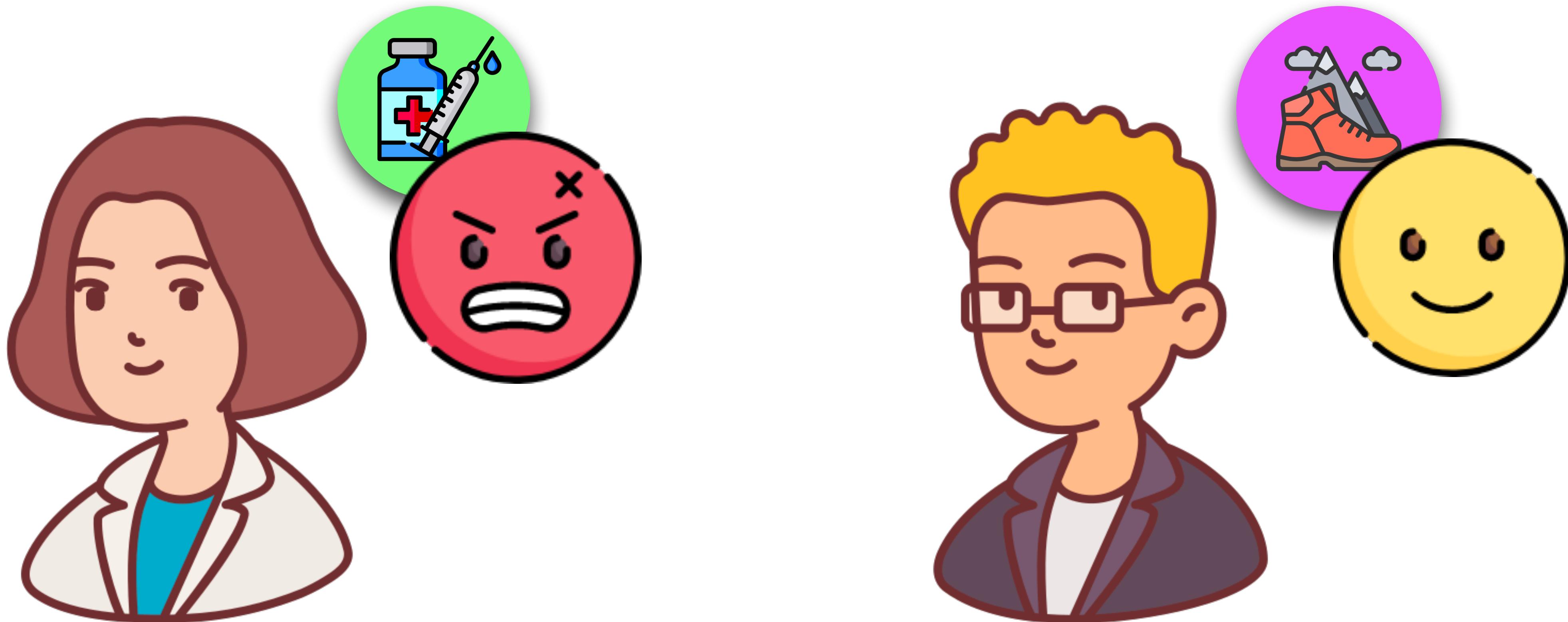




# Neural Representation of Expectations on Somatic Pain, Vicarious Pain, and Cognitive Effort

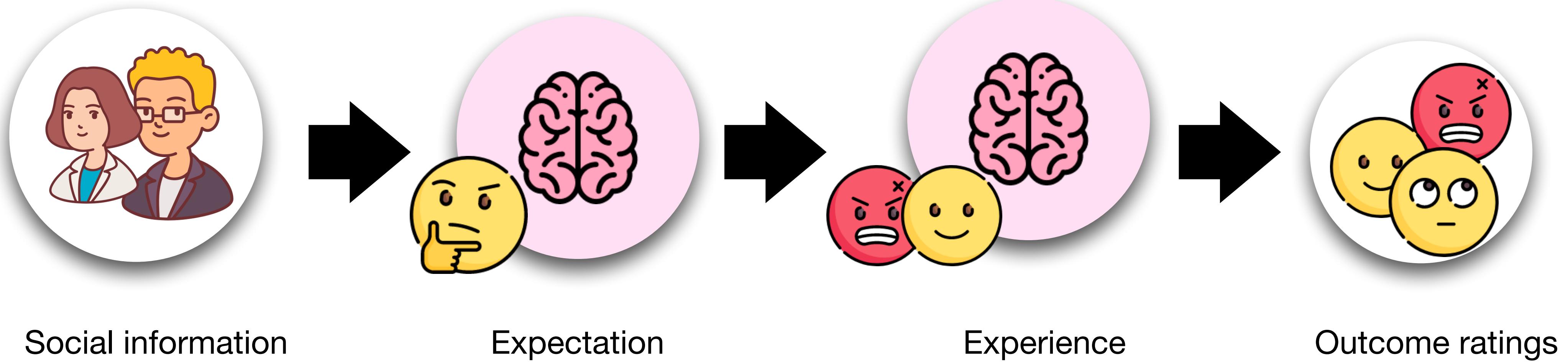
Jung, H., Lipski, L., Amini, M., Heilicher, M., Hunt, B. J., Murphy, E. I., Han, X., Kragel, P. A., Lindquist, M. A., Wager, T. D.

