Encouraging Students into the World of Undergraduate Research through the *All of Us* Researcher Workbench

Dr. Kimberly Raiford, Dr. Alecia Anderton-Georgie, Dr. Dorothy Browne, Samira Briscoe
Shaw University Faculty

Agenda

- Welcome & Logistics
- Community Campus Partnerships for Health (CCPH)
- New Directions in Health Research & Equity Webinar Series
- Presentations
- Q&A/Panel Discussion
- Announcements & Updates
- Attendee Insights (CCPH)
- Closing Remarks

Who We Are

Community-Campus Partnerships for Health (CCPH) promotes health equity and social justice through partnerships between communities and academic institutions.

We view health broadly as physical, mental, emotional, social and spiritual well-being and emphasize partnership approaches to health that focus on changing the conditions and environments in which people live, work, study, pray and play.

CCPH's *All of Us* Researcher Academy Team

Alan Richmond, MSW
Executive Director

Angela Balfour Franklin, MDiv
Engagement Lead

Paul J. Kuttner, EdD
Director of Partnerships

CCPH's *All of Us* HBCU/MSI Engagement

New Directions in Health Research & Equity Webinar Series

This six webinar series spotlights innovative scholarship leveraging publicly available data from the *All of Us* Research Program.

These scholars, members of the *All of Us* Researcher Academy network, are pushing the boundaries of health research and education through equity-focused questions, cutting-edge methods, and data that reflect the rich diversity of our country.

CCPH

Community-Campus
Partnerships for Health
Promoting Health Equity and Social Justice

Using the *All of Us* Researcher Workbench as a Course-Based Undergraduate Research Experience
(*CURE*)

Using the *All of Us* Researcher Workbench as a Course-Based Undergraduate Research Experience (CURE)

Overview
- How did I start?
  CURE Course

- How well does it work?
  Issues encountered and modifications year 2

- How did it end?
 Presentations at the annual Shaw University Research Symposium

THE CURE COURSE

Biology majors at Shaw University must complete a Senior Capstone course that "is designed to integrate and assess skills and concepts acquired from the biology undergraduate courses, including classroom-based and experiential components. Comprehension competence of topics will be demonstrated in both written and oral forms by students."

~ Shaw University. Course Catalog 2024-2025. Shaw University Course Catalogue Accessed 8 Nov 2024
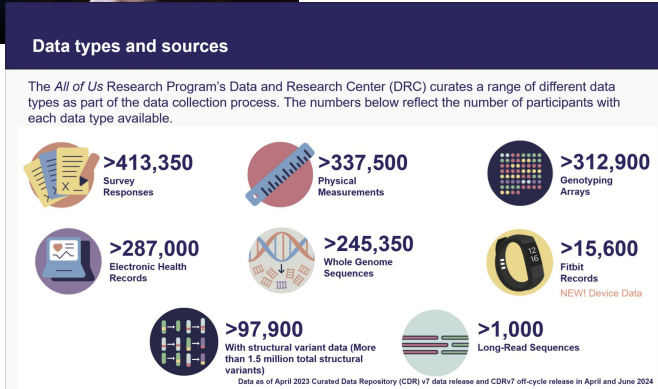
Course Overview
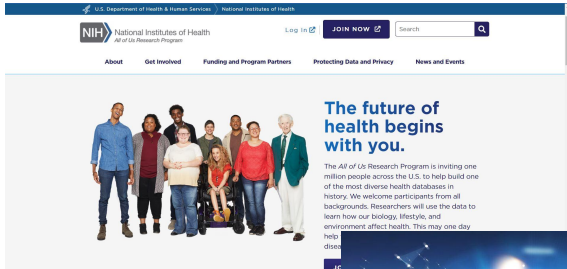
- Introduce Health Disparities

- Brainstorm and develop a study question

- Create and analyze datasets

- Present data

Course Activities

Research/Paper Topic Part 1
- Topic Assignment
- Completed draft 1 (Observation, Background, Define Study question)
- Peer Reviews
- Oral Presentation
- Final Paper

Research/Paper Topic Part 2
- Topic Assignment
- Completed draft 2 (Identify Dataset, Analysis of Data with R or Python)
- Peer Reviews
- Oral Presentation
- Final Paper

Research/Paper Topic Part 3
- Oral Presentation at Student Research Symposium
- Final Paper

Example of Topic Assignment

1. What observation did you make that led you to the framework of your project?
- ***Ex. I'm interested in maternal health.***

2. What health disparities are associated with that observation?
- ***Ex. Black women did a lot more that others during childbirth.***

3. Describe why your observation is/has a health disparities issue.
- ***Ex. Inadequate access to prenatal health care. Doctors don't listen to women who complain with pain issues. Etc.***

