

Are Interactive and Tailored Data Visualizations Effective in Promoting Flu Vaccination among the Elderly?

Evidence from a Randomized Experiment

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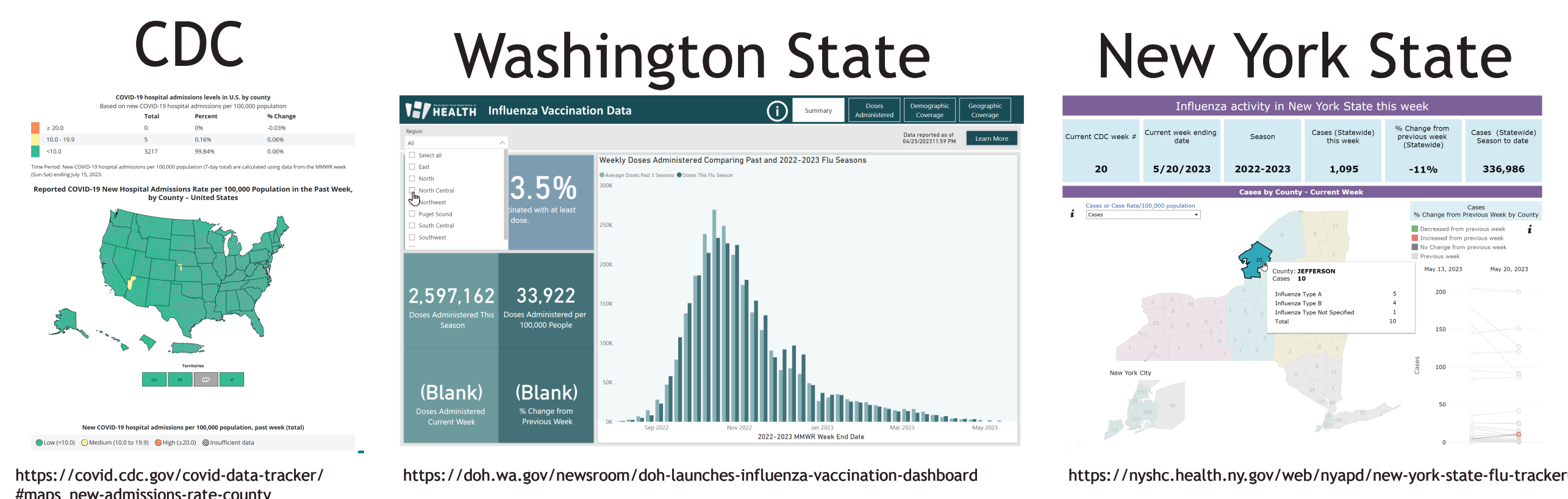
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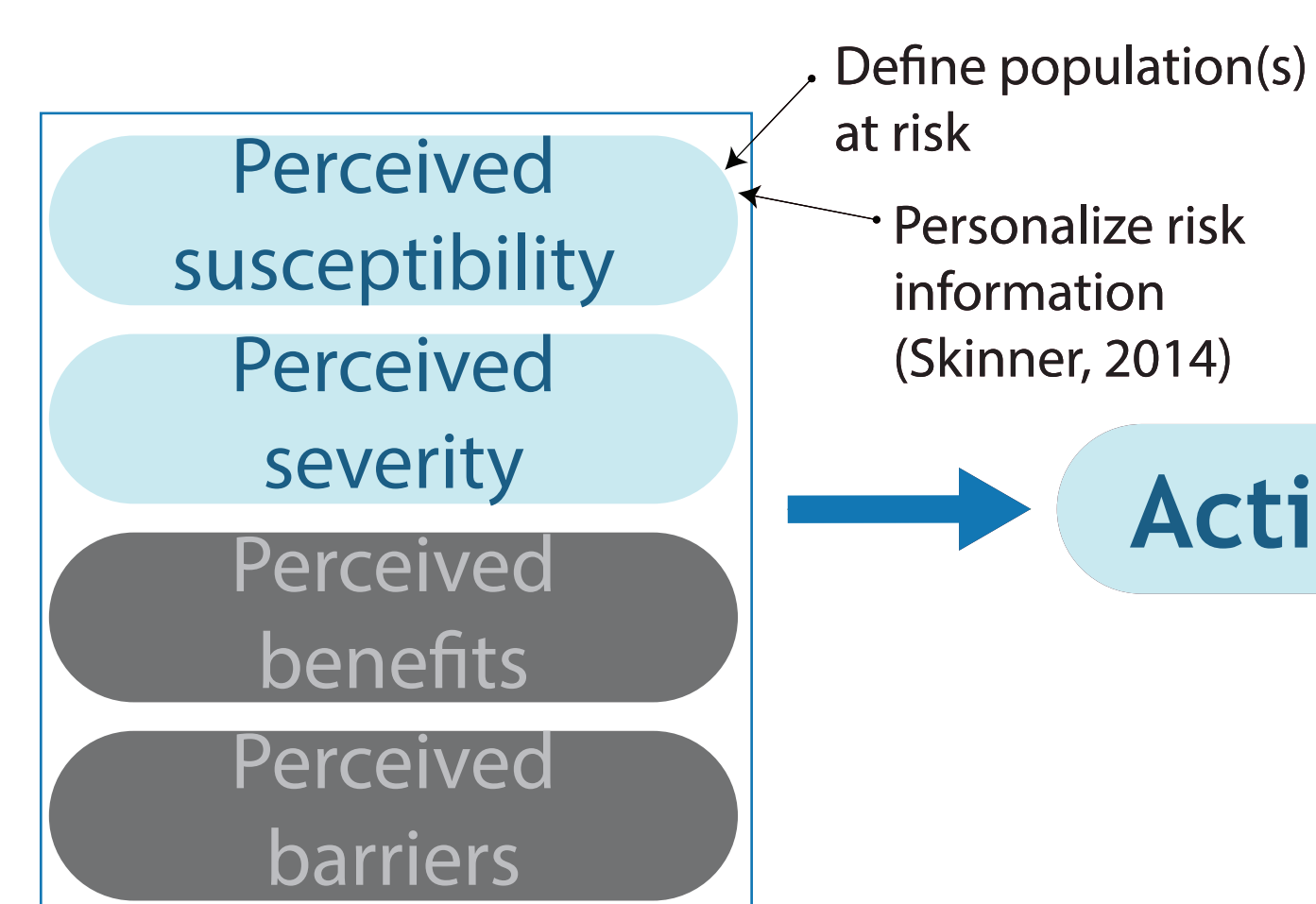
Scan for published manuscript.
All data and analyses are available at: <https://osf.io/5w37k/>.

