

Only 4 in 10 Minnesota Adults Have a High Cardiovascular Health Score

Introduction

Cardiovascular disease remains the second leading cause of death in Minnesota, accounting for approximately 17% of all deaths in the state in 2021.¹ Health and lifestyle factors such as blood pressure, blood cholesterol, blood glucose, diet, physical activity, sleep, body mass index (BMI), and smoking are all known to influence cardiovascular health. Managing these factors effectively can reduce the risk of heart disease, hospitalization, and death.

In 2010, the American Heart Association (AHA) introduced Life's Simple 7 to monitor cardiovascular health in the United States, beyond simply the presence or absence of cardiovascular disease, by providing guidelines and goals for the health behaviors of smoking, maintaining a healthy weight, physical activity, and diet, and for the health factors of cholesterol, blood glucose, and blood pressure. In 2020, the AHA updated these guidelines and goals and added sleep, now known as Life's Essential 8. By focusing on these eight measures of cardiovascular health, individuals can reduce their risk of developing cardiovascular disease, as well as lead an overall healthier life.

Looking at each component of Life's Essential 8 and the proportion of Minnesotans with high, moderate, and low cardiovascular health scores can help us understand the current status of cardiovascular health and highlight areas where Minnesotans can focus on improvement. Furthermore, looking at these scores across age, sex, race, ethnicity, and other community factors can help identify disparities in reaching cardiovascular health goals. This information is important for identifying different needs among specific communities who experience lower scores, and in turn worse cardiovascular outcomes. This can help identify where interventions are needed most, allowing us to tailor interventions and develop strategies to meet community-specific needs to improve cardiovascular health.

Data source

The status of cardiovascular health in Minnesota was determined through analyses conducted by the Minnesota Department of Health using data from the 2017 Minnesota Behavioral Risk Factor Surveillance System (BRFSS) survey, which was the most current year with data available for all eight cardiovascular health goals. The survey is a weighted population-based survey conducted annually by telephone that assesses health behaviors and conditions of Minnesotans.

The AHA provided guidelines for measuring and assessing the eight individual cardiovascular health goals and the categories of high, moderate, and low cardiovascular health from Life's Essential 8 based on a zero - 100-point scale. Because the BRFSS does not include detailed information for all eight cardiovascular health goals, an alternative scoring system was developed based on the questions that

most closely align with the guidelines. A list of the eight Life's Essential 8 cardiovascular health goals, BRFSS questions that correspond to each goal, and definitions used for high cardiovascular health are in **Table 1**.

To create the categories of high, moderate, and low cardiovascular health, if the goal was met for the component, a score of one was given. If health goal was not met for the component, a score of zero was given. The scores of the eight cardiovascular health goals were added together, resulting in a total possible score ranging from zero to eight. The score was used to create categories of high (six to eight goals met), moderate (three to five goals met), and low (zero to two goals met) cardiovascular health.

Race, ethnicity, and annual household income were self-reported by the participant taking the BRFSS survey. Minnesotans were identified as veterans if they responded "yes" to the question "Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?". Minnesotans were identified as having a disability if they responded "yes" to any questions regarding having serious difficulty with hearing, vision, cognition, mobility, self-care, or independent living.

Table 1. AHA Life’s Essential 8 metrics, BRFSS 2017 questions used to define each metric, and definitions used for high cardiovascular health.

Cardiovascular Health Goal	BRFSS 2017 Question(s)	AHA Definition of High Cardiovascular Health	Definition of High Cardiovascular Health Used
Blood Pressure	Have you EVER been told by a doctor, nurse, or other health professional that you have high blood pressure?	<120 / <80	Answered “no” to high blood pressure
BMI	About how tall are you without shoes? About how much do you weigh without shoes?	18.5- <25 kg/m ²	18.5-<25 kg/m ²
Cholesterol	Have you EVER been told by a doctor, nurse, or other health professional that your blood cholesterol is high?	<130 non-HDL cholesterol (mg/dL)	Answered “no” to high cholesterol
Diabetes	(Ever told) you have diabetes?	No diabetes and FBG <100 mg/dL or (HbA1c <5.7%)	Answered “no” to diabetes
Diet	Not including juices, how often did you eat fruit? Not including fruit-flavored drinks or fruit juices with added sugar, how often did you drink 100% fruit juice such as apple or orange juice? How often did you eat a green leafy or lettuce salad, with or without other vegetables? How often did you eat any kind of fried potatoes, including french fries, home fries, or hash browns? How often did you eat any other kind of potatoes, or sweet potatoes, such as baked, boiled, mashed potatoes, or potato salad? Not including lettuce salads and potatoes, how often did you eat other vegetables?	DASH Diet Score	Consumed 5 or more servings of fruits and vegetables per day
Physical Activity	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? What type of physical activity or exercise did you spend the most time doing during the past month? How many times per week or per month did you take part in this activity during the past month? And when you took part in this activity, for how many minutes or hours did you usually keep at it? What other type of physical activity gave you the next most exercise during the past month? How many times per week or per month did you take part in this activity during the past month? And when you took part in this activity, for how many minutes or hours did you usually keep at it?	2.5 hours of moderate or 75 minutes of vigorous PA per week	2.5 hours of moderate or 75 minutes of vigorous PA per week
Sleep	On average, how many hours of sleep do you get in a 24-hour period?	7-9 hours of sleep each night	7-9 hours of sleep each night
Smoking Status	Have you smoked at least 100 cigarettes in your entire life? Do you now smoke cigarettes every day, some days, or not at all? During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?	Never smoker	Have not smoked at least 100 cigarettes or Never Smoker from calculated; or reported smoking less than 100 cigarettes in their lifetime but not currently smoking

