Nevada Obesity - Annual Report

December 2022

Wellness and Prevention Program

Chronic Disease Prevention and Health Promotion Section

Division of Public and Behavioral Health

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Acknowledgments

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Data Sources and Limitations

The National Health and Nutrition Examination Survey (NHANES) is the source of national obesity data in this report.[1] The survey examines a nationally representative sample of Americans ages two years and older and combines interviews with physical examinations. Limitations of this survey include the delay from collection to reporting and a small survey size, approximately 5,000 interviews over two years.

The Behavioral Risk Factor Surveillance System (BRFSS) is the source of adult state-level (aged ≥ 18 years) obesity data in this report.[2] The survey is a state-based surveillance system that collects information annually about risk factors for chronic diseases, obesity, and other leading causes of death. Some limitations are self-reported weight and height data and estimates for racial and ethnic groups are not reported for all races and ethnicities.

The Youth Risk Behavior Surveillance System (YRBSS) is the source of youth state-level (aged 14 to 18 years) obesity data in this report.[3] YRBSS data is obtained from a national school-based survey conducted by the Centers for Disease Control and Prevention (CDC) and partners. The survey includes representative samples of 9th to 12th-grade students in public and private schools in the United States. Some of the limitations of the survey are self-reported height and weight data, data applied only to youth who attend school, data collected only on odd-numbered years, and data representative of some persons in this age group.

Data from the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is the source for childhood (under the age of 5) obesity data in this report.[4] The U.S. Department of Agriculture (USDA) conducts a biennial census in even-numbered years to collect data on nutrition characteristics and weight status. Annual estimates for overweight and obesity prevalence are derived from measured weight and height data collected in physician's offices or by trained WIC staff. Some of the limitations of WIC data are that data are not representative of all children in this age group, the survey only includes data from low-income children, and information is collected only on even-numbered years.

The Nevada Kindergarten Health Survey (KHS) collects information annually about the overall health status of Nevada statewide kindergarten students.[5] The limitations are self-reported height and weight data by parents or guardians, and the data only represent children attending public kindergarten.

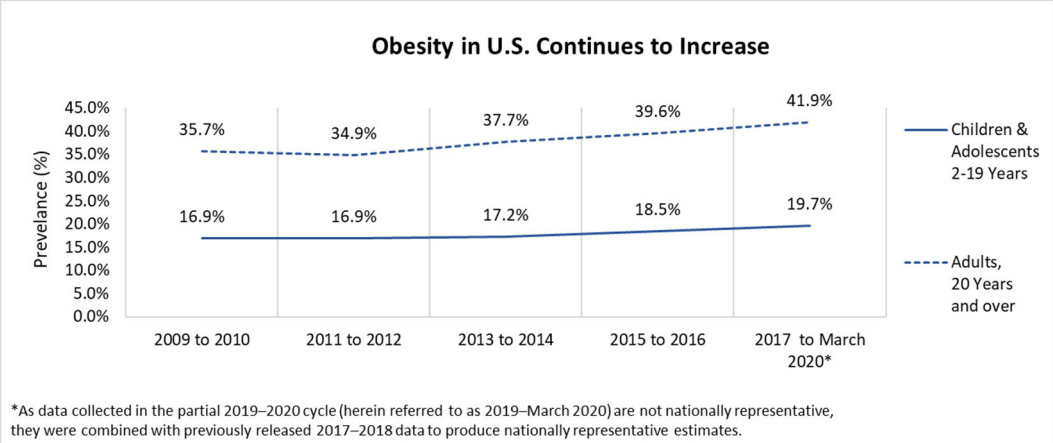
Nevada Revised Statutes (NRS) 392.420 mandates the collection of height and weight data of 4th and 7th grade students from qualifying school districts.[6] Non-standardized data collection guidelines, lack of professional equipment across mandated school districts, and non-standardized data analysis are some of the reported limitations to collecting accurate measured school students' height and weight data.

Background

In 1948 obesity was recognized as a disease in the International Classification of Diseases by the World Health Organization.[7] In the United States (US) in 2013, the American Medical Association recognized obesity as a disease requiring treatment and prevention efforts.[8] In 2017, the Nevada Legislature through Senate Bill 165 defined the term obesity[9] as "a chronic disease characterized by an abnormal and unhealthy accumulation of body fat which, statistically, correlates with premature mortality, hypertension, heart disease, diabetes, cancer, and other health conditions." A Body Mass Index (BMI) is a person's weight status in kilograms divided by the square of height in meters (kg/m²). An adult's weight status is classified as overweight if the person's BMI is 25 to 29.9 and obesity if BMI is 30.0 or higher. For children, a BMI is compared to other US children of the same age and sex to determine a child's BMI age-and-sex-specific percentile, also known as BMI-percentile. A child with a BMI percentile equal to or greater than the 95th percentile means that a child's BMI is equal to or greater than that of 95% of other children of the same age and sex. A child with BMI at or above the 95th percentile has obesity. BMI values do not diagnose a person's body fatness or health conditions; healthcare providers are the only qualified individuals to determine body fatness and weight-related health conditions. BMI numbers are only one of many public health screening or surveillance tools for planning, implementing, and evaluating public health practice.[10]

Across the nation, the state of obesity is deeply troubling. Half of US adults are projected to have obesity by 2030, and 60% of today's children are predicted to have obesity by age 35.[11] According to the most recent available measured data from the National Health and Nutrition Examination Survey (NHANES)[1], the prevalence of obesity among US children and adolescents experienced a 17% increase from 2009-2010 (16.9%) to 2017 to March 2020 (19.7%). Similarly, US adults experienced a 17% increase (35.7% to 41.9%) in obesity in the same timeframe. And alarmingly, data from 2017-2018, shows that nearly 82% of US adults were overweight (30.7%), had obesity (42.4%), or had extreme obesity (9.2%). Among children and adolescents ages 2 to 19 years, 42% were overweight (16.1%), had obesity (19.3%), or had extreme obesity (6.1%).[1,12] Furthermore, the COVID-19 pandemic exacerbated the problem. Obstacles and barriers to attaining nutritious meals and engaging in safe physical activities increased during the pandemic.[23] Obesity is expected to increase post pandemic as the obesity prevalences show upward trends[11, 14].

Figure 1. Prevalence (%) of Childhood and Adult Obesity in the US, NHANES Data, 2009-2010 to 2017-2018.



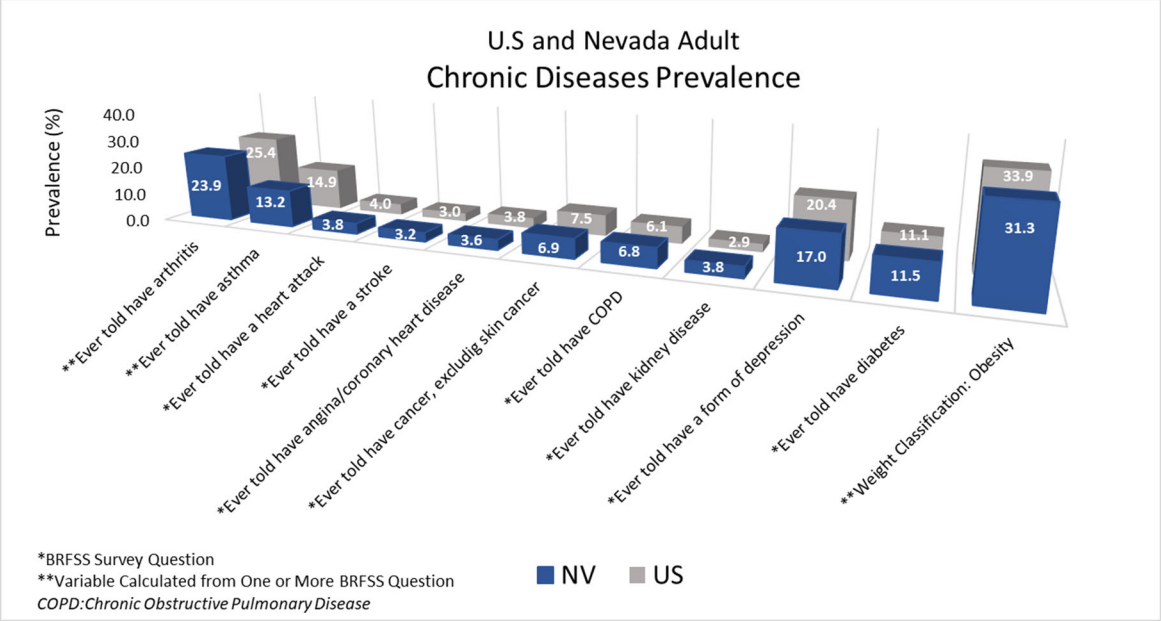
Data Source: Centers for Disease Control and Prevention (CDC), National Health and Nutrition Examination Survey (NHANES) from 2009–2010 through 2017–2018. Data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Having obesity or being overweight result from a combination of multiple factors. Factors ranging from adverse childhood experiences (ACES), physical inactivity, some eating patterns, sleep routines, family history, and certain medical conditions[13] to social determinants, including neighborhood design and lack of access to healthy food, safe physical activity, and health care, will contribute to people's excess body weight. [14]

Compared to the prevalence of other chronic diseases in Nevada, data from 2021 show that the prevalence of obesity is significantly higher than the prevalence of most chronic diseases (Figure 2). For example, the combined prevalence of heart attack, stroke, heart disease, cancers excluding skin cancer, and kidney and pulmonary disease in Nevada, 2021, is 24.3%, while the prevalence of obesity is 31.3%. When comparing chronic disease prevalences, it is critical to understand that obesity is not only a chronic disease but also a risk factor for multiple other chronic diseases and socio-economic factors.

Adults with obesity and those who are overweight have a higher risk of developing heart disease, type two diabetes, and some types of cancer. The Centers for Disease Control and Prevention (CDC) estimates that six out of ten Americans have a chronic disease, and four out of ten Americans have two or more chronic conditions. Five of the ten leading causes of death in the US in 2020 were chronic diseases.[15,16]

Figure 2. Prevalence (%) of Chronic Diseases, NV vs. US, BRFSS, 2021, Aged ≥ 18 years.



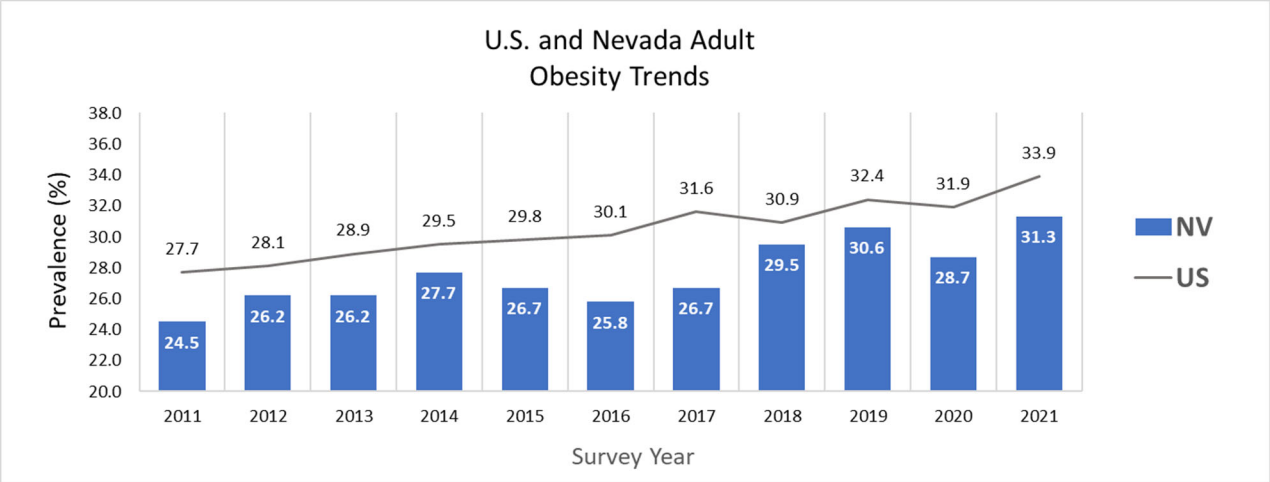
Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Furthermore, children with obesity are more likely to develop obesity as adults than children with healthy weight status. And one in five children and more than one in three adults struggle with obesity in the US. Obesity also threatens our national security; only two in five young adults are weight eligible and physically prepared for basic military training.[17] Similarly, obesity costs the US healthcare system nearly $173 billion per year.[18] The long-term socio-economic and health consequences of obesity are expected to increase as the population's BMI continues to rise in the US and Nevada[11, 14].

Adult Obesity in Nevada

Overall, in 2021, the adult obesity prevalence was slightly higher in the US (33.9%) than in Nevada (31.3%). The data indicate that in 2021, 67% of adult Nevadans were overweight (36.1%) or had obesity (31.3%). Over 11 years, the adult obesity prevalence increased from 24.5% in 2011 to 31.3% in 2021, a 28% increase in obesity since 2011.

