Disparities in Vision-related Functional Impairments Among Adults in the United States

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Purpose: The relationships between vision-related functional impairment and sociodemographic factors at a population level remain unknown. In this study we investigate the relationships between vision-related functional impairment (VFI) with sociodemographic and healthcare access factors in a large, nationally representative sample of the United States population.

Methods: Data from the 2017 National Health Interview Survey (NHIS) were used. The NHIS involves responses from the United States civilian, non-institutionalized population 18 years or older. It provides self-reported data on demographic characteristics, socioeconomic factors, health status, and health care access. NHIS participants who responded to at least one of our target questions about vision-related functional impairment were included in the study. VFI was defined for participants based on if they responded 'yes' to one of the target questions about experiencing a VFI. Data analysis was performed through univariable and multivariable logistic regression.

Results: Overall, 26,711 participants were included. Multivariable analysis, controlling for relevant confounding factors, uncovered greater odds of VFI amongst females (OR = 1.16, 95% CI = 1.07-1.26, $p<0.001$), and LGBTQ+ individuals (OR = 1.46, 95%CI = 1.20-1.78, $p<0.001$). There were lower odds of VFI amongst Non-Hispanic Asian compared to White participants (OR = 0.69, 95% CI = 0.56-0.84, $p<0.001$). Participants with less than a high school degree had higher odds of VFI (OR = 1.17, 95% CI = 1.02-1.33, $p=0.02$). Amongst economic and healthcare access factors, a greater odds of VFI was associated with public health insurance versus private coverage (OR = 1.19, 95% CI= 1.07-1.32, $p = 0.001$), having delayed medical care due to costs (OR = 1.86, 95% CI = 1.65-2.10, $p<0.001$), and being unemployed (OR = 1.39, 95% CI = 1.26-1.53, $p<0.001$). Participants whose incomes were lower than the poverty threshold (OR = 1.54, 95% CI = 1.32-1.80, $p<0.001$) had higher odds of VFI than those with income >5x poverty threshold.

Conclusion: Several demographic and economic factors are associated with VFI in a representative sample of the U.S. population. Odds of VFI were related to sex, race, education, as well as several factors related to income and income-related access to healthcare. These results highlight the importance of addressing social and economic factors that are associated with the development of VFI when formulating and implementing health policies.