



Ocular and Systemic Complications of Type II Diabetes: Sociodemographic Predictors of Emergency Department Utilization



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Introduction

INTRODUCTION:

- Lack of access to primary care and lack of continuity of care-----> Increased use of emergency department (ED) when experiencing chronic disease symptoms
- Structural barriers (systemic racism, insurance instability, socioeconomic challenges) further exacerbate ED use and disease management
- Poorly managed type II diabetes ----> Development of ocular and systemic complications

BACKGROUND:

- **Diagnosed Type II Diabetes Statistics in the United States**
 - 38 million Americans have diabetes, with 90-95% having type II diabetes (CDC, 2024)
 - However, many more Americans have diabetes and are undiagnosed
 - Diabetic complications include ocular (retinopathy, cataracts), kidney disease, nerve damage, foot ulcers, heart disease, amputation risks and more (CDC, 2024)
- **Healthcare Costs & the ED**
 - 18 million preventable ED visits adds 32 billion dollars to the healthcare system each year (UnitedHealth Group, 2019)
- **Differential Outcomes of Type II Diabetes**
 - Socioeconomic status, neighborhood & built environment, food access, healthcare access contribute to varied outcomes for patients with diabetes (Hills-Briggs et al., 2020)
- **Gap in Literature**
 - Few studies jointly evaluate diabetes complications and ED visits by sociodemographic factors

PROJECT AIM:

- Examine how the ED is utilized to manage type II diabetes complications, evaluated through a sociodemographic lens

OBJECTIVES AND METHODOLOGY:

- Data collection: All of Us Workbench- NIH funded program that prioritizes research from 900,000 participants from diverse and historically underrepresented populations
 - R computational tool
- Establish the rate of lifetime ED utilization by diabetic complication stratified by self-reported race
- Analyze the representation of self-reported race and insurance status in diabetic complications
 - Insurance status will serve to estimate the role of SES in racial disparities

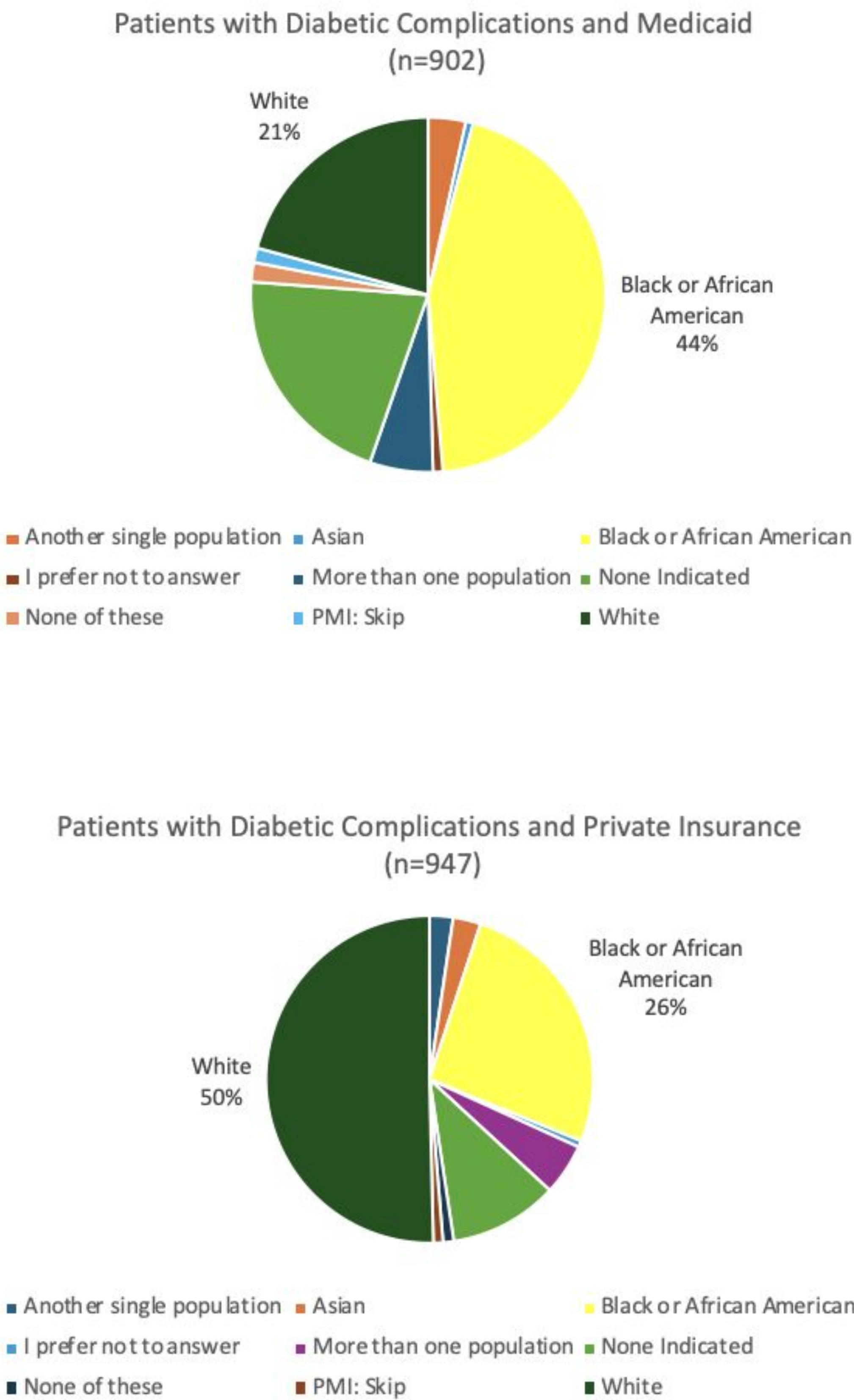
Racial Differences in Average Lifetime Emergency Department Visits Among Type II Diabetes–Related Complication Cohorts

Figure 1

Complication	Black Patients	White Patients
Retinopathy / Cataracts	≈21 avg ED visits SE = 0.84 n = 1670	≈14 avg ED visits SE = 0.59 n = 2119
Foot Ulcers	≈29 avg ED visits SE = 1.99 n = 534	≈17 avg ED visits SE = 1.11 n = 1077
Kidney Dysfunction	≈23 avg ED visits SE = 1.05 n = 2871	≈14 avg ED visits SE = 0.44 n = 4464

Patients with "Diabetic Complications" Stratified by Self-Reported Race and Insurance Status

Figure 2



Results

Figure 1:

- In each complication examined (retinopathy/cataracts, foot ulcers, and kidney dysfunction), Black patients experienced more ED visits than White Patients, reflecting systemic inequities in primary and preventative care

Figure 2:

- Black patients were disproportionately represented in both Medicaid (44%) and private insurance (26%) groups for the "Diabetes with Complications" group, relative to the other racial groups

Conclusion

- ED utilization varies based on diabetic complication, sociodemographic factors, and access to care
- Black patients were overrepresented in Medicaid and private insurance groups, suggesting systemic barriers beyond insurance type
 - *Are some groups at greater risk of developing complications, driving higher ED utilization?*
 - *Something else to consider:* Patients on Medicaid oftentimes have limited access to primary care (reluctance to accept Medicaid coverage), reduced financial disincentives, and higher chronic disease burden. *Could this be an additional factor in increased ED use?*
- Findings will help identify at-risk populations and inform targeted interventions to reduce ED visits, optimize diabetes management, and improve health system efficiency
- **Next steps:**
 - Additional ED visit analyses
 - Risk Score Development
 - Patient Engagement Program

References

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