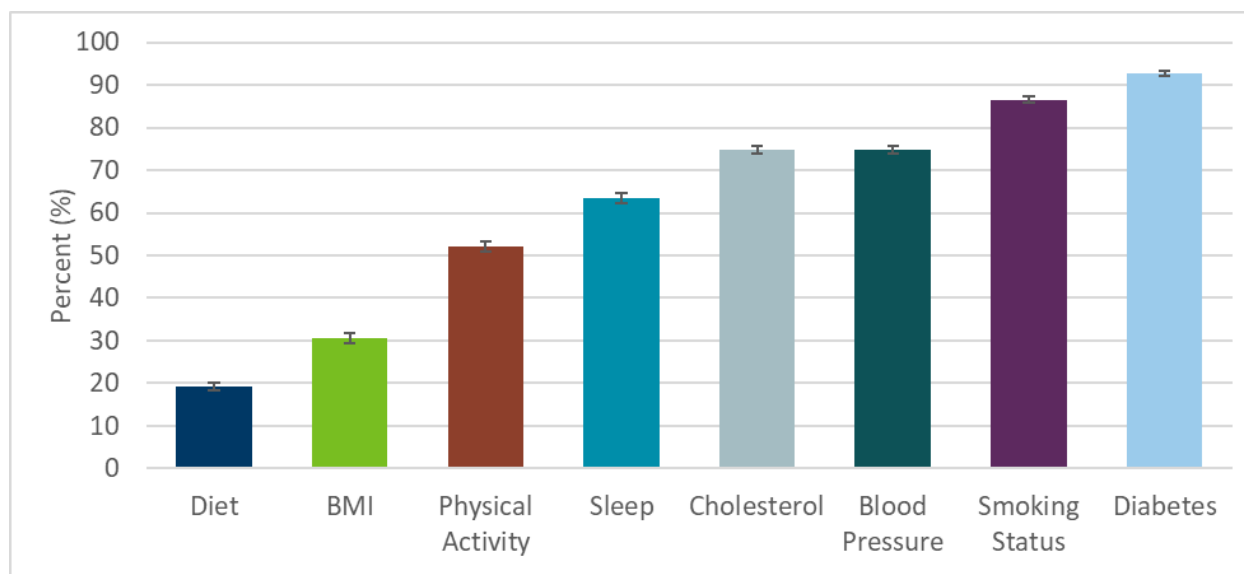
Analysis

This report shares the percent of adults in Minnesota who had a high cardiovascular health score based upon the eight goals of AHA's Life's Essential 8. This report also shows the percent of adults in Minnesota who have high, moderate, and low scores. Throughout this report, data are shared using bar charts. The data can also be found in tables in the appendix. Age-adjusted percentages are reported to account for differences between groups that are due to one population being older or younger than the other.

The state of cardiovascular health in Minnesota

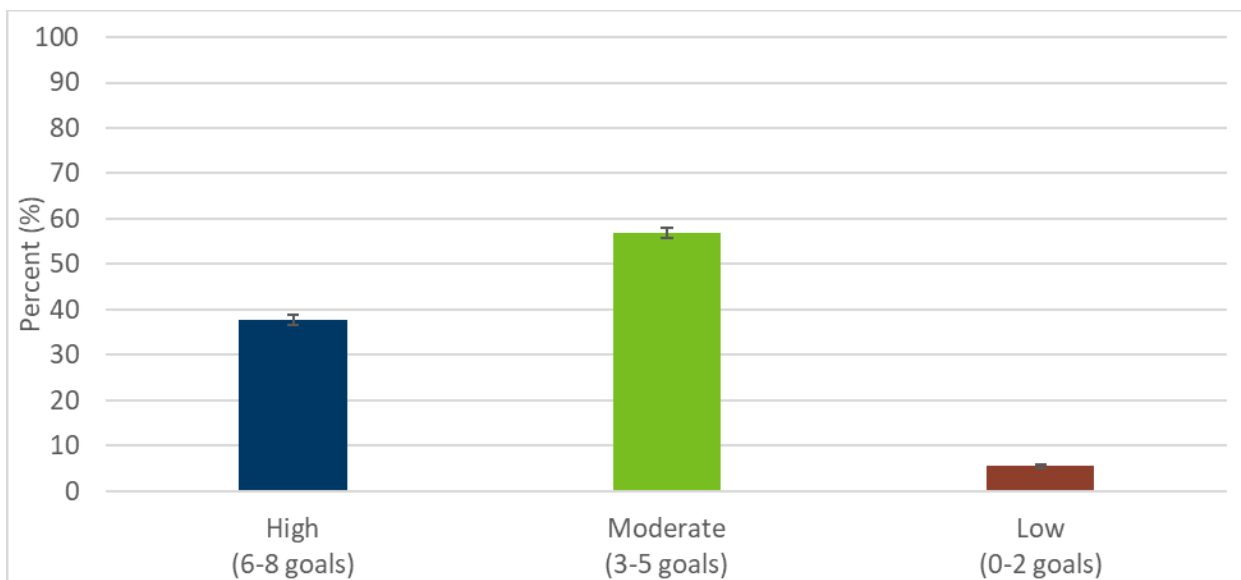
Fewer than 20% of Minnesotans met the cardiovascular health goal for diet, the lowest performance on the Life's Essential 8 goals, followed by about 30% of Minnesotans meeting the goal for BMI (a measure of healthy weight). Over half of Minnesotans met goals for physical activity, sleep, cholesterol, and blood pressure. The largest proportion of Minnesotans met goals for smoking and diabetes. **Chart 1** displays that the percent of Minnesotans meeting cardiovascular health goals varied among the Life's Essential 8 components.

