Association of Alcohol Use on Prevalence of Various Ophthalmic Diseases

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Background

- At least 2 billion people worldwide have a vision impairment
- Existing evidence suggests that vision impairment is associated with lower quality of life.
- Visual impairment is also linked to reduced daily visual function and the ability to perform visual tasks
- The effect of alcohol on eye diseases is still very unclear
- The main ocular conditions which alcohol has been proposed to have an effect include cataracts, age-related macular degeneration (AMD), diabetic retinopathy (DR), and glaucoma.

Hypothesis

- We hypothesize that there is an association between alcohol use and the prevalence of four eye diseases: cataract, AMD, glaucoma, and DR

Methods

Data was gathered from the 2005-2006 and 2007-2008 National Health and Nutrition Examination Survey (NHANES; N = 11,791)

Alcohol use was determined by 3 different measures:
- Binge drinking [4-5 drinks (4 for women; 5 for men) in a 2-hr time frame]
- Heavy drinking [Exceeding 3 (women) or 4(men) drinks in the past 30 days]
- Average number of drinks per drinking day (DpDD)

Logistic regression, chi square, and t-tests were used to assess the association of alcohol use and having any or one of the four eye disorders

Potential confounders (age, gender, race, education level, income, smoking status, diabetes status, and hypertension were adjusted for.

Results were also stratified by age (younger than 60 versus older than 60) to assess if the older population showed more significant data.

Results

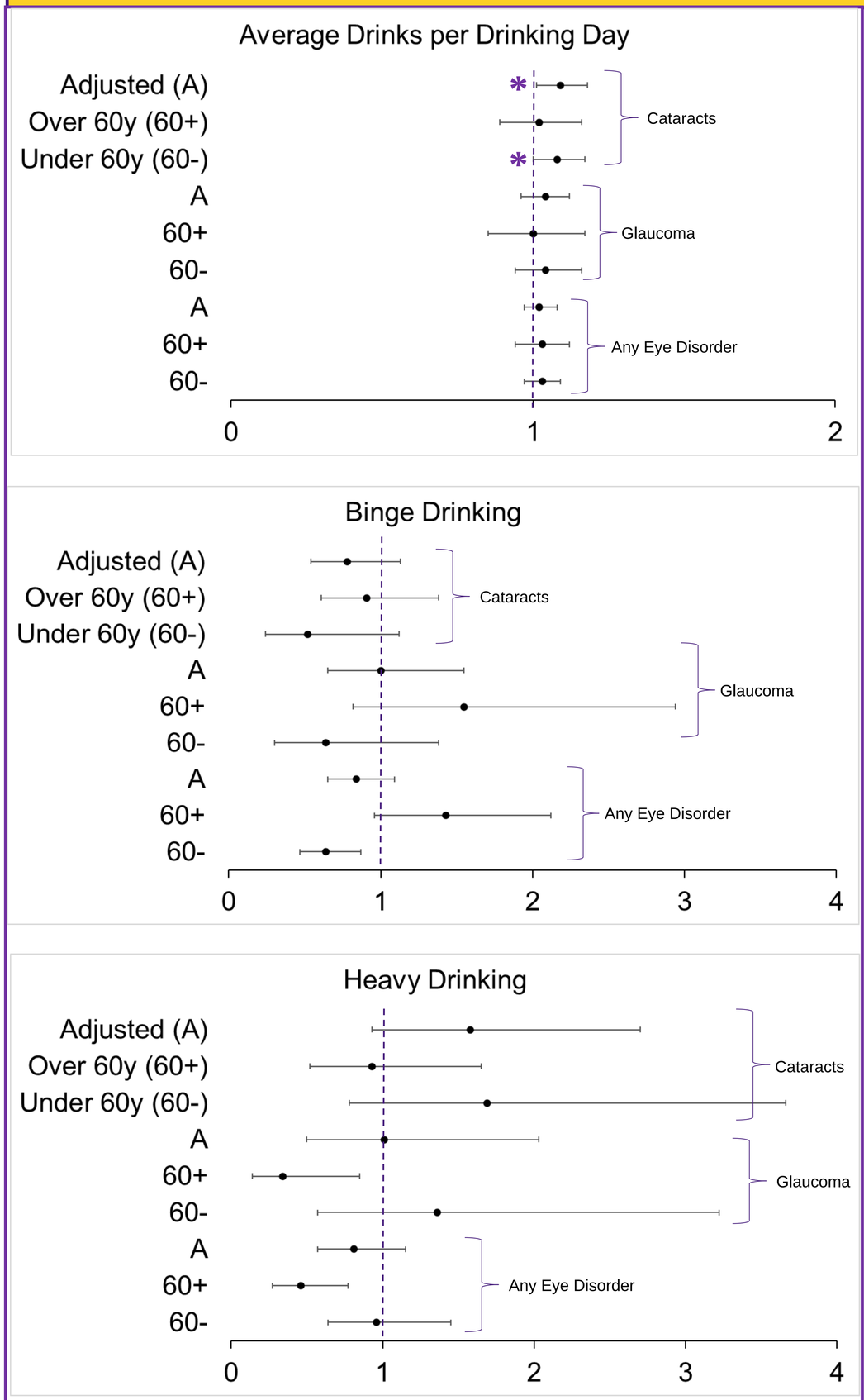

Figure 1. Odds-ratio (OR) estimates for each alcohol measure against the prevalence of cataracts, glaucoma, and any eye disorder. Data was adjusted for age, gender, race, education level, income, smoking status, diabetes status, and hypertension. Data was also stratified by age.

	Sub-Category	No Eye Disorder (%)	Any Eye Disorder (%)
Age	Mean = 45.7 ± 0.44		
	Under 60y	83.0	40.7
	Over 60y	17.0	59.3
Gender	Male	48.2	49.2
	Female	51.8	50.8
Ethnicity	Mexican American	8.7	5.5
	Other Hispanic	4.3	3.4
	Non-Hispanic White	69.9	73.4
	Non-Hispanic Black	11.3	12.9
	Other	5.8	4.7
Income	< $20,000	36.3	36.9
	$20,000 - $35,000	17.7	23.7
	$35,000 - $50,000	19.0	20.4
	$50,000 - $75,000	11.7	8.0
	> $75,000	15.4	10.9

Conclusion

- It is important to consider multiple confounders including age when investigating the association of alcohol use and eye disease
- Alcohol use often did not have an association with eye disorders post adjusting for confounders
- There was significant association seen with increasing average drinks per drinking day and prevalence of cataracts after adjusting for confounders which suggests that alcohol use along with other factors contribute to prevalence of cataracts
- Limitations include cross-sectional data and the inability to assess drinking patterns over time
- Further research is needed to determine additional patterns of alcohol use and the association or non-association of eye disease

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