Influence of Privacy Attitudes & Privacy Cue Framing on Android APP Choices

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People and Privacy Warnings

- People express preference for privacy but do not behave in a privacy preserving manner

- Click through most of the privacy warnings

- Reasons:

  - Lack of motivation

  - Inattention

  - Uncertainty & Information asymmetry

Decisions are made either using description or from experience

- Privacy decision from experience? - But risk to one's privacy is not frequent

- Privacy risk has to described to the user

- Current Risk Descriptions: Too much & Too Late

- Presenting easy to understand privacy risk icons/cues would help people make low risk app choices.

- But what does that entail? - What are the governing human factor variables?

Framing descriptions to nudge user decisions

- Past research on framing of privacy cues is inconclusive
- There could be other variables that mediates the effect of privacy risk framing
- Privacy attitude is considered an important variable
- No known empirical work on the effects of privacy attitudes
- Question: How does privacy attitude in association with privacy risk framing influence app choices in Android ?

Privacy attitude was manipulated through priming

- Privacy Priming at the start of the experiment
- Concise version of the IUIPC questionnaire
- Priming through memory recall
- Augment participants concern for privacy online

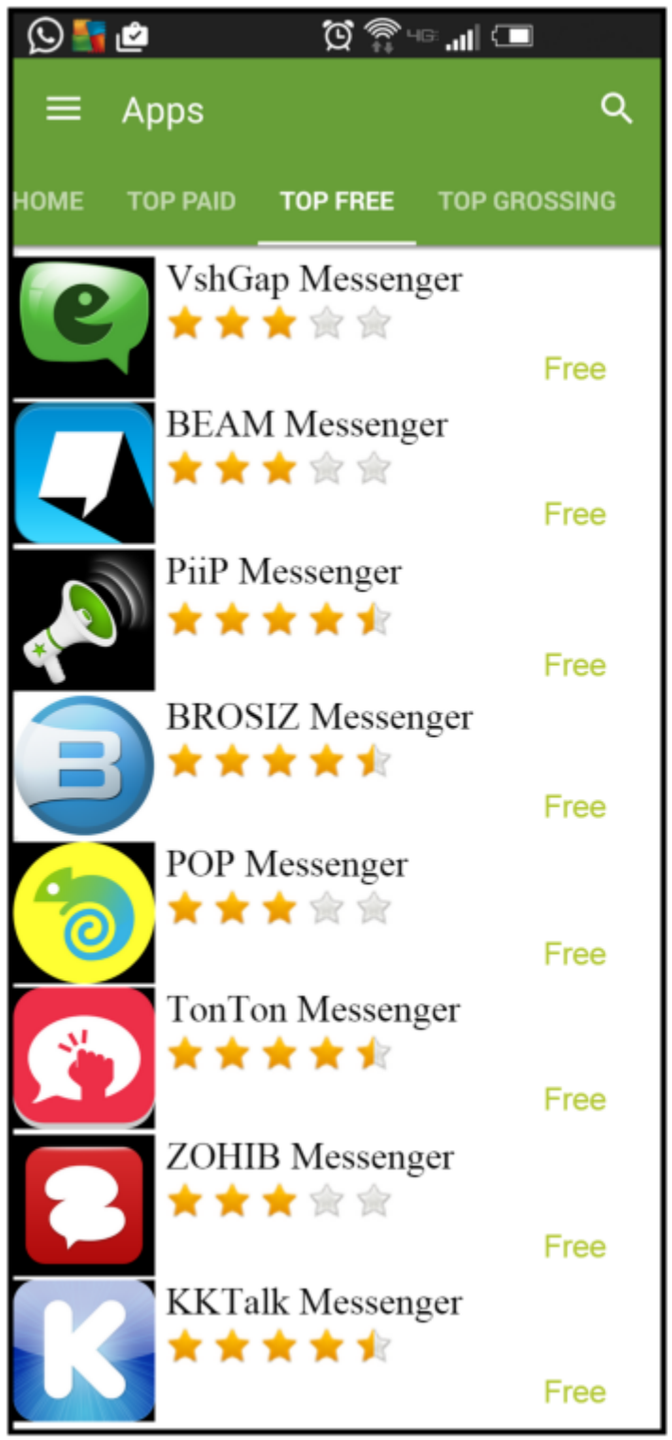
Compared 3 Privacy Cues

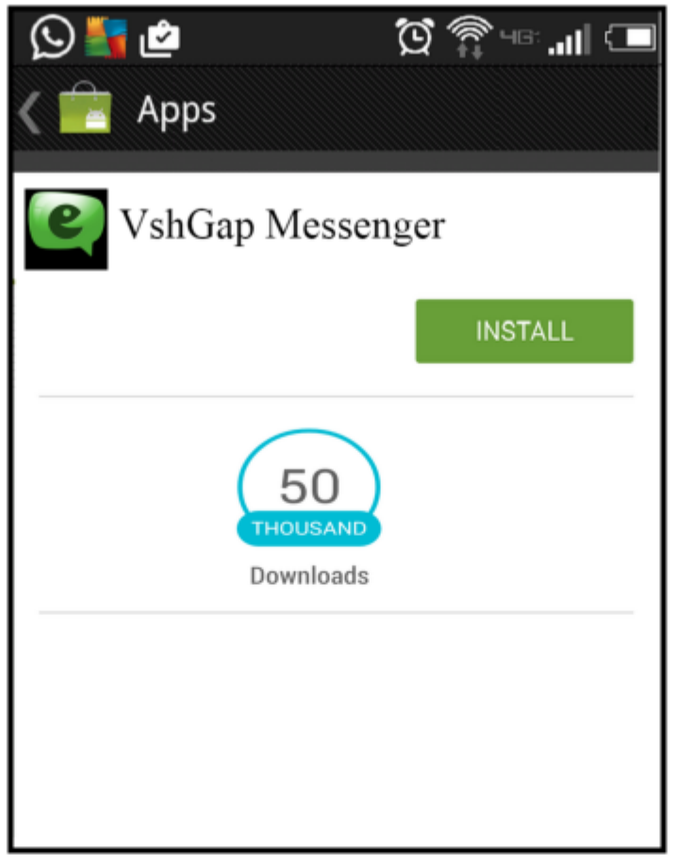
- No visual cue was the control condition
- Social Cues for communicating emotion
  - Emoticon & Eyes
  - Risk framed (Negative)
- Security Mental Model based cue
  - Lock
  - Privacy framed (Positive)

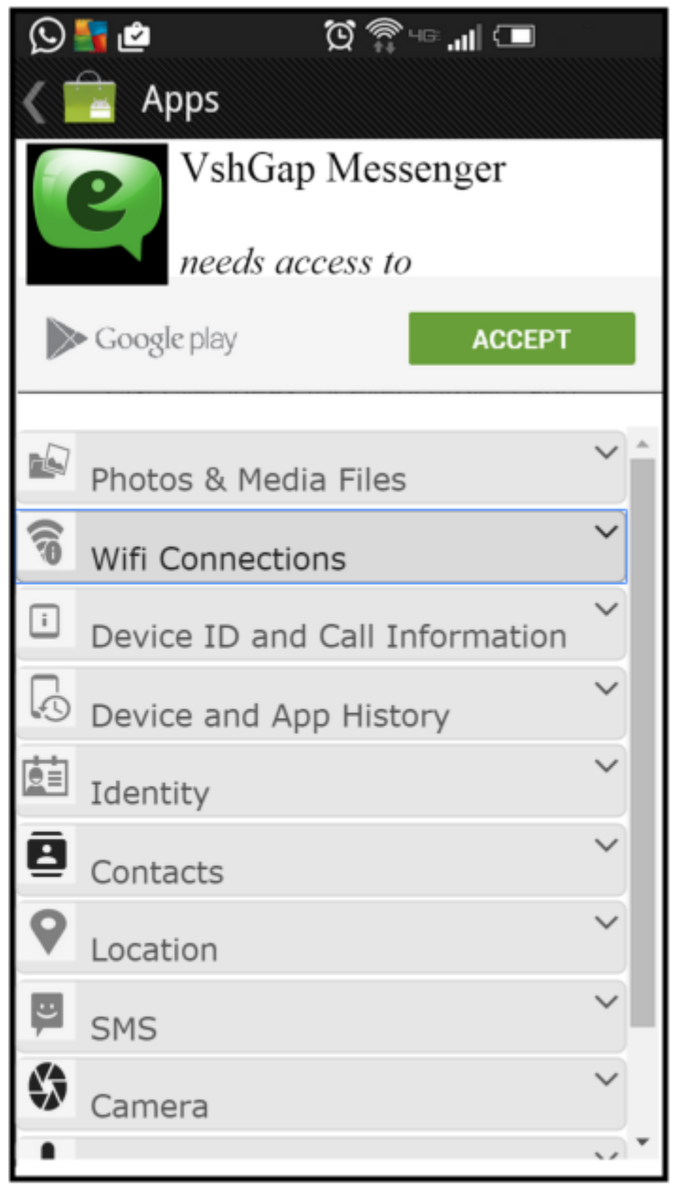
A 4X2 between subjects experiment design

