

# Association between Myopia and Glaucoma in the United States Population

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**PURPOSE:** To investigate the association between myopia and the prevalence of glaucoma.

**METHODS:** This cross-sectional study included 5277 participants from the 2005-2008 National Health and Nutrition Examination Survey, 40 years old, without history of cataract or refractive surgery, who underwent auto-refraction measurement. The predictor was refractive status; emmetropia (-0.99 to +0.99D) , mild myopia (-1.00 to -2.99D) , moderate myopia (-3.00 to -5.99D) , severe myopia (>6.00D) , and hyperopia (>1.00D) . The outcomes were self-reported glaucoma, vertical cup-to-disc ratio and visual field defects as found on FDT testing.

**RESULTS:** Odds of self-reported glaucoma were not significantly increased in mild (OR 0.90, CI 0.56-1.45) , moderate (OR 1.40, CI 0.62-3.16) , or severe (OR 0.26, CI 0.08-0.80) myopes compared to emmetropes. Odds of vertical cup-to-disc ratio >0.7 were not significantly increased in mild (OR 0.84, CI 0.31-2.25) , moderate (OR 0.37, CI 0.04-3.57) , or severe (OR 0.85, CI 0.09-8.42) myopes compared to emmetropes. Odds of any visual field defects were significantly increased in mild (OR 2.02, CI 1.28-3.19) , moderate (OR 3.09, CI 1.42-6.72) and severe (OR 14.43, CI 5.13-40.61) myopes compared to emmetropes. The  $\chi^2$  test indicated a significant difference ( $p=0.001$ ) in the distribution of subjects with each category of visual field status across subjects with each refractive status; the proportion of subjects with worse visual field defects increased with worsening myopia severity.

**CONCLUSIONS:** The association between myopia and visual field defects may represent an increased risk of glaucoma among myopes, and the lack of association with self-reported glaucoma may suggest a need for greater glaucoma surveillance in this population.

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