

2023 TSRI ARC Summer High School Mentorship Program:

Introduction to the course, alcohol use disorder , health
disparities

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Animal Models Core

Alcohol Research Center Dissemination Core

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Student Assistant

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Post-doctoral Assistant

June 26, 2023

Today's Topics

- Introduction
- Alcohol use disorder (AUD)
- Health disparities

<https://www.nytimes.com/2020/01/31/sunday-review/alcohol-drinking-problem.html>

 Scripps Research



A bit about me



Animal Models
Core Facility
at Scripps Research



Scripps Research
Alcohol
Research
Center

**Dissemination
Core:
Outreach &
Education**

Research Society on Alcohol Annual Meeting

June 24-28, 2023
Bellevue, Washington



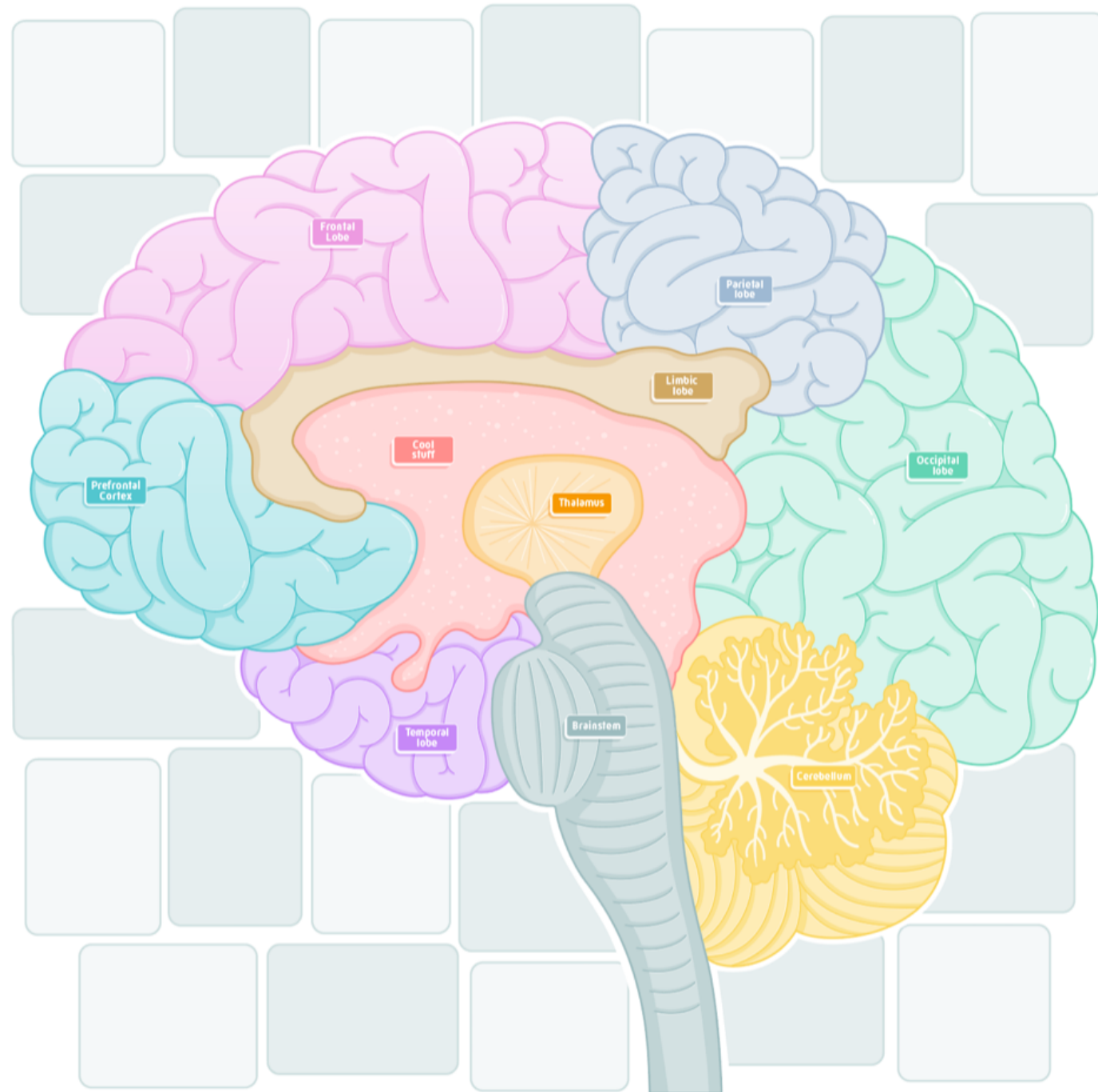
The mission of RSA is to provide a forum for communication and career development among alcohol researchers, to attract and support the next generation of alcohol researchers and to disseminate scientific knowledge regarding alcohol use and alcohol-related problems.

