

The Prevalence of Myopic Choroidal Neovascularization (mCNV) in the United States: Analysis of the IRIS® Data Registry and NHANES

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The purpose of this cross-sectional study was to determine the prevalence and population burden of high myopia (HM), progressive high (degenerative) myopia (PHM), and myopic choroidal neovascularization (mCNV) in the United States.

This was a retrospective analysis of the IRIS® Data registry (comprehensive disease clinical registry) and NHANES (ongoing, cross-sectional study over 2-year cycles) among US adults.

Individuals aged ≥18 years participating in NHANES and patients aged ≥18 years seen in clinics participating in the American Academy of Ophthalmology's IRIS® Registry were included in this study.

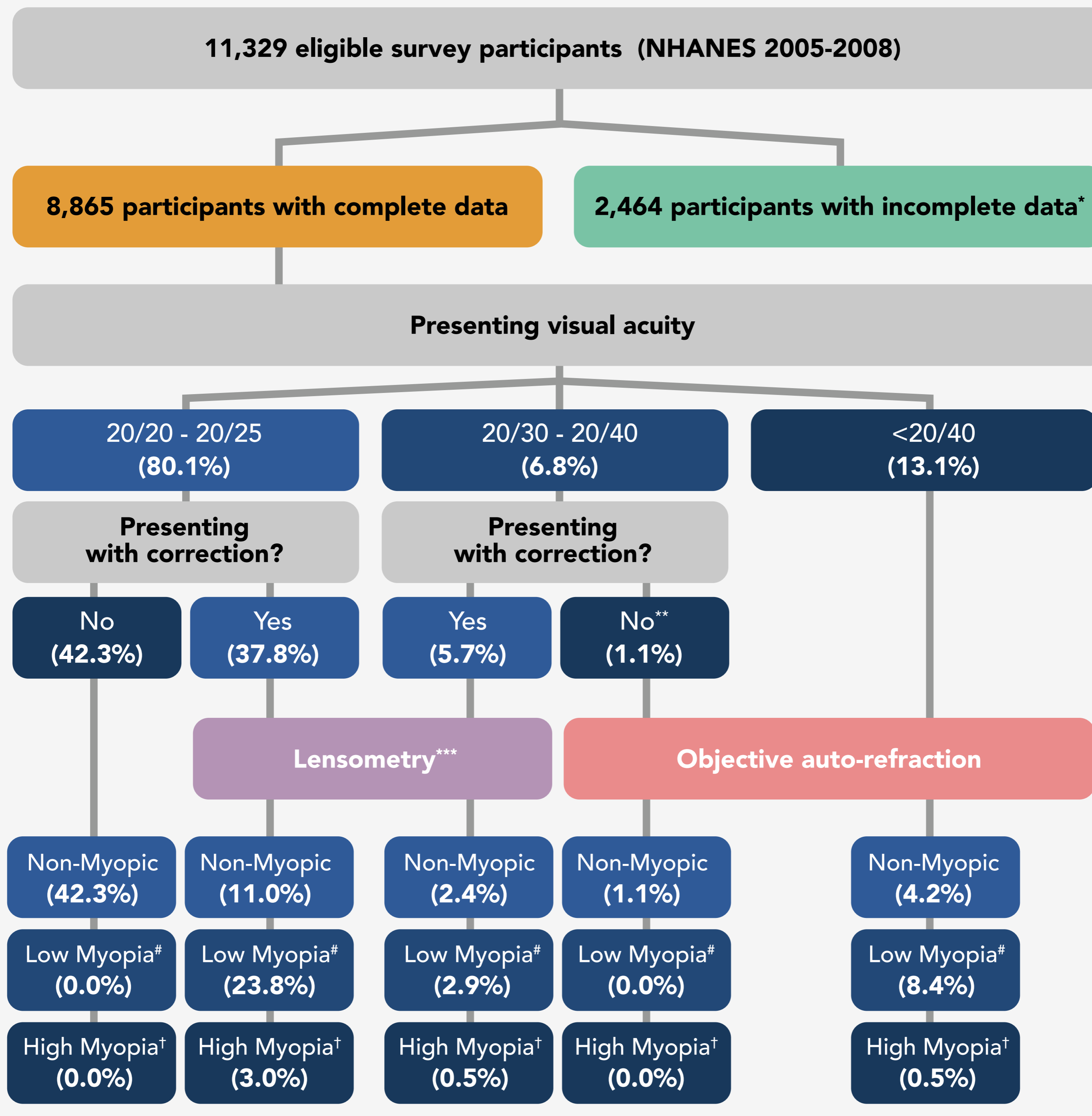
NHANES data (2005 to 2008) was analyzed to determine HM prevalence, which was then applied to estimates from the US Population Census (2014) to determine the HM population burden at the diopter level. IRIS® Registry data was used to calculate the real-world prevalence rates of PHM and mCNV among patients with HM at the diopter level. This was subsequently applied to the HM reference population to calculate the diopter-adjusted US prevalence and population burden of PHM and mCNV in 2014.

