

summary of results from the

Astronomy Poverty Survey

in collaboration with the AAS CSMA



as you arrive,

please answer the question
at this QR code!

(or go to dartgo.org/aas-slido)

Background

The Poverty in Astronomy Task force and the corresponding survey were initiated by a subset of the AAS Committee on the Status of Minorities to assess the scope and scale of the effect of socioeconomic status on retention and advancement in astronomy. Specifically, the survey investigated whether, and if so to what extent, poverty poses an issue for those entering and looking to remain in the field of astronomy at various career stages.

Background

Add quote from 2020 Decadal here on the need for this NOW - waiting for notes from Rachel Beaton

Session Structure

- Introduction from Dr. Carlos Vargas
- Overview of Survey Results
- Panel Discussion
- Community Brainstorming Session

Community Guidelines

1. Please behave respectfully and only speak for yourself.
2. For the next 90 minutes, we are going to leave the skeptics and devil's advocates out of the room. Our goal here is to share our findings with the community and to empower **everyone** to use the information we are about to share to adapt to the current climate and the inevitable changes that will come starting on January 20, 2025.
3. Keep in mind, this is sensitive data regarding people's ***lived experiences***, not the typical data we are used to working with in our research settings.



MY UNDERGRADUATE EXPERIENCE

- Driven by the need to make money for my family
- Clearly not on an equal footing due to my high school education
- Had no money for food
 - Lived off a 'commuter meal plan' – 1 meal per day.
- I struggled immensely early on

WHY SHOULD YOU CARE ABOUT POVERTY?

**Poverty impedes cognitive
function (Mani et al. 2013)**

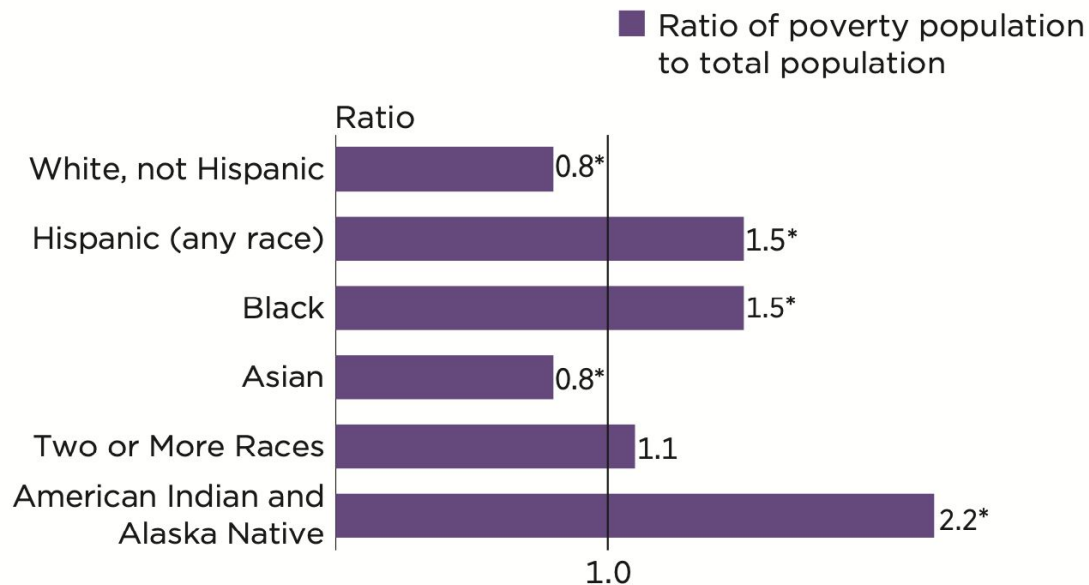
**Academics from poorer backgrounds
introduce more novel scientific
concepts, but are less likely to
receive recognition..." (Abramitzky et
al. 2024)**

WHO IS AFFECTED BY POVERTY?

**~36.8 million people in
America right now**

Figure 3.

Distribution of Total Population and Poverty by Race Using the Official Poverty Measure: 2022

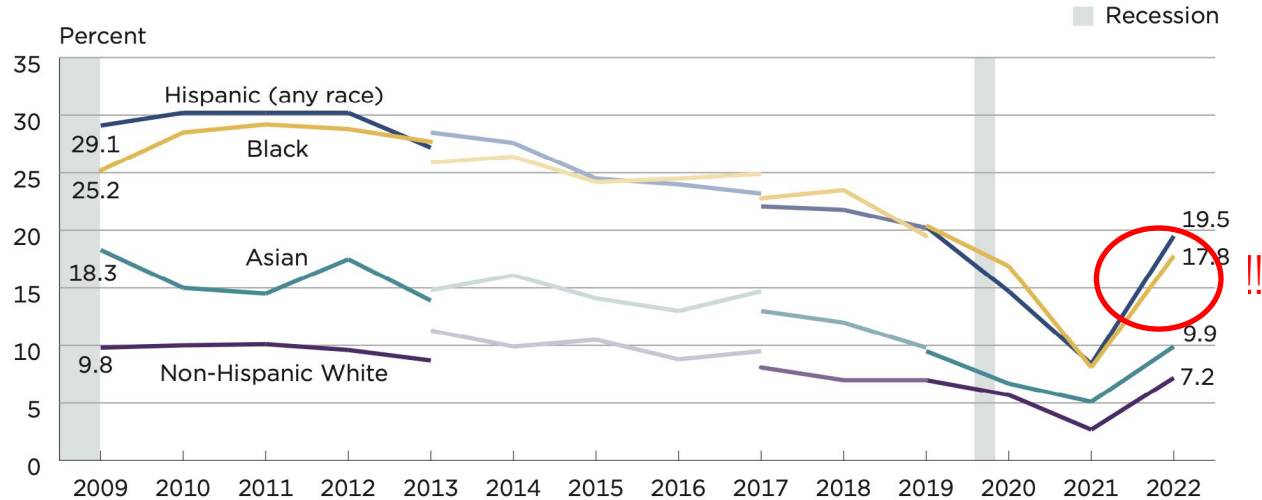


Source: 2022 Census Bureau Report on Income, Poverty, and Health Insurance Coverage

U.S. CHILD POVERTY

Figure 5.

Child Supplemental Poverty Rates by Race and Hispanic Origin: 2009 to 2022



The total official child (under 18) poverty rate was 14.9% in 2022

Source: 2022 Census Bureau Report on Income, Poverty, and Health Insurance Coverage

POVERTY CONTEXT

- The official 2024 U.S. 'poverty line' for a family of 4 is \$31,200 per year
- In 2023, there were 36.8 million people in poverty in the US
- **Lived poverty is about more than 'not having money during grad school'**
 - People from backgrounds of poverty have no backstop
 - Entire households in poverty can't afford a single unplanned expense of ~\$400 (your plane ticket)
 - The choice to enter and pursue an academic career is not equitable

Sources:

US Census Bureau Report on Income, Poverty, and Health Insurance Coverage

US Department of Health and Human Services

U.S WEALTH INEQUALITY

Wealth = total value of owned assets - debts

In 2021, the median wealth of white families was \$250,400

Source: 2021 US Census Bureau

U.S WEALTH INEQUALITY

Wealth = total value of owned assets - debts

In 2021, the median wealth of white families was \$250,400

The median wealth of Hispanic families was \$48,720

The median wealth of Black families was \$24,520

Source: 2021 US Census Bureau

COLLEGE STUDENTS

- 3 in 5 experience basic needs insecurity
- 29% experience food insecurity (4-year colleges)
- 48% experience housing insecurity
- **14% are homeless**
- 13% have lost a loved one to Covid – Hispanic students more than 2x as likely

