Young Hearts at Risk: Prevalence of CVD Risk Factors in Minnesota Women Aged 18-49 Years

Introduction

Cardiovascular disease (CVD) is the leading cause of death worldwide, responsible for nearly 19 million lives lost each year, causing immense strain on communities through treatment costs and lost productivity.[1] In Minnesota, CVD claims approximately 13,000 lives each year and accounts for about one in every four deaths among women. [2,3] It is estimated that by 2050, the prevalence of key heart health risk factors in adults could rise to 61% for hypertension, 27% for diabetes, and over 60% for obesity, underscoring a growing public health crisis.[4] These trends highlight the urgent need for prevention, as many CVD events stem from lack of access to healthy supports and lifestyle choices that result in unhealthy diet, physical inactivity, and tobacco use.

While CVD impacts all populations, women encounter specific challenges that can exacerbate risks and complicate outcomes. For instance, hormonal fluctuations throughout life stages influence symptom presentation, often leading to underdiagnosis of cardiovascular conditions like heart attack—women may experience subtler signs like fatigue or nausea rather than classic chest pain. Overall CVD death rates in the United States are higher for men than women, but young women experience more adverse outcomes in the year after a heart attack.[5,6] Socioeconomic factors, including limited access to care and less representation in medical research, further widen these gaps, emphasizing the importance of tailored approaches to screening and intervention specifically designed for women.

Women in their reproductive years represent a pivotal group where CVD risks intersect with life events like pregnancy, potentially setting the stage for lifelong health trajectories. Although young women are not typically viewed as the primary demographic for heart disease, recent research indicates a concerning rise in heart attacks in this population, particularly at the upper end of the age range—data from over 28,000 hospitalizations between 1995 and 2014 showed that the proportion of young patients (aged 35-54) increased from 27% to 32% overall, with a more pronounced jump among women from 21% to 31%.[7]

Suboptimal, or less than ideal, cardiovascular health in this demographic has risen modestly nationwide, from about 72% in 2015 to 76% in 2019, largely fueled by climbing obesity rates from 53% to 58%.[7] Conditions such as gestational diabetes or preeclampsia not only heighten immediate maternal risks but also elevate the likelihood of future CVD in both mothers and their children. Babies exposed to maternal CVD, including preeclampsia, before birth are more than twice as likely to develop CVD themselves by early adulthood.[9] Early adulthood interventions could lessen these effects, leading to healthier pregnancies and reduced future burden.

This report examines the prevalence of key cardiovascular risk factors such as, hypertension, high cholesterol, obesity, diabetes, smoking, physical inactivity, excess alcohol intake, stress,

and sugar sweetened beverage consumption among Minnesota women aged 18-49, drawing on recent data to highlight disparities and opportunities for intervention.

Data source

The Minnesota Department of Health conducted analyses of the prevalence of cardiovascular health behaviors and conditions in Minnesota women aged 18-49 years using the 2023 Minnesota Behavioral Risk Factor Surveillance System (BRFSS) survey. BRFSS data is sourced from annual, state-based, cross-sectional telephone surveys of U.S. adults conducted by state health departments in collaboration with the CDC. It collects data on health-related risk behaviors, chronic health conditions, and preventive services, using both landline and cellular phone interviews.

Analysis

This report estimates the prevalence of cardiovascular disease (CVD) risk factors among Minnesota women of childbearing age (18-49 years) using the 2023 BRFSS data. In addition to six established cardiovascular risk factors (obesity, hypertension, high cholesterol, diabetes, smoking, and physical inactivity), three additional risk factors (excess alcohol intake, stress, and sugar sweetened beverage consumption) were assessed. The overall prevalence of CVD risk factors was first analyzed among all women aged 18-49 years followed by age stratified analysis where the women were divided into two age groups, 18-34 years and 35-49 years. Women were classified as having suboptimal cardiovascular health based on the presence of two or more of the following six conditions- obesity, hypertension, high cholesterol, diabetes, physical inactivity, smoking.

Key findings

- Among Minnesota women of reproductive age (18-49 years), approximately 70% (>770,000 women) have at least one of eight cardiovascular disease (CVD) risk factors.
- About 25% of women (>280,000 women) of reproductive age have suboptimal cardiovascular health, defined as the presence of two or more risk factors including hypertension, diabetes, high cholesterol, current tobacco use, obesity, and insufficient physical activity.
- Women aged 35-49 years have a greater prevalence of suboptimal cardiovascular health, compared to women aged 18-34 years.
- Obesity is the most prevalent CVD metabolic risk factor affecting nearly 32% of women in this group overall. The most prevalent behavioral risk factor was consumption of >1 sugar sweetened beverage a day (36.3%).
- **Racial/Ethnic Disparities:** Hispanic women have the highest prevalence of physical inactivity (42.5%), Black women report the highest levels of hypertension (13.9%), Asian women have the highest prevalence of Diabetes (8.4%), while White women are most likely to report tobacco use (21.7%), excess alcohol consumption (23.3%), and high cholesterol levels (18.2%).

- **Socioeconomic and Educational Gaps:** Lower income (<$50k) groups have higher prevalence of stress (33.5%) and tobacco use (29.5%), with more excess alcohol consumption in high-income groups (24.2%). Lower education (<High School) correlates with higher obesity (40.2%) and physical inactivity (41.4%), while higher education women report higher alcohol consumption (23.7%).
- **Urban/Rural Differences:** Women in rural counties report higher prevalence of tobacco use (29.5%), excess alcohol consumption (27.2%), and slightly higher obesity (33.4%), hypertension (12.4%), and diabetes (7.3%) compared to urban counties.

Cardiovascular Disease (CVD) Risk Factors:

This report groups cardiovascular disease (CVD) risk factors into two categories: metabolic risk factors (biological conditions that directly impair heart function) and behavioral risk factors (lifestyle choices that can be modified to prevent or reduce the impact of CVD). These groupings are based on research linking each of the factors to CVD outcomes, with an emphasis on women aged 18-49, where risks intersect with reproductive health and may lead to long-term complications like negative pregnancy outcomes and future impacts on both mothers and children. Even a single risk factor increases the risk of coronary heart disease by 1.6-fold in women, with risks rising to 2.3-fold for two factors, 2.8-fold for three factors, and 3.8-fold for four or more factors, regardless of combination of risk factors.[10]

