

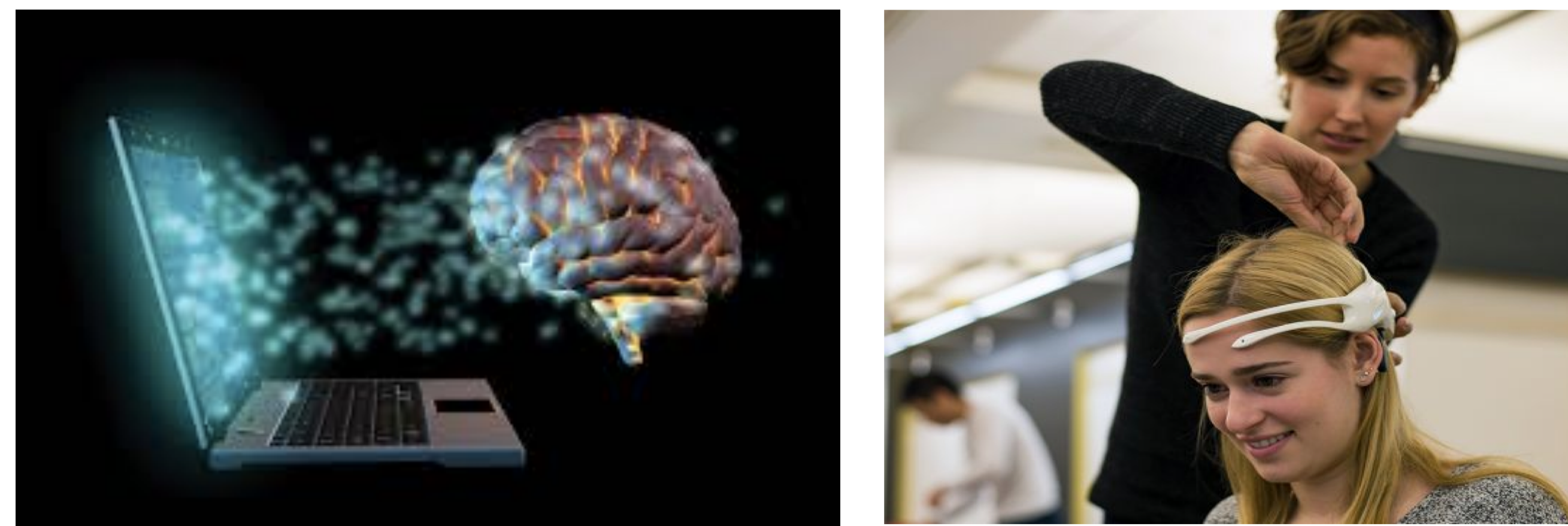
Public Perceptions of Potential Actors and Adverse Effects from Brain Data Collection

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Introduction

Advances in neuroscience are helping us to understand how our brains generate complex thoughts and behaviors. While neurotechnology to decode brain activity is still in early stages of development, consumer-based neurotechnology devices are making brain activity more accessible to the public. As these devices become integrated into the digital world, novel privacy concerns may arise. Yet, few people understand the adverse effects that could arise from breaches of their brain privacy.



Objectives

In order to understand how people feel about different kinds of potentially sensitive information, we conducted a survey to:

Determine general public understanding of possible adverse consequences resulting from different actors accessing different types of sensitive information

Hypothesis

Individuals would be unaware of the malicious ways in which their sensitive information could be used against them.

Conclusions

People are aware that their information is sensitive, but they vary substantially on the possible implication of sharing their brain data

These results demonstrate that a greater education about the neuroethical implications of brain data collection, storage and sharing would be beneficial to inform consumer education, and policymaking