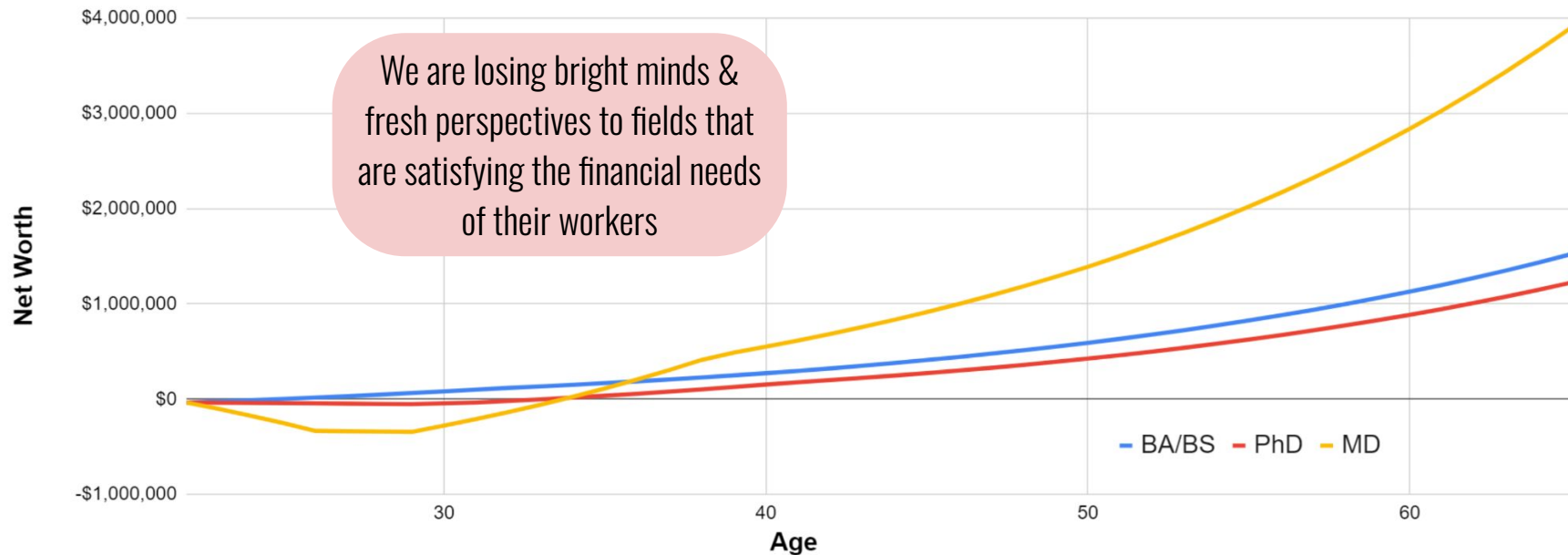
Source: The Hope Center for College, Community, and Justice. 2021 #RealCollege Survey

Poverty & Academia (Astronomy)

- Choosing to pursue an academic career reduces your lifetime earning potential
- Why is this bad?
 - That choice can be life or death for people from impoverished backgrounds.

Academic Crossroads:

“How can I pursue my dreams of academia if that means delaying financial security for a lottery ticket at a faculty job?”



Note: BA/BS assumes overall median salary w/degree
– NOT STEM or engineering fields

Source: “The Academic Financial Lifecycle in Comparative Perspective” – Elbow Patch Money



Task Force on Poverty in Astronomy

Volunteer participants from: **UArizona**,
Dartmouth, NASA GSFC, Harvard CfA, UT Austin,
Utah, Vandy, NMSU, UCSD, Rutgers, OSU, UMass

In the post Team-Up Report era, inclusion along multiple axes remains a challenge in astronomy.

Theory: The advancement pathways of academia impede access to the field by introducing financial scarcity, especially during graduate school

For the field of astronomy to be accessible and inclusive to a diverse academic population, **we must address built-in poverty bottlenecks in academia**

Released the Survey on Poverty in Astronomy in March 2024

- **IRB approval obtained in February 2024 (UA)**



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**Released the Survey on Poverty in Astronomy
in March 2024**

sent ~90 emails to degree-granting institutions
and 10+ listservs in order to spread the word

entirely volunteer-based, comprised of graduate
students, postdocs, staff, and faculty.

summary of results from the

Astronomy Poverty Survey

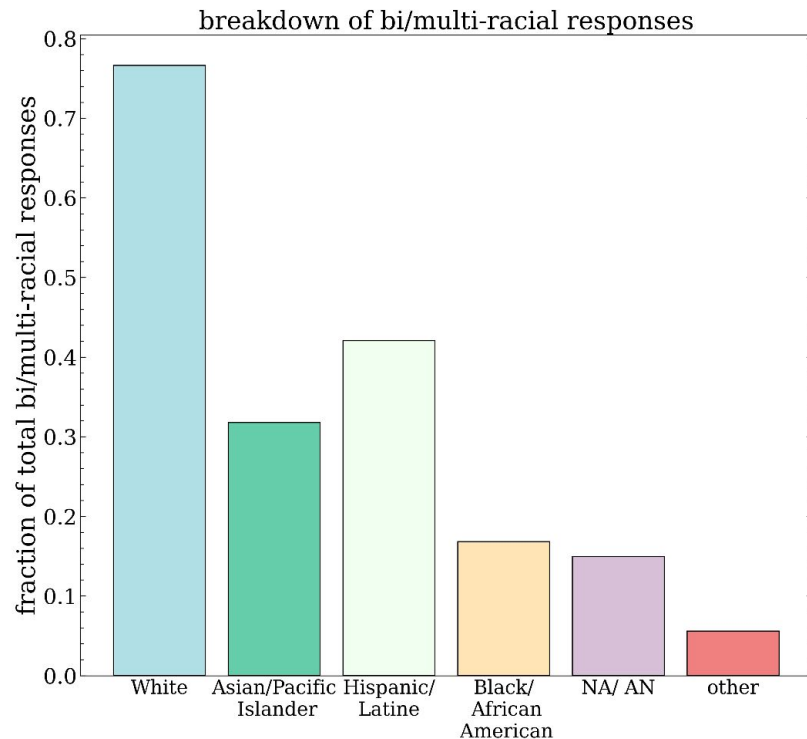
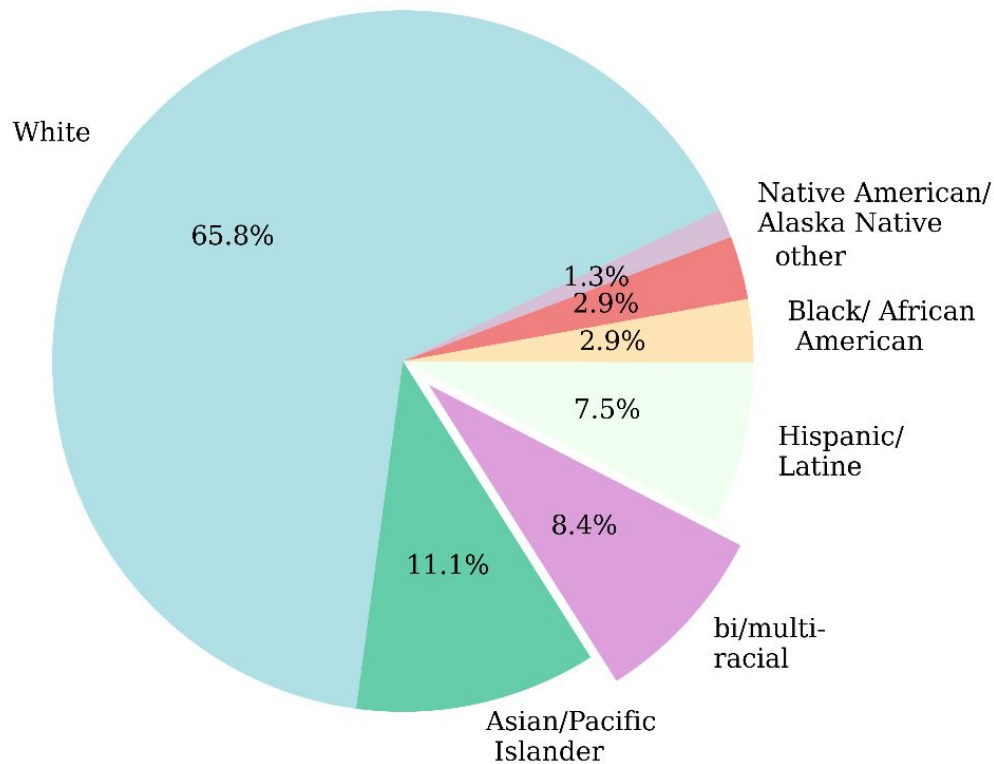
in collaboration with the AAS CSMA

