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Prevalence of Cardiovascular Disease Risk Factors in Adults: United States, August 2021–August 2023

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Key findings

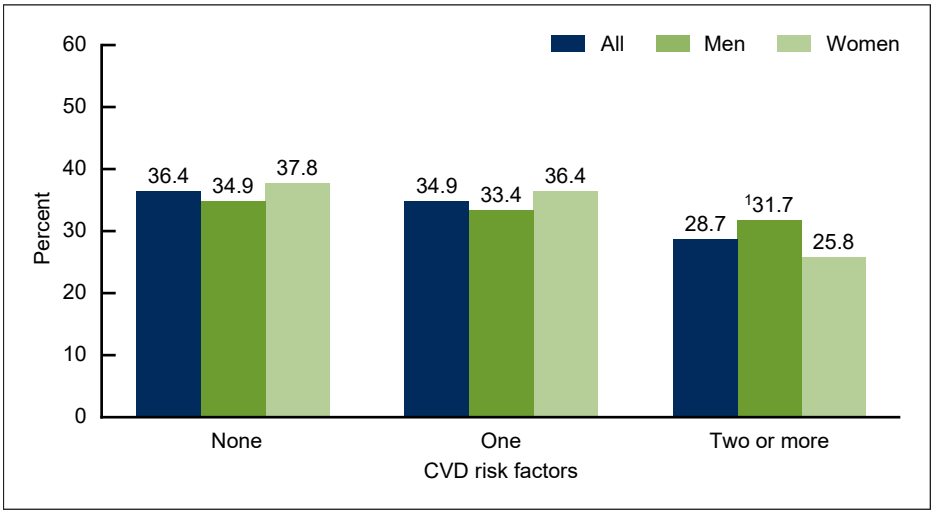
Data from the National Health and Nutrition Examination Survey

- During August 2021–August 2023, 36.4% of U.S. adults had no cardiovascular disease (CVD) risk factors, 34.9% had one, and 28.7% had two or more.
- A higher percentage of men (31.7%) than women (25.8%) had two or more CVD risk factors.
- The percentage of adults with no CVD risk factors decreased with age, and the percentage of adults with one CVD risk factor or two or more was higher among older adults.
- The percentage of adults with no CVD risk factors was highest and the percentage of adults with two or more CVD risk factors was lowest among those with family income 350% or more of the federal poverty level.
- From 2013–2014 to August 2021–August 2023, the percentage of adults with two or more CVD risk factors increased.

Heart disease is the leading cause of mortality in the United States (1,2). The American Heart Association's "Life's Essential 8" (LE8) is a metric with four behavioral factors and four health factors used to assess cardiovascular health (3,4). Blood pressure, blood lipids, blood glucose, and body mass index (BMI), the four health factors of LE8, are cardiovascular disease (CVD) risk factors. Having a greater number of these CVD risk factors is associated with increased risk of CVD and all-cause mortality (3,5). This report presents prevalence estimates for none, one, or two or more of these CVD risk factors (uncontrolled high blood pressure, uncontrolled high blood lipids, uncontrolled high mean blood glucose as measured with hemoglobin A1c, and high BMI) in U.S. adults during August 2021–August 2023.

During August 2021–August 2023, just over one-third of adults had no CVD risk factors.

Figure 1. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by sex: United States, August 2021–August 2023



[1]Significantly different from women ($p < 0.05$).
NOTE: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

