

Abstract

Background: Cataracts, the leading cause of preventable blindness, disproportionately burden low- and middle-income countries, where access inequities exacerbate prevalence. This study examines eye healthcare utilization and contributors to cataract prevalence in rural Kenya and introduces the Access Failure Cascade Model to conceptualize systemic barriers that delay care. **Methods:** A cross-sectional study at Narok County Referral Hospital (April–June 2025) systematically sampled 60 patients with confirmed cataract. Validated questionnaires and medical records assessed socioeconomic, lifestyle, clinical, and environmental factors. Analyses included descriptive statistics and chi-square trend tests with odds ratios. **Results:** Mean age was 56.8 years (SD \pm 15.2); 65% were female. Cataract prevalence was 28.3% among clinic attendees. Premature cataract onset was present among 56.7%. Notably, 43.3% never had prior eye exams, and 68.3% delayed care-seeking. Inadequate UV protection, observed in 96.7%, increased sun-induced eye irritation risk fourfold (OR: 4.0, 95%CI:1.1–14.8, $p = 0.046$). High-risk patients (≥ 3 risk factors) had lower recent eye care utilization (16.7%) than low-risk patients (46.7%; χ^2 trend = 4.12, $p = 0.042$). Barriers included 15.2 km (± 10.3) travel distance and financial constraints (68%). The novel Access Failure Cascade Model conceptualizes sequential barriers that collectively delay diagnosis and result in advanced disease requiring costly treatment: geographic isolation \rightarrow infrastructure deficits \rightarrow financial limitations \rightarrow absent screening \rightarrow disease progression \rightarrow advanced treatment, identifying upstream intervention points. **Conclusion:** Substantial access barriers and modifiable cataract risks exist in rural Kenya. The Access Failure Cascade Model provides a practical framework for designing preventive community-level strategies and policy interventions, beyond surgical reliance, to strengthen eye health systems and reduce preventable blindness in similar underserved populations.