Chart 1. The percent of Minnesotans meeting cardiovascular health goals differs by each Life's Essential 8 component.



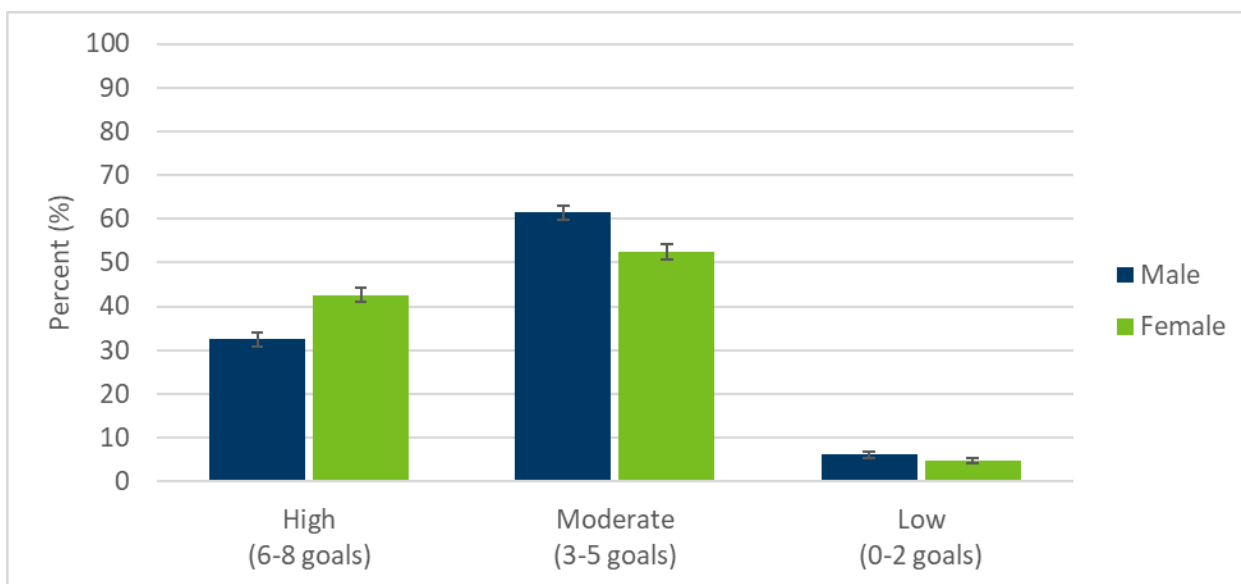
Approximately 38% of Minnesotans had a high cardiovascular health score. Meanwhile, over half of Minnesotans had moderate cardiovascular health, and about 6% of Minnesotans had low cardiovascular health. Chart 2 shows the percent of Minnesotans who had high, moderate, and low cardiovascular health scores.

Chart 2. 38% of Minnesotans had a high cardiovascular health score in 2017.



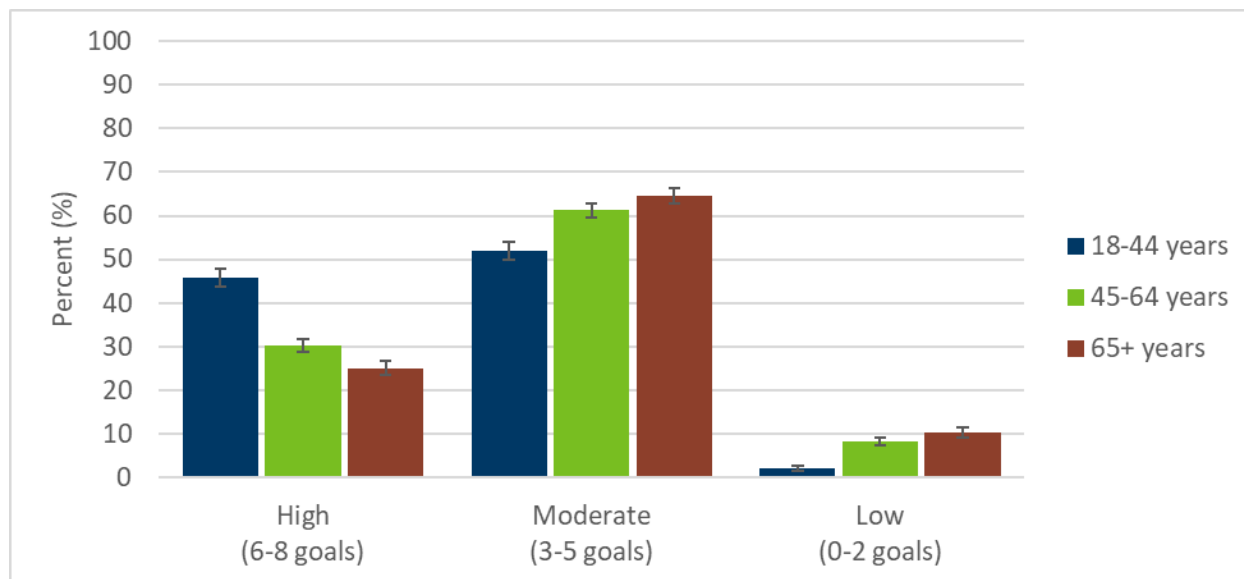
Approximately 43% of women had a high cardiovascular health score compared to about 32% of men. More men had lower cardiovascular health than women. More men die of heart disease at younger ages than women, which may be a result of these differences seen between men and women. Chart 3 shows the percent of men and women in Minnesota with high, moderate, and low cardiovascular health scores.

