

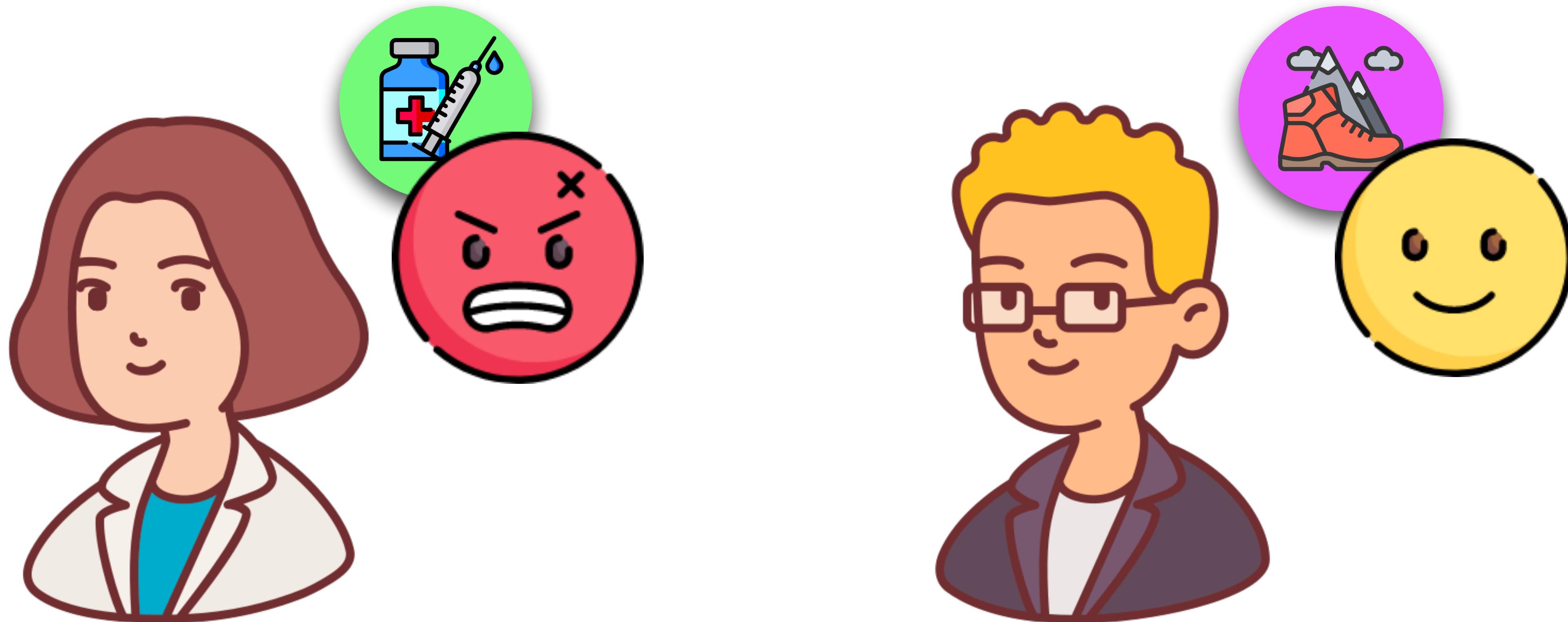


# Neural Representation of Expectations on Somatic Pain, Vicarious Pain, and Cognitive Effort

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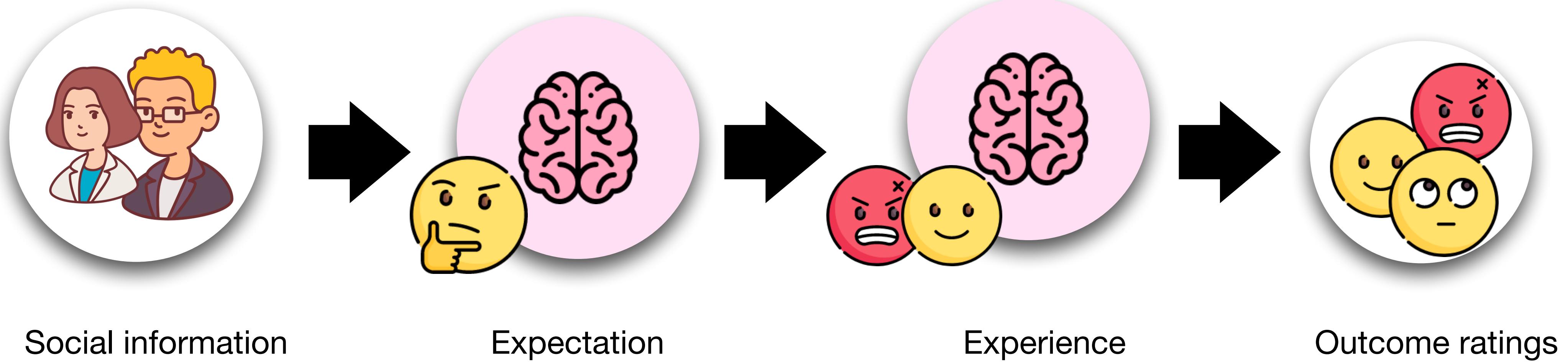
Xiaochun Han  
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# Expectations can shape experiences