Main outcome measures were HM (≤-6.0 diopters in the right eye), PHM (HM with ICD-9-CM code of "360.21: Progressive High (Degenerative) Myopia"), and myopic CNV (HM with the presence of subretinal/choroidal neovascularization indicated by ICD-9-CM diagnosis of "362.16: Retinal Neovascularization NOS").

The researchers used 2 alternative diagnostic codes to identify individuals with possible mCNV.

- First, since low myopes (0 to -6 D) can have degenerative myopic changes and associated CNV, IRIS® Registry data was used to identify individuals with low myopia but dually coded as having ICD-9-CM codes "362.16: Retinal Neovascularization NOS" and "360.21: Progressive High (Degenerative) Myopia."
- Second, IRIS® Registry data was used to identify younger individuals (aged 18–64 years) with HM, coded with ICD-9-CM code "362.52: Exudative Age Related Macular Degeneration," an alternate code used to denote the presence of subretinal/choroidal neovascularization.

CNV = choroidal neovascularization; D = diopter; IRIS® = Intelligent Research in Sight; NHANES = National Health and Nutrition Examination Survey; US = United States; ICD-9-CM = International Classification of Diseases, 9th revision, Clinical Modification.

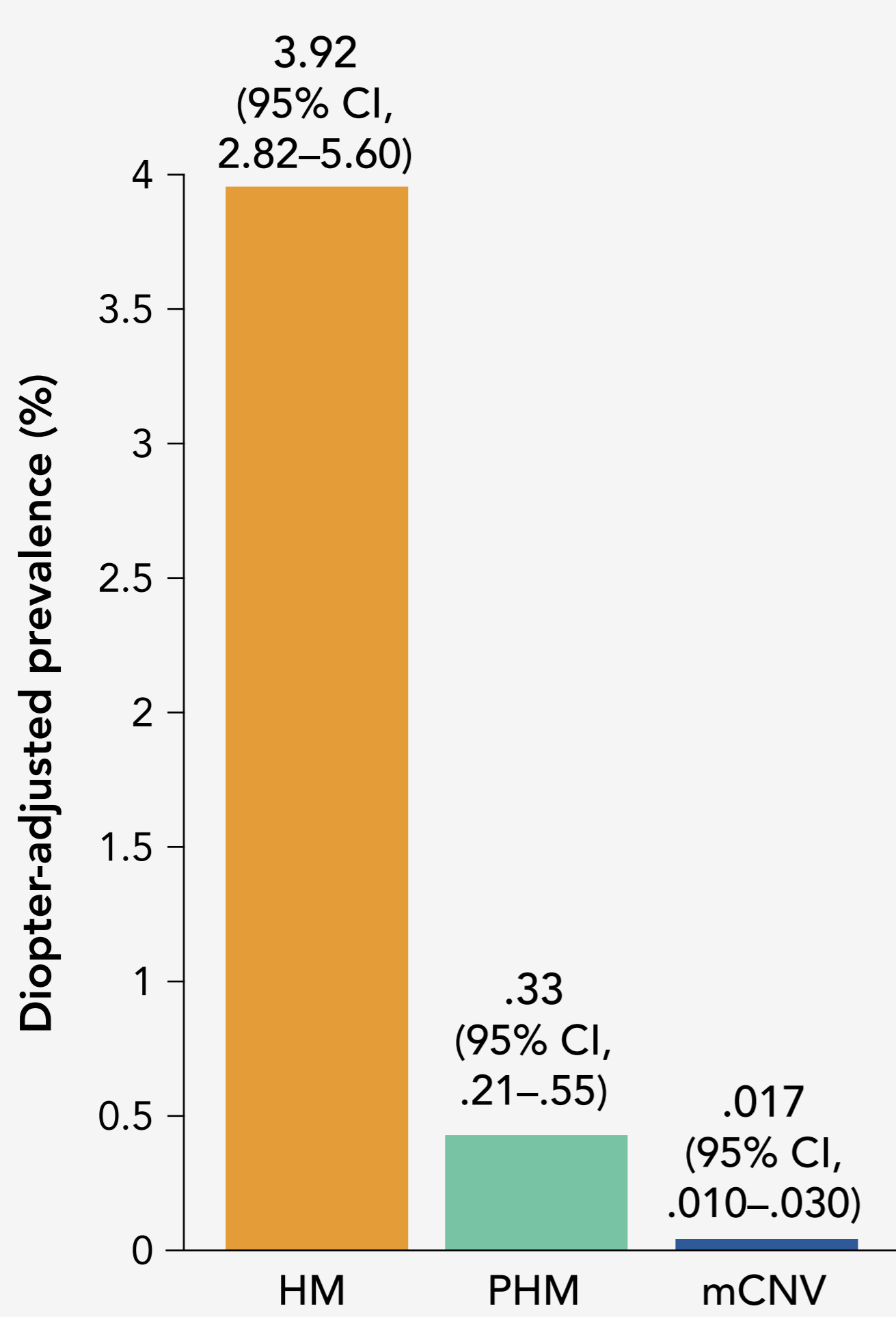


* Incomplete data if participants had cataract/refractive surgery (n = 928); had missing presenting visual acuity (VA) data (n = 806); had missing lensometry data (n = 43); or had unclassifiable refraction status (n = 687).
** Individuals were categorized as having unclassifiable refraction status if presenting VA of 20/30–20/40, no corrective lenses, and improvement in VA with objective refraction. If presenting VA was worse or the same after autorefracton, participants were categorized as nonmyopic.
*** If participants had contact lenses for presenting correction, objective autorefracton was used.
Myopic refractive error between 0 and -6 D in spherical equivalence.
† Myopic refractive error -6 D in spherical equivalence.