Chart 3. More women had a high cardiovascular health score than men in 2017.



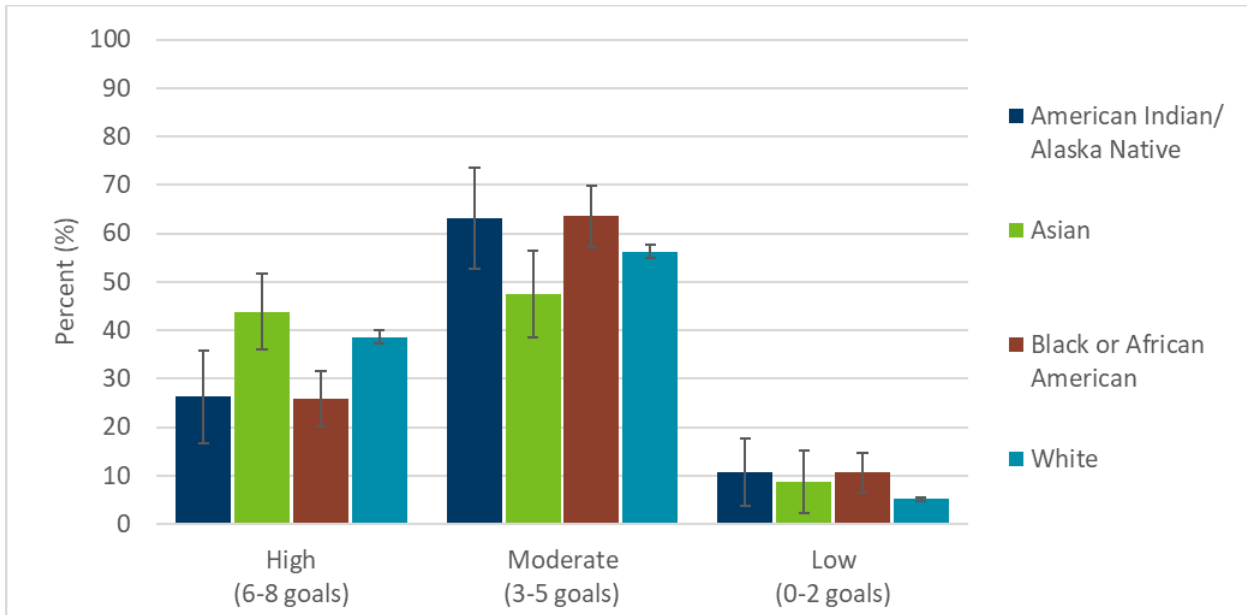
As Minnesotans get older, fewer have high cardiovascular health scores and more have low cardiovascular health scores. As people age, the presence of cardiovascular risk factors increases, resulting in more cardiovascular disease, explaining the shift from high to low cardiovascular health among older Minnesotans. Fewer than 50% of Minnesotans aged 18-44 years had a high cardiovascular health score. Minimizing cardiovascular risk factors early in life is important for decreasing the risk of cardiovascular disease later in life. **Chart 4** shows the percent of Minnesotans with high, moderate, and low cardiovascular health scores by age group.

Chart 4. The percent of Minnesotans with a high cardiovascular health score decreases with age.



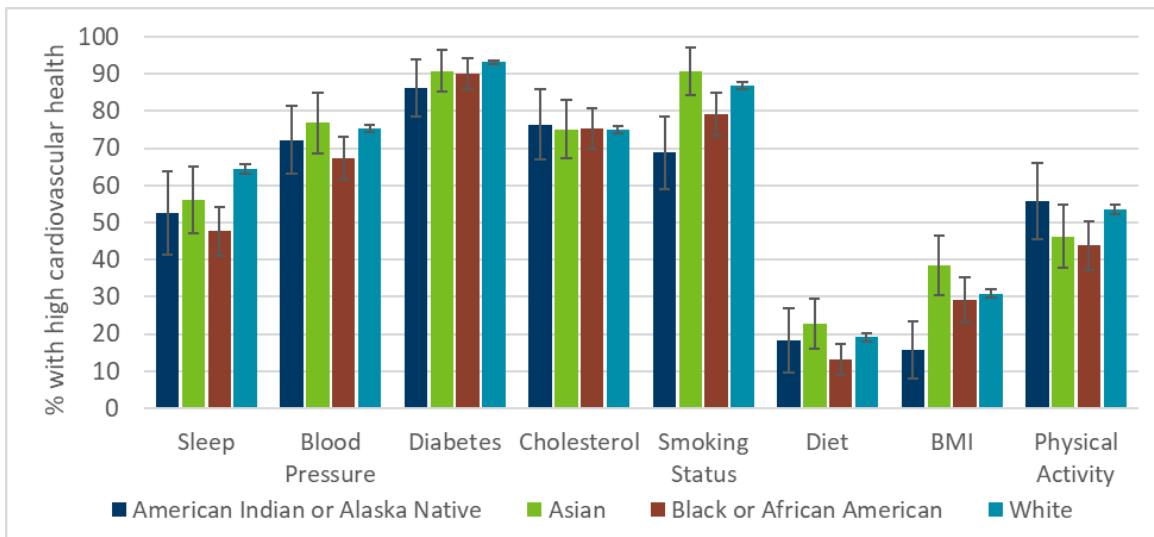
26% of American Indian/ Alaska Native and Black or African American communities had a high cardiovascular health score. This value is much lower compared to Asian and White populations, as well as the state of Minnesota overall. About 11% of both American Indian/ Alaska Native and Black or African American communities had a low cardiovascular health score. This value is much higher than the overall percent of Minnesotans with low cardiovascular health. This may help explain why American Indian/ Alaska Native populations in Minnesota experience higher rates of hospitalizations for heart disease and diabetes and experience the highest death rates due to heart disease. Asian Minnesotans were most likely to have a high cardiovascular health score. **Chart 5** shows that the percent of Minnesotans with high, moderate, and low cardiovascular health scores varies by race.