— DEMOGRAPHICS

a quick breakdown of identities of the respondents in the survey

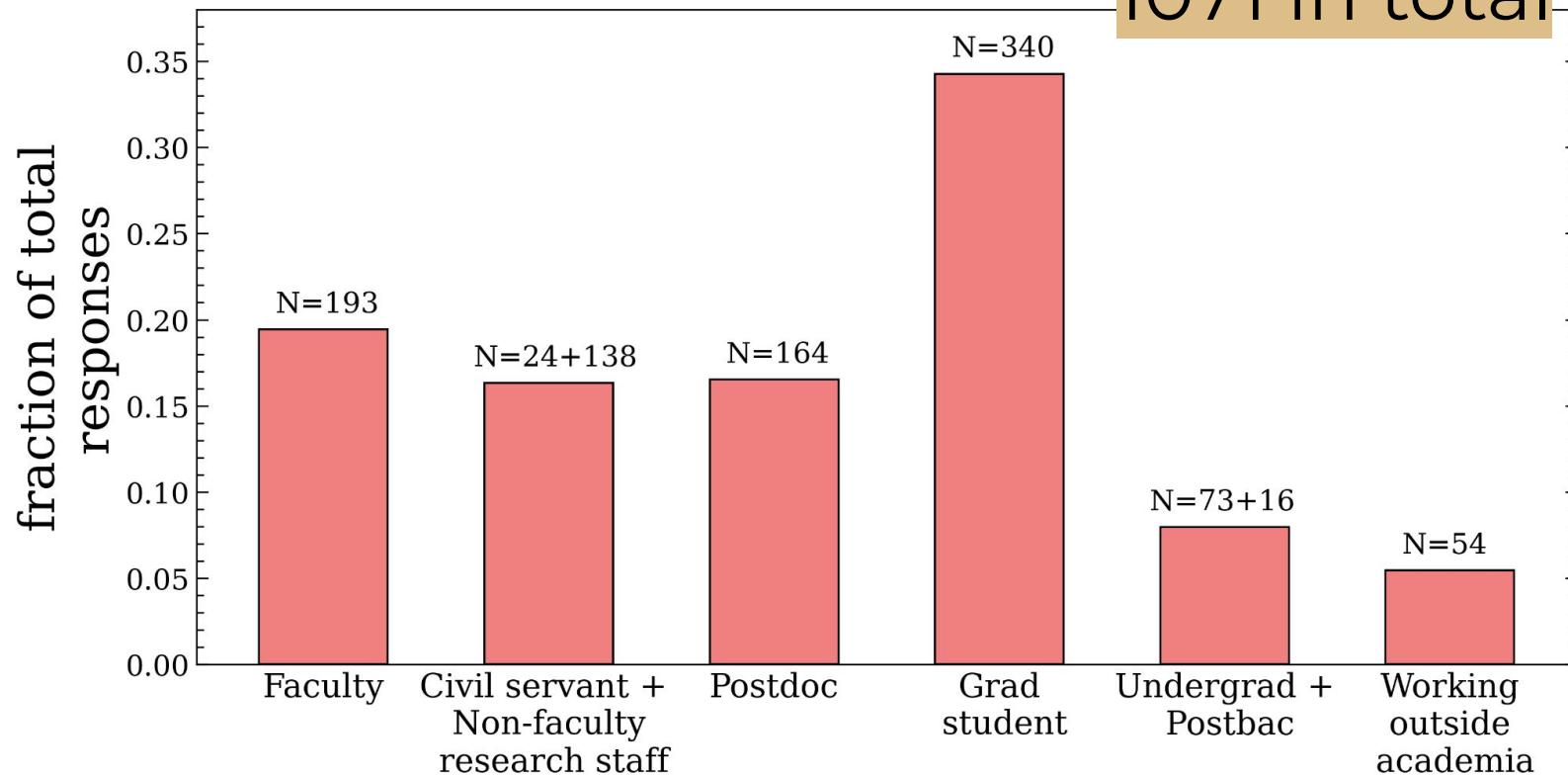
TOTAL NUMBER OF RESPONDENTS: 1071 people

— race / ethnicity of respondents

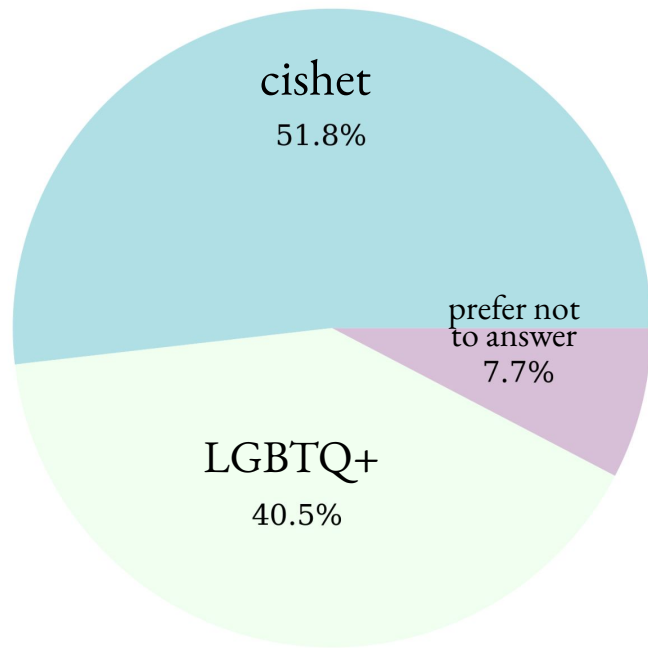


■ current career stage

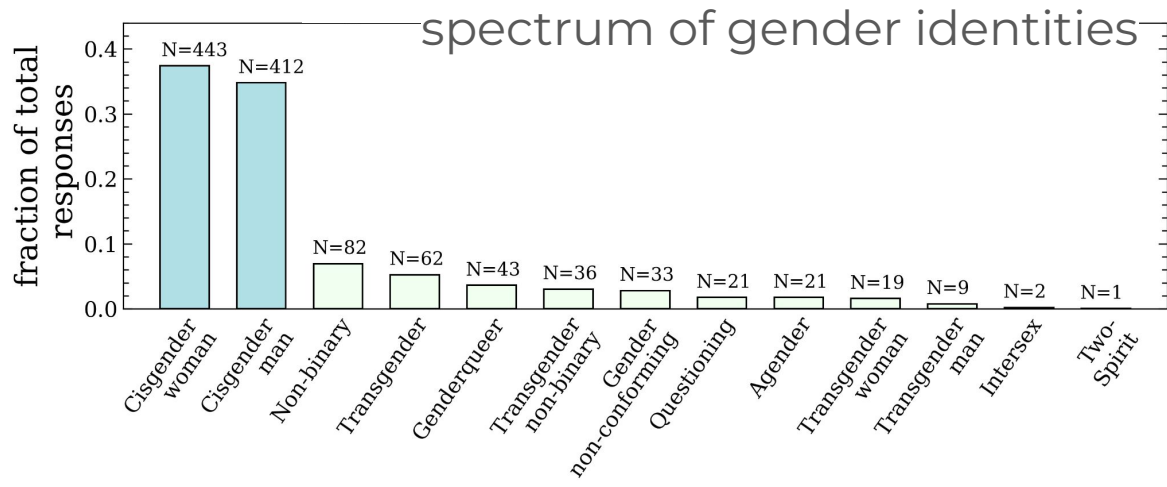
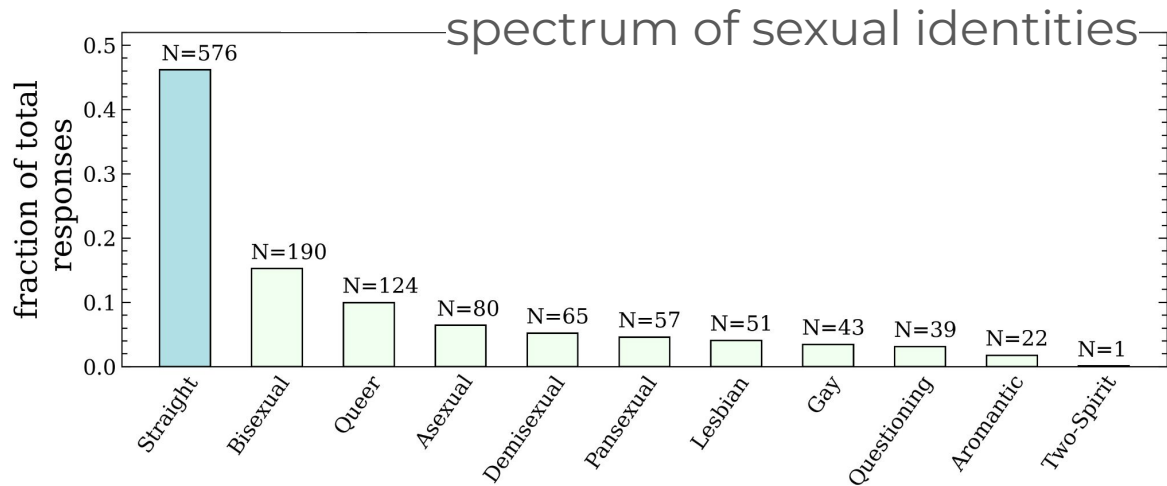
1071 in total



