Please consider the following scenario. Imagine that there is a coronavirus mobile phone app that will use information about your location to provide you with information about whether you were exposed to someone infected with coronavirus.*
>
> *Every day, you can choose whether or not to donate your location information. If you choose to donate your data, it will be shared without revealing your identity.*
>
> *After answering two attention check questions, respondents were then asked:*
>
> *Imagine that donating your information will allow {1,10,20} people in your region to get information about whether they have been exposed to coronavirus.*
>
> *Would you be willing to install this app?*

2) A benefit to self scenario:

> *Please consider the following scenario. Imagine that there is a coronavirus mobile phone app that will use information about your location to provide you with information about whether you were exposed to someone infected with coronavirus.*
>
> *Every day, you can choose whether or not to donate your location information. If you choose to donate your data, it will be shared without revealing your identity.*
>
> *After answering two attention check questions, respondents were then asked:*
>
> *Imagine that donating your information will improve the app's ability to detect whether you were exposed to someone infected with coronavirus.*
>
> *Would you be willing to install this app?*

3) A benefit to scientific research scenario:

Imagine that there is a coronavirus mobile phone app that will allow you to donate data to scientific researchers to help with the fight against coronavirus.

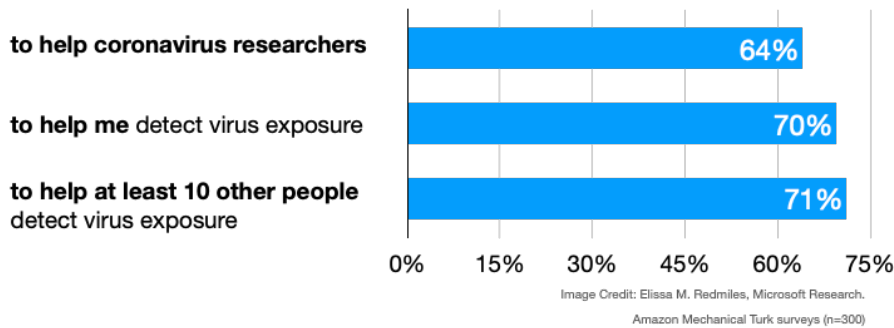*This app will collect information about your location.
*
This information will be stored only on your phone and nowhere else.
Every day, you can choose whether or not to donate your location information. If you choose to donate your data, it will be shared with researchers without revealing your identity.

Would you be willing to install this app?

Data Analysis. Data was analyzed descriptively.

I would install a coronavirus app that allows me to <u>donate my location data</u>...

Image Credit: Elissa M. Redmiles, Microsoft Research.
Amazon Mechanical Turk surveys (n=300)

COVID19 app data donation to help yourself OR 10+ others is nearly as appealing as a perfectly private/accurate app