Chart 5. The percent of Minnesotans with high, moderate, and low cardiovascular health scores differs by race.



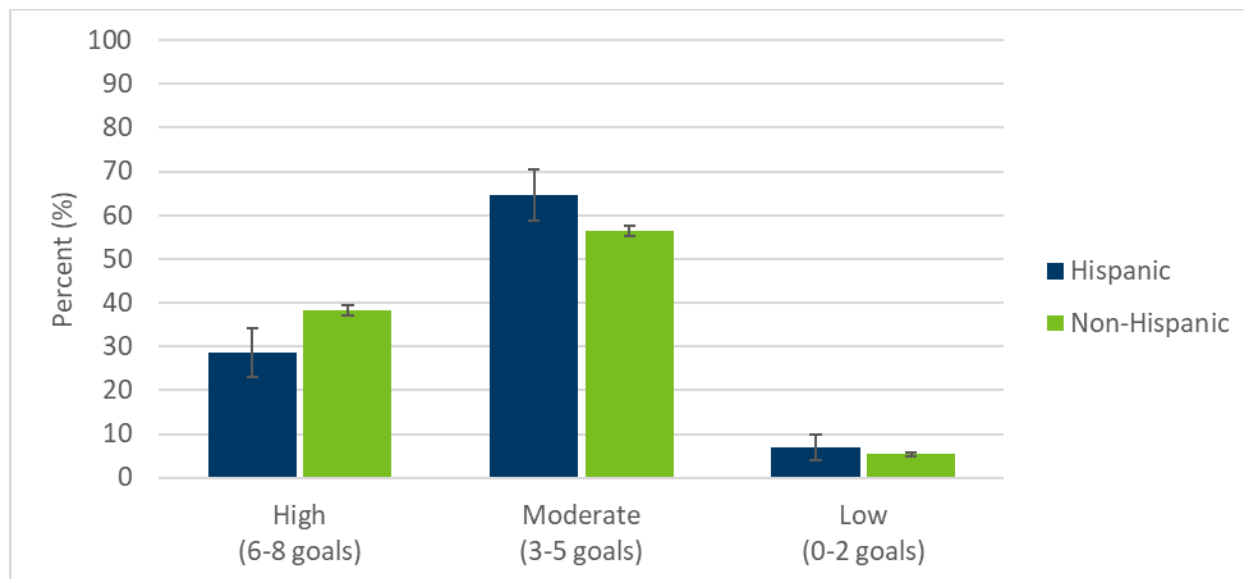
The percentage of Minnesotans meeting each of the Life’s Essential 8 goals varied by race, highlighting disparities between the different racial groups. Meeting the dietary goal for high cardiovascular health was low among all racial groups, however it was the lowest among Black or African American Minnesotans, and it was much lower than the overall Minnesota percentage. Black or African American Minnesotans were also the least likely to meet goals for sleep and blood pressure. Asian and Black or African American individuals were the least likely to meet physical activity goals. The American Indian/Alaska Native population was the least likely to meet BMI and smoking status goals. **Chart 6** displays that the percent of Minnesotans meeting each of the Life’s Essential 8 goals varied by race.

Chart 6. The percent of Minnesotans meeting Life’s Essential 8 high cardiovascular health goals differs by race.



Fewer Hispanic Minnesotans had high cardiovascular health scores compared to Non-Hispanic Minnesotans. However, there was no difference in the percent of individuals with low scores among Hispanic and Non-Hispanic Minnesotans. **Chart 7** shows that the percent of Minnesotans with high cardiovascular health scores varied by ethnicity.

Chart 7. The percent of Minnesotans with high, moderate, and low cardiovascular health scores differs by ethnicity.



Minnesotans living in a household that makes \$50,000+ a year were more likely to have a high cardiovascular health score compared to Minnesotans living in a household that makes less than \$50,000 a year. As household income decreased, the percent of Minnesotans with a low cardiovascular health score increased. Minnesotans with a household income less than \$35,000 were the most likely to have low cardiovascular health. Other factors contribute to and can affect one's cardiovascular health, such as housing, access to healthy food, education, having a social support system, and facing discrimination. **Chart 8** shows that the percent of Minnesotans with high, moderate, and low cardiovascular health scores varied by household income level.

Minnesotans who reported having a disability were half as likely to have a high cardiovascular health score as those without a disability (20% vs 40%). Approximately 13% of Minnesotans with a disability had a low cardiovascular health score, which is much higher than both those without a disability and the overall percentage of Minnesotans with a low score. **Chart 9** demonstrates the large disparities in cardiovascular health between Minnesotans with and without a disability.

Fewer veterans in Minnesota had a high cardiovascular health score than non-veterans. However, there was no difference between the percent of Minnesotan veterans and non-veterans with low cardiovascular health. **Chart 10** shows the differences in high, moderate, and low cardiovascular health scores among veterans and non-veterans.

Chart 8. The percent of Minnesotans with high, moderate, and low cardiovascular health scores differs by annual household income.

