Mental Health Status and Chronic Conditions among Montana Adults, 2018

At a Glance

- In 2018, almost 8% of Montana adults reported having ever been diagnosed with depression and experiencing frequent mental distress (defined as reporting poor mental health on 14 or more of the past 30 days)
- Over half (56%) of adults who reported having ever been diagnosed with depression and experiencing frequent mental distress also reported having been diagnosed with two or more chronic conditions
- The odds of reporting having ever been diagnosed with two or more chronic conditions was nearly 5 times higher among adults ever diagnosed with depression and experiencing frequent mental distress than among adults never diagnosed with depression and not experiencing frequent mental distress

Introduction

According to the World Health Organization (WHO), depression is a common mental disorder that affects more than 264 million people worldwide.[1] Depression is often characterized by persistent sadness, a lack of interest or pleasure, disturbed sleep and/or appetite, tiredness, and/or poor concentration.[1] Depression can be chronic or recurrent.[1] An estimated one out of every six adults will experience depression at some point in their life.[2] Furthermore, about 17 million American adults are impacted by depression each year.[3]

Research suggests that a bidirectional relationship exists between depression and chronic disease.[4] Specific associations between depressive disorders and the prevalence of cardiovascular disease, diabetes, obesity, asthma, and arthritis have been identified.[5]

This report describes the burden of chronic conditions among Montana adults ever diagnosed with a depressive disorder compared to those never diagnosed with a depressive disorder. This report also went a step further by including an indicator of mental distress to more thoroughly assess current mental health status among Montana adults and the odds of ever being diagnosed with select chronic conditions.

Methods

This report analyzed data from the 2018 Montana Behavioral Risk Factor Surveillance System (BRFSS). The Montana BRFSS survey is an annual telephone survey conducted among non-institutionalized Montana adults (aged 18 and older).

Montana Behavioral Risk Factor Surveillance System

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http://www.dphhs.mt.gov/publichealth/BRFSS

The 2018 Montana BRFSS included two questions to indicate mental illness and mental health status:

1. Has a doctor, nurse, or other health professional ever told you that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?
2. Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Respondents were classified as having ever been diagnosed with a depressive disorder if they answered "yes" to the first question. Respondents were also classified as experiencing frequent mental distress if they reported that their mental health was not good on 14 or more of the past 30 days (second question).

These two questions were used to establish four categories of mental health status: 1) adults never diagnosed with a depressive disorder and not experiencing frequent mental distress (herein referred to as "Good Mental Health Status"); 2) adults never diagnosed with a depressive disorder but experiencing frequent mental distress ("Current Frequent Mental Distress Only"); 3) adults ever diagnosed with a depressive disorder but not experiencing frequent mental distress ("Ever Had Depression Only"); 4) adults diagnosed with a depressive disorder and experiencing frequent mental distress ("Ever Had Depression and Current Frequent Mental Distress").

Ten diagnosed chronic conditions were considered in the analysis. These were (current) asthma, arthritis, cancer (not including skin cancer), chronic obstructive pulmonary disease (COPD), coronary heart disease (CHD), diabetes, kidney disease, myocardial infarction, stroke, and (current) obesity. Obesity was defined as a Body Mass Index (BMI) greater than or equal to 30, according to self-reported height and weight. Analyses of mental health status among respondents with multiple chronic conditions (two or more and three or more reported chronic conditions) were also conducted.

This analysis is subject to a few limitations. First, the BRFSS is self-reported data. Respondents may underreport some behaviors that may be considered socially unacceptable (e.g., smoking) and may over report behaviors that are considered socially desirable (e.g., physical activity). Furthermore, the cross-sectional design of the survey makes casual conclusions impossible. That is, we cannot say that an individual has a given condition or risk behavior because they have been diagnosed with a depressive disorder or are currently experiencing mental distress, nor can we say that an individual has been diagnosed with a depressive disorder or is currently experiencing mental distress because of a given condition or risk behavior.

Statistical Analyses

The data were weighted to be representative of the Montana adult population according to methodologies set forth by CDC. There were 5,190 respondents to the 2018 Montana BRFSS. Most respondents (n=3,784) reported never having been diagnosed with a depressive disorder and not experiencing frequent mental distress, 236 respondents were categorized as never diagnosed with a depressive disorder but experiencing frequent mental distress, 724 respondents were categorized as having ever been diagnosed with a depressive disorder but not experiencing frequent mental distress, and 342 respondents were categorized as having ever been diagnosed with a depressive disorder and experiencing frequent mental distress.