# Expectations can shape experiences



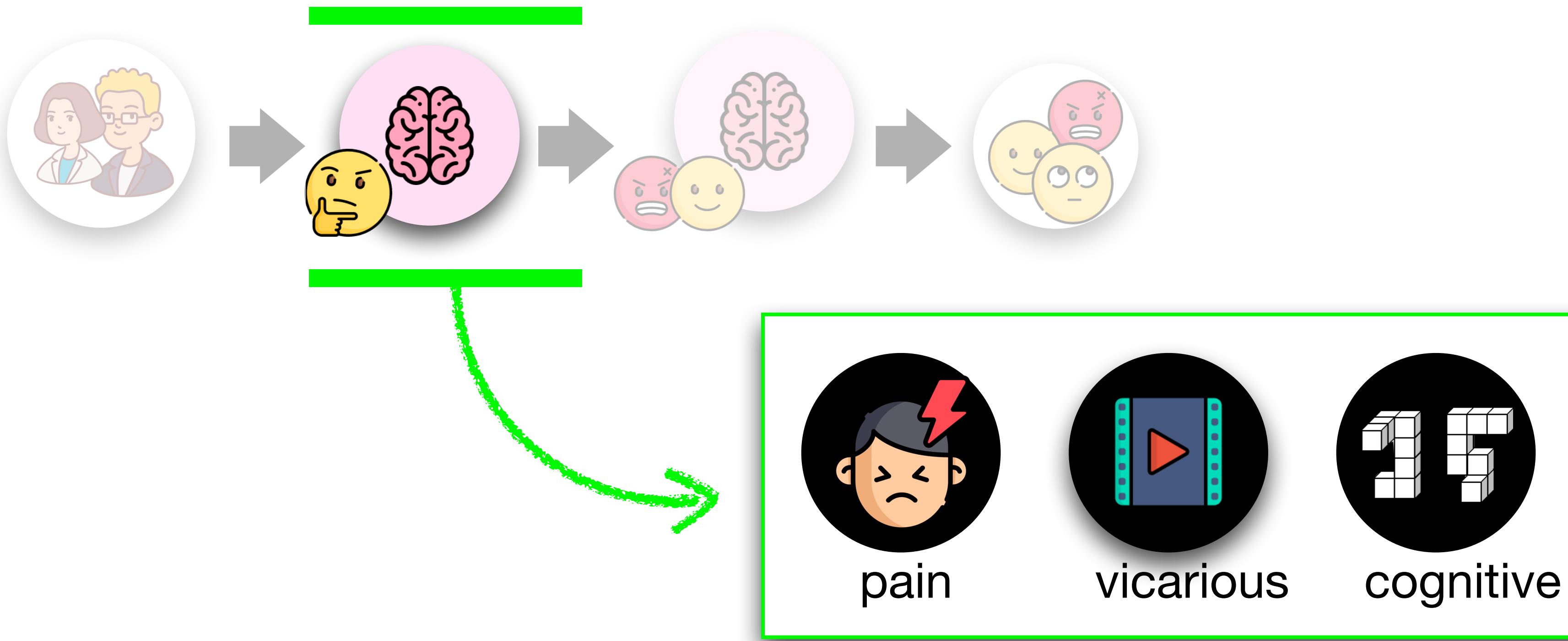
Wager et al., 2013; Cormier et al., 2013; Sawamoto et al., 2000; Koyama et al., 2005; Lorenz et al., 2005; Brown et al., 2008; Atlas et al., 2010; Bingel et al., 2011; Wiech et al., 2014; Swanson & Tricomi, 2014

# Expectations can shape experiences



## How do expectations shape experiences?

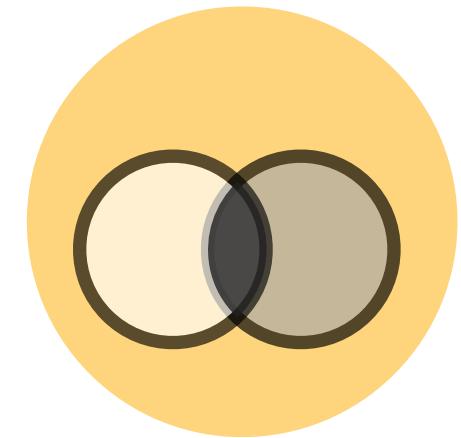
# Expectations can shape experiences



Expectation representations...  
domain-general? domain-specific?

