Accepted Manuscript

Prevalence of Refractive Error in Adult Chinese Americans: The Chinese American Eye Study

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PII: S0002-9394(16)30505-0

DOI: 10.1016/j.ajo.2016.10.002

Reference: AJOPHT 9924

To appear in: *American Journal of Ophthalmology*

Received Date: 13 August 2016

Revised Date: 6 October 2016

Accepted Date: 7 October 2016

Please cite this article as: Varma R, Torres M, McKean-Cowdin R, Rong F, Hsu C, Jiang X, on behalf of the Chinese American Eye Study Group, Prevalence of Refractive Error in Adult Chinese Americans: The Chinese American Eye Study, *American Journal of Ophthalmology* (2016), doi: 10.1016/j.ajo.2016.10.002.

Purpose: To estimate the prevalence of refractive errors in adult Chinese Americans, and evaluate factors associated with myopia and high myopia.

Design: A population-based, cross-sectional study.

Methods: Chinese Americans 50 years and older residing in Monterey Park, California, were recruited. Noncycloplegic automated refraction with supplemental subjective refraction was performed. Myopia, high myopia, hyperopia, and high hyperopia were defined as a spherical equivalent of < -0.5 diopter (D), < -5.0D, > +0.5D, and ≥ +3.0D, respectively. Astigmatism and high astigmatism were defined as a cylinder of > 0.5D and > 2.25D, respectively. Risk factor assessment was guided by a conceptual model.

Results: Data from 4144 participants were analyzed. The overall prevalence of myopia, high myopia, hyperopia, high hyperopia, astigmatism, and high astigmatism was 35.1% (95% confidence interval, 33.6%-36.6%), 7.4% (6.6%-8.3%), 40.2% (38.7%-41.8%), 2.7% (2.2%-3.3%), 45.6% (44.1%-47.2%), and 3.7% (3.1%-4.3%), respectively. The prevalence of myopia and high myopia was lower among older individuals (*P*s < 0.05). Reversed age trends were observed for the other refractive errors (*P*s < 0.05). There was no sex difference in the prevalence of refractive errors, except for a higher prevalence of hyperopia among females (*P* = 0.010). Age, acculturation, education, income, marital status, birth country, history of ocular disease, non-ocular comorbidities, and recent eye exam were associated with prevalence of myopia. All of these factors, except for acculturation, were also associated with high myopia.

Conclusions: Our data present the first population-based estimates of the prevalence of refractive errors among adult Chinese Americans. Compared with whites, Hispanics, and blacks, Chinese Americans have a higher burden of myopia, high myopia, and astigmatism.