

## **Abstract**

**Objectives:** To provide estimates of self-reported prevalence of cataract, glaucoma, and diabetic retinopathy in the Alaska Native (AN) population, determine the difference between self-reported and medical chart abstracted prevalence rates of cataract, glaucoma, and diabetic retinopathy, identify potential risk factors for eye disease in the Alaska Native population, including demographic and medical characteristics; and investigate quality of life in the AN population related to eye disease and age.

**Methods:** Analyses were based on self-reported and medical record abstracted data from the Education and Research Towards Health (EARTH) Study. Prevalence was age-adjusted to the US 2000 age 40 and older standard population for comparisons. Kappa coefficient was used to compare the differences between self-reported and chart abstracted cataract and glaucoma data. Risk factors and quality of life variables were analyzed in relation to self-reported data using p-values calculated using chi-square testing. **Results:** Crude rates of self-reported cataract, glaucoma, and diabetic retinopathy in the EARTH Study population were 5.9%, 2.5%, and 2.0%, respectively. Age-adjusted rates of self-reported cataract, glaucoma, diabetic retinopathy in the EARTH Study population were 18.2%, 7.5%, and 4.0%, respectively. Crude rates of medical chart abstracted cataract and glaucoma were 7.9% and 5.8%, respectively. Medical chart abstracted age-adjusted rates of cataract and glaucoma were 27.7% and 12.6%, respectively. Kappa coefficient for agreement between self-reported and chart abstracted cataract and glaucoma were 0.51 and 0.29, respectively. Risk factors found to be associated with cataract were: sex, diabetes, hypertension, high cholesterol, heart

disease, smoking status, BMI, blood glucose level, perceived health status, and ability to enjoy everyday activities. Risk factors associated with glaucoma were: sex, residency, diabetes, hypertension, high cholesterol, heart disease, perceived health status, feeling depressed, and ability to enjoy everyday activities. Risk factors associated with diabetic retinopathy were: diabetes, hypertension, high cholesterol, heart disease, BMI, blood glucose level, and perceived health status. Analysis also showed statistically significant relationships between quality of life, eye disease and age. **Discussion:** Preliminary analysis found cataract, glaucoma, and diabetic retinopathy to be at least as prevalent, or more prevalent in the AN population as in the non-Native U.S. population. National Eye Institute (NEI) rates of cataract and diabetic retinopathy varied only marginally from EARTH Study self reported age-adjusted rates; however, glaucoma rates in the EARTH Study were higher than the NEI glaucoma rate. Eye disease and age appears to affect the quality of life of the AN population. As the AN population ages, rates of these diseases will continue to be burdensome. Future research and public health initiatives can use this preliminary analysis to create research and public health programs and to target eye disease in the AN population to improve overall quality of life and quality of care in the Alaska Tribal Health System. Future research should include validation of self-reported and medical chart abstracted diagnoses, as well as additional multivariate analysis to confirm the strength of these preliminary findings.