

How Social Status Shapes Personal Evaluations and Health

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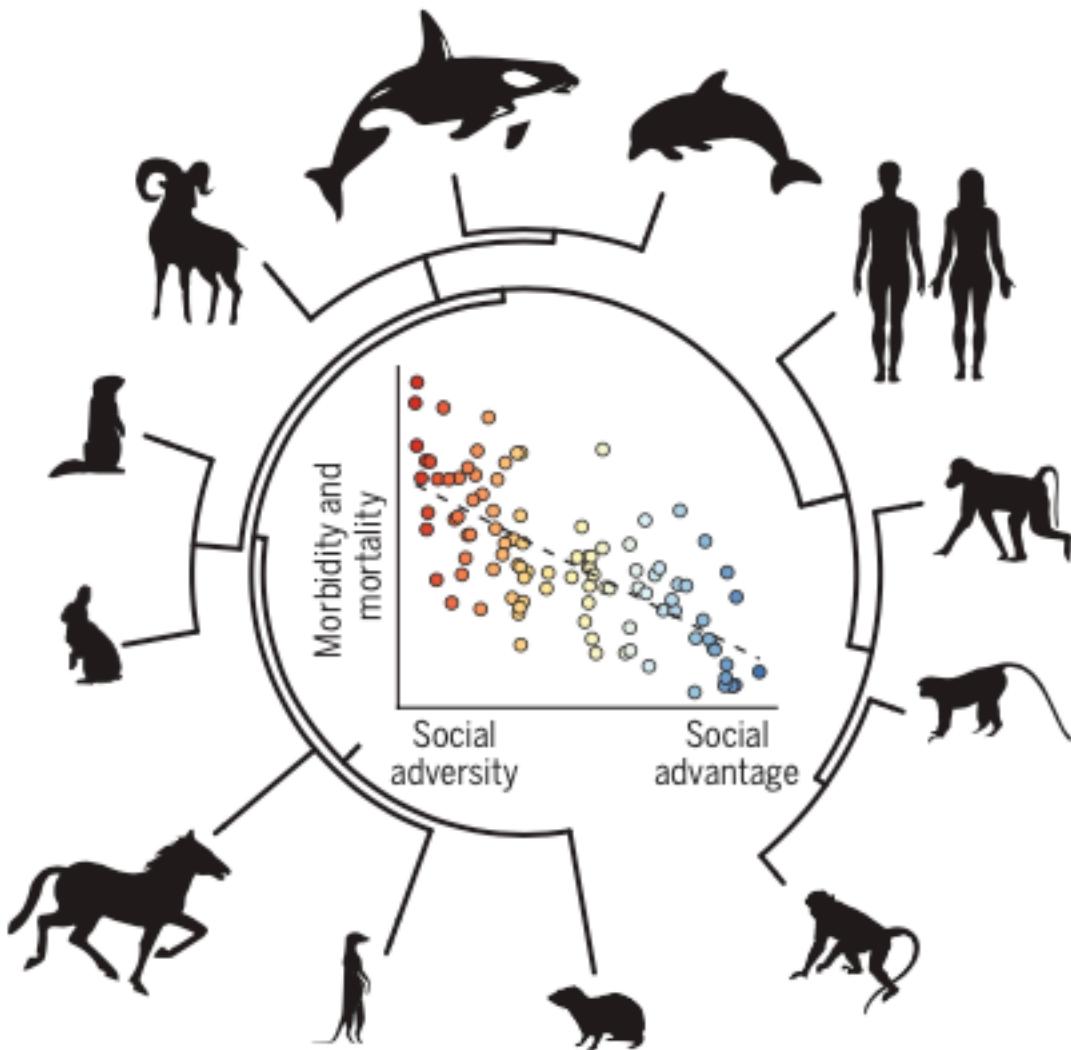
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Social hierarchy in the animal kingdom

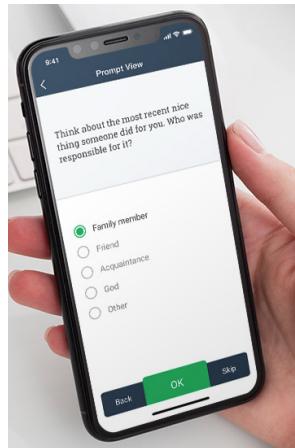
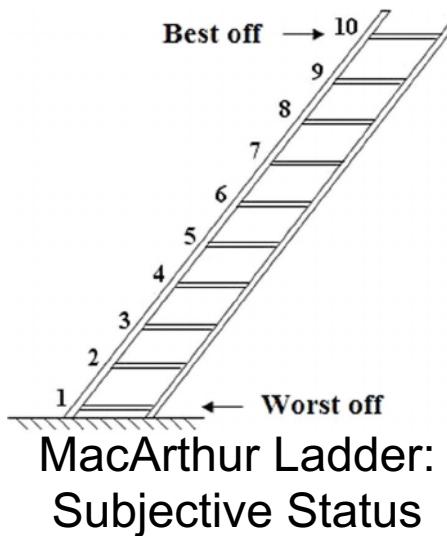
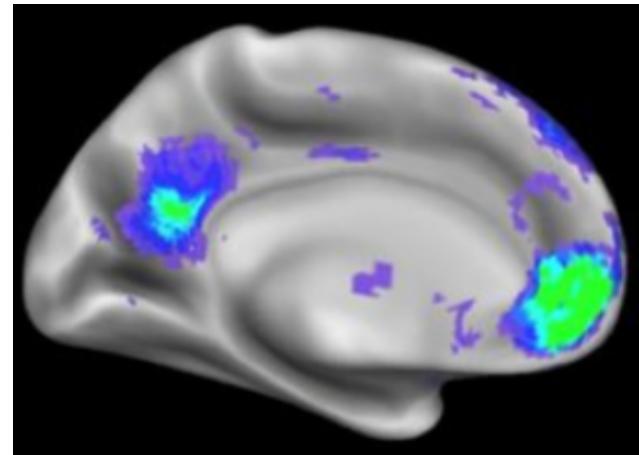
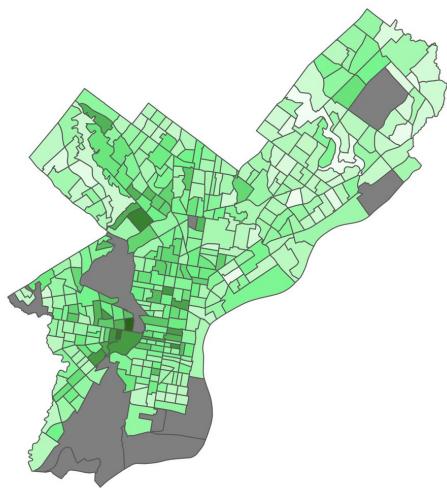
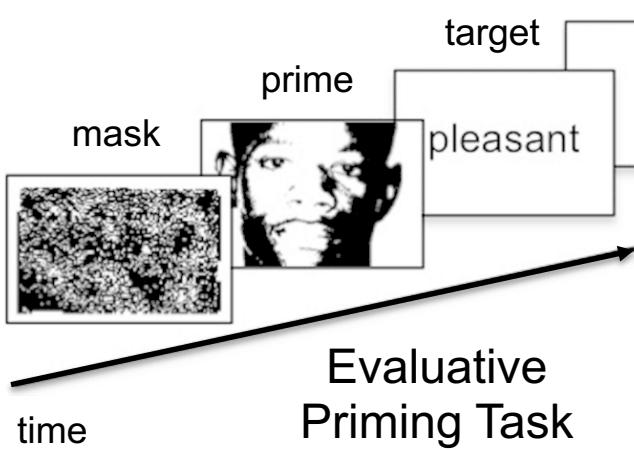


Status-health gradient (Adler et al., 1994)



Snyder-Mackler, et al., 2020

Social neuroscience approach to status and health



What is status?

- Relative rank of an individual along one or more socially valued dimensions



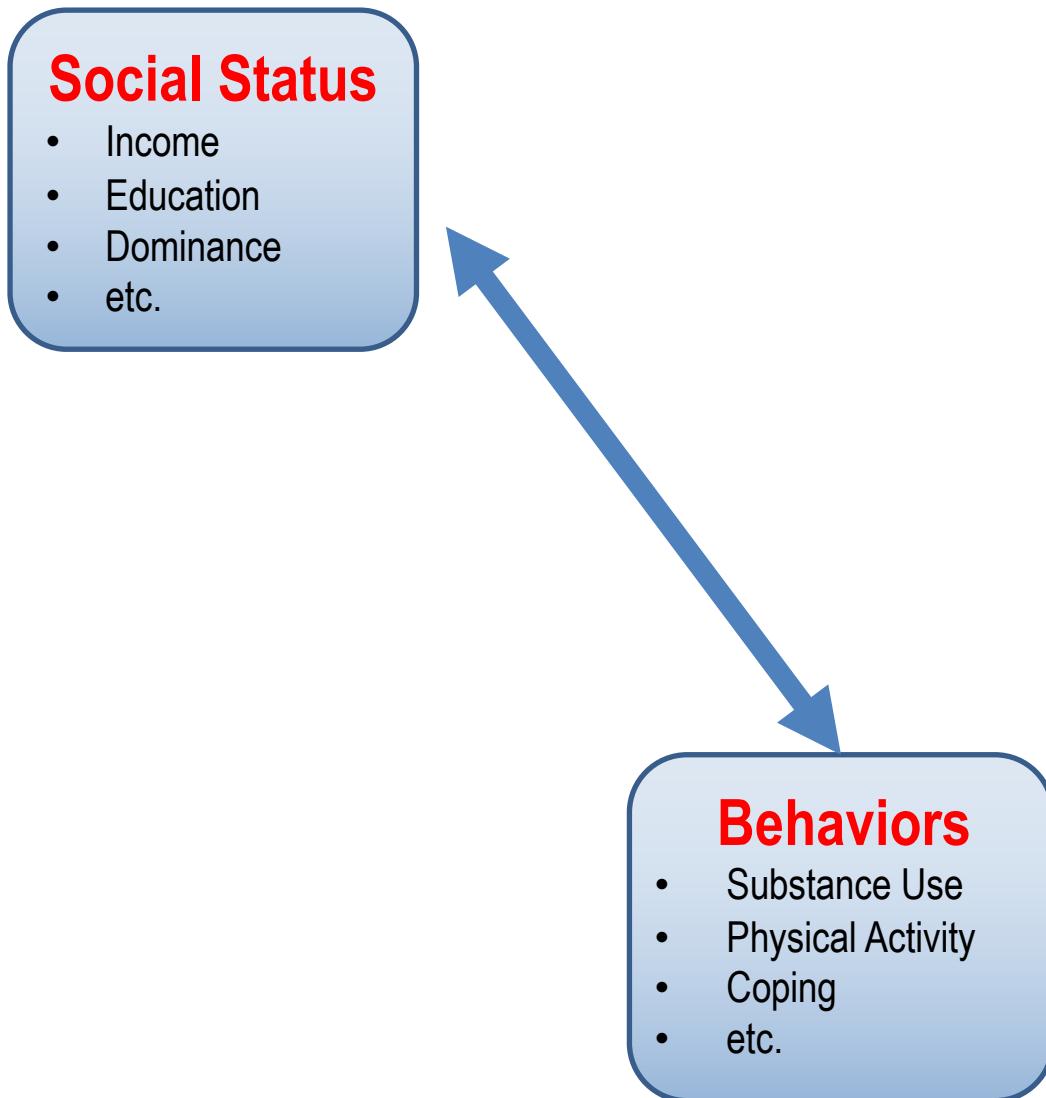
An intersectional approach

- Stereotypic links with race (Moore-Berg & Karpinski, 2018) and gender (Ridgeway, 2006)
- These links shape evaluative biases for:
 - Race (Mattan et al., 2018, *SCAN*; Mattan et al., 2018, *eNeuro*; Mattan et al., 2019, *PSPB*)
 - Gender (Mattan & Cloutier, 2020, *Royal Soc. Open Sci.*; Barth, Mattan, et al., 2020, *Scientific Reports*)
- Status associations predict intergroup hierarchy maintenance (Dupree et al., 2020)

