

Prevalence and Disparities of Diabetic Retinopathy:

An Analysis of the 2021 Behavioral Risk Factor Surveillance System

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INTRODUCTION

- Diabetic retinopathy, the most common complication of diabetes mellitus (DM), was the fifth most common form of preventable blindness in the world.
- In the year 2020, the American Society of Retina Specialist estimated that nearly 8 million Americans are living with diabetic retinopathy (DR)
- Studies have shown that certain sociodemographic factors are also associated with a higher risk of DR, revealing health disparities that need to be addressed.

OBJECTIVE

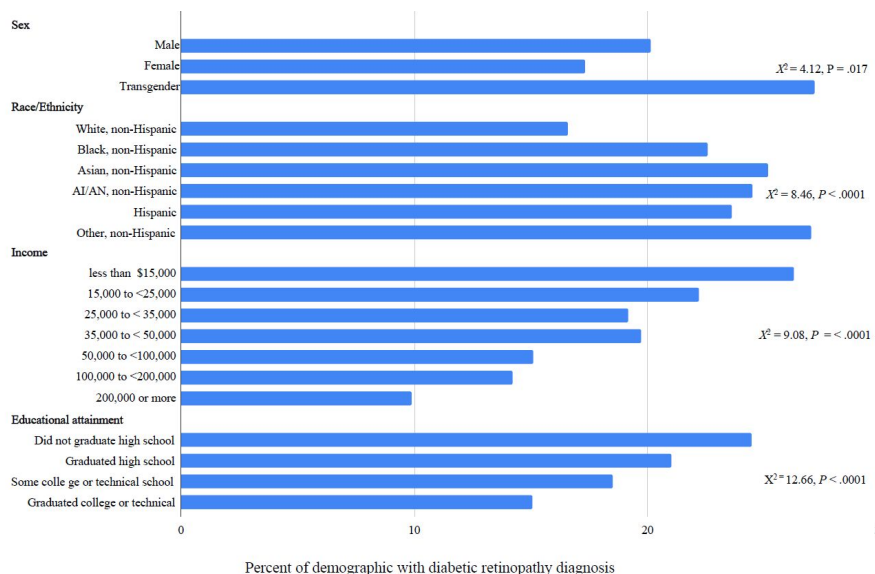
- The objective of this study was to examine disparities in diagnosis of DR among sociodemographic factors in the United States using data from the Behavioral Risk Factor Surveillance System (BRFSS).

METHODS

- We conducted a cross-sectional analysis using data from the 2021 cycle of BRFSS.
- We extracted data for self-reported diagnosis of DR and sociodemographic variables of sex, race/ethnicity, income, educational attainment, insurance, county rurality, and metropolitan status.
- We used design-based χ^2 tests to determine associations between DR diagnosis and sociodemographic variables.

RESULTS

- The sample included 21,905 participants and found prevalence of DR was lower in females (17.34%) than males (20.14%), though the highest rate was observed in transgender participants (27.16%; $P=.017$).
- White individuals had the lowest prevalence of DR (16.57%)—with all other groups having prevalence greater than 22% ($P<.01$).
- DR prevalence was inversely associated with income and educational attainment ($P<.01$).
- Differences in DR by rurality and insurance status were not statistically significant.



Implications & Recommendations

- Certain demographics are associated with higher rates of DR and may require targeted interventions for prevention.
- Exploring the potential implementation of remote eye screening centers within community facilities to enhance accessibility for communities disproportionately impacted by diabetic retinopathy.
- Incorporating DEI training within clinics could help foster patient-physician relationships, addressing and mitigating perceived stigma experienced by marginalized communities.

Conclusions

- Our findings show that disparities exist in DR by Sex, Race/Ethnicity, Income, and Educational attainment.
- Health campaigns addressing the importance of diabetic eye exams could help increase the amount of preventative screenings and thus decrease the prevalence of diabetic retinopathy.

REFERENCES

1. Wang W, Lo ACY. Diabetic Retinopathy: Pathophysiology and Treatments. *Int J Mol Sci.* 2018;19(6). doi:10.3390/ijms19061816
2. The American Society of Retina Specialists. Americans in the Dark on Diabetic Retinopathy Symptoms, Risks, Survey Finds. Accessed June 20, 2023. <https://www.asrs.org/sections/member-news/5097/Americans-in-the-Dark-on-Diabetic-Retinopathy-Symptoms-Risks-Survey-Finds>
3. GBD 2019 Blindness and Vision Impairment Collaborators, Vision Loss Expert Group of the Global Burden of Disease Study. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the Right to Sight: an analysis for the Global Burden of Disease Study. *Lancet Glob Health.* 2021;9(2):e144-e160.