Consumer Concerns with the Privacy of Data Collected from Brain Wearables

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WEARABLES FOR THE BRAIN?

- Brain wearables exist. The devices use electroencephalography (EEG) to monitor your brainwaves
- Because it feels like these devices could reveal particularly sensitive information about you, there has been an intensifying call for *neuroprivacy*—a form of privacy that protects data gathered directly from the brain (Yuste & Goering, 2017)
- People calling for neuroprivacy are not clear about what they mean by brain data, or what types of brain data people would find more or less sensitive
- Without this basic understanding, we run the risk of over regulating these neurotechnologies, which could lead to impediments in technological progress

We sought to fill this gap in the literature by conducting surveys to understand what kinds of brain data people would find particularly sensitive.

METHODS

Survey 1 (n = 526; MTurk sample) assessed general attitudes towards brain wearables

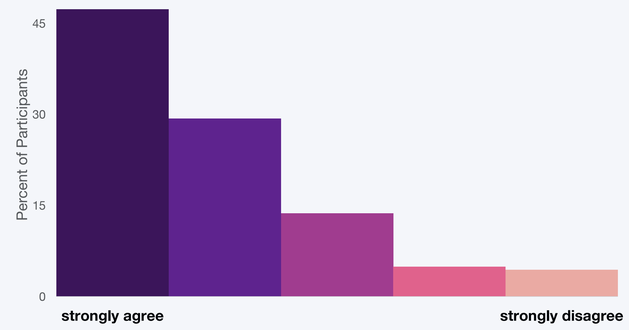
- Ps watched short instructional video on EEG devices
- Ps answered questions about their attitudes and concerns about devices
- Ps answered basic demographics

Survey 2 (n = 1513; panel of nationally representative respondents) assessed perceptions of the sensitivity of different forms of information that can be collected about a person

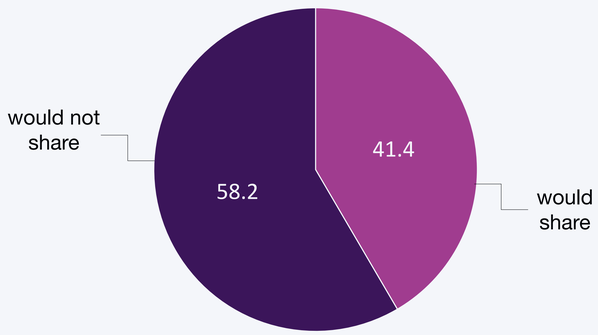
- Ps answered questions about their attitudes towards data privacy
- Ps rated 33 differing types of information that could be collected about them (e.g. birthdate, SSN, levels of alertness, thoughts in mind)
- Ps answered basic demographics

SURVEY 1 RESULTS

Most participants strongly agreed that they would want to try the device on themselves:



Over half of participants (58%) were not comfortable sharing their data with third parties ***even when they had control over their sharing preferences***:

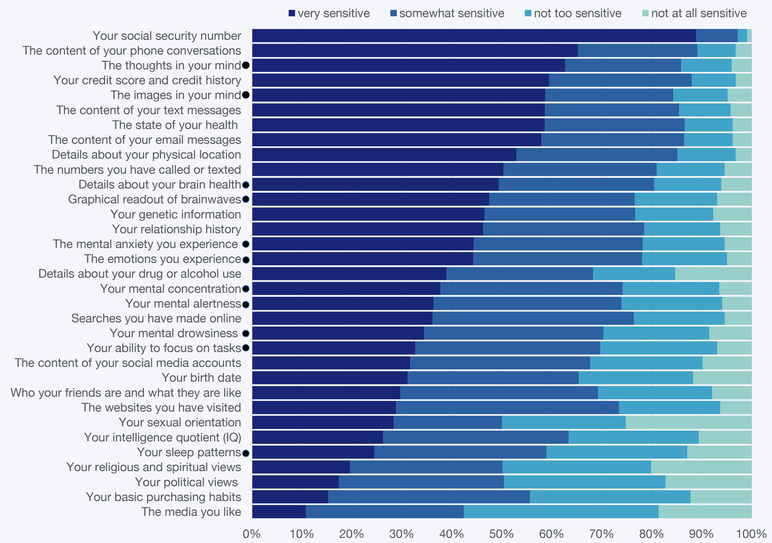


A top concern that participants had was that the devices would be capable of ***reading the thoughts in your mind***:

SURVEY 2 RESULTS

Data about the specific thoughts and images in a person's mind were among the top five most sensitive pieces of information.

However, metrics that can currently be collected with brain wearables were no more concerning than other information that is currently gathered by third parties



CONCLUSIONS

- People are most worried about the potential for consumer neurotechnologies to read one's thoughts
- Only specific thoughts and images in the mind are considered to be highly sensitive
- Need to ensure calls for neuroprivacy are calibrated with consumer concerns regarding the nature of information that is gathered

NEXT STEPS

We next plan to characterize concerns across contexts. For example, would people care more about brain metrics if they're being collected by insurance companies?