Jiaxing, Alicia and I will do some video interviews/Vlogs here at the conference and link them to the class website





Topia

Your avatar will be able to move around and explore our “Brain World”

You will have a room around the brain to decorate and use to show off your final project to your classmates and visitors



Important things to keep in

-  As we go through the course, make a note of topics that interest you
-  Let us know what topic(s) you like so we can help you find out more about it
-  We will make time in week 4 for individual or small group meetings to brainstorm ideas and get started with research
-  But you can reach out any time if you have questions, comments or want help exploring a topic (me: aroberts@scripps.edu and I can pass on to Jiaxing and/or Alicia)

First 2 weeks

June 26th

1:00PM: Amanda Roberts: Introduction to the course, health disparities, alcohol use disorder

2:00PM: Jiaxing Brisbois: Introduction to Topia; NIDA Course: “Is This Legit? Accessing Valid and Reliable Health Information”

June 27th

1:00PM: Amanda Roberts: Introduction to neuroscience and brain development

2:00PM: Jiaxing Brisbois: Brainfacts Interactive; Build a Brain Project

July 30th

1:00PM: Jiaxing Brisbois: Exploring Mice vs. Human Brains; Weekly Work Share-Out

2:00PM: Amanda Roberts: Using animals to study the brain

July 5th

Amanda Roberts IN PERSON VISIT: Neuroscience project, brief intro to accessing BioRender

July 7th

1:00PM: Alicia Avelar introduction and then recorded video

2:00PM: Alicia Avelar - BioRender tutorial, provide students a choice of figure legends to choose from to make a figure

Alcohol Use Disorder (AUD)

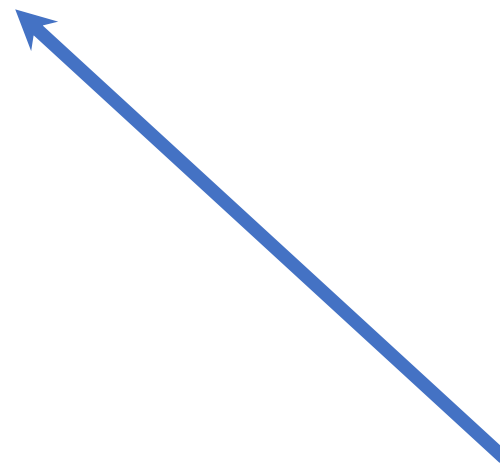
- A medical condition characterized by an impaired ability to stop or control alcohol use despite negative social, occupational, or health consequences.
- It encompasses the conditions that some people refer to as alcohol abuse, alcohol dependence, and alcohol addiction.
- Considered a brain disorder, AUD can be mild, moderate, or severe.
- Lasting changes in the brain caused by alcohol misuse increase risk of developing an AUD, perpetuate an AUD and make individuals vulnerable to relapse.
- The good news is that no matter how severe the problem may seem, evidence-based treatment with behavioral therapies, mutual-support groups, and/or medications can help people with AUD achieve and maintain recovery.