4. What is your hypothesis?
- ***Ex. Black woman will die at a higher rate than other women. Black women have more negative outcomes associated with postpartum recovery due to socioeconomic issues that I will identify.***

Example of Topic Assignment

5. What data in the *All of Us* dataset will you use?
  A. Who are the subjects in the dataset that you will be conducting your study on? Why?
   - ***Ex. Woman 18-50, women that have kids, all races, etc. I am looking to make comparisons between races with respect to my hypothesis.***
  B. What other *All of Us* data are you using to study/analyze/support your hypothesis?
    - ***Ex. Survey questions on whether they have insurance to address socioeconomic inequalities with respect to healthcare.***
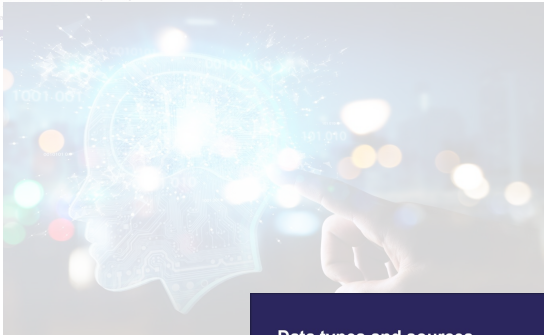
6. What analysis/graphical representations will you use to display the answers to your questions (results)?
    - ***Ex.***
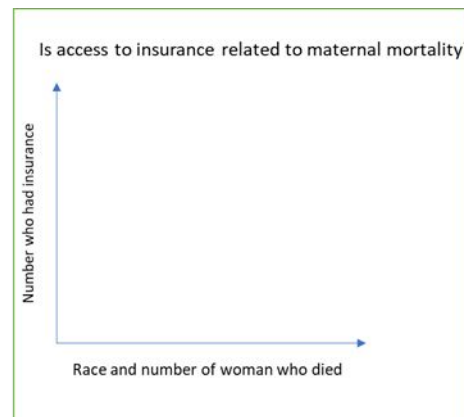
Course Overview

- Introduce Health Disparities
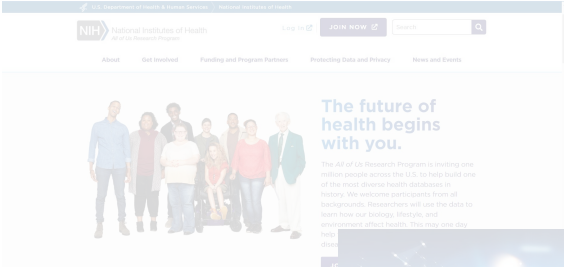
- Brainstorm and develop a study question
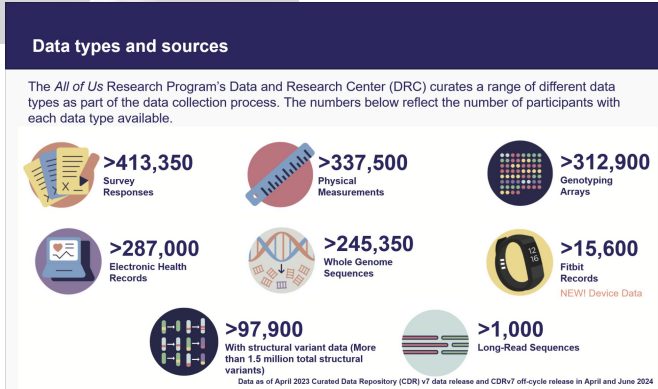
- Create and analyze datasets

- Present data

Issues encountered and modifications that were made year 2

Student Access to the Dataset

TIME-CONSUMING TASKS

- Time Intensive

- International students can't pass verification step

- Frustrating with individual accounts

SOLUTION

- Started earlier. Required checkpoint completions sooner.

- Everyone worked off professor account as class project

R and Python Language Learning Curve

- Time Intensive

- Students had no background

- Underestimated computer and networking speed that was needed

- Used computers hard wired into the network

- Trainings! Trainings! Trainings! Start day one

- Have students prepare datasets and run the data for them

Presentation at the
Shaw University Student Research Symposium

Poster and Oral presentations

The Annual Shaw University (SU) Student Research Symposium (SUSRS) is an event that features oral and poster presentations of research projects and internships by students from departments and colleges across the Shaw campus and undergraduates from local universities. Students will have the opportunity to share their research and creative work with fellow peers, faculty, staff, administrators, and the broader community.

The symposium will showcase ongoing research of the students from Shaw University. It will be an excellent venue to learn about exciting research, to exchange ideas, and to network. We warmly welcome undergraduates from Saint Augustine's University, North Carolina State University, North Carolina Central University, William Peace University, and Meredith University to participate in this scholarly event.