Metabolic Risk Factors

- **Obesity:** Excess body fat promotes inflammation, insulin resistance, and hypertension, increasing overall CVD risk. Compared with men, women experience greater increases in the risk associated with severe obesity for stroke, CVD, and death. In reproductive-age women, obesity also heightens pregnancy complications such as preeclampsia and gestational diabetes, which can have lasting effects on the cardiovascular health of both mother and child.[9]
- **Hypertension:** Elevated blood pressure damages arteries and strains the heart, significantly raising the risk of stroke and heart failure. In women of reproductive age, it is especially concerning because uncontrolled hypertension can complicate pregnancy and increase long-term CVD risk for both mother and child.[11]
- **High Cholesterol:** High cholesterol in reproductive-age women is a significant, often underdiagnosed, risk factor for premature CVD. While traditionally considered a post-menopausal issue, high cholesterol in younger women, especially when combined with factors like polyendocrine metabolic ovarian syndrome (PMOS) (formerly known as polycystic ovarian syndrome (PCOS)), early menopause, or pregnancy complications, dramatically elevate long-term CVD risk.[12]
- **Diabetes:** Diabetes in reproductive-age women drastically increases cardiovascular disease (CVD) risk. Type 2 diabetes doubles CVD risk, while gestational diabetes (GDM) increases risk of future cardiovascular events by over 70%.[13]

Behavioral Risk Factors

- **Physical Inactivity:** Physical inactivity is a leading, modifiable risk factor for CVD, ranking similarly to smoking, high blood pressure, and high cholesterol. It increases the risk of heart disease, stroke, and related conditions. Becoming more active reduces heart disease by 20% and stroke by 40% in people who do regular moderate to vigorous activity.[14]
- **Tobacco Use:** Smoking has disproportionately harmful effects on the cardiovascular system in women, particularly those who are younger. It accelerates the onset of cardiovascular disease, resulting in earlier heart attacks compared with women who do not smoke.[15]
- **Excess Alcohol Consumption:** Excess alcohol consumption, particularly binge drinking, significantly increases the risk of CVD in young to middle-aged women. Consuming eight or more drinks per week boosts heart disease risk by up to 50%, with binge drinking (4+ drinks per sitting) posing the highest danger.[16,17]
- **Stress:** Stress is included as a risk factor due to its independent contribution to CVD, comparable to traditional factors like smoking, hypertension, and diabetes. Chronic, high, or "toxic" stress significantly increases CVD risk in women under 55, often more than in men or older women.[18]
- **Sugar-Sweetened Beverage Consumption:** Major studies show that daily intake is associated with a 19% higher CVD risk, 21% higher stroke risk and 31% higher cardiovascular mortality. [19,20]

Chart 1: Obesity is the most prevalent metabolic risk factor in Minnesota women aged 18-49 years

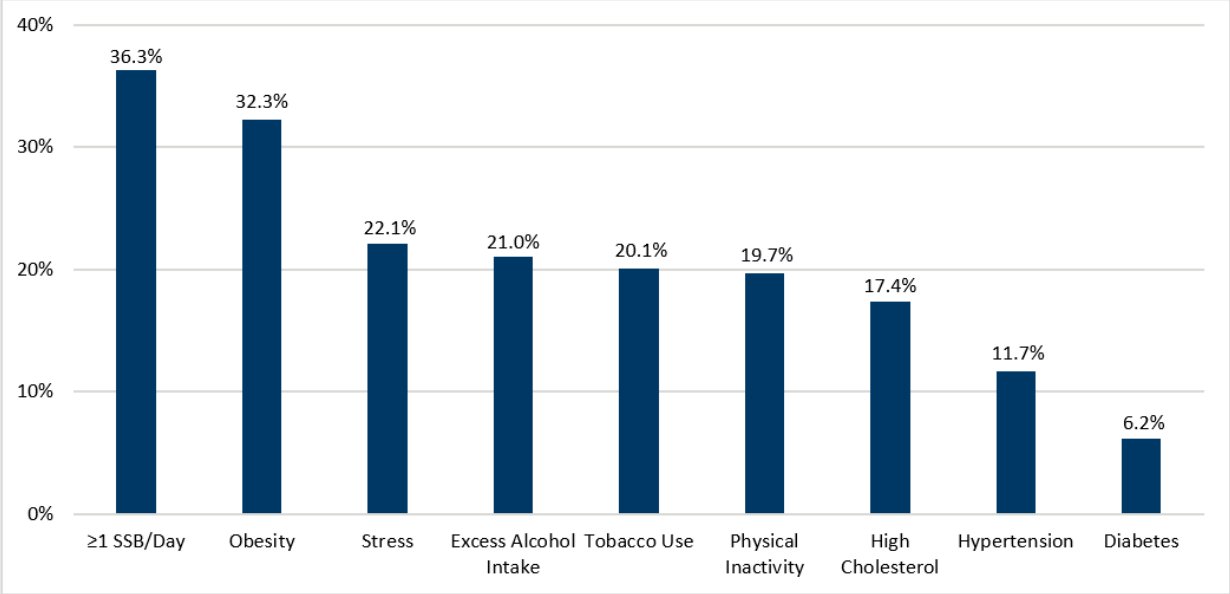
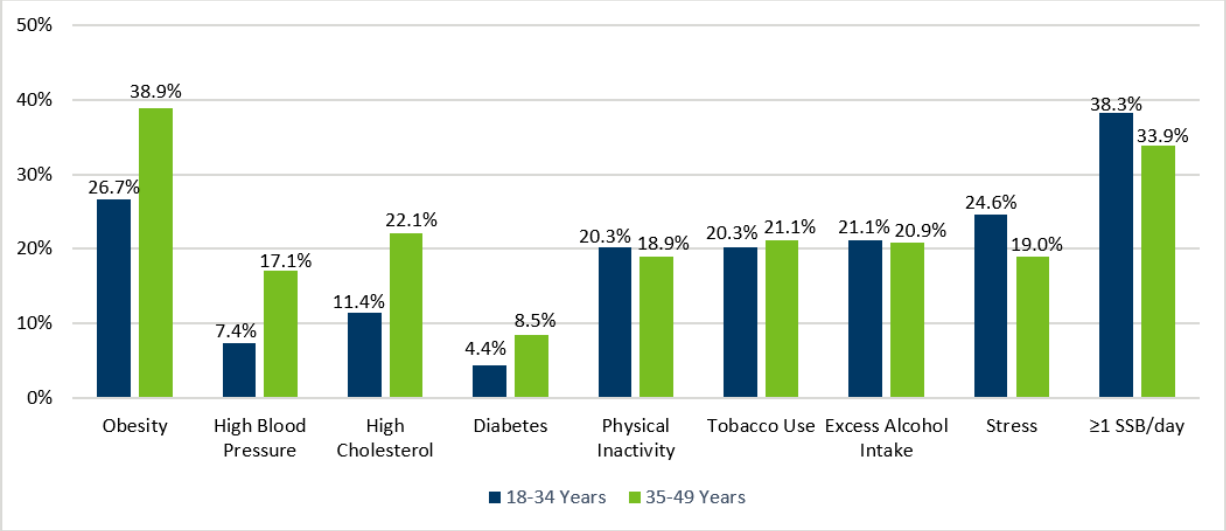


Chart 1 illustrates the overall prevalence of key cardiovascular disease (CVD) risk factors among Minnesota women aged 18-49 years, based on self-reported data. Obesity is the most prevalent metabolic risk factor (32.0%). Notably, consumption of one or more sugar-sweetened beverages per day (≥1 SSB per day) shows the highest overall prevalence at 36.3%, emerging as a significant and relatively novel behavioral risk factor in this analysis. Other

behavioral risk factors such as stress (22.1%), excess alcohol intake (21.0%), tobacco use (20.1%), and physical inactivity (19.7%) are also common, while metabolic factors including high cholesterol (17.4%), hypertension (11.7%), and diabetes (6.2%) show lower prevalence.