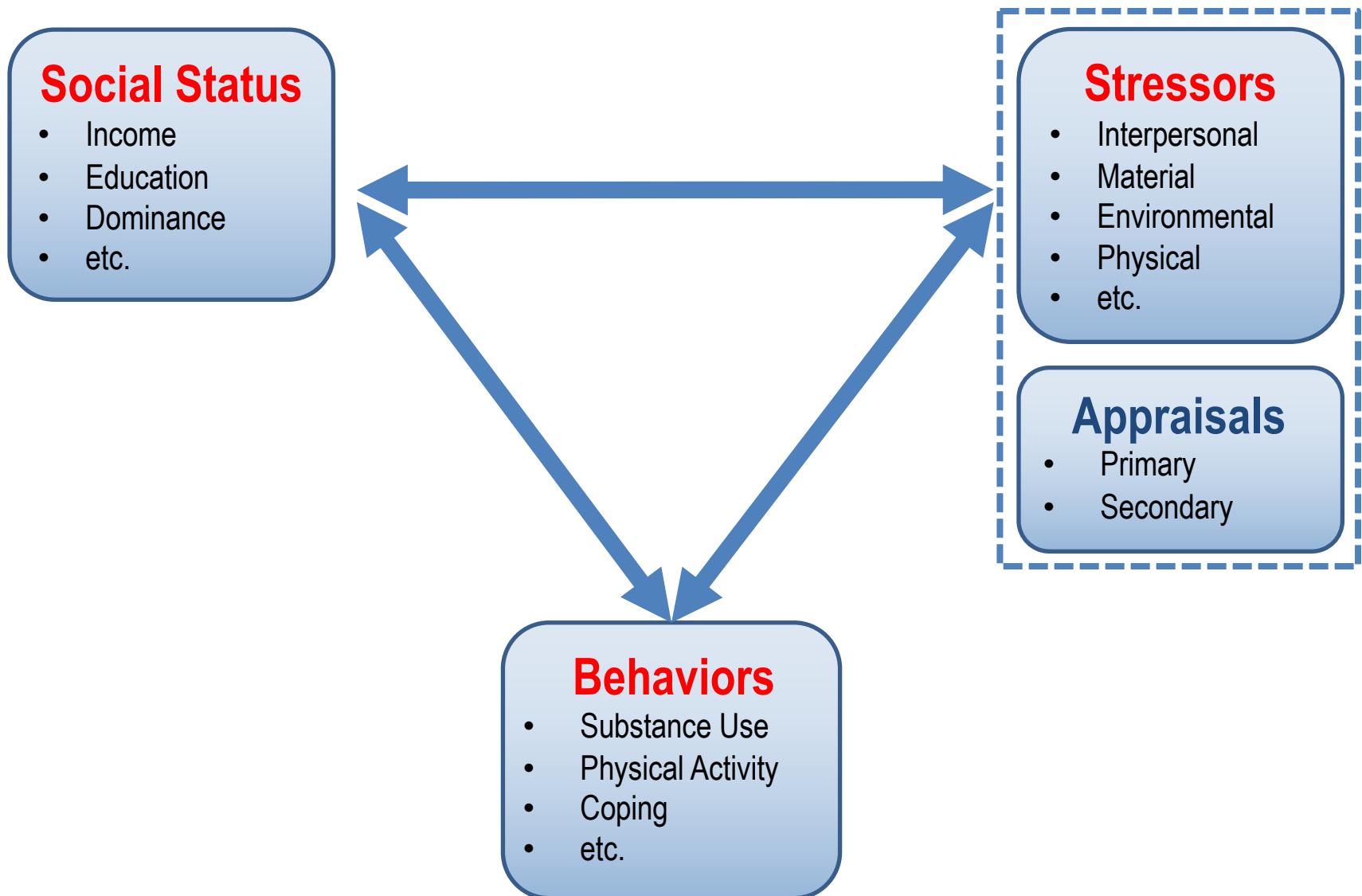
Overview

- How does social hierarchy shape physical and mental well-being?
- Does status-based prejudice exist, and if so, what are the implications for health?
- Future directions