The goal of the SU Student Research Symposium is to help raise and maintain the quality of research and education at SU and partner with local universities and colleges by encouraging participation of undergraduate students to showcase research and gain experience presenting results.

Objectives of the SU Student Research Symposium are to:

➢ Recognize, encourage, and reward student achievements in research.

➢ Provide students with the educational experience of preparing a research presentation and presenting to an audience of their peers.

➢ Facilitate learning about new directions in research and the many different areas of current research interests.

➢ Promote interaction among outstanding students from across local universities.

➢ Encourage students to consider careers in research and education.

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STUDENT RESEARCH SYMPOSIUM
Learn more » www.shawu.edu/SUSRS
April 19, 2024

Maternal Mortality Rate of African American Women Compared to Other Counterparts

Janell Odom, Mentors Kimberly Raiford, Ph.D. and Eric Butler, Ph.D.
Department of Health, Human & Life Sciences, Shaw University, Raleigh, North Carolina 27601

SHAW UNIVERSITY 1865

Abstract

The African American population has undergone hundreds of years of healthcare discrimination and unethical practices .African American women are the main population impacted negatively by maternal health. Black women have the highest maternal mortality rate compared to their White, Hispanic, and Asian counterparts (Howell, 2018). This is an alarming issue that is slowly gaining more awareness due to social media outcry for change. Using data from the Researcher All of Us database, it is expected that there is indeed a substantial gap between the maternal mortality rates of African American women and their counterparts among various health disparities (primarily racial and socioeconomic).

Background

Health disparities are factors that negatively impact the health care of an individual based on various factors such as race, ethnicity, geographical location and socioeconomics. The African American community have faced various healthcare disparities from events such as the Tuskegee Experiment as well as Henrietta Lacks. Recently, there has been an increase of awareness towards maternal health where women have been prone to sharing their birthing experiences on social media. There seems to be a trend towards African American women and their rate of care. It is not a surprise due to the "Founder of Gynecology", Marion J Sims, who used African American enslaved women and children for his experiments which caused them pain, harm and sometimes even death. He used African American enslaved women and children to perfect methods for birthing, treatments and even using specific instruments. The story of Henrietta Lacks is a prime example of the unethical treatment towards black women. Celebrities such as Serena Williams and Beyonce have even discussed their traumatic birthing experiences that they endured. Howell (2018) stated that black women have the highest maternal death rate compared to their white, Hispanic and Asian counterparts. There are various factors that contribute to the maternal mortality rate. Howell stated that black women in North Carolina have a higher mortality rate than white women in labor from hemorrhaging (4.9%), cardiomyopathy (4.6%) and respiratory problems (6.1%) (2018). There are various factors that may contribute to these high numbers such as financial issues, location of healthcare, type of insurance coverage, and genetic predispositions. With these high numbers, there is not a vast amount of research on this topic which is alarming. As an Africa American woman, who has personally undergone healthcare disparities this is information is crucial to determine.
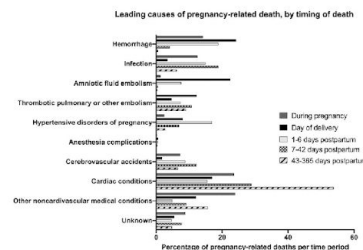

Figure 1: Common causes of maternal deaths with the maternal time frame of death (Collier, Molina 2020).

Methods

Data was collected from the Researcher All of Us database. The data collected includes research regarding various types of labor complications with the demographics highly affected, any predispositions of possible labor complications due to genetic makeup. Within the database, the cohort parameters included races (African American, White, Asian, Hispanic), Women (sex assigned at birth) and the age group from 18-60. The cohort parameters excluded men , not woman only (bisexual) and those who preferred not to answer.. The cohort parameter also exclude the ages 61 and up due to the possibility of labor complications be due to an outside reason (premenopausal). Using the All of Us database, the data selected will be compared between the various races to support or deny my hypothesis. Survey questions will be used regarding various health disparities. There are survey questions on whether they have insurance, the type of insurance, and the frequency of receiving healthcare .
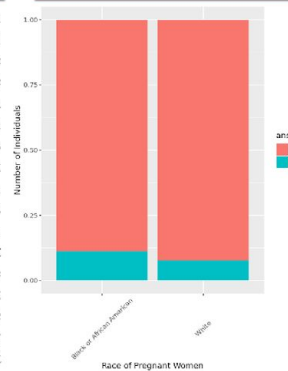
Data/Results