These data highlight the very high prevalence of modifiable lifestyle-related risk factors that could benefit from public health interventions to reduce CVD burden in this population of young and middle-aged women.

Chart 2: Cardiovascular risk factors differ by age group in Minnesota women of reproductive age

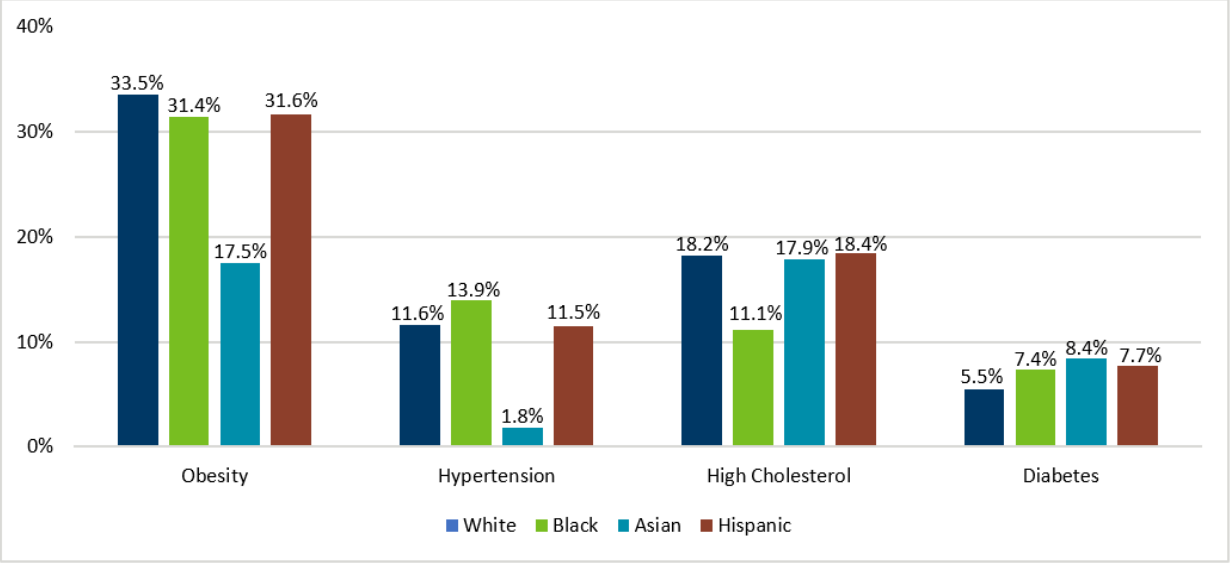


Minnesota women of reproductive age were stratified into two age groups, 18-34 years and 35-49 years to capture the distinct cardiovascular risk profiles during these phases of life. The 18-34 group represents early adulthood, when hormones that protect women against heart disease are high and pregnancy acts as a "stress test" that can reveal future CVD through complications like gestational diabetes, gestational hypertension or preeclampsia, presenting opportunities for early intervention. In contrast, the 35-49 group marks a transition where hormonal protection wanes, leading to increases in risk factors such as obesity, hypertension, and diabetes and a rising incidence of heart attacks, requiring more intense interventions to address emerging metabolic risks.

Chart 2 compares the prevalence of nine cardiovascular disease (CVD) risk factors between younger (18-34 years, blue bars) and older (35-49 years, green bars) age groups. Prevalence of metabolic risk factors—obesity, high blood pressure, high cholesterol, and diabetes—roughly doubles in the 35-49 group compared to 18-34, reflecting accumulating physiological changes that heighten CVD vulnerability over time. Behavioral risk factors show a mixed pattern of prevalence. Excess alcohol intake and tobacco use remain similar across both groups (around 20–21%), while daily sugar-sweetened beverage consumption (≥1 SSB/day) is notably higher among younger women (38.3% vs. 33.9%). Stress is also higher in the younger group (24.6% vs. 19.0%), potentially linked to early adulthood pressures such as education or career demands.

Overall, younger women exhibit lower metabolic risks but higher behavioral risks (particularly SSB intake and stress), underscoring the need for preventive strategies in early adulthood to curb escalation and reduce long-term CVD burden.

Chart 3: Metabolic risk factors differ by race/ethnicity in Minnesota women aged 18–49 years



As shown in Chart 3, obesity rates surpass 30% for White (33.5%), Hispanic (31.6%), and Black (31.4%) women, while Asian women have the lowest prevalence (17.5%). Black women show the highest hypertension prevalence (13.9%), and Asian women have highest diabetes prevalence (8.4%), emphasizing the need for group-specific screening to address these differences. High cholesterol is most prevalent among White (18.2%), Hispanic (18.4%) and Asian (17.9%) women. Dietary or environmental influences could potentially inform targeted prevention efforts.

Chart 4: Behavioral risk factors differ by race/ethnicity in Minnesota women aged 18–49 years

