



# Disparities in Diabetic Retinopathy Screening Rates Within Minority Populations: Differences in Reported Screening Rates Among African American and Hispanic Patients

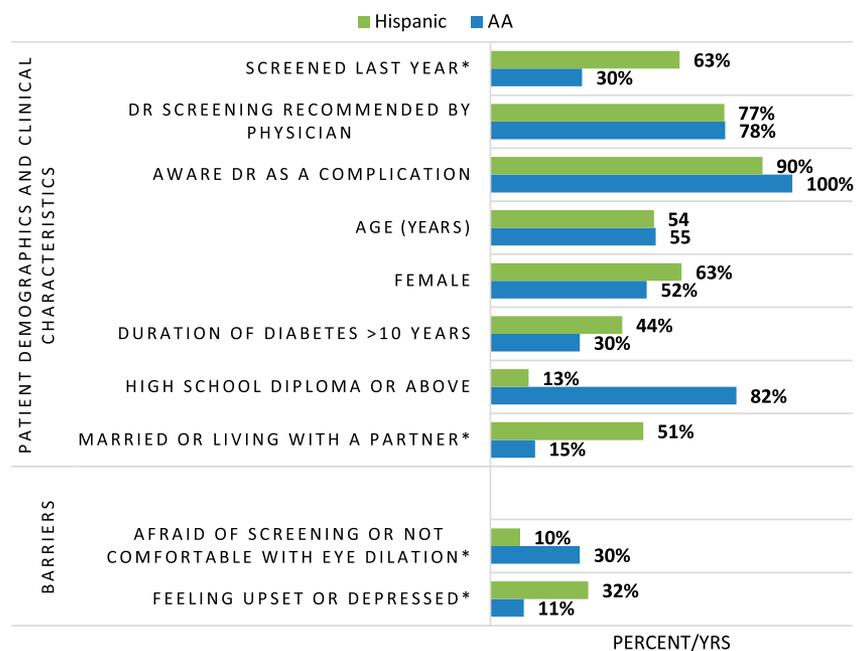
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Diabetic retinopathy (DR) screening is essential for early detection and treatment of diabetes-related visual impairment and blindness. Yet, it is commonly underutilized among low-income minority patients (1,2). To examine perceived barriers to DR screening in these vulnerable populations, we collected survey data from 101 patients with diabetes, including 71 Hispanics and 27 African Americans (AAs), at a large safety-net clinic in South Los Angeles.

Patients surveyed demonstrated typical characteristics for a safety-net population. Among patients surveyed, 50% reported <\$10,000 in annual household income, 56% were unemployed, and 33% had a high school diploma/GED or above.

The survey revealed that most patients were aware of DR as a potential complication of diabetes and more than 75% acknowledged that a physician had recommended DR screening, yet only 55% reported screening in the previous year, similar to previously reported rates in underserved populations (1). However, compared with Hispanic patients, AA patients were screened 50% less often in the previous year (30.4 vs. 62.7%,  $P < 0.01$ ), despite reporting similar total number of barriers to DR screening (1.6 vs. 1.6,  $P = 0.99$ ), similar awareness that diabetes may lead to DR (100 vs. 90%,



**Figure 1**—Patient demographics, clinical characteristics, and perceived barriers to DR screening in AA and Hispanic patients. \*Differences between AA and Hispanic patients were statistically significant at  $P < 0.05$ .

$P = 0.09$ ), and the same likelihood of receiving physician recommendation for DR screening (78 vs. 77%,  $P = 0.54$ ) (Fig. 1). AA patients had more education ( $P < 0.001$ ) but were otherwise similarly disadvantaged in employment status and household income compared with Hispanic patients ( $P = 0.58$  and

$P = 0.30$ , respectively). Patients in each population also reported similar types of barriers to DR screening. The exceptions were that more Hispanic patients felt that being “upset” or “depressed” was a barrier (32 vs. 11%,  $P = 0.03$ ) and more AA patients reported fear of screening or “not comfortable with

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eye dilation” as a barrier (10 vs. 30%,  $P = 0.02$ ).

This is the first report, to our knowledge, of a disparity in DR screening between different minority groups within underserved populations in the U.S. A recent study demonstrated disparity when minorities were compared with non-Hispanic whites, although no data were provided comparing AAs and Hispanics (1). In our study, there were no differences in poverty indicators, diabetes knowledge, professional recommendation for DR screening, or total number of barriers to DR screening between AA and Hispanic patients that explain why AA patients are less likely to use DR screening. However, our survey data do suggest that Hispanic and AA patients may be affected by different psychological barriers (upset/depression in Hispanics vs. fear/discomfort in AAs). The latter might contribute to the discrepancy in screening rates (3). Additionally, AA patients were less likely to be “married or living with a partner” in the survey (15 vs. 51%,  $P < 0.01$ ). This may reflect less family support among AAs to help reinforce diabetes management (4).

Our findings of a large discrepancy in DR screening rates among safety-net minority communities may have important implications for consequent risk of blindness. Different approaches to encourage DR screening may be necessary in different minority populations. Intervention efforts to increase DR screening rates in low-income minority communities that attempt to elucidate barriers amenable to intervention should recognize the diversity and unique needs of each subpopulation.

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acquisition, and revision of the manuscript for important intellectual content. E.I. supervised the study and contributed to the study concept and design; data acquisition, analysis, and interpretation; and revision of the manuscript for important intellectual content. E.I. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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## References

1. Shi Q, Zhao Y, Fonseca V, Krousel-Wood M, Shi L. Racial disparity of eye examinations among the U.S. working-age population with diabetes: 2002–2009. *Diabetes Care* 2014;37:1321–1328
2. Dumser SM, Ratcliffe SJ, Langdon DR, Murphy KM, Lipman TH. Racial disparities in screening for diabetic retinopathy in youth with type 1 diabetes. *Diabetes Res Clin Pract* 2013;101:e3–e5
3. Simmons D, Lillis S, Swan J, Haar J. Discordance in perceptions of barriers to diabetes care between patients and primary care and secondary care. *Diabetes Care* 2007;30:490–495
4. Mayberry LS, Osborn CY. Family support, medication adherence, and glycemic control among adults with type 2 diabetes. *Diabetes Care* 2012;35:1239–1245