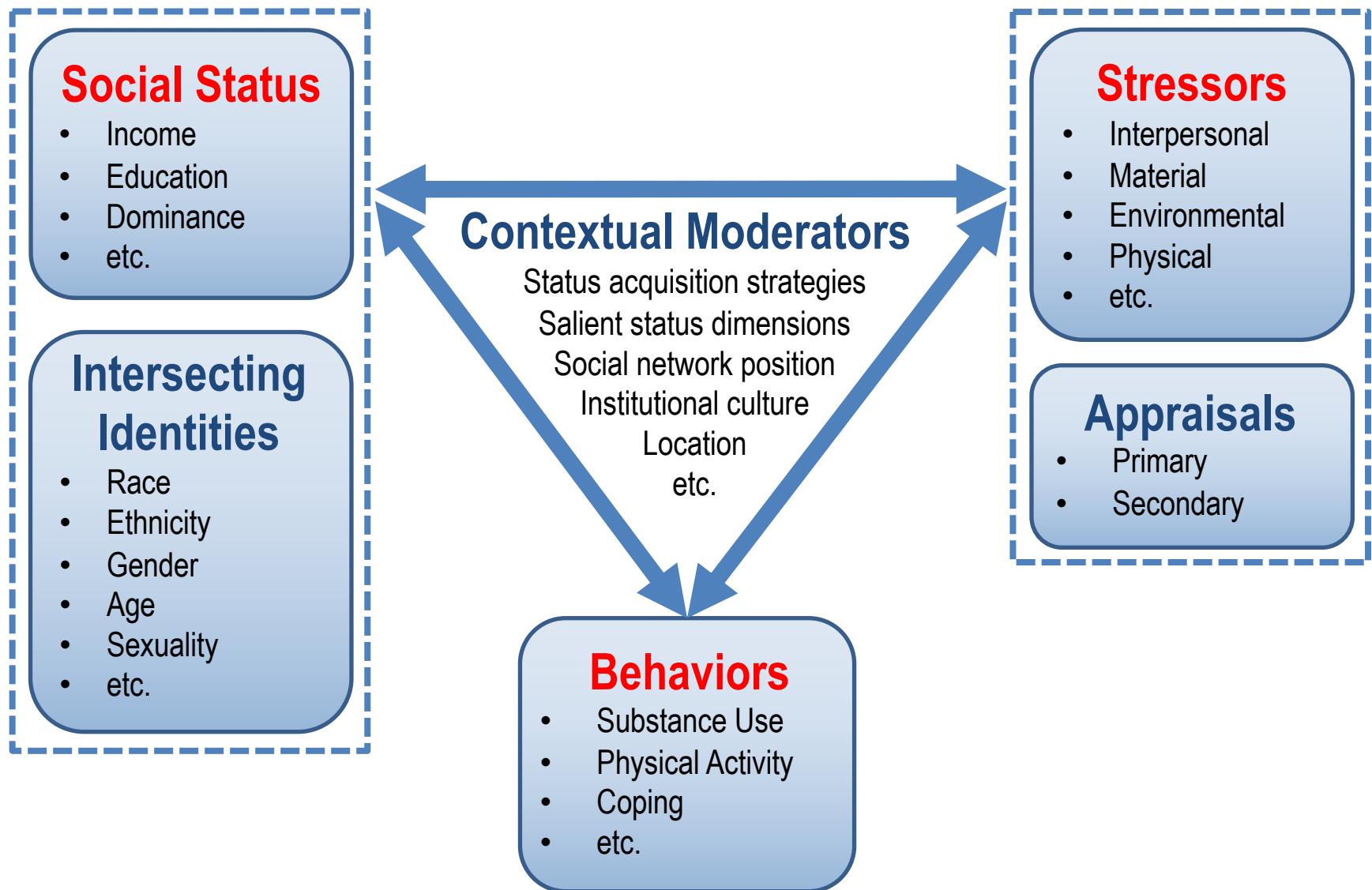
Approach and mechanism



Approach and mechanism

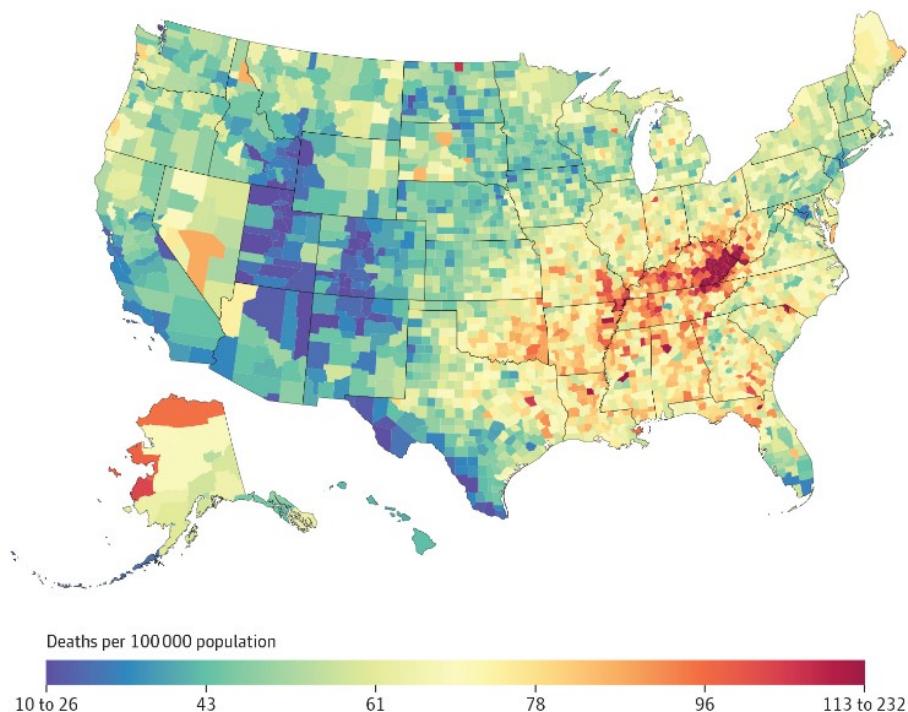


Approach and mechanism

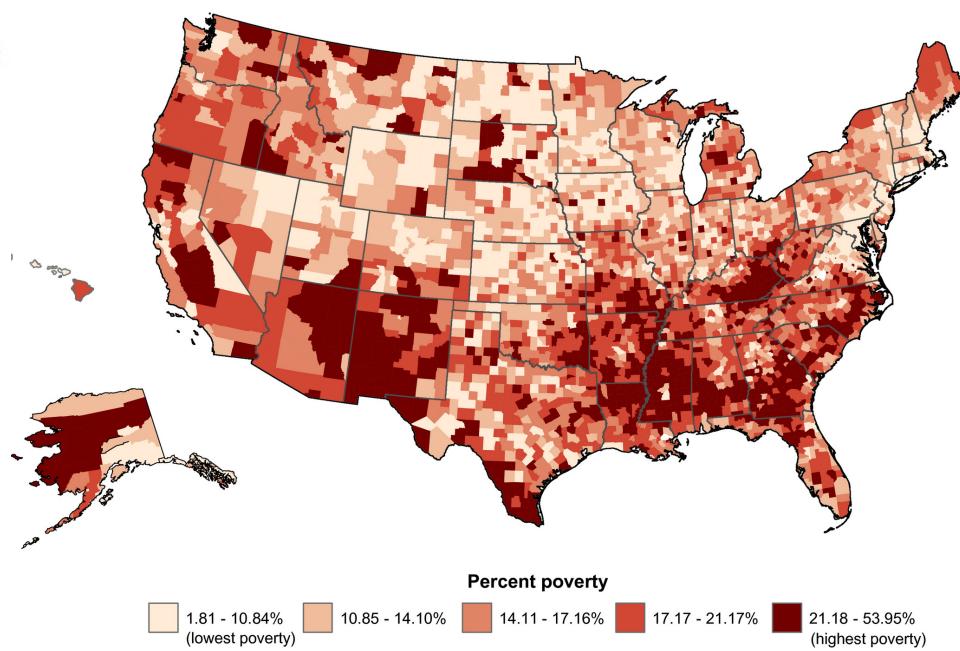


Regional associations between poverty and lung cancer mortality

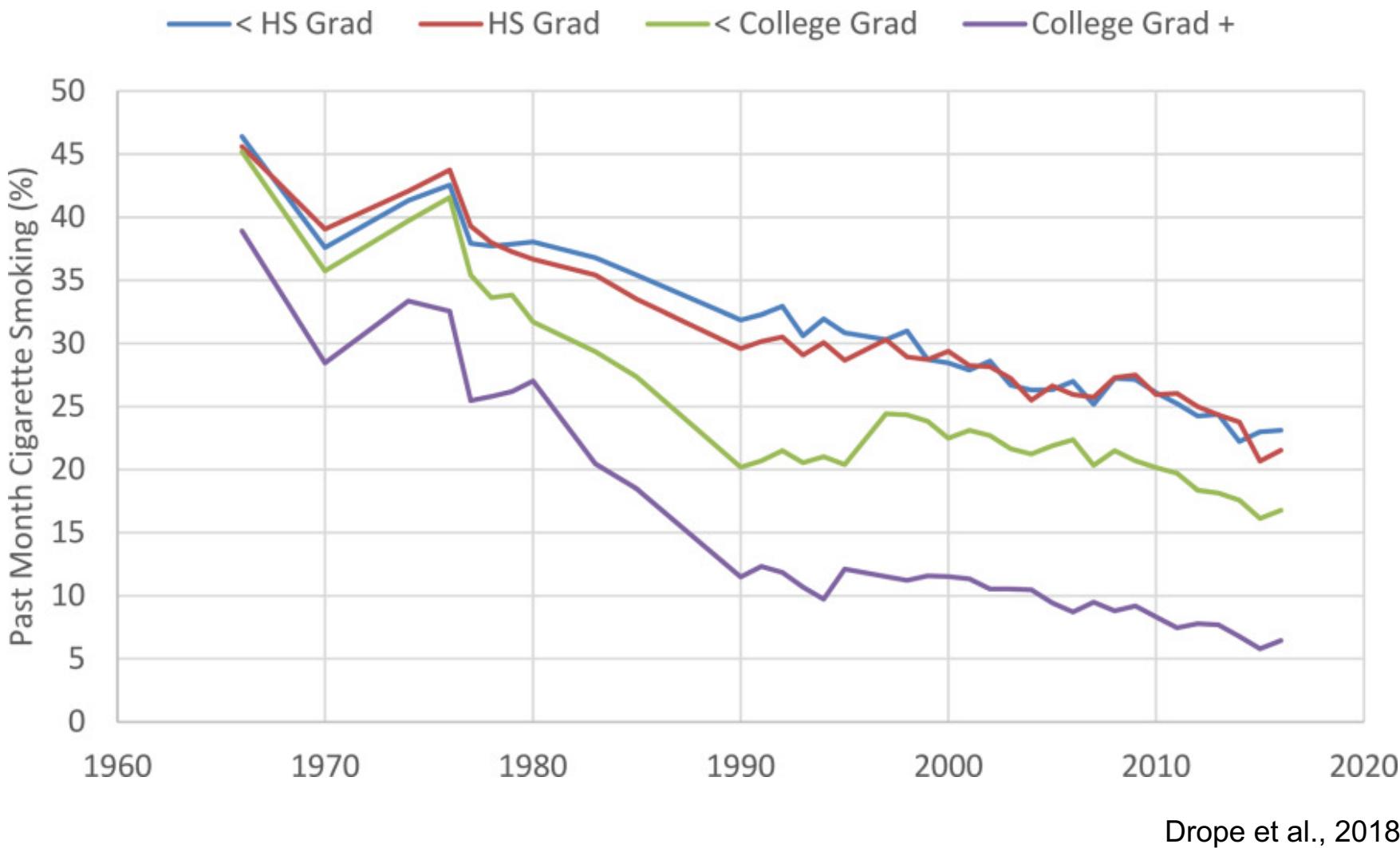
Age-standardized mortality by county:
Tracheal, bronchus, and lung cancer,
both sexes, 2014



Percent of households below poverty:
County data from American Community
Survey, 2012–2016



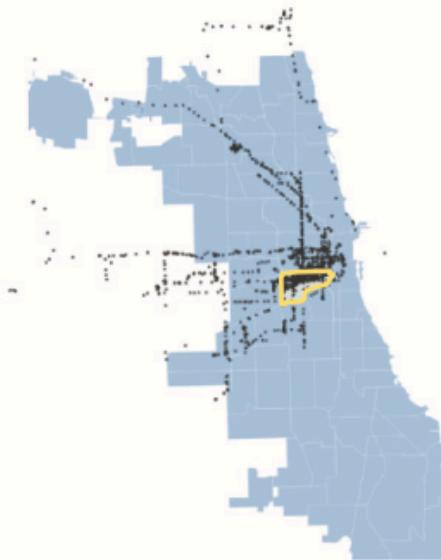
Smoking and Socioeconomic Status



What mechanisms drive socioeconomic disparities in smoking?

- Stressors in high-poverty areas (Gallo & Matthews, 2003)
 - Violence (Diez Roux & Mair, 2010)
 - Decaying Infrastructure (York Cornwall & Goldman, 2020)
 - Noise (Haines et al., 2002)
 - Police (Geller et al., 2014)
 - Lack of green space (Wolch et al., 2014)

- Respondents' GPS locations
- Home community area

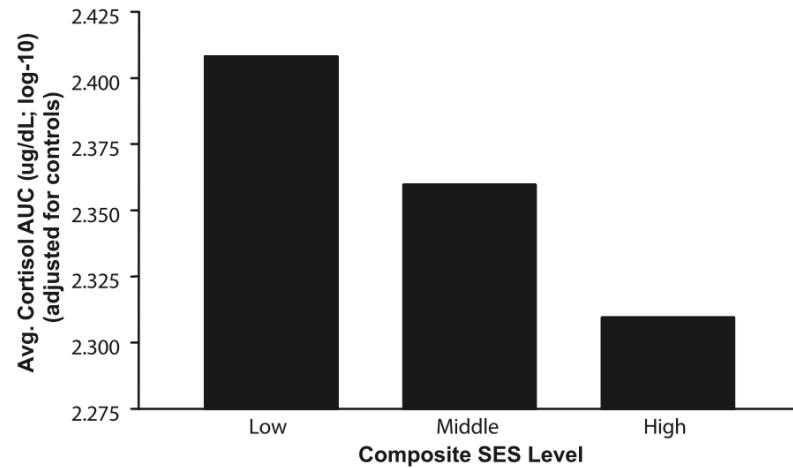


Lower West Side
(N = 30)

Cagney et al., 2020

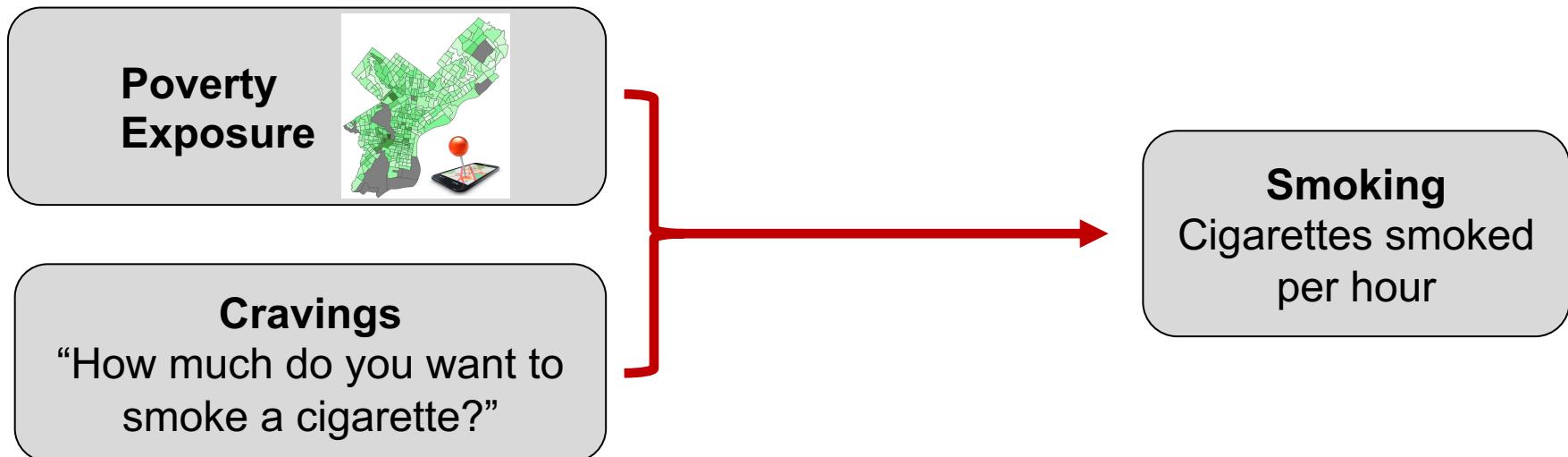
What mechanisms drive socioeconomic disparities in smoking?

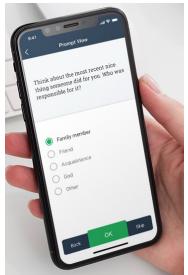
- Low-SES people live in chronic stress (Cohen et al., 2006)
- Stress hinders coping
 - Upward comparisons (Tan et al., 2020)
 - Racism (Krieger, 2020)
 - Smoking cravings (Kaplan et al., 2013; Sayette & Creswell, 2017)



Does poverty exposure moderate the effect of cravings on smoking?

- H1: Higher poverty exposure will strengthen the coupling between cravings and smoking

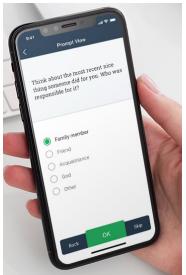




Method

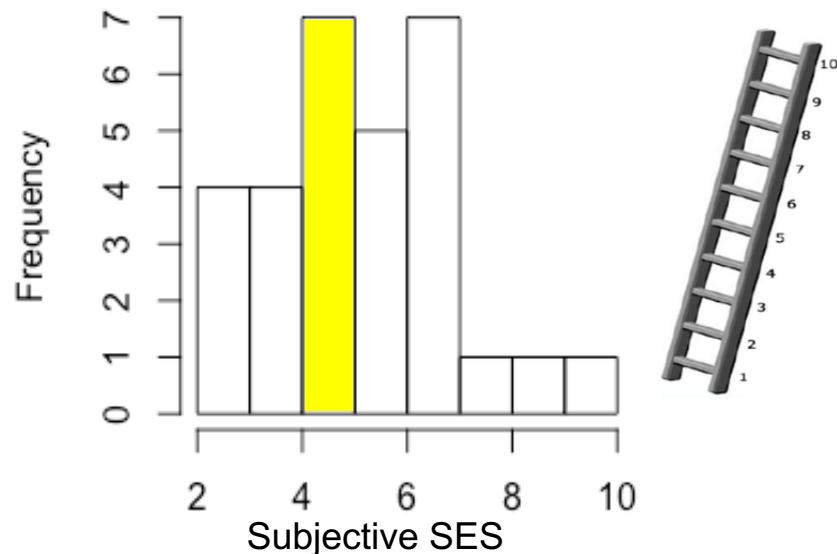


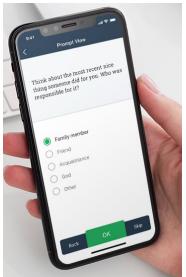
- Mobile EMA survey protocol
 - 1–6 weeks
 - Smoking frequency (3x/day)
 - Cravings (6x/day)
 - Bins: $M = 65$, $SD = 54$
- 30 smokers (10 cigs/day)
 - 22 Black, 4 White, 2 Asian, 2 Other
 - 15 women, 13 men, 2 other
 - 21-65 years old ($M_{age} = 44.8$ years, $SD_{age} = 12.4$ years)