Respondents who answered, "Don't Know," "Not Sure," or "Refused," were excluded from the given analyses. Select prevalence estimates were not reported due to low precision, this included estimates with less than 50 respondents, with half-width confidence intervals greater than 10 percent, or with a relative standard error greater than 30 percent.

All prevalence estimates were age-adjusted to the 2000 projected U.S. population, distribution #9, as documented in "Age Adjustment Using the 2000 Projected U.S. Population" of the *Healthy People Statistical Notes*, by Klein and Schoenborn.[6]

Odds ratios were obtained using logistic regression. In the adjusted analysis, confounders were identified according to the operational definition of confounding and included age, income, disability, physical inactivity, and current cigarette smoking. All statistical analyses were performed using SAS 9.4.

Results

Demographic Characteristics of Montana Adults by Mental Health Status

In 2018, 7.5% of Montana adults were classified as "Ever Had Depression and Current Frequent Mental Distress" (Table 1). In Montana, the prevalence of "Good Mental Health Status" was higher among males, older adults, adults with higher educational attainment, adults with higher annual household income, white, non-Hispanic adults, and adults with no form of disability (Table 1).

Table 1. Age-adjusted Prevalence of Mental Health Status among Montana Adults by Select Demographic Characteristics, 2018[1]

	Ever Had Depression *AND* Current Frequent Mental Distress		**Ever Had Depression Only**		**Current Frequent Mental Distress Only**		**Good Mental Health Status**	
	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval
All Adults	7.5%	6.4 - 8.6	15.1%	13.6 - 16.6	4.8%	3.9 - 5.7	72.6%	70.8 - 74.5
Sex								
Male	**4.8%**	3.5 - 6.0	**11.3%**	9.5 - 13.1	4.8%	3.5 - 6.1	**79.1%**	76.8 - 81.5
Female	**10.3%**	8.5 - 12.1	**19.0%**	16.7 - 21.3	4.7%	3.5 - 5.9	**66.0%**	63.2 - 68.7
Age								
18-24	**10.6%**	6.5 - 14.7	**12.5%**	7.8 - 17.2	**NSD[2]**		**72.3%**	66.1 - 78.4
25-34	**7.4%**	4.6 - 10.3	**16.9%**	12.7 - 21.1	**4.8%**	2.4 - 7.3	**70.8%**	65.8 - 75.8
35-44	**7.7%**	5.0 - 10.3	**17.1%**	13.4 - 20.8	**5.7%**	3.2 - 8.1	**69.5%**	64.9 - 74.1
45-64	**7.9%**	6.2 - 9.7	**16.1%**	13.8 - 18.3	**5.1%**	3.9 - 8.1	**70.9%**	68.1 - 73.6
65+	**4.0%**	2.9 - 5.1	**10.9%**	9.1 - 12.8	**3.0%**	2.0 - 4.0	**82.1%**	79.8 - 84.3
Education								
<High School	**15.5%**	9.8 - 21.2	17.3%	10.6 - 23.9	**7.4%**	3.5 - 11.2	**59.9%**	51.7 - 68.1
High School/GED	**6.2%**	4.5 - 8.0	13.3%	10.8 - 15.8	**5.7%**	3.8 - 7.6	**74.7%**	71.4 - 78.0
Some College	**9.0%**	6.9 - 11.1	15.3%	12.7 - 18.0	**4.3%**	2.8 - 5.9	**71.3%**	68.0 - 74.6
College Degree +	**4.1%**	2.6 - 5.5	16.4%	13.5 - 19.3	**3.8%**	2.3 - 5.3	**75.7%**	72.5 - 79.0
Income								
<$15,000	**20.1%**	14.3 - 25.8	**25.9%**	19.3 - 32.4	**7.1%**	4.0 - 10.3	**46.9%**	40.1 - 53.7
$15,000-$24,999	**14.9%**	10.5 - 19.2	**17.6%**	13.5 - 21.8	**8.0%**	4.4 - 11.5	**59.5%**	54.0 - 65.0
$25,000-$49,999	**5.5%**	3.7 - 7.3	**16.0%**	12.5 - 19.5	**4.4%**	2.7 - 6.2	**74.0%**	70.0 - 78.0
$50,000-$74,999	**2.5%**	1.1 - 4.0	**11.0%**	8.0 - 14.0	**4.7%**	2.3 - 7.1	**81.8%**	77.9 - 85.7
$75,000+	**3.6%**	1.6 - 5.5	**13.5%**	10.8 - 16.2	**2.7%**	1.6 - 3.8	**80.3%**	77.0 - 83.6
Race/Ethnicity								
White, non-Hispanic	7.4%	6.2 - 8.6	15.1%	13.5 - 16.7	4.6%	3.7 - 5.6	**72.9%**	70.9 - 74.9
AI/AN[3]	11.6%	6.9 - 16.3	18.7%	12.5 - 24.9	6.8%	3.8 - 9.8	**62.9%**	56.0 - 69.8
Disability Status[4]								
Some form of disability	**21.2%**	17.2 - 25.1	**24.8%**	20.6 - 28.9	**6.8%**	4.6 - 8.9	**47.3%**	42.7 - 51.9
No disability	**3.3%**	2.4 - 4.1	**12.7%**	11.2 - 14.3	**4.0%**	3.0 - 5.0	**80.0%**	78.1 - 81.9

