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## Background

- Nearly 3.3 million (one in 28) Americans aged 40 years and older have blindness or low vision. By 2020, this number is projected to be approximately 5.5 million.<sup>1</sup>
- The prevalence of vision loss and eye disease is increasing due to the aging of the population and the impact of chronic disease risk factors for eye diseases such as diabetes, hypertension, and tobacco use.<sup>2</sup>
- The National Association of Chronic Disease Directors' Vision and Eye Health Council aims to increase awareness about eye health and promote the integration of vision-related activities into current chronic disease programs.<sup>2</sup>

## Objectives

- To examine the differences between adults who have eye disease and those who do not.
- To determine if the degree of vision impairment is associated with other health problems.

## Methods

- The Behavioral Risk Factor Surveillance System (BRFSS) is a statewide telephone survey of the non-institutionalized, civilian population who lived in a household with a residential phone line.
- The vision impairment module was included in the BRFSS in three states to obtain key estimates relating to eye disease and comorbid conditions of adults aged 40 years and older.
- A scale of severity of impairment was created utilizing responses about far and near vision difficulties (please see definitions).
- Data were managed in SPSS (v. 17.0) and analyzed in SUDAAN (v. 10.0).
- Prevalence estimates were weighted to adjust for the probabilities of selection and a post-stratification weighting factor that adjusted for the distribution of adults by age and sex at the state level.
- Estimates were age-adjusted for cross-state comparisons and to account for differences in age between those with and without vision impairment and eye disease.
- In most cases, all three states had similar comorbid conditions associated with visual impairment and eye disease. Only select indicators are shown here.

## Limitations

- The questions were only asked of those who are aged 40 years and older.
- Adults who were institutionalized (e.g., nursing homes and long term care facilities) did not get interviewed.
- Those who self-reported that they were blind did not receive the eye disease questions later in the module.

## Other Facts

- In all three states, those adults who had highly impaired vision had high rates of never receiving the social and emotional support they need (IA: 9.0%, NY: 17.9%, TX: 16.3%) compared to other impairment levels.
- In New York and Texas, those who had highly impaired vision were less likely to have had an eye exam in the past two years than those who did not have a vision impairment (NY: 75.3% vs. 85.8% and TX: 69.8% vs. 82.0%).
- The prevalence rate for those who reported ever having had an eye injury that occurred at their workplace while they were at work was higher in Iowa than in New York (10.2% vs. 6.9%).

## Prevalence

**Figure 1: Prevalence of Eye Disease by State (Age-Adjusted) 2007 BRFSS**

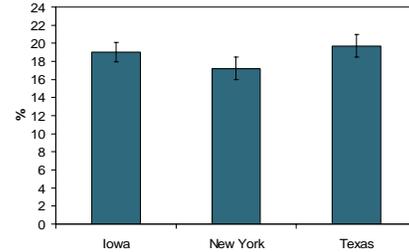


Figure 1: Texas had a higher prevalence rate of eye disease than New York.

**Figure 2: Severity of Visual Impairment by State (Age-Adjusted) 2007 BRFSS**

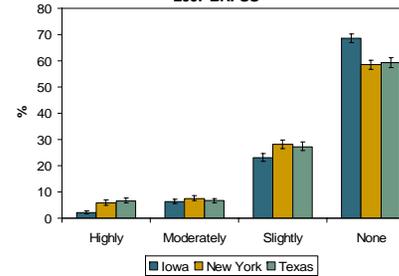


Figure 2: New York and Texas had higher prevalence rates of adults who were highly or slightly impaired in their vision compared to Iowa. In contrast, Iowa had a higher prevalence rate of adults having no visual impairment.

## Results

**Figure 3: Prevalence of Diabetes by Eye Disease (Age-Adjusted) 2007 Iowa BRFSS**

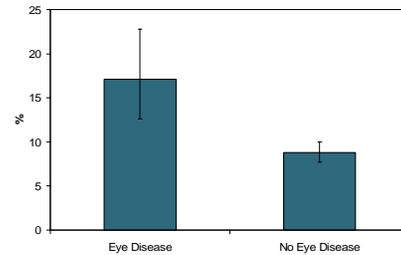


Figure 3: In Iowa, those who had eye disease were more likely than those who didn't have been diagnosed with diabetes.

