

# Untangling Representation Error in Address-based Sample Surveys

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Annual Conference

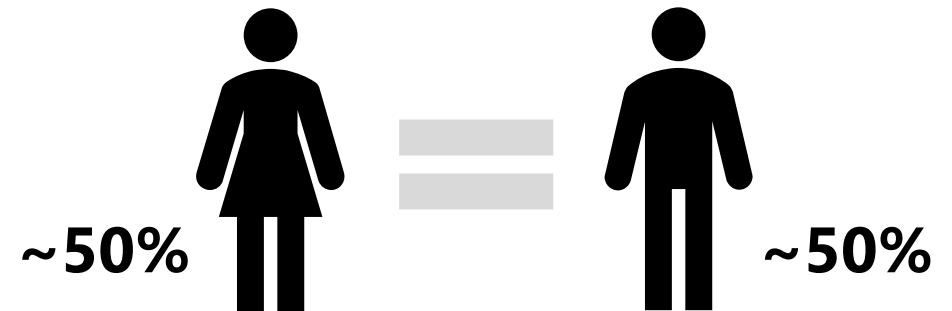
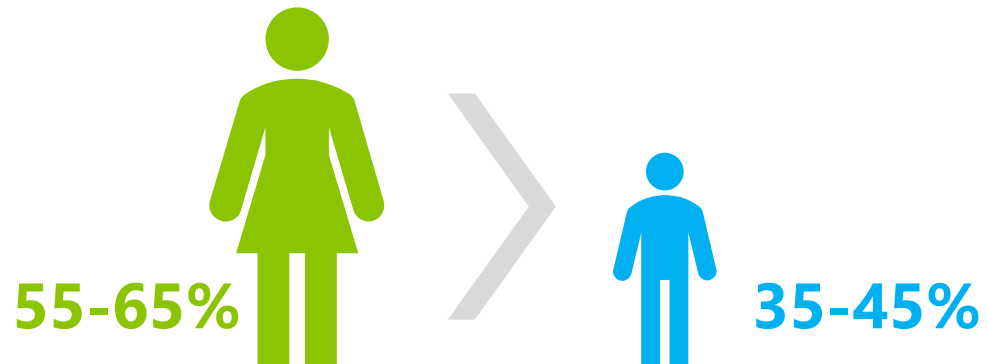
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# What prompted this examination?

- Over the past few years, we noticed some studies using address-based sample seemed to result in completed surveys that heavily skewed female while other studies did not show this skew.



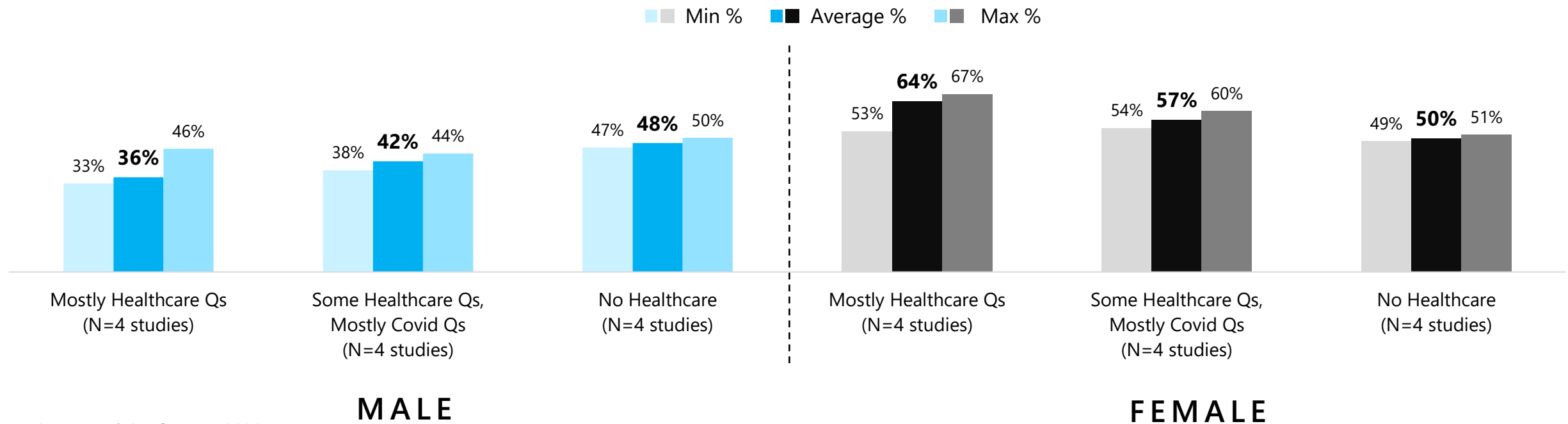
- It is well documented that quasi-random within-household selection methods, such as the last birthday method, are not always complied with (e.g., Olson, Stange, and Smyth, 2014, Olson and Smyth, 2017), leading to one source of potential bias.
- We wanted to learn more.