# Experimental design : factors

3 tasks



- Pain
- Vicarious
- Cognitive

2 social cues



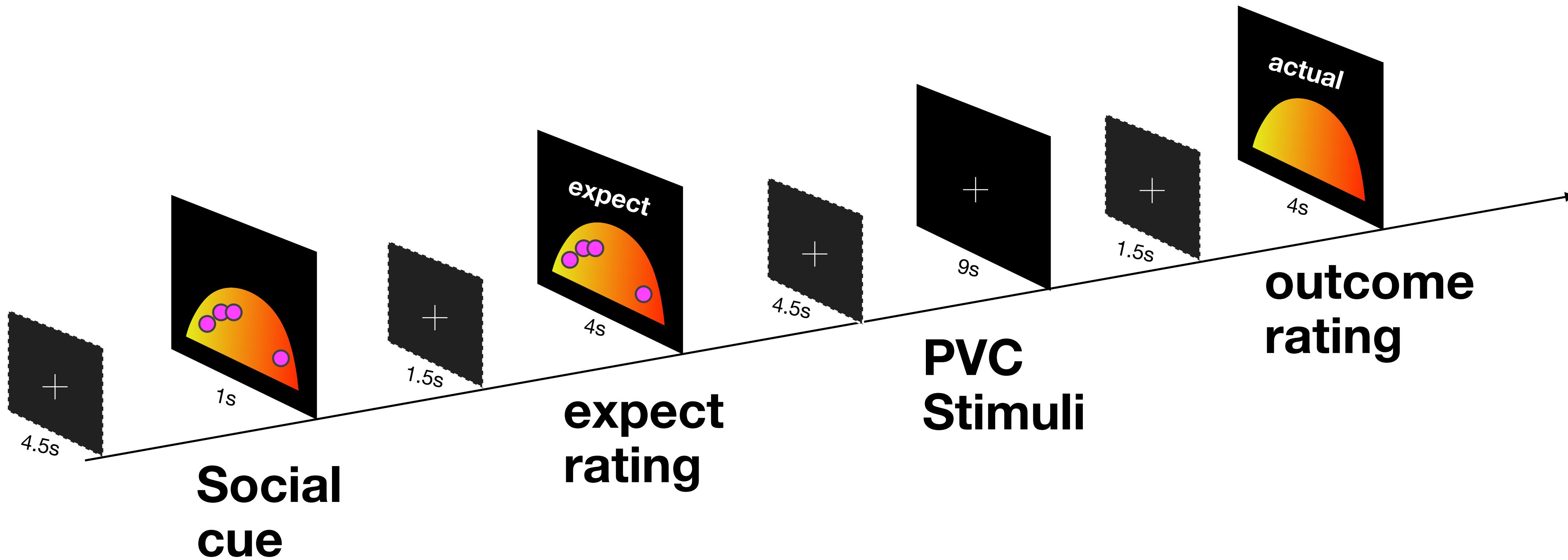
- High
- Low

3 stimulus intensity