Figure 2 Pregnant women who stated that their healthcare insurance was accepted (All of Us)
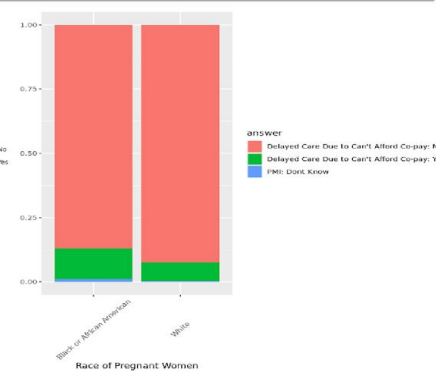

Figure 3: Pregnant women who stated that they had to delay their medical care due to not affording the copay (All of Us)
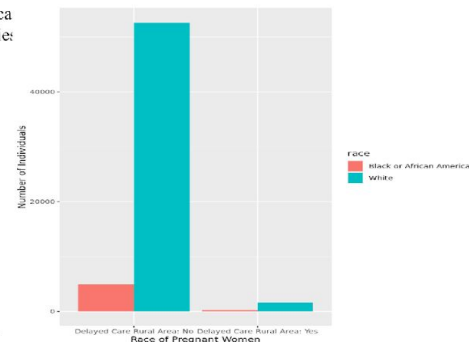

Figure 4: Pregnant women who had delay of care due to residing in rural area (All of Us)

Conclusions

- High rate of pregnant African American and White women that stated that their insurance was not covered. There was a higher percent of pregnant White women who stated their insurance was not covered compared to their African American counterparts.
- - Higher rate of African American women stating that they had a delay in healthcare due to not affording the copayment.

Future Directions

- Prolong data analysis
- Focus on specific areas in the United States (i.e North Carolina) and compare nationally
- Further research on specific health predispositions within African American and White women.

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- "The All of Us Research Program is supported by the National Institutes of Health, Office of the Director: Regional Medical Centers: 1 OT2 OD026549; 1 OT2 OD026554; 1 OT2 OD026557; 1 OT2 OD026556; 1 OT2 OD026550; 1 OT2 OD 026552; 1 OT2 OD026553; 1 OT2 OD026548; 1 OT2 OD026551; 1 OT2 OD026555; IAA #: AOD 16037; Federally Qualified Health Centers: HHSN 263201600085U; Data and Research Center: 5 U2C OD023196; Biobank: 1 U24 OD023121; The Participant Center: U24 OD023176; Participant Technology Systems Center: 1 U24 OD023163; Communications and Engagement: 3 OT2 OD023205; 3 OT2 OD023206; and Community Partners: 1 OT2 OD025277; 3 OT2 OD025315; 1 OT2 OD025337; 1 OT2 OD025276. In addition, the All of Us Research Program would not be possible without the partnership of its participants."

Acknowledgements

Correspondence

Janell Odom
Department of Health, Human & Life Sciences
Shaw University
Raleigh, NC 27601
E-mail: jodom908@bears.shawu.edu

Mentor Dr. Kimberly Raiford
Department of Health, Human & Life Sciences
Shaw University
Raleigh, NC 27601
E-mail: kraiford@shawu.edu

Overview of Diabetes in Hispanic Americans/Latinos in the U.S.

Victor Alcala and Mentor Kimberly Raiford, Ph.D.[1]

[1] Department of Health, Human & Life Sciencees, Shaw University, Raleigh, North Carolina 27601

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Abstract

The present study investigated the overview of diabetes in Hispanics/Latinos in the U.S and examined how health disparities was related to poor healthcare treatment. Health disparities that were mentioned were language, cultural differences, and immigration. This study was to address this and point out the health disparities that affect Hispanics/Latinos by using the all of us data set with statistical analysis. The information that was gather from the all of us database was over the cases of diabetes in different levels of income. A snapshot was then provided to illustrate the findings. Overall, the expected findings from this research study are that Hispanics/Latinos have a higher prevalence of contracting diabetes for those lower in income.

Background

Hispanic Americans/Latinos are a significant minority group confronting many obstacles when dealing with medical treatment and health care. Since I am apart of this minority group this topic touched home because I seen times where my family would struggle because of these disparities. Overall, the primary purpose of this research study is to illustrate the barriers that Hispanics/Latinos go through in the world and how that can lead to poor healthcare treatment and severe health conditions such as diabetes. This study is critical because it can show how Hispanics/Latinos have a higher risk of developing diseases. Many factors are put into place that can increase the risk of malpractice in healthcare. This can lead to the struggle or fear of receiving medical treatment, as many people cannot get help. This research study will be run through the All of Us data set over the cases of diabetes in different areas of income. Gathering information from other races or ethnic groups can also be helpful in comparing the diabetes rates among each other. In all, the expected findings from this research study are that Hispanics/Latinos have a higher prevalence of contracting diabetes in low-income areas.