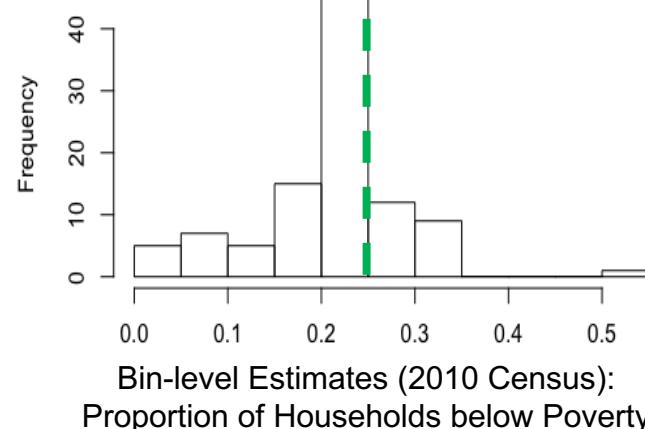
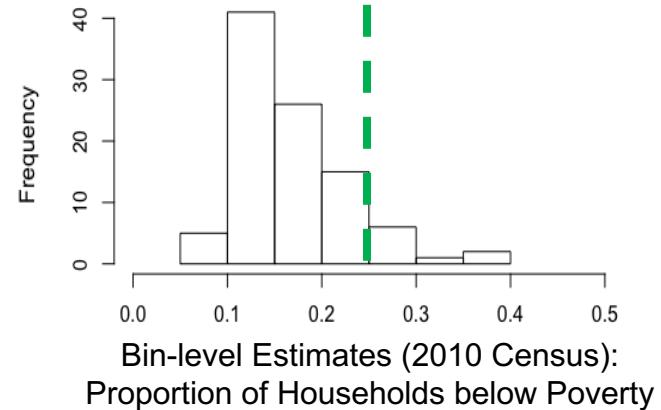
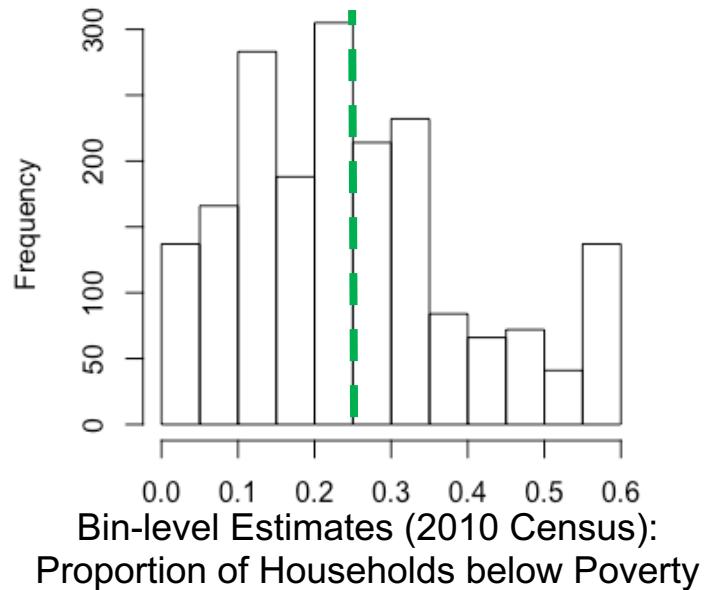
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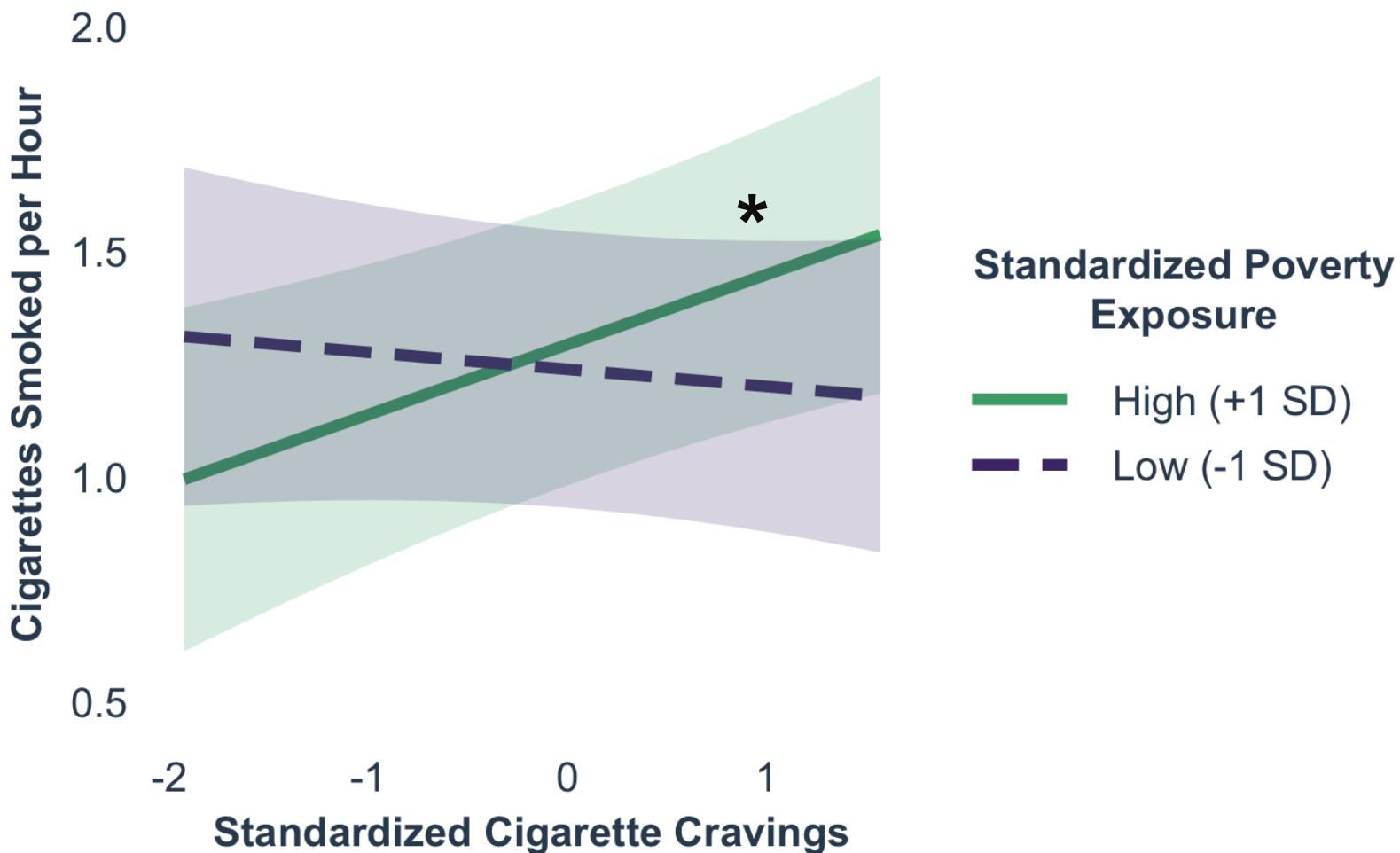
Method



Analysis

- DV: Cigarettes per Hour
- IVs
 - Cigarette Cravings
 - Geolocated Poverty Exposure

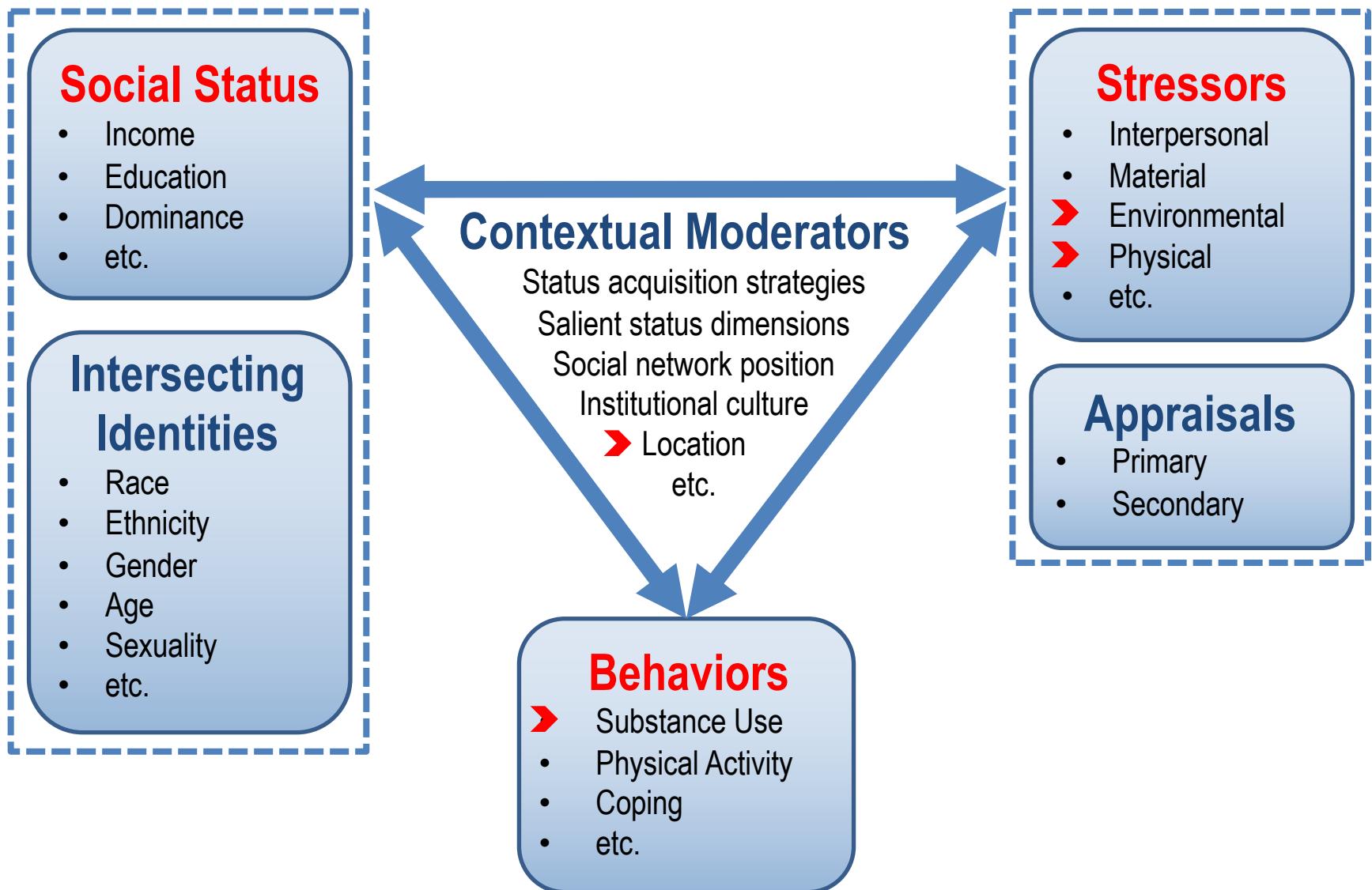
Craving-smoking coupling increased with greater poverty exposure



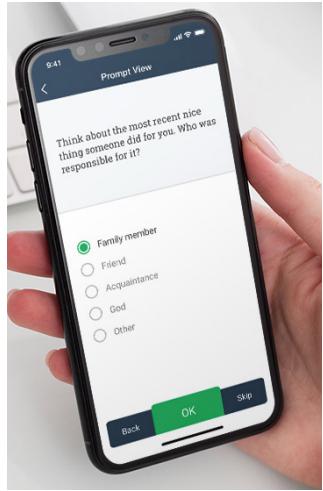
Key take-aways

- Location-based poverty increased coupling between cravings and smoking
- Multi-level approach to status-health gradient

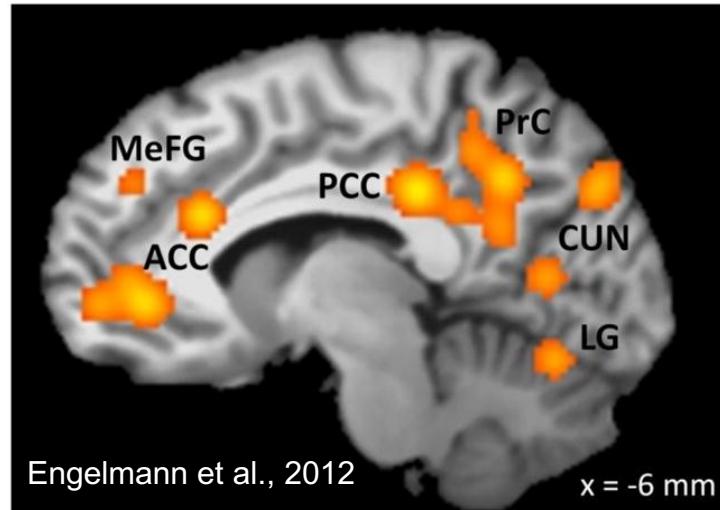
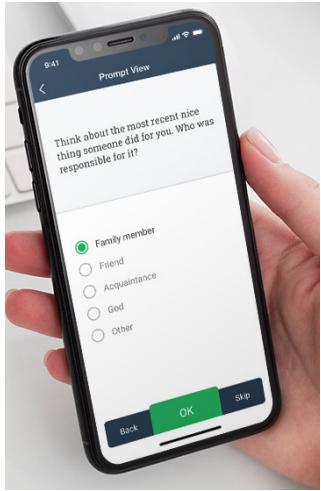
Next steps