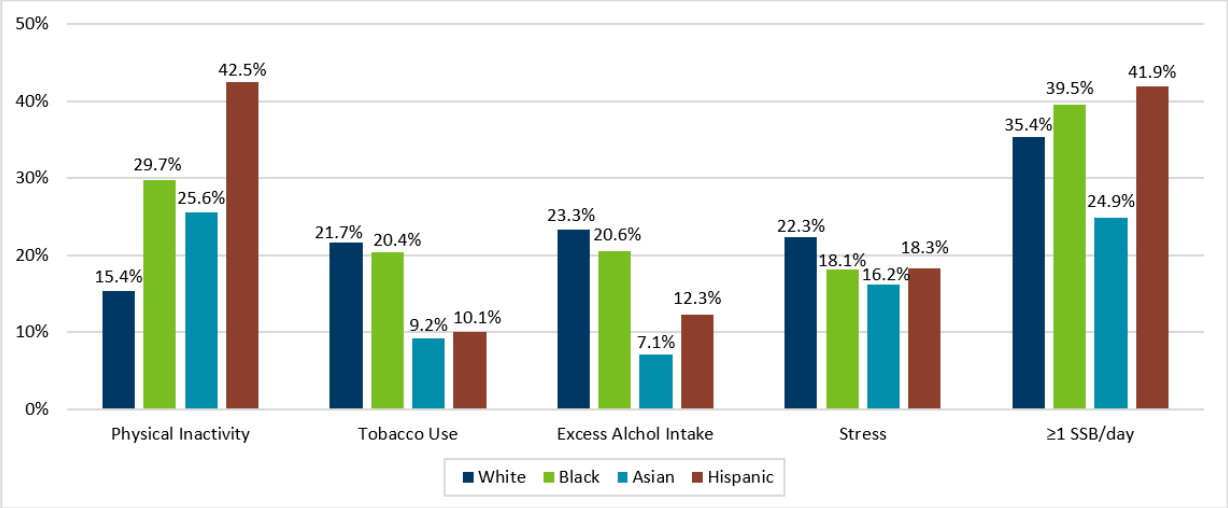
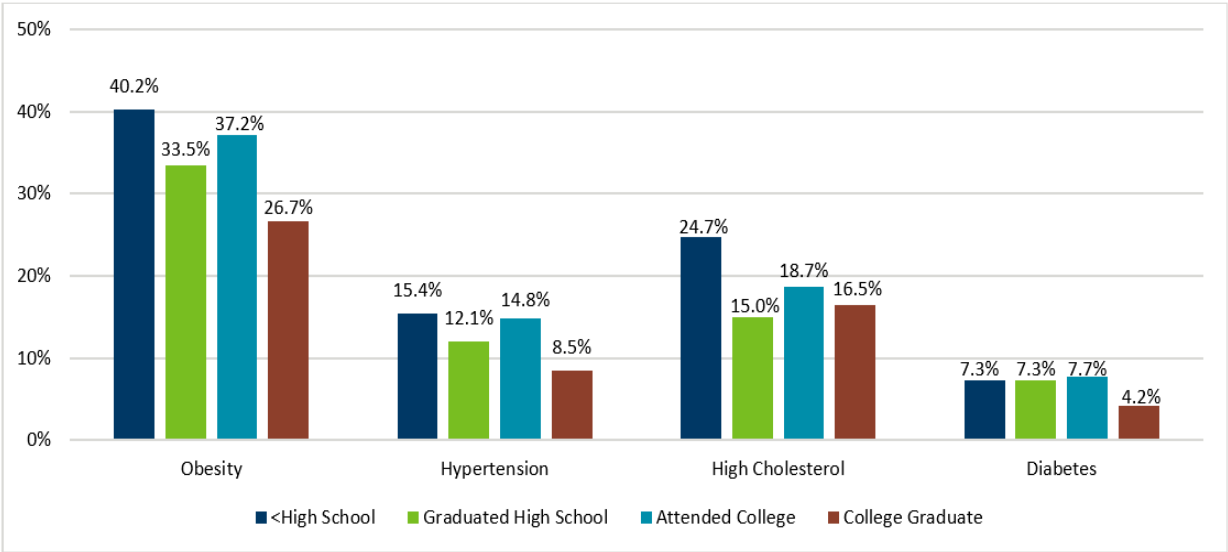


Chart 4 compares the prevalence of modifiable risk factors by race and ethnicity. Hispanic women report the highest prevalence of physical inactivity at 42.5%—nearly three times that of White women (15.4%)—while Black women and Asian women fall in between at 29.7% and 25.6%, respectively. White women lead in prevalence of several modifiable behaviors, with the highest rates for tobacco use (21.7%), excess alcohol intake (23.3%), and stress (22.3%), suggesting the need for targeted interventions to address these lifestyle-driven risks in this group. Daily sugar-sweetened beverage consumption (≥1 SSB/day) is most prevalent among Hispanic women (41.9%) and Black women (39.5%), followed by White women (35.4%) and Asian women (24.9%).

Chart 5: Higher education levels are associated with lower prevalence of metabolic risk factors in Minnesota woman aged 18-49 years



As shown in Chart 5, higher education levels are associated with lower prevalence across metabolic risk factors, with college graduates showing the lowest prevalence of obesity,

hypertension, high cholesterol and diabetes, emphasizing education's protective role through improved health literacy and access. Women with less than high school education have the highest prevalence of metabolic risk factors, particularly in obesity (40.2%) and high cholesterol (24.7%), highlighting equity gaps that demand targeted support for underserved populations.

Chart 6: Behavioral CVD risk factors vary by education level in Minnesota women aged 18–49 years

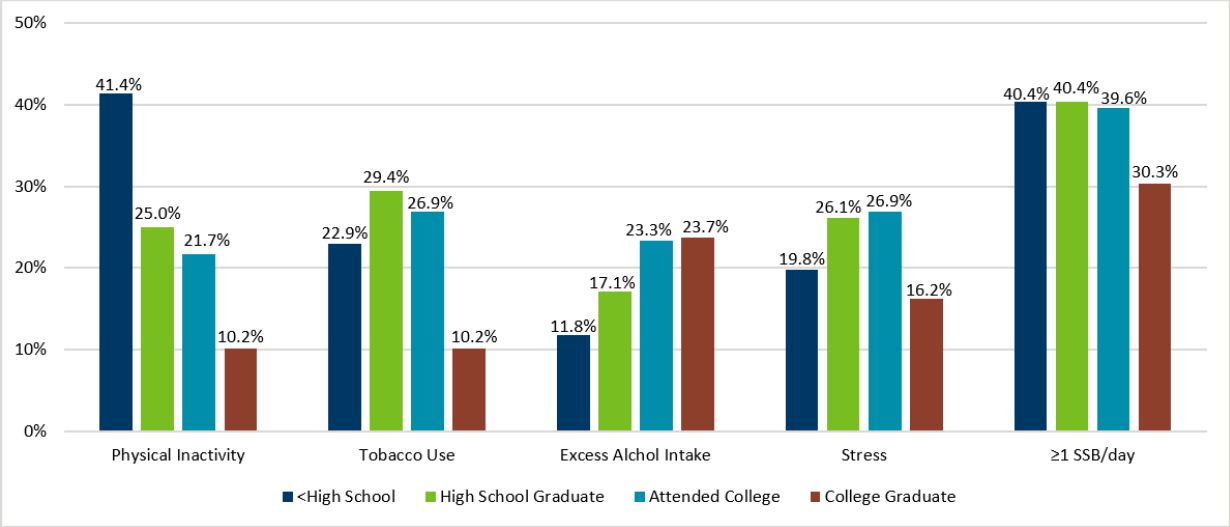


Chart 6 shows that college graduates report the lowest rates of physical inactivity (10.2%) and tobacco use (10.2%), demonstrating an overall inverse relationship between education level and these risks, possibly tied to greater health awareness and resources. Women with less than high school education show the highest physical inactivity (41.4%) and daily SSB consumption (40.4%), while high school graduates and those who attended college have peak tobacco use (29.4% and 26.9%) and stress (26.1% and 26.9%). Excess alcohol intake increases with higher education with highest prevalence amongst college graduates. These patterns highlight the need for education-specific interventions, particularly targeting physical inactivity and SSB intake in lower-education groups and alcohol use in higher-education groups.