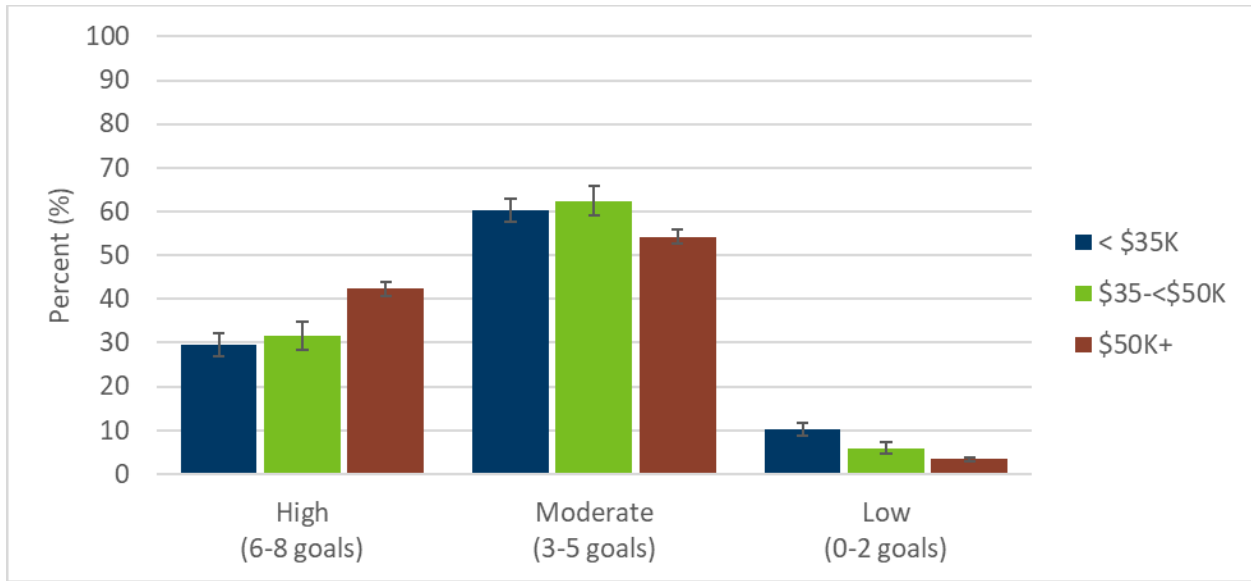


Chart 9. The percent of Minnesotans with high, moderate, and low cardiovascular health scores differs by disability status.

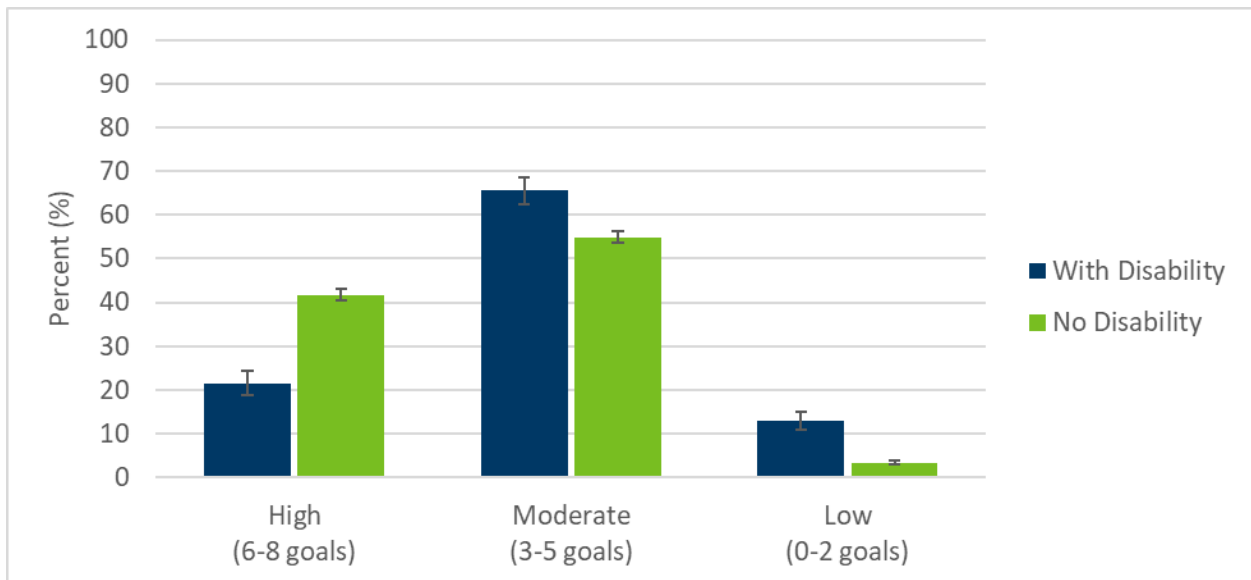
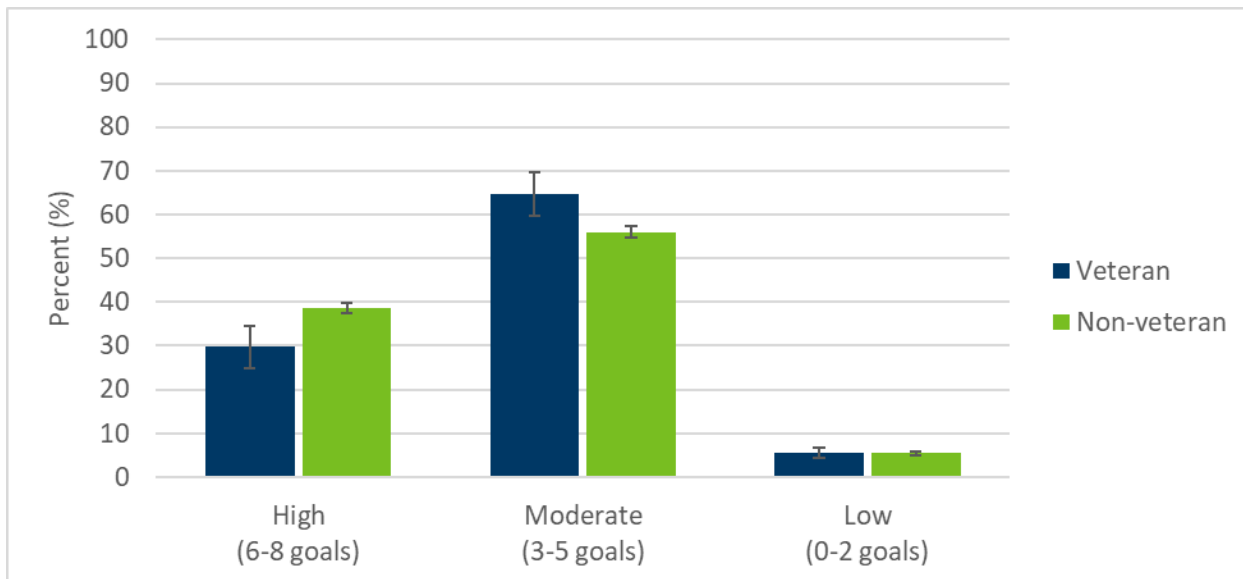