Next steps



Next steps



Future directions



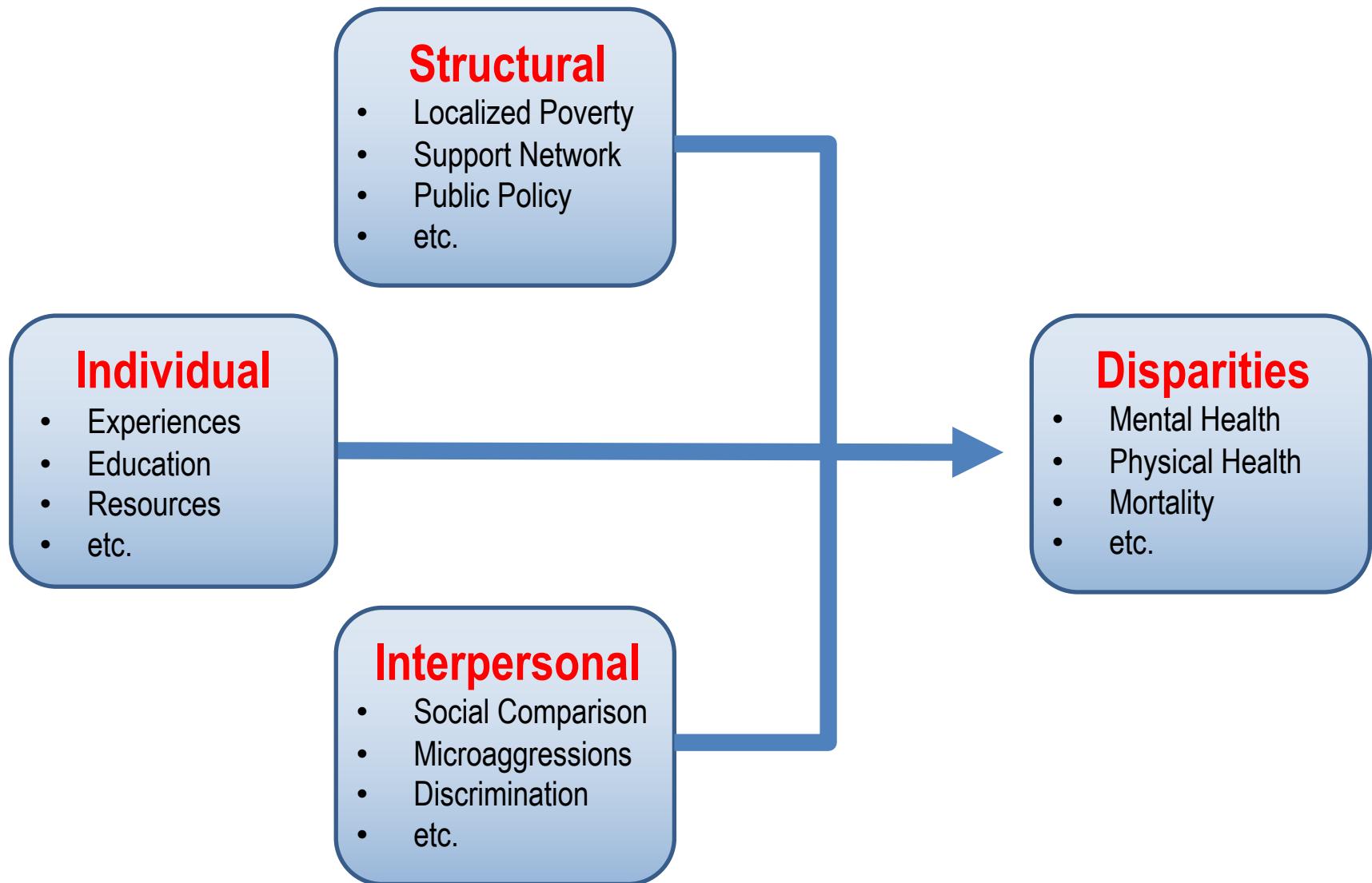
Future directions



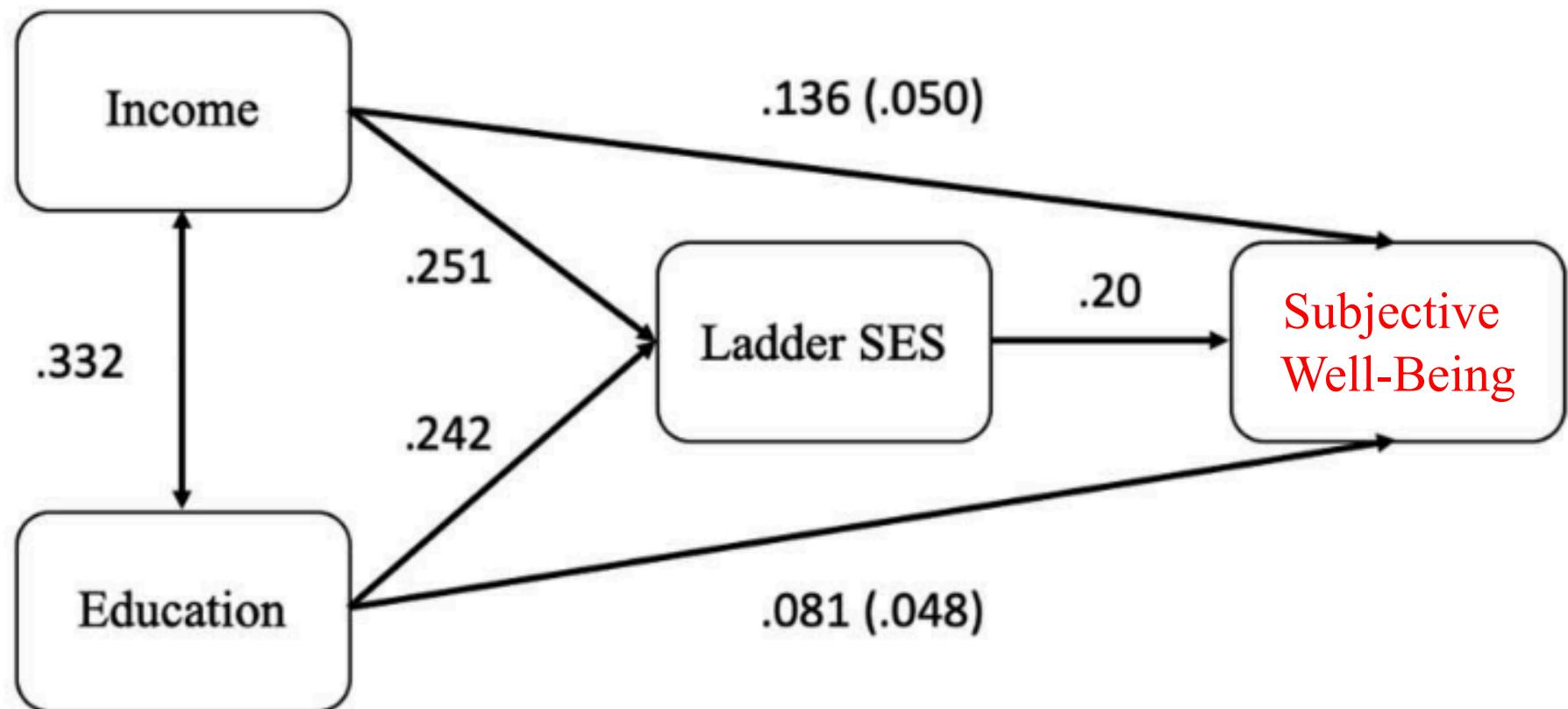
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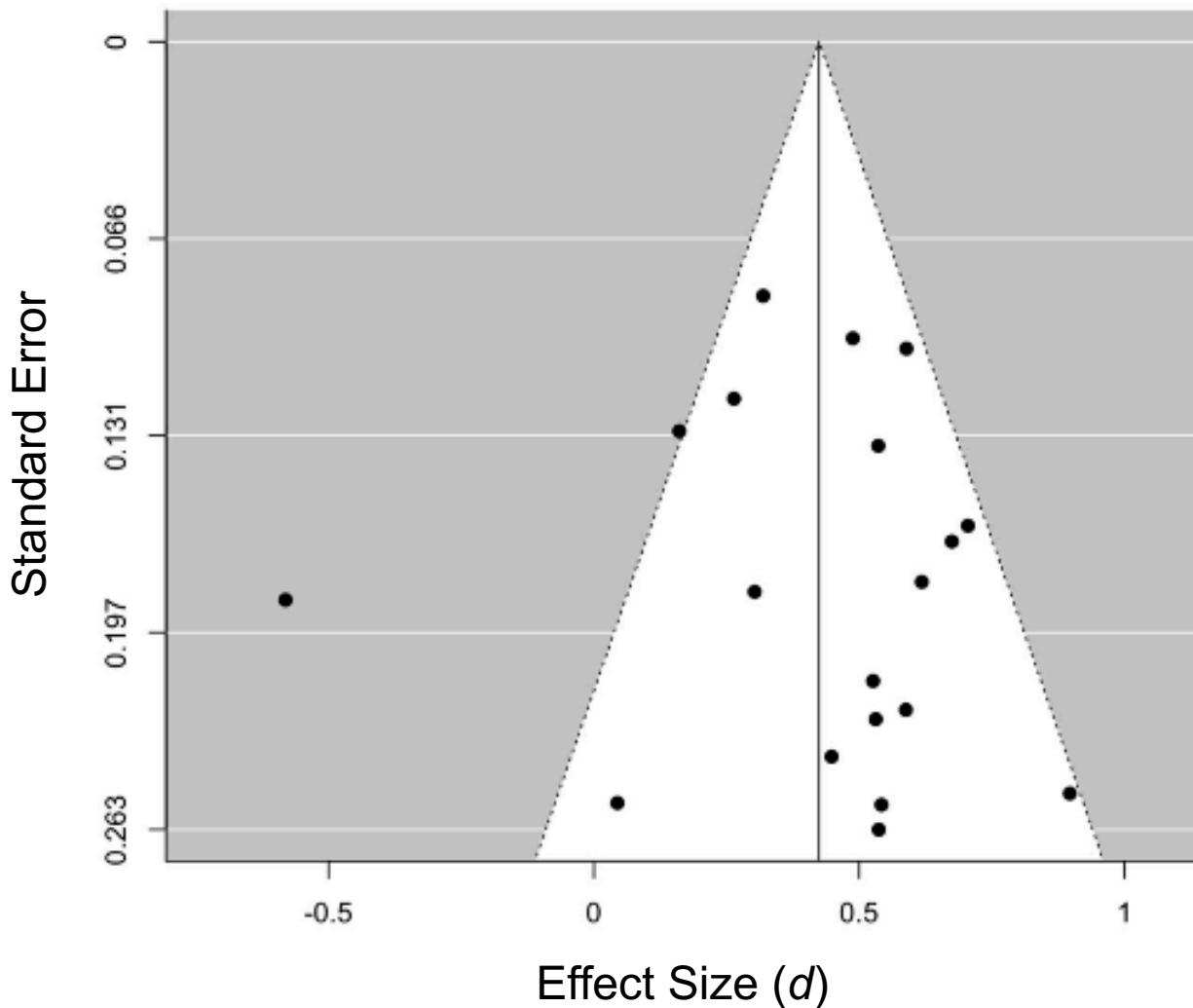
Approach and mechanism



Meta-analytic support



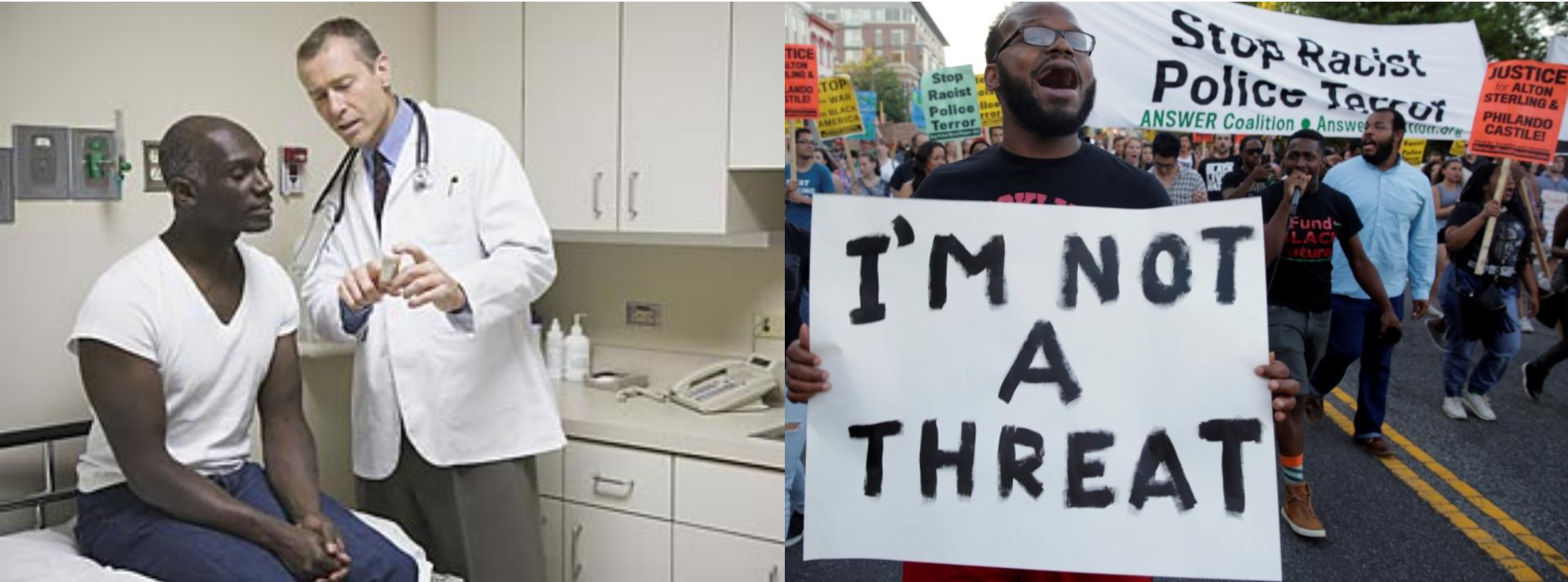
Meta-analytic support



Social comparisons matter



Implicit bias and why it matters for health



Existing evidence

- Explicit evaluations
 - Favor high (vs. low) status, but context sensitive
(Cuddy et al., 2008; Horwitz & Dovidio, 2017; Rudman et al., 2002; Varnum, 2013)
- Implicit status-based evaluation
 - Consistently favor high (vs. low) status (Horwitz & Dovidio, 2017; Jost et al., 2002; Rudman et al., 2002)

How does status shape implicit race bias?

