

# Stress as a Risk Factor for Acquired Immune Deficiency Syndrome (AIDS)

Alexandra Chang, Diego Mendoza-Martinez

University of Chicago

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# Cohort Study

## Prospective Cohort Study

- Incidence of HIV infection over time in relation to stress exposure.
- Establishing temporal relationships by directly observing stress exposure to potential AIDS infection over five years.
- **Goal:** If stress-induced changes in immune function lead to a higher susceptibility to AIDS, highlighting the importance of understanding specific stressors and their potential impact on disease progression.

# Study Subjects

Adults aged 18 to 50 years diagnosed with HIV but not AIDS at baseline.

- **Inclusion Criteria:** Diagnosed within the last three months who have not yet initiated treatment for various reasons.
- **Exclusion Criteria:** Diagnosis of HIV/AIDS more than three months prior, those with other pre-existing immunodeficiency disorders, and participants already begin receiving antiretroviral therapy (ART) or any form of treatment for HIV.
- **Recruitment Strategy:** Collaboration with hospitals and healthcare providers to recruit potential participants.

# Measures and Data Collection

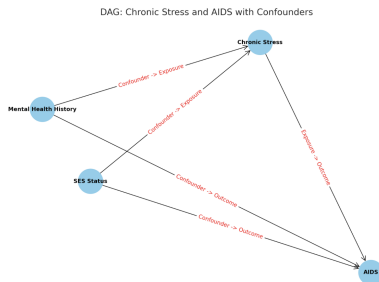
- Surveys and medical testing every six months for five years to track HIV progression and stress levels, providing a comprehensive dataset linking stress with infection status changes.
- The **Perceived Stress Scale (PSS)** measures stress.
- **CD4+ T-cell counts** assess AIDS status.

# Independent Variable(s)

- The **Perceived Stress Scale (PSS)** is used to assess stress levels. The PSS has shown validity and reliability, capturing perceived stress levels effectively.
- Final score is divided into 3 categories and is re-categorized based on exposure status.
- Low stress as "**unexposed**".
- Mild and High stress as "**exposed**".

# Potential Confounding Variable(s)

- **SES (Socioeconomic Status)** influences stress levels and AIDS progression due to access to healthcare and support systems.
- **Mental health** status can affect stress levels and disease progression, necessitating control in the study.





# Outcome Variables(s)

- **CD4+ T lymphocyte count** is the primary outcome variable for assessing AIDS progression.
- A count below 200/mL indicates AIDS, as "**diseased**"
- Normal count as "**undiseased**".

# Pros and Cons

## Pros

- **Temporal Relationship:** Establish a time sequence between exposure (stress) and outcome (AIDS progression).
- **Direct Observation:** Directly observes how the disease progresses over time in relation to stress.

## Cons

- **Time and Cost:** Extensive time and resources to follow participants over years.
- **Loss to Follow-Up:** Risk of participants dropping out over time, potentially biasing results.

# Case-Control Study

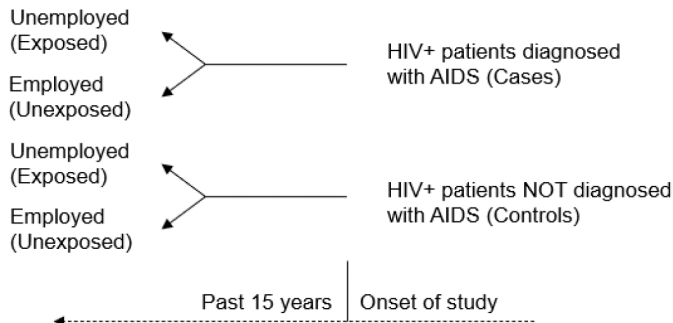
## Case-Control Study Design

- **Objective:** Stress as a risk factor for Acquired Immune Deficiency Syndrome (AIDS)
- Impossible to remember past stress.... Proxy for stress with unemployment
- AIDS: Last and most severe stage of HIV
- **RQ:** Do HIV+ patients who were stressed about being unemployed have higher odds of AIDS diagnostic?

# Study Subjects

- Two considerations:
  - ① 10-15 year latency period
  - ② 30+ years old probably have a stable job
- Adults between 30-60 years old
- HIV+ diagnosed patients
- Where? Any Hospital/Clinic with many patients

# Design in a Nutshell



# Measures and Data Collection

- **Recruiting:** Identify HIV+ and AIDS patients from administrative data and survey during check-up

- **AIDS status:** CD4 T Lymphocyte count less than 200 cells/mm

- **Unemployment status (  $\geq 6months$  ) :**

A. Are you currently employed? If yes,

- ① “Please indicate the type of employment:  
a. Full-time; b. Part-time; c. Contractor”

- ② “Since when have you been working in this job?”

If no, “When was the last time you had a job? [Go to 1ai]”

B. “In the past 15 years, have you ever been unemployed? Yes/No”

- ① “How many times?”

- ② “How long was/were this/these period/s of unemployment? In months.  
[Specify for each job]”

If no, [Go to 1aii]

# Confounding Variables

- Socioeconomic status/Income
- Mental health status
- Social support
- Healthcare access



# Potential Limitations

- Generalizability
- Recall Bias of unemployment periods
- Use of PrEP
- Unemployment category: "Seeking/Able", "Not seeking", "Not able"

# Pros and Cons

## Pros

- Quick, Easy & Cheap
- Overcomes ethical challenge of being exposed to unemployment
- Does not require a large sample

## Cons

- Recall Bias
- No causality, only association
- Not representative

Thank you!  
Any Questions?