- **IV1**: Visual cues to communicate privacy
    1. None
    2. Social Cue1: Emoticon
    3. Social Cue2: Eyes
    4. Mental Model Based Cue: Lock
- **IV2**: Privacy Priming
    1. None
    2. Privacy Primed
- Total: 8 experimental conditions

Interactive Android Playstore Simulation







User experiment with 480 MTurk participants

- Participants: 18 years and above, familiar with Android, were paid $2.50

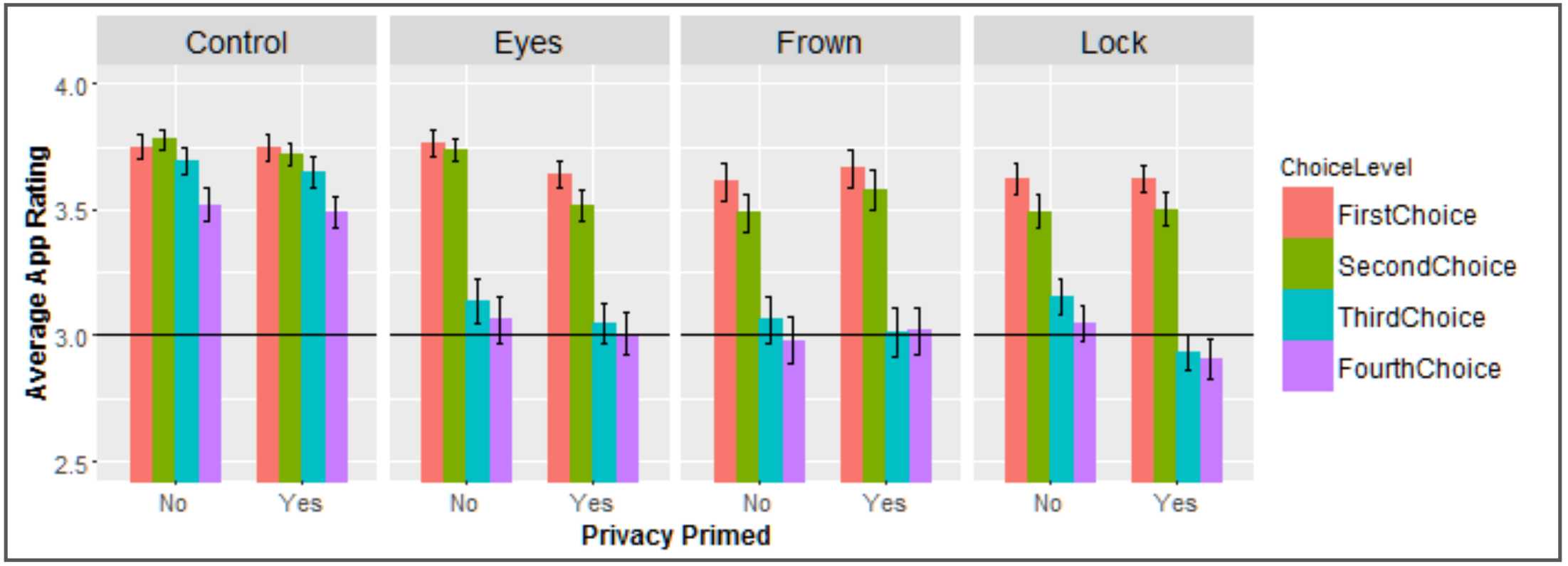
- Randomly assigned to one of the 8 conditions
  - 60 participants in each condition