Alcohol Use Disorder (AUD)

National Institute on Alcohol Abuse & Alcoholism

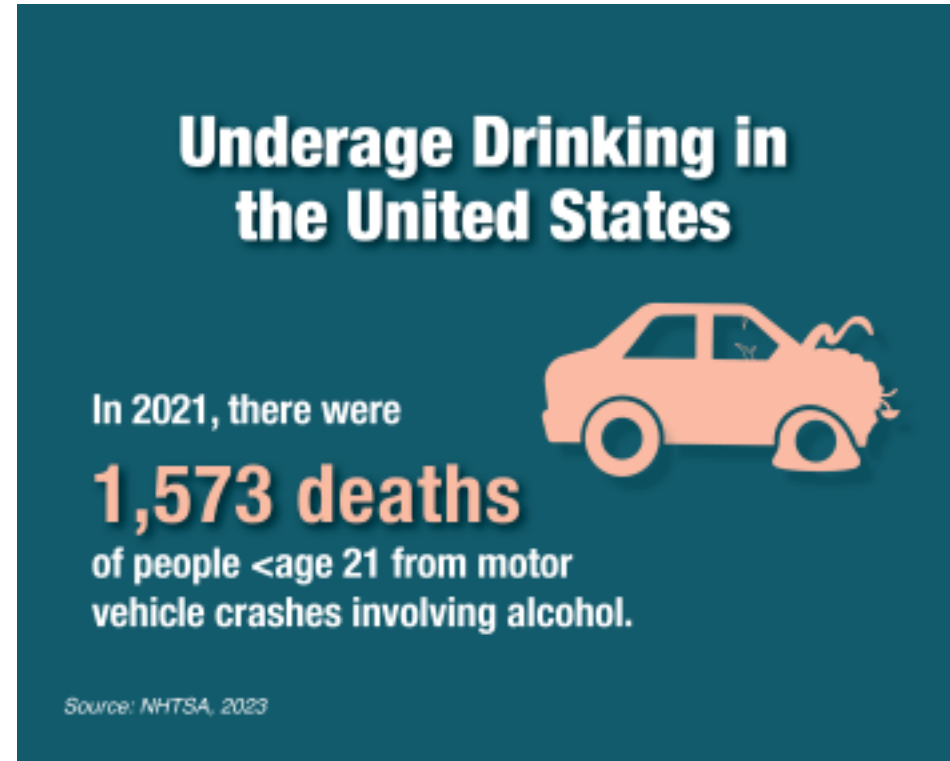
A subdivision of the National Institutes on Health focused on AUD

A portion of the government's budget (which comes from the taxes we pay) is assigned to NIAAA and funds academic research