# What did we do?

We examined 12 studies SSRS conducted in the past few years that relied heavily or entirely on data collection using address-based samples.

From initial analyses, studies with healthcare foci seemed to skew more female.

PROPORTION MALE/FEMALE BY STUDY FOCI



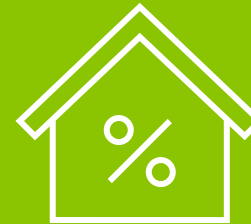
# To Get Insight Into Possible Drivers of the Gender Skew Toward Females, We Looked at Study Design Factors Including:



Sampling Designs



Mailing / Incentive  
Protocols



Within Household  
Selection Procedures



How the Survey was  
Described/ Presented  
to Potential  
Respondents

# Sampling Designs and Mailing/Incentive Protocols

- ABS samples for all studies were drawn from the United States Postal Service's Computerized Delivery Sequence File (CDSF).
  - All but one incorporated disproportionate stratification to reach underrepresented populations (e.g., lower income, non-White).
- Mailing protocols were similar across all studies.
  - Invitation letter, most often including a cash pre-incentive
  - Reminder postcard/letter
  - Most studies implemented a responsive design with two releases of sample
- Thus far, we have not identified enough variance among the sampling designs or mailing/incentive protocols that we can analyze as potential drivers of gender skew.