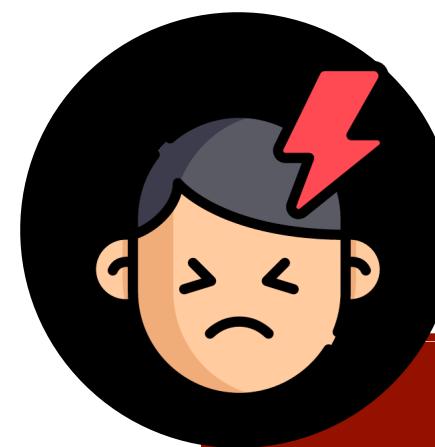


- High
- Med
- Low

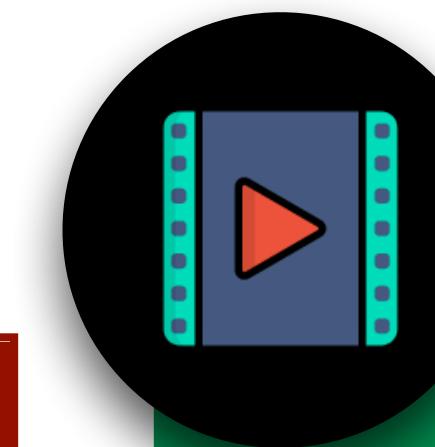
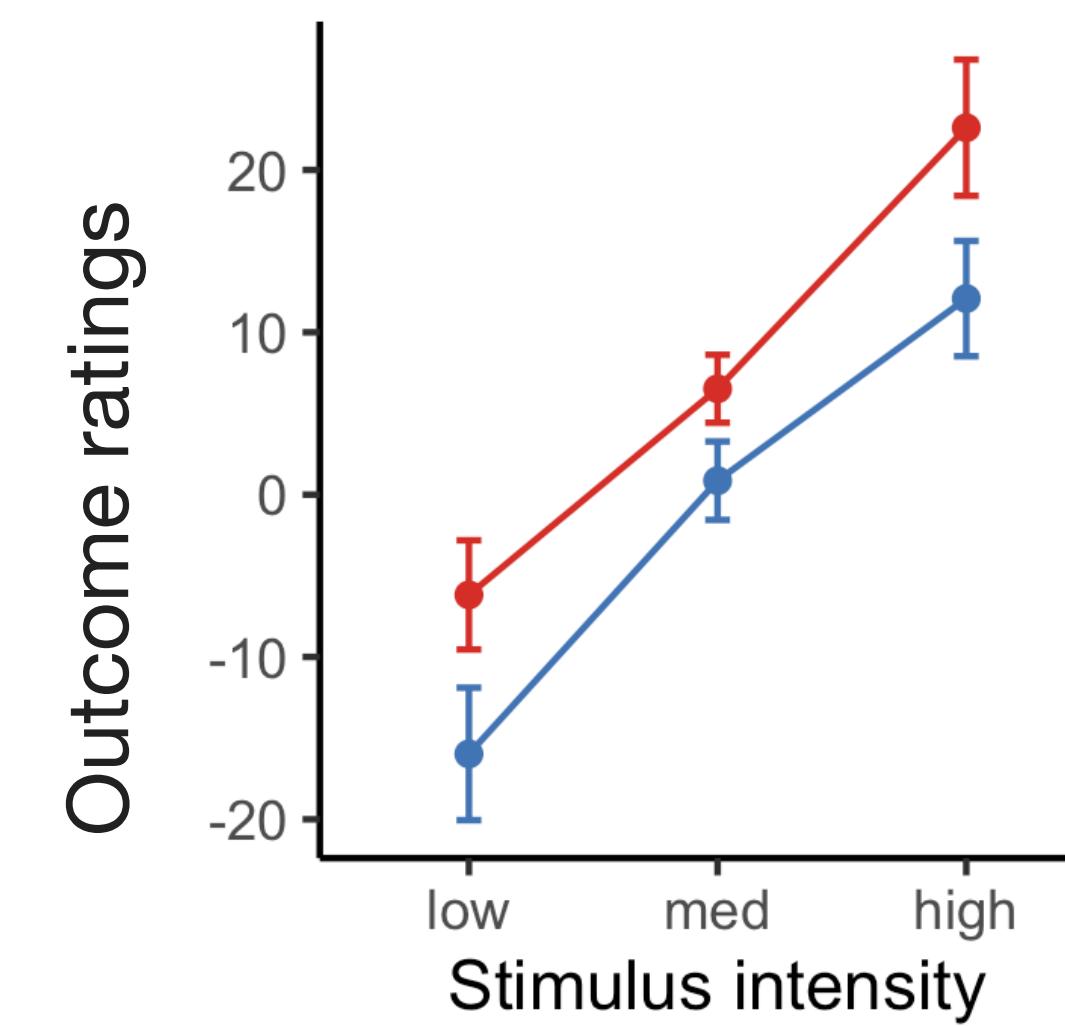
# Experimental design: one trial