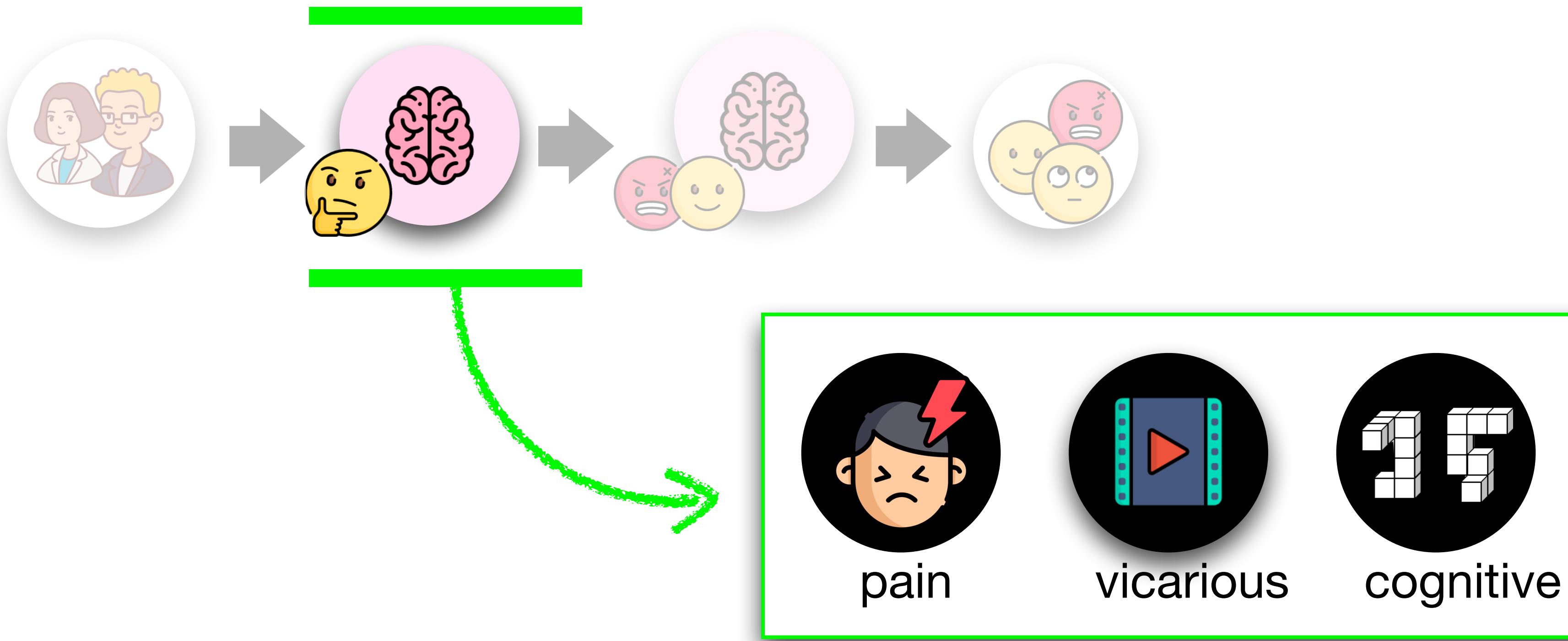
Wager et al., 2013; Cormier et al., 2013; Sawamoto et al., 2000; Koyama et al., 2005; Lorenz et al., 2005; Brown et al., 2008; Atlas et al., 2010; Bingel et al., 2011; Wiech et al., 2014; Swanson & Tricomi, 2014