Through the advancement of technology there has been a successful increase in recognizing diabetes earlier, however, Hispanics/Latinos, the fastest-growing minority in the US, have not had a positive impact with these advancement. This is due to the diversity of the Hispanic/Latino community in language, socioeconomic backgrounds, birthplaces, and cultures (Aviles-Santa et al. 2017).

Language can pose a challenge for the Hispanic/Latino community since English is not their first language. This can be a challenge because if you aren't able to communicate wit providers or they don't understand your values and preferences, you're less likely to treatment instructions and lifestyle changes.

Immigrants play a huge role in the healthcare system of the United States. As a immigrants created a situation where they pay more money to the government than they in medical treatment. Immigrants also fill crucial gaps in jobs at every level, ranging construction workers to surgeons. Effects of immigration enforcement may also play a s in healthcare for Hispanic/Latino people. There has been evidence indicating that immi enforcement and policy have impacted the well-being of Hispanic immigrants by pr more stress and discouraging people from seeking care (Rhodes et. 2015).

Mechanisms

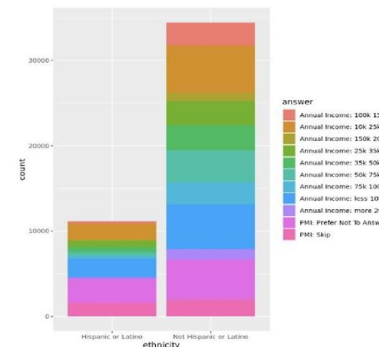Mechanisms of action of antidiabetic drugs
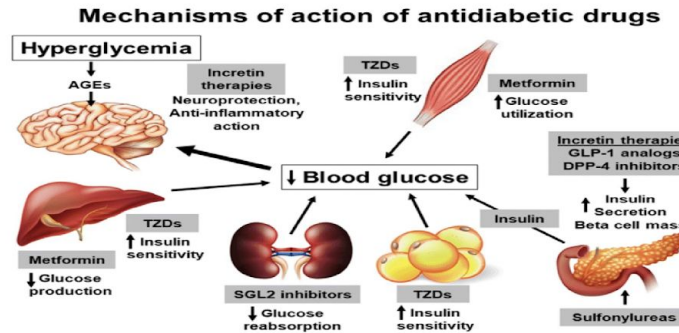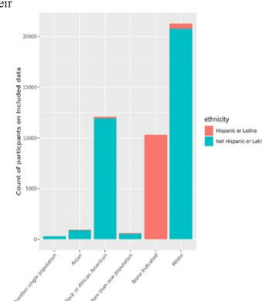
Preliminary Data/Results
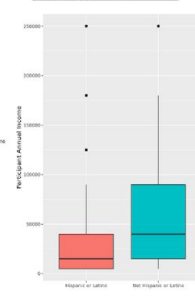

Graph 1: Ethnic self identification:
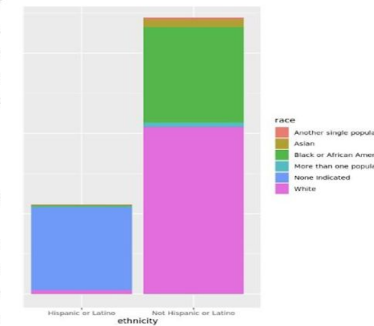
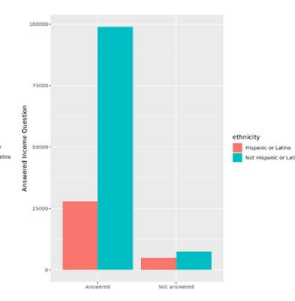Graph 2: Ethnic Self Identification based on Income:

Graph 3: Race Participant Count

Graph 4: Chi square analysis of ethnicity based on income

Graph 5: Ethnic answered income question

Methods

For this research study, the method of collecting data will be used on the All of Us workbench database of the prevalence of diabetes in the United States, more so this information will be used to draw a conclusion whether Hispanics/Latinos have a higher chance of contracting diabetes based on income level.

Information was gathered from those who identify themselves as hispanic/Latinos and those who aren't such as African Americans, Whites, Asian,etc. to be compared to side by side. People aged from 18-50 and all genders were included.

People that were targeted were those with type 1 , type 2, and gestational diabetes. Other medical conditions other than this were excluded from the cohort in the all of us data settings

Survey questions regarding income levels were included such as:
- "What is your annual household income sources?'
- "Are you currently covered by any of the following types of health insurance or health coverage plans?

Conclusions

- Through chi square analysis using the all of us data set it can be inferred that the hispanic/Latino group does in fact show a positive correlation of prevalence of diabetes and Low income.
- In graph 4 chi square analysis was done and it resulted that the Hispanic/Latino group have a lower median of annual income compared to not hispanic/latino.
- Another interesting thing that was included was the number of people who skipped an income question in graph 5. It concluded that Hispanic/Latino who earned a lower annual income was less likely to answer the question maybe due to the fact that they are ashamed of admitting that they are poor on paper.
- Another interesting thing that was pointed out in graph 2 was that from the participants who answered the income question there was a lower count in the hispanic/latino group.

