Caregivers in Minnesota Experience Higher Cardiovascular Disease Risk Due to Stress and Coping

Introduction

Supporting caregivers has become a public health priority in recent years.[1] An informal caregiver is a person who tends to the needs of a family, friend, or personal acquaintance with limitations due to illness, injury, or disability, often without pay. They play a significant role in the physical health and overall wellbeing of the person receiving care.[2] Caregiving is a crucial service but its impact on the caregiver's health has been previously underacknowledged. Caregiving can be rewarding, but it can also be physically, mentally, and financially demanding and prevent one from prioritizing their own health.

A 2024 national report detailing changes in health indicators among caregivers from 2015-2016 to 2021-2022 indicated that caregivers had worse outcomes for 13 of the 19 health indicators examined during the 2021-2022 period. The report notes that that six indicators have worsened since 2015-2016, including the prevalence of frequent mental distress, depression, asthma, obesity, and having any or multiple chronic health conditions.[3]

This report examines those same health indicators among caregivers in Minnesota through the lens of cardiovascular health. Looking at risk behavior among caregivers in Minnesota can help identify areas where caregivers require additional support to facilitate heart-healthy habits.

Data source

The Minnesota Department of Health conducted analyses of the prevalence of cardiovascular health behaviors and conditions in Minnesota among caregivers and non-caregivers using data from the 2019, 2021, and 2023 Minnesota Behavioral Risk Factor Surveillance System (BRFSS) surveys. Data from these years were combined to increase the sample size and provide more precise estimates for the population of caregivers in Minnesota. Odd years were included because this is when hypertension and cholesterol awareness questions are asked. The survey is a weighted population-based survey conducted annually by telephone that assesses health behaviors and conditions of Minnesotans.

Caregivers were individuals who responded "yes" to the question "During the past 30 days, did you provide regular care or assistance to a friend or family member who has a health problem or disability?"

This report focuses on participant responses to questions about hypertension and high cholesterol diagnoses; smoking, alcohol, and cannabis use; stress frequency; frequency of poor

mental health in the past 30 days; and cost barriers to needed medical care.[4] See Table 8 in the appendix for the definitions used for categorization.

Indicators that did not show significant differences between caregivers and non-caregivers, or were more favorable among caregivers, included blood pressure medication and cholesterol medication use, length since last cholesterol check, length since last routine check-up, having a primary care provider, binge drinking, and meeting physical activity guidelines. Those results are not included in this report.

Analysis

This report shares the percent of Minnesotan caregivers and Minnesotan non-caregivers who exhibit the condition or behavior of interest. Caregivers tend to be slightly older than non-caregivers, so results are stratified by age 18 to 44, 45 to 65, and 65 or older. Bar charts show the percent for caregivers and non-caregivers, and error bars represent 95% confidence intervals. The 95% confidence interval indicates how precise the estimate is. If the 95% confidence interval has a very large range, this means the estimate may be less precise. The smaller the range, the more precise the estimated value. This information can help determine if these estimates are meaningfully different from each other.

Tables are included in the appendix. Missing values are from respondents who answered “don't know” or refused to answer the question.

Key findings

About 1 in 5 Minnesotans are caregivers (19.7%). Caregivers are more likely to be female (59.2%) and over the age of 45 (65.9%). There are minor differences in race/ethnicity, education level, BMI, and income relative to non-caregivers.

After adjusting for age differences, **caregivers are more likely than non-caregivers to report having high blood pressure and high cholesterol**.