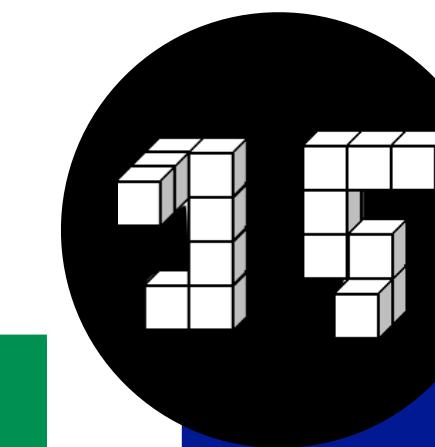
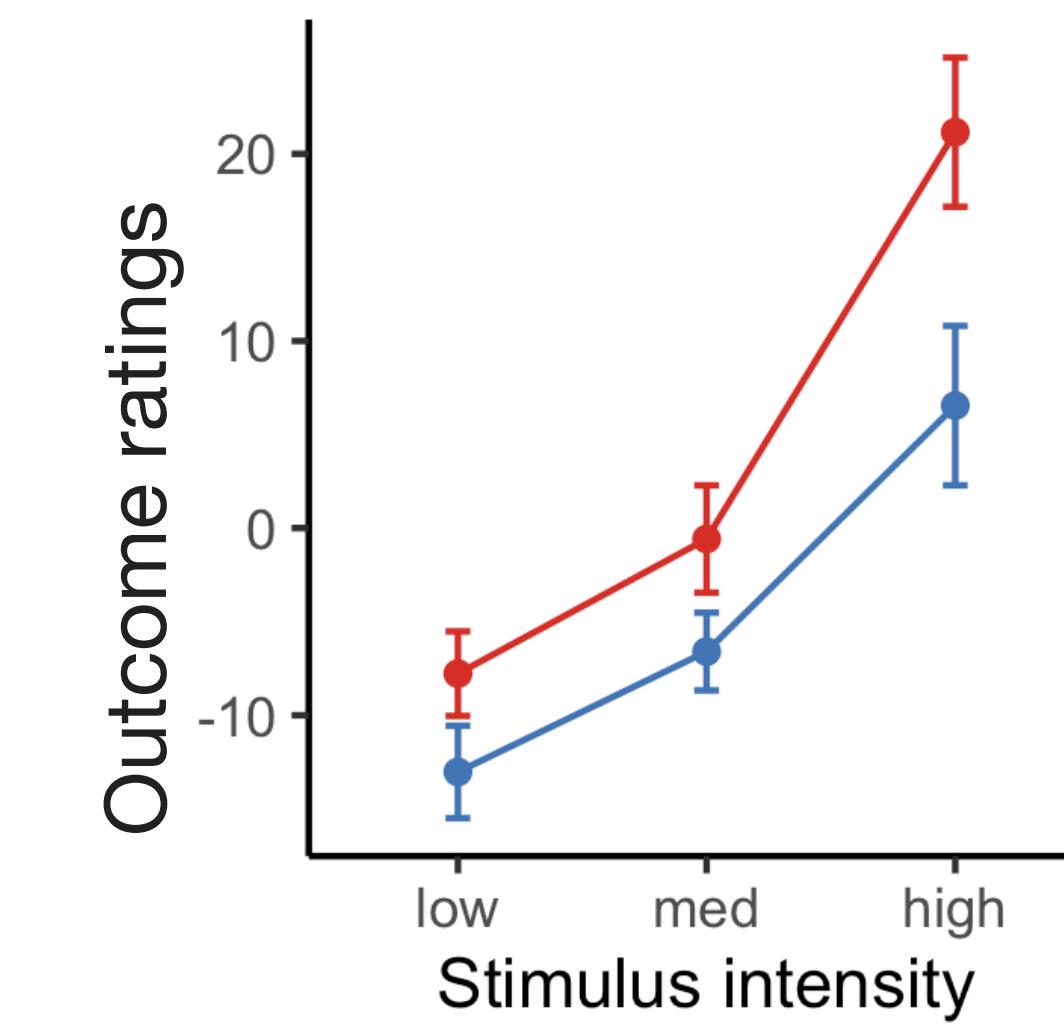
# Social cues modulate outcome ratings “cue effect”



