Diabetes Differentially Affects Depression and Self-Rated Health by Age in the U.S.

Deborah J. Wexler, MD, MSC 1
Bianca Porneala, MS 2
Yuchiao Chang, PhD 5
Elbert S. Huang, MD, MPH 3
Jeff C. Huffman, MD 4
Richard W. Grant, MD, MPH 5

OBJECTIVE—To determine whether the relationship between age and physical and mental health varies by diabetes status in older U.S. adults.

RESEARCH DESIGN AND METHODS—Using data from the National Social Life, Health, and Aging Project, a national sample of 3,005 adults aged 57-85 years, we tested the significance of the interaction between age and diabetes in association with health states.

RESULTS—Respondents with diabetes in the youngest age cohort had more medical conditions than those without diabetes, a difference that narrowed with age (P for interaction <0.01). The youngest cohort with diabetes had a higher rate of depression compared to those without diabetes (14 vs. 8%). Depression declined with age and did not differ by diabetes status in the oldest respondents (P = 0.01 for age-diabetes interaction).

CONCLUSIONS—Diabetes differentially affects self-rated overall health and depression by age, with convergence in the oldest age-group with and without diabetes.
The relationships between self-rated physical health, health relative to peers, and mental health by diabetes status and age are shown in Fig. 1D–F with the P value for the crude interaction term. Among respondents with diabetes, 18% rated their physical health fair or poor in the 57–64 years age-group, decreasing to only 10% of the oldest age group, while 6–7% of respondents without diabetes rated their health fair or poor across all age-groups (P = 0.006 for age-diabetes interaction) (Fig. 1D). Health status relative to peers showed a more pronounced pattern (P for difference between diabetes and non-diabetes in the oldest age-group = 0.16; P for age-diabetes interaction = 0.04) (Fig. 1E). Poor or fair self-rated mental health showed a similar pattern, though the age-diabetes interaction was not significant (Fig. 1F).

In multivariable models predicting depression and poor or fair self-rated physical health, the interaction between diabetes and age was significant after adjustment for sex, ethnic group, and education level (Supplementary Table 2).

**CONCLUSIONS**—In this national area probability sample of community-dwelling Americans aged 57–85 years, depression and the perceived burden of disease differed by age and diabetes status. Respondents with diabetes had more comorbid conditions than those without diabetes across the age spectrum, but depression and self-rated health were significantly worse chiefly in respondents with diabetes aged 57–74 years compared with peers without diabetes; the oldest age cohort with diabetes did not rate themselves much differently from their peers without diabetes.

While nationally representative, the findings are limited by their cross-sectional nature, the lack of information on duration of diabetes, and, possibly, diabetes self-report, though diabetes self-report is highly valid in older populations (12). In addition, respondents from different generations may differ in how they rate their symptoms of depression and their overall health. NSHAP did not distinguish between type 1 and type 2 diabetes. Most diabetes in the population age >57 years is type 2 diabetes, and the majority of people affected by type 2 diabetes are in the age-group sampled.

Despite these limitations, this report demonstrates that the experience and perception of diabetes differ by age. Several studies have identified an age-diabetes interaction (13,14). We expand this prior work by showing that while some among the old may have poorly controlled diabetes (3,15), the physical and psychological burden, in general, appears to be greater in middle-aged groups. These findings suggest a role for more aggressive medical and psychological care in middle-aged patients with diabetes, while prioritizing diabetes within the context of other problems among older patients.

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D.J.W. drafted the manuscript, conceived of the project, designed the study, and edited and reviewed the manuscript. B.P. managed data, performed the statistical analyses, and reviewed and edited the manuscript. Y.C. advised on statistical methods, reviewed the analyses, and
reviewed and edited the manuscript. E.S.H. assisted in the conception of the project and the design of the study and reviewed and edited the manuscript. J.C.H. reviewed and edited the manuscript. R.W.G. assisted in the conception of the project and the design of the study and reviewed and edited the manuscript. D.J.W. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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