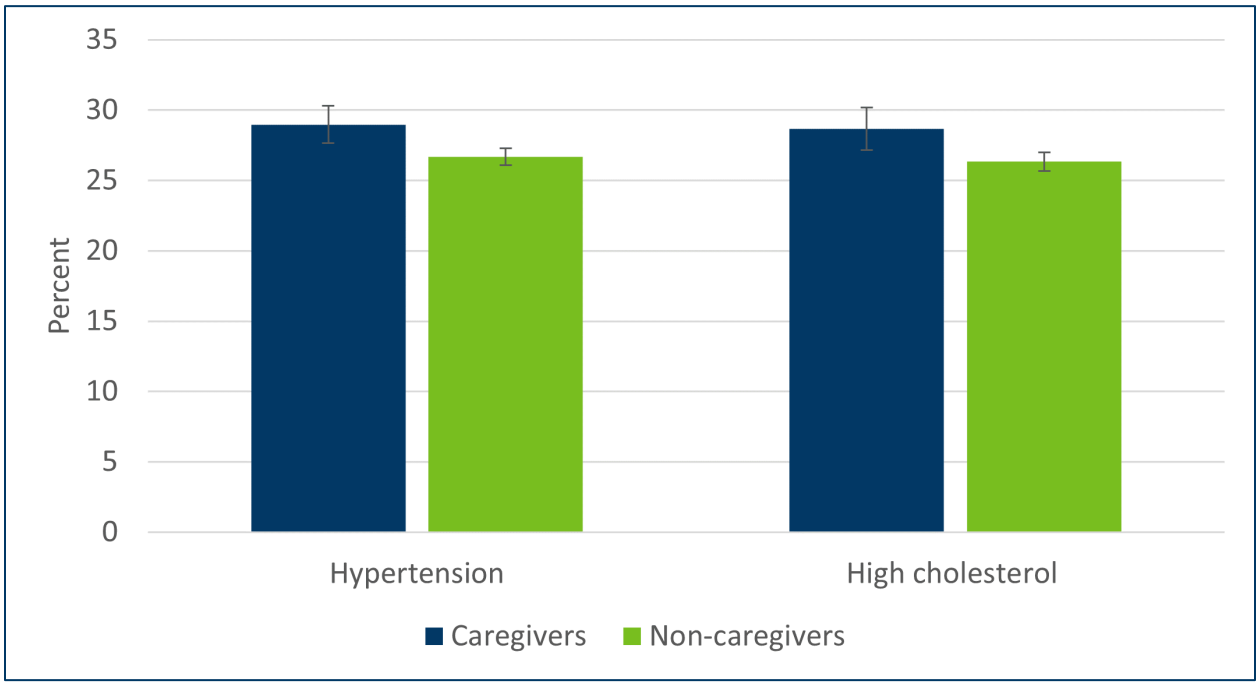
Caregivers were also more likely than non-caregivers to smoke, drink alcohol heavily, and use cannabis. The disparity between harmful health behaviors between caregivers and non-caregivers was particularly large for 18- to 44-year-olds.

Caregivers had more days of poor mental health and reported a higher frequency of stress. A higher proportion of **caregivers also felt they needed to see a doctor** in the past 12 months but could not because of the cost.

Cardiovascular disease risk and Minnesota caregivers

Chart 1 shows that hypertension diagnoses are higher among caregivers (29%) than non-caregivers (26.7%). High cholesterol diagnoses are also higher for caregivers (28.7%) versus non-caregivers (26.3%).

Chart 1: Caregivers are more likely to have hypertension and high cholesterol diagnoses



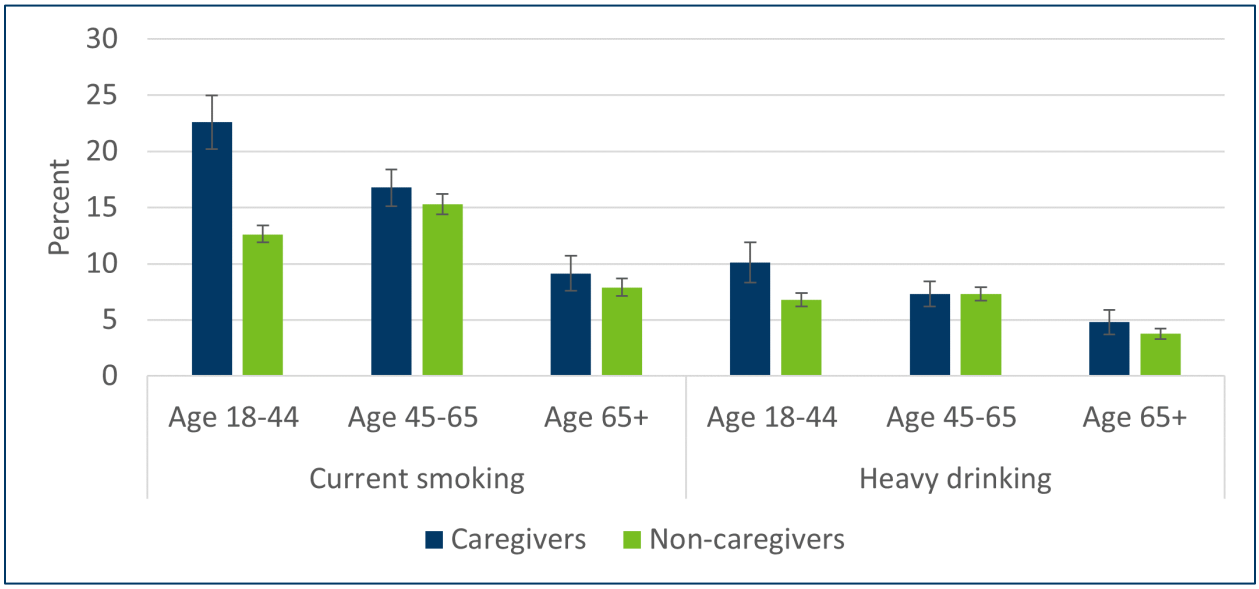
Across all age groups, caregivers were more likely to smoke compared to non-caregivers, as shown in Chart 2. However, the difference was particularly large within 18- to 44-year-olds. Among 18- to 44-year-olds, caregivers were almost twice as likely to smoke than non-caregivers (23% versus 13%). Many people who smoke do so to cope with feelings of stress and anxiety. The higher rate of smoking among caregivers may reflect the additional stress of caring for a person with a health problem or disability.

