Montana Chronic Disease Prevention & Health Promotion Bureau

Chronic Disease Surveillance Report

Arthritis among Montana Adults with Diabetes

Background

Arthritis and diabetes are among the most costly health conditions in the United States.[1] These conditions share similar risk factors (increasing age and obesity) and management strategies (physical activity and weight management).[2,3,4] Arthritis and diabetes are often comorbid conditions. A recent study has shown that the prevalence of both arthritis and arthritis-attributable activity limitation (AAAL) is significantly higher among U.S. adults with diabetes compared to those without diabetes even after controlling for age, sex, race, education, BMI, and physical activity.[5] Furthermore, arthritis can be a barrier to physical activity among adults with diabetes.[6] This report examines the relationship between arthritis and diabetes among Montana adults and identifies opportunities for coordinated management of these conditions.

Methods

This report utilized data from the 2009 and 2011 Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is a random digit dialing telephone survey of non-institutionalized adults.[7] Diagnosis of arthritis was assessed with the question 'Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?' Adults reporting a diagnosis of arthritis were then asked 'Are you limited in any way in any of your usual activities because of arthritis or joint symptoms'. Those who answered 'yes' to this question were classified as having arthritis-attributable activity limitation (AAAL). Diagnosis of diabetes was assessed with the question 'Have you ever been told by a doctor that you have diabetes'. Women who reported having a diagnosis of gestational diabetes during pregnancy were not classified as having diabetes in this analysis. Data from the

Montana Arthritis Program

(406) 444-0958

http://dphhs.mt.gov/publichealth/arthritis

Montana Diabetes Project

(406) 444-9154

http://www.diabetes.mt.gov

MONTANA DPHHS

Healthy People. Healthy Communities.

Department of Public Health & Human Services

December 2012

Table 1. Prevalence* of Diabetes, Arthritis, and Arthritis-Attributable Activity Limitation (AAAL) by Demographic Characteristics and Behavioral Risks, BRFSS, Montana, 2009 &2011.

	Diabetes		Arthritis		AAAL	
	Percent	95% Confidence Interval	Percent	95% Confidence Interval	Percent§	95% Confidence Interval
All Adults	7.5	(7.0 - 8.1)	27.2	(26.3 - 28.1)	48.7	(46.8 - 50.5)
Sex						
Male	7.5	(6.7 - 8.2)	25.1	(23.8 - 26.5)	47.6	(44.6 - 50.6)
Female	7.6	(6.9 - 8.3)	29.3	(28.1 - 30.5)	49.5	(47.2 - 51.9)
Age						
18-44	2.1	(1.6 - 2.6)	9.5	(8.4 - 10.6)	45.9	(39.8 - 52.0)
45-64	8.7	(7.8 - 9.5)	35.2	(33.7 - 36.8)	52.5	(49.5 - 55.0)
65+	17.7	(16.2 - 19.2)	52.3	(50.5 - 54.1)	45.0	(42.4 - 47.6)
Race						
White, Non-Hispanic	7.1	(6.6 - 7.7)	27.3	(26.3 - 28.2)	47.4	(45.3 - 49.3)
American Indian	16.6	(13.3 - 19.8)	29.3	(25.3 - 33.4)	63.5	(59.0 - 71.0)
All Other Races	5.6	(3.8 - 7.5)	23.7	(19.4 - 28.0)	56.6	(46.9 - 66.2)
Education						
High School or Less	8.9	(8.0 - 9.8)	30.2	(28.6 - 31.7)	50.1	(47.2 - 53.1)
More than High School	6.5	(5.9 - 7.1)	25.1	(24.0 - 26.2)	47.4	(45.0 - 46.8)
Weight Status						
Normal Weight or Less	3.4	(2.8 - 4.0)	21.1	(19.7 - 22.5)	47.3	(43.7 - 50.8)
Overweight	6.1	(5.4 - 6.8)	27.4	(25.9 - 28.9)	44.5	(41.5 - 47.6)
Obese	15.9	(14.4 - 17.4)	36.6	(34.5 - 38.7)	53.7	(50.4 - 57.1)
Physical Activity**						
Any	6.3	(5.8 - 6.8)	24.3	(23.3 - 25.3)	44.0	(41.8 - 46.2)
None	11.6	(10.3 - 13.0)	37.2	(35.1 - 39.3)	58.5	(55.1 - 61.9)

*Prevalence is expressed as the percent of all adults in each demographic group.

**Physical activity is assessed with a yes or no response to the question "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

§ Percent of adults with arthritis attributable activity limitation among adults that reported having arthritis in each demographic subgroup.