Underage Drinking: Age 8-20

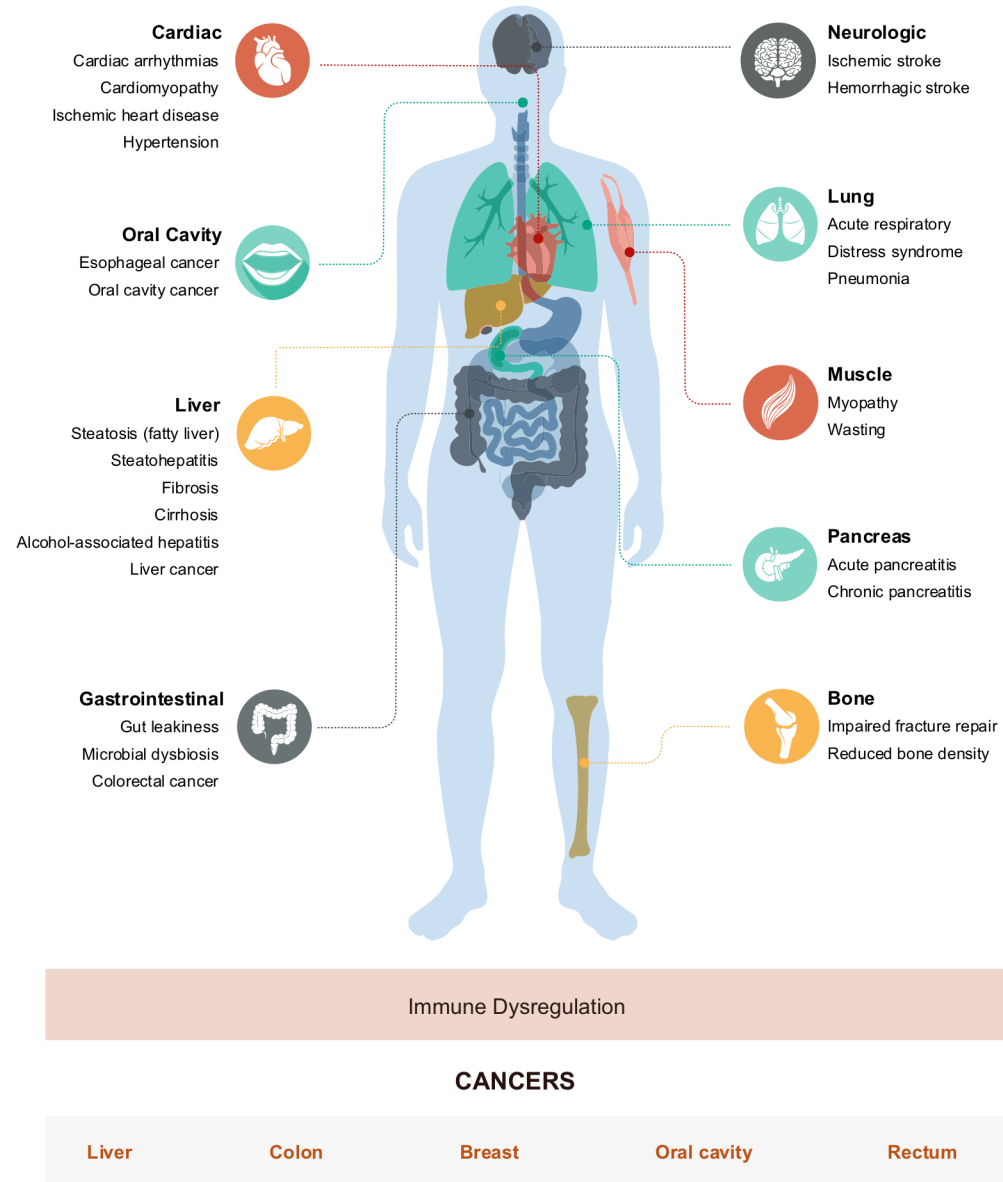
- 34.4% have ever consumed alcohol
- 8.3% have had at least 1 binge drinking episode in the past month
- While drinking in adolescents has been decreasing, it isn't decreasing as much in females
- Interferes with normal adolescent brain development
- Increases the risk of developing alcohol use disorder
- contributes to a range of short-term consequences, such as injuries, sexual assaults, alcohol overdoses, and deaths—including those from motor vehicle crashes



Alcohol Effects on the Body

<https://www.niaaa.nih.gov/alcohols-effects-health/alcohols-effects-body>

Alcohol-Associated Organ Damage



Brain:

- Changes mood and behavior
- Makes it harder to think clearly
- Makes it harder to move with coordination
- Increases risk for AUD and substance use disorders (SUD)

NIAAA Funded Alcohol Research Center: Scripps

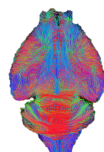
Community



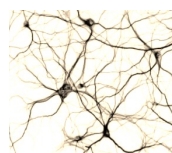
Behavior



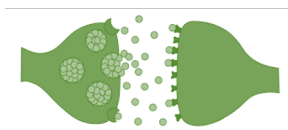
Circuits



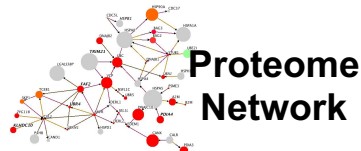
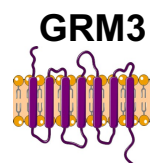
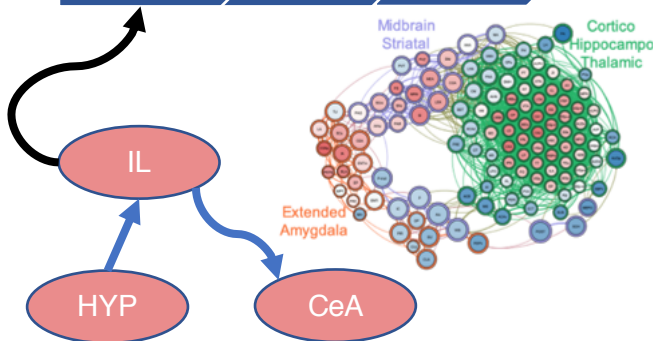
Cellular



