

Socioeconomic Status and Visual Impairment and Ocular Disease in Canada

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Introduction: Socioeconomic status is a known social determinant of general health. The purpose of this review was to explore the association between socioeconomic status and visual impairment and ocular disease in Canada.

Methods: Medline, Embase, CINAHL and Cochrane were searched from inception to January 2024 for relevant articles containing original data. Studies that explored the association between SES and visual impairment or ocular disease in Canadian patients were included. Risk of bias was assessed using the Newcastle-Ottawa and AXIS assessment tools. Descriptive statistics were used to summarize findings. The review was registered in PROSPERO (registration number, CRD42024502490).

Results: The search yielded 908 records with twenty-seven studies included in the review. The included studies covered all provinces and territories, and the majority of studies were nation-wide studies (14/27). The studies ranged in date between 1986 and 2022 and included patients of all ages, including pediatric patients and seniors. Thirteen of the included studies explored the relationship between SES and visual impairment. Nine of the thirteen studies found that patients of lower SES were more likely to have a visual impairment, while four studies found no significant differences. Fourteen studies explored the association between SES and various ocular diseases. Glaucoma, macular diseases, diabetic retinopathy, and idiopathic intracranial hypertension were all noted to be of higher prevalence in patients of lower income levels. Patients of lower SES were at the greatest risk of having cataracts ($p < 0.05$) and were more likely to have more severe cataracts ($p = 0.001$). Among patients with diabetes, those in the lowest SES quintile were at an increased risk of ophthalmological complications compared to higher earners (Hazard Ratio 1.49). Among patients experiencing homelessness, those with an income of more \$1000 per month were significantly less likely to have an ocular pathology compared to those with a monthly income of less than \$1000 (OR 0.36). display differences in growth patterns (lower yield of organoids, slower organoid growth) compared to healthy controls, but share similar molecular localization of Pax6 in early 3D organoids, suggesting that retinogenesis is initiated in both groups. We will further characterize the morphological differences, presence of stage-specific markers, and transcriptomic changes in diseased versus healthy cultures as organoids continue to mature.

Conclusion: Income is a determinant of ocular health in Canada. Higher rates of visual impairment and ocular diseases are associated with lower patient socioeconomic status. Efforts are required to mitigate this disparity and to improve health equity.