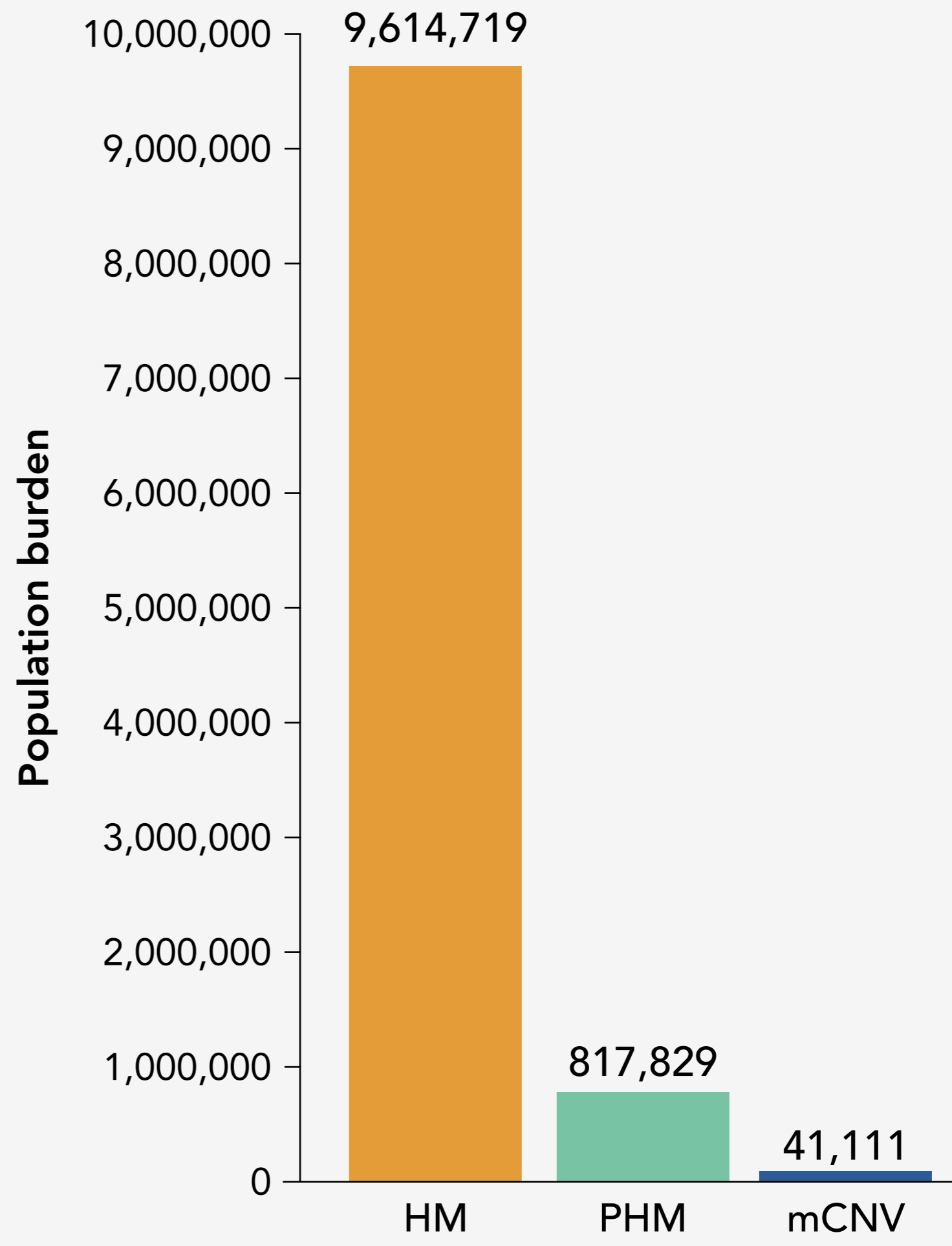
Note. If lensometry or objective refraction did not show evidence of low/high myopia, participants were classified as nonmyopic.

Although HM and PHM impose a relatively large burden among adults in the United States, mCNV seems to be a rare disease.