Background & Significance

Interactive dashboards are prominently used for health information dissemination



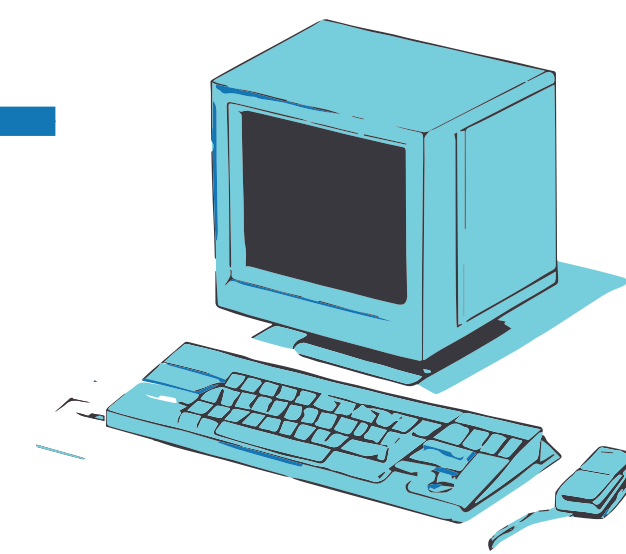
Health Belief Model



Computer-tailored health communication

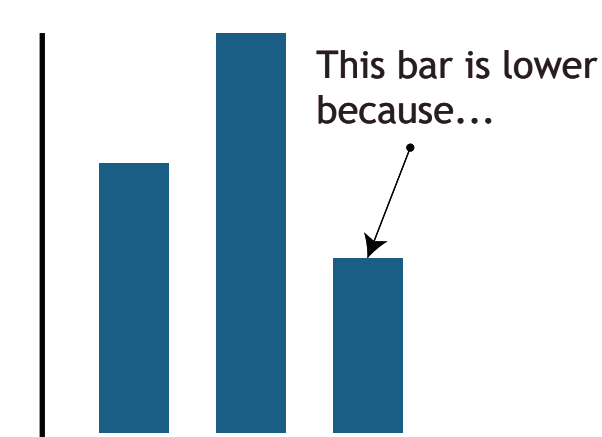
Computer-tailored health information can increase participant engagement in health interventions, and perceived susceptibility to disease (Krebs, 2010)