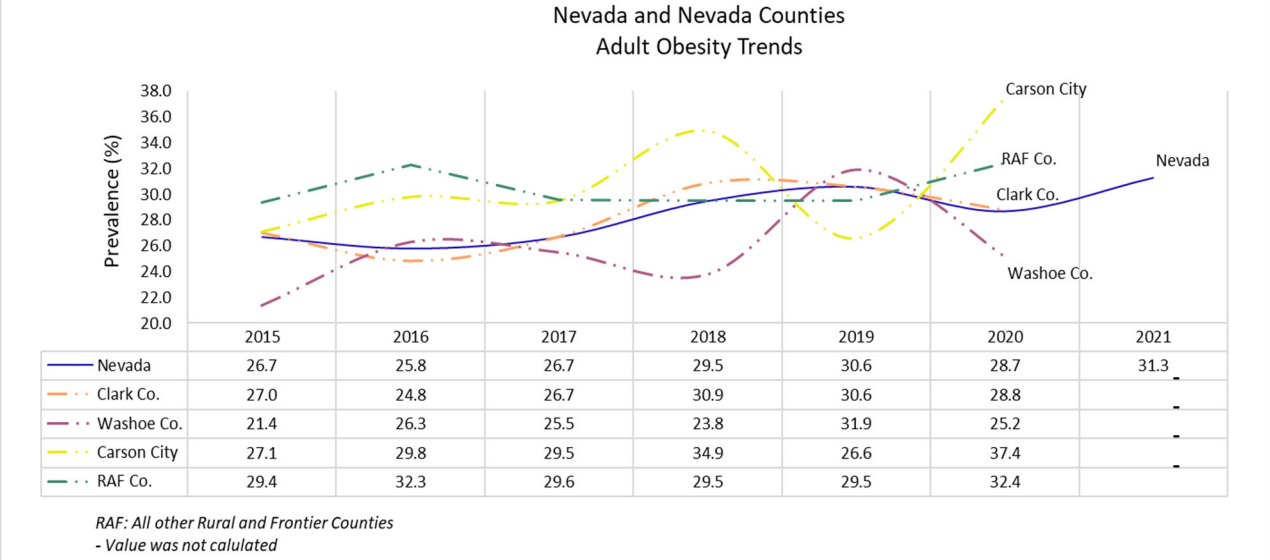
Figure 3. Prevalence (%) of Adult Obesity, NV and US, BRFSS, 2011 to 2021, Aged ≥ 18 years.



Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

The available county level data show significant differences in adult obesity prevalences in Nevada. Overall, compared to the trends in Clark and Washoe counties, the adult obesity prevalence in all rural and frontier (RAF) counties, including Carson City, is trending upwards. In in the last five years of available data, Carson City experienced the sharpest increase in obesity, from 27.1% in 2019 to 37.4% in 2020, a 38% increase in obesity since 2015.

Figure 4. Prevalence (%) of Adult Obesity, NV and NV-Counties. BRFSS, 2015-2021, aged ≥ 18 years.



	2015	2016	2017	2018	2019	2020	2021
Nevada	26.7	25.8	26.7	29.5	30.6	28.7	31.3
Clark Co.	27.0	24.8	26.7	30.9	30.6	28.8	-
Washoe Co.	21.4	26.3	25.5	23.8	31.9	25.2	-
Carson City	27.1	29.8	29.5	34.9	26.6	37.4	-
RAF Co.	29.4	32.3	29.6	29.5	29.5	32.4	

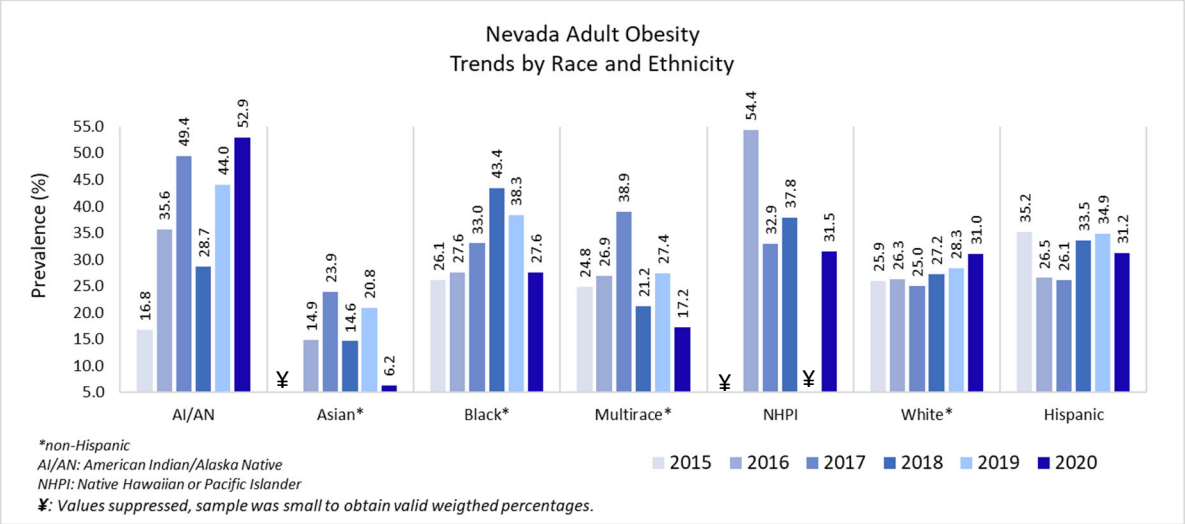
RAF: All other Rural and Frontier Counties
- Value was not calulated

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Adult Obesity Trends in Nevada by Race and Ethnicity

Obesity takes a heavier toll on some Nevada racial groups than others. BRFSS 2020 data show a 215% increase in obesity since 2015 among adult American Indians/Alaska Natives (AI/AN). By race and ethnicity, the highest prevalence of adult obesity in 2020 (52.9%), 2019 (44.0%), and 2017 (49.4%) were among American Indians/Alaska Natives. In 2018 and 2017, Blacks (43.4%) and Native Hawaiians/Pacific Islanders (54.4%), respectively, had the highest obesity prevalence.

Figure 5. Prevalence (%) of Adult Obesity, Nevada by Race and Ethnicity. BRFSS, 2015-2020, aged ≥ 18 years.

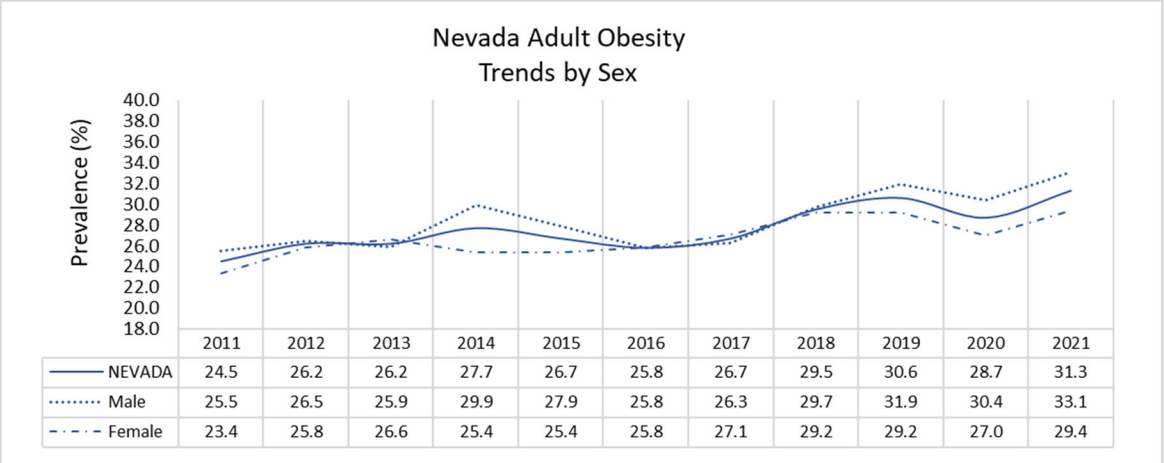


Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Adult Obesity Trends in Nevada by Sex

The overall Nevada adult obesity prevalence increased 17% from 26.7% in 2015 to 31.3% in 2021. Over the last four years the prevalence of adult obesity among males, statewide and by county is higher than the prevalence of obesity among adult females. Data from 2021 shows that the obesity prevalence among adult males is not only the highest compared to the female group, but it also increases faster than in the female population. Obesity increased by 30% in the male population and by 26% in the female population, since 2011.

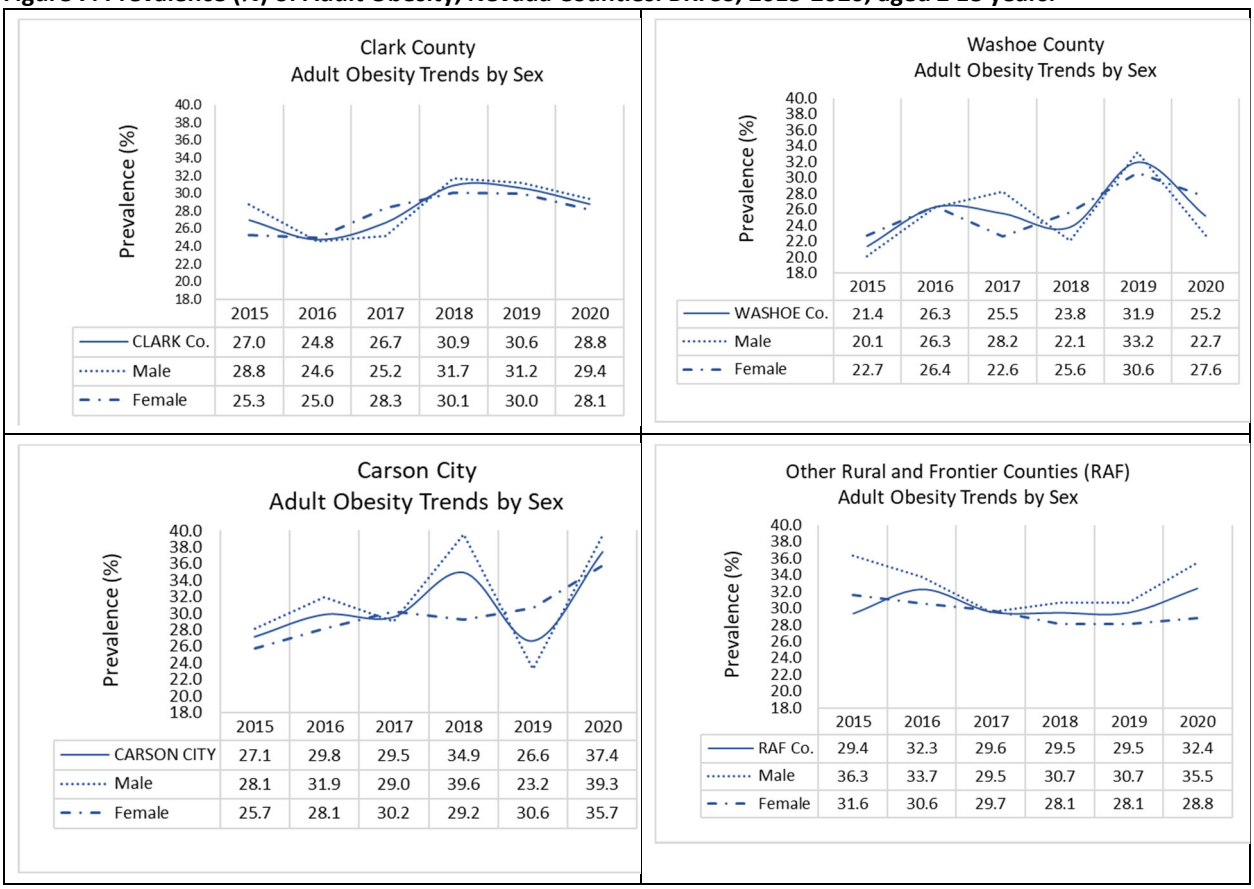
Figure 6. Prevalence (%) of Adult Obesity, Nevada by Sex. BRFSS, 2011-2020, aged ≥ 18 years.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NEVADA	24.5	26.2	26.2	27.7	26.7	25.8	26.7	29.5	30.6	28.7	31.3
Male	25.5	26.5	25.9	29.9	27.9	25.8	26.3	29.7	31.9	30.4	33.1
Female	23.4	25.8	26.6	25.4	25.4	25.8	27.1	29.2	29.2	27.0	29.4

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Figure 7. Prevalence (%) of Adult Obesity, Nevada Counties. BRFSS, 2015-2020, aged ≥ 18 years.



Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

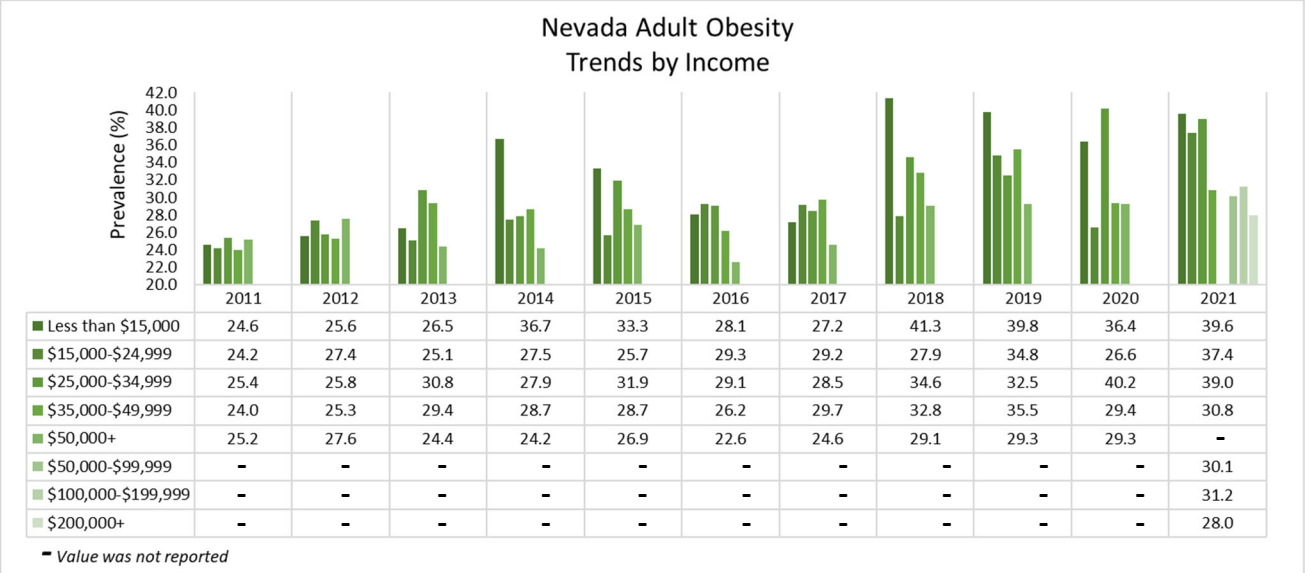
In 2020, Carson City had the highest overall and by sex prevalences of obesity in Nevada. Over the last five years (2015 to 2020) of available data, the overall obesity prevalence in Carson City increased 38%, from 27.1% in 2015 to 37.4% in 2020. During the same timeframe, Washoe County had the lowest percent increase in adult obesity in Nevada. The adult obesity prevalence in Washoe County increased 18 %, from 21.4% in 2015 to 25.2% in 2020.

With the exception of 2017, through the years, the highest adult obesity prevalence in Nevada was among male in rural and frontier (RAF) counties.

Adult Obesity Trends in Nevada by Income

In Nevada, from 2011 to 2021, the obesity prevalence increased faster among people with the lowest incomes than among the wealthiest Nevadans, a 61% increase for the < $15,000 group and only a 28% increase for the $35,000-$49,999 group. In 2021, the highest obesity prevalence, 39.6%, was among Nevadans in the lowest income group.

Figure 8. Prevalence (%) of Adult Obesity, Nevada by Income. BRFSS, 2011-2021, aged ≥ 18 years.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Less than $15,000	24.6	25.6	26.5	36.7	33.3	28.1	27.2	41.3	39.8	36.4	39.6
$15,000-$24,999	24.2	27.4	25.1	27.5	25.7	29.3	29.2	27.9	34.8	26.6	37.4
$25,000-$34,999	25.4	25.8	30.8	27.9	31.9	29.1	28.5	34.6	32.5	40.2	39.0
$35,000-$49,999	24.0	25.3	29.4	28.7	28.7	26.2	29.7	32.8	35.5	29.4	30.8
$50,000+	25.2	27.6	24.4	24.2	26.9	22.6	24.6	29.1	29.3	29.3	-
$50,000-$99,999	-	-	-	-	-	-	-	-	-	-	30.1
$100,000-$199,999	-	-	-	-	-	-	-	-	-	-	31.2
$200,000+	-	-	-	-	-	-	-	-	-	-	28.0

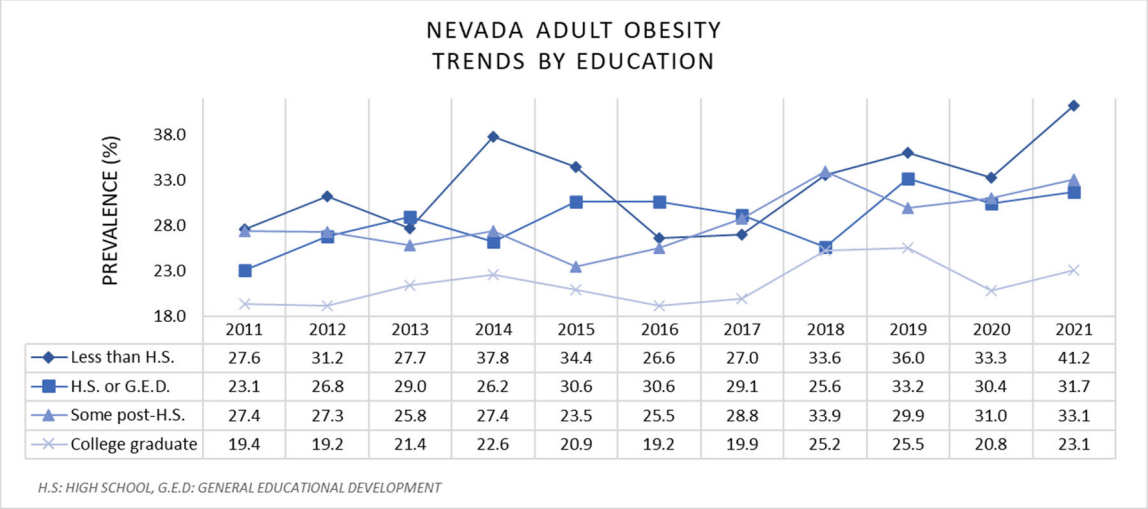
- *Value was not reported*

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Adult Obesity Trends in Nevada by Education

In Nevada, higher educational attainment appears to be associated with a lower prevalence of obesity. In 2021, the prevalence of obesity was not only much higher among the less than high school (41.2%) group, but it also increased much faster, a 49% increase from 2011 to 2021, than in college-graduated (23.1%) with only a 19% increase in obesity.

Figure 9. Prevalence (%) of Adult Obesity, Nevada by Education. BRFSS, 2011-2021, aged ≥ 18 years.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Less than H.S.	27.6	31.2	27.7	37.8	34.4	26.6	27.0	33.6	36.0	33.3	41.2
H.S. or G.E.D.	23.1	26.8	29.0	26.2	30.6	30.6	29.1	25.6	33.2	30.4	31.7
Some post-H.S.	27.4	27.3	25.8	27.4	23.5	25.5	28.8	33.9	29.9	31.0	33.1
College graduate	19.4	19.2	21.4	22.6	20.9	19.2	19.9	25.2	25.5	20.8	23.1

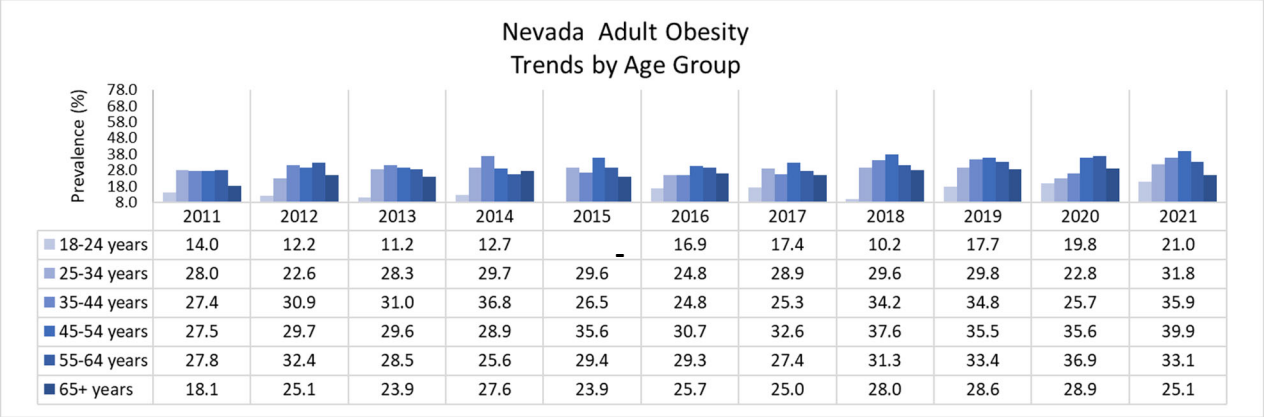
H.S: HIGH SCHOOL, G.E.D: GENERAL EDUCATIONAL DEVELOPMENT

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Adult Obesity Trends in Nevada by Age

Obesity prevalence among 18-24 and 45-54year old groups nearly doubled since 2011, 50 and 45% increase, respectively. Except for 2020, the 45–54-year group had the highest obesity prevalence for the last six years, 39.9% in 2021.

Figure 10. Prevalence (%) of Adult Obesity, Nevada by Age. BRFSS, 2011-2021, aged ≥ 18 years.

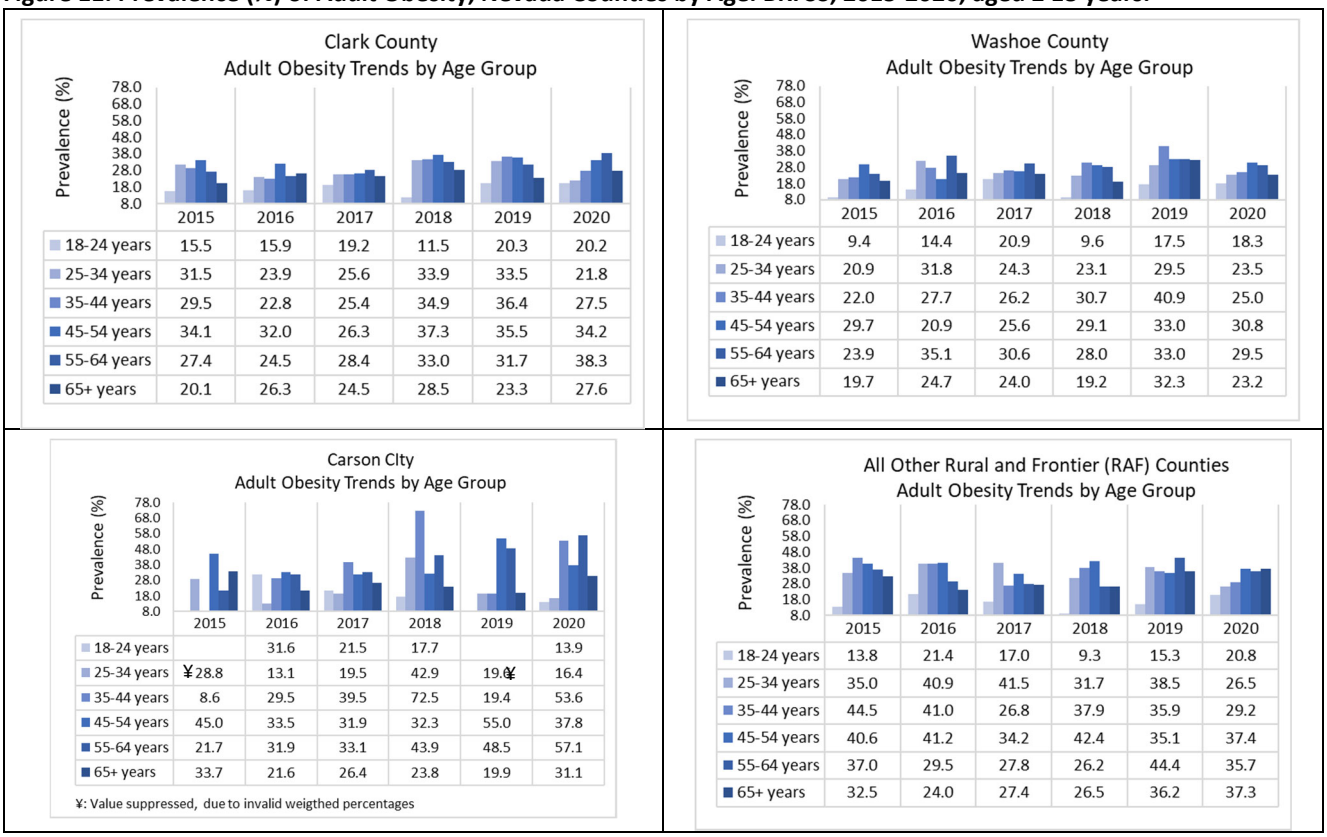


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
18-24 years	14.0	12.2	11.2	12.7	-	16.9	17.4	10.2	17.7	19.8	21.0
25-34 years	28.0	22.6	28.3	29.7	29.6	24.8	28.9	29.6	29.8	22.8	31.8
35-44 years	27.4	30.9	31.0	36.8	26.5	24.8	25.3	34.2	34.8	25.7	35.9
45-54 years	27.5	29.7	29.6	28.9	35.6	30.7	32.6	37.6	35.5	35.6	39.9
55-64 years	27.8	32.4	28.5	25.6	29.4	29.3	27.4	31.3	33.4	36.9	33.1
65+ years	18.1	25.1	23.9	27.6	23.9	25.7	25.0	28.0	28.6	28.9	25.1

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

The highest percent increase among 18–24-year-olds was in Washoe County and all other rural and frontier counties, 95 and 51% increase respectively. And the 55–64-year-old group underwent the highest percentage increase in Carson City and Clark County, 163 and 40 respectively.

