

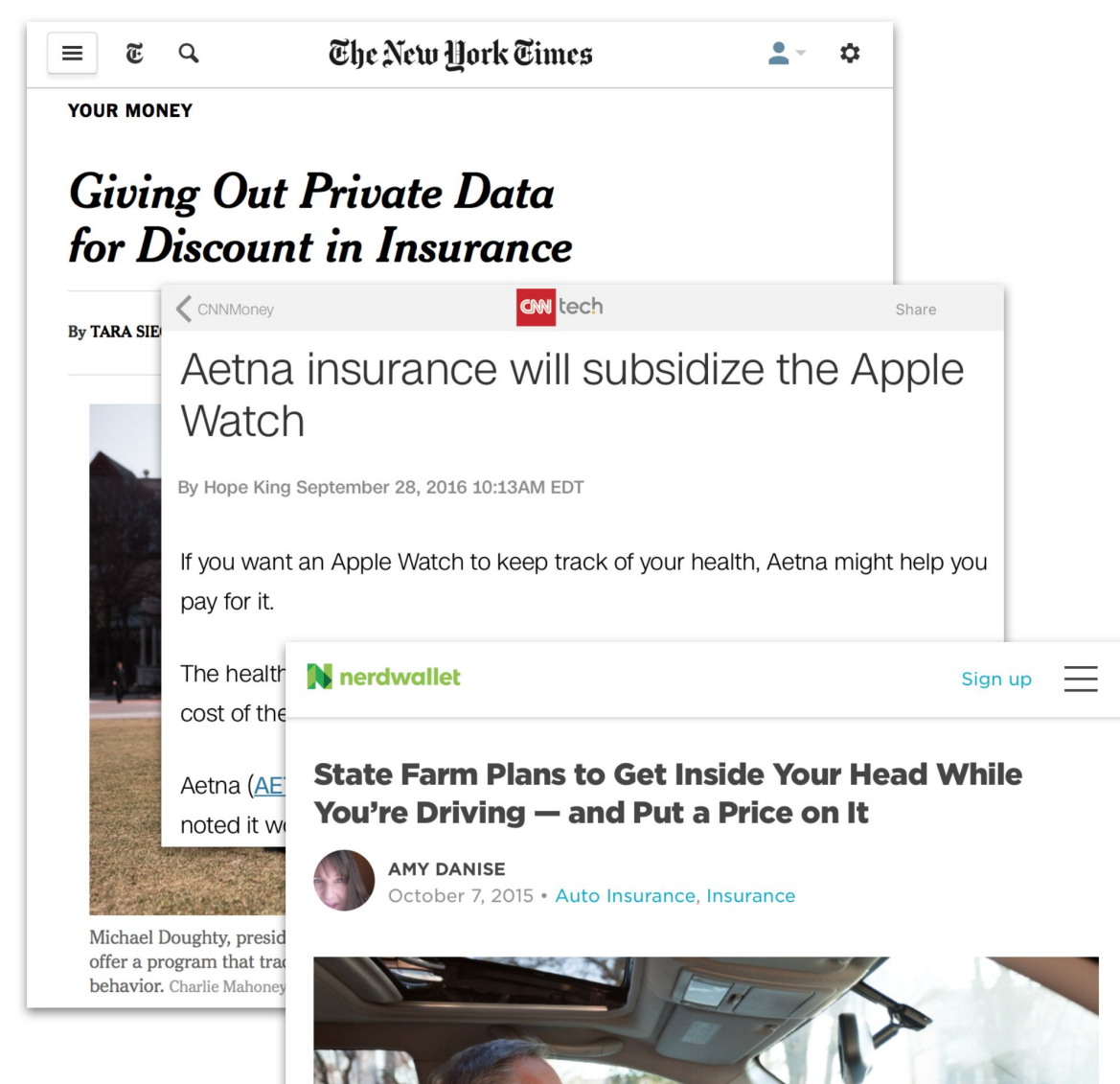
# Will People Give Out Their Fitness Data for an Apple Watch?

Austin Ahn, Jessica Colnago, Jun Ma, Peter Story, Ryan Wagner  
Carnegie Mellon University, Pittsburgh, Pennsylvania

## Introduction

New uses of fitness tracking data are emerging. For example, some insurance providers try to encourage healthy behavior by offering discounts to customers who share smartwatch data.

*Until now, there has been little research on users' attitudes towards sharing personal fitness data in scenarios like these.*



## Objectives

### Determining Privacy Attitudes

This study aims to **determine how users' willingness to share private health information about personal fitness is shaped** by the following factors:

- Recipient of information: Does it matter if the information goes to a doctor, insurer, or employer?
- Monetary incentives: Are people swayed by the offer of a free or subsidized fitness device?
- Viewers of information: Do users have more concern when humans view their fitness information than when only computers do?
- Direct personal risk: Do users care if the data collected by the device can be used against them?