Chart 7: Metabolic risk factors differ by income level in Minnesota women aged 18–49 years

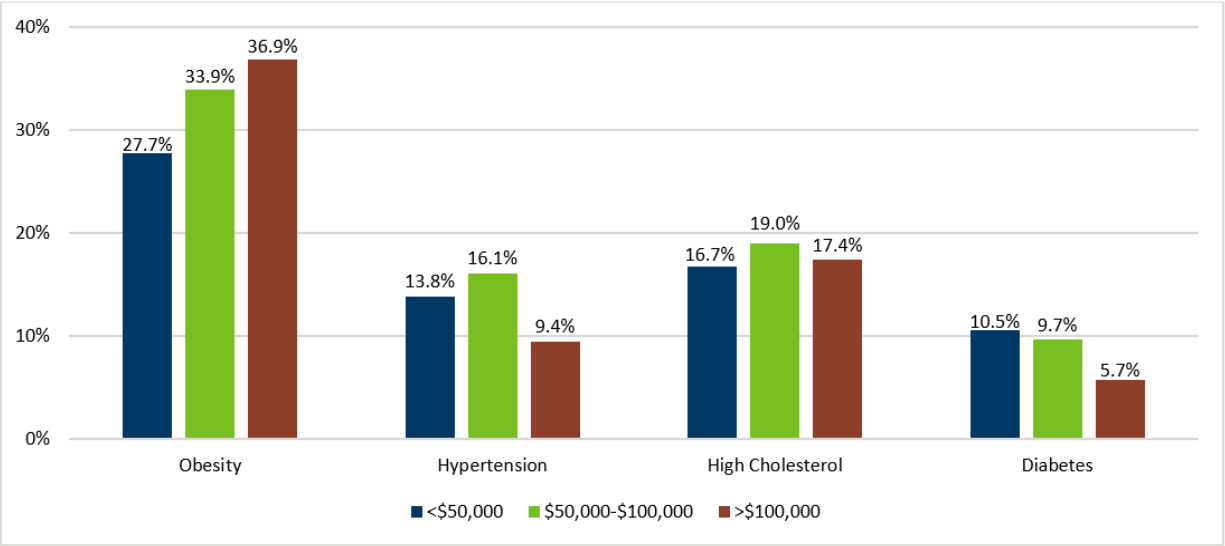


Chart 7 shows the prevalence of metabolic risk factors by income category. Obesity prevalence increases with income, at 36.9% for those earning >$100k. The middle-income bracket ($50-100k) shows the highest rates for hypertension (16.1%) and high cholesterol (19.0%), suggesting economic pressures or lifestyle shifts in this range. Diabetes is most prevalent in lower income (<$50k at 10.5%) and decreases to 5.7% in >$100k, highlighting the possible presence of access to care and nutrition disparities associated with socioeconomic status.

Chart 8: Behavioral risk factors differ by income level in Minnesota women aged 18–49 years

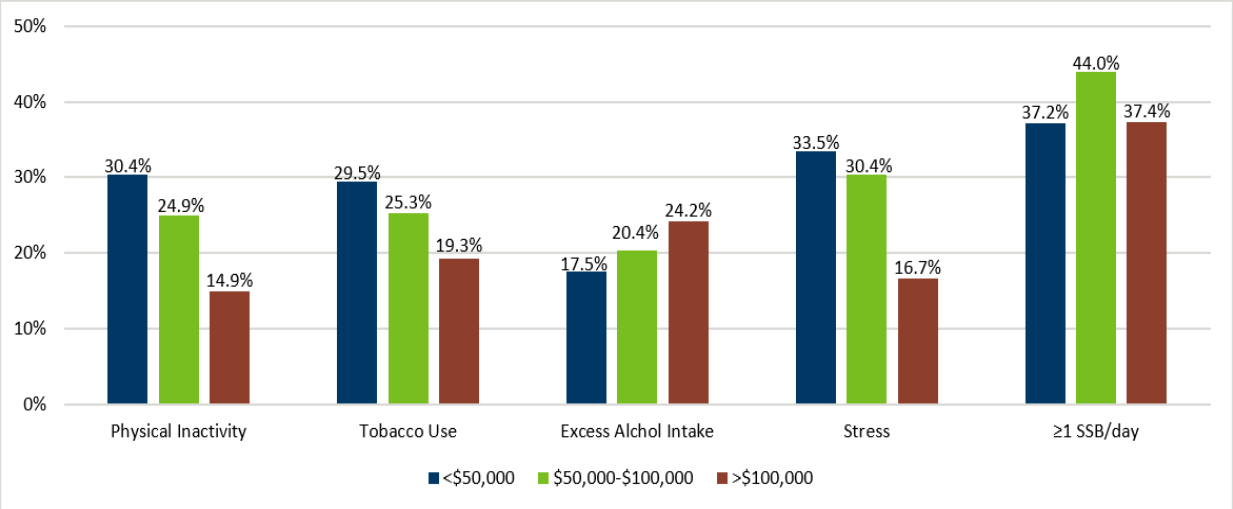
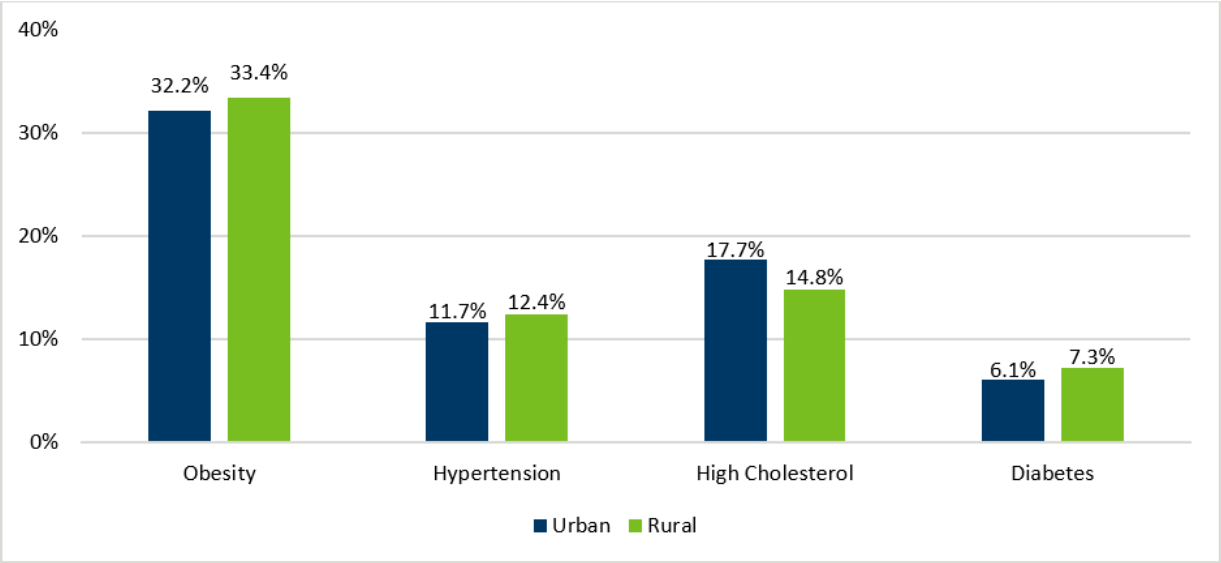


Chart 8 shows the prevalence of behavioral risk factors by income category. Women in the lowest income group (<$50,000) show the highest prevalence of physical inactivity (30.4%), tobacco use (29.5%), and stress (33.5%). Daily sugar-sweetened beverage consumption (≥1 SSB per day) is highest in the middle-income group (44.0%). Excess alcohol intake rises with income, peaking at 24.2% among those earning >$100,000. Higher income is associated with

lower rates of physical inactivity, tobacco use, and stress, highlighting clear socioeconomic patterns in modifiable behavioral risk factors.