# Expectations can shape experiences



## How do expectations shape experiences?

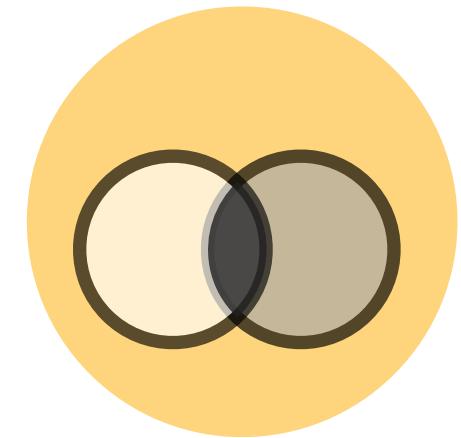
# Expectations can shape experiences



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

# Experimental design : factors

3 tasks



- Pain
- Vicarious
- Cognitive

2 social cues



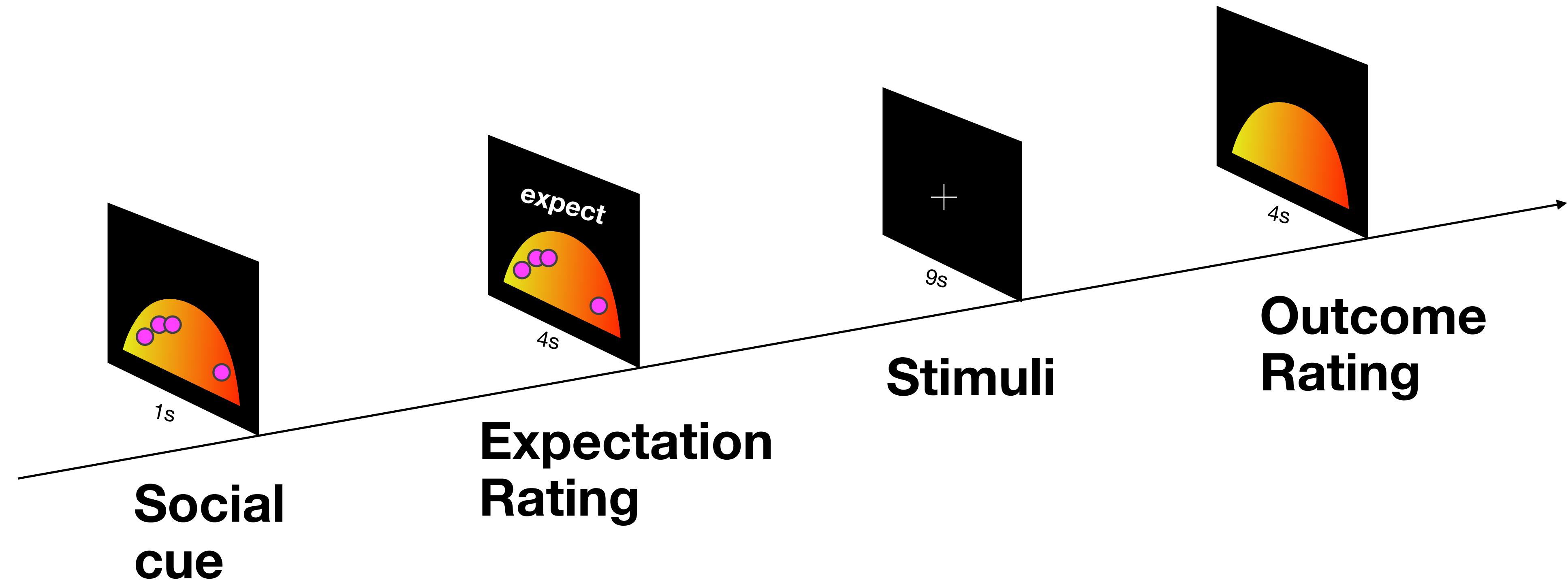
- High
- Low

3 stimulus intensity

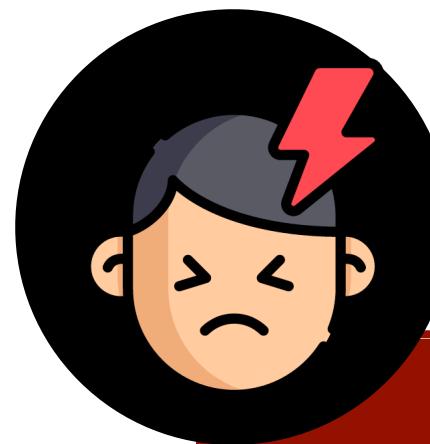


- High
- Med
- Low

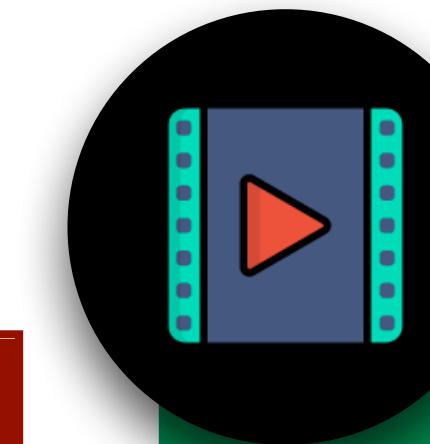
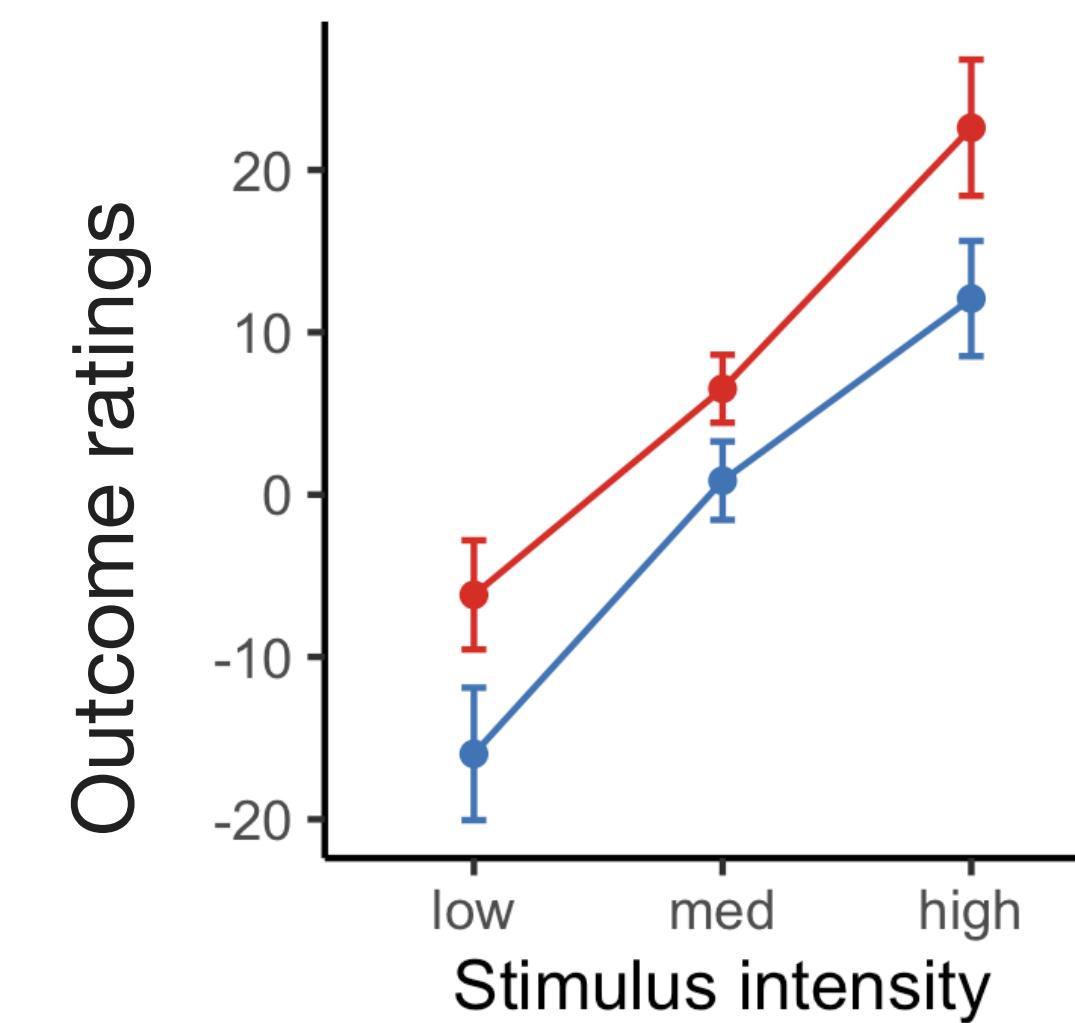
# Experimental design: one trial