- Cues or no cues, Primed or not primed

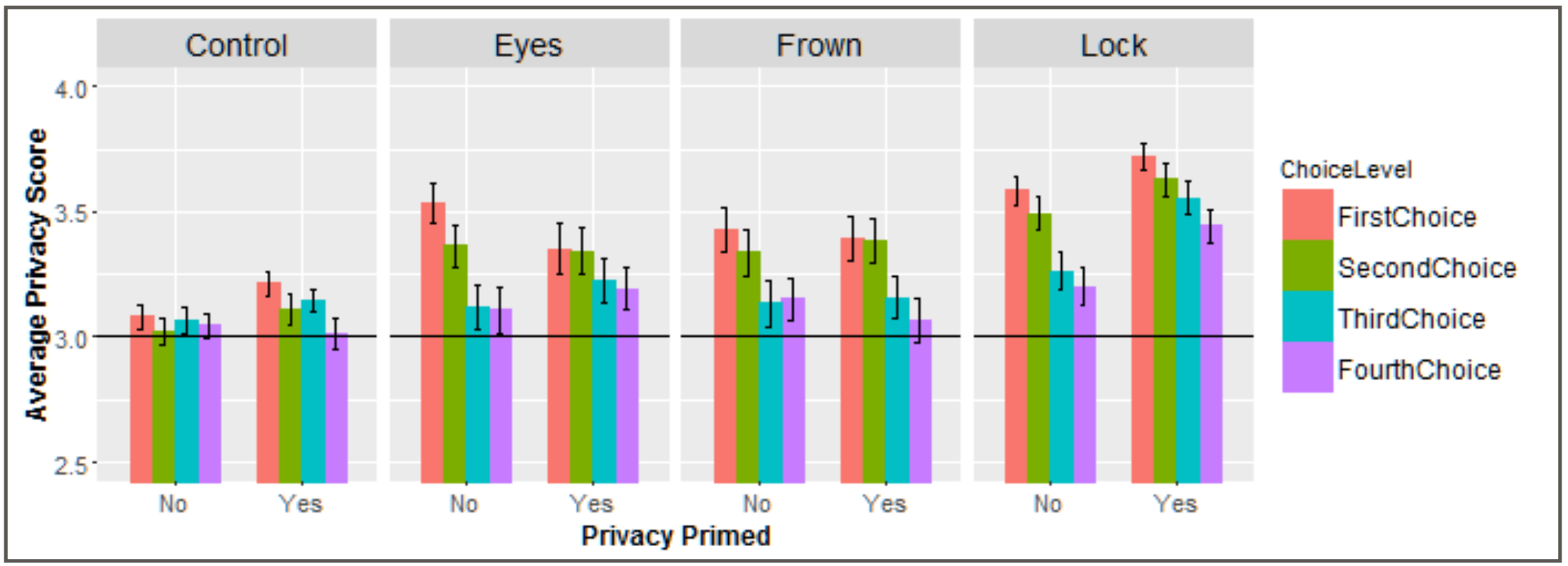
- 8 categories of apps with 8 apps in each
  - 4 apps excelled in at least 2 variables