Action



Dashboard affordances can influence memorability and persuasiveness

High interactivity on data website significantly increased perceived severity of obesity (Oh, 2020), but significantly decreased intention to use sunscreen (Niu, 2021)



Text on charts showing context and guidance increases participant comprehension (Stokes, 2023), and text can be the most memorable part of a chart (Borkin, 2015)

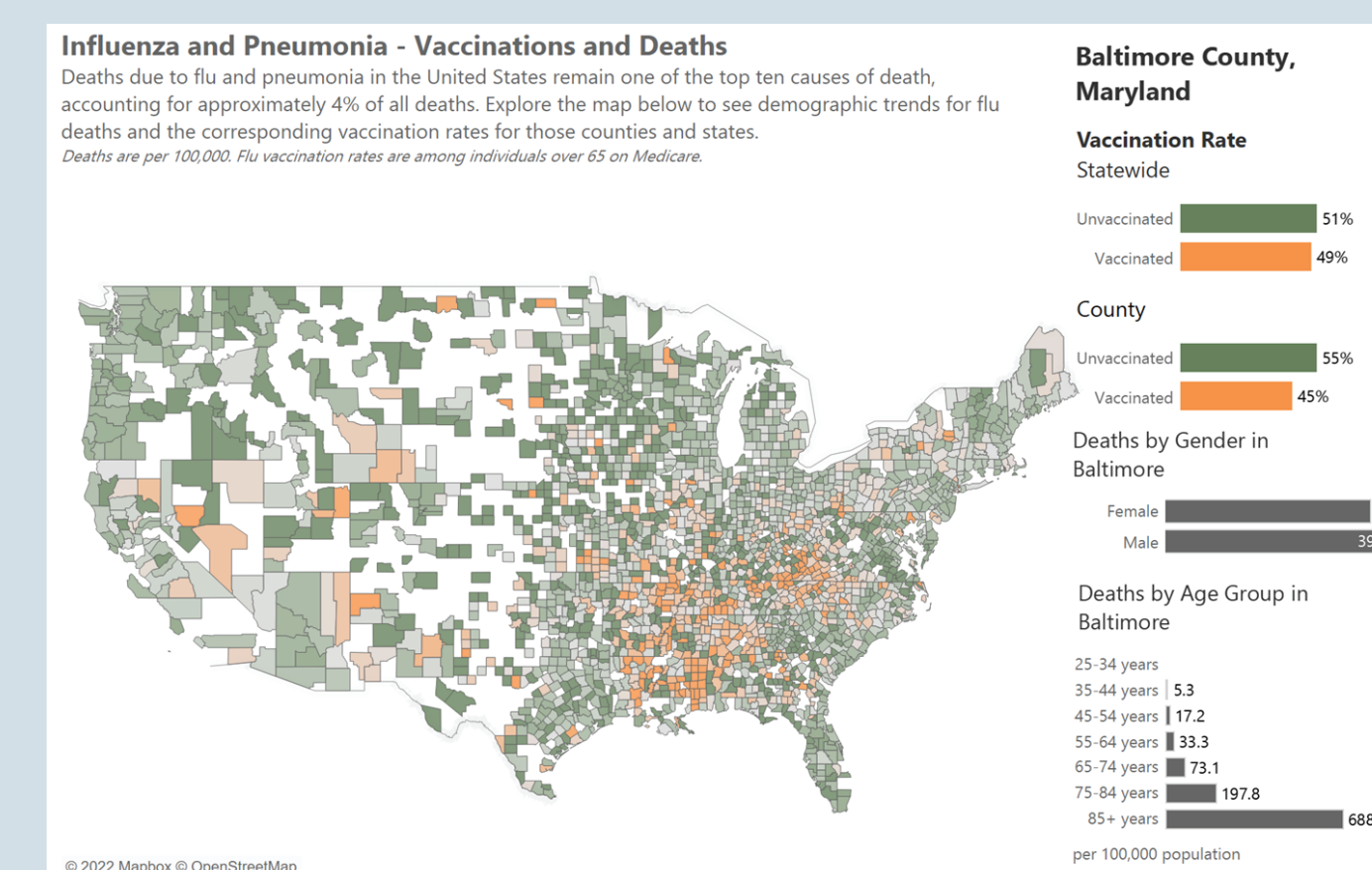
Methods

Dashboard Prototyping



"I'm a little confused from the start"
"I'm looking for hot spots but then I'd still want to hone in on what's really happening where I'm going."
"I'd be more concerned about vaccinated and unvaccinated [than about death rates]."

"The thing about death, you can't do anything about it. You die, you die."