Synaptic



Molecular



Dissemination Core

PL: Roberts
Co: Mason

Animal Models Core

PL: Roberts
Co: Zorrilla

Connectomics

PL: George
Co: Carrette

Neurocircuitry

PL: Zorrilla
Co: Bertotto

Neuropharmacology

PL: Martin-Fardon
Co: Flores-Ramirez

Neurophysiology

PL: Roberto
Co: Bajo

Molecular

PL: Contet
Co: Dunning

Proteomics Core

PL: Yates
Co: Diedrich

Dissemination

Preclinical models of stress and protracted withdrawal

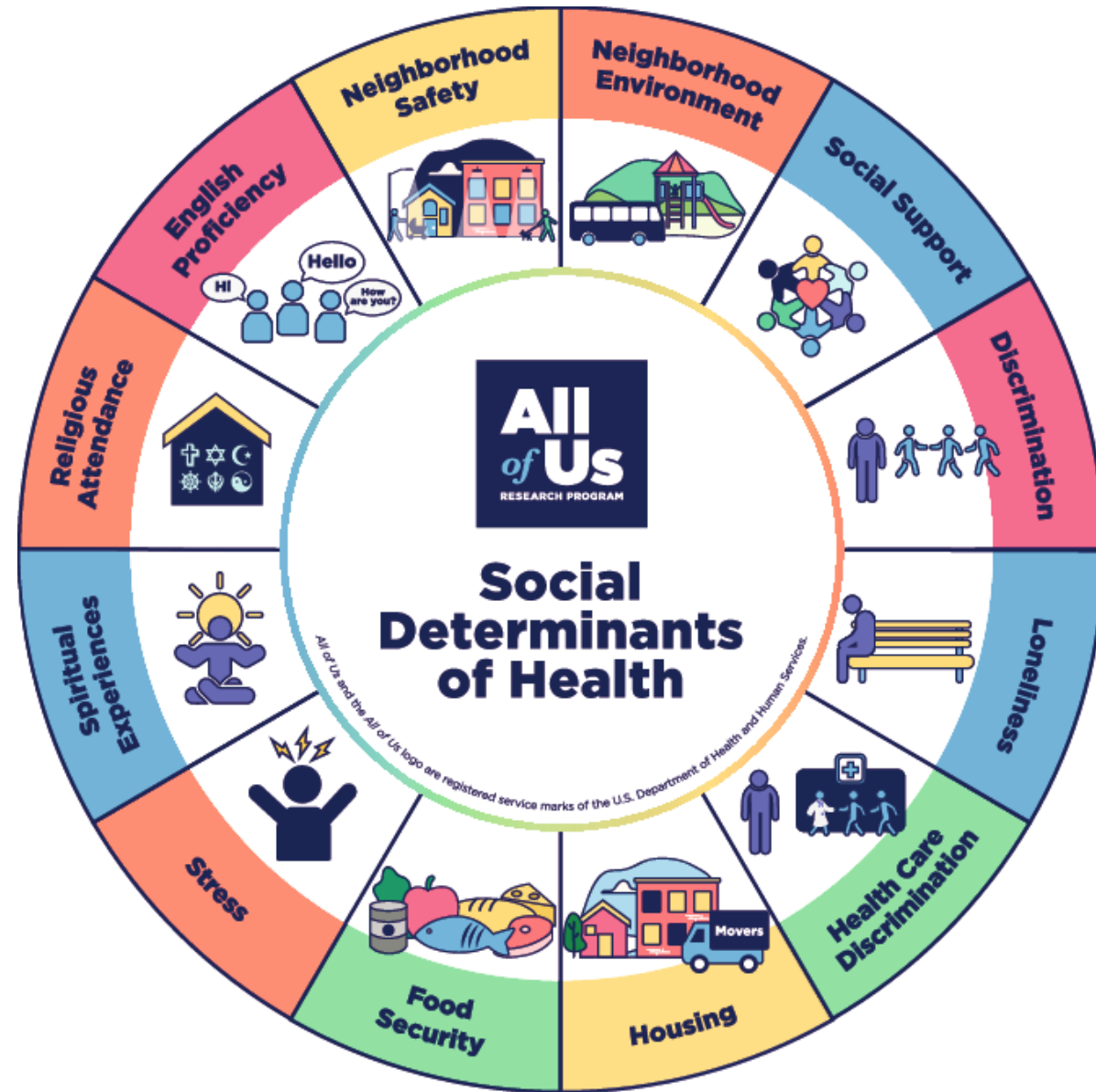
Neural circuits underlying excessive drinking and stress-induced relapse in protracted withdrawal