- Chose 4 apps in each category in degree of preference

Comparing effect of app rating across conditions



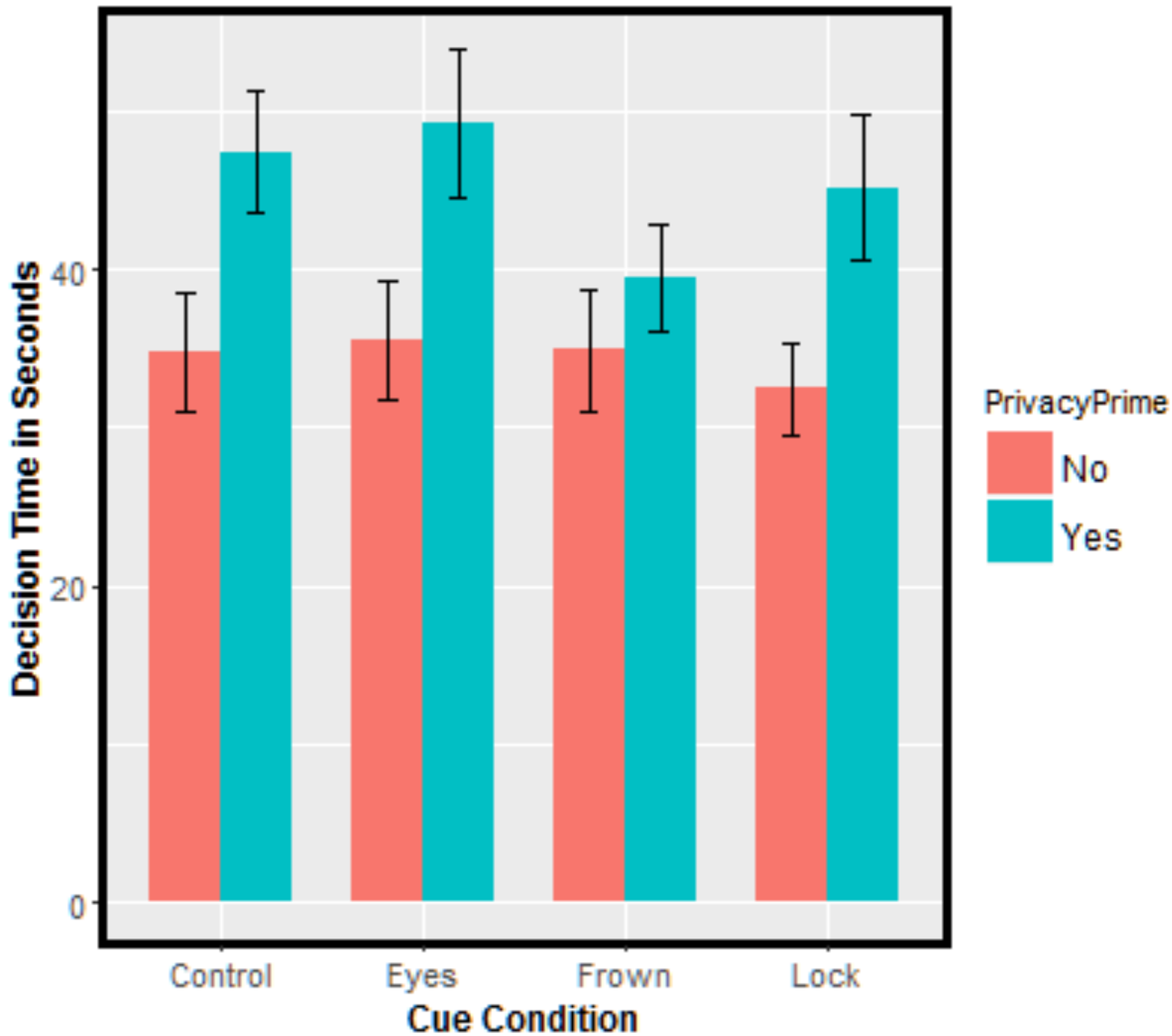
Comparing effect of privacy score across conditions



Time taken to make app choice was measured and compared

- Participants primed for privacy spent more time choosing apps

- 20 seconds more in average



Priming for privacy led to increased concern

- But priming for privacy did not have a significant effect on app choices by itself

- Presenting privacy cues in general led to more risk and benefits based choices

- **With several good options**: Framing did not make a difference

- **With lack of good options**: Participants using privacy framed cues and who were primed for privacy made consistent risk based choices