

Exploratory Analysis of Medication Adherence and Social Determinants of Health among Older Adults with Diabetes in the United States



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BACKGROUND

- Diabetes: 7th leading cause of death in the US, affecting approximately 29.2% (15.9 million) adults aged 65+.
- The most expensive chronic condition in the US and accounts for the 2nd largest avoidable healthcare costs.
- Adherence to long-term medication treatment plans is crucial among patients with diabetes.
- It is important to obtain a better understanding of how social determinants of health (SDOH) influence patients' behaviors and affects medication adherence among older adults with diabetes.

OBJECTIVES

- Identify and prioritize SDOH associated with medication adherence among a nationally representative sample of older adults with diabetes.
- Secondary objectives were to characterize SDOH, estimate medication adherence, and explain implications for health disparity populations among older adults in the US who have been diagnosed with diabetes.

METHODS

- This study used a cross-sectional secondary data analysis to examine the **National Health and Nutrition Examination Survey (NHANES) database**, identifying associations between SDOH and medication adherence among older adults with diabetes in the US.
- Applicable data were downloaded from the NHANES website for the five most recent biannual years of data collection.
- The NHANES includes a series of cross-sectional nationally representative health examination surveys and is designed to assess the health and nutritional status of US adults and children.
- The study population was respondents aged 65 and older, whose healthcare providers told them they had diabetes.

LIMITATIONS

- One limitation of this study was variables such as medication costs (to be examined as a medication access barrier) were not included in the analyses because they were not available in the NHANES database.
- The current study findings are only relevant for older adults with diabetes.

RESULTS

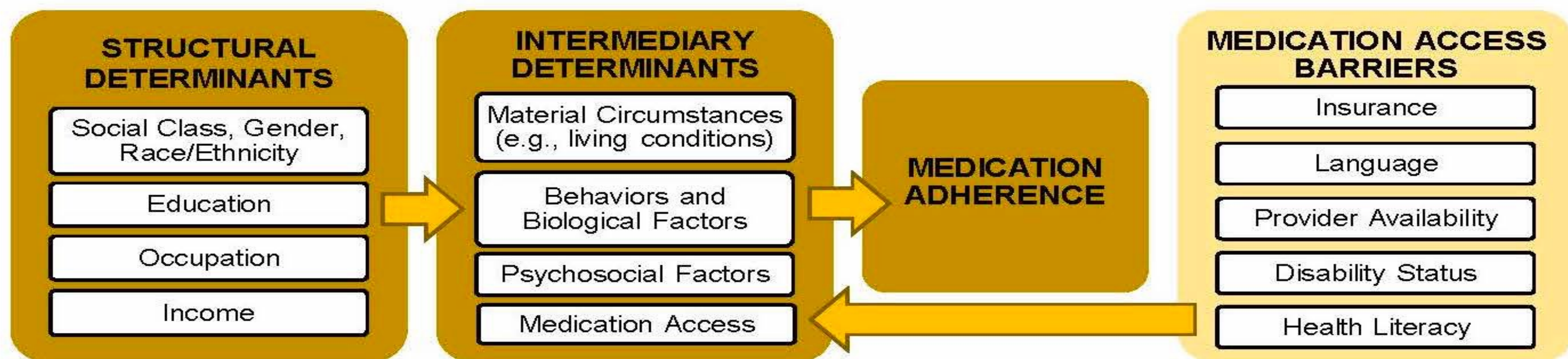
- 1,807 respondents' data were in the analyses.
- Most respondents were 75 years of age or older (41.8%), identified as male (53.8%), Non-Hispanic White (40.2%), married (57.0%), completed at least a high school education but did not graduate from college (46.7%), and not employed (86.5%).
- Overall, nearly three-quarters of patients (73.9%) were considered adherent to their diabetes medications.
- Univariate analysis** revealed significant differences in adherence to medications based on **age group** ($p=0.001$), **disability status** ($p<0.001$), **household balanced meals** ($p=0.001$), **language** ($p=0.004$), and **race** ($p=0.015$).
- Multivariable analysis** revealed significant differences in medication adherence based on **disability status** ($p=0.016$), **household balanced meals** ($p=0.033$), and **language** ($p=0.008$).
- The mean prescription medication count was 6.6 ($SD=3.3$) with a minimum of one and a maximum of 22 medications.

Table 1. Univariate analysis of diabetes medication adherence with continuous predictors.

Determinant Type	Variable	Adherent		Not Adherent		Estimate	Odds Ratio	p-value
		N	Mean (SD)	N	Mean (SD)			
Structural Determinant	Household Income to Poverty Ratio	1,040	1.9 (1.1)	365	1.9 (1.1)	0.024	1.024	0.741
Intermediary Determinant	Medication Access Barrier - Health Literacy	1,279	66.6 (14.6)	458	65.3 (14.8)	0.010	1.010	0.060 ^a
Not Applicable	Prescription Medication Count	1,332	6.6 (3.1)	439	6.8 (3.7)	0.024	1.024	0.284

Conceptual Framework

Figure 1. Integrated conceptual framework on social determinants of health and medication adherence.



DISCUSSION

- This is one of the first known studies to examine the association between SDOH and medication adherence among adults 65 years and older with diabetes in the US using NHANES data and an integrated SDOH and medication adherence conceptual framework.
- When examined individually, our findings indicate that structural and intermediary determinants of health are associated with medication adherence in older adults with diabetes.
- However, when examined collectively, one **modifiable intermediary determinant of health** remained significantly associated with medication adherence: **ability to afford household balanced meals**.

CONCLUSION

- Those with a **disability**, those who **could not afford a balanced meal**, and/or **English speaking** were associated with a **higher likelihood of being nonadherent** to their diabetes medications in comparison to individuals not in these groups.
- Findings can assist in developing SDOH-centered strategies for healthcare providers to implement with older patients with diabetes.

REFERENCES

- Available upon request.