Figure 11. Prevalence (%) of Adult Obesity, Nevada Counties by Age. BRFSS, 2015-2020, aged ≥ 18 years.



Clark County	2015	2016	2017	2018	2019	2020
18-24 years	15.5	15.9	19.2	11.5	20.3	20.2
25-34 years	31.5	23.9	25.6	33.9	33.5	21.8
35-44 years	29.5	22.8	25.4	34.9	36.4	27.5
45-54 years	34.1	32.0	26.3	37.3	35.5	34.2
55-64 years	27.4	24.5	28.4	33.0	31.7	38.3
65+ years	20.1	26.3	24.5	28.5	23.3	27.6

Washoe County	2015	2016	2017	2018	2019	2020
18-24 years	9.4	14.4	20.9	9.6	17.5	18.3
25-34 years	20.9	31.8	24.3	23.1	29.5	23.5
35-44 years	22.0	27.7	26.2	30.7	40.9	25.0
45-54 years	29.7	20.9	25.6	29.1	33.0	30.8
55-64 years	23.9	35.1	30.6	28.0	33.0	29.5
65+ years	19.7	24.7	24.0	19.2	32.3	23.2

Carson Clty	2015	2016	2017	2018	2019	2020
18-24 years		31.6	21.5	17.7		13.9
25-34 years	¥28.8	13.1	19.5	42.9	19.6¥	16.4
35-44 years	8.6	29.5	39.5	72.5	19.4	53.6
45-54 years	45.0	33.5	31.9	32.3	55.0	37.8
55-64 years	21.7	31.9	33.1	43.9	48.5	57.1
65+ years	33.7	21.6	26.4	23.8	19.9	31.1

¥: Value suppressed, due to invalid weigthed percentages

All Other Rural and Frontier (RAF) Counties	2015	2016	2017	2018	2019	2020
18-24 years	13.8	21.4	17.0	9.3	15.3	20.8
25-34 years	35.0	40.9	41.5	31.7	38.5	26.5
35-44 years	44.5	41.0	26.8	37.9	35.9	29.2
45-54 years	40.6	41.2	34.2	42.4	35.1	37.4
55-64 years	37.0	29.5	27.8	26.2	44.4	35.7
65+ years	32.5	24.0	27.4	26.5	36.2	37.3

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Adult Obesity and Overweight in Nevada

Table 1. Prevalence (%) of Adult Obesity and Overweight, Nevada, BRFSS, 2020 and 2021, aged ≥ 18 years.

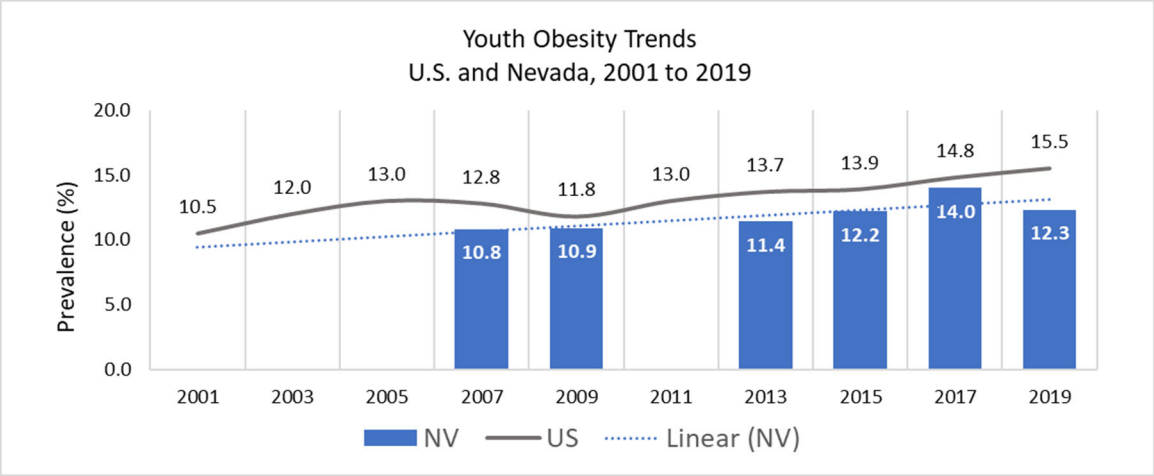
ADULT OBESITY and OVERWEIGHT PREVALENCE (%) in NEVADA								
			OBESITY					OVERWEIGHT
			Clark Co. 2020*	Washoe Co. 2020*	RAF Co. 2020*	Carson City 2020*	Nevada 2021**	Nevada 2021**
	OVERALL		28.8	25.2	32.4	37.4	31.3	36.1
DEMOGRAPHICS	SEX	Male	29.4	22.7	35.5	39.3	33.1	38.2
		Female	28.1	27.6	28.8	35.7	29.4	33.8
	AGE GROUP	18-24	20.2	18.3	20.8	¥	21.0	24.7
		25-34	21.8	23.5	26.5	¥	31.8	30.6
		35-44	27.5	25.0	29.2	53.6	35.9	36.3
		45-54	34.2	30.8	37.4	37.8	39.9	37.0
		55-64	38.3	29.5	35.7	57.1	33.1	41.7
		65+	27.6	23.2	37.3	31.1	25.1	41.3
		Asian Non Hispanic	7.0	21.2	¥	¥	6.2	47.9
		Black Non Hispanic	28.7	24.8	¥	¥	27.6	33.2
		White Non Hispanic	34.7	21.3	32.2	33.4	31.0	34.5
		2+ Races Non Hispanic	14.0	26.5	26.8	6.0	17.2	29.8
		Am. Ind. / Alaska Native	37.5	58.9	52.4	¥	52.9	-
		Nat. Hawiian/Pacific Isl.	35.0	12.1	¥	¥	31.5	-
		Hispanic	28.8	38.5	35.2	100.0	31.2	36.3
	VETERAN STATUS	Veteran	32.3	15.2	31.6	28.8	-	-
		Non Veteran	28.3	26.5	32.6	39.2	-	-
SOCIAL FACTORS	INCOME	< $10,000	39.3	¥	18.8	89.6	-	-
		$10,000 - $14.999	33.7	¥	44.1	¥	-	-
		< $15,000	-	-	-	-	39.6	24.0
		$15,000 - $19,999	27.1	25.4	50.7	¥	-	-
		$15,000 - $24,999	-	-	-	-	37.4	32.4
		$ 20,000 - $24,999	22.1	30.6	34.9	¥	-	-
		$25,000 - $34,999	46.7	24.3	28.8	52.8	39.0	26.8
		$35,000 - $49,999	30.0	29.6	29.2	24.4	30.8	37.9
		$50,000 - $74,999	30.8	31.9	27.7	42.1	-	-
		$50,000-$99,999	-	-	-	-	30.1	39.2
		$75,000 +	31.0	22.1	36.8	33.5	-	-
		$100,000-$199,999	-	-	-	-	31.2	42.8
		$200,000+	-	-	-	-	28.0	38.9
	EDUCATION	Elementary or Less	23.4	58.5	44.7	100.0	-	-
		Less than H.S.	-	-	-	-	41.2	25.9
		Some High School	27.7	35.7	41.4	¥	-	-
		High School Graduate	31.5	22.9	33.6	26.3	31.7	35.6
		Some College/Tech.School	31.4	25.9	31.7	41.8	33.1	35.3
		College Graduate +	22.5	20.6	26.5	40.3	23.1	43.8
ACCES TO HEALTH CARE	If They Could Not See a Doctor Due to Medical Cost	Yes	39.2	24.5	33.9	37.2	-	-
		Not	27.5	25.3	32.2	37.4	-	-
	If They Had A Health Plan	Yes	29.0	24.7	32.9	34.6	-	-
		Not	27.3	29.3	29.4	64.0	-	-
	The Time Since They Had a Routine Check Up	Less than 12 months ago	31.7	26.5	37.5	37.9	-	-
		1 Year, but < 2 yrs. ago	25.6	22.3	18.3	34.3	-	-
		2 Years, but < 5 yrs. ago	17.2	20.9	37.5	55.5	-	-
		5 or more years ago	21.4	22.5	19.9	31.4	-	-
		Never	31.3	42.7	5.0	¥	-	-

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data.
(¥) Values suppressed, the size of sample was small to obtain valid weighted percentages.
(-) Values were either not calculated or not available
(*) Data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.
(**) Data analyzed by the Division of Public and Behavioral Health Wellness and Prevention Program Coordinator

Youth Obesity in Nevada

Overall, through the years 2007 to 2019, the national youth obesity prevalence is higher than the prevalence of youth obesity in Nevada; still, the youth obesity prevalence in Nevada for the same period is too high. Nearly 30% of youth were either overweight (16.7%) or had obesity (12.3%) in 2019. Although the data show a 12% decrease in obesity, from 14.0% in 2017 to 12.3% in 2019, the overall youth obesity prevalence is trending upward. From 2007 to 2019, obesity prevalence increased by 14% and is expected to increase much higher post-COVID-19.

Figure 12. Prevalence (%) of Youth Obesity, US and Nevada. YRBSS, 2001 – 2019, aged 14 to 18 years.

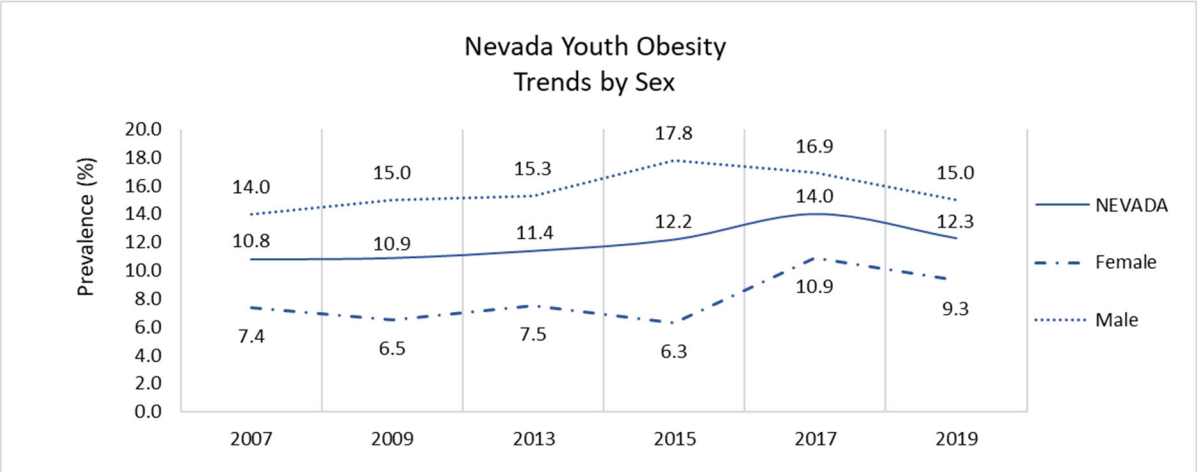


Data Source: Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System (YRBSS) Prevalence Data. YRBSS data are not available by zip code, census tract, or school. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Youth Obesity Trends in Nevada by Sex

From 2007 to 2019, high school males have consistently higher obesity prevalences than high school females. Although obesity is much higher in males than females, obesity among female students increased much faster than for male students, with 26% and 7% increases, respectively.

Figure 13. Prevalence (%) of Youth Obesity, Nevada by Sex. YRBSS, 2007 – 2019, aged 14 to 18 years.

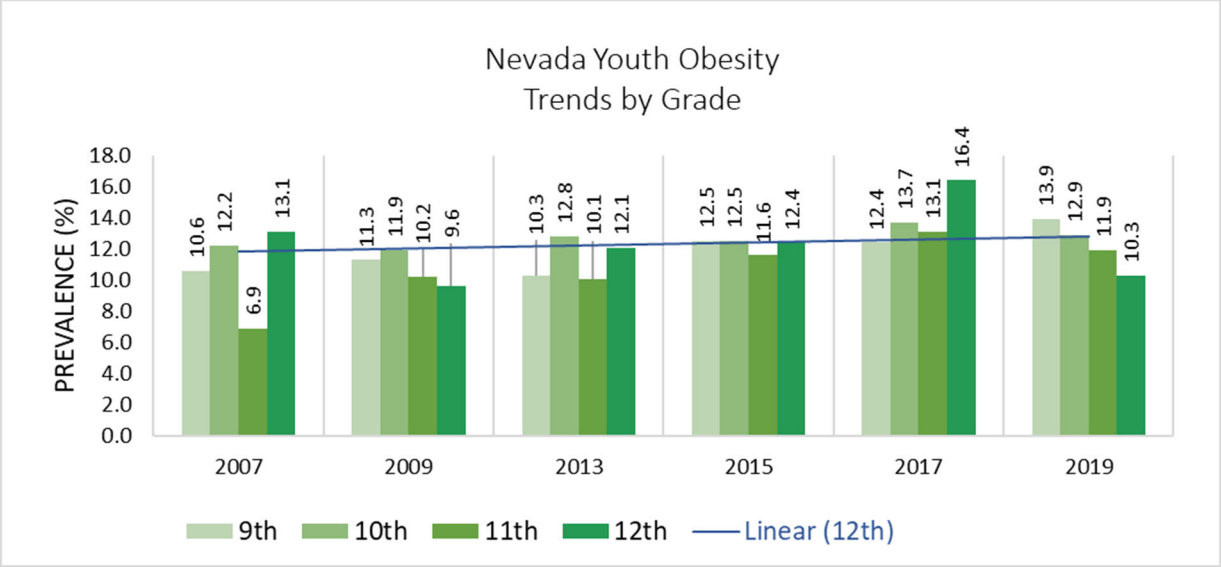


Data Source: Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System (YRBSS) Prevalence Data. YRBSS data are not available by zip code, census tract, or school. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Youth Obesity Trends in Nevada by Grade

Overall, youth obesity prevalences by students' grades show upward trends. From 2007 to 2019, the obesity prevalence among 9th and 11th grade students increased by 31% and 73% respectively. The lowest percent increase in obesity was among 10th grade students, with a 6% increase and 12th grader students experienced a 7% increase in obesity.