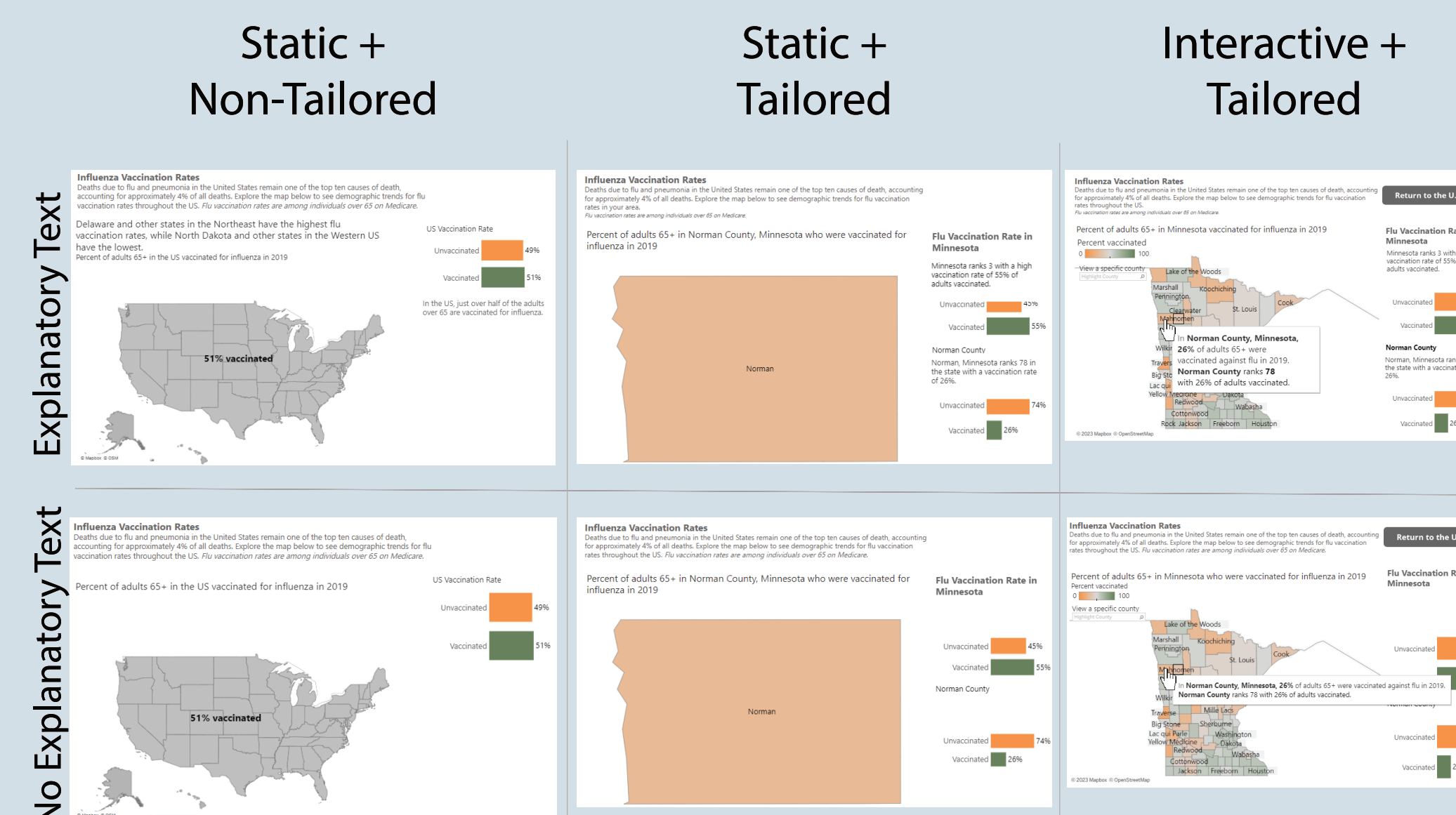
Experimental design

Participants

n = 1,378

n = 670
n = 697

Vaccine Hesitancy
More hesitant 1 — 6.45 — 10
sd = .81

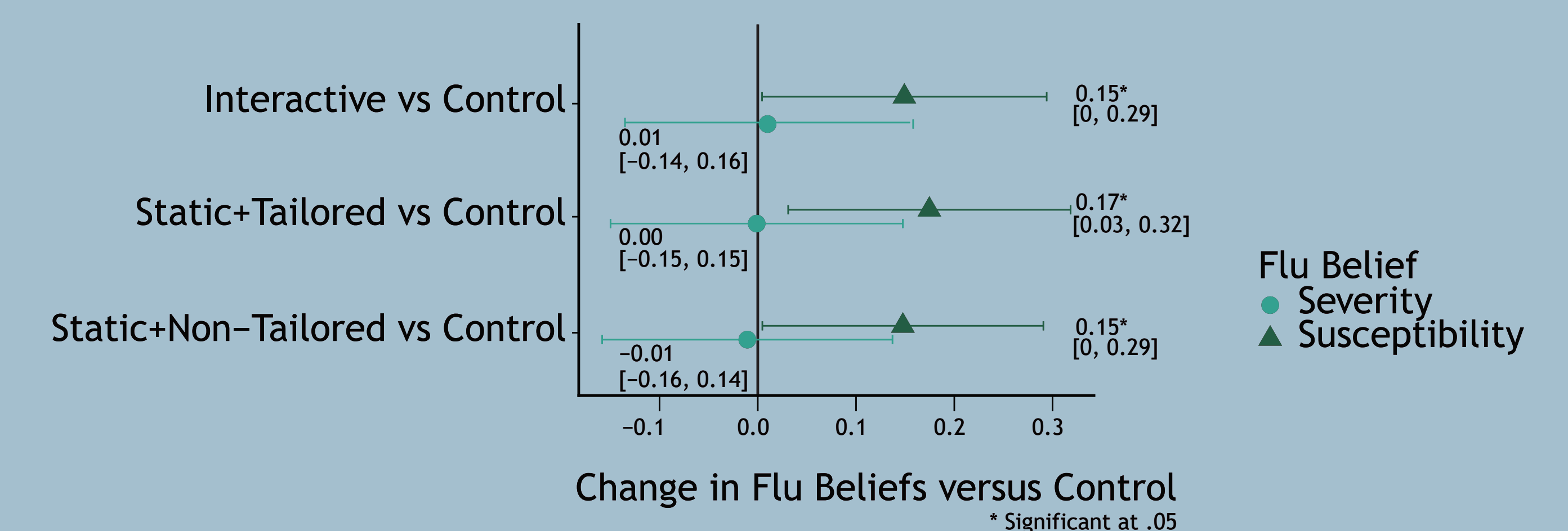


Hypotheses

- Participants seeing dashboards (static+non-tailored, static+tailored, and interactive+tailored) will have higher perceived a) **susceptibility** to and b) **severity** of influenza compared to participants in the control condition.
- Participants seeing dashboards (static+non-tailored, static+tailored, and interactive+tailored) will have higher **intention to vaccinate** against influenza compared to participants in the control condition.
- Dashboards with explanatory text compared to dashboards without will lead to higher **recall of the key dashboard messages** and attributes.
- The effects of explanatory text on **information recall** will be moderated by **age**.