Future Directions

Further directions for this experiment would be to include specific areas or locations. Which could be used to add more data and significance to the survey results.

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Acknowledgements

Correspondence

Victor Alcala
Dept. of Health, Human and Life Sciences
Shaw University
Raleigh, NC 27601
E-mail: valcala290@bears.shawu.edu
Mentor: Kimberly Raiford
Dept. of Health, Human and Life Sciences
Shaw University
Raleigh, NC 27601
E-mail: kraiford@shawu.edu

Do African Americans have a higher diagnosis rate of Glaucoma due to Inadequate Access to healthcare?

Robert Sheppard III

[1] Department of Health, Human & Life Sciences, Shaw University, Raleigh, North Carolina 27601

SHAW UNIVERSITY 1865

Abstract

Glaucoma is one of the leading causes of blindness today, which is prevalent in the African American community (D.SS, 2023). With this being a disease that cannot be reversed, a primary factor that increases the progression of glaucoma rather than stabilizing it or preventing it at the near borderline stage, is accessibility (D.SS, 2023). When diagnosed with the condition, proper resources are provided by a healthcare provider to help maintain the state of optic nerve damage (D.SS, 2023. Still, if patients do not have access to these resources, they will potentially lose their quality of life. African Americans and other minorities are typically behind other ethnicities with their socioeconomic status and available resources. These may be the factors that place African Americans as the leading ethnicity that has more cases of glaucoma. This project uses the survey data available in the National Institute of Health's All of Us database to evaluate if those trends are consistent within this population of participants.

Background

- Glaucoma is a disease that causes blindness in the eye due to damage of the optic nerve. The greater the damage of the optic nerve, the greater loss of the visual field/ peripheral vision if not properly treated (Allison et al., 2021). Glaucoma is not curable; it can only be slowed down or kept at a constant stage (Sihota et al., 2018). The Baltimore Eye studies show that patients of African descent were diagnosed with Glaucoma at a rate six times higher than European Americans (Siegfield, Et at. 2022)
- There has been a long history of mistreatment of African Americans, as seen in the Tuskegee experiment, which has led to a longevity of mistrust for African Americans in receiving treatment from healthcare providers of other ethnicities (Alsan et al., 2017). This may be a reason why African Americans are more likely to seek treatment from healthcare providers that look like them.
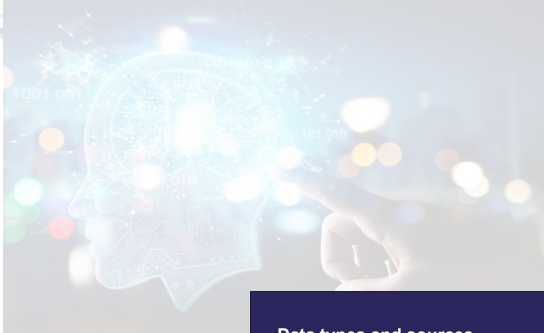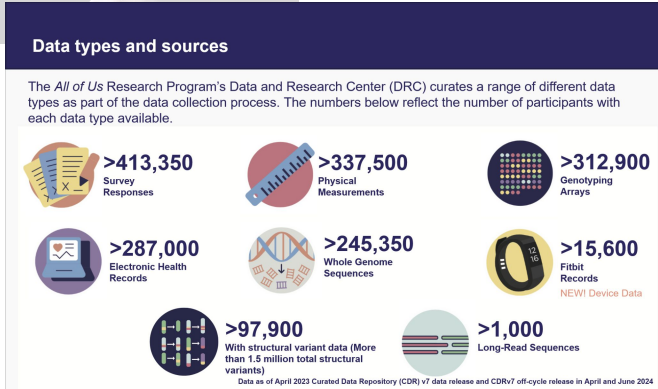- Dr. Lowe is an African American ophthalmologist in a predominantly white community in Palm Beach Gardens, Florida. It is observed that most of her patients are African American that have been diagnosed with glaucoma and have public insurance.
- This leads to question if African Americans have more cases of glaucoma than any other ethnicity and whether it is a health disparity due to inadequate access to healthcare for African Americans
- Healthcare providers have partnerships with certain insurance companies and generally accept patients with that respective insurance (Allen et al., 2017). Some affordable healthcare insurance companies may have a limited variety of healthcare providers in the area who accept their insurance (Hsiang et al., 2019). This may mean that patients may have to drive long distances to be seen by healthcare providers who accept their insurance (Connel et al., 2019).