Figure 14. Prevalence (%) of Youth Obesity, Nevada by Grade. YRBSS, 2007 – 2019, aged 14 to 18 years.



Data Source: Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System (YRBSS) Prevalence Data. YRBSS data are not available by zip code, census tract, or school. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.

Youth Obesity Trends in Nevada by Race and Ethnicity

Youth Risk Behavior Surveillance System (YRBSS) data were available for only a small number of specifically funded local school districts or counties. Trend analysis for youth obesity by race and ethnicity was not possible due to the lack of data by race. Overall, in 2019, the prevalence of obesity was higher among the Two or More Races-Non-Hispanic (15.2%) and Hispanic (15.0%) groups. Asian Non-Hispanic (7.1%) and White Non-Hispanic (9.8%) Nevada students had the lowest obesity prevalence in 2019.

Table 2. Prevalence (%) of Youth Obesity, Nevada by Race and Ethnicity. YRBSS, 2007 – 2019, aged 14 to 18 years.

	2007	2009	2013	2015	2017	2019
Asian Non-Hispanic	-	6.2%	-	-	7.4%	7.1%
Black Non-Hispanic	13.3%	11.2%	17.4%	-	-	-
White Non-Hispanic	6.4%	9.4%	8.6%	9.6%	13.1%	9.8%
2+ Races Non-Hispanic	-	13.0%	11.5%	-	12.5%	15.2%
American Indian / Alaska Native	-	-	-	-	-	-
Native Hawaiian/ Pacific Islander	-	-	-	-	-	-
Hispanic	16.8%	13.5%	13.4%	15.8%	15.6%	15.0%

Data Source: Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System (YRBSS) Prevalence Data. YRBSS data are not available by zip code, census tract, or school. The data was analyzed by Division of Public and Behavioral Health Wellness and Prevention Program Coordinator.
(-) Values were either not calculated or not available

Youth Obesity and Overweight in Nevada

Table 3. Prevalence (%) of Youth Obesity and Overweight, Nevada, YRBSS, 2019, aged 14 to 18 years.

YOUTH OBESITY and OVERWEIGHT PREVALNCE (%) in NEVADA				
			OBESITY	OVERWEIGHT
			Nevada, 2019	Nevada, 2019
OVERALL			12.3	16.7
DEMOGRAPHICS	SEX	Male	15.0	16.2
		Female	9.3	17.2
	GRADE GROUP	9th	13.9	16.6
		10th	12.9	17.9
		11th	11.9	14.4
		12th	10.3	17.8
	RACE / ETHNICITY	Asian Non Hispanic	7.1	16.7
		Black Non Hispanic	-	-
		White Non Hispanic	9.8	15.1
		2+ Races Non Hispanic	15.2	10.6
		Am. Ind. / Alaska Native	-	-
		Nat. Hawiian/Pacific Isl.	-	-
		Hispanic	15.0	17.3

Data Source: Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance System (YRBSS) Prevalence Data.
(-) Values were either not calculated or not available.

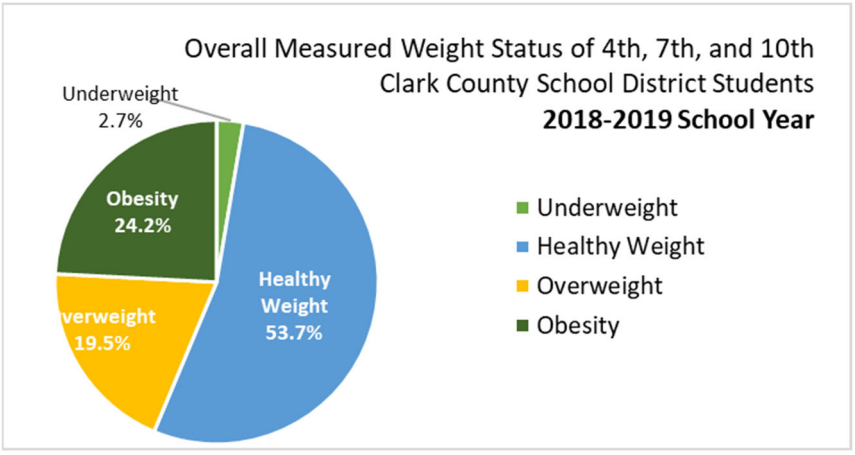
Youth Obesity in Nevada's Schools

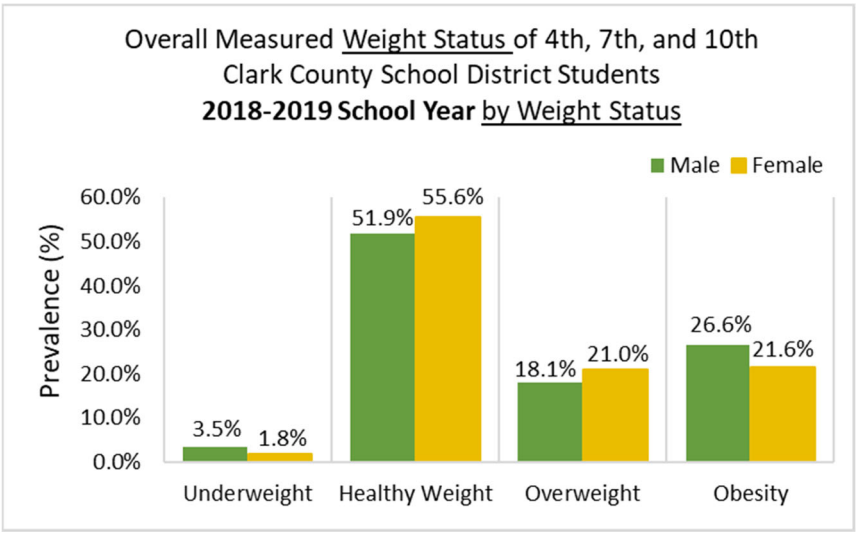
Two school districts in Nevada, Clark County and Washoe County, were mandated to collect and report measured height and weight data of a representative sample of 4th, 7th, and 10th grade students, starting with the 2017-2018 school year. In 2021-2022, the new representative sample to collect the mandated data was all 4th and 7th grade students.

Students Weight Status and Trends, Clark County School District

After the 2018-2019 school year, Clark County School District (CCSD) confronted multiple barriers to collecting and reporting mandated students' height and weight data. Some reported barriers are staffing shortage, school nurses' new duties due to the COVID-19 outbreak, lack of standardized measurement equipment and guidance, and lack of funding for alternative options.

Figure 15. Prevalence (%) of Youth Obesity, CCSD by Weight Status, 2018-2019 School Year.





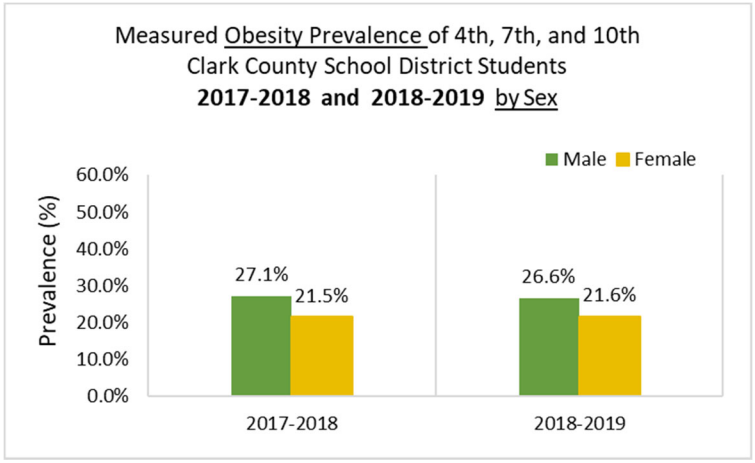
Data from school year 2018-2019 show that nearly 44% of measured CCSD students had obesity (24.2%) or were overweight (19.5%). Compared to the 12.3% self-reported obesity rate in the 2019 YRBSS, statewide youth obesity among measured CCSD students (24.2%) is much higher.

Although most Clark County School District measured students had a healthy weight in 2018-2019, 45% of all measured male students were either overweight (18.1%) or had obesity (26.6%). Among female students in the same school year, 43% were either overweight (21.0%) or had obesity (21.6%).

Similar to the statewide obesity trends, the highest obesity prevalence was found among measured male students.

Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.

Figure 16. Prevalence (%) of Youth Obesity, CCSD by Sex. 2017-2018 to 2018-2019.



The obesity prevalence among CCSD students for two consecutive school years shows that the prevalence of obesity has not changed significantly. From school years 2017-2018 to 2018-2019, there was less than 2% decrease in obesity prevalence among male students and less than 1% increase among female students.

Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.

Table 3. Prevalence (%) of Youth Obesity and Overweight, CCSD, 2017-2018 to 2018-2019

	Obesity Prevalence (%)				**Overweight Prevalence (%)**			
School Year	2017-2018	2018-2019	2019-2020	2020-2021	2017-2018	2018-2019	2019-2020	2020-2021
Total Observed	N = 1419	N = 1499	N = 0	N = 0	N = 1419	N = 1499	N = 0	N = 0
Overall	24.9%	24.2%	-	-	18.1%	19.5%	-	-
Male	27.1%	26.6%	-	-	16.6%	18.1%	-	-
Female	21.5%	21.6%	-	-	20.4%	21.0%	-	-
4th	20.3%	25.2%	-	-	15.7%	17.9%	-	-
7th	25.6%	28.3%	-	-	19.0%	21.3%	-	-
10th	29.6%	16.1%	-	-	20.2%	18.4%	-	-
White	15.5%	14.6%	-	-	16.8%	19.9%	-	-
Black	23.9%	20.6%	-	-	15.5%	22.5%	-	-
Asian	16.4%	19.6%	-	-	14.7%	15.2%	-	-
Other	26.9%	29.2%	-	-	18.5%	19.2%	-	-
Hispanic	30.2%	29.8%	-	-	19.9%	19.2%	-	-
Non-Hispanic	3.0%	19.0%	-	-	19.7%	19.7%	-	-

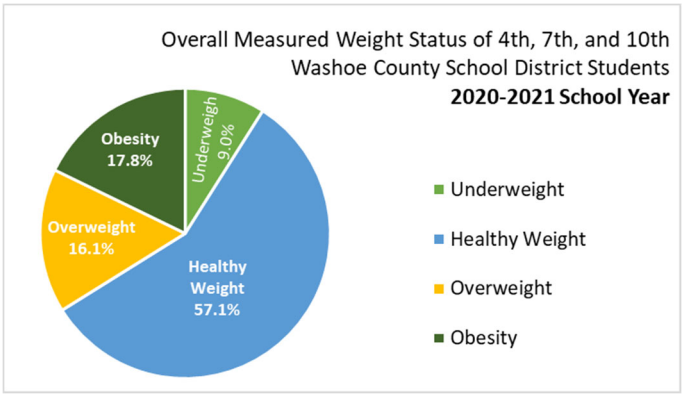
Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.
Total observed: Number of students who participated and school nursing staff was able to collect height and weight data.

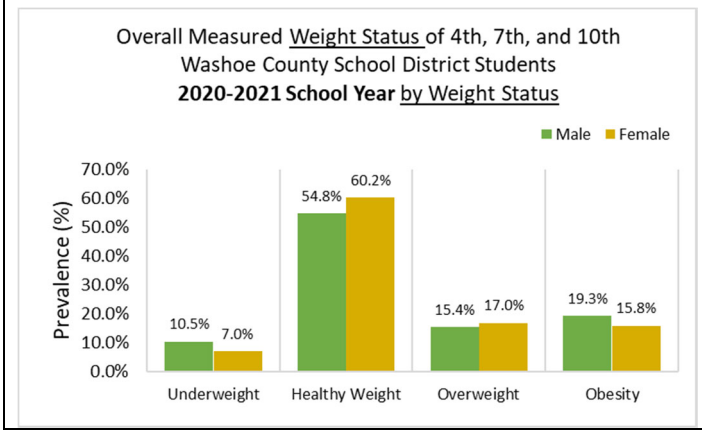
Overall, data from school year 2017-2018 show that measured CCSD male students in the 7th grade of a race other than Black, White, or Asian of Hispanic heritage are more likely to have obesity. For the same school year, overweight students are more likely to be female, in the 7th grade of Black race, non-Hispanic.