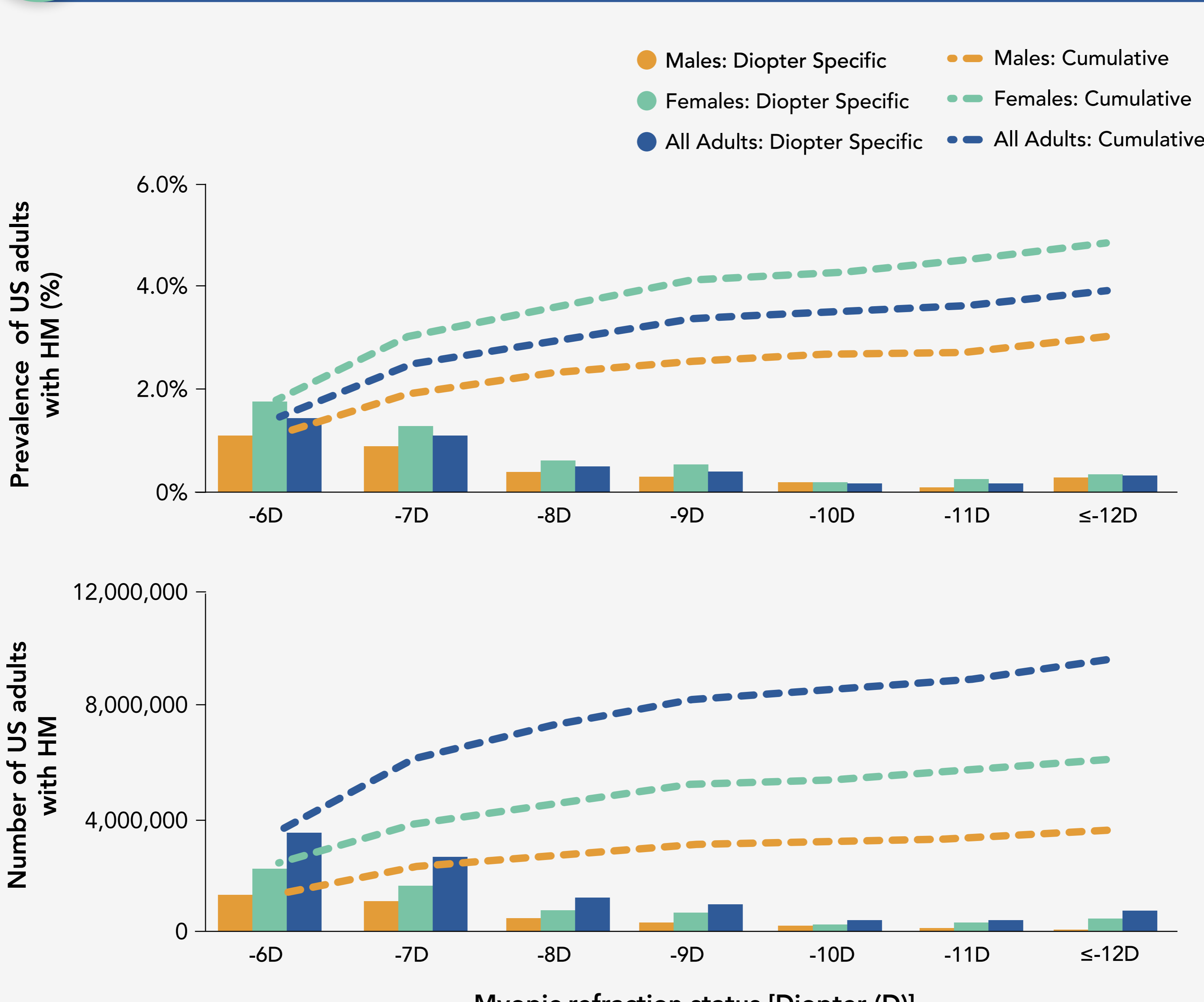
The estimated diopter-adjusted prevalence of HM, PHM, and mCNV among adults in the United States aged 18 years and older in 2014.