Mechanisms

Figure 1: The gradual stages of Glaucoma as disease the progresses.

The diagram above shows the stages of Glaucoma. The beginning of stages of glaucoma starts on the left, and as the severity continues to progress there is a gradual loss of the visual field.

Figure 2: Comparison of the Normal Eye to an eye that has glaucoma

The diagram above shows a normal eye in comparison and an eye that has glaucoma. In observing the eye with glaucoma, its shows the osmotic pressure that damages the optic nerve, creating gradual loss of the visual field.

Preliminary Data/Results

Figure 3: Glaucoma patients of various ethnicities shared whether they were Hispanic or Latino

This figure above shows the glaucoma patients that are Hispanic or Latino and who are not Hispanic or Latino. The graph also shows the other ethnicities that makeup the population to which graph the patients are apart of.

Figure 4: Glaucoma patient's patients and their various ethnicities and their health insurance type.

This figure shows the amount of glaucoma patients of different ethnicities that have public, private, no insurance plan and those who prefer not to answer.

Figure 6: Glaucoma patients of various ethnicities that insurance plan is normally accepted or rejected in the doctor's office.

This figure shows glaucoma patients of various ethnicities whether there is typically accepted or rejected in the doctor's office, patients who may not be aware of the approval of their insurance, and patients who prefer to skip the question.

Figure 7: Transportation creates a delayed medical treatment to glaucoma patients of various ethnicities.

This figure shows glaucoma patients of various ethnicities whether transportation is the reason if why they have had delayed medical treatment. The glaucoma patients answered yes, no, they are are not sure, or have skipped the question.

Figure 8: Glaucoma Patient of various ethnicities Socioeconomic status.

This figure above shows the Glaucoma patients of various ethnicities income level.

Methods

- Participants consist of African American, White, Latino, and Asian men and women of all ages. The data compared to African Americans to other ethnicities, ensuring that African Americans have the highest diagnosis of glaucoma due to inadequate access.
- . Each participant was given a combination of survey questions from the Research National Institute of Health (NIH) All of Us Database. The questions were: Do you have Glaucoma? Is your insurance private or public? What type of public or private insurance do you have? Do you have delayed medical care due to transportation? What is your level of income?
- The survey questions were used to create a cohort of patients that correlates with the hypothesis. The priority was based on patients diagnosed with Glaucoma and who are a glaucoma suspect. Within this population, we can decipher between patients with inadequate access to health care by asking if they have public or private insurance and if their having conflict commuting to health care providers. The type of insurance that a patient has could limit the amount of availability of healthcare professionals', which could could create more conflict in commuting.

Conclusions

Based on the results, the hypothesis have been rejected. African Americans do not have the highest diagnosis rate of glaucoma compared to other ethnicities. White Americans are majorly affected by inadequate access to healthcare in comparison to other ethnicities.

Future Directions

- Further research using the same number of participants for each ethnicity
- Further research using different databases

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Correspondence

Robert Sheppard III
Dept. of Natural Science & Mathematics
Shaw University
Raleigh, NC 27601
E-mail: rsheppard005@bears.shawu.edu

Mentor Kimberley Raiford
Dept. of Natural Science & Mathematics
Shaw University
Raleigh, NC 27601
E-mail: kraiford@shawu.edu