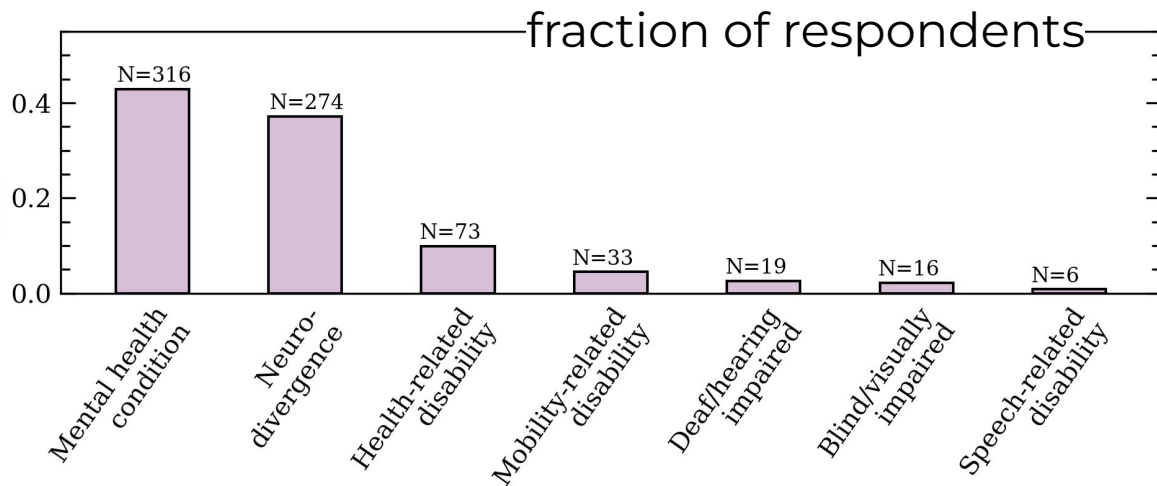
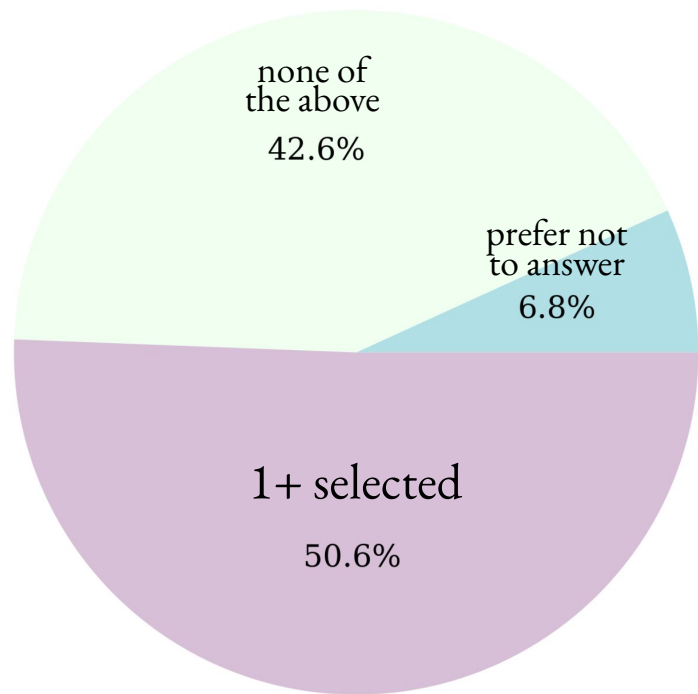
gender & sexual identities



“cishet” = cisgender + heterosexual



health & disability status



— MAIN RESULTS

#1: considering leaving the field

#2: a selection of environmental factors
& financial indicators

RESULT #1

a significant # of respondents considering leaving field due to financial hardship

Black & African American astronomers are the most likely to consider leaving the field or have left due to financial hardship (47%)

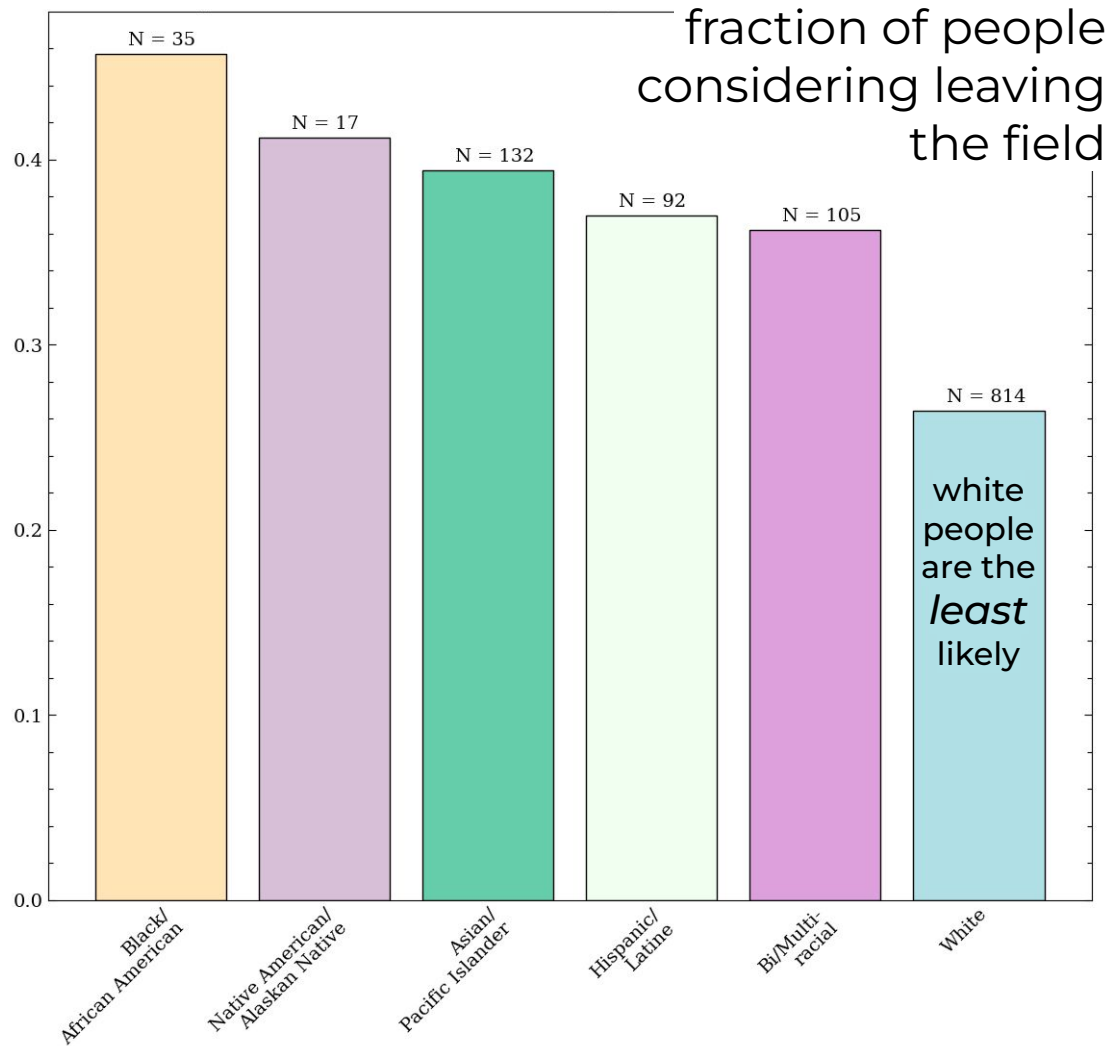
>30% of undergrads+postbacs, grad students, & postdocs say they are considering leaving the due to financial hardship

— *results even more severe when comparing with race/ethnicity*

for all respondents in survey, 1 in 4 say they are considering leaving the field due to financial hardship

of those respondents who have already left the field, 47% did so due to financial hardship

at 47%, Black & African American astronomers are the most likely to have left or be considering leaving the field due to financial hardship.



