

Cognitive limitations and diabetes comorbidity among racial and ethnically diverse older adults by nativity status in the United States

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Introduction

- Diabetes is one of the most common comorbid conditions among adults with Alzheimer's disease and related dementias in the U.S.
- Disparities in the prevalence of cognitive limitations and diabetes by race, ethnicity, and nativity status have been identified
- Few studies have examined the prevalence of having both cognitive limitations and diabetes among US and foreign-born racial and ethnic groups

Research Question

- Estimate and compare the prevalence of cognitive limitations and diabetes among US and foreign-born White, Black, and Hispanic adults
- Examine differences after adjusting for modifiable risk factors

Methods

- Linked 2000-2017 National Health Interview Survey (NHIS) and 2001-2018 Medical Expenditure Panel Survey (MEPS)
- Total number of adults ages 65+ years (n=35,849)

Methods

Variables

- Independent Variable:

US born Whites, Blacks, and Hispanics

Foreign Born Whites, Blacks, and Hispanics

- Dependent Variable:

Cognitive limitation based on “yes” responses to three questions

Methods

Statistical Analysis

- **Descriptive Statistics:**
Age, Sex
- **Comparative Statistics:**
Education, Hypertension, Obesity, Smoking,
Hearing Loss, Social Isolation, Diabetes, Physical Inactivity
- **Analysis**
STATA used to calculate age and sex-adjusted
prevalence estimates and multivariable logistic regression models

Results

Table 1: Crude and adjusted logistic regression results, 2000-2017 NHIS and 2001-2018 MEPS, n=35,849

	Model 1 ^a	Model 2 ^b	Model 3 ^c	Model 4 ^d
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
US-born NH white (reference)	1.00	1.00	1.00	1.00
US-born NH Black	2.30 (1.94, 2.72)	2.43 (2.06, 2.87)	2.22 (1.86, 2.66)	1.94 (1.58, 2.39)
US-born Hispanic	2.24 (1.72, 2.92)	2.41 (1.84, 3.16)	1.87 (1.39, 2.51)	1.97 (1.41, 2.76)
Foreign-born NH white	1.56 (1.00, 2.42)	1.46 (0.94, 2.26)	1.36 (0.87, 2.14)	1.36 (0.80, 2.32)
Foreign-born NH black	2.24 (1.51, 3.32)	2.48 (1.66, 3.70)	2.05 (1.35, 3.11)	2.44 (1.48, 4.02)
Foreign-born Hispanic	2.46 (1.97, 3.07)	2.61 (2.09, 3.26)	1.77 (1.36, 2.30)	1.64 (1.24, 2.18)
US-born NH Black (reference)	1.00	1.00	1.00	1.00
US-born NH White	0.43 (0.37, 0.51)	0.41 (0.35, 0.49)	0.45 (0.38, 0.54)	0.51 (0.42, 0.63)
US-born Hispanic	0.97 (0.73, 1.29)	0.99 (0.75, 1.32)	0.84 (0.62, 1.13)	1.01 (0.71, 1.44)
Foreign-born NH white	0.68 (0.43, 1.05)	0.60 (0.39, 0.93)	0.61 (0.39, 0.96)	0.70 (0.41, 1.20)
Foreign-born NH black	0.97 (0.65, 1.45)	1.02 (0.68, 1.53)	0.92 (0.61, 1.40)	1.26 (0.76, 2.07)
Foreign-born Hispanic	1.07 (0.84, 1.36)	1.07 (0.84, 1.36)	0.80 (0.62, 1.03)	0.85 (0.65, 1.10)
US-born Hispanic (reference)	1.00	1.00	1.00	1.00
US-born NH White	0.45 (0.34, 0.58)	0.41 (0.32, 0.54)	0.53 (0.40, 0.72)	0.51 (0.36, 0.71)
US-born NH Black	1.03 (0.77, 1.36)	1.01 (0.76, 1.34)	1.19 (0.88, 1.60)	0.98 (0.69, 1.40)
Foreign-born NH white	0.69 (0.42, 1.14)	0.61 (0.37, 0.99)	0.73 (0.44, 1.21)	0.69 (0.39, 1.23)
Foreign-born NH black	1.00 (0.63, 1.58)	1.03 (0.65, 1.63)	1.10 (0.68, 1.77)	1.24 (0.69, 2.21)
Foreign-born Hispanic	1.10 (0.78, 1.54)	1.08 (0.77, 1.51)	0.95 (0.67, 1.34)	0.83 (0.56, 1.24)

