MICHIGAN BRFSS SURVEILLANCE BRIEF

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Depressive Disorders by Diabetes Status among Michigan Adults, 2024

Key Findings

- About 29.3% of Michigan adults with diabetes reported ever being told that they had depression.
- Females with diabetes reported a higher rate of depression than males with diabetes.
- Adults aged 55 to 64 with diabetes were more likely to report depression.
- Adults with both diabetes and depression are more likely to have obesity, poorer physical and mental health, limited activity, smoking, e-cigarette use, high intake of soda and other sugar-sweetened beverages (SSB), and food insecurity.

Background

Nearly 12% of the U.S. population had been diagnosed with diabetes in 2023,[1] making diabetes one of the leading causes of death and ranking seventh nationally.[2] In Michigan, diabetes mellitus was reported as the seventh leading cause of death in 2024,[3] and about 13.6% of Michigan adults reported being diagnosed with diabetes.[4] Diabetes not only increases the risk of cardiovascular disease, but research demonstrates a strong association between diabetes and psychiatric disorders, particularly depression.[5,6] About 26.8% of Michiganders reported they had depression in the 2024 Michigan Behavioral Risk Surveillance System (MiBRFSS).[4] Therefore, this report examines the prevalence of depression by diabetes status among Michigan adults, with further assessment of potential differences by gender, race/ethnicity, and age. In addition, this report also assesses the association between depression and the prevalence of various risk factors among individuals with diabetes residing in Michigan.

Methods

The MiBRFSS provides cross-sectional data, and a temporal relationship cannot be established. To improve the generalizability of the data, making it possible to draw conclusions about the health of Michiganders, the CDC weighted survey data using iterative proportional fitting, also known as raking, to account for demographic differences between the survey sample and Michigan's population.

In the 2024 Michigan Behavioral Risk Factor Survey (BRFS), participants were asked whether a doctor, nurse, or other health professional had ever told them they had certain health conditions. The definition of depression included depression, major depression, dysthymia, and minor depression. The definition of diabetes excluded prediabetes, borderline diabetes and gestational diabetes.

These data were used to examine the prevalence of depression among Michigan adults by diabetes status and to assess the prevalence of selected behavioral risk factors among Michigan adults with diabetes by depression status. Demographic groups were also compared to identify significant differences based on depression by diabetes status.

Results

- In 2024, 29.3% of Michigan adults with diabetes reported ever being told that they had depression compared to 26.3% of adults without diabetes (Table 1).
- Females with diabetes (38.7%) and without diabetes (33.2%) reported a higher prevalence of depression than their male counterparts with diabetes (20.3%) and without diabetes (19.0%) (Table 1).
- Among adults with diabetes, other or multiracial non-Hispanic individuals had the highest prevalence of depression (31.2%), followed by non-Hispanic Black adults (30.6%), non-Hispanic white adults (29.4%), and Hispanic adults (25.7%). Among adults without diabetes, Hispanic individuals (27.4%) had the highest prevalence, followed by non-Hispanic white individuals (27.2%) (Table 1).
- Adults with diabetes reported a significantly higher prevalence of depression than people without diabetes among those aged 55-64 years old (33.9% vs.21.9%) (Table 1).

Table 1. Prevalence of Depression among Michigan Adults by Diabetes Status, 2024 Michigan BRFS

	Ever Told Depression among Michigan Adults Who Were *Ever* Told They Had Diabetes	**Ever Told Depression among Michigan Adults Who Were *Never* Told They Had Diabetes**
	Percent (95% CI)	Percent (95% CI)
Total	29.3 (26.3-32.5)	26.3 (25.0-27.6)
Gender		
Male	20.3 (16.8-24.2)	19.0 (17.3-20.7)
Female	38.7 (34.1-43.5)	33.2 (31.3-35.1)
Race/Ethnicity		
White non-Hispanic	29.4 (25.9-33.1)	27.2 (25.8-28.7)
Black non-Hispanic	30.6 (23.2-39.3)	21.5 (17.9-25.7)
Other & multi, non-Hispanic	31.2 (20.6-44.3)	24.4 (19.7-29.7)
Hispanic	25.7 (13.1-44.3)	27.4 (21.1-34.6)
Age Groups		
18-24 years	47.8 (19.3-77.8)	29.3 (24.9-34.2)
25-34 years	35.8 (16.4-61.3)	34.6 (31.0-38.4)
35-44 years	49.1 (34.1-64.2)	31.9 (28.6-35.5)
45-54 years	38.4 (30.3-47.2)	30.0 (26.8-33.5)
55-64 years	33.9 (28.1-40.2)	21.9 (19.4-24.7)
65-74 years	21.7 (17.7-26.3)	17.1(15.0-19.4)
75+ years	16.3 (12.2-21.6)	12.6 (10.6-14.8)

Note: CI: Confidence Interval

When examining behavioral risk factors among adults with diabetes and depression, adults with both diabetes and depression were more likely to be classified as obese compared with those without depression (70.8% vs. 53.4%) (Table 2).