R#1 *probing financial hardship (using Pell Grants as an indicator)*

percent of respondents who have left or are considering leaving the field due to financial hardship:

Pell Grants: subsidies for “undergraduate students who display exceptional financial need” (studentaid.gov)

career stage	for respondents who received “Pell Grants”	for respondents who did NOT receive “Pell Grants”
people working outside academia	50%	26%
undergrads + postbacs	52%	29%
graduate students	45%	38%
postdocs	62%	32%
civil servant + non-faculty research/staff scientist	26%	20%
faculty	7%	6%

R#1 *probing financial hardship (using Pell Grants as an indicator)*

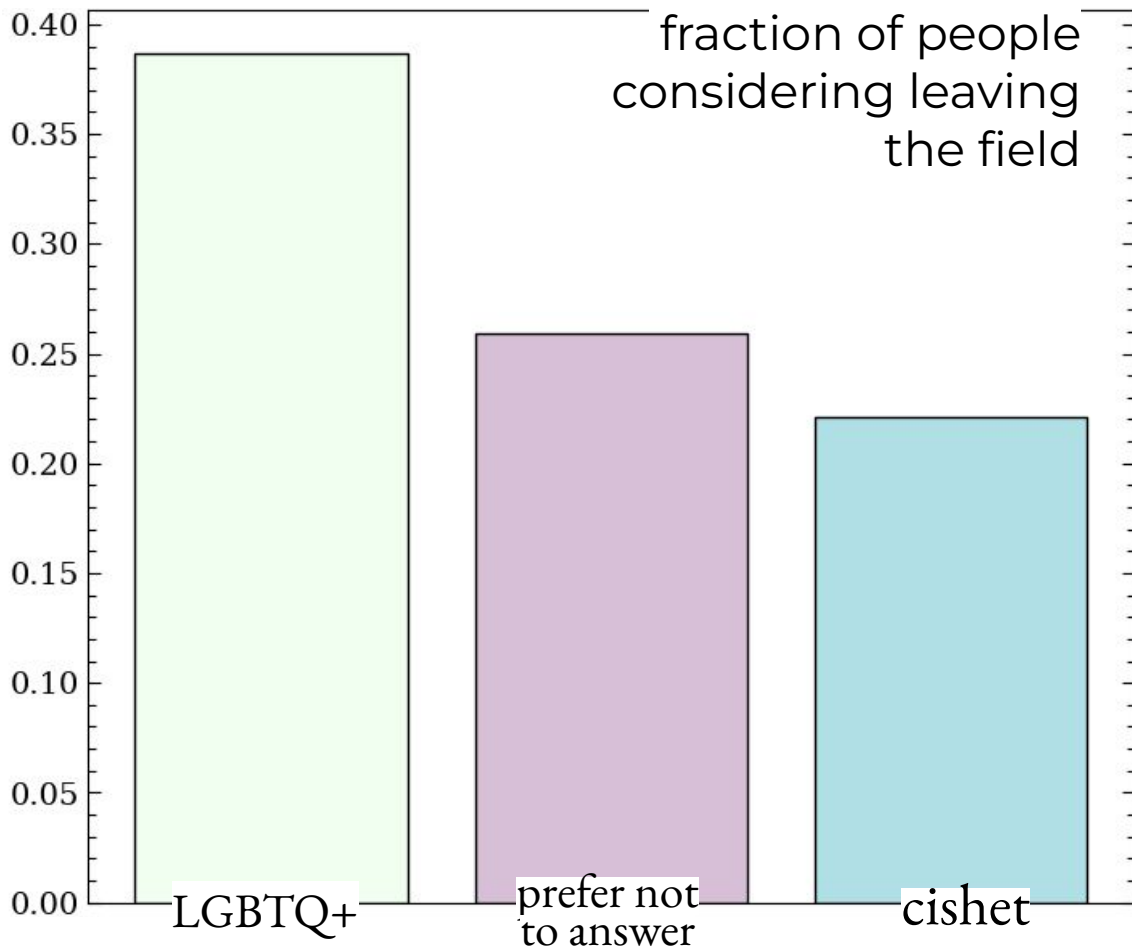
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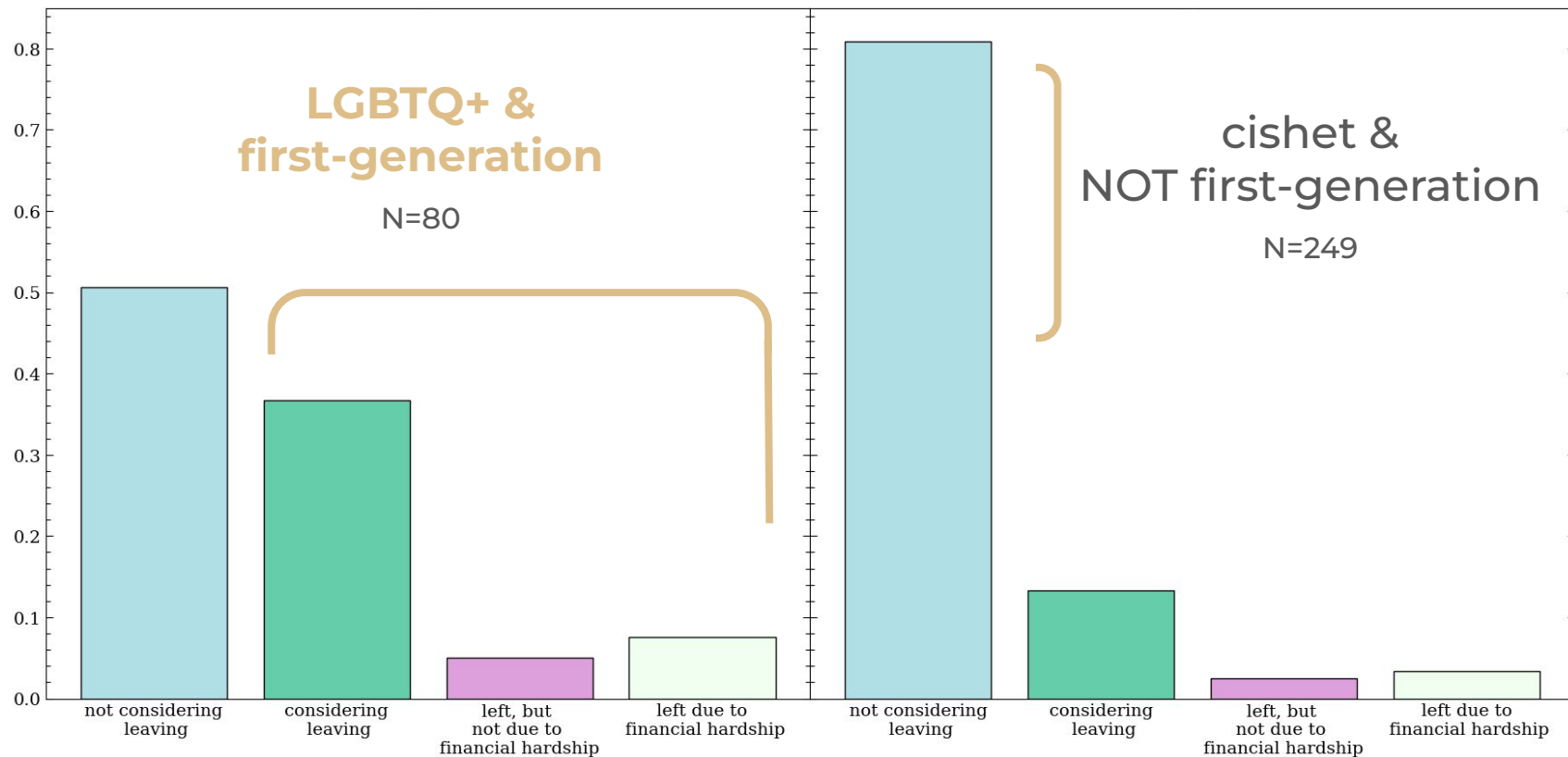
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} early career academics & people working outside academia are heavily impacted

at 38.7%, **LGBTQ+ people** are more likely to have left or be considering leaving the field due to financial hardship than cishet people (25.9%).