# Household Selection

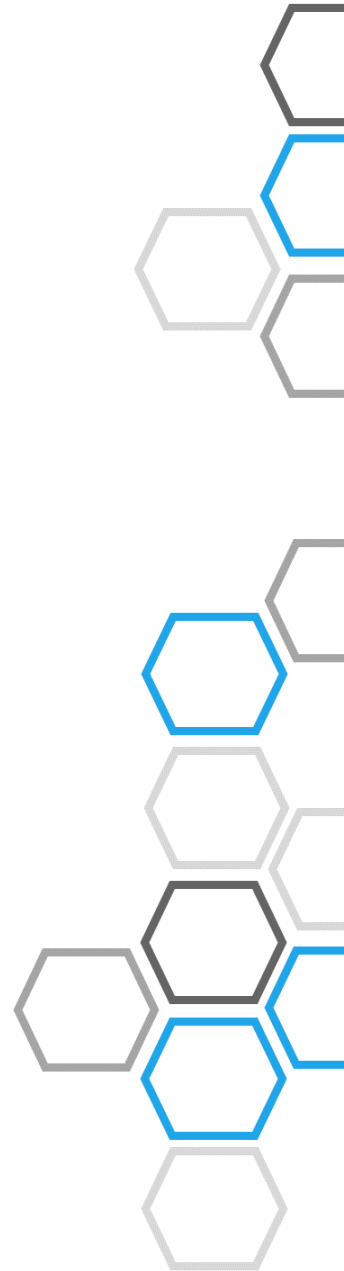
## HOUSEHOLD SELECTION CRITERIA

Research Content	Most Recent Birthday	Next Birthday	Something Else
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No Health Questions	1	2	1
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Some Health-related Qs	3		1
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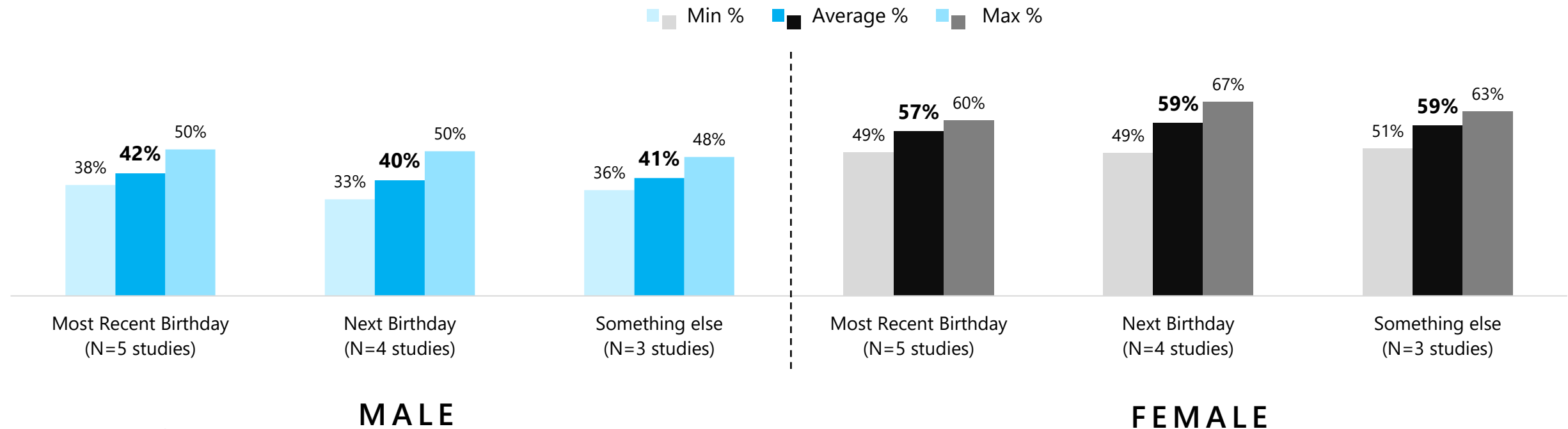
Mostly Health-related Qs	1	2	1
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# Within Household Selection Protocols

Household Selection Protocols do not seem to be a driver of representation error among these studies.

## PROPORTION MALE/FEMALE BY HOUSEHOLD SELECTION PROCEDURE



# How was the survey described / presented in the invitation letter?

## GENERIC or NOT HEALTHCARE

Half of the studies (n=6) were described generically with no information about the topic or mentioned topics unrelated to health or healthcare.

## HEALTHCARE-RELATED

Half of the studies (n=6) included healthcare-related descriptive text, survey names, or logos in the invitation letter.

- 3 specifically mentioned healthcare in the name of the survey or survey topic in the invitation letter and other communications
- 3 indicated the survey was about COVID 19 but didn't otherwise mention health or health care as a focus.





# Survey Description

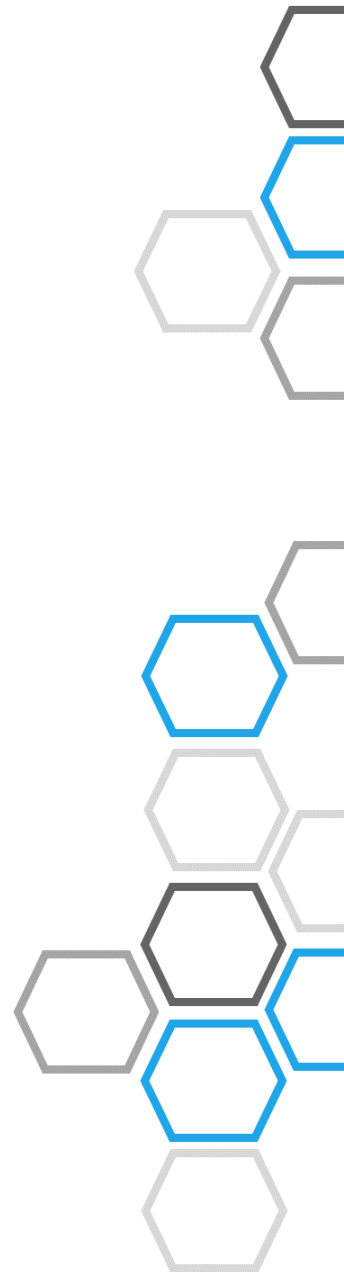
## SURVEY DESCRIPTION

Research Content	Generic / Not healthcare or COVID-19	COVID-19 mentioned	Healthcare Mentioned
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No Health Questions	4		
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Some Health-related Qs	1	3	
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Mostly Health-related Qs	1		3
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## Survey Description to Respondents

## Invitation Letter Content Examples

## Survey Logo Examples

**GENERIC/  
NOT HEALTHCARE**  
(N=6)

"You have been randomly selected for the US Voices 2022 Study, a survey aimed at understanding the public's thoughts and experiences about events currently in the news."



**HEALTHCARE-RELATED**  
Covid-19 Mentioned  
(N=3)

"We would like to hear about your thoughts and experiences during the COVID-19 outbreak."

