Impact of Median Household Income and Distance to Hospital on Presenting Visual Acuity in Rhegmatogenous Retinal Detachment

---

Abstract Number: 2289 - A0469

Bivek Wagle[*1], Chukwuka A. Okoro[2], Evan S. Baker[2], Amanda V. Martinez[2], David M. Reed[1], Michael B. Wells[1]*

[1]Department of Ophthalmology and Visual Sciences, The Ohio State University Wexner Medical Center, Columbus, Ohio, United States; [2]School of Medicine, The Ohio State University, Columbus, Ohio, United States

Disclosures: Bivek Wagle: Code N (No Commercial Relationship) | Chukwuka A. Okoro: Code N (No Commercial Relationship) | Evan S. Baker: Code N (No Commercial Relationship) | Amanda V. Martinez: Code N (No Commercial Relationship) | David M. Reed: Code N (No Commercial Relationship) | Michael B. Wells: Code N (No Commercial Relationship)

Purpose

Socioeconomic factors, including income and geographic accessibility, have been implicated in health disparities across various medical conditions, yet their influence on when patients seek care after rhegmatogenous retinal detachment (RRD) remains underexplored. This retrospective chart review study performed at a major academic hospital in Ohio aims to investigate the relationship between patients' presenting visual acuity following RRD, their zip code's median household income, and their distance from the treating hospital.

Methods

Patients aged 18 or older diagnosed with RRD at the Ohio State University clinic or emergency room between January and June 2024 were included (n = 146; M = 87, F = 59, Table 1). Visual acuity was converted from Snellen to logMAR using Moussa (2021). Median income and distances from patients' zip codes to the hospital were sourced from US Census data and Google Maps, respectively. Regression analyses assessed the relationships between presenting visual acuity (VA) and (a) zip code median household income and (b) distance from the hospital.

Results

Statistically non-significant relationship was found between VA and median household income ($p = 0.8107$, Figure 1). While VA slightly worsened with increased distance, this trend was also not statistically significant ($p = 0.2947$, Figure 2).

Conclusions

In this study, patients with higher median household incomes or closer geographic access did not present with better vision than those with lower incomes or greater distances. The lack of significant findings may reflect the study's setting in a major teaching hospital with a broad referral network and outreach efforts, which could mitigate socioeconomic and geographic disparities.

Although increased distance from the hospital showed a trend toward worse visual acuity, the effect did not reach statistical significance. This might suggest that logistical challenges, such as travel time, may still delay care for some patients. Unmeasured factors, including education, health literacy, or insurance status, might have influenced outcomes more than the community-level metrics used in this study.

The study's timeframe (January–June 2024) may also limit broader generalizations. Further research with more diverse populations and additional variables is needed to better understand the role of socioeconomic determinants in RRD care.

Layman Abstract (optional): Provide a 50-200 word description of your work that non-scientists can understand. Describe the big picture and the implications of your findings, not the study itself and the associated details.

Rhegmatogenous retinal detachment (RRD) is a serious eye condition that can cause vision loss if not treated promptly. This study explored whether socioeconomic factors, like income levels and distance to the hospital, affect how soon patients seek care and their initial vision quality.

We analyzed data from 146 patients treated at a teaching hospital in Ohio, comparing their zip code's median household income and distance from the hospital to their visual acuity at the time of diagnosis. The findings showed no significant link between income, proximity to the hospital, and patients' initial vision. While patients farther from the hospital showed a slight trend of worse vision, this was not statistically significant.

These results suggest that the hospital's referral network and outreach efforts may reduce barriers to care. However, challenges like travel time or unmeasured factors (e.g., education, health literacy, or insurance) may still play a role. This research highlights the need for further studies to ensure all patients, especially those in underserved areas, have equal access to timely, effective care for RRD.