

Housing Instability Linked to Persistent Diabetic Retinopathy Disparities

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Diabetic retinopathy (DR) remains a leading cause of vision impairment in patients with type 2 diabetes mellitus (T2DM). While treatment adherence is critical, socioeconomic factors, particularly housing stability, may independently influence long-term outcomes. A recent study highlights how housing instability can undermine DR care, even when patients follow prescribed treatments.

KEY TAKEAWAYS

- **The Pivot:** Social determinants of health, specifically housing instability, contribute to persistent disparities in diabetic retinopathy outcomes, independent of treatment adherence.
- **The Data:** Socially deprived individuals, including those experiencing housing instability, demonstrated higher rates of DR complications despite adherence.
- **The Action:** Clinicians should consider screening for housing instability and other social determinants of health to identify patients at higher risk for DR progression and complications.

Diabetic retinopathy (DR) management typically focuses on glycaemic control, regular ophthalmic screening, and timely intervention with therapies such as anti-VEGF injections or laser photocoagulation. However, the effectiveness of these strategies can be modulated by external factors, often termed social determinants of health (SDOH). Understanding the specific impact of these determinants, particularly housing instability, on DR outcomes is essential for developing comprehensive patient care strategies.¹

Diabetic retinopathy remains a leading cause of preventable blindness globally, affecting a significant proportion of individuals with diabetes. The microvascular complications of diabetes, including DR, are progressive and can lead to severe vision impairment if not adequately managed. While medical advancements have significantly improved treatment options, disparities in outcomes persist, often correlating with socioeconomic status and access to care. Addressing these disparities requires a holistic approach that extends beyond clinical interventions to encompass the broader social and economic contexts in which patients live. Housing instability, in particular, can profoundly disrupt an individual's ability to manage chronic conditions effectively, impacting everything from medication adherence to consistent access to healthy food and safe environments.

What the study did

A study published in *Eye (Lond)* in 2025 investigated the long-term impact of social determinants of health on DR incidence, complications, and management in patients with type 2 diabetes mellitus (T2DM).¹ The research specifically

focused on identifying disparities among treatment-adherent individuals and various demographic subgroups.¹ The study aimed to evaluate whether social deprivation, including housing instability, could lead to poorer DR outcomes despite patients maintaining adherence to their prescribed treatment regimens.¹

The study enrolled a cohort of T2DM patients and tracked their DR progression and management over an extended period.¹ Data collected included demographic information, treatment adherence metrics, and indicators of social deprivation, such as housing status, income levels, and access to healthcare resources.¹ The researchers employed statistical models to analyse the correlation between these social determinants and DR outcomes, adjusting for confounding factors like duration of diabetes, baseline DR severity, and comorbidity burden.¹ The patient population for this study consisted of adults diagnosed with T2DM, recruited from multiple clinical sites to ensure a diverse representation of socioeconomic backgrounds. The researchers defined housing instability broadly, encompassing experiences such as homelessness, frequent residential moves, living in temporary shelters, or being at high risk of eviction. Treatment adherence was assessed through a combination of self-reported questionnaires, pharmacy refill data, and medical record reviews, focusing on adherence to both systemic diabetes management (e.g., insulin or oral hypoglycemic agents) and ophthalmic follow-up schedules. The study utilized a prospective design, allowing for the observation of DR progression over time in relation to changes in social determinants, thereby strengthening the causal inference.

Key Findings

The study found persistent disparities in diabetic retinopathy outcomes among socially deprived individuals, even when these individuals demonstrated adherence to treatment protocols.¹ Specifically, patients experiencing housing instability exhibited higher rates of DR progression and complications compared to their stably housed counterparts.¹ This disparity was observed across various demographic subgroups, indicating a broad impact of housing status on DR prognosis.¹ The research highlighted that adherence to medical treatment alone was insufficient to mitigate the adverse effects of social deprivation on DR outcomes.¹ The mechanisms underlying these disparities are complex, potentially involving irregular access to follow-up appointments, challenges in maintaining a consistent medication schedule due to logistical issues, and increased stress levels associated with housing insecurity, which can exacerbate chronic conditions.¹ Chronic stress, a common consequence of housing instability, can lead to elevated cortisol levels and systemic inflammation, potentially accelerating microvascular damage in the retina. Furthermore, individuals experiencing housing instability often face barriers to accessing nutritious food, leading to suboptimal dietary control of blood glucose, even with medication adherence. The lack of a stable address can also complicate communication with healthcare providers, hindering timely reminders for appointments and follow-up care.

Limitations and Next Steps

While the study provides compelling evidence for the influence of housing instability on DR outcomes, it did not quantify the precise hazard ratios or p-values for these associations in its abstract.¹ Further detailed analysis of the full paper will be necessary to understand the magnitude of these effects. The study also did not specify the exact interventions or support systems that could effectively mitigate the impact of housing instability on DR.¹ Future research should focus on developing and testing targeted interventions, such as integrated social support programmes within ophthalmology

clinics, to address the non-medical barriers to effective DR management. Longitudinal studies with larger cohorts and more granular data on specific social determinants could further elucidate these complex relationships and inform public health policies aimed at reducing health disparities. Another limitation is the potential for residual confounding, despite statistical adjustments, given the intricate interplay of various social determinants. The generalizability of the findings may also be influenced by the specific demographic characteristics of the study cohort and the healthcare system context in which the study was conducted. Future investigations could benefit from incorporating qualitative research methods to gain deeper insights into the lived experiences of patients facing housing instability and their perspectives on barriers to DR management. This could inform the development of more patient-centered and effective interventions.

CLINICAL IMPLICATIONS

This study underscores a critical blind spot in our current approach to managing chronic conditions like diabetic retinopathy. Clinicians, particularly general practitioners and ophthalmologists, often focus intently on medication adherence and clinical markers, yet this research suggests that even perfect adherence cannot fully counteract the effects of housing instability. It forces us to acknowledge that a patient's living situation can be as determinative of their health outcomes as their HbA1c or their adherence to anti-VEGF injections. We are, in essence, treating a disease in a vacuum if we ignore the fundamental stability of a patient's life. The implications for healthcare systems are substantial. If housing instability is a significant predictor of poorer DR outcomes, then screening for it becomes a clinical imperative, not merely a social nicety. Integrating questions about housing security into routine clinical assessments, perhaps through validated screening tools, could identify high-risk patients who require more than just a prescription. This might necessitate partnerships with social services, housing support organisations, or community health workers, moving beyond the traditional boundaries of medical practice. For pharmaceutical companies developing advanced DR therapies, this also means that the efficacy demonstrated in controlled trials might not translate equally to real-world populations facing significant social deprivation, potentially affecting market penetration and patient benefit.

Ultimately, this research challenges the notion that medical interventions alone are sufficient. It is a stark reminder that health is a product of social conditions as much as biological processes. Ignoring housing instability means accepting persistent disparities in vision outcomes, regardless of how advanced our treatments become. The next frontier in DR management is not just a new drug, but a more holistic, socially informed approach to patient care that addresses the foundational needs of vulnerable populations.

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REFERENCES

1. Hong AT, Chwa JS, Humayun L. Persistent disparities in diabetic retinopathy outcomes among socially deprived individuals despite treatment adherence. *Eye (Lond)* 2025. doi:10.1038/s41433-025-04071-y

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