Smoking has been firmly established as a risk factor for cardiovascular disease. The Centers for Disease Control and Prevention (CDC) reports that smoking is responsible for one in every four deaths from CVD. Nicotine damages blood vessels. Smoking can raise triglycerides, lower HDL (good cholesterol), damage blood vessels, and increase the buildup of plaque in blood cells. This increases risk of atherosclerosis, coronary heart disease, peripheral artery disease, and abdominal aortic aneurysms. These are also conditions that tend to occur later in life, after many years of engaging in behavior that increases these risks; early intervention can prevent future cardiovascular disease.[5]

Caregivers were also more likely to report heavy drinking, particularly caregivers ages 18 to 44, also shown in Chart 2. Among 18- to 44-year-olds, 10.1% of caregivers drink heavily compared to 6.8% of non-caregivers.

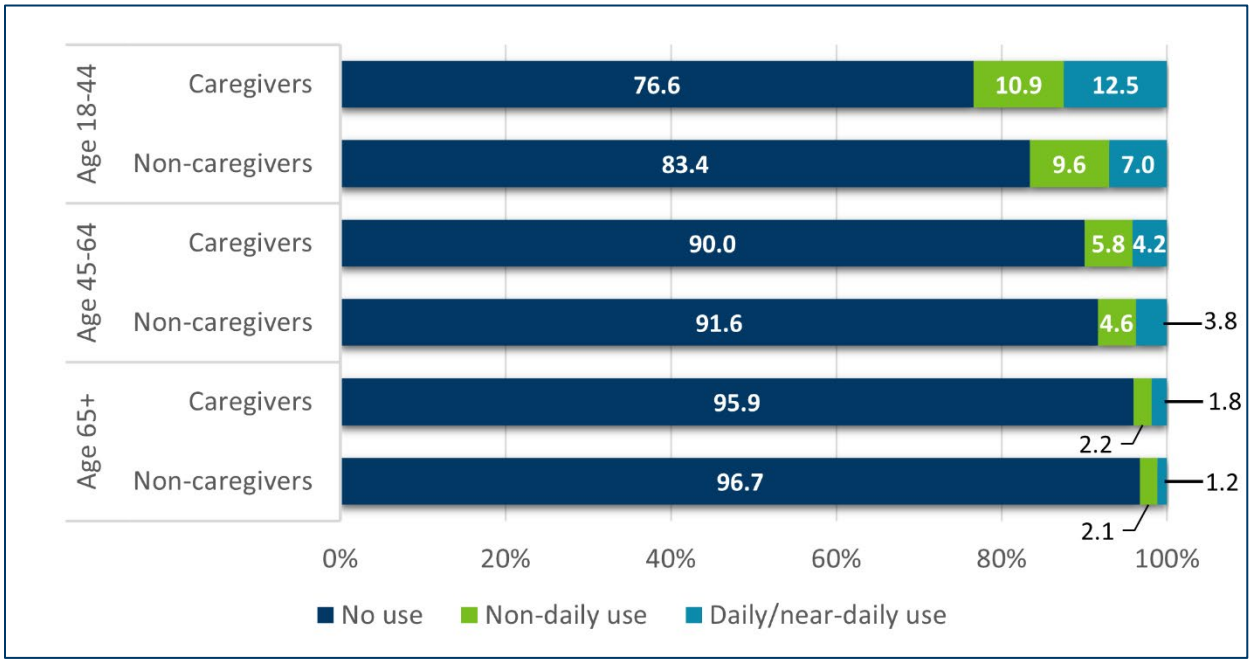
Many people drink alcohol to cope with stress; however, heavy drinking negatively impacts cardiovascular health. Heavy alcohol consumption is associated with high blood pressure, heart failure, and stroke.[6] Alcohol is also dense in calories and can lead to weight gain if consumed in large amounts. Like smoking, the high prevalence of heavy drinking among caregivers ages 18 to 44 may result in higher prevalence of cardiovascular disease.