Cellular and molecular mechanisms underlying relapse and protracted withdrawal

Health Disparities

- Healthy People 2030: a particular type of health difference that is linked with social, economic, and/or environmental disadvantage, and that adversely affects groups of people who have systematically experienced greater obstacles to health.
- People with minoritized identities deal with many factors that impact their health – all of which lead to an enormous amount of stress

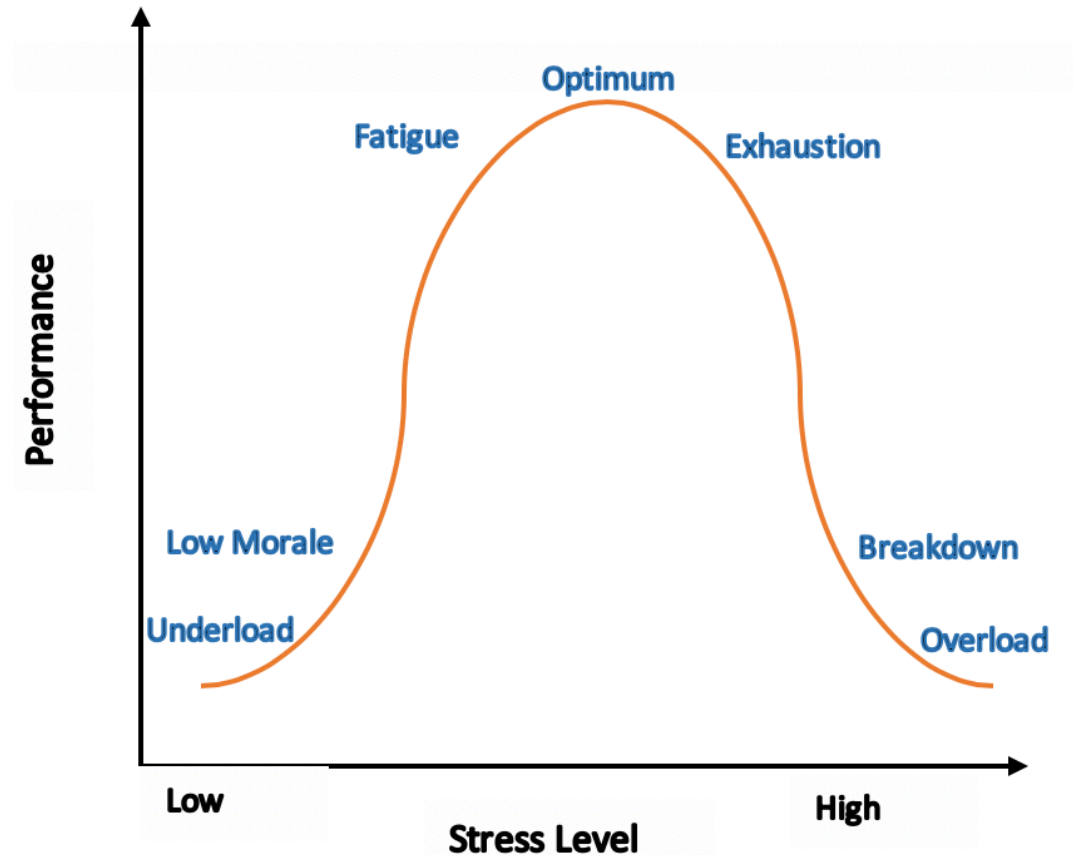
<https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-questions-and-answers/>