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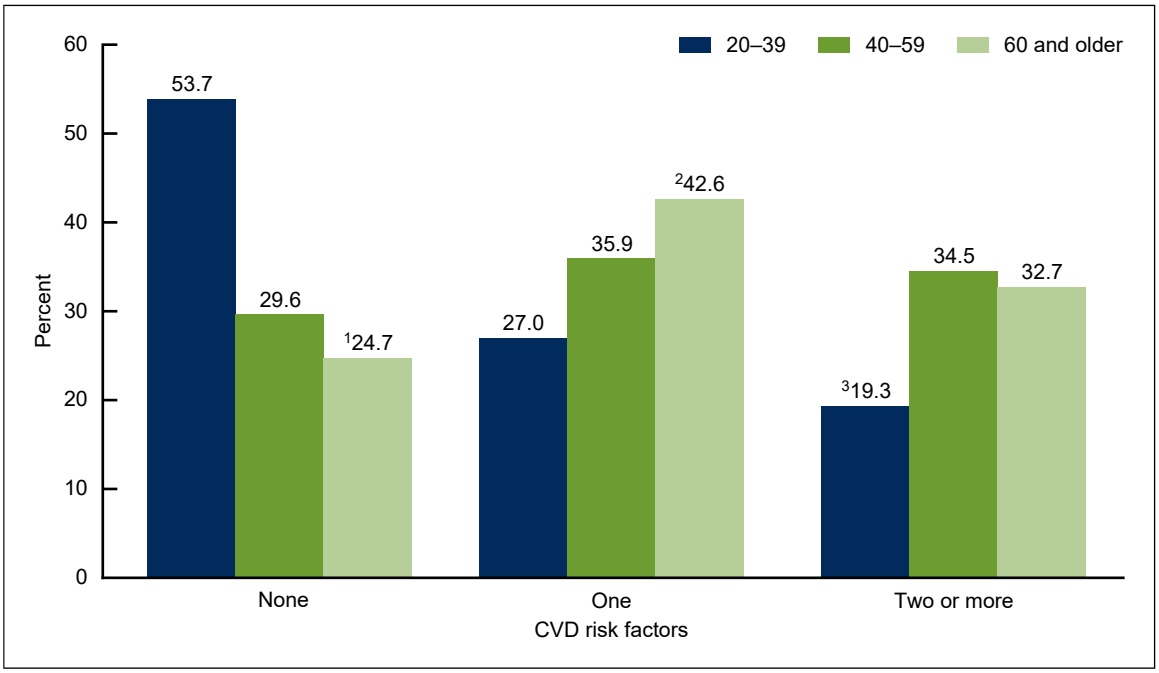
- The percentage of adults with no CVD risk factors was 36.4%; one risk factor, 34.9%; and two or more risk factors, 28.7%, during August 2021–August 2023 (Figure 1, Table 1).
- The percentage of adults with no or one CVD risk factors did not differ between men and women.
- More men (31.7%) than women (25.8%) had two or more CVD risk factors.

The percentage of adults with no CVD risk factors decreased with age, while having one or two or more risk factors was higher among older adults.

- The percentage of adults with no CVD risk factors decreased with age, from 53.7% among adults ages 20–39 to 29.6% among adults ages 40–59 to 24.7% among those age 60 and older (Figure 2, Table 2).
- The percentage of adults with one CVD risk factor increased with age, from 27.0% among adults ages 20–39 to 35.9% among adults ages 40–59 to 42.6% among those age 60 and older.
- The percentage of adults with two or more CVD risk factors was lower in adults ages 20–39 (19.3%) compared with adults ages 40–59 (34.5%) and those age 60 and older (32.7%).

Figure 2. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by age group: United States, August 2021–August 2023