Chart 2: Caregivers are more likely to smoke and drink heavily



Caregivers have a higher frequency of cannabis use and use is highest among younger adults. **Chart 3** shows that caregivers report more daily/near-daily cannabis use (12.5%) than non-caregivers (7%). The association between cannabis use and heart health is unclear. Cannabis use has increased in recent years and some studies have suggested a link between cannabis use and heart disease, but further research is needed to establish the long-term effects of cannabis on cardiovascular health. Like alcohol consumption and smoking, there is evidence that many people who regularly use cannabis use it as a form of stress relief.[7]

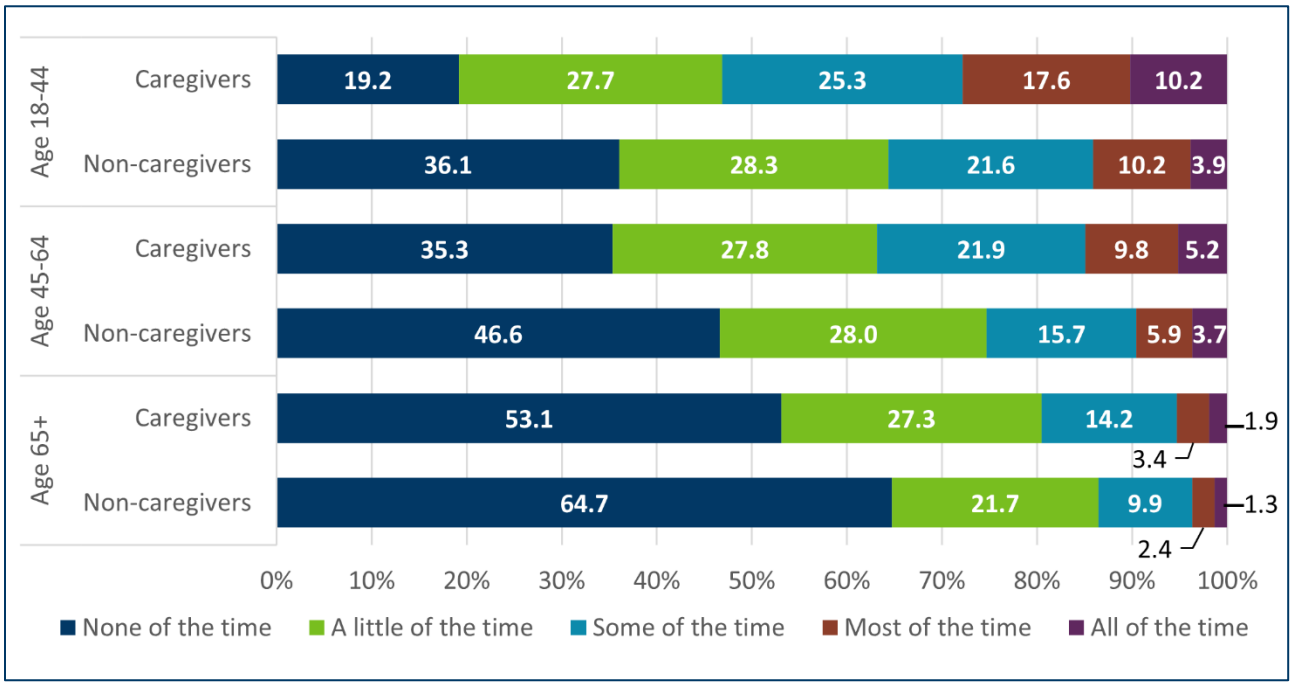
Chart 3: Caregivers use cannabis more frequently than non-caregivers*



*Non-daily = 1-19 days per month; daily/near-daily=20-30 days per month

Caregivers report more days of poor mental health and higher levels of stress, which may be underlying causes for higher rates of smoking, heavy drinking, and cannabis use. **Chart 4** shows that across all age groups, caregivers are more likely to report being stressed "all of the time" or "most of the time" and less likely to report being stressed "none of the time." Caregivers ages 18 to 44 are almost three times as likely (10.2%) to report being stressed "all of the time" compared to non-caregivers of the same age group (3.9%).