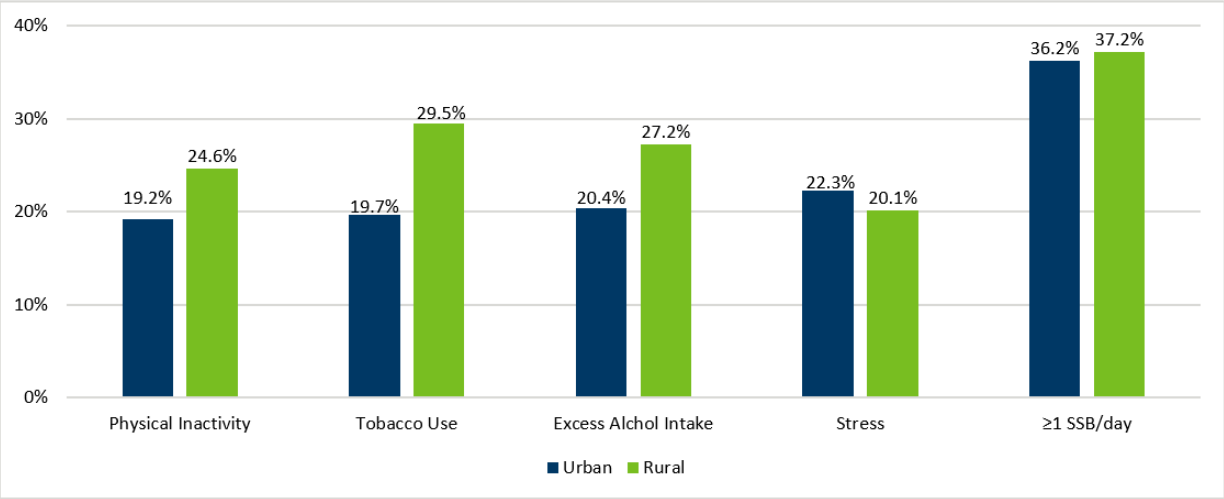
Chart 9: Metabolic risk factors differ by urban/rural residence in Minnesota women aged 18–49 years



As shown in Chart 9, women living in rural counties report slightly higher rates of obesity (33.4% vs. 32.2% urban), hypertension (12.4% vs. 11.7%), and diabetes (7.3% vs. 6.1%) compared to women in urban counties, potentially reflecting barriers to healthcare access or lifestyle differences in less populated areas.

High cholesterol prevalence is greater in urban counties (17.7% vs. 14.8% rural), Although the disparities in high cholesterol prevalence between urban (17.7%) and rural (14.8%) areas among Minnesota women aged 18-49 may appear small, the condition remains highly prevalent in both settings. This elevated prevalence underscores the need for statewide screening and prevention efforts to address this widespread risk factor.

Chart 10: Behavioral risk factors differ by urban/rural residence in Minnesota women aged 18–49 years



As shown in Chart 10, rural women report higher rates of physical inactivity (24.6% vs. 19.2% urban), tobacco use (29.5% vs. 19.7%), excess alcohol intake (27.2% vs. 20.4%), and slightly higher daily sugar-sweetened beverage consumption (37.2% vs. 36.2%) compared to women in urban counties. Stress prevalence is modestly higher in urban counties (22.3% vs. 20.1%). These patterns suggest the value of rural-focused programs to reduce tobacco use, excess alcohol, and SSB consumption while promoting physical activity, alongside urban initiatives that address stress management.

Conclusions

The objective of this analysis and report is to provide a timely, Minnesota-specific snapshot of cardiovascular disease (CVD) risk factors among women of reproductive age (18–49 years), a group often overlooked in traditional heart-disease messaging yet facing unique risks at the intersection of reproductive health, hormonal changes, and long-term intergenerational effects.

The analysis reveals a sobering reality: approximately 70% of Minnesota women in this age group have at least one CVD risk factor, with 25% experiencing suboptimal cardiovascular health (≥2 risk factors). Obesity remains the leading metabolic risk (32.0%), while daily consumption of one or more sugar-sweetened beverages (35.4%) emerges as the single most prevalent modifiable factor overall.

Socioeconomic and racial/ethnic disparities are evident, with higher risk factor burdens often among lower education/income groups, certain racial and ethnic minority populations (e.g., physical inactivity among Hispanic and Black women), and rural residents.

By highlighting the high prevalence of modifiable behavioral risks, this report shows potential benefits to the integration of CVD screening and counseling into routine reproductive health visits, preconception care, and community programs. It also strengthens the case for targeted interventions that address social determinants of health, such as expanding access to affordable healthy foods, safe physical activity spaces, and culturally tailored programs in high-burden communities. State and local health departments can use these data to prioritize

resources, evaluate program reach, and track progress toward reducing disparities and preventing future CVD events.

Minnesota women can take immediate steps to protect their heart health by reducing sugar sweetened beverage intake, managing stress, increasing physical activity, and limiting alcohol and tobacco use. Making just one change can improve heart health. It is also important to know your numbers for blood pressure, blood sugar, blood cholesterol and body weight. These can be monitored during regular check-ups with a healthcare provider. Women at risk for high blood pressure may benefit from more frequent monitoring at home. At-home blood pressure monitoring, also known as Self-Measured Blood Pressure (SMBP), along with doctor visits, allows people to enhance quality of care, improve adherence to medications and ultimately reduce the risk of more serious heart-health complications or conditions.

Eligible women aged 35–64 who are uninsured or underinsured can access free or low-cost heart-health screening, risk-reduction counseling, and healthy behavior support through Minnesota's SagePlus program (Minnesota's WISEWOMAN initiative). For more information or to find a participating clinic, visit mnsage.com or call 1-888-643-2584. Nationwide resources are also available through the Million Hearts initiative, which offers tools, toolkits, and community strategies to prevent 1 million heart attacks and strokes. Individuals, clinics, and communities can explore these evidence-based resources at millionhearts.hhs.gov.

By acting on the modifiable risks identified in this report—through individual behavior change, clinical integration, and policy support—Minnesota can reduce CVD burden, improve health equity, and give more women the opportunity for healthier pregnancies and longer, healthier lives.

