

Vision Impairment, Vision Correction, And Risk Of Dementia In Individuals With Mild Cognitive Impairment

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Key Findings

In individuals with mild cognitive impairment (MCI), no vision impairment (VI) or corrected VI was associated with decreased risk of dementia, compared with uncorrected VI.

Background

- Little is known about the association between VI and dementia risk among individuals with MCI and whether vision correction modifies this association

Objective

- To examine the association between VI, vision correction, and risk of incident dementia in individuals with MCI.

Methods

- **Study design:** Retrospective cohort study
- **Data source:** National Alzheimer’s Coordinating Center (NACC) (Sep 2005 - Dec 2024)
- **Population:** Adults ≥50 years with MCI at initial visit (baseline) and at least two study visits
- **Exposure:** No VI, VI with correction (corrected VI), or VI without correction (uncorrected VI)
- **Outcomes of interest:** Incidence all-cause dementia
- **Follow-up:** from baseline until the most recent visit or the visit with a dementia diagnosis
- **Baseline covariates:** Demographics (e.g., age, sex, and race/ethnicity), socioeconomic factors (e.g., education level and living status), comorbidities, medications, and *APOE* gene.
- **Statistical analysis:**
 - Multivariate adjusted Cox models estimated hazard ratios (HRs) with 95% CIs
 - Age-stratified analyses (<75 vs ≥75 years) assessed effect heterogeneity.

Results

- Among 7,812 individuals with MCI: No VI (n=2263); Corrected VI (n=5424); Uncorrected VI (n=125)
- Over median follow-up of 2.3 years, dementia developed in 3,327 participants (42.6%)
- Compared with **uncorrected VI (Table 1)**:
 - No VI: adjusted HR 0.77 (95% CI, 0.58–1.03)
 - Corrected VI: adjusted HR 0.74 (95% CI, 0.55–1.00)
- The protective association is particularly among individuals younger than 75 years

Table 1. Association of VI and vision correction with dementia in individuals with MCI

	No VI	Corrected VI	Uncorrected VI
All individuals			
Events/Individuals, n/N	991/2263	2280/5424	56/125
Median follow-up (IQR), yrs	2.37(3.22)	2.24(3.01)	2.07(2.80)
Crude HR (95% CI)	0.81(0.62,1.06)	0.81(0.62,1.06)	Reference
Adjusted HR (95% CI) ^a	0.77(0.58,1.03)	0.74(0.55,1.00)	Reference
Individuals aged < 75 years at baseline			
Events/Individuals, n/N	486/1264	1115/3068	25/55
Median follow-up (IQR), yrs	2.42(3.47)	2.32(3.24)	2.04(2.76)
Crude HR (95% CI)	0.70(0.47,1.04)	0.68(0.45,1.01)	Reference
Adjusted HR (95% CI) ^a	0.57(0.35,0.90)	0.54(0.35,0.83)	Reference
Individuals aged ≥ 75 years at baseline			
Events/Individuals, n/N	505/999	1165/2356	31/70
Median follow-up (IQR), yrs	2.32(2.99)	2.16(2.80)	2.08(2.79)
Crude HR (95% CI)	0.97(0.68,1.40)	1.00(0.70,1.43)	Reference
Adjusted HR (95% CI) ^a	0.89(0.59,1.34)	0.98(0.66,1.45)	Reference

^aCox models are adjusted for baseline covariates. VI, vision impairment; HR, hazard ratio; CI, confidence interval; IQR, interquartile range