Chart 10. The percent of Minnesotans with high, moderate, and low cardiovascular health scores differs by veteran status.



Conclusion

Overall, four out of every ten Minnesotans had a high cardiovascular health score, but only a small percentage had a low cardiovascular health score. This report highlights differences in cardiovascular health among Minnesotans of various races and ethnicities, income levels, disability status, and veteran status. American Indian/ Alaska Native and Black or African American communities were less likely to have high cardiovascular health. American Indian/ Alaska Native communities were also less likely to meet BMI and smoking status goals. Black or African American communities were least likely to meet cardiovascular health goals for sleep, blood pressure, and physical activity. Additionally, Minnesotans who reported having a disability were half as likely to have a high cardiovascular health score as those without a disability. These disparities reflect the need for different approaches to improving cardiovascular health among specific communities because of differing needs among them. Customizing interventions and policies for these different communities acknowledges the differences in their cardiovascular health needs and cultural differences.

Life's Essential 8 provides a guide for Minnesotans to improve their cardiovascular health with clear health goals. By empowering and enabling Minnesotans to make changes to their health and lifestyle behaviors, more Minnesotans can reach high cardiovascular health. Minnesotans can improve their health in different areas by working on improving one goal at a time, making cardiovascular health more attainable. Minnesotans will not only improve their heart health, but also their overall health, paving the way for a healthier future for Minnesota.

For questions or more information, please contact health.heart@state.mn.us.

References

1. Minnesota Department of Health, Cardiovascular Health Unit Cardiovascular Health Unit. (2024). Heart Disease in Minnesota. Retrieved from <https://www.health.state.mn.us/diseases/cardiovascular/data/heartdisease.html>, accessed August 30, 2024.
2. Lloyd-Jones, Donald M., et al. (2010). Defining and setting national goals for cardiovascular health promotion and disease reduction: the American Heart Association's strategic Impact Goal through 2020 and beyond. *Circulation* 121.4: 586-613.
3. Lloyd-Jones, Donald M., et al. (2022). Life's essential 8: updating and enhancing the American Heart Association's construct of cardiovascular health: a presidential advisory from the American Heart Association. *Circulation* 146.5: e18-e43.
4. American Heart Association: Life's Essential 8 (2024). Retrieved from <https://www.heart.org/en/healthy-living/healthy-lifestyle/lifes-essential-8>, accessed August 30, 2024.

Minnesota Department of Health
Cardiovascular Health Unit
St. Paul MN 55164-0975
Email: health.heart@state.mn.us

Website: [Cardiovascular Health \(health.state.mn.us/diseases/cardiovascular/index.html\)](https://www.health.state.mn.us/diseases/cardiovascular/index.html)

Appendix

Table A1. The percent of Minnesotans meeting high cardiovascular health differs by each Life's Essential 8 goal.

Cardiovascular Health Goal	Age-Adjusted Percentage (95% Confidence Interval)
Diet	19.2% (18.2-20.2%)
BMI	30.6% (29.5-31.8%)
Physical Activity	52.2% (50.9-53.4%)
Sleep	63.4% (62.2-64.6%)
Cholesterol	74.8% (73.9%-75.7%)
Blood Pressure	74.8% (73.9%-75.7%)
Smoking Status	86.6% (85.7-87.4%)
Diabetes	92.7% (92.1-93.2%)

Table A2. 38% of Minnesotans had high cardiovascular health in 2017.

Cardiovascular Health	Age-Adjusted Percentage (95% Confidence Interval)
High (6-8 goals)	37.7% (36.5-38.9%)
Moderate (3-5 goals)	56.9% (55.6-58.1%)
Low (0-2 goals)	5.5 % (5.0-5.9%)

Table A3. More women had high cardiovascular health than men in 2017.