Limitations

This analysis utilized data from the 2023 Minnesota Behavioral Risk Factor Surveillance System (BRFSS), the largest state-based telephone survey of U.S. adults. As with all BRFSS data, responses are self-reported and therefore subject to potential misclassification, recall bias, and underestimation of true prevalence. Prevalence estimates were not adjusted, meaning they do not take into account differences in the populations being compared that could be impacting results, such as socioeconomic status or comorbidities. Missing values where people do not respond to a question are excluded from the analysis. Some sensitive or personal information, like income, may have a higher rate of missing data. Only four race groups were included in the results due to data limitations where the number of people within other groups were too small to share while maintaining privacy.

In addition, the cardiovascular risk factors examined do not fully align with the American Heart Association's Life's Essential 8 framework, which includes objectively measured components and additional metrics such as diet and sleep that were not available in this dataset. Suboptimal cardiovascular health in this report was defined using only six of the standard risk factors (obesity, hypertension, high cholesterol, diabetes, physical inactivity, and smoking), excluding diet and sleep. This more limited definition may underestimate the true burden of suboptimal cardiovascular health. Finally, because the study is observational and restricted to Minnesota women aged 18–49 years, findings may not be fully generalizable to other states or populations.

Despite these limitations, the use of the most recent BRFSS data provides a timely, population-representative snapshot of CVD risk factors among Minnesota women of reproductive age and highlights actionable disparities for public health planning.

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Appendix

Table 1: Cardiovascular disease risk factors, BRFSS 2023 questions used to define each metric and derived variables

CVD Risk Factor	BRFSS 2023 Question(s)	Definition used for CVD Risk Factor
Obesity (BMI ≥ 30)	About how tall are you without shoes? About how much do you weigh without shoes?	BMI ≥ 30
High Blood Pressure	Have you EVER been told by a doctor, nurse, or other health professional that you have high blood pressure?	Answered "Yes" to High Blood Pressure
High Cholesterol	Have you EVER been told by a doctor, nurse, or other health professional that your blood cholesterol is high?	Answered "Yes" to high cholesterol
Diabetes	(Ever told) you have diabetes?	Answered "Yes" to Diabetes
Sedentary Lifestyle/ Physical Inactivity	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?	Answered "No" to physical activity outside of work.
Tobacco Use (Inhaled Products)	Have you smoked at least 100 cigarettes in your entire life? Would you say you have never used e-cigarettes or other electronic vaping products in your entire life or now use them every day, use them some days, or used them in the past but do not currently use them at all? Do you currently smoke hookah every day, some days, or not at all? Do you currently smoke cigarillos or little cigars every day, some days, or not at all?	Answered "Yes" to smoking any one of the following inhaled tobacco products— Cigarettes Cigarillos/little cigars, e-cigarettes or Hookah.
Excess Alcohol Intake	During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?	Adult women who drink 4 or more drinks on one occasion or more

CVD Risk Factor	BRFSS 2023 Question(s)	Definition used for CVD Risk Factor
	(Number of alcoholic beverages per week were calculated)	than 7 drinks per week.
Stress	Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his/her mind is troubled all the time. Within the last 30 days, how often have you felt this kind of stress?	Answered "Always" or "Usually" to experiencing stress.
>=1 Sugar Sweetened Beverage consumed per day	During the past 30 days, how often did you drink regular soda or pop that contains sugar? Do not include diet soda or diet pop. During the past 30 days, how often did you drink coffee or tea that had sugar or honey added to it? Include coffee and tea you sweetened yourself and presweetened tea and coffee drinks such as Arizona Iced Tea and Frappuccino. Do not include artificially sweetened coffee or diet tea. During the past 30 days, how often did you drink sports and energy drinks such as Gatorade, Red Bull, and Vitamin Water? During the past 30 days, how often did you drink sweetened fruit drinks, such as Kool-Aid, cranberry juice cocktail and lemonade? Include fruit drinks you made at home and added sugar to.	>=1 Sugar Sweetened beverage consumed in a day including sodas, fruit drinks, sweetened coffee or tea and energy drinks.
Any Risk	Calculated variable for the purpose of data analysis for this report.	Presence of any 1 of 8 CVD risk factors—Obesity, High blood pressure, High cholesterol, Diabetes, Tobacco use, Excess Alcohol consumption, Physical inactivity, Stress.

CVD Risk Factor	BRFSS 2023 Question(s)	Definition used for CVD Risk Factor
Suboptimal Cardiovascular Health	Calculated variable for the purpose of data analysis for this report.	Presence of ≥2 of 6 CVD risk factors—high blood pressure, diabetes, high cholesterol, current tobacco use, obesity, and insufficient physical activity.

Table 2: Overall prevalence of cardiovascular disease risk factors in Minnesota women aged 18-49 years

CVD Risk Factors	Minnesota women Aged 18-49 Years	Minnesota Women Aged 18-34 Years	Minnesota Women Aged 35-49 Years
Obesity (BMI ≥ 30)	32.3% (29.7%-34.9%)	26.7% (23.1%-30.3%)	38.9% (35.4%-42.6%)
High Blood Pressure	11.7% (10.1%-13.3%)	7.4% (5.4%-9.4%)	17.1% (14.5%-19.7%)
High Cholesterol	17.4% (15.2%-19.6%)	11.4% (8.5%-14.2%)	22.1% (19.0%-25.2%)
Diabetes	6.2% (4.9%-7.5%)	4.4% (2.7%-6.1%)	8.5% (6.6%-10.4%)
Sedentary Lifestyle/Physical Inactivity	19.7% (17.7% – 21.7%)	20.3% (17.4%-23.3%)	18.9% (16.4%-21.6%)
Tobacco Use (Inhaled Products)	20.6% (18.5%-22.8%)	20.3% (17.3%-23.4%)	21.1% (18.2%-23.9%)
Excess Alcohol Intake	21.0% (18.9%-21.1%)	21.1% (18.1%-24.0%)	20.9% (17.9%-23.9%)
Stress	22.1% (19.8%-24.4%)	24.6% (21.2%-27.9%)	19.0% (16.1%-21.9%)
>=1 Sugar Sweetened Beverage consumed per day	36.3% (33.8%-38.8%)	38.3% (34.6%-41.9%)	33.9% (30.7%-37.0%)
Suboptimal Cardiovascular Health	25.0% (22.8%-27.2%)	20.6% (17.8%-23.4%)	36.7% (33.6%-39.8%)

Table 3: Prevalence of cardiovascular disease risk factors by race/ethnicity in Minnesota women aged 18-49 years