**Figure 4: Prevalence of Fair or Poor General Health Status by Severity of Visual Impairment and State (Age-Adjusted) 2007 BRFSS**

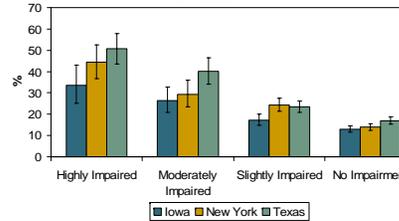


Figure 4: The prevalence of fair or poor general health status was higher based on severity of visual impairment in all three states. When compared to Iowa, Texas had higher estimates in fair or poor general health status at all impairment levels.

**Figure 5: Prevalence of Cardiovascular Disease by Severity of Vision Impairment and Eye Disease (Age-Adjusted) 2007 New York BRFSS**

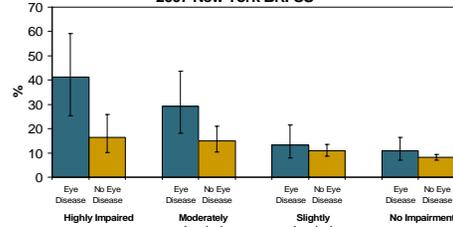


Figure 5: In New York, those adults who had eye disease and were highly impaired due to their vision were more likely to have cardiovascular disease than those who had eye disease without any vision impairments (41.2% vs. 10.9%). Those who had high visual impairments and eye disease were more likely than those without eye disease to have cardiovascular disease (41.2% vs. 16.5%).

**Figure 6: Prevalence of High Blood Pressure by Severity of Vision Impairment and Eye Disease (Age-Adjusted) 2007 Texas BRFSS**

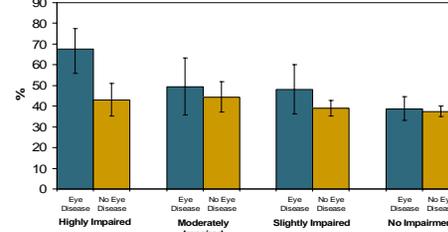


Figure 6: In Texas, among those who had highly impaired vision, the prevalence of those with high blood pressure was higher among those with eye disease than those without eye disease (67.6% vs. 43.0%). Among those with eye disease, the proportion of those with high blood pressure was higher among those with highly impaired vision than those without vision impairments (67.6% vs. 38.7%).

## Definitions

- Eye Disease (at least one of the following conditions)
  - Now have cataracts which were not removed
  - Ever diagnosed with glaucoma
  - Ever diagnosed with age-related macular degeneration
- Severity of Vision Impairment
  - Highly Impaired:
    - Self-reported being blind, **or**
    - Had extreme difficulty or unable to recognize a friend across the street, **or**
    - Had extreme difficulty or unable to read print in newspapers, magazines, recipes, menus, or numbers.
  - Moderately Impaired:
    - Had a little or moderate difficulty recognizing a friend across the street, **and**
    - Had a little or moderate difficulty reading print in newspapers, magazines, recipes, menus, or numbers.
  - Slightly Impaired:
    - Had a little or moderate difficulty recognizing a friend across the street **and** no difficulty reading print in newspapers, magazines, recipes, menus, or numbers, **or**
    - Had no difficulty recognizing a friend across the street **and** a little or moderate difficulty reading print in newspapers, magazines, recipes, menus, or numbers.
  - No Impairment:
    - Had no difficulty recognizing a friend across the street, **and**
    - Had no difficulty reading print in newspapers, magazines, recipes, menus, or numbers.

## Conclusions

- Impaired vision is not an isolated health problem but is associated with other chronic diseases.
- Vision and eye health activities should be integrated into a variety of chronic disease programs to address these comorbidities.

## Sources

- <sup>1</sup>The Eye Diseases Prevalence Research Group. 2004. Causes and prevalence of visual impairment among adults in the United States. Arch Ophthalmol. 122: 477-485. <http://archophth.ama-assn.org/cgi/reprint/122/4/477>. (Access date: March 4, 2010.)
- <sup>2</sup>National Eye Institute (NEI). 2004. Press release: Vision loss from eye diseases will increase as Americans age. Bethesda, MD: Department of Health and Human Services, NEI. <http://www.nei.nih.gov/news/pressreleases/041204.asp>. (Access date: March 4, 2010.)