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Course Overview

- Introduce Health Disparities

- Brainstorm and develop a study question

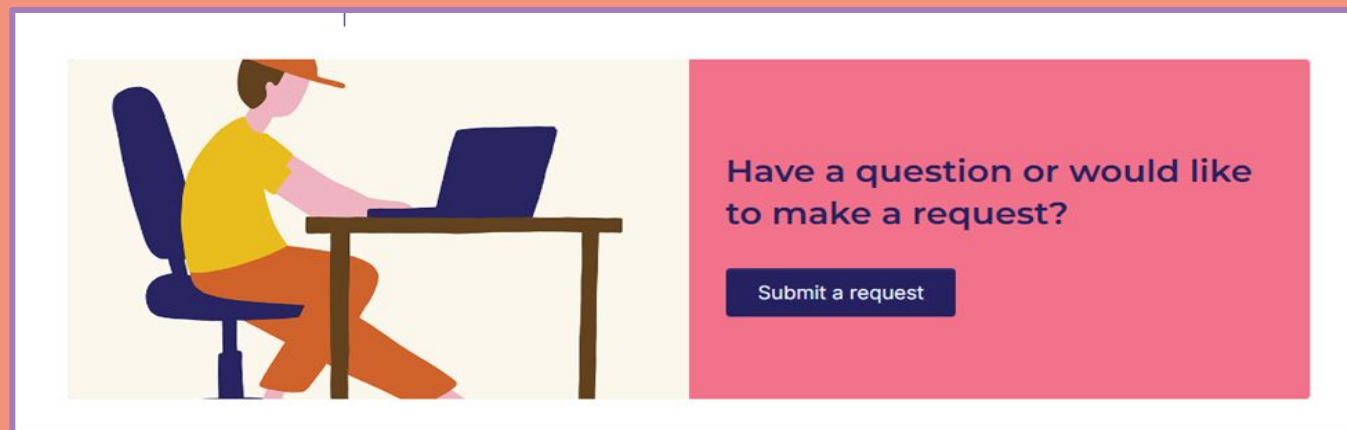**- Create and analyze datasets**

- Present data

Accessibility

- *All of Us* Research Support
- *All of Us* Office Hours Support
- Verification Issues
- Change of Phone numbers - Google verification code

Submitting a Request

All of Us RESEARCH PROGRAM | Researcher Academy

- Convey the issue/ask a question
- Submit proper contact information
- Include subject
- Short narative
- Include screenshots

Submit a request

ⓘ Providing as much information as possible in your request will allow us to help you faster

Please choose your issue below

Ask a question or report an issue ▾

Your email address *

Request type (optional)

General Support ▾

For technical issues, please upload a screenshot of the error or bug you are encountering. Reminder: sharing participant data is strictly forbidden, do not attach any participant level data to this support request.

Subject *

How can we help you further in this request? *

T	B	*I*	☷	☰	⊡	🔗	❞

Please enter the details of your request. A member of our support staff will respond as soon as possible.

Patience

- Learning and navigating researcher workbench
- Multiple log Ins
- Unsure who to contact for assistance
- What is normal versus what is abnormal?

Cohorts

Concept Sets

Show: Show All   Cohorts   Cohort Reviews   **Concept Sets**   Datasets

	Item type ↑↓	Name ↑↓	Last Modified Date ↑↓	Last Modified By
		Search Name		
⋮	Concept Set	Anxiety	Oct 28, 2024	sbriscoe@researchallofus.org
⋮	Concept Set	COVID Diagnosis	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Disability Inquiry	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Discrimination	Oct 28, 2024	sbriscoe@researchallofus.org
⋮	Concept Set	Education	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Employment	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Food and Housing Insecurity	Oct 29, 2024	sbriscoe@researchallofus.org
⋮	Concept Set	Gender Identity	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Health Insurance	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Health Status	Oct 28, 2024	sbriscoe@researchallofus.org

« ‹ 1 2 3 › »

Concept Sets (cont.)

10-24 Intersectionality and Disability

Include Participants

⋮ **1. Female-Black-Gay-With Disability**

⋮ Contains Surveys Codes | 307,516 ⌄

What was your biological sex assigned at birth? - Female
Which categories describe you? Select all that apply. Note, you may select more than on...
Which of the following best represents how you think of yourself? - Gay
Which of the following best represents how you think of yourself? - Lesbian
Which of the following best represents how you think of yourself? - Bisexual

View/edit all criteria (6 more)

— OR —

ADD CRITERIA ⌄

◯ Temporal   Group Count: 307,516

AND

⋮ **2. Female-Black-Gay-Without Disability**

⋮ Contains Surveys Codes | 342,219 ⌄

What was your biological sex assigned at birth? - Female
Which categories describe you? Select all that apply. Note, you may select more than on...
Which of the following best represents how you think of yourself? - Gay
Which of the following best represents how you think of yourself? - Lesbian
Which of the following best represents how you think of yourself? - Bisexual

View/edit all criteria (6 more)

— OR —

ADD CRITERIA ⌄

◯ Temporal   Group Count: 342,219

Dataset

	Item type ↑↓	Name ↑↓	Last Modified Date ↑↓	Last Modified By
		Search Name		
⋮	Concept Set	Sex At Birth	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Sexual Orientation	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Sexual Preference	Oct 28, 2024	jametrel@researchallofus.org
⋮	Concept Set	Social Support	Oct 29, 2024	sbriscoe@researchallofus.org
⋮	Concept Set	Stress and Coping	Oct 29, 2024	sbriscoe@researchallofus.org
⋮	Dataset	Intersectionality and Well-being dataset	Oct 28, 2024	
⋮	Dataset	Sexuality Exploration Dataset	Oct 28, 2024	
⋮	Dataset	Intersectionality Duplicate	Oct 28, 2024	
⋮	Dataset	Sexuality Duplicate	Oct 28, 2024	
⋮	Dataset	Final Exploration	Oct 28, 2024	

Show: **Show All**   Cohorts   Cohort Reviews   Concept Sets   Datasets

« ‹ 1 2 **3** 4 › »

Q & A
Discussion

Attendee Insights

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Thank You!