CVD Risk Factors	White, non-Hispanic	Black, non-Hispanic	Asian, non-Hispanic	Hispanic
Obesity (BMI ≥ 30)	33.5% (30.5%-36.6%)	31.4% (21.9%-40.8%)	17.5% (7.5%-27.4%)	31.6% (23.6%-39.6%)
High Blood Pressure	11.6% (9.7%-13.5%)	13.9% (8.0%-19.9%)	1.8% (0.0%-4.6%)	11.5% (6.6%-16.5%)
High Cholesterol	18.2% (15.6%-20.8%)	11.1% (3.7%-18.4%)	17.9% (6.8%-29.0%)	18.4% (11.9%-24.9%)
Diabetes	5.5% (4.1%-6.9%)	7.4% (1.8%-13.1%)	8.4% (1.7%-15.1%)	7.7% (3.8%-11.6%)
Sedentary Lifestyle/Physical Inactivity	15.4% (13.3%-17.6%)	29.7% (20.9%-38.4%)	25.6% (15.3%-35.9%)	42.5% (35.1% (49.8%)
Tobacco Use (Inhaled products)	21.7% (19.2%-24.3%)	20.4% (12.4%-28.3%)	9.2% (2.3%-16.2%)	10.1% (5.4%-14.8%)
Excess Alcohol Intake	23.3% (20.7%-25.8%)	20.6% (12.6%-28.5%)	7.1% (2.5%-11.8%)	12.3% (7.3%-17.3%)
Stress	22.3% (19.6%-25.0%)	18.1% (9.9%-26.4%)	16.2% (6.9%-25.4%)	18.3% (11.7%-24.9%)
>=1 Sugar Sweetened Beverage consumed per day	35.4% (32.5%-38.2%)	39.5% (29.8%-49.1%)	24.9% (15.7%-34.3%)	41.9% (34.4%-49.4%)
Suboptimal Cardiovascular Health	25.5% (22.9%-28.1%)	26.6% (18.2%-34.9%)	11.4% (4.4%-18.4%)	22.5% (16.5%-28.4%)

Table 4: Prevalence of cardiovascular disease risk factors by education level in Minnesota women aged 18-49 years

CVD Risk Factors	Did Not Graduate High School	Graduated High School	Attended College/Technical School	Technical School/College Graduate
Obesity (BMI ≥ 30)	40.2% (26.9%-53.4%)	33.50% (27.7%-39.3%)	37.2% (32.1%-42.4%)	26.7% (23.6%-29.8%)
High Blood Pressure	15.4% (7.3%-23.5%)	12.1% (8.5%-15.7%)	14.8% (11.5%-18.1%)	8.5% (6.7%-10.3%)
High Cholesterol	24.7% (11.9%-37.4%)	15.0% (9.7%-20.3%)	18.7% (14.3%-23.1%)	16.5% (14.0% - 19.1%)
Diabetes	7.3% (2.9%-11.7%)	7.3% (4.2%-10.4%)	7.7% (5.0%-10.3%)	4.2% (2.8%-5.7%)
Sedentary Lifestyle/Physical Inactivity	41.4% (30.9%-52.0%)	25.0% (20.5%-29.4%)	21.7% (17.7%-25.8%)	10.2% (8.2%-12.3%)
Tobacco Use (Inhaled products)	22.9% (13.6%-32.2%)	29.4% (24.2%-34.5%)	26.9% (22.4%-31.4%)	10.2% (8.2%-12.2%)
Excess Alcohol Intake	11.8% (4.8%-18.7%)	17.1% (12.8%-21.4%)	23.3 % (18.9%-27.8%)	23.7% (20.7%-26.6%)
Stress	19.8% (11.0%-28.5%)	26.1% (20.6%-31.5%)	26.9% (22.3%-31.6%)	16.2% (13.5%-19.0%)
>=1 Sugar Sweetened Beverage consumed per day	40.4% (29.5%-51.3%)	40.4% (34.8%-45.8%)	39.6% (34.7%-44.6%)	30.3% (27.3%-33.4%)
Suboptimal Cardiovascular Health	36.3% (25.8%-46.8%)	28.6% (23.6%-33.6%)	30.6% (26.1%-35.1%)	16.2% (13.9%-18.6%)

Table 5: Prevalence of cardiovascular risk factors by annual income level in Minnesota women aged 18-49 years

CVD Risk Factors	< $50,000	$50,000-$100,000	>$100,000
Obesity (BMI ≥ 30)	27.7% (20.3%-34.9%)	33.9% (27.9%-39.9%)	36.9% (33.3%-40.6%)
High Blood Pressure	13.8% (8.4%-19.3%)	16.1% (11.7%-20.5%)	9.4% (7.5%-11.4%)
High Cholesterol	16.7% (9.9%-23.4%)	19.0% (13.5%-24.5%)	17.4% (14.3%-20.4%)
Diabetes	10.5% (5.3%-15.7%)	9.7% (5.7%-13.6%)	5.7% (4.0%-7.5%)
Sedentary Lifestyle/Physical Inactivity	30.4% (22.9%-37.8%)	24.9% (20.1%-29.7%)	14.9% (12.1% - 17.6%)
Tobacco Use (Inhaled products)	29.5% (21.9%-37.0%)	25.3% (20.4%-30.3%)	19.3% (16.2%-22.3%)
Excess Alcohol Intake	17.5% (11.5%-23.5%)	20.4% (15.5%-25.3%)	24.2% (21.1%-27.3%)
Stress	33.5% (25.0%-41.9%)	30.4% (24.4%-36.3%)	16.7% (13.8%-19.6%)
>=1 Sugar Sweetened Beverage consumed per day	37.2% (28.8%-45.5%)	44.0% (38.0%-49.9%)	37.4% (33.9%-40.9%)
Suboptimal Cardiovascular Health	32.1% (24.7%-39.43%)	32.8% (27.3%-38.3%)	24.9% (21.7%-28.2%)

Table 6: Prevalence of cardiovascular risk factors by urban/rural residence in Minnesota women aged 18-49 years

CVD Risk Factors	Urban Counties	Rural Counties
Obesity (BMI ≥ 30)	32.2% (29.5%-34.9%)	33.4% (25.6%-41.1%)
High Blood Pressure	11.7% (9.9%-13.4%)	12.4% (7.4% - 17.5%)
High Cholesterol	17.7% (15.4%-20.0%)	14.8% (8.8%-20.8%)
Diabetes	6.1% (4.8%-7.4%)	7.3% (2.5%-12.1%)
Sedentary Lifestyle/Physical Inactivity	19.2% (17.1%-21.3%)	24.6% (17.8%-31.3%)
Tobacco Use (Inhaled products)	19.7% (17.6%-21.9%)	29.5% (21.6%-37.4%)
Excess Alcohol intake	20.4% (18.2%-22.6%)	27.2% (19.5%-34.9%)
Stress	22.3% (19.9%-24.7%)	20.1% (13.5%-26.7%)
>=1 Sugar Sweetened Beverage consumed per day	36.2% (33.6%-38.8%)	37.2% (29.6%-44.9%)
Suboptimal Cardiovascular Health	24.6% (22.2%-26.9%)	29.6% (22.7%-36.5%)