2009 and 2011 surveys were combined to obtain a sufficient sample size for subgroup analysis among adults with diabetes. Logistic regression analysis was used to calculate crude and adjusted odds ratios for having arthritis and AAAL among adults with diabetes compared to those without diabetes. Potential confounders were identified through literature review and descriptive analysis.

Results

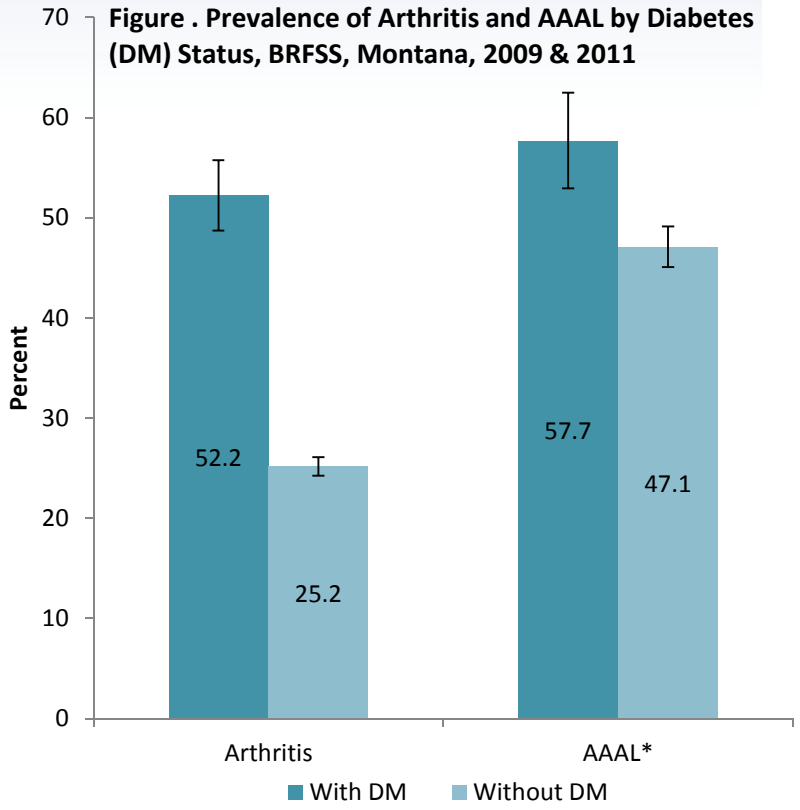
Among Montana adults, many of the same demographic subgroups have a higher prevalence of arthritis and diabetes. The prevalence of both arthritis and diabetes is significantly higher among older adults, adults with less educational attainment, overweight or obese adults, and adults who report no physical activity outside their regular job (Table 1). Nearly half (49%) of adults with arthritis reported being limited in their activities because of their arthritis. The prevalence of AAAL did not vary significantly by sex, age, or educational attainment. However, American Indian, obese, and physically inactive adults all reported AAAL significantly more often than other adults with arthritis.

Over half (52%) of adults with diabetes also had arthritis and 58% of adults with both diabetes and arthritis experienced activity limitation because of their arthritis (Figure 1). Montana adults with diabetes reported both arthritis and AAAL significantly more often than adults without diabetes (Table 2). After adjusting for sex, age, race, educational attainment, BMI category, and physical activity status, reports of arthritis and AAAL were still significantly more common among adults with diabetes than those without diabetes.

Discussion

Montanans with diabetes reported arthritis and AAAL significantly more often than Montanans without diabetes even after accounting for common risk factors. Adults with both diabetes and arthritis could improve both conditions with regular physical activity, but this population may be unlikely to engage in physical activity because of their joint pain and stiffness.

Figure . Prevalence of Arthritis and AAAL by Diabetes (DM) Status, BRFSS, Montana, 2009 & 2011



* among adults who report being diagnosed with arthritis

Table 2. Odds Ratios (OR) of Arthritis and AAAL among Adults with Diabetes vs. Those without Diabetes, BRFSS, Montana, 2009 & 2011

	Crude OR (95%CI)	Adjusted* OR (95%CI)
Arthritis	3.25 (2.80-3.77)	1.37 (1.15-1.64)
AAAL	1.53 (1.24-1.89)	1.45 (1.16-1.82)

* adjusted for sex, age, race, educational attainment, BMI category and physical activity status.