## Methodology

### Survey Vignettes

A series of vignettes were constructed to query users on their privacy attitudes toward using a fitness-measuring app on a fitness tracker when the app shares data with another entity.

#### Source of Request:

- Doctor
- Insurance Company

#### Provider of Fitness Tracker:

- Self-funded
- Subsidized (with app pre-installed)
- Gifted (with app pre-installed)

#### Fitness Data Viewers:

- Computers only
- Humans

#### Risk:

- Could be used to adjust insurance pricing
- Could be used to check whether users are following doctor's recommendations

### Survey Implementation

Vignettes were deployed via the survey website **SurveyGizmo** and participants were recruited via **Amazon Mechanical Turk**.

In addition to completing a set of **12 vignettes per participant** (out of a total of 24), each participant was asked for demographic information and to categorize their health insurer. In some cases, the health insurer is the employer.

#### Detection of Dishonesty:

We employed a number of techniques to detect dishonesty by survey participants, including timing the surveys, repeating questions (to check consistency), and evaluating responses to ensure variance in answers across the vignettes. We detected and **removed two likely dishonest survey responses** due to insufficient variance in responses (e.g., always "Somewhat Agree").

## Survey Responses

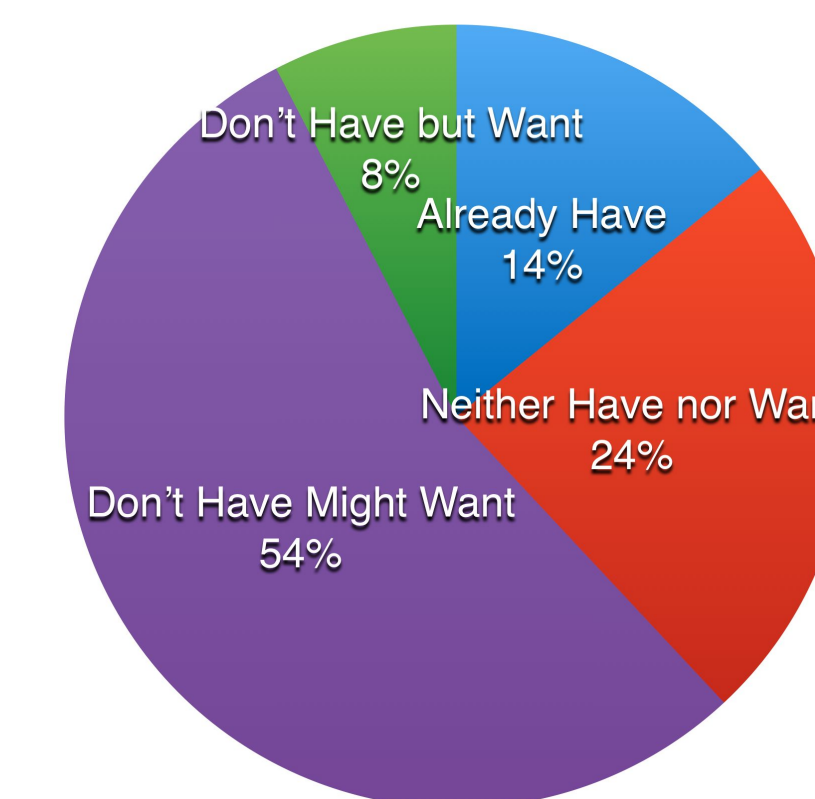
### Demographics

**Income:** Over 80% have a household income of less than \$75,000 annually, with a mode and median of \$50-74,999 (~30%).