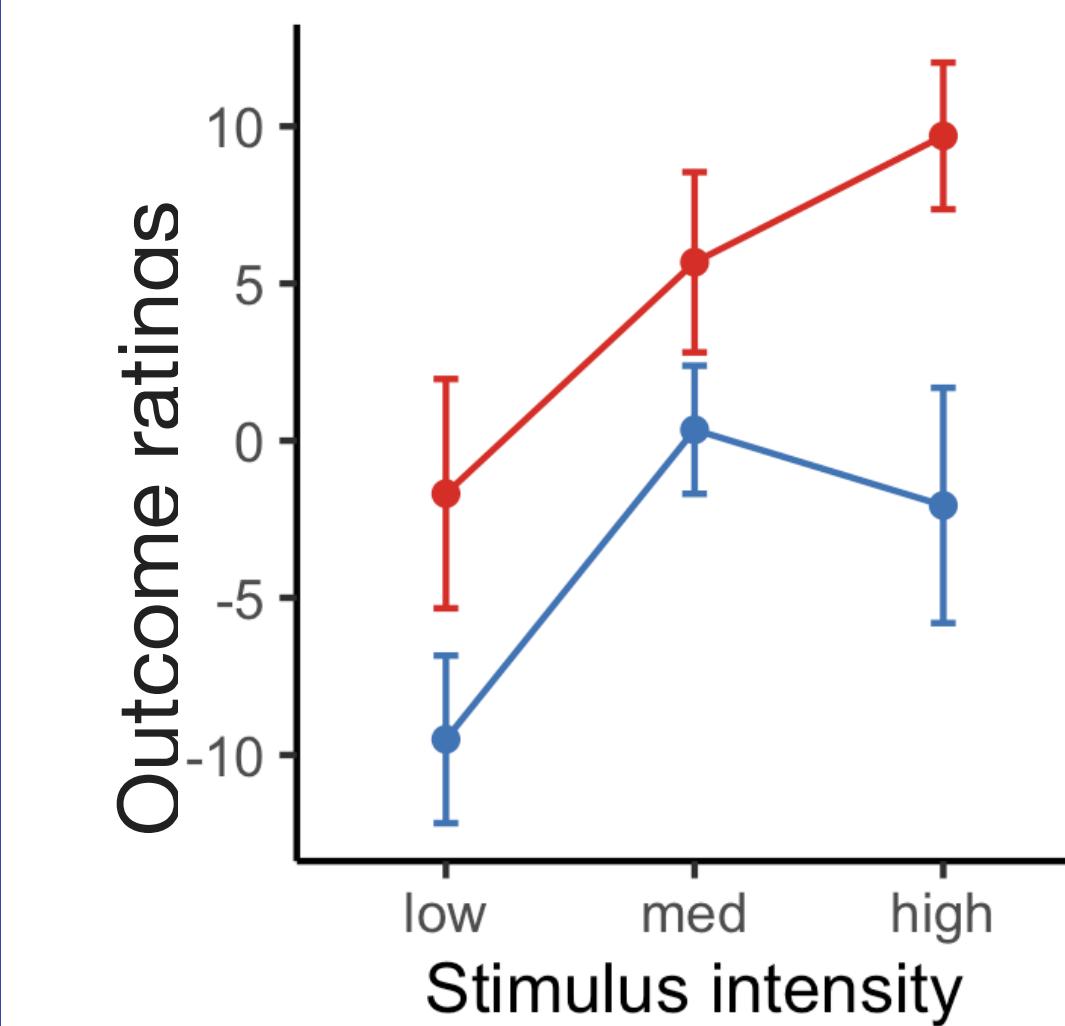
Pain



Vicarious

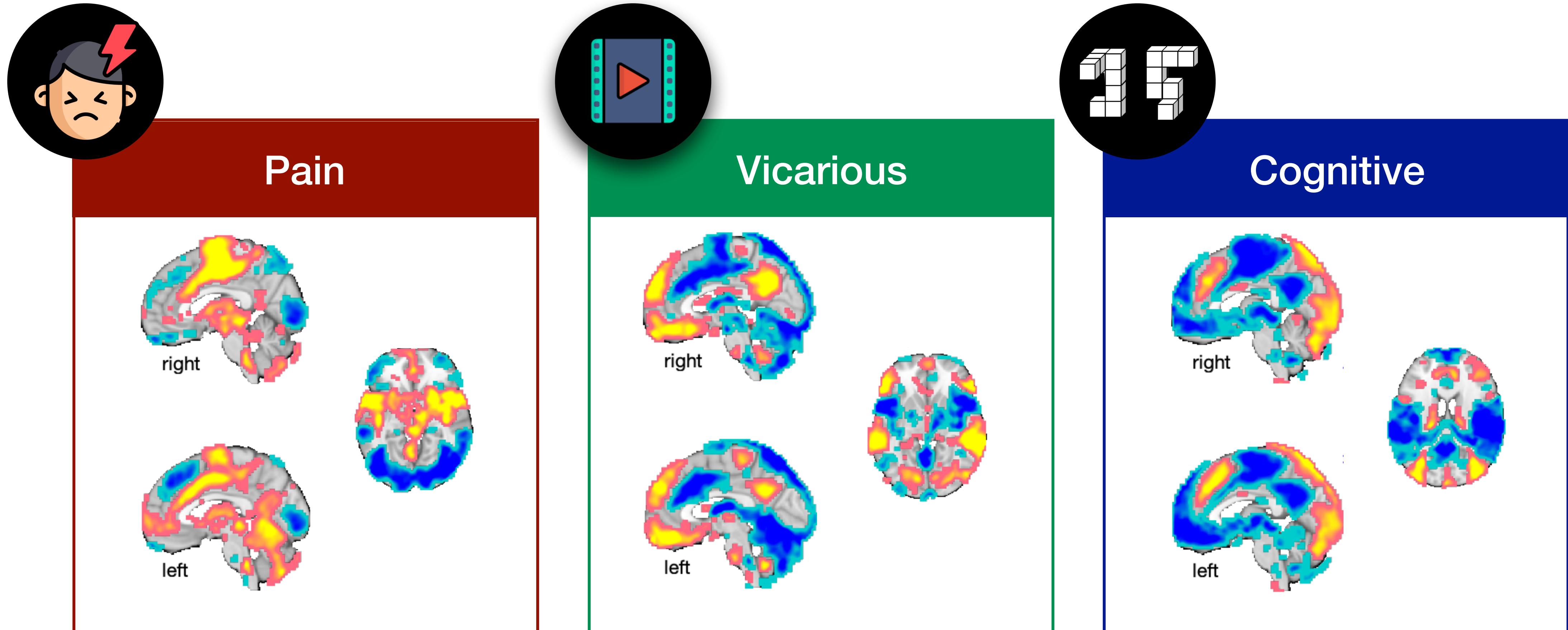


Cognitive



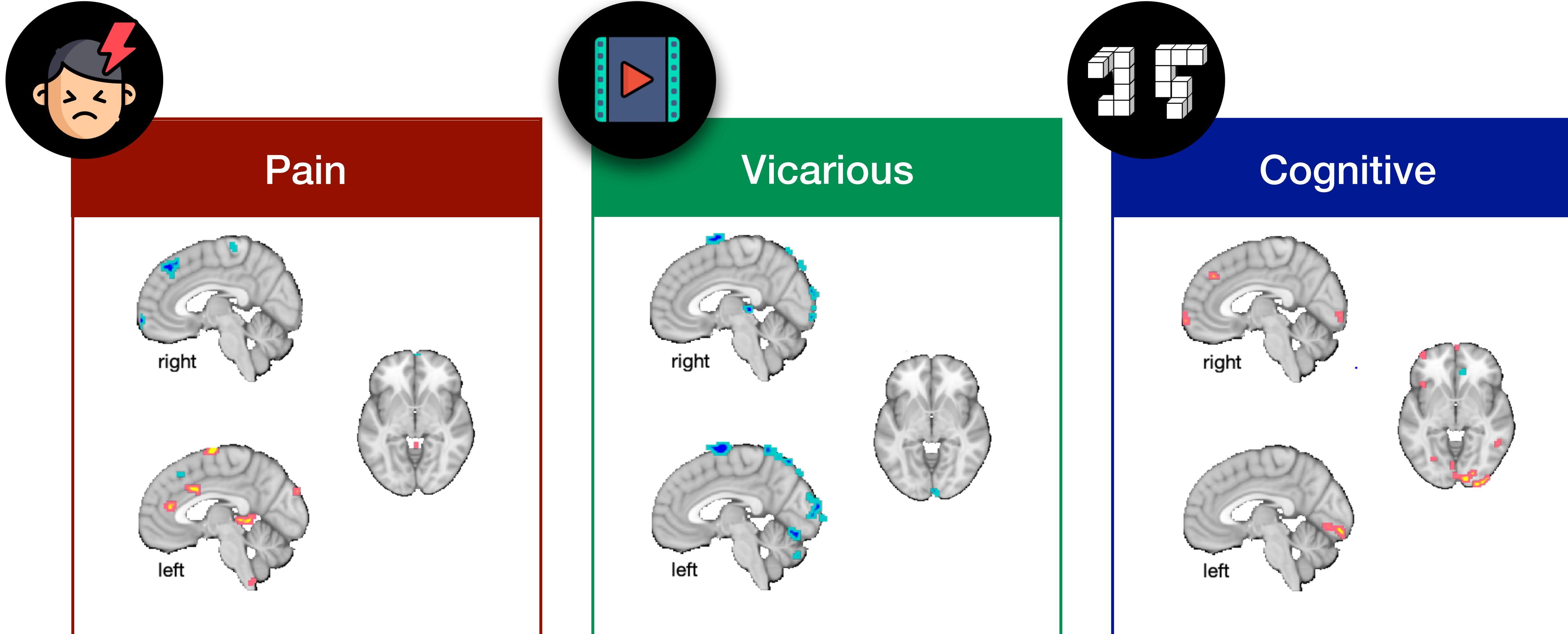
- high cue
- low cue

# Stimulus intensity effects are significant



$N = 32, q < .05 \text{ (FDR)}$