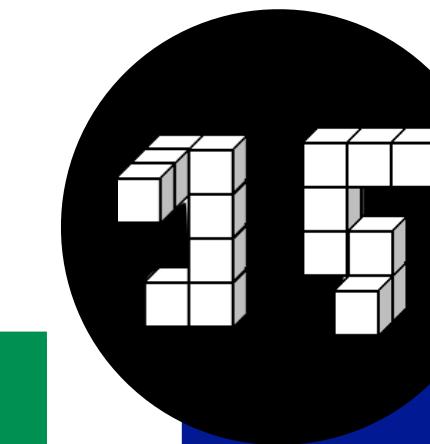
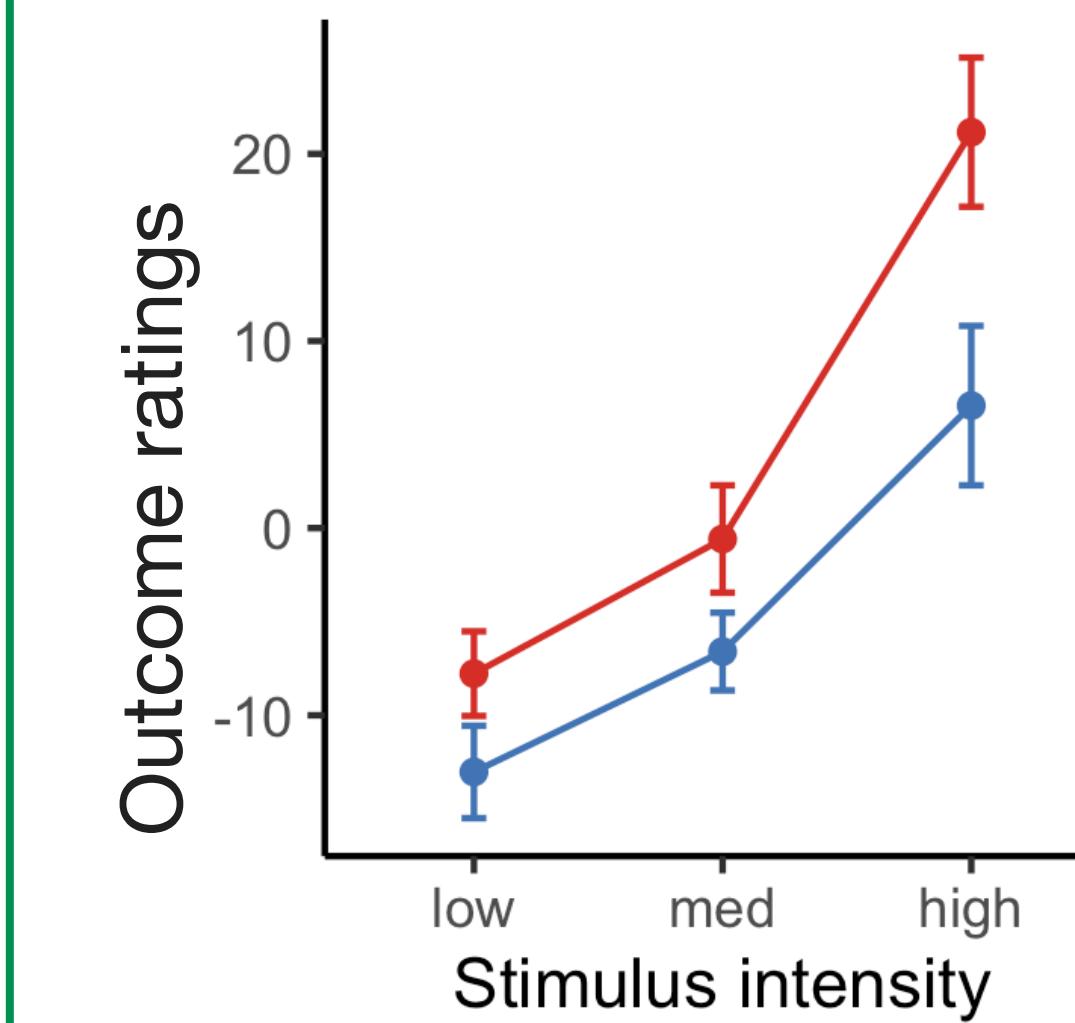
# Social cues modulate outcome ratings “cue effect”