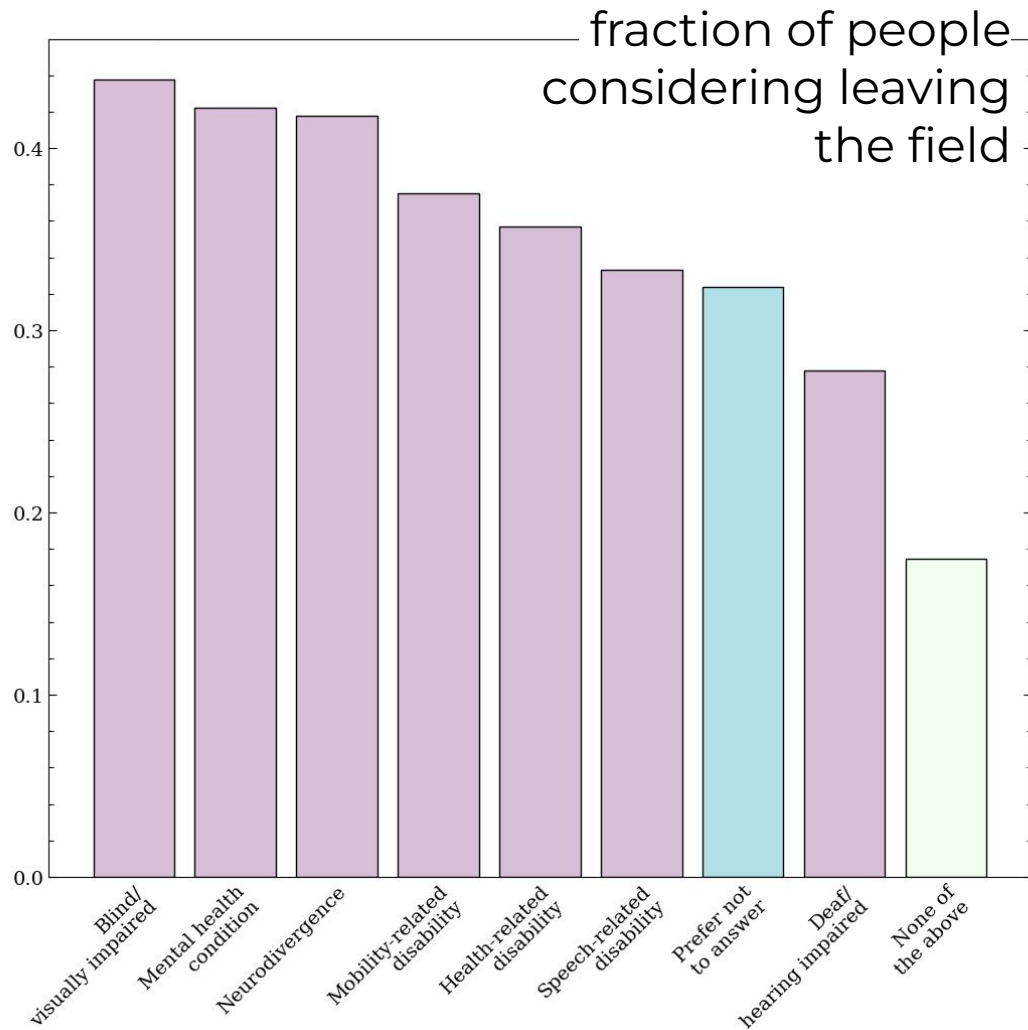


people who identify as both **LGBTQIA+ & first-gen**
are much more likely to be considering leaving the field



respondents with
any condition or disability
are much more likely to
have left or be considering
leaving the field due
to financial hardship

people who selected
“None of the above” are
by far the least likely



RESULT #2

a selection of environmental factors
& financial indicators

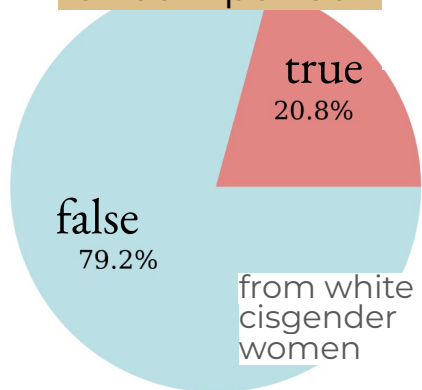
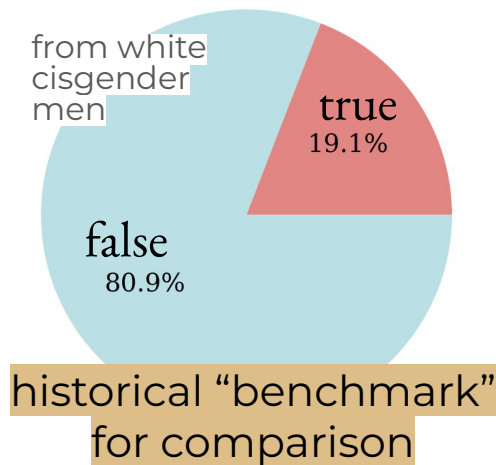
Nearly half of Black, Indigenous, & Latine women + queer-gender respondents say that finances hindered their ability to study astronomy (47%)

undergraduates & people working outside academia are the most likely to say finances hindered their ability to study astronomy (>40%)

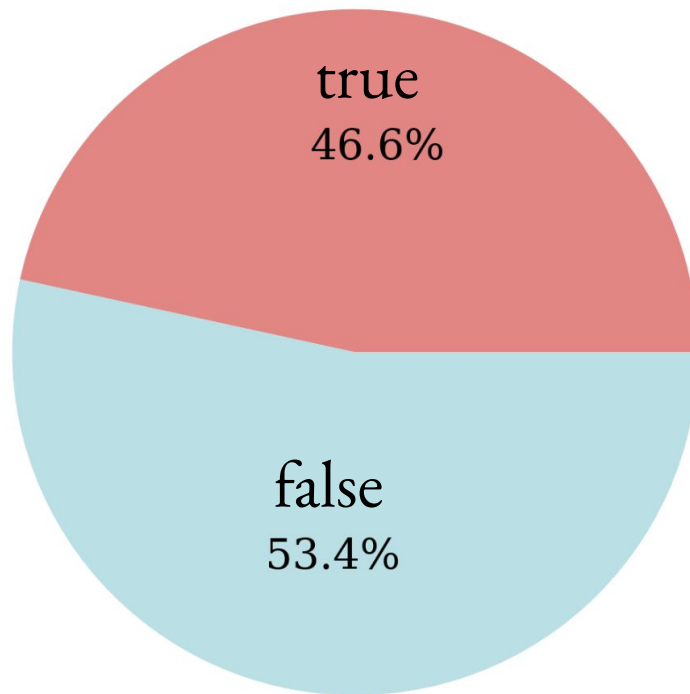
Faculty are *much less likely* to say they faced indicators of financial hardship than astronomers at any other career stage

At all career stages, a significant proportion of respondents at some point neglected medical care due to finances (~27–48%)

R#2 “my finances have hindered my ability to study astronomy”