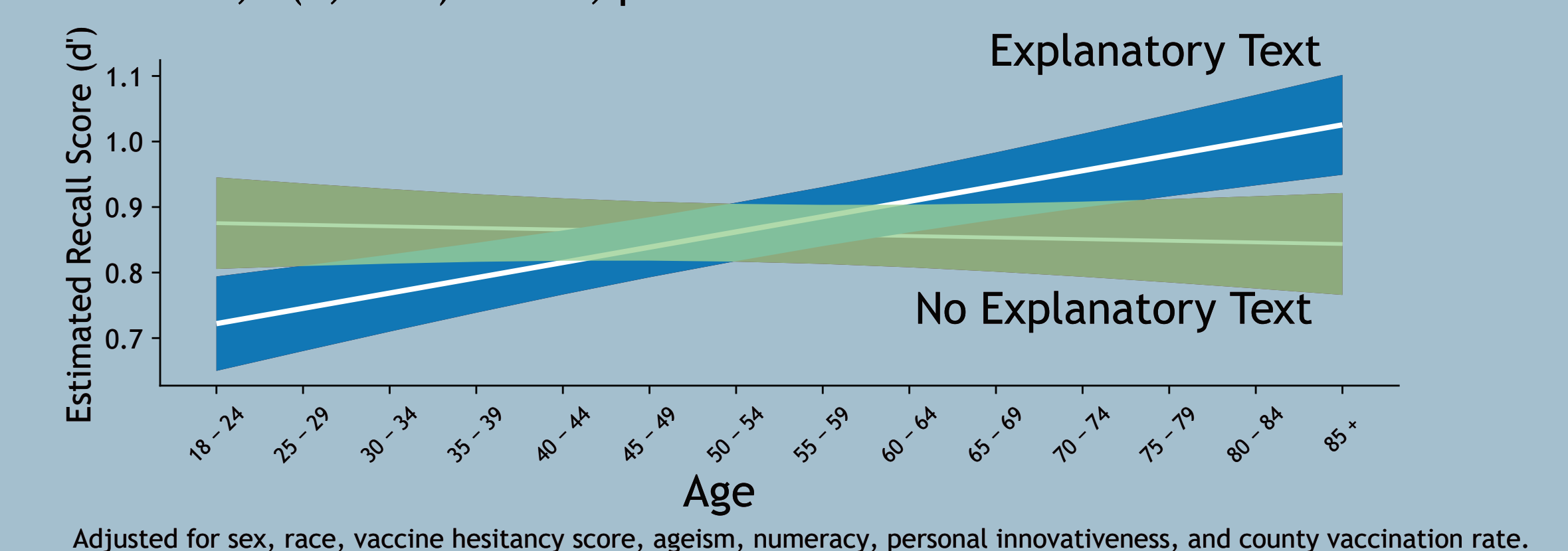
Results & Discussion

Flu dashboards significantly increased perceived flu susceptibility but not severity



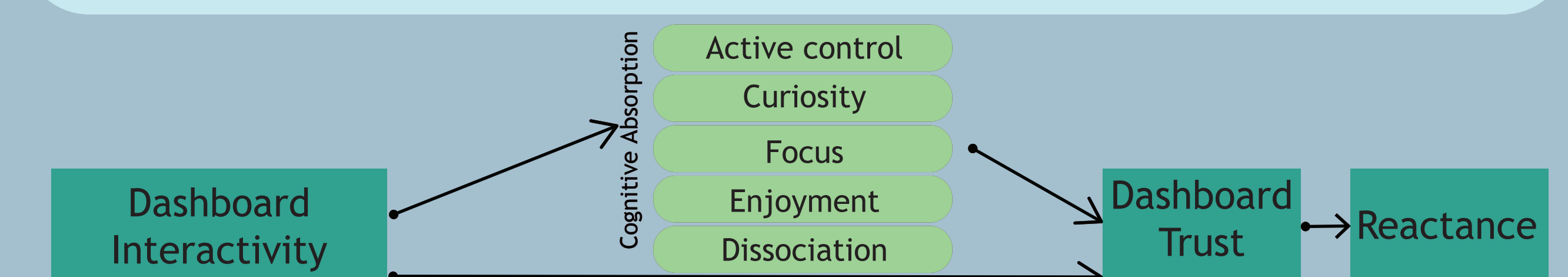
Adding descriptive titles significantly increased information recall, for adults 55+

The interaction between language condition and age is statistically significant, $b = 0.03$, $F(1,1115) = 5.03$, $p = 0.025$.



Adjusted for sex, race, vaccine hesitancy score, ageism, numeracy, personal innovativeness, and county vaccination rate.

Next up: Exploring process mechanisms, e.g., cognitive absorption as a mediator



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