Students Weight Status and Trends, Washoe County School District

Starting school year 2017-2018, Washoe County School District (WCSD) reported measured students' height and weight data for four consecutive school years, 2017-2018 to 2020-2021. In addition to the barriers reported by Clark County School District, WCSD's reported barriers to collect reported data included lack of standardized guidance and resources to refer a child with obesity to a health care provider that can treat childhood obesity.

Figure 17. Prevalence (%) of Youth Obesity, WCSD, Weight Status. 2017-2018 to 2020-2021.





Data from school year 2020-2021 shows that nearly 34% of measured WCSD students had either obesity (17.8%) or were overweight (16.1%). The obesity prevalence among measured WCHD students is higher than the calculated statewide obesity prevalence, 12.3%, using self-reported height and weight data in the 2019 YRBSS.

Like the statewide obesity trends, the highest obesity prevalence was found among measured male students.

Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.

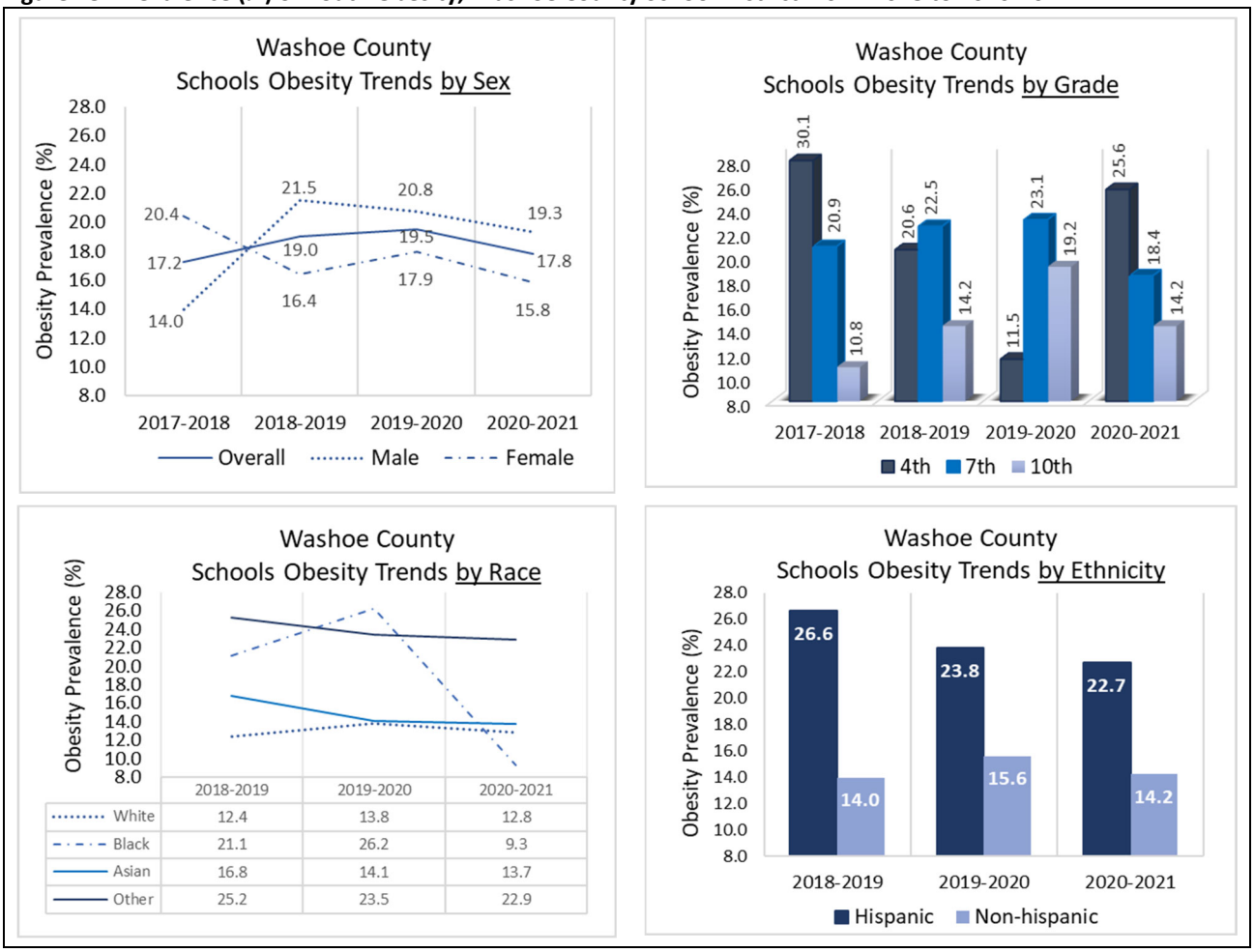
Table 4. Prevalence (%) of Youth Obesity & Overweight, WCSD, 2017-2018 to 2020-2021

	Obesity Prevalence (%)				**Overweight Prevalence (%)**			
School Year Total Observed	2017-2018 N = 2572	2018-2019 N = 4080	2019-2020 N = 1698	2020-2021 N = 1792	2017-2018 N = 2572	2018-2019 N = 4080	2019-2020 N = 1698	2020-2021 N = 1792
Overall	17.2	19.0	19.5	17.8	21.1	17.7	14.5	16.1
Male	14.0	21.5	20.8	19.3	19.9	18.5	14.6	15.4
Female	20.4	16.4	17.9	15.8	22.2	16.9	14.4	17.0
4th	30.1	20.6	11.5	25.6	17.9	14.0	13.7	19.3
7th	20.9	22.5	23.1	18.4	20.0	19.4	16.9	18.1
10th	10.8	14.2	19.2	14.2	22.8	17.1	13.1	13.3
White	-	12.4	13.8	12.8	-	14.9	10.5	14.7
Black	-	21.1	26.2	9.3	-	24.4	14.3	9.3
Asian	-	16.8	14.1	13.7	-	14.7	21.9	11.8
Other	-	25.2	23.5	22.9	-	20.3	16.8	17.9
Hispanic	-	26.6	23.8	22.7	-	20.9	16.1	18.3
Non-Hispanic	-	14.0	15.6	14.2	-	15.6	13.0	14.4

Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.
Total observed: Number of students who participated and school nursing staff was able to collect height and weight data.

Data from four consecutive school years in Washoe County School District (WCSD) show that the obesity prevalence among measured female students decreased from 20.4% in 2017-2018 to 15.8% in 2020-2021, a 23% decrease. In contrast, obesity increased by 38% among measured male students, from 14.0% in 2017-2018 to 19.3% in 2020-2021. Over the years, measured female students maintained lower obesity trends than male students. Male students had the highest obesity prevalence for three consecutive school years, from 2018-2019 to 2020-2021. The overall prevalence of obesity among measured 4th grade students decreased 15% from 2017-2018 to 2020-2021. Among 10th grade students, obesity prevalence increased steadily for three consecutive school years, from 2017-2018 to 2019-2020, with a 78% increase and a 26% decrease from 2019-2020 to 2020-2021.

Figure 18. Prevalence (%) of Youth Obesity, Washoe County School District. 2017-2018 to 2020-2021



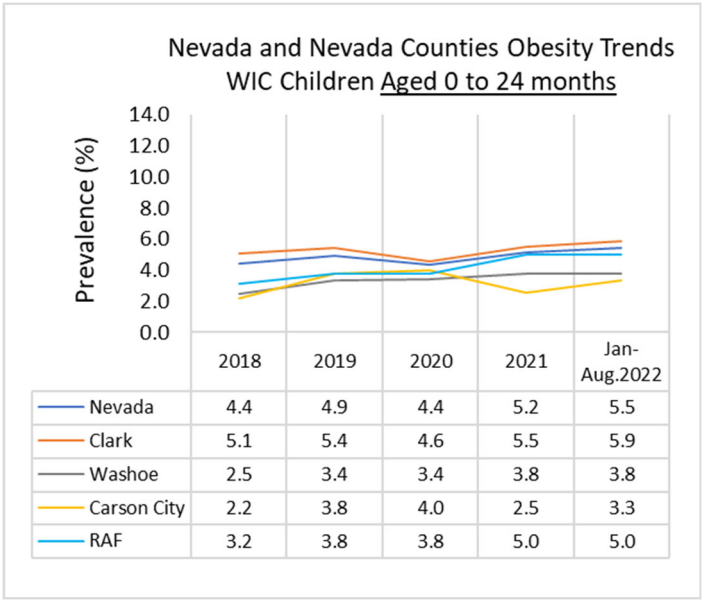
Data Source: Nevada Revised Statutes 392.420 mandates School Height and Weight measured data collection in selected Nevada school districts. The data was analyzed by the Nevada Department of Health and Human Services | Office of Analytics | Director's Office.

WCSD obesity trends by race show measured White students had the lowest obesity prevalence compared to Black, Asian, and other race groups' students. Although obesity trends by ethnicity show that obesity prevalence among measured Hispanic students has been trending downwards since 2018-2019, the prevalence of obesity among Hispanic students is nearly double compared to Non-Hispanic students.

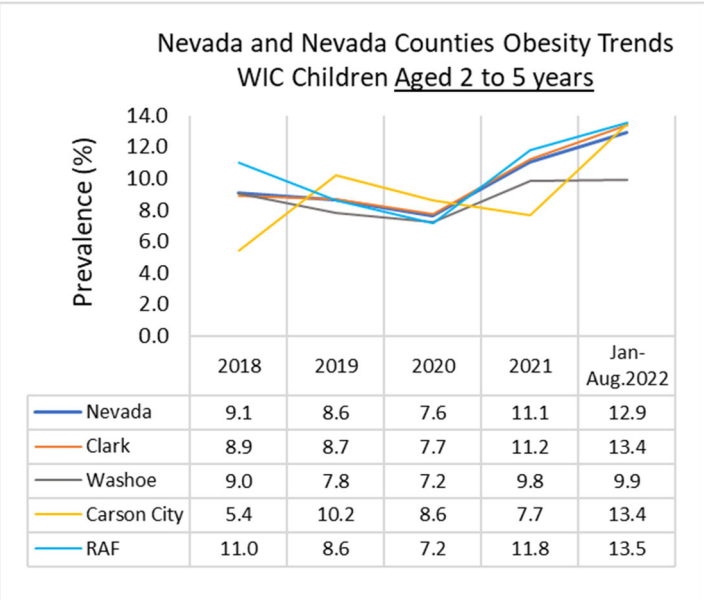
Women, Infants and Children (WIC)

Weight-for-Length (WT/LT) is recommended for assessment of weight status in children younger than two years old and body mass index (BMI) is recommended for children older than two years. Children in families with low incomes are often served by the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Statewide, childhood obesity in Nevada is evaluated in this report using measured weight and height data collected from children in families enrolled in WIC. Although WIC data does not represent all 0–5-year-old children in Nevada, WIC data describes accurately the state of obesity of children from families with lower incomes.

Figure 19. Prevalence (%) of Childhood Weight-for-Length and Obesity, WIC Enrolled Children, 2018-2022.



	2018	2019	2020	2021	Jan-Aug.2022
Nevada	4.4	4.9	4.4	5.2	5.5
Clark	5.1	5.4	4.6	5.5	5.9
Washoe	2.5	3.4	3.4	3.8	3.8
Carson City	2.2	3.8	4.0	2.5	3.3
RAF	3.2	3.8	3.8	5.0	5.0



	2018	2019	2020	2021	Jan-Aug.2022
Nevada	9.1	8.6	7.6	11.1	12.9
Clark	8.9	8.7	7.7	11.2	13.4
Washoe	9.0	7.8	7.2	9.8	9.9
Carson City	5.4	10.2	8.6	7.7	13.4
RAF	11.0	8.6	7.2	11.8	13.5

Overall, the prevalence of Weight-for-Length (WT/LT) among WIC-enrolled 0–24-month-old children increased from 4.4% in 2018 to 5.5% in August 2022, a 25% increase since 2018. The highest percentage increase in WT/LT among 0–24-month WIC-enrolled children was in rural and frontier (RAF) counties, a 58% increase, from 3.2% in 2018 to 5.0% in August 2022. Although WIC-enrolled children in the same age group in Clark County experienced only a 15% increase in obesity since 2018, through the years, they had the highest obesity prevalence, including August 2022.

Among the 2-5-year-old WIC-enrolled children, the overall obesity prevalence increased from 9.1% in 2018 to 12.9% in August 2022, a 42% increase since 2018. WIC-enrolled 2-5-year-olds in Carson City not only had among the highest prevalence of obesity (13.4%) in August 2022; they also had the fastest percentage increase in obesity since 2018. Obesity in this group increased from 5.4% in 2018 to 13.4% in August 2022, a 149% increase.