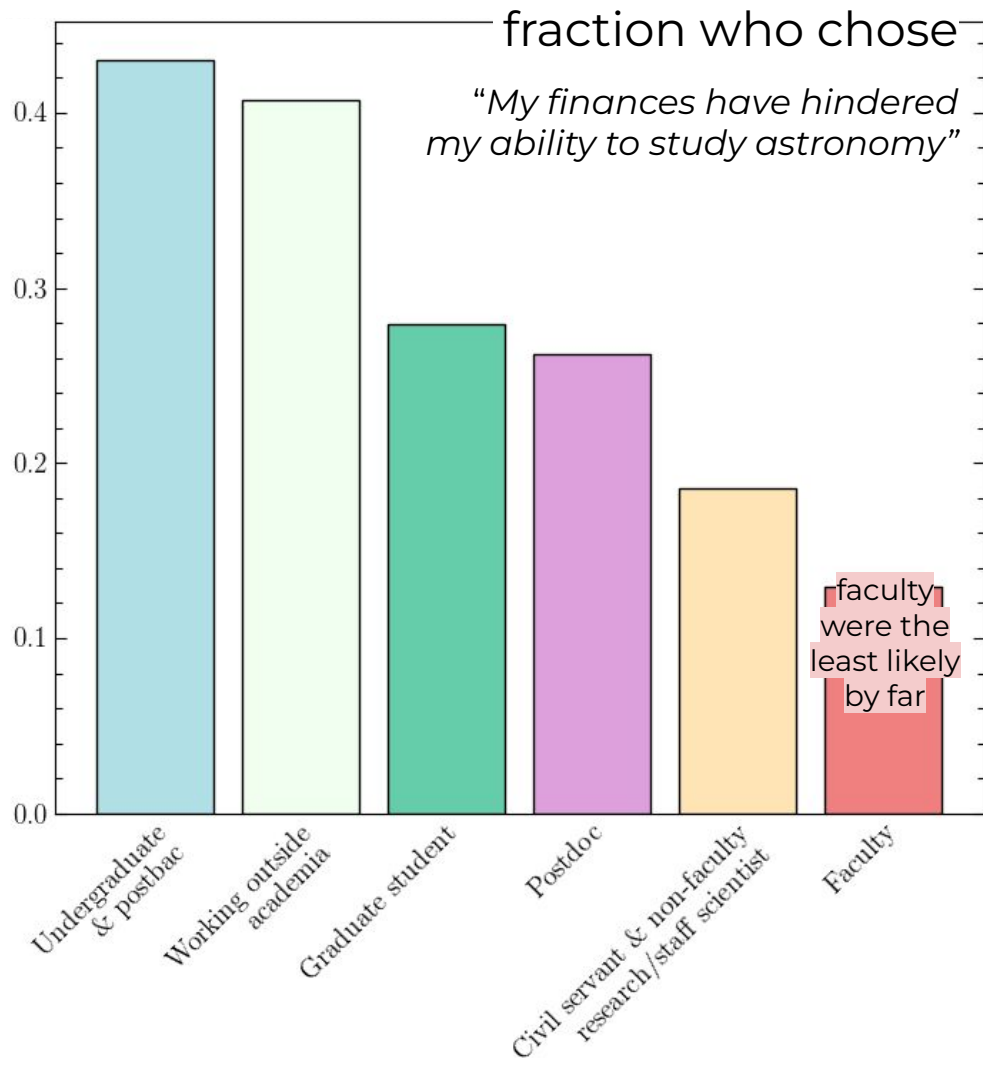


from Black / Indigenous / Latine Women & Queer-Gender People in Survey



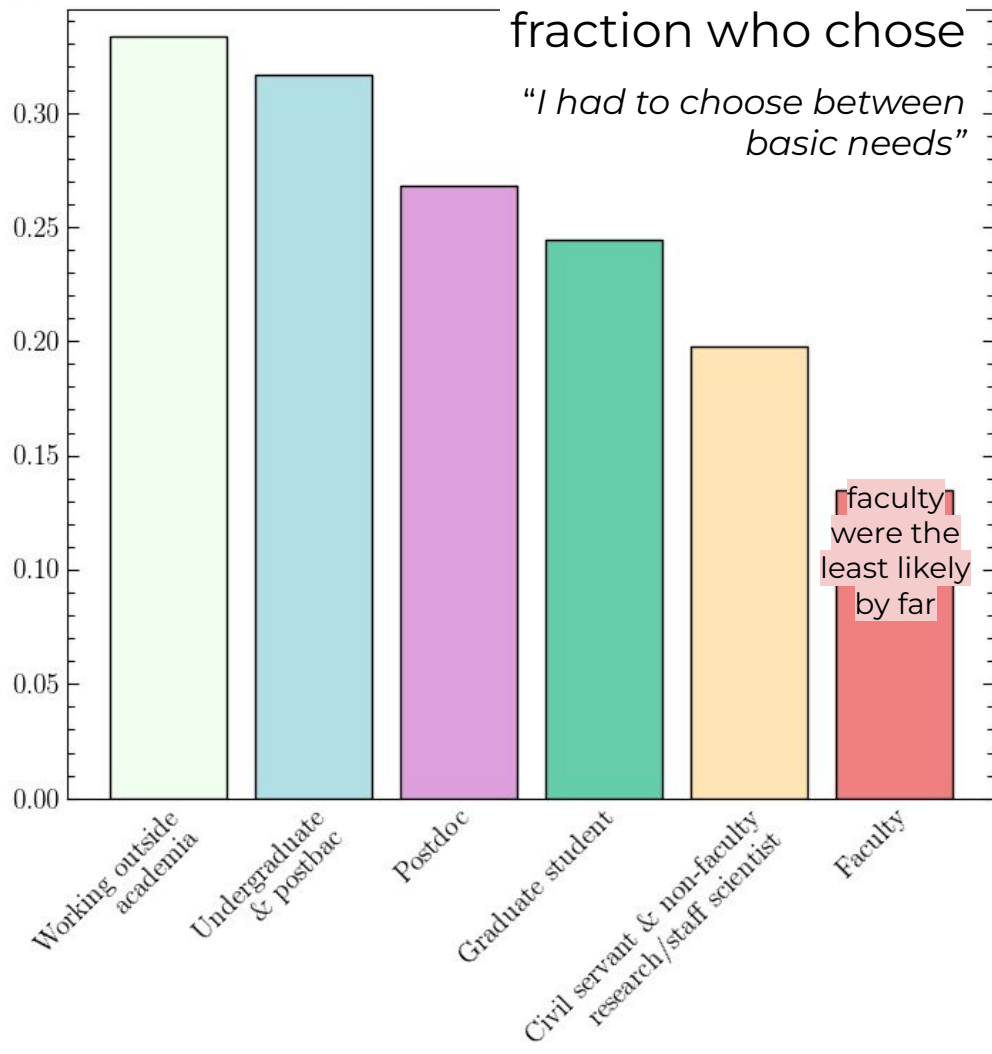
undergrads+postbacs &
people working outside
academia are by far the most
likely to select

*"My finances have hindered my
ability to study astronomy"*



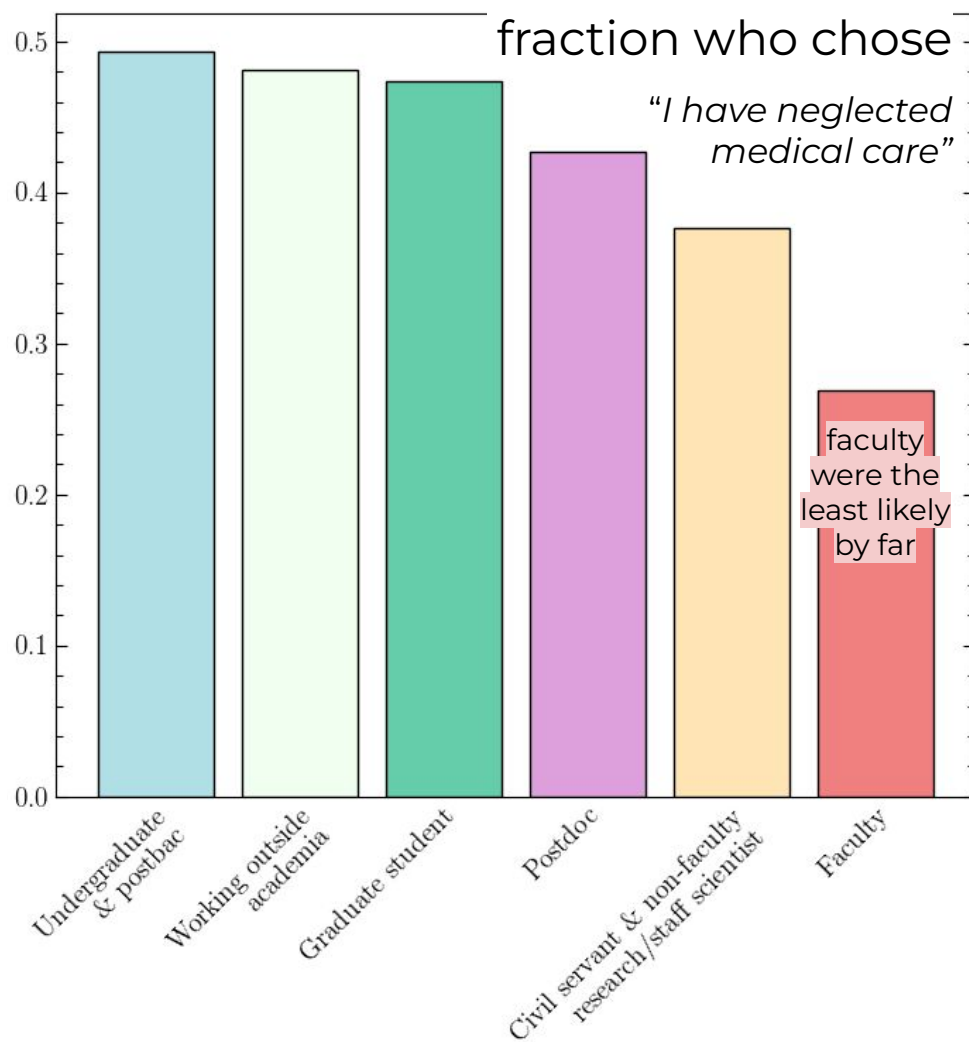
people working outside
academia &
undergrads+postbacs are
the likeliest to select