No logo or client identified logo

**HEALTHCARE-RELATED**  
Covid-19 NOT Mentioned  
(N=3)

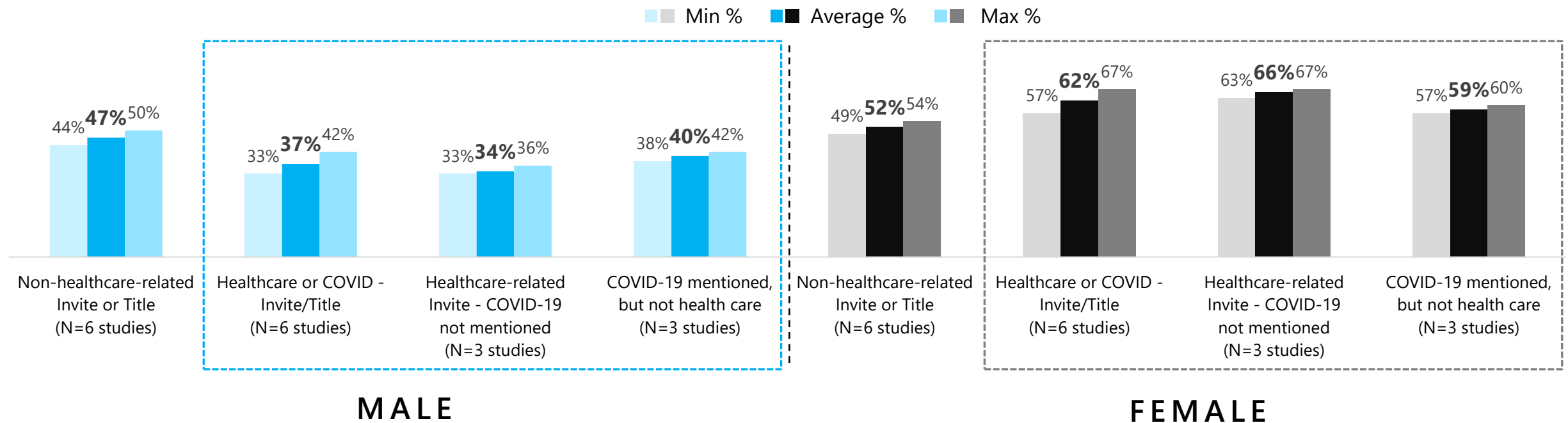
"We are writing... to learn your thoughts about health care in this country.... The goal of this study is to gain insight into the experiences you and others around the country are having with health care."



# Study Description/Logo

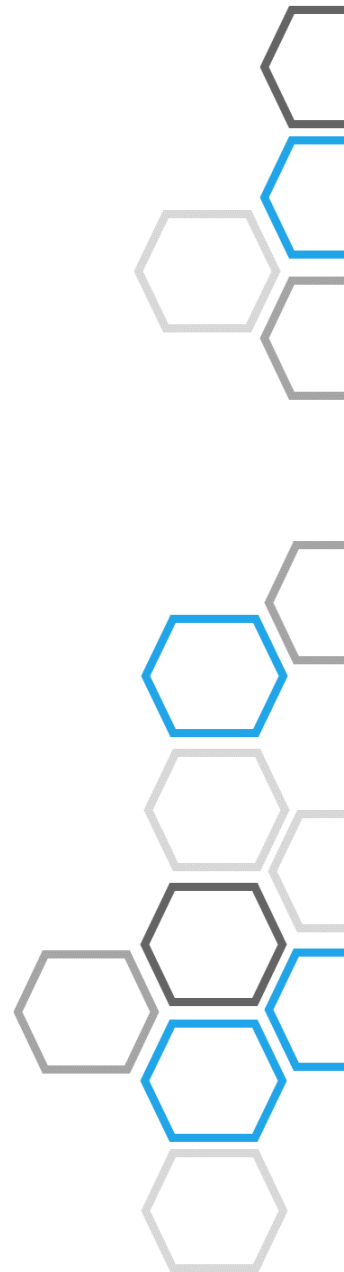
Studies mentioning health care or COVID-19 are more likely to be completed by female respondents than those described more generically or about non-health care-related subjects

PROPORTION OF MALE/FEMALE BY STUDY DESCRIPTION



# Implications/Next Steps/Limitations

- How the study is presented to potential respondents appears to be the **biggest driver** associated with underrepresentation of males in some ABS surveys.
- Need to look at more ABS studies – analysis thus far is based on a relatively small set of studies.
  - What other factors in the study description/study design might affect or mitigate the gender skew?
- Would IRB requirements for informed consent constrain how the study is described to potential respondents?
- Not clear the extent respondent selection criteria are attended to in ABS studies
  - Is this another possible lever for reducing the potential for underrepresentation?



# Thank You, AAPOR

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