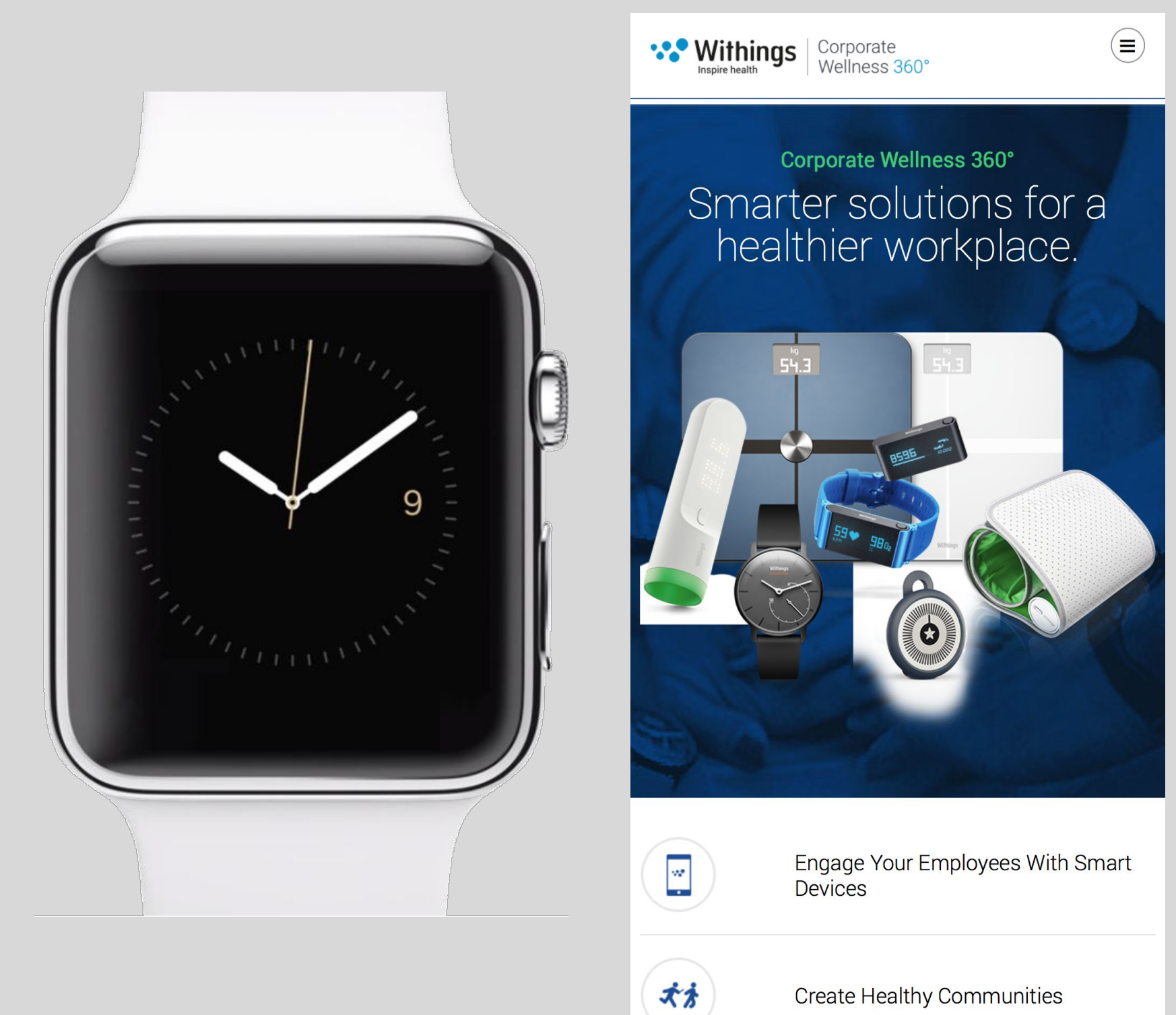
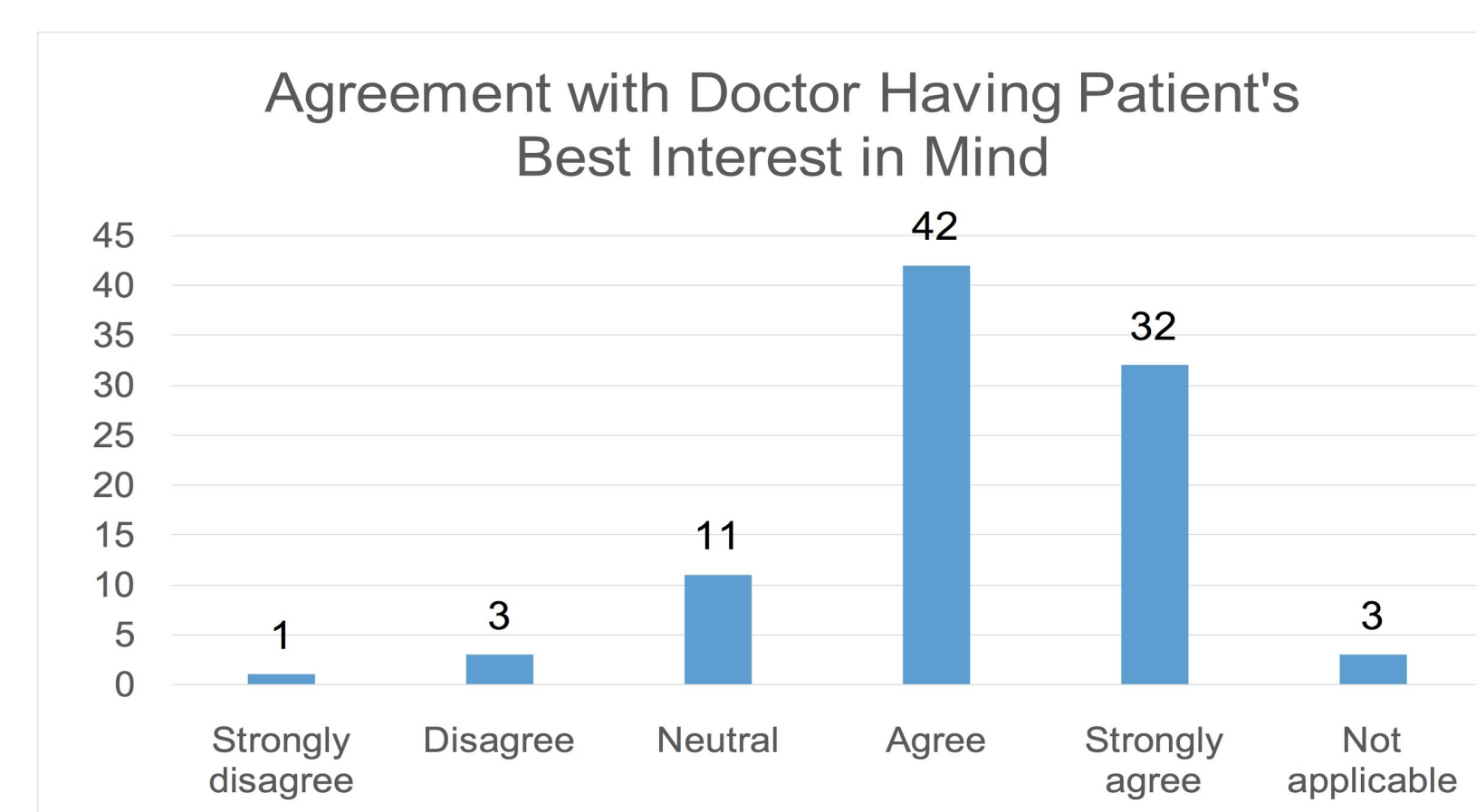
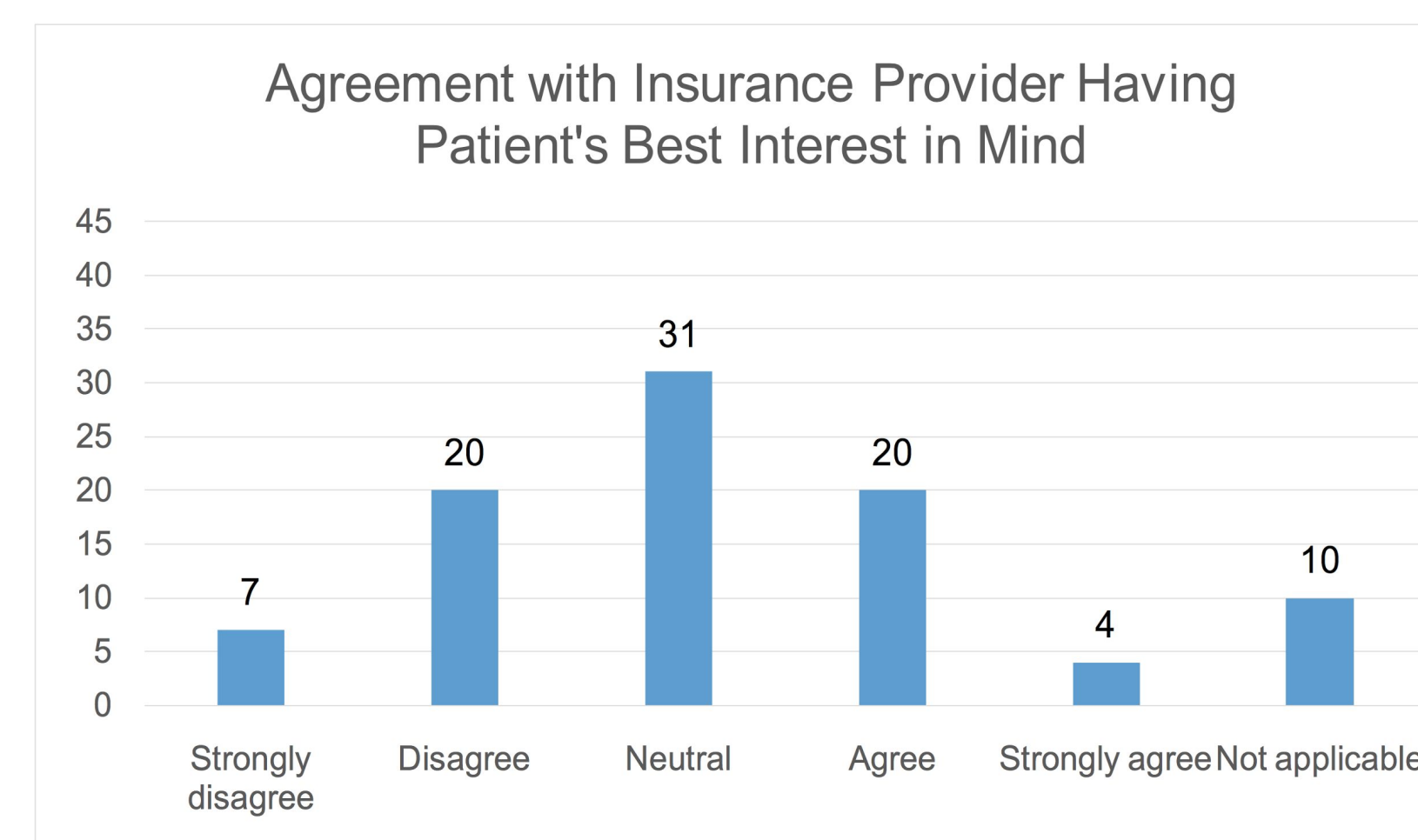
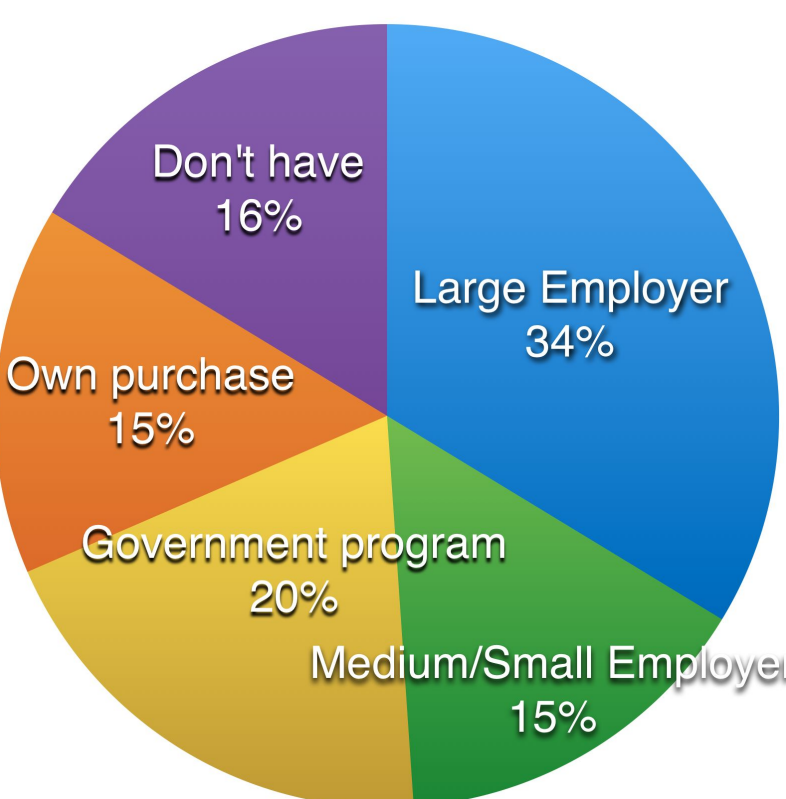
**Gender:** Slightly over half the respondents identified as female.

**Education:** Just under 40% have no college degree, 50% have an Associate's or Bachelor's degree, and 12% have an advanced degree.

#### Smartwatch Ownership



#### Insurance Sources



Smart Fitness Devices

## Conclusions

### Preliminary Analysis

#### Significant Factors in Willingness to Share:

- Source of Request: More willingness for doctors than insurance providers ( $p < 0.001$ )
- Provider of Fitness Tracker: More willingness when offered a free tracker ( $p < 0.001$ )
- Risk: More willingness when risk is not clearly specified ( $p < 0.001$ )
- Usefulness: More willingness from those who found the fitness app more useful ( $p = 0.037$ )

#### Insignificant Factors in Willingness to Share:

- Fitness Data Analysts: no significant difference between the data being analyzed by humans or computers ( $p = 0.779$ )

### Future Analysis

- Does it matter if participants work for a large employer that is probably self-insured (i.e., has access to the fitness data)?