- Racial contract: Race as a socioeconomic caste (Mills, 1997)



Black folks with money think about class more than most people do in this society. They know that most of the white people around them believe all black people are poor, even the ones with fancy suits and tailored shirts wearing Rolex watches and carrying leather briefcases. Poverty in the white mind is always primarily black.

(hooks, 2000; see also Lei & Bodenhausen, 2017)

Hypotheses

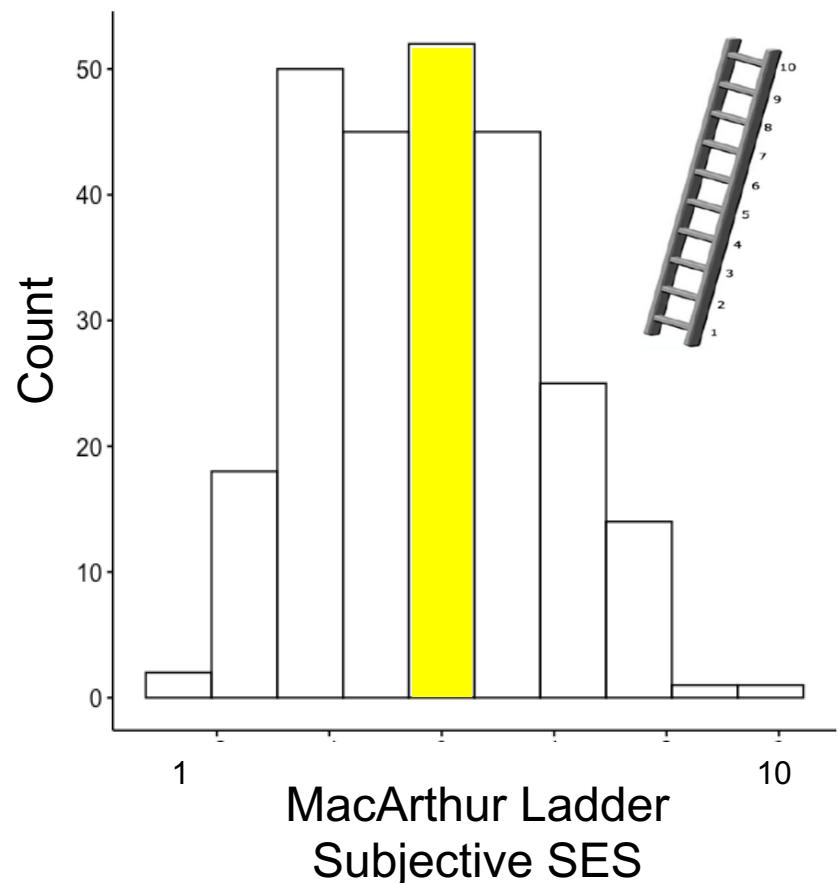
- H1: high status = positive implicit bias
- H2: status and race bias will interact

Overview of experiments

- Simultaneous implicit biases from status and race (Exps. 1–1R)
- *Perceiver* status and race (Exp. 2)
- *Perceived* status and race (Exps. 3–4)

Sample

- 253 White MTurk workers
 - Born in the U.S.
 - 132 women, 121 men
 - 18-35 years old ($M_{age} = 28.4$ years, $SD_{age} = 4.17$ years)

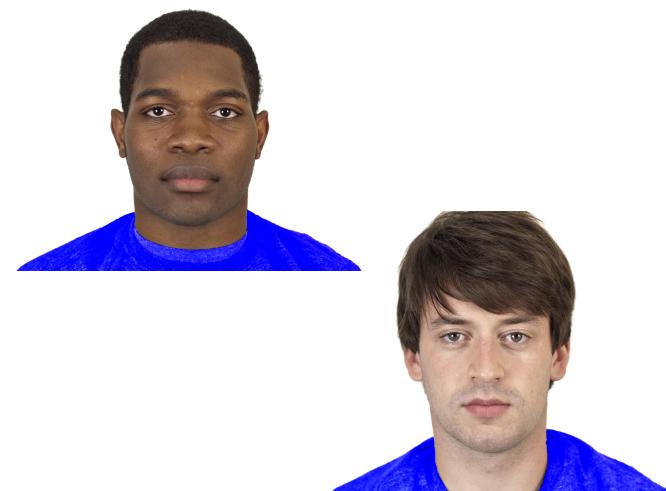


Association learning protocol

- “Those who are **HIGH STATUS** tend to be wealthy and university-educated, typically working in ‘white collar’ positions.”



- “Those who are **LOW STATUS** tend to be poor and high school educated (or less), typically working in ‘blue-collar’ positions or unemployed.”



SOCIAL PSYCHOLOGY

Status beyond what meets the eye

Conveying an impression of competence is important for jobseekers and politicians alike. New work from Oh, Shafir and Todorov suggests that subtle differences in clothing shape our impressions of how competent people are. In particular, subtly richer-looking clothes elicit greater perceived competence.

Bradley D. Mattan and Jennifer T. Kubota

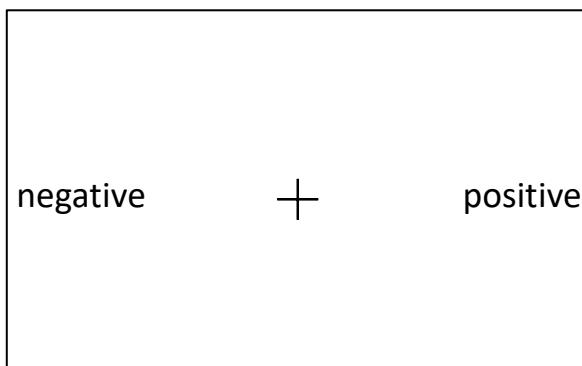


Mattan & Kubota, 2020, *Nat. Hum. Behav.*

Sequential priming task

(Fazio et al., 1995)

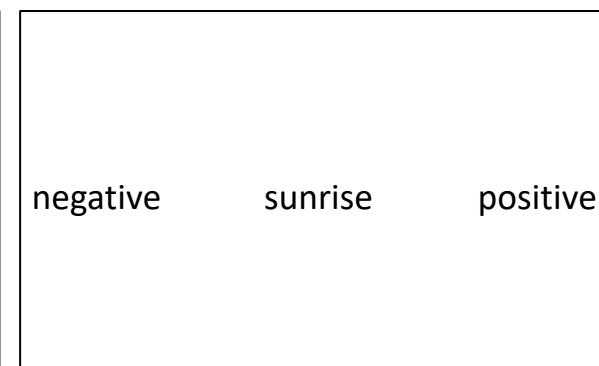
- 160 trials
 - Negative: press “n”; Positive: press “m”



500 ms



300 ms

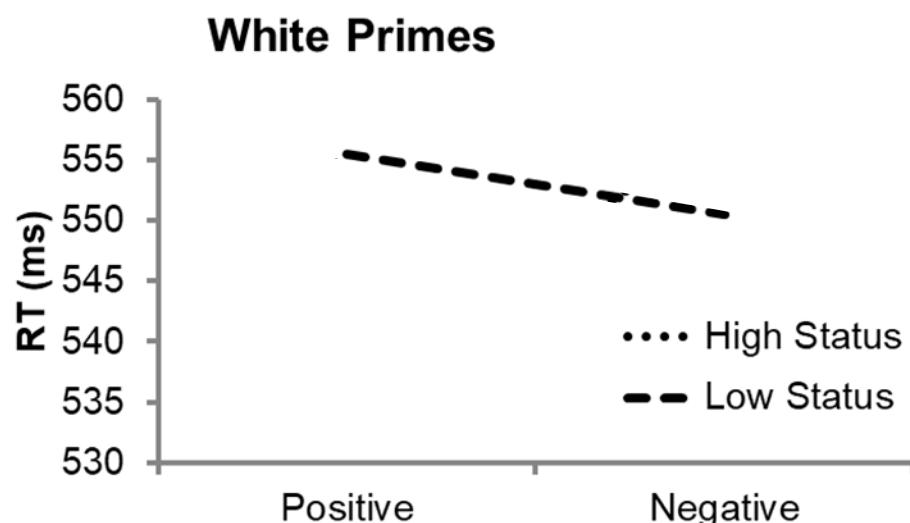


1500 ms

Analysis

- DV: trial-level correct RT data
- IVs
 - face prime race
 - face prime status
 - target word valence

Perceived race modulates status priming



Race × Status × Word Valence

$b=-0.016$, $SE=0.005$, $CI_{95\%}=[-0.025, -0.007]$, $t(243)=-3.399$, $p=.001$

Key take-aways

- Reliable implicit positivity for high SES
 - Consistent with positive evaluations and reward value of high status
 - Observed in the presence of a visually salient social category
- White people benefit from high SES; Black people are penalized by low SES

Future directions

- Economic disparities
 - Fairness (Mattan et al., 2020, *PLoS ONE*)
 - Trust (Mattan et al., in preparation)
- Healthcare (Anastas, 2020; Chapman & Sonnenberg, 2003)



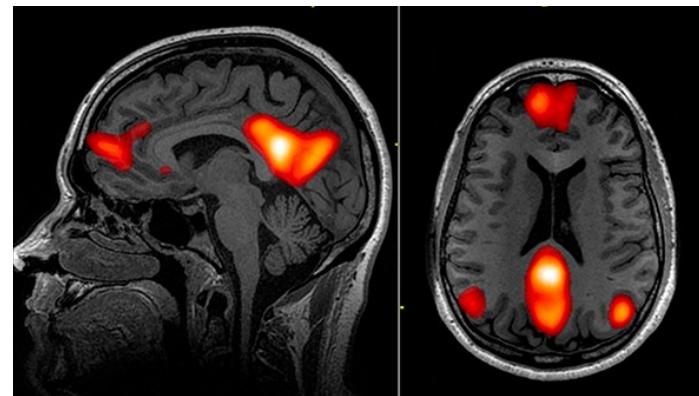
Deliberate impression formation



How do status and race shape
deliberative impression formation?