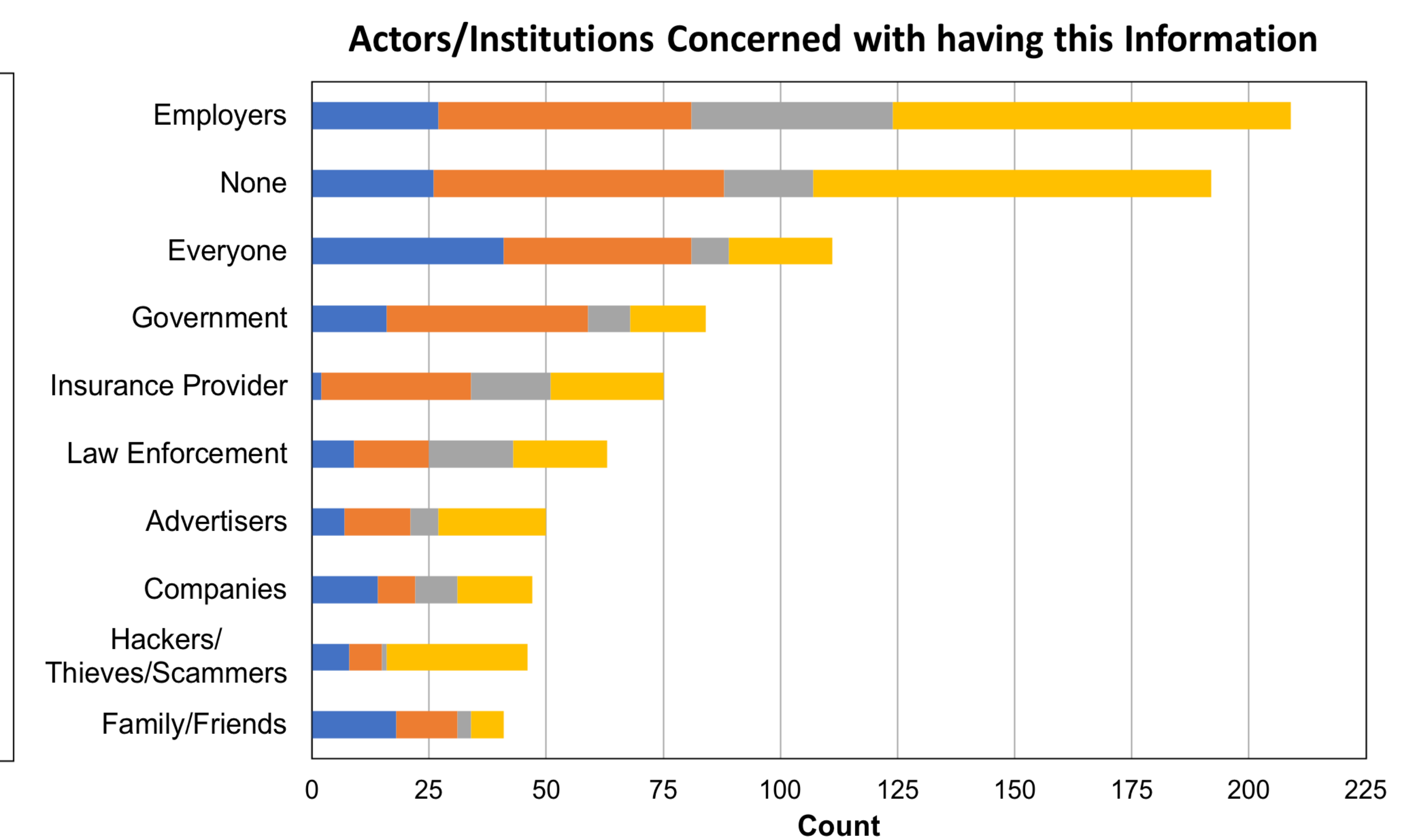
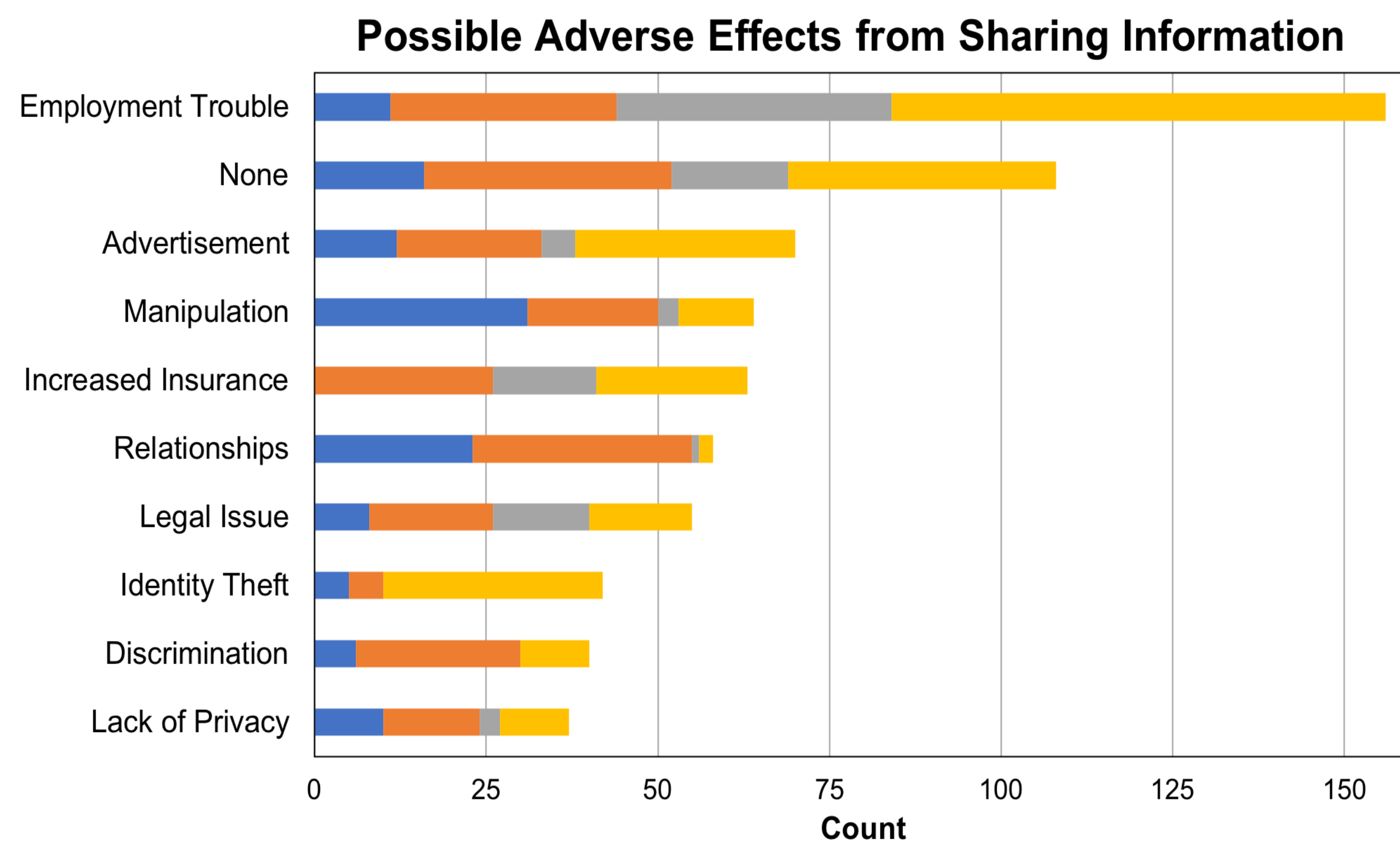
Methods

Gathered through MTurk, N = 109; 50 females, 1 other; Mean age = 35.60 (SD = 10.17). Participants were asked to consider adverse consequences and most concerning actors related to data breaches, for a subset of 10 brain items and 5 personal items.

Clusters of Sensitive Information with Scenarios

Most sensitive thoughts and personal information	Biological information	Attention and focus	Less sensitive identifying information
Text messages	Relationships	Mental alertness	Birthdate
Thoughts	Genetics	Focus	Social media
Mental images	Brain health	Mental concentration	Drowsiness
Anxiety	Brainwave activity		Emotions

Results



Participants viewed **employment trouble** as the most likely outcome of their private information being accessed

Participants were most concerned with **employers** having their private data

Individuals do not understand the malicious use of brain data

Acknowledgments

¹ PEW Research Center, Public perceptions of privacy and security in the Post-Snowden era. Retrieved from <http://www.pewinternet.org/2014/11/12/public-privacy-perceptions/> (2014).

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