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**Examining the Influence of Social Determinants on Medical Visit Attendance, Emergency Visits, and Clinical Outcomes Among Children with Eye Cancer: A Retrospective Analysis**

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**Purpose:** There is limited evidence on the impact of social determinants of health (SDH) on rare pediatric eye cancer (R-PEC) outcomes in Canada. We examined the association of R-PEC patient SDH with (a) medical visit attendance, (b) age and stage at diagnosis, (c) clinical outcomes, and (d) emergency visits.

**Methods:** This retrospective cohort study between 1-June-2018 and 6-October-2023 included R-PEC patients managed at The Hospital for Sick Children and resided in Ontario. Data collected included: sociodemographic variables, diagnosis details, medical visit attendance and clinical outcomes. Postal code was used to deduce neighborhood income quintile, Ontario marginalization index (OMI), geographic location, distance from hospital, and urbanicity. Pearson Chi-squared analysis and multivariable regression with adjusted odds ratios (aOR) and 95% confidence intervals (CI) were performed (significance was set at  $p < 0.05$ ).

**Results:** There were 324 study subjects with R-PECs affecting the retina (64.2%), optic nerve (28.7%), orbit (5.2%), eyelid (0.9%), and other structures of the eye (0.6%). Rescheduled or no-show medical visits were associated with: highest quintile (most marginalized) of the OMI dimensions material resources ( $p = 0.049$ ,  $aOR = 1.576$ ,  $95\% CI = 1.003-2.477$ ) and household dwellings ( $p = 0.015$ ,  $aOR = 1.112$ ,  $95\% CI = 1.021-1.211$ ); living >75 km from the hospital ( $p = 0.028$ ,  $aOR = 1.109$ ,  $95\% CI = 1.011-1.216$ ); and non-white race ( $p < 0.001$ ,  $aOR = 1.758$ ,  $95\% CI = 1.051-2.942$ ). Higher stage at diagnosis was associated with the highest quintile of the OMI dimensions material resources ( $p = 0.046$ ), household dwellings ( $p = 0.015$ ), age labor force ( $p = 0.004$ ), and racialized and newcomer populations ( $p < 0.001$ ); low neighborhood income quintile ( $p = 0.038$ ); and non-white race ( $p < 0.001$ ). Older diagnosis age was associated with highest quintile of the OMI dimensions material resources ( $p < 0.001$ ), household dwellings ( $p < 0.001$ ), age labor force ( $p = 0.013$ ), and racialized and newcomer populations ( $p = 0.002$ ); living >75 km from the hospital ( $p < 0.001$ ); low neighborhood income quintile ( $p = 0.017$ ); rural residence ( $p < 0.001$ ), and non-white race ( $p < 0.001$ ). Greater visual impairment was associated with the highest quintile of the OMI dimensions material resources ( $p = 0.003$ ), household dwellings ( $p = 0.013$ ), and racialized and newcomer populations ( $p = 0.042$ ); low neighborhood income quintile ( $p < 0.001$ ); rural residence ( $p < 0.001$ ); and non-white race ( $p < 0.001$ ). Having >1 emergency room visit was associated with low neighborhood income quintile ( $p = 0.022$ ); highest quintile of the OMI dimension racialized and newcomer populations ( $p = 0.002$ ), and non-white race ( $p = 0.041$ ).

**Conclusion:** Addressing unfavorable SDH could serve to improve clinic attendance, age and stage at diagnosis, final visual outcome and reduce emergency room visits among patients with R-PECs.