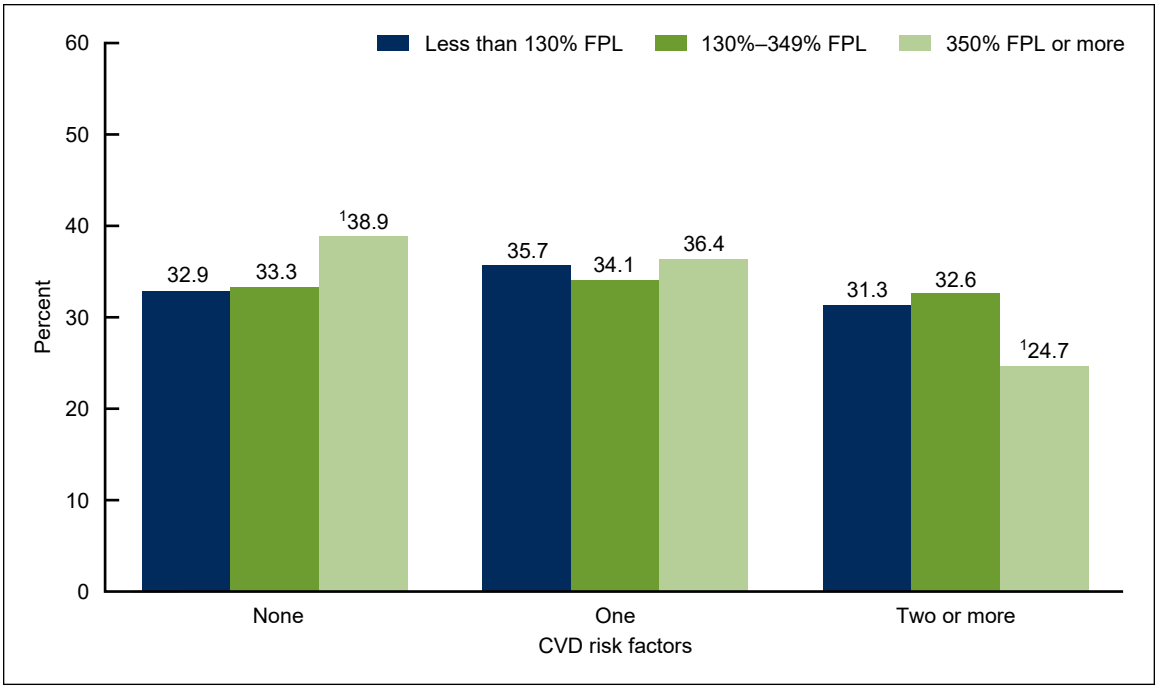


[1]Significant decreasing linear trend with age ($p < 0.05$).
[2]Significant increasing linear trend with age ($p < 0.05$).
[3]Significantly different from ages 40–59 and 60 and older ($p < 0.05$).
NOTE: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

The percentage of adults with no CVD risk factors was highest among those with family income 350% or more of the federal poverty level.

- The percentage of adults with no CVD risk factors was higher in adults with family income of 350% or more of the federal poverty level (FPL) (38.9%) compared with adults with family income less than 130% FPL (32.9%) and 130% to 349% FPL (33.3%) (Figure 3, Table 3).
- The percentage of adults with one CVD risk factor did not differ between income groups.
- The percentage of adults with two or more CVD risk factors was lower in adults with family income of 350% FPL or more (24.7%) compared with adults with family income less than 130% FPL (31.3%) and 130% to 349% FPL (32.6%).

Figure 3. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by family income level: United States, August 2021–August 2023

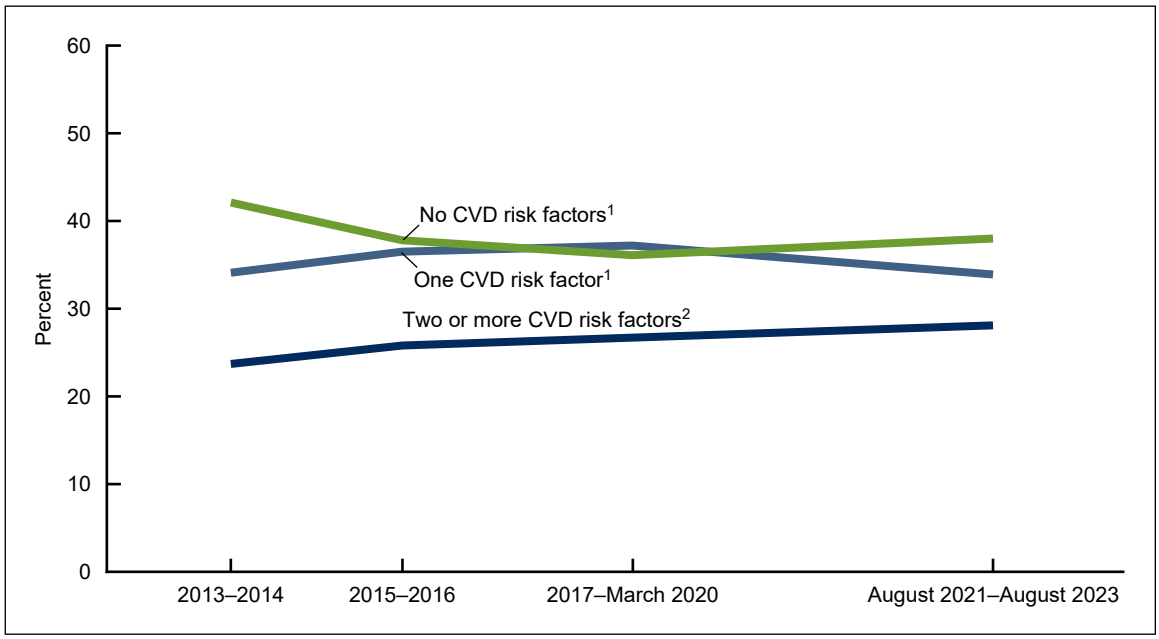


[1]Significantly different from less than 130% FPL and 130%–349% FPL ($p < 0.05$).
NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30. Family income is a percentage of the federal poverty level (FPL). Income levels are defined by FPL; 12.8% are missing income information.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

The age-adjusted percentage of adults with two or more CVD risk factors increased between 2013–2014 and August 2021–August 2023.