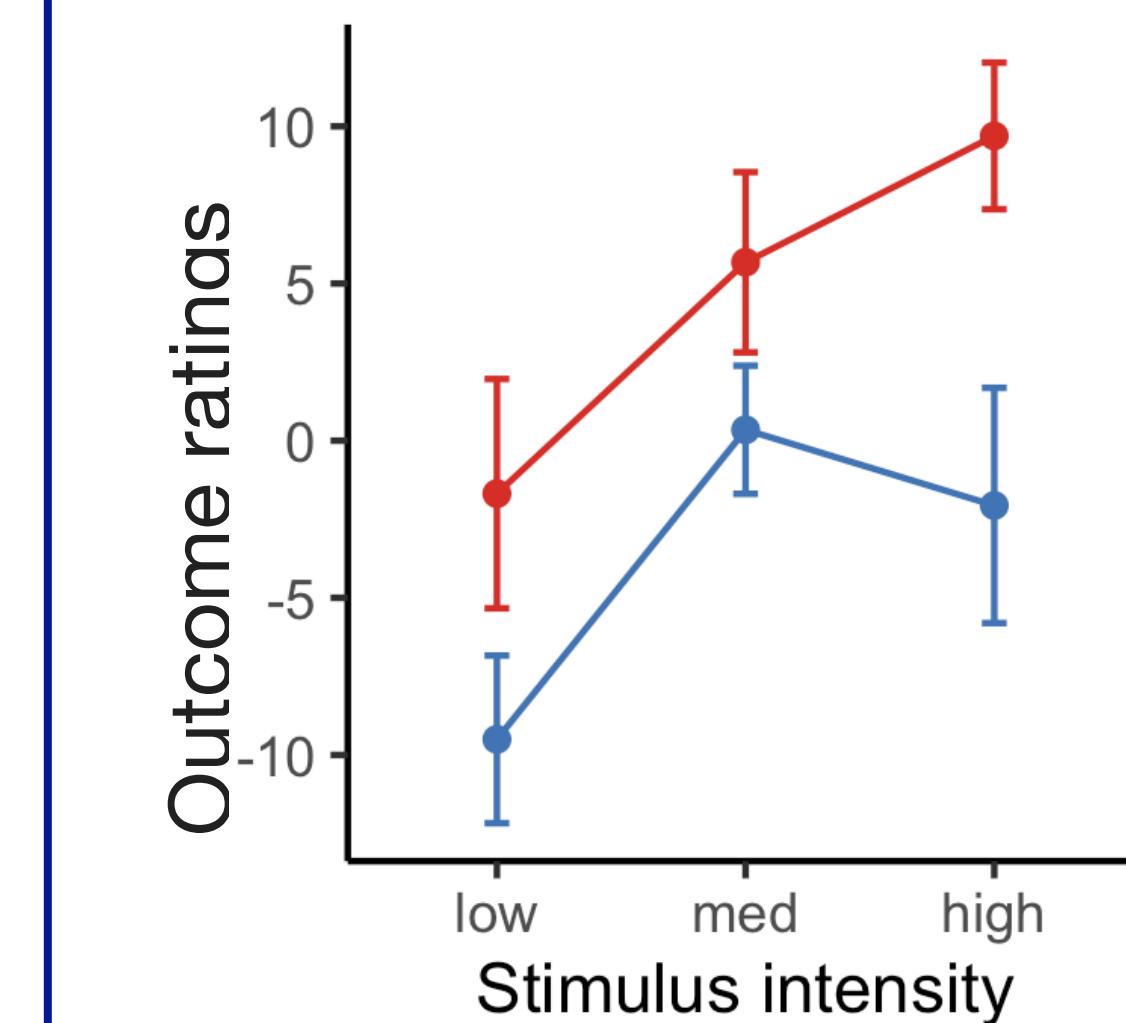
Pain



Vicarious

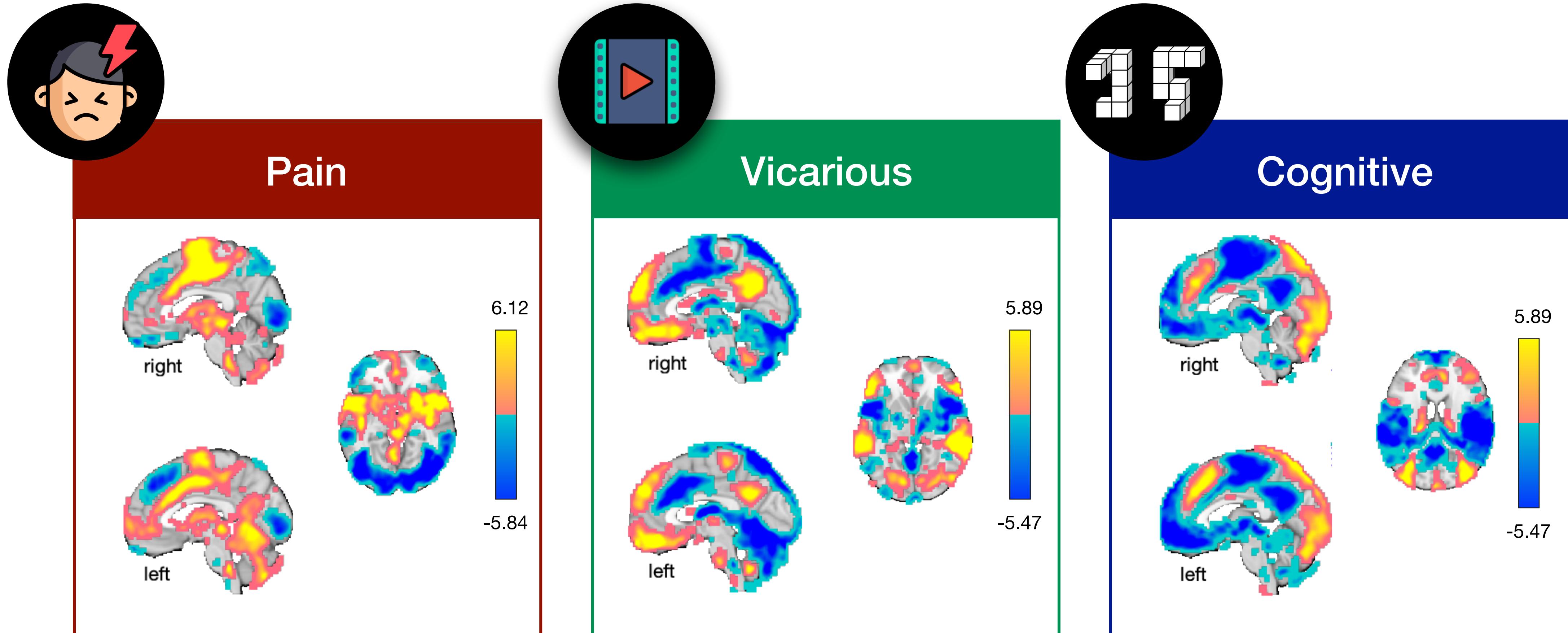


Cognitive



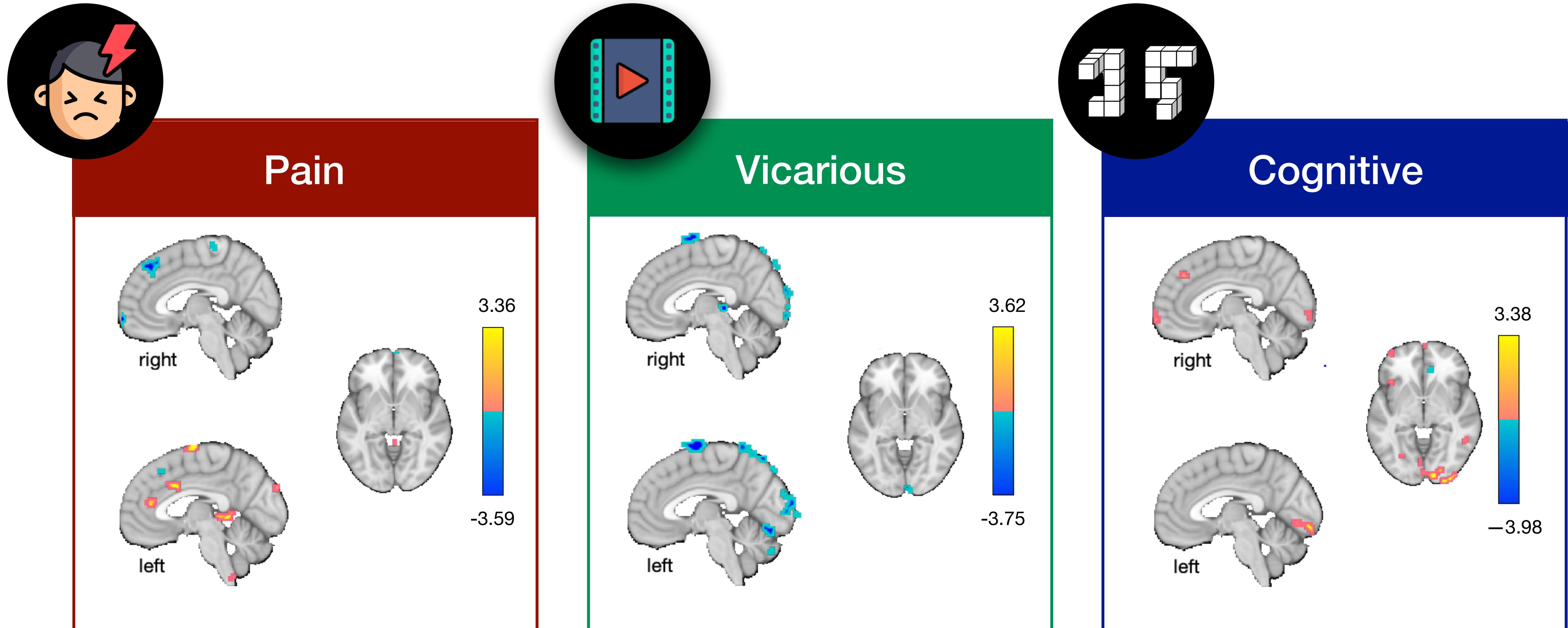
—●— high cue      —●— low cue

# Stimulus intensity effects are significant



- Manipulation check: patterns match prior findings  $N = 32, q < .05$  (*FDR*)
- Patterns are different across tasks