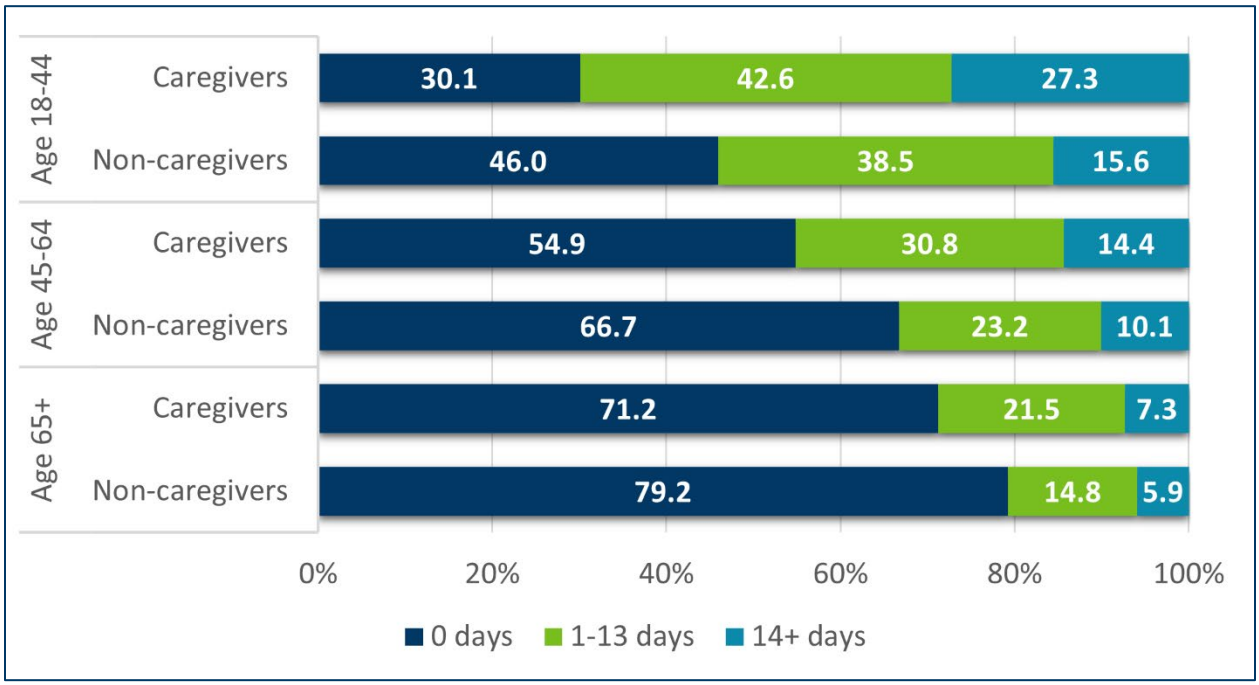
Chart 4: Caregivers have a higher frequency of stress across all age groups*



*Excludes 2023 because response options had changed.

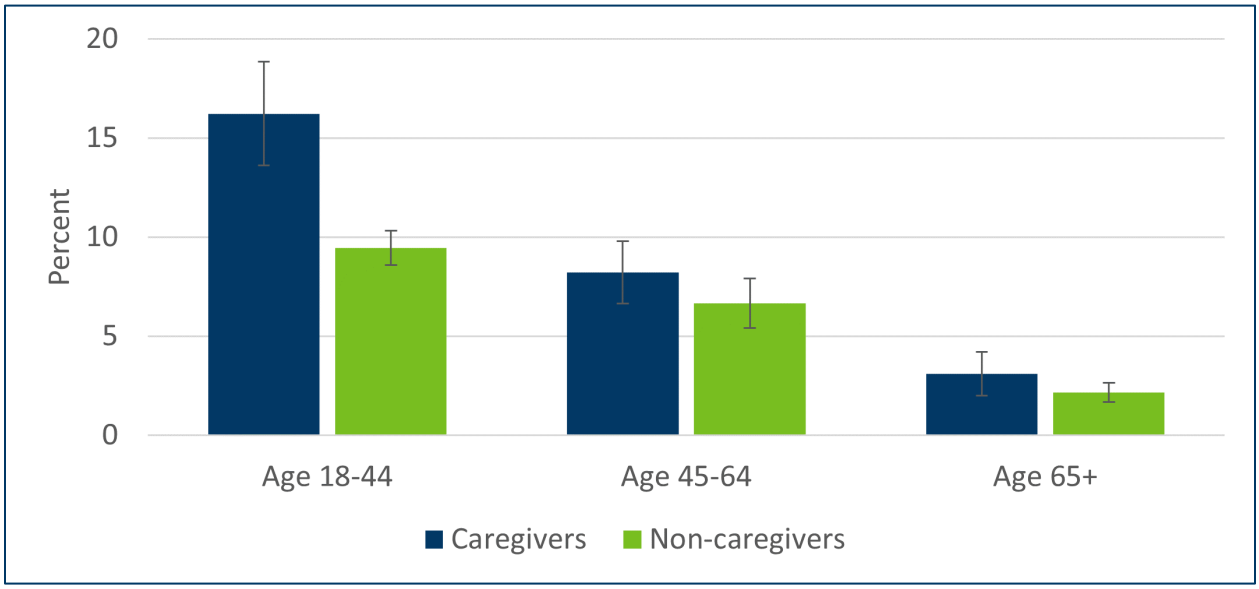
Minnesotans were asked, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" **Chart 5** shows that caregivers ages 18-44 are significantly more likely to have 14 or more days of poor mental health per month. More than one in four caregivers in this age group report experiencing 14 days or more of poor mental health in the past month (27.3%).