- From 2013–2014 to August 2021–August 2023, the age-adjusted percentage of adults with two or more CVD risk factors increased from 23.7% to 28.1% (Figure 4, Table 4).
- Between the two most recent survey cycles, 2017–March 2020 and August 2021–August 2023, a significant decrease was seen in the percentage of adults with one CVD risk factor (from 37.2% to 33.9%), but no change was seen in the percentage of adults with no or two or more CVD risk factors.

Figure 4. Trends in age-adjusted prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older: United States, 2013–2014 through August 2021–August 2023



[1]Significant quadratic trend ($p < 0.05$).
[2]Significant increasing linear trend ($p < 0.05$).
NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30. Estimates are age adjusted by the direct method to the U.S. Census 2000 population using age groups 20–39, 40–59, and 60 and older.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

Summary

During August 2021–August 2023, nearly two-thirds of adults in the United States had at least one CVD risk factor (uncontrolled high blood pressure, uncontrolled high blood lipids, uncontrolled high mean blood glucose, or high BMI), and differences were observed by sex, age group, and family income. Men were more likely to have two or more CVD risk factors compared with women. The percentage of adults with two or more CVD risk factors was higher among older age groups. The percentage of adults with no CVD risk factors was highest and the percentage of adults with two or more CVD risk factors was lowest among those in the highest income category. From 2013–2014 to August 2021–August 2023, the percentage of adults with two or more CVD risk factors increased.

Continued monitoring of the prevalence of CVD risk factors will provide information on the cardiovascular health of adults in the United States.

Definitions

Uncontrolled high blood pressure: A measured systolic blood pressure of 130 mm Hg or more or a diastolic blood pressure of 80 mm Hg or more (6), based on the average of three measurements. People defined as having high blood pressure may or may not have been taking medication to lower their blood pressure.

Uncontrolled high blood lipids: Non-high-density lipoprotein cholesterol greater than or equal to 190 mg/dL (3,7). People defined as having high blood lipids may or may not have been taking cholesterol-lowering medication.

Uncontrolled high mean blood glucose: Hemoglobin A1c greater than or equal to 6.5% (8). People defined as having high blood glucose may or may not have been taking medication to control blood glucose.

High body mass index (BMI): Calculated as weight in kilograms divided by height in meters squared. High BMI is defined as BMI of 30.0 or more, corresponding with the definition of obesity (3,9).

Federal poverty level (FPL): The ratio of annual family income to the federal poverty guidelines, expressed as a percentage. Federal poverty guidelines are defined by the U.S. Department of Health and Human Services to account for inflation, family size, and geographic location (10).

Data source and methods

The National Health and Nutrition Examination Survey (NHANES) is a cross-sectional, nationally representative sample of the U.S. civilian noninstitutionalized population. NHANES consists of home interviews and health examinations and laboratory tests in mobile examination centers. The sample is selected through a complex, multistage probability design. NHANES was conducted continuously from 1999 through March 2020, when data collection was paused due to the COVID-19 pandemic. In August 2021, NHANES resumed data collection with revised operations and procedures. Details on these changes can be found elsewhere (11).

In the present analysis, data from the August 2021–August 2023 NHANES were used to estimate the prevalence of no, one, and two or more CVD risk factors and to test for differences between subgroups. Four NHANES cycles (2013–2014, 2015–2016, 2017–March 2020, and August 2021–August 2023) were used to assess trends in the prevalence of no, one, and two or more CVD risk factors.