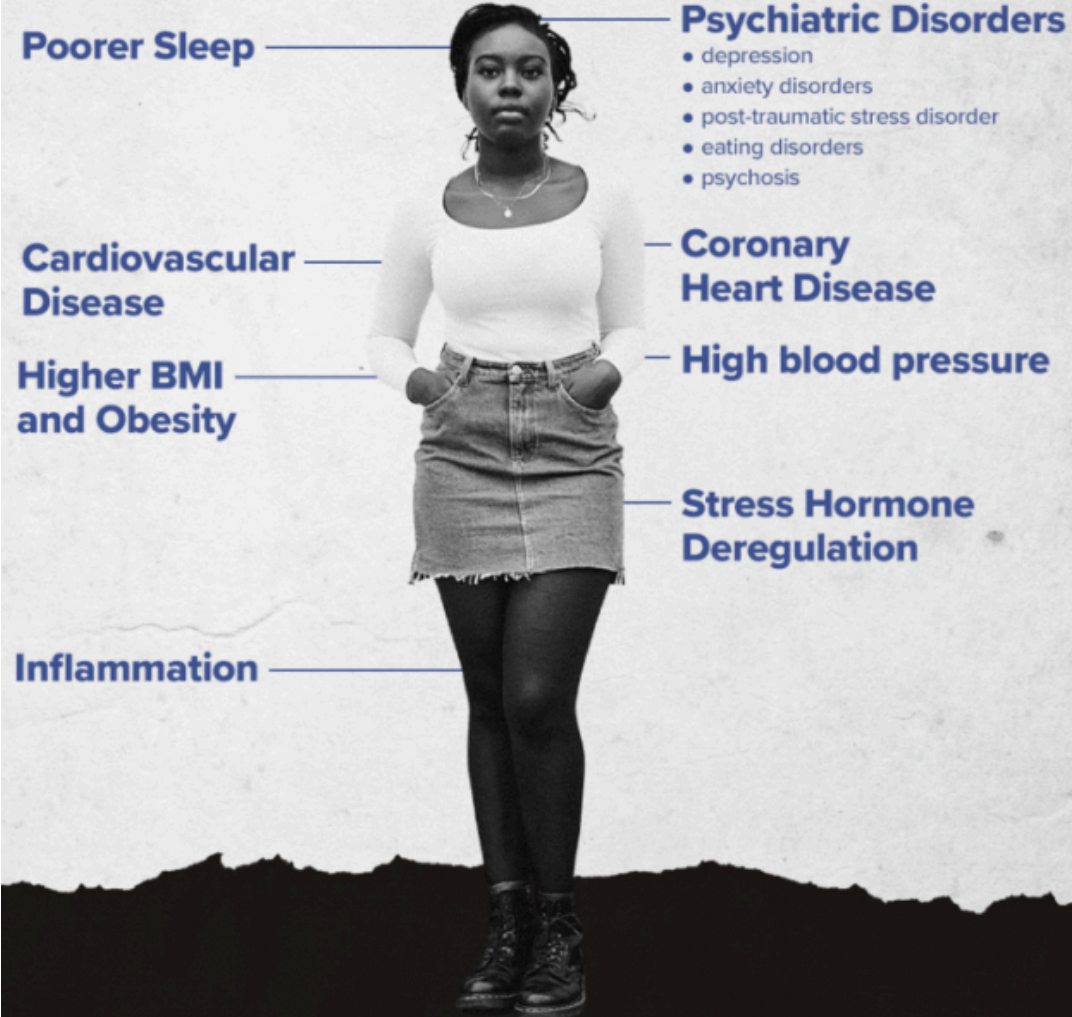
<https://aahd.us/2022/05/all-about-the-social-determinants-of-health/>

New Concept: Allostatic Load

- Have you heard the word homeostasis?
- What about **ALLOSTASIS**?
 - Achieving stability through change
 - Adds flexibility to anticipate changes
 - Allows us to respond efficiently to environmental changes
 - Necessary, but does require more energy
- Being in an allostatic state a lot can lead to having an **ALLOSTATIC LOAD**
 - "the wear and tear on the body" which accumulates as an individual is exposed to repeated or chronic stress



WHAT ARE THE EFFECTS OF RACISM ON OVERALL HEALTH?



and
Alcohol Use
Disorder
Substance Use
Disorder

<https://www.medicalnewstoday.com/articles/effects-of-racism>

Health Disparities and AUD

- Minoritized people *tend* to drink less alcohol than non-minoritized people
- However, minoritized people have worse outcomes of their alcohol use
- Why do you think this is the case???

<poll>

Summary of this first session

- Explanation of program
- Brief introduction to AUD
- Brief introduction to health disparities

Next up...with Jiaxing (after 10 minute break)

- Topia
- How to find reliable information for your own research