Bolded estimates represent statistical significance within mental health status categories

[1] Data Source: 2018 Montana Behavioral Risk Factor Surveillance System

[2] Not sufficient data to report reliable estimate

[3] American Indian/Alaskan Native only

[4] Disability is defined as answering "yes" to one or more of the following: (1) are you deaf or do you have serious difficulty hearing, (2) are you blind or do you have serious difficulty seeing, (3) because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions, (4) do you have serious difficulty walking or climbing stairs, (5) do you have difficulty dressing or bathing, (6) because of a physical, mental, or emotional condition, do you have difficulty doing errands alone?

Prevalence of Select Chronic Conditions and Health Risk Behaviors among Montana Adults by Mental Health Status

In 2018, 56.2% of Montanan adults classified as "Ever Had Depression and Current Frequent Mental Distress" reported having been diagnosed with two or more chronic conditions (Table 2). Meanwhile, 17.9% of adults classified with "Good Mental Health Status" reported having been diagnosed with two or more chronic conditions (Table 2). In general, adults who reported both indicators of poor mental health status ("Ever Had Depression and Current Frequent Mental Distress") had a higher prevalence of chronic conditions and health risk behaviors than adults who reported only one (or no) indicator of poor mental health status.

Table 2. Age-adjusted Prevalence of Select Chronic Conditions and Health Risk Behaviors by Mental Health Status among Montana Adults, 2018[1]

	Ever Had Depression *AND* Current Frequent Mental Distress		**Ever Had Depression Only**		**Current Frequent Mental Distress Only**		**Good Mental Health Status**	
	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval	Prevalence	95% Confidence Interval
Multiple Chronic Conditions								
2+ Chronic Conditions	**56.2%**	49.9 - 62.4	**31.5%**	27.5 – 35.4	**25.2%**	19.2 - 31.2	**17.9%**	16.5 - 19.3
3+ Chronic Conditions	**31.4%**	25.4 - 37.5	**13.6%**	10.9 - 16.4	**12.0%**	7.7 - 16.3	**6.6%**	5.8 - 7.5
Chronic Conditions								
Asthma (current)	**25.0%**	18.6 – 31.4	**16.5%**	12.6 - 20.4	**9.3%**	4.6 - 14.1	**7.3%**	6.1 - 8.5
Arthritis	**50.8%**	44.6 - 57.0	**35.0%**	31.0 - 39.0	**27.6%**	20.9 - 34.2	**20.3%**	18.8 - 21.9
Cancer (not including skin)	**10.3%**	6.6 - 14.1	**7.0%**	5.0 – 9.0	**9.9%**	5.3 - 14.5	**6.1%**	5.2 - 7.0
Chronic Obstructive Pulmonary Disease	**18.3%**	13.5 - 23.1	**7.1%**	5.1 – 9.1	**7.1%**	3.7 - 10.6	**3.4%**	2.7 - 4.0
Coronary Heart Disease	**9.7%**	5.8 - 13.6	**3.9%**	2.4 – 5.4	**NSD[2]**		**2.9%**	2.3 - 3.5
Diabetes	**17.8%**	12.8 - 22.7	**10.9%**	8.3 - 13.6	**7.1%**	3.6 - 10.6	**6.8%**	5.9 - 7.7
Kidney Disease	**7.9%**	4.3 - 11.5	**1.6%**	0.9 – 2.3	**NSD[2]**		**1.2%**	0.7 - 1.6
Myocardial Infarction (heart attack)	**9.0%**	5.2 - 12.8	**3.5%**	1.8 – 5.3	**NSD[2]**		**3.7%**	3.0 - 4.4
Obesity	**43.6%**	36.3 - 50.9	**32.4%**	27.8 - 37.0	**36.4%**	27.3 - 45.5	**23.8%**	21.9 - 25.8
Stroke	**10.2%**	5.8 - 14.6	**4.2%**	2.3 - 6.1	**NSD[2]**		**2.1%**	1.6 – 2.7
Health Risk Behaviors								
Physically Inactive[3]	**41.1%**	34.1 - 48.2	**27.0%**	22.7 - 31.3	**31.7%**	24.3 - 39.0	**18.0%**	16.3 - 19.8
Current Smoker[4]	**41.0%**	33.7 - 48.3	**26.9%**	22.3 - 31.6	**24.4%**	16.3 - 32.5	**14.2%**	12.6 - 15.9
Binge Drinking[5]	23.2%	16.9 - 29.5	18.1%	13.9 - 22.3	15.9%	9.4 - 22.3	19.6%	17.5 - 21.6
Heavy Drinking[6]	10.1%	5.9 - 14.3	6.5%	4.0 - 9.0	11.8%	6.1 - 17.4	7.4%	6.1 - 8.8