Neuroimaging approach

- Offers novel insights into psychological mechanisms
- Helps circumvent demand characteristics



Individual differences in motivation to regulate bias

- External motivation (Plant & Devine, 1998)
 - Discomfort (Amodio et al., 2006)
 - Effortful but inefficient self-regulation (Richeson et al., 2003)
 - Focus on alternative attributes/topics (Apfelbaum et al., 2008; Norton et al., 2006)

Assessing external motivation to respond without racial prejudice

- EMS: 5-item subscale (Plant and Devine, 1998)
 - “Because of today's PC (politically correct) standards I try to appear nonprejudiced toward Black people”
- Internal motivation (IMS): 5-item subscale

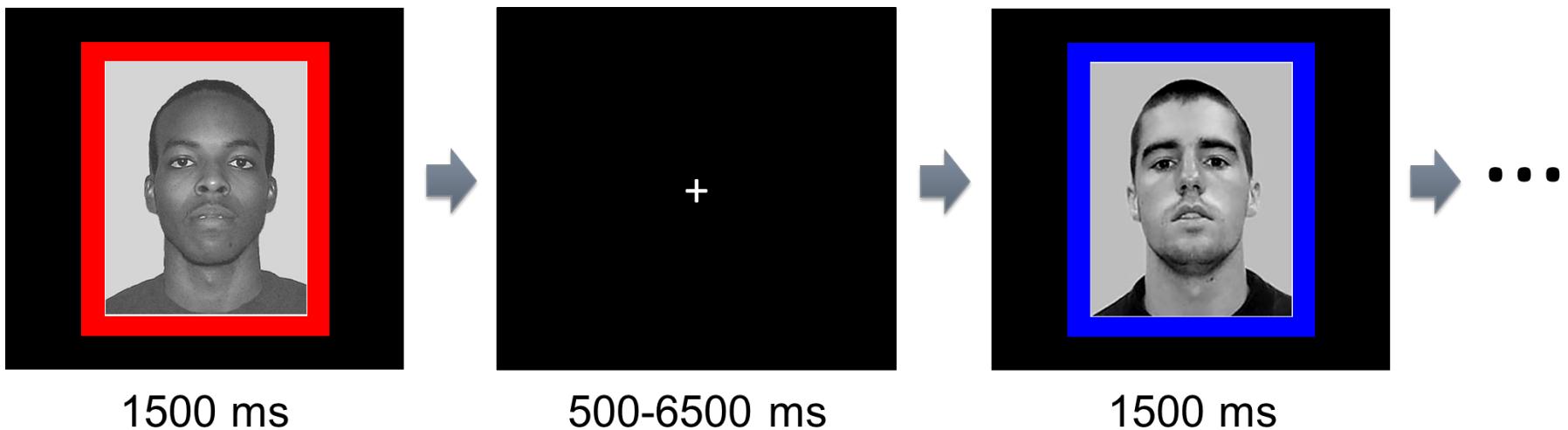
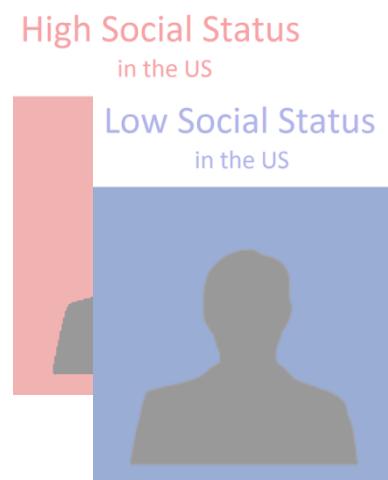
Impression formation task

- Training: “Those who have the **HIGHEST/LOWEST** social status tend to have the **most/least** money, the **most/least** education, and the **most/least** respected jobs (or no job).”

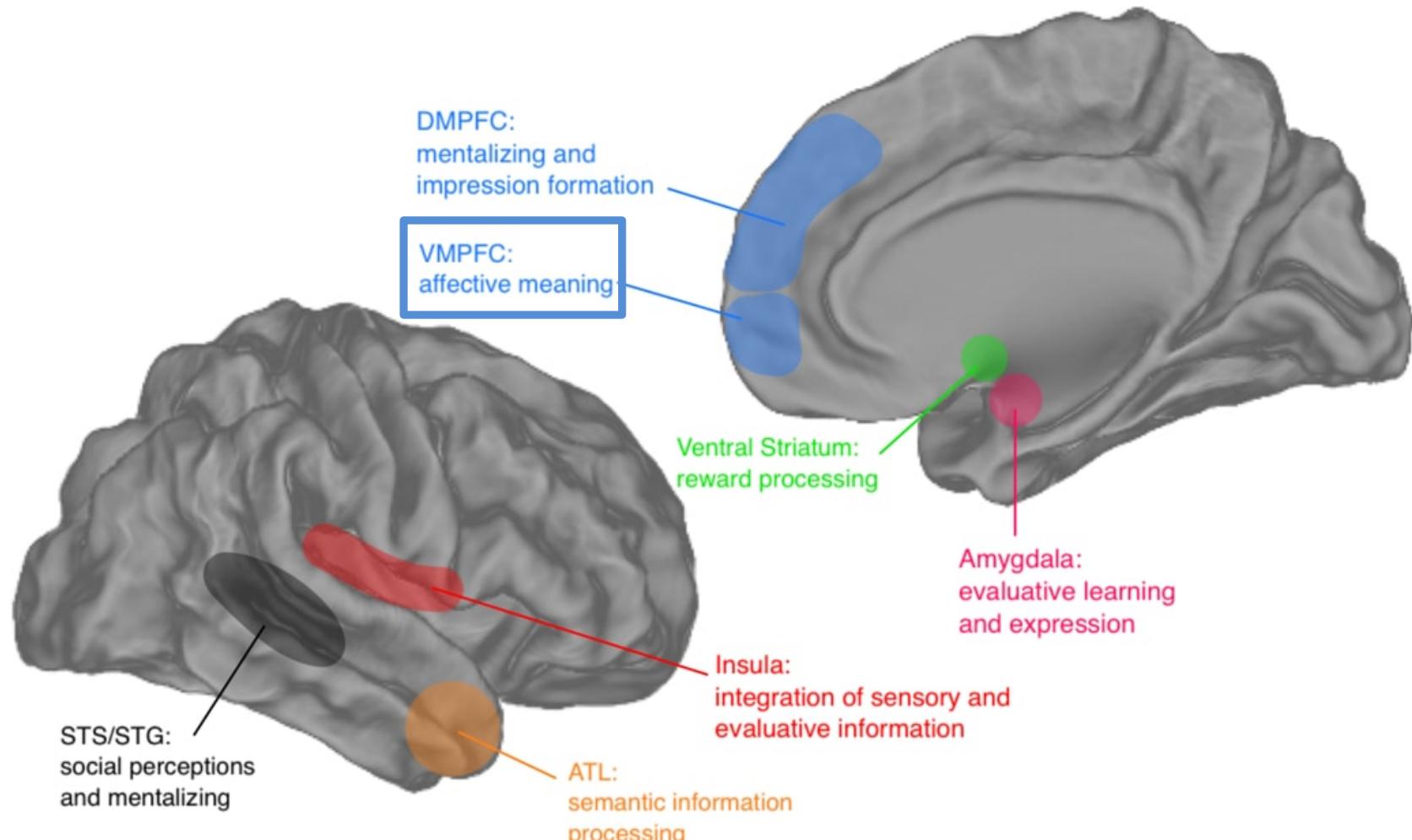


Impression formation task

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- fMRI impression formation task:



Neural substrates of status-based evaluations



Mattan, Wei, Cloutier, & Kubota, 2018, *Curr. Op. in Psych.*
Dang, Mattan, Kubota, & Cloutier, 2019, *Scientific Reports*
Barth, Mattan, Dang & Cloutier, 2020, *Scientific Reports*

Predicted effects of external motivation in the VMFPC

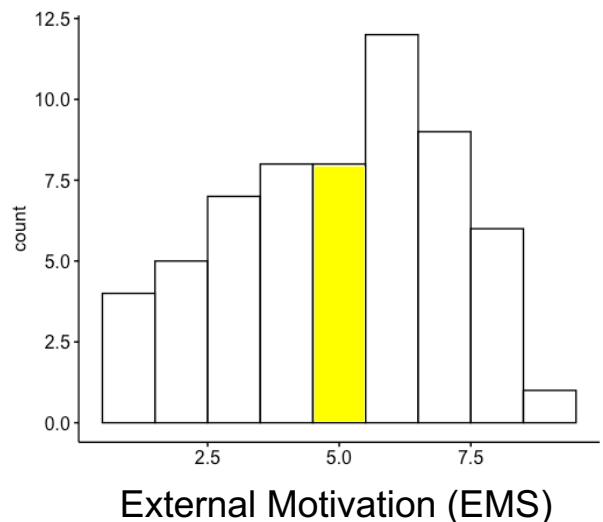
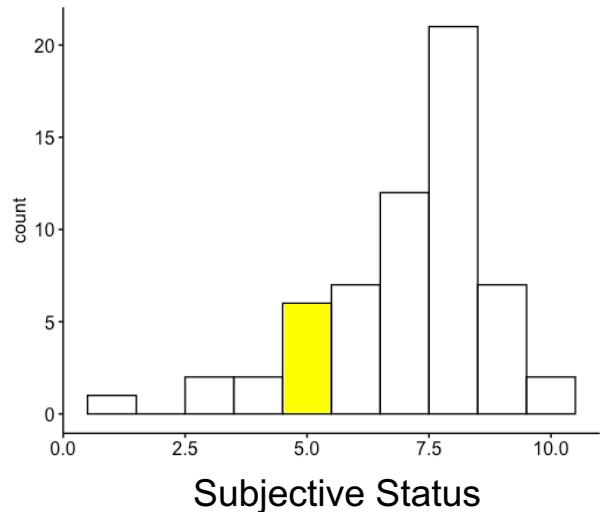
- H1: Reactive evaluation
 - Diminished race bias
 - Enhanced responses to high (vs. low) SES
- H2: Proactive evaluation
 - Enhanced response to high-SES Black faces

Sample and analyses

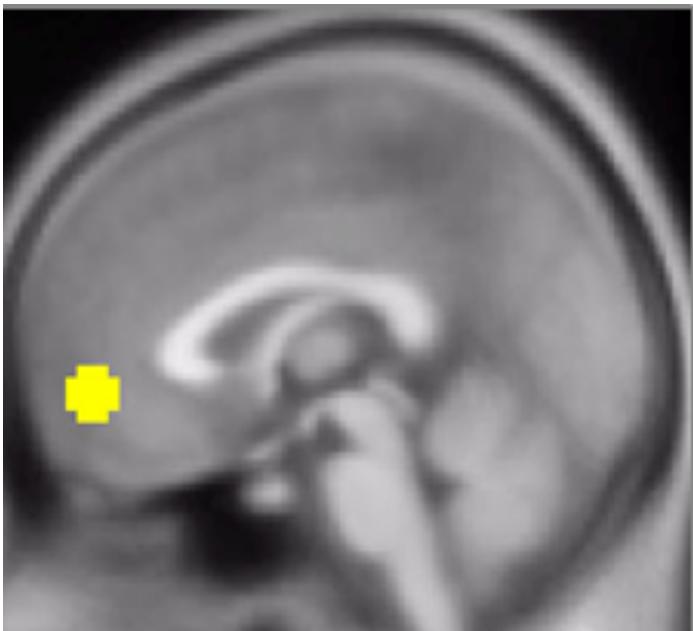
- Sample characteristics

- 60 White men
 - Chicago area
 - 18-35 years old

- Examined relationship between external motivation and neural activity in the VMPFC