^aUnadjusted model

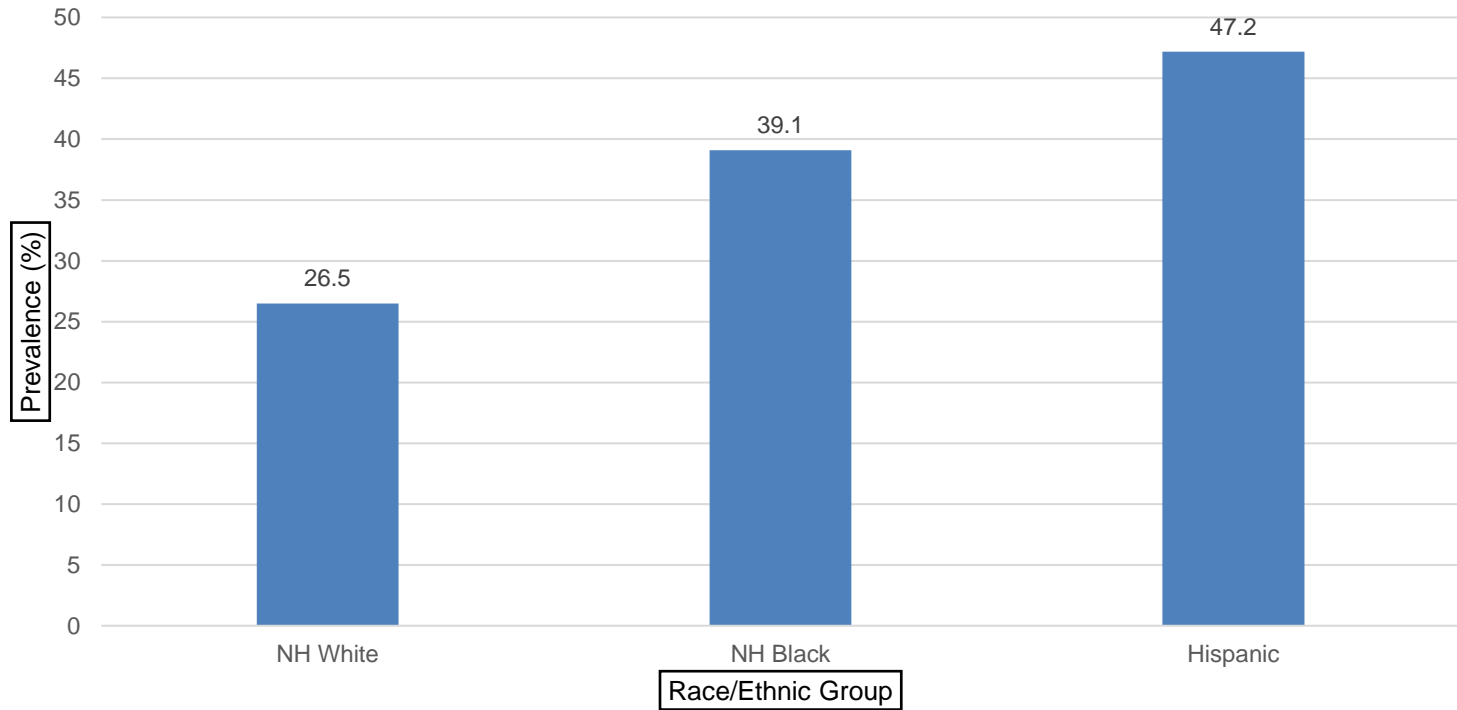
^bAdjusted for age and sex

^cAdjusted for Model 2+early life risk factor (highest level of education)

^dAdjusted for Model 3+selected risk factors measured during late life (hearing loss, hypertension, depression, social isolation, diabetes)

Results

Figure 1: Prevalence of diabetes among adults with cognitive limitations (US born)



Discussion

- Among all groups, the odds ratio of having diabetes with cognitive limitations is highest among foreign born NH-Blacks (OR =2.44; 95% CI = 1.48, 4.02) when all risk factors are adjusted for
- The prevalence of diabetes and cognitive limitations among US born adults was highest among Hispanics (47.2%, SE = 0.02)
- Results suggest a large potential burden of comorbid diabetes and cognitive limitations in US and foreign-born older adults

Strengths and Limitations

- Strength: Cross-sectional retrospective study of a large sample population
- Limitation: Polypharmacy is common among elderly diabetics and is associated with cognitive decline. Further studies need to be conducted on this potential covariate

Recommendations

- Public health interventions are needed to educate caregivers of individuals with diabetes and cognitive disorders on how to control diabetes