Bolded estimates represent statistical significance across mental health

[1] Data Source: 2018 Montana Behavioral Risk Factor Surveillance System

[2] Not sufficient data to report reliable estimate

[3] Physically inactive is defined as adults who reported no leisure time physical activity or exercise during the past 30 days

[4] Current smokers are defined as adults who report currently smoking cigarettes

[5] Binge drinking is defined as males having 5 or more alcoholic drinks on one occasion or females having 4 or more alcoholic drinks on one occasion

[6] Heavy drinking is defined as males having 15 or more alcoholic drinks per week and females having 8 or more alcoholic drinks per week

Odds of Select Chronic Conditions by Mental Health Status

After adjusting for age, income, disability, physical inactivity, and smoking status, the odds of reporting two or more chronic conditions were over five times higher among adults classified as "Ever Had Depression and Current Frequent Mental Distress" than among adults classified with "Good Mental Health Status." Furthermore, the odds were twice as high among adults classified as "Ever Had Depression Only" than among adults classified with "Good Mental Health Status." Lastly, the odds of reporting two to more chronic conditions were similar among adults classified as "Current Frequent Mental Distress Only" and adults classified with "Good Mental Health Status."

Table 3. Unadjusted Odds Ratio (UOR) and Adjusted Odds Ratios (AOR)[1] of Select Chronic Conditions by Mental Health Status among Montanan Adults, 2018[2]