Sex	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
Male	32.5% (30.8-35.2%)	61.4% (59.7-63.1%)	6.1% (5.4-6.9%)
Female	42.6% (40.9-44.3%)	52.5% (50.8-54.3%)	4.8% (4.2-5.4%)

*Age-Adjusted Percentage (95% Confidence Interval)

Table A4. The percent of Minnesotans with high cardiovascular health decreases with age.

Age	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
18-44 years	45.9% (43.8-47.9%)	51.9% (49.8-53.9%)	2.3% (1.6-2.9%)
45-64 years	30.3% (28.8-31.8%)	61.3% (59.7-62.9%)	8.4% (7.5-9.3%)
65+ years	25.1% (23.6-26.7%)	64.6% (62.8-66.3%)	10.3% (9.2-11.5%)

*Percentage (95% Confidence Interval)

Table A5. The percent of Minnesotans with high, moderate, and low cardiovascular health differs by race.

Race	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
American Indian / Alaska Native	26.2% (16.6-35.8%)	63.1% (52.6-73.5%)	10.7% (3.7-17.7%)
Asian	43.9% (36.0-51.8%)	47.5% (38.6-56.4%)	8.6% (2.1-15.2%)
Black or African American	25.8% (20.1-31.5%)	63.6% (57.2-69.9%)	10.6 (6.5-14.8)
White	38.6% (37.3-39.9%)	56.3% (55.0-57.6%)	5.1 (4.7-5.6%)

*Age-Adjusted Percentage (95% Confidence Interval)

Table A6. The percent of Minnesotans meeting high cardiovascular health for Life’s Essential 8 goals differs by race.

Cardiovascular Health Goal	Age-Adjusted Percentage (95% Confidence Interval)
Diet	
American Indian/ Alaska Native	18.2% (9.5-26.9%)
Asian	22.7% (16.0-29.4%)
Black or African American	13.1% (8.9-17.3%)
White	19.1% (18.1-20.1%)
BMI	
American Indian/ Alaska Native	15.6% (8.0-23.3%)
Asian	38.4% (30.3-46.4%)
Black or African American	29.2% (23.0-35.4%)
White	30.9% (29.7-32.1%)
Physical Activity	
American Indian/ Alaska Native	55.7% (45.5-65.9%)
Asian	46.2% (37.6-54.7%)
Black or African American	43.8% (37.2-50.3%)
White	53.6% (52.3-54.9%)
Sleep	
American Indian/ Alaska Native	52.6% (41.5-63.7%)
Asian	55.9% (47.0-64.9%)
Black or African American	47.6% (40.9-54.2%)
White	64.5% (63.2-65.8%)
Cholesterol	
American Indian/ Alaska Native	76.4% (67.1-85.8%)

Cardiovascular Health Goal	Age-Adjusted Percentage (95% Confidence Interval)
Asian	75.1% (67.2-83.0%)
Black or African American	75.2% (69.8-80.6%)
White	75.0% (74.0-75.9%)
Blood Pressure	
American Indian/ Alaska Native	72.2% (63.1-81.2%)
Asian	76.8% (68.6-85.0%)
Black or African American	67.2% (61.4-73.1%)
White	75.2% (74.3-76.2%)
Smoking Status	
American Indian/ Alaska Native	68.7% (58.9-78.6%)
Asian	90.7% (84.2-97.2%)
Black or African American	79.1% (73.5-84.8%)
White	86.8% (85.9-87.8%)
Diabetes	
American Indian/ Alaska Native	86.3% (78.6-94.0%)
Asian	90.7% (85.1-96.3%)
Black or African American	90.1% (85.9-94.3%)
White	93.1% (92.6-93.6%)

Table A7. The percent of Minnesotans with high, moderate, and low cardiovascular health differs by ethnicity.

Ethnicity	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
Hispanic	28.5% (23.0-34.0%)	64.6% (58.7-70.4%)	6.9% (3.9-10.0%)
Non-Hispanic	38.2% (37.0-39.4%)	56.4% (55.2-57.7%)	5.4% (4.9-5.9%)

*Age-Adjusted Percentage (95% Confidence Interval)

Table A8. The percent of Minnesotans with high, moderate, and low cardiovascular health differs by annual household income.

Household Income	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
<\$35K	29.6% (27.0-32.2%)	60.3% (57.6-63.0%)	10.1% (8.6-11.6%)*
\$35-<\$50K	31.6% (28.3-34.9%)	62.5% (59.1-65.9%)	5.9% (4.7-7.2%)
\$50K +	42.3% (40.7-44.0%)	54.2% (52.6-55.9%)	3.4% (2.9-3.9%)

*Age-Adjusted Percentage (95% Confidence Interval)

Table A9. The percent of Minnesotans with high, moderate, and low cardiovascular health differs by disability status.

Disability Status	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
With Disability	21.6% (18.8-24.3%)	65.5% (62.5-68.6%)	12.9% (10.9-15.0%)
No Disability	41.7% (40.3-43%)	54.9% (53.6-56.3%)	3.4% (3.0-3.8%)

*Age-Adjusted Percentage (95% Confidence Interval)

Table A10. The percent of Minnesotans with high, moderate, and low cardiovascular health differs by veteran status.

Veteran Status	High Cardiovascular Health (0-2 goals)*	Moderate Cardiovascular Health (3-5 goals)*	Low Cardiovascular Health (0-2 goals)*
Veteran	29.8% (25.0-34.7%)	64.6% (59.7-69.6%)	5.5% (4.4-6.7%)
Non-veteran	38.6% (37.3-39.8%)	56.0% (54.7-57.3%)	5.4% (4.9-6.0%)

*Age-Adjusted Percentage (95% Confidence Interval)