Chart 5: Caregivers report more days of poor mental health per month



Minnesota caregivers of all ages were more likely to say that there was a time during the past year when they needed to see a doctor but could not because of the cost, as shown in **Chart 6**. This may reflect the financial strain of caregiving. Caregivers may prioritize the health care of their family member with a health problem or disability. Unpaid caregiving may also take away time spent working for wages. Further research is necessary to better understand the financial impact of unpaid caregiving. Not being able to seek needed medical care will exacerbate health inequities, especially for caregivers who are already at a higher risk of cardiovascular disease.

Chart 6: Caregivers report a cost barrier to needed medical care*



*Excludes 2019

Conclusion

Caregivers face unique barriers to self-care. Additional policies and interventions could help facilitate healthy cardiovascular habits and improve overall health and well-being. Caregivers ages 18-44 need particular attention because their behaviors influence their risk of future cardiovascular conditions as well as other chronic diseases. Younger adults are a smaller percentage of caregivers, but they may experience additional strain from caregiving due to competing work and family responsibilities.

Caregiving can be demanding, potentially contributing to stress and worsening health, but with the right support can also be very rewarding. Supporting caregivers could potentially reduce the negative impacts and amplify more positive aspects like giving back to a loved one, the satisfaction of knowing their loved one is receiving quality care, and increased meaning and sense of purpose for the caregiver.[8]

In December 2020, the Centers for Disease Control and Prevention (CDC) published a brief describing the role of public health strategists in promoting caregiving across the community. The goal is to embed support for caregivers through policies, systems, and environments so that caregivers can continue to provide this vital service that protects their health and the health of the care recipient. The CDC also offers a broad framework that involves ensuring caregivers have proper training to provide needed care, that healthcare providers involve caregivers in the care team, that employers institute supportive practices to accommodate the needs of caregivers, and that both caregivers and care recipients participate in community life and receive support from multiple domains.[9]

The CDC's framework offers guidance that could inform policies and environment where Minnesota caregivers can have the same opportunity for heart health as non-caregivers. The higher levels of stress, frequent days of poor mental health, and higher prevalence of behaviors associated with increased risk of cardiovascular disease reflect some of the challenges associated with unpaid labor in Minnesota. People who provide support to others also need support, such as increased access and awareness to programming to replace unhealthy habits with more heart-healthy stress management behavior. Smoking-cessation interventions could be tailored to caregivers and their unique stressors. Even those who do not identify themselves as caregivers still face stressors associated with providing care. Integrating resources and support systems for caregivers within schools and workplaces could increase the utilization of available resources among caregivers ages 18-44.

This report highlights the health needs of caregivers, with a special focus on chronic disease risk factors that are associated with cardiovascular disease risk. There appears to be a particular need for targeted interventions for smoking cessation and reducing the prevalence of heavy alcohol consumption among 18- to 44-year-old caregivers. As Minnesota's population ages, more individuals will become caregivers. Creating an environment where caregivers can thrive will be important in preventing future cardiovascular disease and other chronic health conditions. The Minnesota Department of Health, other state agencies, and organizations such as the American Heart Association and the Alzheimer's Association have resources to support caregivers in managing their own health.

- Minnesota Department of Health. Alzheimer's Disease and Related Dementias Information for Caregivers (health.state.mn.us/diseases/alzheimers/caregivers.html)

- American Heart Association. Caregiver Support (heart.org/en/health-topics/caregiver-support)
- Alzheimer's Association. Caregiving (alz.org/help-support/caregiving)
- University of California San Francisco. Patient Education Self-Care for Caregivers (ucsfhealth.org/education/self-care-for-caregivers)

Limitations

This is self-reported data and there could be social-desirability bias. This is when people answering surveys are less likely to report "bad" or unhealthy behaviors. Responses also rely on the individual's knowledge of whether they have high cholesterol or high blood pressure. Combining years only represents the Minnesota population at the midpoint of the combined years and may mask possible changes in trends from 2019-2023.

About 20% of the final population of respondents had a missing response to the question indicating whether they are a caregiver. The survey takes almost 30 minutes, and about 20% of the interviews each year are not complete. This analysis assumes that the population of missing responses is random.

Another limitation is that these results come from a population-based health survey conducted over the telephone. We did not talk to caregivers and ask what they see as solutions. This could be done as a future step.

