Social Determinants Impacting Cognitive Decline in Older Versus Younger American Adults with Type-II: Diabetes: A Secondary Analysis

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Middle aged adults (≤ 65 years) who were financially stressed had 1.95 times higher odds of self-reporting cognitive decline compared to those not experiencing financial hardship. Middle aged adults who experienced loneliness had 1.88 times higher odds of self-reported cognitive decline. Acquiring an income less than $15,000, allowed individuals to report twice the odds of old age adults for experiencing cognitive decline amongst middle aged adults.

INTRODUCTION

- Age related cognitive decline is a global public health problem which is often compounded by poor social conditions and chronic diseases such as Type II diabetes (Xu et al., 2021). Diabetes mellitus is a continual endemic in America with 40 million Americans being diagnosed (American Diabetes Association, 2025).
- Diabetes has an impact on cognitive health, impacting 16% of individuals over the age of 65 years (Centers for Disease Control and Prevention,2025). Age is the leading risk factor for cognitive impairments and evolving social conditions influence cognition.
- A study in China found that being married and residing in an urban community reduces one's risk experiencing cognitive impairment by 34% and 67%, respectfully (Xiu, et al., 2019).
- Notwithstanding, in the U.S, limited studies have explored how social conditions influence cognitive decline in adults with type II diabetes over the life-span.
- This line of inquiry is especially important for informing age-sensitive, socially grounded interventions to promote cognitive health and quality of life throughout the aging continuum.

METHODS

- Data from the **2022-2024 Behavior Risk Factor Surveillance System (BRFSS).** The BRFSS is a nationwide telephone survey that collects data on health-related behaviors, chronic conditions, and health care among U.S adults aged 18 years and older (Centers for Disease Control and Prevention).
- The **study design** of the BRFSS is a randomized and stratified sampling design, utilizing a disproportionate stratified sample for landlines.
- **The dependent variable** was characterized as a binary variable (yes/no) based on a response to experiencing cognitive decline.
- **The independent variables** were characterized by identifiable social factors included in the survey.
- A subcategory analysis was conducted by age group. Chi-square test was used to assess association between cognitive decline and exposure variable. Multivariable logistic regression was utilized, adjusted odds were reported. Analysis was conducted in SAS version 9.4

RESULTS

Selected Characteristics	Middle Age AOR (95% CI)	Old Age AOR (95% CI)
Stress in past 30 days		
Yes	4.81 (3.65 – 6.34)	2.71 (2.34 – 3.13)
No	REF	REF
Feeling lonely in past 30 days		
Yes	1.88 (1.51 – 2.34)	1.56 (1.35 – 1.79)
No	REF	REF
Stressed to pay bills in past 30 days		
Yes	1.94 (1.51-2.49)	2.28 (1.76-2.95)
No	REF	REF
Level of Income		
Less than $15,000	4.67 (2.96-7.37)	2.60 (1.68 – 4.02)
$15,000 to $25,000	2.83 (1.73 – 4.60)	2.30 (1.53 – 3.45)
$25,000 to $35,000	2.25 (1.44 – 3.51)	2.07 (1.38 -3.09)
$35,000 to $50,000	2.81 (1.45 – 5.44)	2.20 (1.36 – 3.00)
$50,000 to $100,000	1.41 (0.95 – 2.08)	1.76 (1.20 – 2.57)
$100,000 to $200,000	1.34 (0.91 – 1.98)	1.35 (0.89-2.03)
$200,000 or more	REF	REF
Birth Sex		
Female	-	REF
Male	-	1.22 (1.07 – 1.39)

*only significant p-values (< 0.05) are included in this table.

CONCLUSIONS

- Financial stress and loneliness were strong predictors of poor cognitive function for both groups.
- Older adults were more vulnerable to financial stress; whereas middle aged adults faced a greater risk from food insecurity and lack of social support.
- Given the increase in life expectancy globally, policies, intervention, and community developers should invest in age-group specific recommendations to alleviate hardship amongst different aging populations.

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