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Nevada Kindergarten Health Survey (KHS)

The Nevada Institute for Children's Research and Policy (NICRP) conducts an annual survey of children entering kindergarten, the Nevada Kindergarten Health Survey (KHS). The survey collects information about statewide kindergarten students' overall health status, including height and weight.

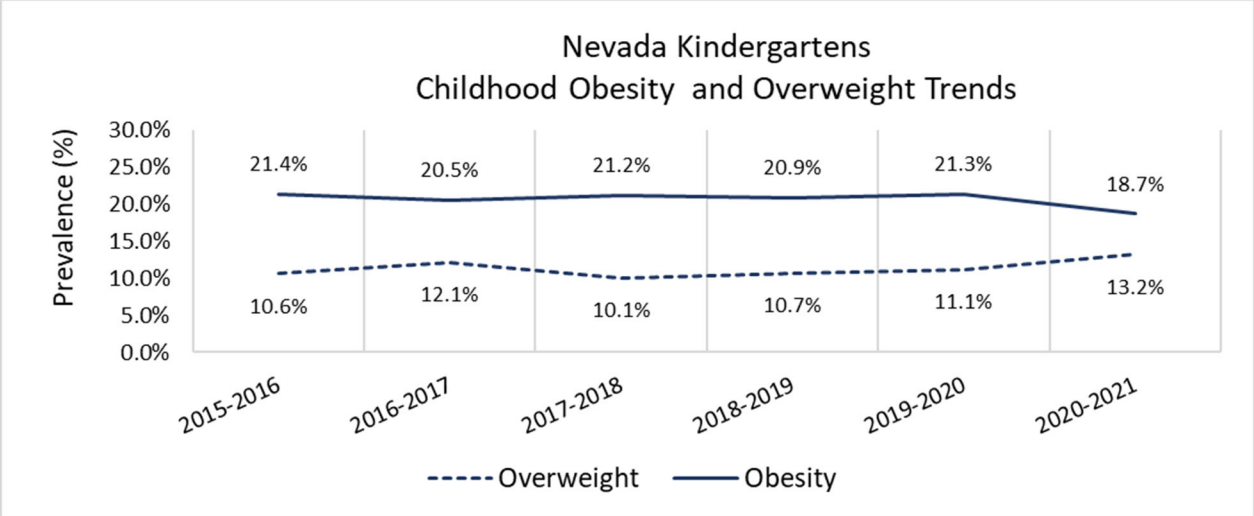
Table 5. Prevalence (%) of Childhood Weight Status, KHS, 2015-2016 to 2020-2021.

	Kindergartens Weight Status in Nevada					
Weight Category	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**	**2020-2021**
Underweight	15.5	16.8	17.1	17.2	17.3	19.5
Healthy weight	52.5	50.7	51.6	51.2	50.3	48.6
Overweight	10.6	12.1	10.1	10.7	11.1	13.2
Obesity	21.4	20.5	21.2	20.9	21.3	18.7

Data Source: Nevada Institute for Children's Research and Policy (NICRP), Nevada Kindergarten Health Survey (KHS). Data was access in January of 2023. https://nic.unlv.edu/reports-publications/

Self-reported height and weight data shows that in school year 2020-2021, 32% of kindergarteners had obesity (18.7%) or were overweight (13.2%). And data from five consecutive years show that the obesity prevalence among KHS children did not change statistically from 21.4% in 2015-2016 to 21.3% in 2019-2020. Nevertheless, according to the KHS, the obesity prevalence among kindergarteners in Nevada decreased 12%, from 21.3% in 2019-2020 to 18.7% in 2020-2021.

Figure 20. Prevalence (%) of Childhood Obesity and Overweight, KHS, 2015-2016 to 2020-2021.



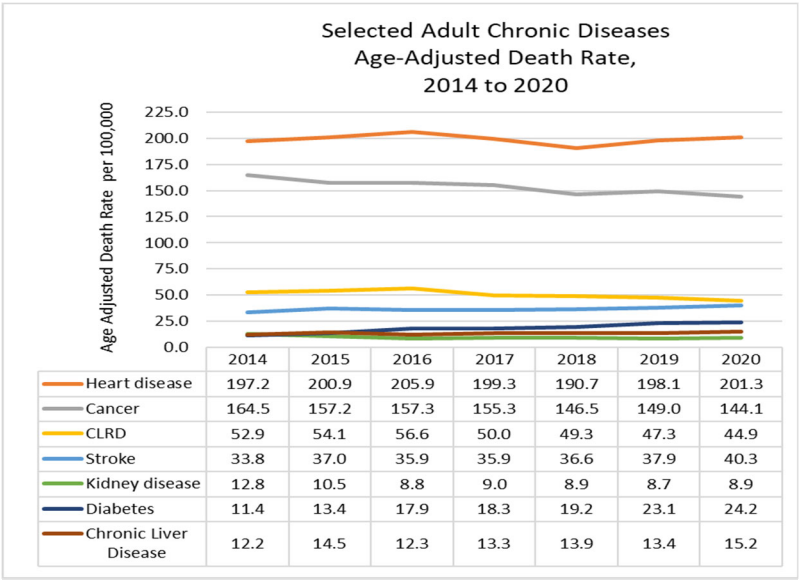
Data Source: Nevada Institute for Children's Research and Policy (NICRP), Nevada Kindergarten Health Survey (KHS). Data was access in January of 2023. https://nic.unlv.edu/reports-publications/

Compared to the obesity trends calculated from national and state measured data, the National Health and Nutrition Examination Survey (NHANES) and WIC trends, KHS trends are contradictory to national and state obesity trends (Figures 1 and 19). Thus, it is highly recommended to use KHS data trends with caution. Sampling methodology limitations, among others, will affect the accuracy of data and give trends that run against national data.

Obesity, Chronic Diseases, Associated Death Rates and Weight Status

Obesity is a complex multifactorial chronic disease and a major cause of other chronic diseases, which also contribute to causes of death in the US and Nevada. Mortality data from the National Center for Health Statistics, 2020, found that chronic diseases including heart disease, cancer, chronic lower respiratory disease (CLRD), stroke, diabetes, and chronic liver disease were among the top ten leading causes of death in Nevada.

Figure 21. Adult Age-Adjusted Death Rates, Nevada, NVSS 2018-2022.



	2014	2015	2016	2017	2018	2019	2020
Heart disease	197.2	200.9	205.9	199.3	190.7	198.1	201.3
Cancer	164.5	157.2	157.3	155.3	146.5	149.0	144.1
CLRD	52.9	54.1	56.6	50.0	49.3	47.3	44.9
Stroke	33.8	37.0	35.9	35.9	36.6	37.9	40.3
Kidney disease	12.8	10.5	8.8	9.0	8.9	8.7	8.9
Diabetes	11.4	13.4	17.9	18.3	19.2	23.1	24.2
Chronic Liver Disease	12.2	14.5	12.3	13.3	13.9	13.4	15.2

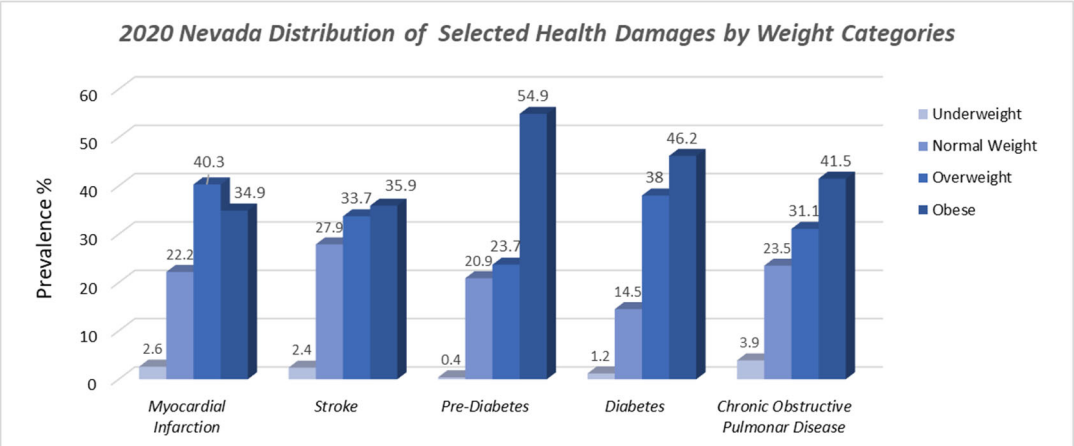
The age adjusted death rate for diabetes increased from 11.4 per every 100,000 people in 2014 to 24.2 in 2020, a 112% increase in deaths due to diabetes.

The age adjusted death rates for chronic diseases increased 25% for liver disease, 19% for stroke, and 2% for heart disease between 2014 to 2020.

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

In 2020, 84.2% of those reporting diabetes were overweight (38.0%) or had obesity (46.2%). Among pre-diabetics, 79% were overweight (23.7%) or had obesity (54.9%). Alarmingly, those reporting myocardial infarction, being overweight (40.3%) was the highest prevalence of unhealthy weight status. The overall prevalence of stroke, pre-diabetes, diabetes, and chronic obstructive pulmonary disease, increased with the progression of weight increase.

Figure 22. Prevalence (%) of Chronic Diseases, Risk Factors and Cancer, BRFSS 2020.

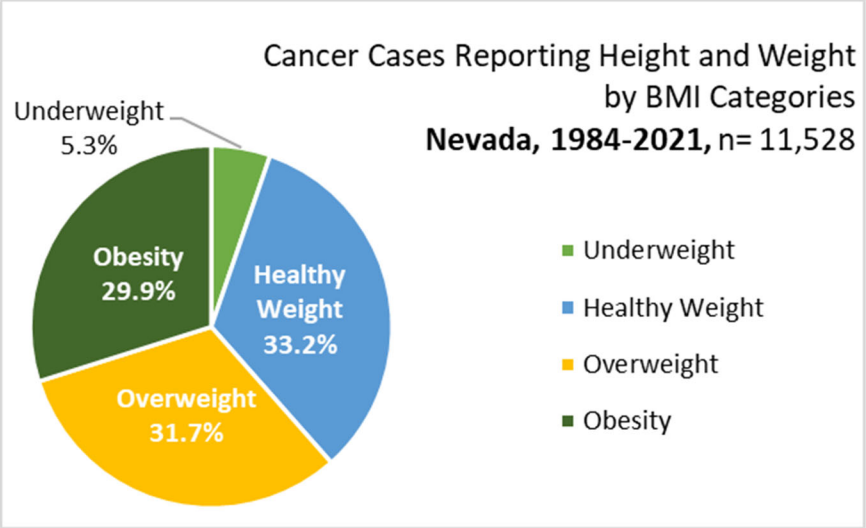


Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Obesity and Cancer Cases Reporting Height and Weight Data

The CDC the American Cancer Society, the National Cancer Institute, and the North American Association of Central Cancer Registries indicate that being overweight or having obesity increases the risk of getting at least 13 types of cancer[19]. Prevalence of cancer data from the Nevada Central Cancer Registry from 1984-2021 identified 11,528 cancer cases reporting height and weight. Of those cases, 62% of all cancer cases were overweight (31.7%) or had obesity (29.9%).

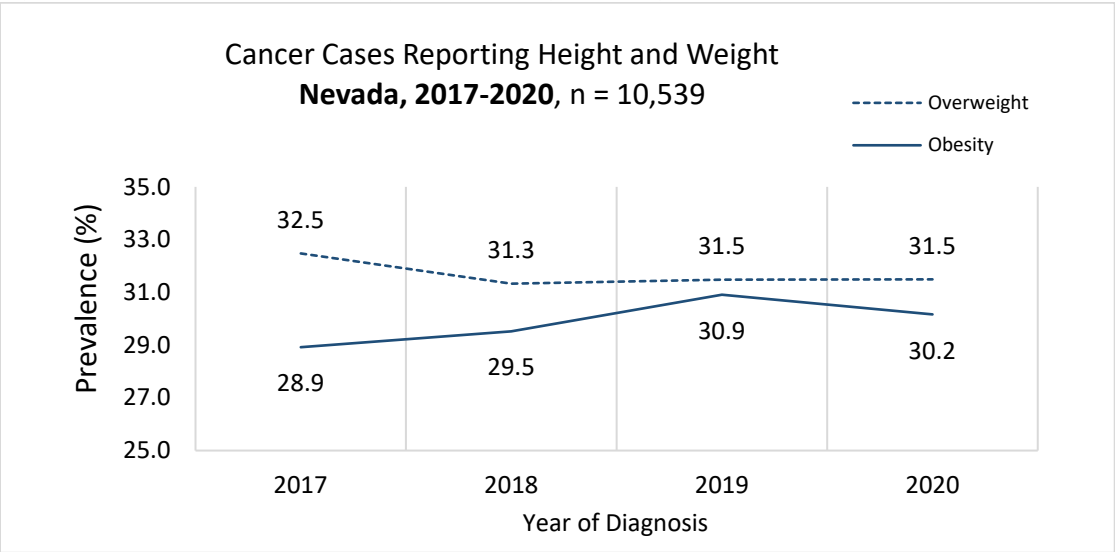
Figure 23. Prevalence (%) of Cancer Cases, Nevada Central Cancer Registry (NCCR) 1984-2021.



Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Over four consecutive years, the overweight prevalence decreased slightly from 32.5% in 2017 to 31.5% in 2020, a 3% decrease in overweight. Obesity among cancer cases who reported height and weight, increased only 4%, from 28.9% in 2017 to 30.2% in 2020.

Figure 24. Prevalence (%) of Obesity and Overweight Among Cancer Cases, NCCR, 2017-2020.



Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Table 6 lists all 11,528 cancer cases who reported height and weight data from highest to lowest obesity prevalence. Corpus uteri and uterine cancer cases are among the cancer cases with the highest obesity prevalence (58.2%). Thyroid Gland (42.5%), Melanoma of the Skin (38%), Kidney and Renal Pelvis (36.2%), and Breast (34.0%) are also among the cancer cases with the highest obesity prevalence. When considering overweight and obesity combined status, 78% of the corpus uteri and uterine cancer cases were either overweight or had obesity.

Table 6. Nevada Cancer Cases by Weight Status

Cancer Cases Reporting Height And Weight, N= 11,505, By Weight Status NEVADA, 1984-2020				
CANCER SITE	WEIGHT STATUS			
	Underweight (%)	Healthy Weight (%)	Overweight (%)	**Obesity (%)**
Corpus Uteri & Uterus, not otherwise specified	0.9	21.1	19.7	**58.2**
Thyroid Gland	2.8	25.5	29.2	**42.5**
Melanoma of the Skin	2.6	24.8	34.6	**38.0**
Kidney and Renal Pelvis	3.1	24.9	35.8	**36.2**
Breast	2.9	29.9	33.2	**34.0**
Brain & Other Central Nervous Sys., Benign and Uncertain	5.3	29.7	32.4	**32.6**
Cervix Uteri	5.6	33.9	28.3	**32.2**
Myeloma	5.8	31.1	32.6	**30.5**
Connective, Subcutaneous, and Other Soft Tissues, incl. Heart	12.5	37.5	19.6	**30.4**
Prostate	1.9	29.8	38.7	**29.6**
Urinary Bladder	2.3	30.6	38.2	**28.9**
Colorectal	6.0	36.1	29.9	**28.1**
All other sites	7.1	35.3	30.2	**27.5**
Leukemia	9.7	37.0	26.2	**27.1**
Ovary	6.0	40.4	26.8	**26.8**
Non-Hodgkin Lymphoma	4.8	35.0	33.9	**26.3**
Esophagus	11.3	44.4	20.0	**24.4**
Stomach	6.4	36.5	33.3	**23.8**
Pancreas	7.3	41.7	27.6	**23.4**
Lung and Bronchus	9.0	37.4	30.2	**23.4**
Liver and Intrahepatic Bile Ducts	4.9	37.6	35.3	**22.2**
Lip, Oral Cavity and Pharynx	6.3	41.7	30.7	**21.3**
Hodgkin Lymphoma	8.0	46.0	26.0	**20.0**
Larynx	12.5	41.7	33.3	**12.5**

Data Source: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System (BRFSS) Prevalence Data. The data was analyzed by the Division of Public and Behavioral Health Chronic Disease Prevention and Health Promotion Section Lead Epidemiologist.

Summary of Findings

The Behavioral Risk Factor Surveillance System (BRFSS) found that the overall prevalence of adult obesity in Nevada increased 17%, from 2015 (26.7%) to 2021 (31.3%). The prevalence of obesity was higher in all rural and frontier (RAF) counties and Carson City than in the rest of the state. More than two-thirds (67.4 %) of Nevada adults were overweight or obese. The prevalence of overweight or obese was highest among men (33.1% obesity and 38.2% overweight), those aged 45-54 (39.9% obesity and 37.0% overweight), with some college/technical school education (33.1% obesity and 35.3% overweight), and an annual household income of $15,000-$24,999 (37.4% obesity and 32.4% overweight).

Data from the Youth Risk Behavior Surveillance System (YRBSS) show that the overall prevalence of youth obesity in Nevada increased 14%, from 2007 (10.8%) to 2019 (12.3%). Approximately one third (29.0 %) of Nevada youth, 14 to 18 years of age were overweight (16.7%) or had obesity (12.3%). The prevalence of overweight or obese was highest among male students (15.0% obesity and 16.2% overweight), those in 10th grade (12.9% obesity and 17.9% overweight), with two or more races (15.2% obesity and 10.6% overweight), and Hispanic heritage (15.0% obesity and 17.3% overweight).

Body Mass Index (BMI) data from Clark County School District (CCSD) shows that the overall prevalence of school youth obesity among 4th, 7th, and 10th grade students, in school year 2018-2019, was 24.2% and slightly decreased 3%, since 2017-2018 (24.9%). About half (44%) of all measured students in CCSD were overweight (19.5%) or had obesity (24.2%). The prevalence of overweight or obese was highest among male students (26.6% obesity and 18.1% overweight), those in 10th grade (16.1% obesity and 18.4% overweight), of other races than Black, White, or Asian (29.2% obesity and 19.2% overweight), and Hispanic heritage (29.8% obesity and 19.2% overweight).

In Washoe County School District (WCSD), BMI data indicate that the overall prevalence of school youth obesity among 4th, 7th, and 10th grade students in school year 2020-2021, was 17.8% and slightly decreased 3%, since 2017-2018 (17.2%). One third (34%) of all measured students in WCSD were overweight (16.1%) or had obesity (17.8%). The prevalence of overweight or obese was highest among male students (19.3% obesity and 15.4% overweight), those in 4th grade (25.6% obesity and 19.3% overweight), of other races than Black, White, or Asian (22.9% obesity and 17.2% overweight), and Hispanic heritage (22.7% obesity and 18.3% overweight).

Among children enrolled in the Nevada Women, Infants, and Children (WIC) program, the overall prevalence of childhood obesity in Nevada in 2022 increased 25% for 0–24-month-olds (5.5%) and 16% for 2–5-year-olds (12.9%) from 2018 to August 2022. The prevalence of obesity was higher in Clark County for the 0–24-month group (5.9%) and in RAF counties for the 2–5-year-old group (13.5%).

Opportunities for Action and Recommendations

Obesity is a multifactorial chronic, often progressive, disease associated with an increase in mortality and morbidity that is increasing in prevalence in adults, youth, and children in Nevada. The etiology of obesity is complex and often unknown, as it is also a risk factor for other chronic diseases. Thus, controlling and preventing risk factors for obesity and being overweight requires efforts in multiple, complex systems. Single measures like Body Mass Index (BMI) values do not provide reliable information to answer questions such as why there is only a 9% difference in unhealthy weight status when comparing adult unhealthy weight status in the Less than $15,000 household income group (39.6% obesity, 24.0% overweight) with the $50,000-$99,999 group (30.1% obesity, 39.2% overweight). BMI data does not help identify the health differences nor the causes of the disease within each subgroup of the population. Consequently, to understand the complexity of obesity and answer multifaceted questions, there is a need to adopt new methods and tools to assess the state of obesity in Nevada. Ensuring proper measures to control and prevent obesity in Nevada opens new opportunities for specific actions.

First, BMI data cannot be the only measure to guide prevention and control decisions and shape the state of obesity in Nevada since it does not distinguish between excess fat, muscle, or bone mass, nor does it provide any indication of the distribution of fat. Future work is needed to explore the possibility of integrating reliable measures and indicators of wellness. Statewide-specific data on how sociocultural, economic, and environmental factors influence Nevadans' physical inactivity, poor nutrition, and other behavioral information are necessary to plan, coordinate, and implement wellness and prevention interventions. Self-reported BMI data add another layer to the problem, and it may underestimate or overestimate the prevalence of obesity. Thus, at the very least, the Wellness and Prevention Program should have access to statewide measured BMI data to estimate as accurately as possible the actual state of obesity in Nevada.

Second, surveillance and epidemiology are necessary tools to guide the prevention and control efforts of any disease in public health settings. Thus, effective control and prevention of obesity requires the support of surveillance systems and epidemiology staff. There is a need to define the nature and extent of the burden of obesity in Nevada communities. It is necessary to examine how obesity contributes to inequalities and how societal inequities contribute to the prevalence of obesity and overweight. Environmental factors such as food advertising, food retail, and the lack of access to safe physical activity influence the etiology and prevalence of obesity and should be examined using epidemiology work.

Third, primary prevention strategies are pivotal to preventing risk factors for chronic disease, including obesity. Thus, targeted primary prevention strategies should be part of statewide initiatives when planning and implementing chronic diseases prevention programs. Nevada ranks among the states with the lowest rates in preventable hospital (21st) and dental (41st) visits.[20] Chronic disease-preventing behaviors in Nevada, such as eating nutritious meals and maintaining a physical activity routine are among the worst (43rd) in the nation.[20] Such a landscape allows the state to look for and embrace statewide primary prevention partnerships.

Fourth, federal nutrition programs add value to the nutrition of the most vulnerable Nevadans. Programs like the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Supplemental Nutrition Assistance Program – Education (SNAP-Ed) increase food security, enable a more healthful diet and provide nutrition education to children and adults in the state. Interagency collaboration to increase participation in these federal nutrition programs should be integral to statewide obesity prevention efforts.

Actions Taken by and Goals of the Division of Public Behavioral Health

Of the four opportunities for action and recommendations mentioned in the previous section, accurate indicators of obesity, surveillance and epidemiology support, primary prevention strategies, and statewide partnerships strategies, the Division of Public and Behavioral Health (DPBH) Wellness and Prevention Program (WPP) is developing and implementing primary prevention strategies and statewide partnerships.

For primary prevention strategies, DPBH WPP partnered with statewide local health districts and obesity prevention subject matter experts to develop the Healthy Eating and Active Living Nevada 5210 Program (HEAL Nevada/5210). The HEAL Nevada/5210 is a community engagement program to promote and increase chronic disease prevention behaviors, and it is based on the multi-setting model MaineHealth Let's Go! Program.[25] The Maine Let's Go Program started in 2006 with the evidence-based 5-2-1-0 message and has been adopted nationwide in the US and in health systems in Canada.[24] Maine has seen a shift in healthy behaviors in children and is starting to see some mild reduction in childhood BMI after the trend upward during the Covid pandemic. The 5210 (5 or more servings of fruits and vegetables, 2 hours or less of recreational screen time, 1 hour or more of physical activity, and 0 sugary drinks) is the foundation, call to action, message used to start the conversation about lifestyle changes in our communities. The HEAL Nevada/5210 Program asks Nevadans to make "small changes" for "big results" in health.

The HEAL Nevada/5210 priority for the state fiscal calendar 2023 is getting the healthcare sector onboard with 5-2-1-0 messaging so that engaging in respectful conversations with individuals about weight status and chronic disease-preventing behaviors becomes a standard component of clinical practice in Nevada. Other sectors will follow as funding becomes available. The goals of the HEAL Nevada/5210 Program are to deliver a cohesive wellness message to community members where they live, work, study, play, and seek medical attention and for healthy choices to become *the easy* choices through policy and environmental changes.

Another statewide primary prevention initiative achieved by the DPBH WPP is implementing and disseminating the Standard Operating Procedures for Collecting and Reporting Students' Height and Weight in Nevada Schools (SOP).[21] The SOP includes technical assistance to collect accurate height and weight data in schools and provides resources to refer students and their families to a healthcare provider who can attend and treat obesity and overweight. The goal of the SOP is to assist school nurses, teachers, and licensed educational personnel who have completed training in measuring the height and weight of students. Informed and trained designated school staff could ensure standard operating processes to communicate related activities effectively.

DPBH WPP is also engaged in an interagency collaboration initiative for statewide partnership strategies between the Nevada Department of Agriculture and the Children's Cabinet. The initiative is a reoccurring annual Geographic Information System (GIS) map that will guide outreach and promotion of the Children and Adult Food Program (CACFP). The map has the potential to identify ECE providers, CACFP sponsors, food deserts, high-poverty areas, and where to target resources. Through interagency collaboration, the goal is to increase CACFP participation in Early Care and Education settings.

Another statewide partnership strategy is a collaboration with CDC/Nemours and the University of Nevada, Reno Extension. Through this collaboration, DPBH WPP will assist statewide ECE providers in gaining knowledge, tools, and resources to develop and install fruit and vegetable gardens for young children as a vehicle for learning. The goal is to give every child in Nevada's Early Care and Education system access to activities that teach and promote healthy behaviors, such as pre-k gardening and cooking educational programs.

DPBH WPP also engages in a statewide partnership strategy with the newly formed Nevada Obesity Collaborative. The collaborative is a statewide working group of community members across multiple private and public sectors whose singular goal is to reduce obesity and related comorbidities.

Nevada residents should have access to and opportunities for choosing healthier eating and active living options. However, healthy decisions and behaviors are influenced by a range of multiple factors. Thus, making the healthier option easy may require multiple layers of intervention and partnership. Fortunately, the opportunity to build and strengthen a comprehensive wellness and prevention program and prevent risk factors for obesity through community partnerships and primary prevention strategies is well underway.

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