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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)

Appendix

Table 1: Demographic and socioeconomic characteristics of caregivers and non-caregivers in Minnesota

Demographic or socioeconomic characteristic	Caregivers[1]	Non-caregivers[1]
Sex		
Male	40.8% (39.4%-42.3%)	51.2% (50.4%-51.9%)
Female	59.2% (57.7%-60.3%)	48.8% (48.1%-49.6%)
Age		
18-44	35.2% (33.7%-36.7%)	46.3% (45.5%-47.0%)
45-64	39.7% (38.3%-41.1%)	30.7% (30.0%-31.3%)
65+	25.2% (24.0%-26.3%)	23.1% (22.5%-23.6%)
BMI		
BMI <30	65.1% (63.7%-66.5%)	68.0% (67.2%-68.7%)
BMI ≥30 (Obese)	34.9% (33.5%-36.3%)	32.0% (31.3%-32.8%)
Race/Ethnicity		
White, Non-Hispanic (NH)	83.2% (81.9%-84.5%)	82.2% (81.5%)
Black, NH	5.5% (4.7%-6.3%)	5.3% (4.9%-5.7%)
Asian, NH	3.2% (2.5%-3.9%)	4.5% (4.1%-4.9%)
American Indian/Alaskan Native, NH	1.9% (1.4%-2.4%)	1.0% (0.8%-1.2%)
Hispanic	2.8% (2.3%-3.2%)	5.1% (4.8%-5.4%)
Other, NH	3.3% (2.7%-4.0%)	1.9% (1.7%-2.2%)
Education		
Did not graduate high school	5.0% (4.1%-5.8%)	7.3% (6.8%-7.8%)
Graduated high school	22.4% (21.1%-23.7%)	25.2% (24.6%-25.9%)

Demographic or socioeconomic characteristic	Caregivers[1]	Non-caregivers[1]
Attended college or tech school	38.4% (36.9%-39.8%)	33.2% (32.4%-33.9%)
Graduated from college or tech school	34.3% (33.0%-35.6%)	34.3% (33.7%-35.0%)
Income		
Less than $50k	37.7% (36.1%-39.2%)	35.4% (34.7%-36.2%)
$50k or more	62.3% (60.8%-63.9%)	64.6% (63.8%-65.3%)
Urban/rural classification[2]		
Rural county	11.8% (10.9%-12.7%)	11.9% (11.4%-12.3%)
Urban county	88.2% (87.3%-89.1%)	88.1% (87.7%-88.6%)

Note: 1. Weighted percentage (95% confidence interval) 2. National Center for Health Statistics Classification of Urban vs Rural counties

Table 2: Caregivers were more likely to report hypertension and high cholesterol diagnoses

Condition	Caregivers*	Non-caregivers*
Hypertension	29.0% (27.6%-30.3%)	26.7% (26.1%-27.3%)
High cholesterol	28.7% (27.1%-30.2%)	26.3% (25.7%-27.0%)

*Age-adjusted weighted percentage (95% confidence interval)

Table 3: Caregivers are more likely to be current smokers, particularly caregivers ages 18-44

Age group	Caregivers*	Non-caregivers*
Age 18-44	22.6% (20.2%-25.0%)	12.6% (11.8%-13.3%)
Age 45-65	16.8% (15.2-18.5%)	15.3% (14.4%-16.2%)
Age 65+	9.1% (7.5%-10.6%)	7.9% (7.1%-8.7%)

*Weighted percentage (95% confidence interval)

Table 4: Caregivers are more likely to be heavy drinkers[2]

Age group	Caregivers[1]	Non-caregivers[1]
Age 18-44	10.1% (8.3%-12.0%)	6.8% (6.2%-7.3%)
Age 45-65	7.3% (6.2%-8.4%)	7.3% (6.7%-7.9%)
Age 65+	4.8% (3.7%-5.8%)	3.8% (3.4%-4.3%)

Notes: 1. Weighted percentage (95% confidence interval) 2. Heavy drinking is defined as having more than 14 drinks per week for men and more than seven drinks per week for women

Table 5: Caregivers report using cannabis more frequently than non-caregivers

Age group	Cannabis use	Caregivers*	Non-caregivers*
Age 18-44	None	76.6 % (74.1%-79.0%)	83.4 % (82.5%-84.3%)
	Non-daily use (1-19 days)	10.9 % (9.2%-12.6%)	9.6 % (8.9%-10.2%)
	Daily/near daily use (20-30 days)	12.5 % (10.5%-14.5%)	7.0 % (6.4%-7.6%)
Age 45-64	None	90.0 % (88.7%-91.3%)	91.6 % (90.9%-92.3%)
	Non-daily use (1-19 days)	5.8 % (4.8%-6.8%)	4.6 % (4.0%-5.1%)
	Daily/near daily use (20-30 days)	4.2 % (3.2%-5.1%)	3.8 % (3.3%-4.3%)
Age 65+	None	95.9 % (94.9%-97.0%)	96.7 % (96.3%-97.2%)
	Non-daily use (1-19 days)	2.2 % (1.5%-2.9%)	2.1 % (1.7%-2.4%)
	Daily/near daily use (20-30 days)	1.8 % (1.1%-2.6%)	1.2 % (0.9%-1.4%)

* Weighted percentage (95% confidence interval)

Table 6: Caregivers reported higher frequency of stress, particularly caregivers ages 18-44