	Ever Had Depression *AND* Current Frequent Mental Distress		**Ever Had Depression Only**		**Current Frequent Mental Distress Only**		**Good Mental Health Status**	
	UOR (95% Confidence Interval)	AOR[1] (95% Confidence Interval)	UOR (95% Confidence Interval)	AOR[1] (95% Confidence Interval)	UOR (95% Confidence Interval)	AOR[1] (95% Confidence Interval)	UOR (95% Confidence Interval)	AOR[1] (95% Confidence Interval)
Multiple Chronic Conditions								
2+ Chronic Conditions	**4.7 (3.4 - 6.4)**	**5.4 (3.5 - 8.4)**	**1.9 (1.5 - 2.4)**	**1.9 (1.4 - 2.4)**	1.3 (0.9 - 2.0)	1.1 (0.7 - 1.8)		
3+ Chronic Conditions	**5.1 (3.7 - 7.2)**	**3.9 (2.4 - 6.4)**	**1.9 (1.4 - 2.5)**	**1.6 (1.2 - 2.3)**	1.6 (1.0 - 2.6)	1.2 (0.7 - 2.2)		
Select Chronic Conditions								
Asthma (current)	**4.3 (2.9 - 6.3)**	**2.3 (1.4 - 3.8)**	**2.4 (1.8 - 3.3)**	**1.9 (1.3 - 2.8)**	1.3 (0.7 - 2.4)	0.9 (0.5 - 1.8)		
Arthritis	**3.2 (2.3 - 4.3)**	**3.8 (2.4 - 6.0)**	**1.8 (1.5 - 2.3)**	**2.2 (1.7 - 2.9)**	1.3 (0.9 - 1.8)	1.1 (0.7 - 1.8)		
Cancer (not including skin)	1.3 (0.9 - 2.1)	1.3 (0.8 - 2.3)	1.0 (0.7 - 2.1)	1.1 (0.8 - 1.6)	1.3 (0.7 - 2.4)	1.5 (0.7 - 2.8)	Reference Group	
Chronic Obstructive Pulmonary Disease	**5.6 (3.7 - 8.4)**	**3.1 (1.8 - 5.3)**	**1.9 (1.3 - 2.7)**	1.4 (0.9 - 2.1)	**1.8 (1.0 - 3.3)**	1.4 (0.6 - 2.9)		
Coronary Heart Disease	**2.7 (1.6 - 4.7)**	**2.2 (1.1 - 4.5)**	1.1 (0.7 - 1.8)	1.0 (0.6 - 1.9)	NSD[2]	NSD[3]		
Diabetes	**2.3 (1.6 - 3.4)**	**2.1 (1.3 - 3.4)**	**1.5 (1.1 - 2.0)**	1.3 (0.9 - 1.9)	0.9 (0.5 - 1.6)	0.6 (0.3 - 1.1)		
Kidney Disease	**6.0 (3.3 - 10.9)**	**4.9 (2.2 - 10.8)**	1.2 (0.7 - 2.1)	1.1 (0.6 - 2.1)	NSD[2]	NSD[3]		
Myocardial Infarction (heart attack)	**1.9 (1.2 - 3.2)**	1.6 (0.8 - 3.2)	0.8 (0.5 - 1.3)	0.6 (0.3 - 1.1)	NSD[2]	NSD[3]		
Obesity	**2.2 (1.6 - 3.1)**	**2.0 (1.4 - 3.0)**	**1.6 (1.3 - 2.0)**	**1.4 (1.1 - 1.8)**	**1.7 (1.1 - 2.6)**	1.5 (0.9 - 2.5)		
Stroke	**3.6 (2.1 - 6.1)**	**2.4 (1.2 - 4.7)**	1.5 (0.9 - 2.5)	1.1 (0.6 – 1.9)	NSD[2]	NSD[3]		

[1]Adjusted for age, annual household income, disability status, physical inactivity, and smoking status
[2]Data Source: 2018 Montana Behavioral Risk Factor Surveillance System
[3]Not sufficient data to report reliable estimate
Bold AOR estimates indicate a significant difference from reference group

Conclusion:

The odds of reporting select chronic conditions, as well as multiple chronic conditions (2+ and 3+) are higher among Montana adults who report ever having been diagnosed with a depressive disorder. These findings appear to be amplified among Montana adults who report ever having been diagnosed with a depressive disorder and currently experiencing frequent mental distress. To continue improving the health and wellbeing of Montana adults, more information is needed to better understand and respond to the bidirectional relationship that exists between depression and chronic disease.

There are several resources available to help Montanans better manage their chronic and mental health conditions. Some of these resources include:

- The Montana Living Life Well Program: Helps adults with one or more chronic conditions learn how to take control of their health
- The Montana Tobacco Use Prevention Program, including the Montana Tobacco Quit Line
- The Montana Asthma Home Visiting Program: Provides six consultations from a registered nurse to address factors related to uncontrolled asthma
- Diabetes Self-Management Education: Connects individuals with diabetes to diabetes education to promote self-management and quality of life
- The Montana Diabetes Prevention Program (DPP): Provides group education to help adults at high risk of diabetes adopt healthier lifestyles through diet and exercise modifications
  More information on these programs can be found at:
  https://mtdphhs.maps.arcgis.com/apps/MapSeries/index.html?appid=1760de739c5342d2987add889df36525
- MT DPHHS Adult Mental Health Services: Responsible for the development and oversight of delivering and reimbursing publicly funded Adult Mental Health Information https://dphhs.mt.gov/amdd/Mentalhealthservices

Furthermore, the U.S. Preventive Services Task Force (USPSTF) recommends screening for depression in the general adult population.[7] Thus, healthcare providers should be prepared to screen patients, particularly those with other chronic conditions, for depression and to make referrals as indicated.

Acknowledgements

The Montana BRFSS staff gratefully acknowledges the efforts of the Montana residents who took the time to respond to this survey. The Montana BRFSS is conducted through a Cooperative Agreement between the Centers for Disease Control and Prevention and the Montana Department of Public Health and Human Services. This publication was supported by Grant Number NU58DP006044-04 from the CDC. The contents are solely the responsibility of the author and do not necessarily represent the official views of CDC.

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