Adults with diabetes and depression were also more likely to report days with poor physical health (39.7% vs. 22.2%), poor mental health (47.1% vs. 8.3%), and activity limitations (37.1% vs. 12.5%) over 14 days (Table 2).

In addition, adults with diabetes and depression were more likely than those with diabetes and no depression to report cigarette smoking (20.2% vs. 12%) and e-cigarette use (12.6% vs. 2.8%). They were also more likely to consume soda and other sugar-sweetened beverages (SSB) more than once per day (33.6% vs. 22.9%) and to report food insecurity (38.2% vs. 16.3%). The prevalence of no leisure-time physical activity and heavy alcohol consumption was similar among adults with and without depression (Table 2).

Table 2. Prevalence of Behavioral Risk Factors Among Adults with Diabetes in Michigan by Depression Status, 2024 Michigan BRFS

	Adults with Diabetes Who Were *Ever* Told They Had Depression	Adults with Diabetes Who Were *Never* Told They Had Depression
	Percent (95% CI)	Percent (95% CI)
Obesity (BMI ≥ 30.0)	70.8 (64.7-76.2)	53.4 (49.2-57.5)
Poor physical health over 14 days	39.7 (33.5-46.3)	22.2 (19.0-25.7)
Poor mental health over 14 days	47.1 (40.7-53.7)	8.3 (6.4-10.7)
Activity limited to 14 days	37.1 (31.1-43.5)	12.5 (10.1-15.5)
No leisure time physical activity	43.4 (37.3-49.6)	34.1 (30.6-37.7)
Current smoker	20.2 (15.3-26.1)	12.0 (9.7-14.8)
Current E-cigarette	12.6 (8.5-18.4)	2.8 (1.6-4.8)
Heavy alcohol consumption	4.6 (2.7-7.8)	1.9 (1.1-3.3)
Soda and Other SSB drinks more than one time per day	33.6 (27.0-40.9)	22.9 (19.3-26.9)
Food Insecurity	38.2 (31.5-45.4)	16.3 (13.2-20.0)

Note: CI: Confidence Interval

Discussion

These findings show that depression was more common among Michigan adults aged 55 to 64 years old with diabetes than among those without diabetes, supporting previous research that has found a link between depression and diabetes.[5-7] Demographic patterns also varied by gender, race/ethnicity, and age group. Independent of diabetes status, a greater proportion of Michigan adult females reported depression compared to Michigan adult males. Consistent with previous reports, women have a higher prevalence of depression than men, regardless of diabetes status.[8]

Compared to those without depression, adults with both diabetes and depression are more likely to have obesity, poorer physical and mental health, limited activity, smoking, e-cigarette use, high intake of soda and SSB drinks, and food insecurity.

This report has several limitations. BRFSS data are self-reported, so some bias may exist in how people report their health conditions and behaviors, including social desirability bias. Since depression and diabetes share symptoms, the results could worsen each other.[7]

Understanding Michigan-specific patterns can help improve public health messaging and policy. Thus, these findings suggest that implementing psychosocial screening protocols and psychosocial support among diabetes care teams could improve overall health outcomes. In addition, people with diabetes, depression, and diabetes distress often benefit when management of one condition supports the others. Diabetes Self-Management Education and Support (DSMES) addresses both the clinical and psychosocial needs of people with diabetes and works collaboratively with their healthcare team. DSMES providers are trained to recognize and respond to psychosocial concerns as part of care. Strengthening a person's self-management skills can improve their sense of control and support better mental health. Referring patients to DSMES can improve quality of life for those managing both diabetes and depression.

What is the Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)?

The MiBRFSS comprises annual statewide telephone surveys of Michigan adults aged 18 years and older, and is part of the national BRFSS coordinated by the Centers for Disease Control and Prevention (CDC). The MiBRFSS follows the CDC BRFSS protocol and uses the standardized English core questionnaire that focuses on various health behaviors, medical conditions, and preventive health care practices related to the leading causes of mortality, morbidity and disability. Landline and cell phone interviews are conducted across each calendar year. Data are weighted to account for selection probabilities, and raking weights are used to adjust the

sample to reflect the distribution of the Michigan adult population across eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.

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