# Introduction

# Methods

Patients were recruited to the Michigan Genomics Initiative as previously described (1). These patients are in a hospital setting, over 18 and were asked to opt-in to this cohort between 2012 and 2022. This study was a secondary analysis of these data (University of Michigan Internal Review Board HUM00219435). At enrollment, patients were asked a series of questionnaires including a Perceived Stress Survey (PSS4) and there data was linked with their electronic medical record. We excluded participants without BMI (29 586 participants) or PSS data (25 187) or implausible BMI values (>300; 1 participant. This resulted in a population of 39694 participants see Figure 1).

BMI was defined for each participant by taking the median value if multiple measurements were available. To indicate perceived stress we used the aggregate sum of the PSS4 score and stratified as above or below the median score (). Socioeconomic status of participants was approximated by constructing a neighborhood affluence score based on their census block connected to the National Neighborhood Data Archive (NaNDA). This was in turn linked to data from the American Community Survey (2013-2017). Participant were assigned a quartile score based on the proportion of families with an income greater than $75k, proportion with a bachelor’s degree or higher, and proportion with a professional occupation. Type 2 diabetes was indicated by an ICD9 or ICD10 coded diagnosis in the participant’s electronic medical record.

### Statistical analyses

Significance for this study was set at an alpha of 0.05. All analyses were performed using R version 4.3.1 (2). Univariate analyses were performed using logistic regressions.

# Results

## Self-Reported Perceived Stress is Associated with the Prevalence of Type 2 Diabetes

Among the participants in this study, the median age was 52 +/- 13, with 52% identifying as female and with a mean BMI of 29.8 +/- 7 kg/m2. The study population disproportionately identified as White (Table 1). We initially stratified this population as low or high perceived stress based on their PSS score at enrollment. As shown in Table 1, several demographic factors were significantly different between participants with high PSS scores including race (higher in Black and Hispanic or Latino participants), male gender (17.5% lower), younger age (particularly under 60 years old), and the lower neighborhood affluence scores. Body mass indices above 25 and below 18.5 (underweight) were both positively associated with a higher likelihood of perceived stress. We noted that the prevalence of type 2 diabetes was modestly higher in those reporting elevated perceived stress.

## Perceived Stress Is More Strongly Associated with Type 2 Diabetes in Participants with Obesity

## Perceived Stress Does Not Augment the Obesity Associated Prevalence of Hypertension, Cardiac Arrhythmia or Liver Disease

# Discussion

# Acknowledgements

# References

1. Zawistowski M, Fritsche LG, Pandit A, *et al.* The Michigan Genomics Initiative: A biobank linking genotypes and electronic clinical records in Michigan Medicine patients. *Cell Genomics* 2023;0.

2. R Core Team. R: A Language and Environment for Statistical Computing. 2019.