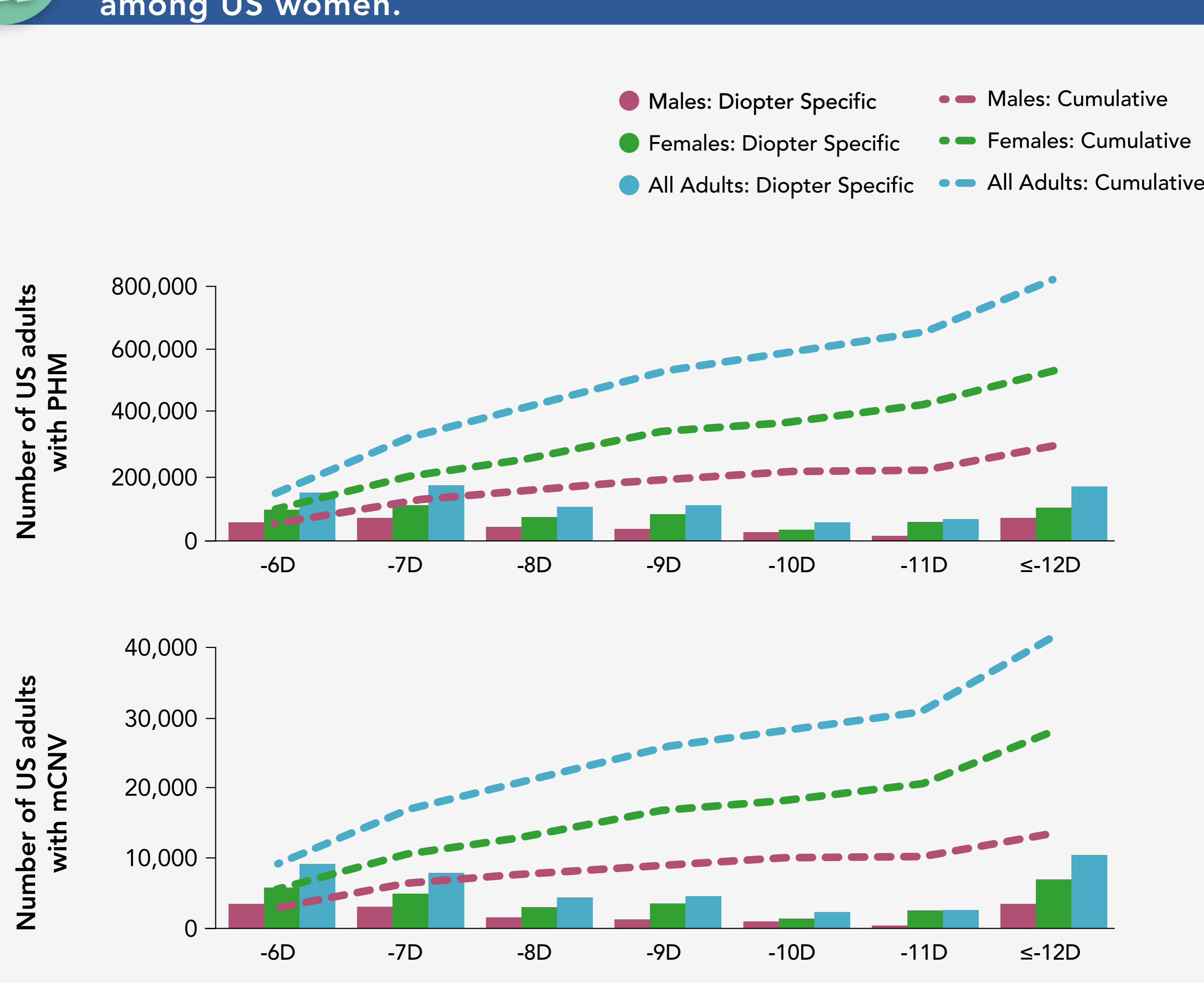
The population burden of US adults with HM, PHM, and mCNV in 2014.



The prevalence and population distribution of HM across all adults and between sexes showed that as the severity of myopia worsened, the number of individuals in that diopter class declined.



In the crude and diopter-adjusted population prevalence burden for PHM and mCNV, the burden of both PHM and mCNV is greater among US women.



Conclusions

Although HM and PHM impose a relatively large burden among adults in the US, mCNV seems to be a rare disease. Relating data from the IRIS® Registry and NHANES could be a novel method for assessing ophthalmic disease prevalence in the US; future studies should aim to better assess current patterns and optimal management strategies of this condition.