WHAT IS THE STARS STUDY?

The **STARS study** (Stress and Resilience Study) examines how stress, discrimination, and resilience affect mental and physical health among people of diverse sexual orientations and gender identities.This first publication focuses on how lifetime discrimination relates to biological signs of chronic stress in the body.

What is Allostatic Load ?

Allostatic load is a scientific term that describes the wear and tear on the body caused by long-term stress.When stress happens occasionally, the body can adapt. But when stress is chronic, biological systems can become overworked.

Higher allostatic load is associated with cardiovascular disease, metabolic conditions (e.g., diabetes), immune and inflammatory problems and accelerated aging.

Who took part in this study ?

- 357 adults living in the Greater Montréal area (ages 18 to 79) representing diverse gender identities and sexual orientations
- Participants were grouped based on gender identity, sexual orientation and sex assigned at birth

What did we measure ?

Experiences of Discrimination

- Major lifetime discrimination (ex: being denied housing or employment, serious unfair treatment)
- Day-to-day lifetime discrimination (ex: microaggressions, disrespect, being treated unfairly in everyday life)

Health-Related Behaviors: Smoking, alcohol use, drug use, physical activity and sleep quality.

Allostatic Load: A score calculated using 16 biomarkers representing the metabolic, cardiovascular and immune systems.

Key Finding 1 : Discrimination Is Linked to Higher Biological Stress

Both **major lifetime discrimination** and **day-to-day lifetime discrimination** were associated with higher allostatic load.

- This means that repeated discrimination and microaggressions act as chronic stressors that affect the body over time.
- Both types of discrimination contributed independently, showing that everyday experiences matter just as much as major events.

Key Finding 2 : Health Behaviors Did Not Explain This Link

The researchers tested whether health behaviors (such as smoking, sleep, or physical activity) explained the relationship between discrimination and allostatic load.

They did not.

This suggests that:

- Discrimination can have direct biological effects.
- Chronic stress affects stress-response systems in the body, even beyond health behaviors.

This does not mean health behaviors are unimportant—but discrimination itself has a powerful physiological impact.

Key Finding 3 : Differences Across Gender Identity and Sexual Orientation

After accounting for age, the study found that:

People on the masculine spectrum (cisgender and transgender men) had the highest levels of biological stress

- Gay and bisexual men showed particularly elevated allostatic load.
- Cisgender women and nonbinary participants showed lower average levels.

These findings highlight that:

- Gender identity and sexual orientation are distinct but important dimensions.
- Stress does not affect all groups in the same way.

What do these results tell us ?

Many sexual and gender diverse people experience discrimination and stigma throughout their lives. While the mental health effects of discrimination are well known, less is understood about how these experiences affect physical health at a biological level.

This study helps show that:

- Discrimination is not “just psychological.”
- Chronic stress linked to discrimination can leave measurable biological traces in the body.

These effects are relevant for public health, prevention, and social policy; reducing discrimination and structural inequality is essential for improving health outcomes.

What comes next for STARS ?

Additional analyses using the STARS database: example post-traumatic stress symptom severity, microbiome diversity

Thank you !

Your participation made this research possible.

By taking part in STARS, you are helping generate knowledge that supports health equity, recognition, and social change.

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