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**Sidney Kimmel
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at Thomas Jefferson University

Health Disparities among Pregnant Women Diagnosed with COVID-19 in Philadelphia

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This project centers around two important topics.

Health Disparities

*'preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations'*¹

Social Determinants of Health

*'The conditions in which people are born, grow, live, work and age.'*²

1. CDC. Community Health and Program Services (CHAPS): Health Disparities Among Racial/Ethnic Populations. Atlanta: U.S. Department of Health and Human Services; 2008
2. <https://www.who.int/teams/social-determinants-of-health>

- CDC has identified that social determinants of health are causing disparities in the COVID-19 pandemic ¹
 - ❖ Risk of exposure
 - ❖ Risk of severe illness
- Current literature
 - SARS-CoV-2 more prevalent in pregnant women of black/non-Hispanic and Hispanic/Latino populations ²
 - Pregnant women are disproportionately affected ³
 - More prevalence in low-income neighborhoods ⁴

1. <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/index.html>

2. Chowkwanyun, M., Author Affiliations From the Department of Sociomedical Sciences and the Center for the History and Ethics of Public Health, F. P. Polack and Others, L. R. Baden and Others, & Others, J. S. (2020, December 31). Racial Health Disparities and Covid-19 - Caution and Context: NEJM.

3. Flannery, D. D., Gouma, S., Dhudasia, M. B., Mukhopadhyay, S., Pfeifer, M. R., Woodford, E. C., . . . Hensley, S. E. (2020, July 29). SARS-CoV-2 seroprevalence among parturient women in Philadelphia

4. Ukachi N. Emeruwa, M. (2020, July 28). Associations Between Built Environment, Neighborhood SES, and SARS-CoV-2 Infection.

Objectives & Hypothesis

- Research Question
 - What are the socioeconomic factors that affect COVID-19 diagnosis and maternal and neonatal outcomes in pregnant women?
- Hypothesis
 - We hypothesize that women whose primary language is not English will have higher rates of COVID-19 compared to women whose primary language is English.

Approach & Results

- Study Design
 - Retrospective cohort study
- Population / study sample
 - Pregnant women who delivered at TJUH between 04/13/20 – 06/31/20. The start date was the day universal COVID-19 screening started at TJUH L&D.
- Data source and collection
 - EPIC Chart abstraction into REDCap. TJUH IRB approved.
- Primary Outcome: Prevalence of COVID by preferred language (English vs non-English)

Approach & Results

- Data Analysis
 - Chi² test will be used to analyze differences between groups
 - Multivariable logistic regression will be used to identify factors associated with primary language that may explain our findings
- Rationale for Approach
 - Retrospective study design allows for all patients who delivered in the study period to be included and comparison made between COVID-19 positive mothers and COVID-19 negative mothers

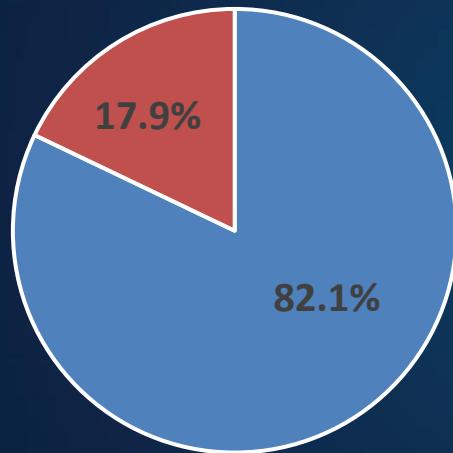
Approach & Results

- Data collection was completed on 1/31/2021
- 711 women were included
 - 107 (15%) of these women were COVID-19 positive during pregnancy

Preferred Language	COVID-19 Positive n (%)	COVID-19 Negative n (%)	Total n (%)
English	66 (61.7%)	496 (82.1%)	562 (79.0%)
Non English	41 (38.3%)	108 (17.9%)	149 (21.0%)
- Spanish	35 (32.7%)	49 (8.1%)	84 (11.8%)
- French	1 (0.9%)	7 (1.2%)	8 (1.1%)
- Arabic	2 (1.9%)	6 (1.0%)	8 (1.1%)
- Mandarin	1 (0.9%)	22 (3.6%)	23 (3.2%)
- Other	2 (1.9%)	24 (4.0%)	26 (3.7%)
Total	107 (15%)	604 (85%)	711

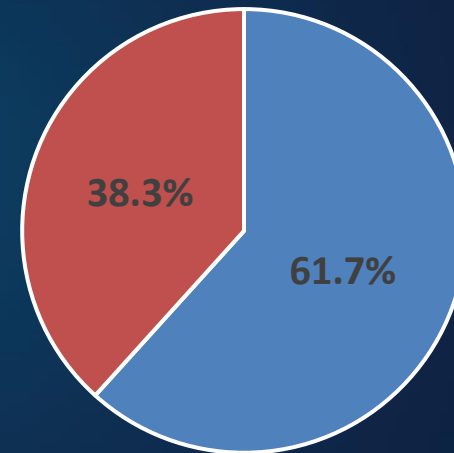
Preferred Language

COVID Negative



English Non-English

COVID Positive



English Non-English

Chi² for comparison of proportions

$p < 0.001$

Conclusions

- There were significantly more Non-English-speaking patients in the COVID-19 positive group than in the COVID-19 negative group (38.3% vs 17.9%, $p < 0.001$).
- This confirms our hypothesis.

Conclusions

- Current Literature
 - Results support literature
- Implications and Impact
 - Non-English speaking pregnant women are disproportionately represented in the COVID positive population
 - Suggests that non-English speakers are more likely to be at risk of exposure/transmission of COVID-19

Conclusions

- Implications- social determinants of health
 - Barriers in access to healthcare
 - Occupation
 - Housing environment

Future Directions

- Data collection completed 1/31/2021
- Plan :
 - Multivariable logistic regression will be used to identify factors associated with primary language that may explain our findings
 - Analysis of Maternal and Neonatal Outcomes to assess disparities in outcome by Language, as well as by Race, and ability to self isolate.

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