# Cue effects on experience are different for task domains

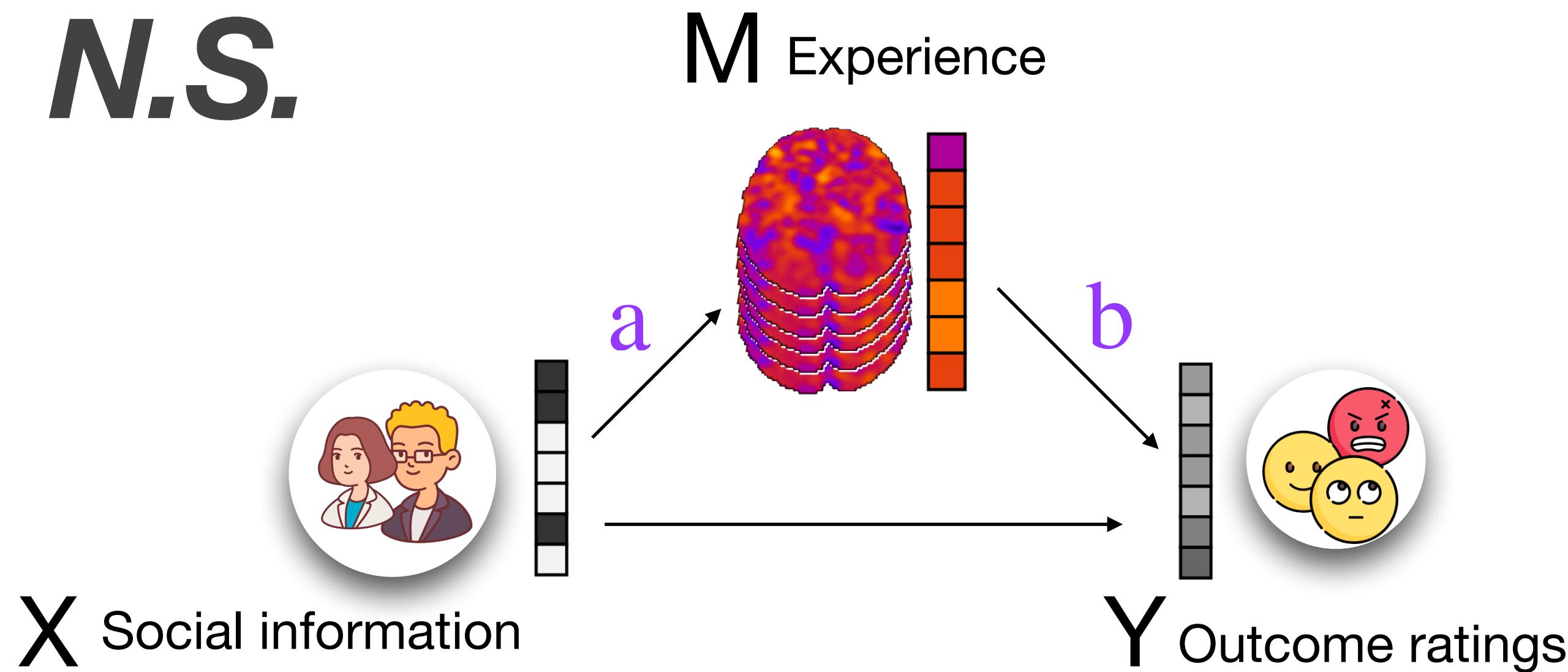


- Cue effects differ for each domain during stimulus experience phase
- Analysis may be underpowered at this stage

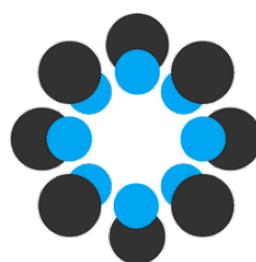
$N = 32, p < .0001$  (unc)

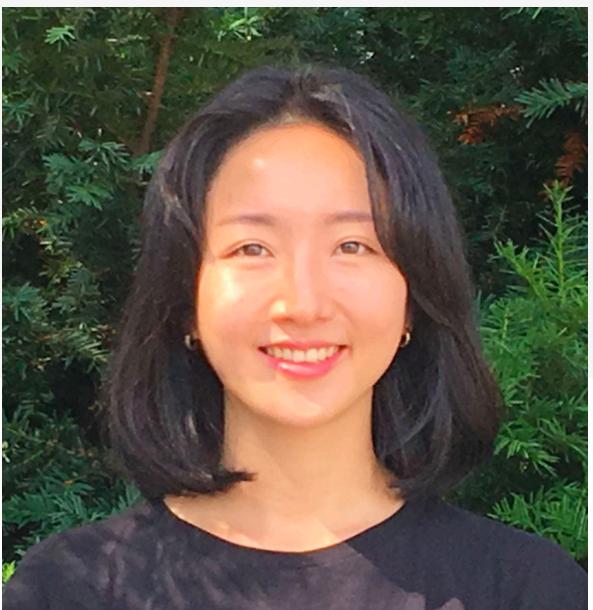
# Multilevel-mediation analysis...

N.S.



- *Planned analyses are pre-registered*
- *With targeted data collection of  $N = 120$ , we expect increased power in future analyses*



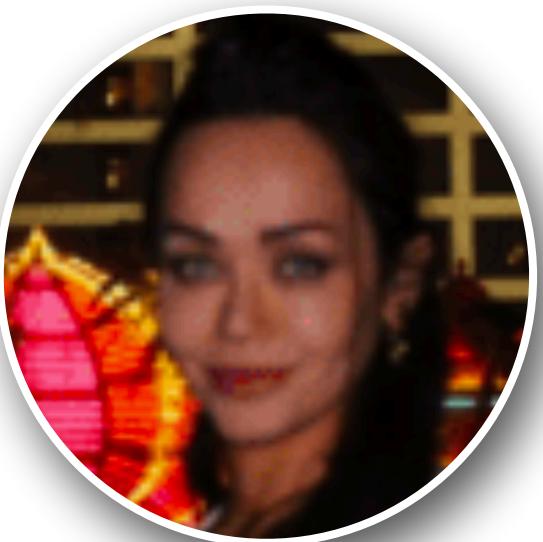


# Thank you!



NIBIB: R01EB026549-01

## Data collection Team



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## Principal Investigators



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