*"I had to choose between basic
needs because I could not
afford everything"*



undergrads+postbacs & people
working outside academia
were the likeliest to select

*"I have neglected medical,
dental, &/or vision care
[due to finances]"*





NEXT STEPS

an example use case of main results & summarizing some of the planned outputs from this survey

NEXT STEPS

sharing results, future survey(s)

- ❖ **FLAGSHIP WHITE PAPER** – we plan to post a flagship white paper summarizing the main goals of the survey & our findings
 - we will include big & small recommendations in this work
- ❖ **FOLLOWUP WHITE PAPERS** – there are plans in place for a number of additional, more focused white papers on different factors of the survey (compared to specific demographics, for example).
- ❖ international version of survey?

PANEL

MODERATOR:

Ekta Patel (Aykh-dhuh)

- Carlos Vargas (CAR-los)
- KeShawn Ivory (kee-shaa-n)
- Taylor Hutchison (tAy-ler)
- Jonathan Cohn (JAH-nuh-thn)

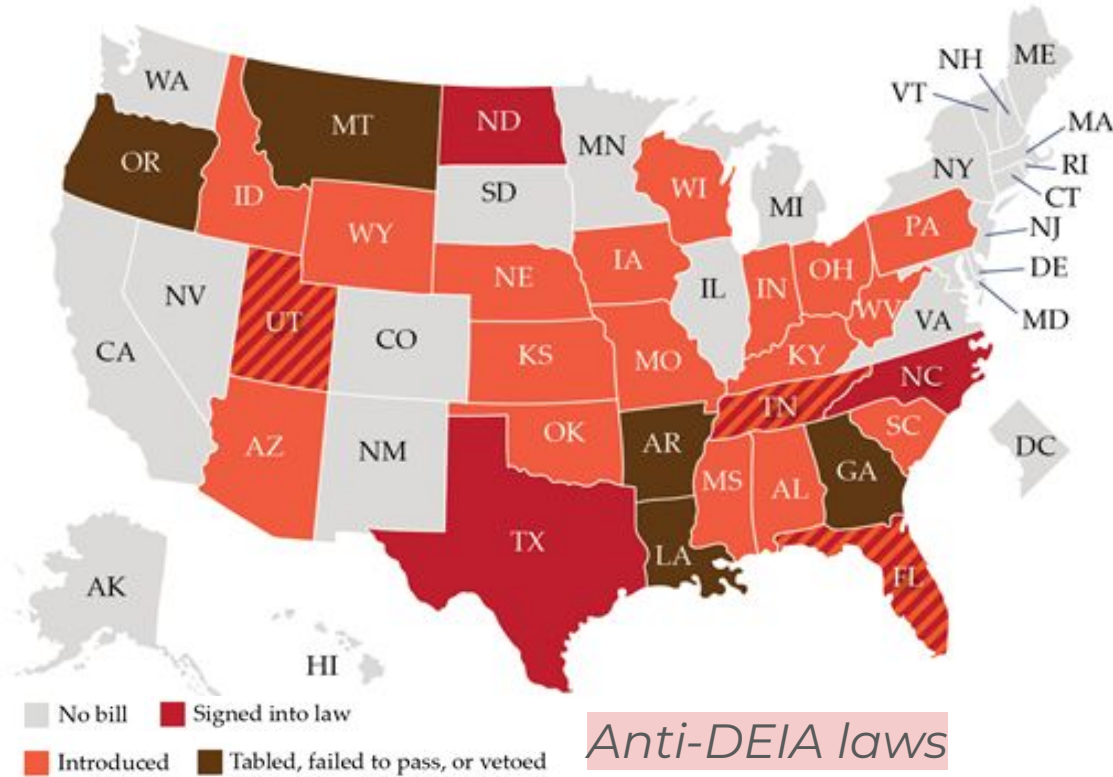
“ for all respondents in survey, 1 in 4 say they are considering leaving the field due to financial hardship. ”

quick audience poll
(or go to dartgo.org/aas-slido)

prep for
discussion time



An Example Use Case of this Data-Set to Enable A More Inclusive Astronomy



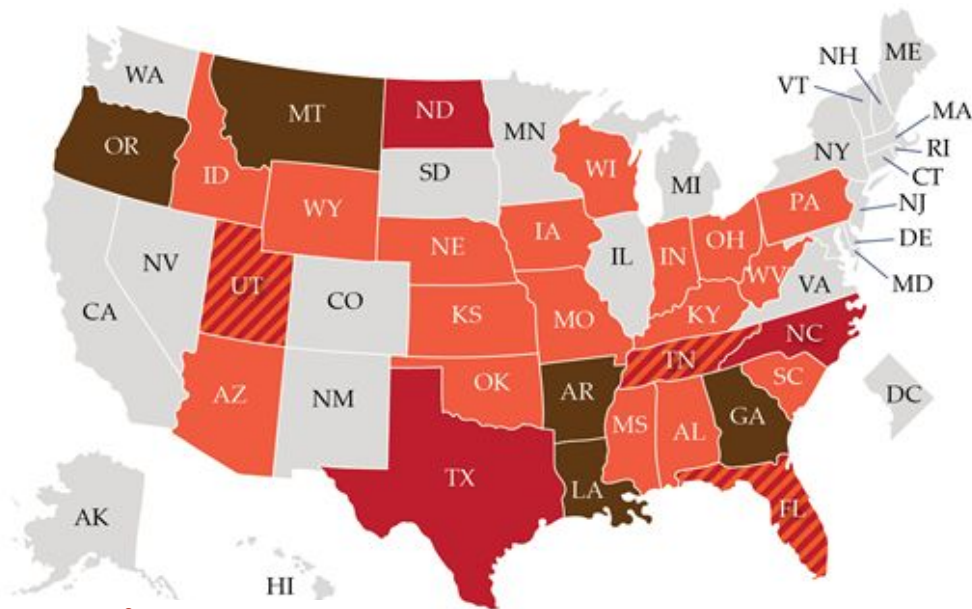
severe restrictions
or outright bans using race,
ethnicity in many states (also
unclear future given upcoming US
administration change)

**— BUT NOT
SOCIO-ECONOMIC STATUS**

An Ex. Use Case of this Data-Set to Enable A More Inclusive Astronomy

severe restrictions or outright bans using race, ethnicity in many states (also unclear future given upcoming US admin change)

— **BUT NOT SOCIO-ECONOMIC STATUS**



Anti-DEIA laws

using race-neutral alternatives is **CRITICAL** in admissions/hiring

- e.g., rising # of PhD applications & fixed # of spots has significantly decreased acceptance rates across the board
- from survey:** Nearly half of Black, Indigenous, & Latine respondents say studying astronomy was hindered by finances

slido results

☰ Are you or have you ever considered leaving the field due to financial hardship?

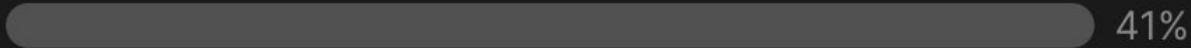
75 👤

Yes



59% 👤

No



41%



DISCUSSION

how do you envision using this data in your communities to elicit positive change regarding financial hardship in academia?