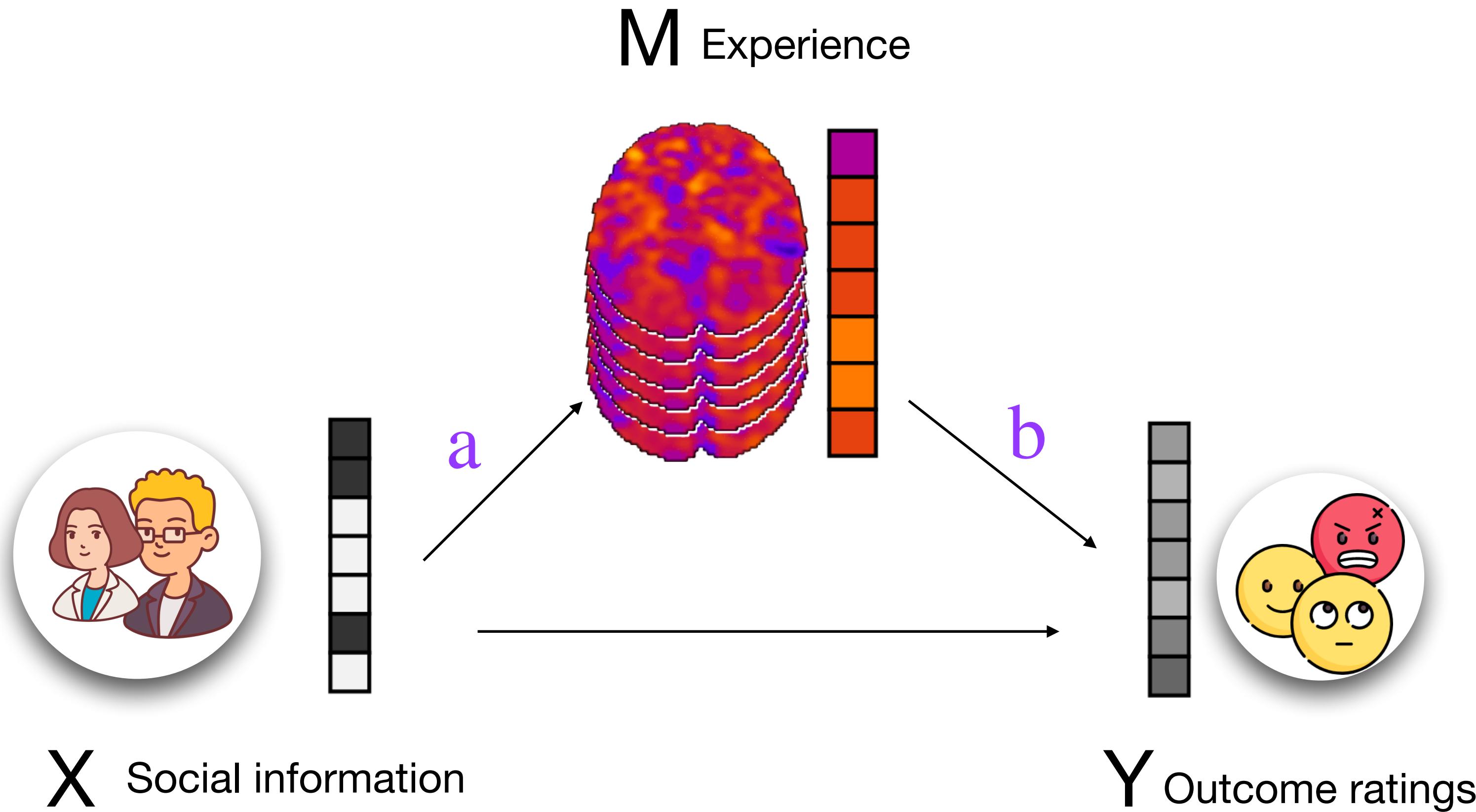
# Cue effects on stimulus intensity are moderate



$N = 32, p < .0001$  (unc)

# Multilevel-mediation analysis...

**N.S.**



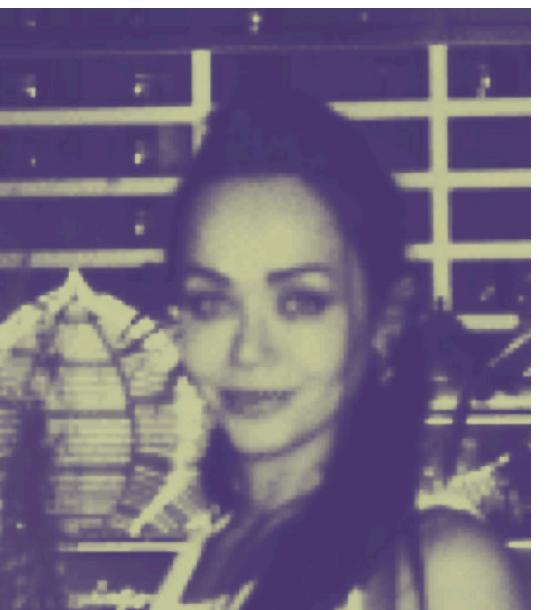
***we'll conduct our pre-registered analysis with more N***

# Thank you



R01EB026549-01

## Data collection



Maryam Amini



Bethany Hunt



Ellis Murphy



Luke Slipski



Mickela Heilicher

## Principal Investigators



Martin Lindquist



Tor Wager

## Postdocs & Former setup



Phil Kragel



Xiaochun Han