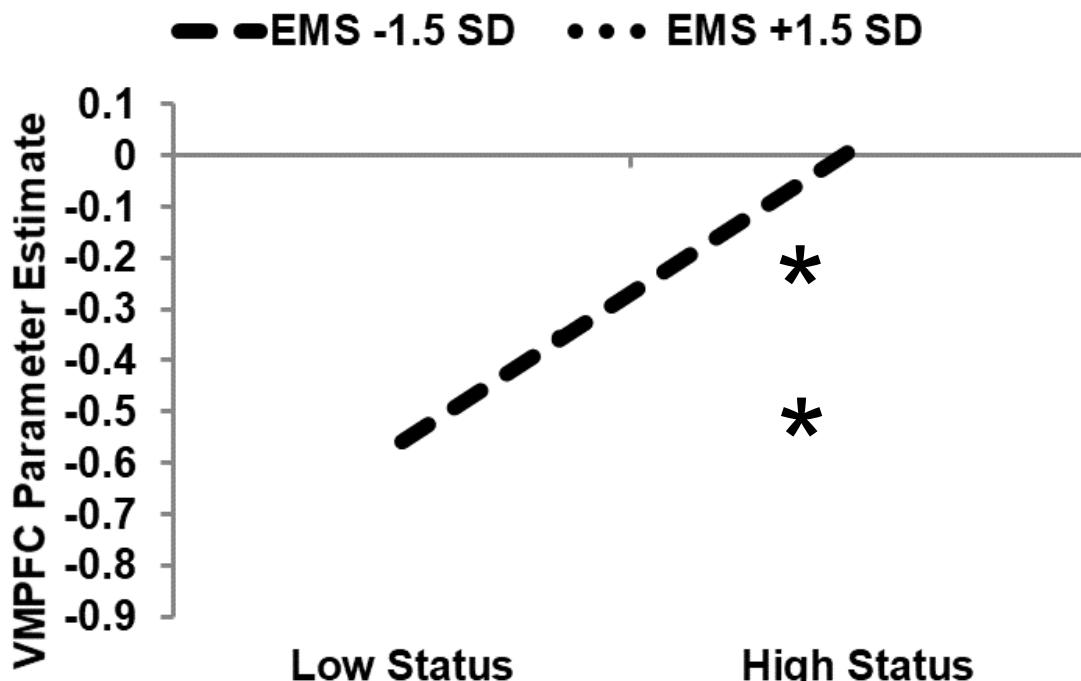


External motivation (EMS) predicts responses to status but not race

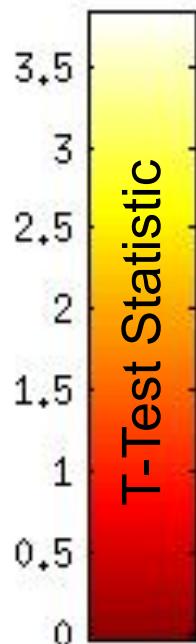
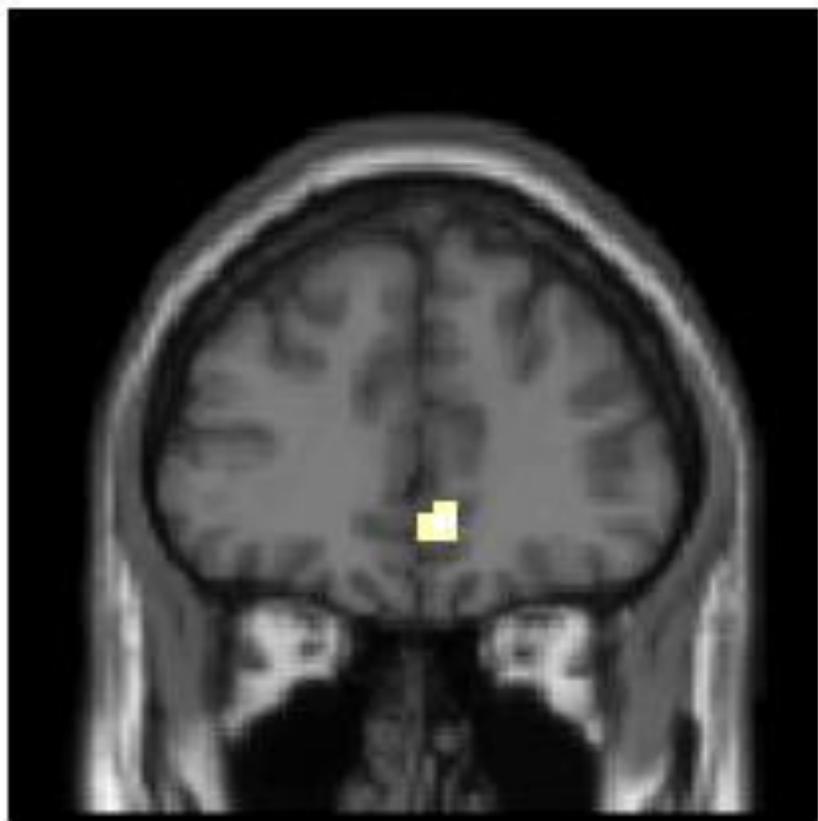


Status × EMS Interaction

<i>b</i>	<i>SE</i>	<i>t</i> (174)	<i>p</i>
-0.187	0.065	-2.85	.005



Reduced sensitivity in VMPFC to high (vs. low) status with increasing EMS



VMPFC Cluster ($k = 56$)

Peak Statistics

MNI [6, 39, -6]

$t(59) = 3.81$

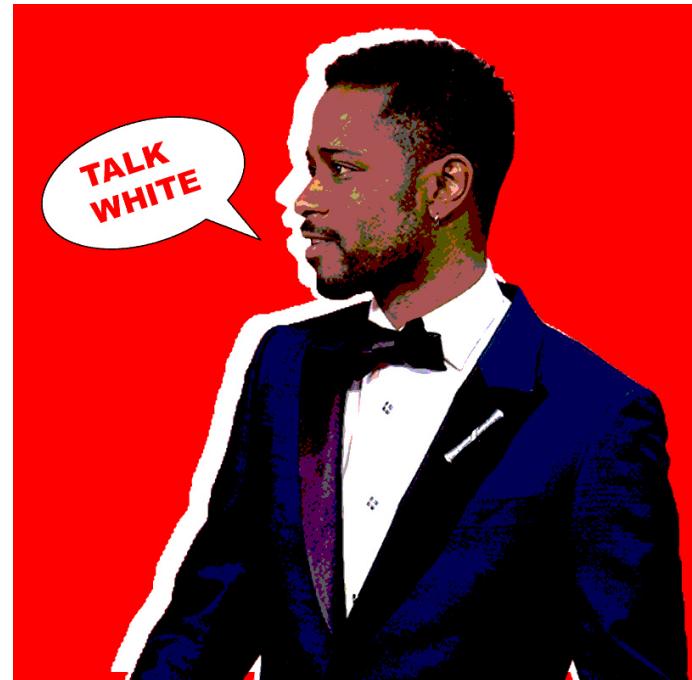
$p < .001$

External motivation altered evaluative responses to status in the VMPFC

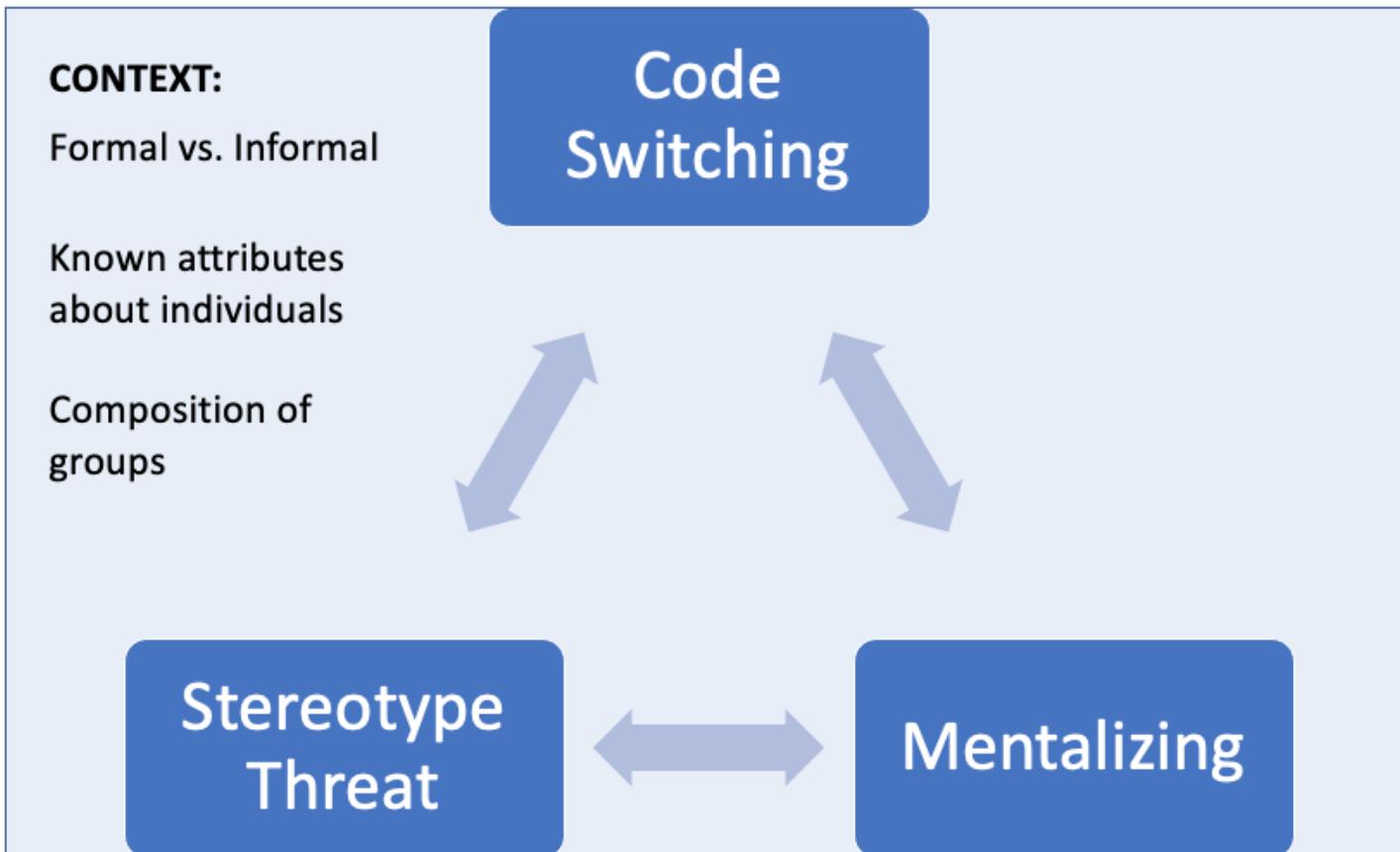
- Low motivation
 - Typical positive evaluations for high vs. low status
(Cloutier et al., 2012; Cloutier & Gyurovski, 2014)
- High motivation
 - Reversal in positive evaluations of high status

What could this mean for interracial interactions?

- Suspicions of high-EMS White people
(LaCosse et al., 2015)



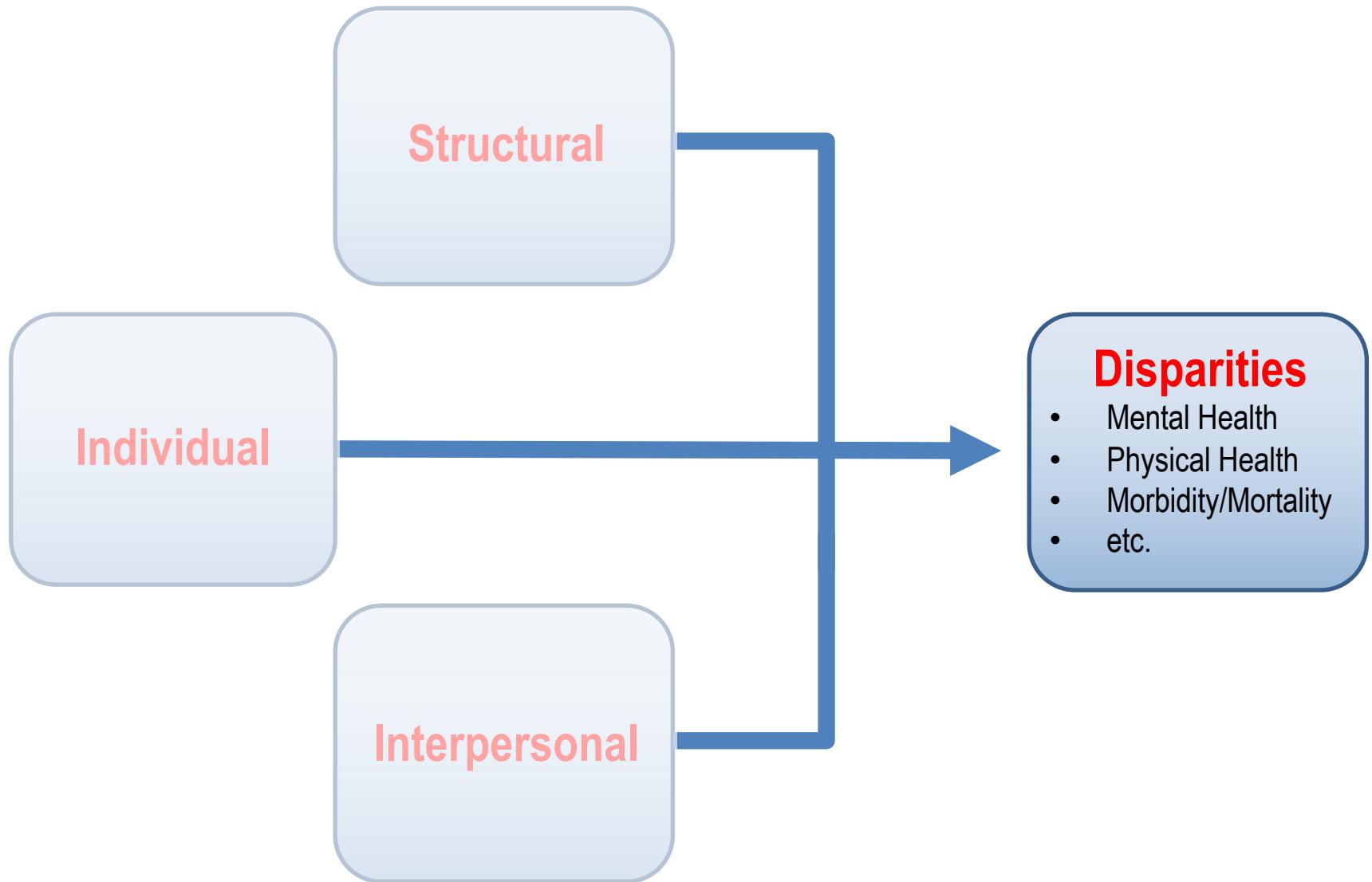
Code switching



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Research program



Acknowledgements

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Jennifer Kubota



Jasmin Cloutier



Kimberly Quinn



Pia Rotshtein



Collaborators

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DDS Group (U Penn)
IFSN Lab (U Delaware)
mHealth Lab (NYU)
Michael Fichman (U Penn)