All participants age 20 and older with complete CVD risk factor data (blood pressure, blood lipids, mean blood glucose as measured with hemoglobin A1c, and BMI) were included. Pregnant women were excluded. Prevalence estimates were weighted using phlebotomy (blood draw) sample weights for August 2021–August 2023 and examination sample weights for cycles 2013–2014, 2015–2016, and 2017–March 2020 to account for the survey's complex, multistage probability design. Sample sizes are unweighted. Standard errors of prevalence estimates were calculated using Taylor series linearization. For August 2021–August 2023, differences in estimates between subgroups were tested using *t* tests. Polynomial regression models were used to test for linear and quadratic trends, accounting for unequal spacing and lengths of survey cycles. Statistical significance was set at $p < 0.05$ level. Statistical analyses were conducted using R version 4.4.1 and the R survey package.

About the authors

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Figure tables

Data table for Figure 1. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by sex: United States, August 2021–August 2023

Number of CVD risk factors and sex	Sample size	Percent	Standard error
No CVD risk factors			
All	5,249	36.4	1.4
Men	2,396	34.9	1.0
Women	2,853	37.8	2.2
One CVD risk factor			
All	5,249	34.9	0.9
Men	2,396	33.4	1.3
Women	2,853	36.4	1.3
Two or more CVD risk factors			
All	5,249	28.7	1.0
Men	2,396	[1]31.7	1.4
Women	2,853	25.8	1.5

[1]Significantly different from women ($p < 0.05$).

NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 2. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by age group: United States, August 2021–August 2023

Number of CVD risk factors and age group	Sample size	Percent	Standard error
No CVD risk factors			
20–39	1,283	53.7	2.3
40–59	1,542	29.6	1.6
60 and older	2,424	[1]24.7	1.3
One CVD risk factor			
20–39	1,283	27.0	1.8
40–59	1,542	35.9	1.4
60 and older	2,424	[2]42.6	1.2
Two or more CVD risk factors			
20–39	1,283	[3]19.3	1.4
40–59	1,542	34.5	1.2
60 and older	2,424	32.7	1.8

[1]Significant decreasing linear trend with age ($p < 0.05$).
[2]Significant increasing linear trend with age ($p < 0.05$).
[3]Significantly different from ages 40–59 and 60 and older ($p < 0.05$).

NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 3. Prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older, by family income level: United States, August 2021–August 2023

Number of CVD risk factors and family income level	Sample size	Percent	Standard error
No CVD risk factors			
Less than 130% FPL	924	32.9	2.2
130%–349% FPL	1,742	33.3	1.8
350% FPL or more	1,916	[1]38.9	2.1
One CVD risk factor			
Less than 130% FPL	924	35.7	1.6
130%–349% FPL	1,742	34.1	1.1
350% FPL or more	1,916	36.4	1.5
Two or more CVD risk factors			
Less than 130% FPL	924	31.3	1.7
130%–349% FPL	1,742	32.6	1.4
350% FPL or more	1,916	[1]24.7	1.7

[1]Significantly different from less than 130% FPL and 130%–349% FPL ($p < 0.05$).

NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30. Family income is a percentage of the federal poverty level (FPL). Income levels are defined by FPL; 12.8% are missing income information.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 4. Trends in age-adjusted prevalence of no, one, or two or more cardiovascular disease risk factors in adults age 20 and older: United States, 2013–2014 through August 2021–August 2023

		No CVD risk factors		One CVD risk factor		Two or more CVD risk factors	
Survey year	Sample size	Percent	Standard error	Percent	Standard error	Percent	Standard error
2013–2014	5,054	42.1	0.9	34.1	0.8	23.7	0.4
2015–2016	4,916	37.8	1.4	36.5	0.8	25.8	0.9
2017–March 2020	7,026	36.1	1.3	37.2	0.8	26.7	1.2
August 2021–August 2023	5,249	[1]38.0	1.4	[1]33.9	1.0	[2]28.1	1.0

[1]Significant quadratic trend ($p < 0.05$).
[2]Significant increasing linear trend ($p < 0.05$).

NOTES: Cardiovascular disease (CVD) risk factors include systolic blood pressure ≥ 130 mm Hg or diastolic blood pressure ≥ 80 mm Hg; non-high-density lipoprotein cholesterol ≥ 190 mg/dL; A1c ≥ 6.5%; and body mass index ≥ 30. Estimates are age adjusted by the direct method to the U.S. Census 2000 population using age groups 20–39, 40–59, and 60 and older.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

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