Age group	Frequency	Caregivers*	Non-caregivers*
Age 18-44	None of the time	19.2% (16.5%-21.8%)	36.1% (34.7%-37.4%)
	A little of the time	27.7% (24.6%-30.9%)	28.3% (27.1%-29.5%)
	Some of the time	25.3% (22.4%-28.2%)	21.6% (20.4%-22.7%)
	Most of the time	17.6% (15.1%-20.2%)	10.2% (9.4%-11.0%)
	All of the time	10.2% (8.0%-12.5%)	3.9% (3.3%-4.4%)
Age 45-64	None of the time	46.6% (45.3%-48.0%)	35.3% (32.9%-37.7%)
	A little of the time	28.0% (26.8%-29.3%)	27.8% (25.6%-30.0%)
	Some of the time	15.7% (14.8%-16.7%)	21.9% (19.8%-24.0%)
	Most of the time	5.9% (5.3%-6.5%)	9.8% (8.2%-11.3%)
	All of the time	3.7% (3.1%-4.3%)	5.2% (4.0%-6.3%)
Age 65+	None of the time	53.1% (50.2%-56.0%)	64.7% (63.3%-66.1%)
	A little of the time	27.3% (24.8%-29.9%)	21.7% (20.5%-22.9%)
	Some of the time	14.2% (12.2%-16.3%)	9.9% (9.0%-10.8%)
	Most of the time	3.4% (2.4%-4.5%)	2.4% (1.9%-2.8%)
	All of the time	NR	1.3% (1.0%-1.7%)

*Weighted percentage (95% confidence interval), excludes 2023

Table 7. Caregivers reported more days where their mental health was not good, particularly caregivers ages 18-44

Age group	Days of poor mental health	Caregivers*	Non-caregivers*
Age 18-44	0 days	30.1% (27.5%-32.8%)	46.0% (44.7%-47.2%)
	1-13 days	42.6% (39.8%-45.4%)	38.5% (37.3%-39.6%)
	14+ days	27.3% (24.7%-29.9%)	15.6% (14.7%-16.4%)
Age 45-64	0 days	54.9% (52.7%-57.0%)	66.7% (65.6%-67.9%)
	1-13 days	30.8% (28.8%-32.7%)	23.2% (22.1%-24.2%)
	14+ days	14.4% (12.8%-16.0%)	10.1% (9.3%-10.9%)
Age 65+	0 days	71.2% (68.9%-73.5%)	79.2% (78.1%-80.3%)
	1-13 days	21.5% (19.4%-23.5%)	14.8% (13.9%-15.8%)
	14+ days	7.3% (6.0%-8.6%)	5.9% (5.2%-6.6%)

*Weighted percentage (95% confidence interval)

Table 8. Caregivers are more likely to report a cost barrier to needed medical care

Age group	Caregivers*	Non-caregivers*
Age 18-44	16.2% (13.6%-18.8%)	9.5% (8.6%-10.3%)
Age 45-64	8.2% (6.6%-9.8%)	6.7% (5.4%-7.9%)
Age 65+	3.1% (2.0%-4.2%)	2.2% (1.7%-2.6%)

*Weighted percentage (95% confidence interval), excludes 2019

Table 9. Data source Behavioral Risk Factor Surveillance System (BRFSS) questions

Characteristic	BRFSS question	Method used to categorize respondents
Hypertension	Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?	Answered "yes"
High cholesterol	Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high?	Answered "yes"
Heavy alcohol consumption	Calculated variable: During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?	Respondents labeled as heavy drinkers in the calculated variable. Male respondents who reported having more than 14 drinks per week, or female respondents who reported having more than seven drinks per week
Current smoking	Calculated variable: Have you smoked at least 100 cigarettes in your entire life? Do you now smoke cigarettes every day, some days, or not at all?	Respondents labeled as current smokers in the calculated variable

Characteristic	BRFSS question	Method used to categorize respondents
Cannabis use	During the past 30 days, on how many days did you use marijuana or cannabis?	Respondents who said none were categorized as “no recent use,” respondents who reported one to 19 days were categorized as “non-daily use,” respondents who reported 20-30 days were categorized as “daily or near-daily use”
Cost of care	Was there a time during the past 12 months when you needed to see a doctor, but could not because of the cost?	Answered “yes” (2019 excluded from analysis)
Days of poor mental health	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?	Categorized into “Zero days when mental health not good,” “1-13 days when mental health not good,” “14 days or more when mental health not good”
Stress frequency	Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because their mind is troubled all the time. Within the last 30 days, how often have you felt this kind of stress?	Categories provided: “None of the time,” “A little of the time,” “Some of the time,” “Most of the time,” “All of the time” (2023 excluded from analysis)
Caregiver status	During the past 30 days, did you provide regular care or assistance to a friend or family member who has a health problem or disability?	Answered “yes”