Targeting arthritis physical activity programs, such as the Arthritis Foundation Exercise Program (AFEP) and the Walk With Ease Program (WWE), to adults with both arthritis and diabetes is an effective solution to this problem. These programs focus on helping individuals initiate and maintain physical activity in a way that will not make their arthritis symptoms worse. The AFEP is an eight-week course that teaches participants flexibility and muscle strengthening exercises that have been proven to decrease joint pain and stiffness and increase physical functioning.[8] The AFEP exercises can be done while standing or sitting to allow participation by people with varied abilities. The WWE program focuses on using walking in addition to stretching and strengthening exercises to decrease pain and increase function.[9] WWE is targeted at working-age adults and adults with few physical limitations. The AFEP is currently being offered at nine sites across Montana. Starting in January of 2013, an additional 22 sites will begin offering one or both programs. Health care providers should refer their patients with both diabetes and arthritis to participate in AFEP, WWE, or other appropriate modes of physical activity. Please refer to the site listing on the following page to find a site near you or contact the Montana Arthritis Program by visiting http://dphhs.mt.gov/publichealth/arthritis.

Another approach to increasing physical activity among adults with both arthritis and diabetes is to use certified diabetes educators and self-management education strategies. Diabetes educators can help tailor a plan for being active that would be appropriate for adults with both diabetes and arthritis. Contact Marci Butcher at the Montana Diabetes Project at (406) 535-4797 or mbutcher@midrivers.com for information about how to locate diabetes educators in your community. You may also find a local diabetes educator by contacting your local hospital or visiting www.diabeteseducator.org/DiabetesEducation/Find.html.

References

1) Soni A. (July 2011). Top 10 most costly conditions among men and women, 2008: Estimates for the U.S. civilian non-institutionalized adult population, age 18 and older. Agency for Healthcare Research and Quality Statistical Brief #331. Retrieved on September 6, 2012 from http://meps.ahrq.gov/mepsweb/data_files/publications/st331/stat331.pdf.

2) Nolan CJ, Damm P, Prentki M. Type 2 Diabetes across generations: from pathophysiology to prevention and management. Lancet. 2011;378:169-181.

3) Centers for Disease Control and Prevention. (September 1, 2011). Arthritis Basics: Risk Factors. Retrieved on September 7, 2012 from http://www.cdc.gov/arthritis/basics/risk_factors.htm.

4) Centers for Disease Control and Prevention. (December 28, 2011). Arthritis Basics: Physical Activity and Arthritis. Retrieved on September 7, 2012 from http://www.cdc.gov/arthritis/pa_overview.htm.

5) Cheng YJ, Imperatore G, Caspersen CJ, et al. Prevalence of Diagnosed Arthritis and Arthritis-Attributable Activity Limitation Among adults with and without diagnosed diabetes: United States, 2008-2010. Diabetes Care. 2012;35:1686-1691.

6) Centers for Disease Control and Prevention. Arthritis as a potential barrier to physical activity among adults with diabetes—United States, 2005 and 2007. MMWR. 2008;57(18):486-489.

7) Centers for Disease Control and Prevention. (December 12, 2006). Behavioral Risk Factor Surveillance System Operational and User's Guide, Version 3.0. Retrieved August 13, 2012 from ftp://ftp.cdc.gov/pub/Data/Brfss/userguide.pdf.

8) Suomi R, Collier D. Effects of Arthritis Exercise Programs on Functional Fitness and Perceived Activities of Daily Living Measures in Older Adults With Arthritis. Arch Phys Med Rehabil. 2003;84;1589-1594

9) Nyrop KA, Charnock BL, Martin KR, et al. Effect of a Six-Week Walking Program on Work Place Activity Limitations Among Adults with Arthritis. Arthritis Care & Research. 2011;63(12);1773-1776.

Chronic Disease
Prevention and
Health Promotion
BUREAU
1400 E Broadway
Helena, MT 59620-2951

For more information contact:
Heather Welch
Arthritis Program Manager
(406) 444-0958
hwelch@mt.gov

Report Highlights

- **52% of Montana adults with diabetes also report having arthritis.**
- **58% of adults with both diabetes and arthritis reporting activity limitations because of their arthritis.**
- **The Arthritis Foundation Exercise Program and Walk with Ease Program can help adults with arthritis to be physically active, reduce pain, and increase physical function.**

Recommendations

- **All adults should be physically active for at least 30 minutes on five or more days a week.**
- **Contact the Arthritis foundation for information about arthritis resources in your community** www.arthritis.org/montana
- **Visit** www.diabeteseducator.org/DiabetesEducation/Find.html **to locate diabetes educators in your community**