What is Obesity?

Overweight and obesity are defined as a higher weight than what is considered healthy for a given height.[1] Overweight and obesity can develop over time due to an energy imbalance: when an individual has a higher caloric intake than output.[2] Obesity is a chronic condition that is linked to health problems such as type 2 diabetes and can be caused by various factors such as eating patterns or genetic history. Body mass index (BMI) is a measure of body fat in relation to an individual's height and is often used as a screening tool for obesity.[3] An adult with a BMI of 25.0 to <30.0 is considered overweight, while an adult with a BMI of 30.0 or higher is considered obese.[1] Among children and teenagers, an individual with a BMI that is greater than or equal to the 95th percentile for all children and teenagers of the same age and sex is considered obese.[4]

Risk Factors for Obesity

Demographic Risk Factors

- *Age*
    - Many people gain weight as they age and continue to gain weight until ages 60 – 65.[5]
    - Children who have obesity are more likely to have obesity as adults.[5]
    - As you age, hormonal changes and less activity increases the risk for obesity.[6]
- *Race/Ethnicity*
    - Non-Hispanic Black and Hispanic adults have the highest prevalence of obesity in the United States.[7]
- *Genetics or Family History*
    - At least 15 genes affect obesity.[2]
    - Individuals with a family history of obesity may be predisposed to gain weight.[6]
    - Family members tend to share similar eating and physical activity habits.[6]
- *Poverty or Low Income*
    - Low-income and minority communities often lack access to affordable, healthy food, leading them to settle for less nutritious options.[8]
    - Among men, obesity prevalence is lower in the lowest and highest income groups compared to the middle-income group.[7]
- *Lower Education*
    - Previous study has found that low education level is associated with obesity among individuals under the age of 30.[9]
    - Men and women with college degrees have lower obesity prevalence than those with lower education.[7]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

1

Social and Behavioral Risk Factors

- *Poor Nutrition or Dietary Habits*
  - Eating foods with too much saturated fat or added sugar can increase the risk for obesity.[2]
  - High-calorie diets, liquid calories (such as sugary soft drinks), and oversized portions can also contribute to weight gain.[5]
- *Poor Sleep*
  - Inadequate good-quality sleep can be associated with high BMI.[2]
- *High Stress Levels*
  - Long- and short-term stress can affect hormones that control energy balances and hunger urges.[2]
- *Sedentary Lifestyl*e
  - High amounts of TV, computer, video game, or other screen time is associated with high BMI.[2]

Other Risk Factors

- *Medications*
  - Some medications, such as antidepressants, antipsychotics, beta-blockers, and birth control can affect weight.[2]
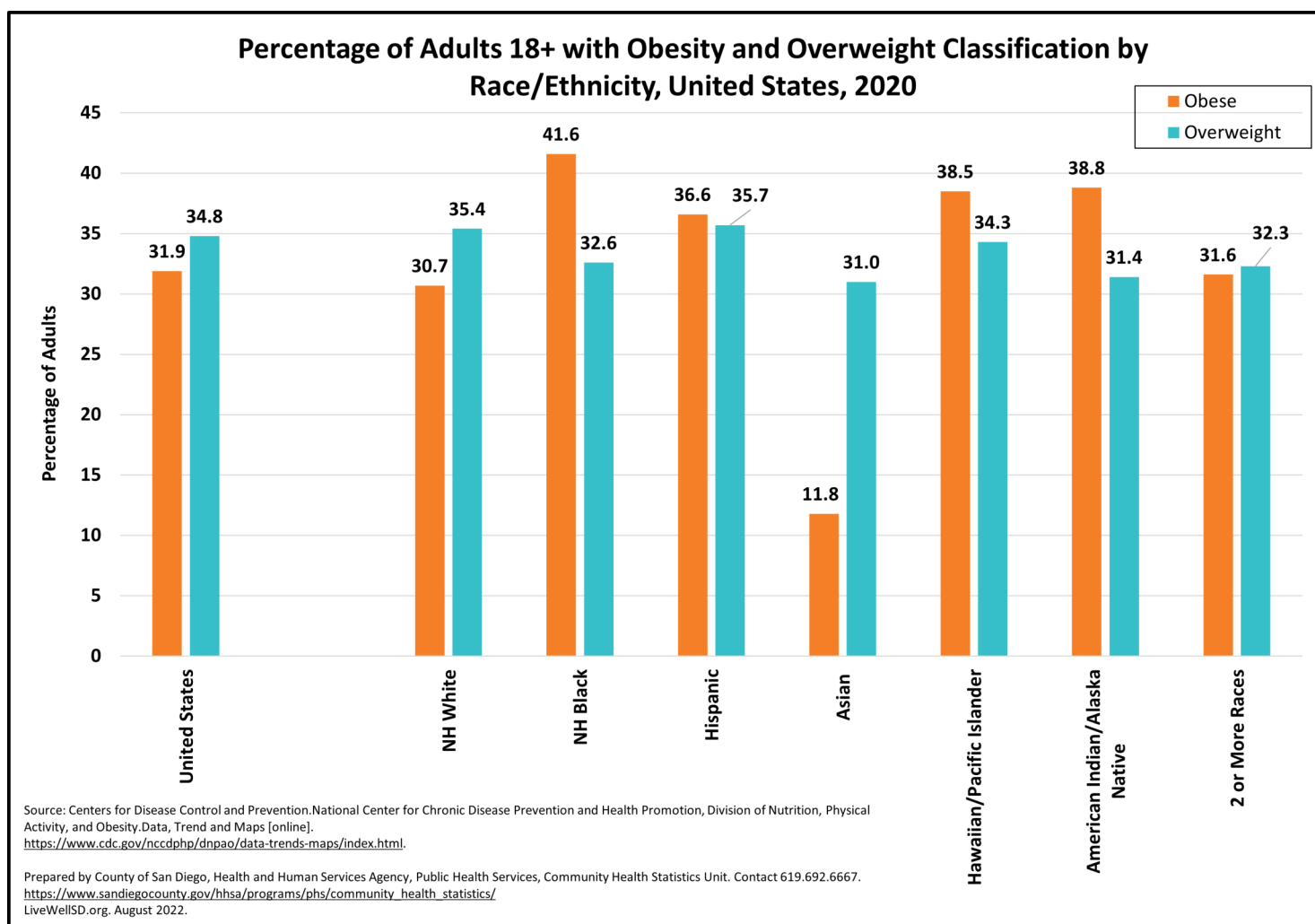
Intermediate Conditions

Obesity also increases the risk of other diseases and is accompanied by many complications. Some of these include:

- *Type 2 diabetes*
  - About 80% of individuals with type 2 diabetes are overweight or have obesity.[10]
  - High blood glucose can lead to other health problems such as heart or kidney disease.[10]
- *Hypertension*
  - Hypertension can increase the risk of heart attack or stroke.[10]
  - Weight loss may improve blood pressure and blood flow.[10]
- Osteoarthritis
  - Obesity can increase the risk of osteoarthritis by putting extra pressure on joints and cartilage.[10]
- *Cancer*
  - Liver and kidney cancers are 2 times as likely in people with obesity compared to people without obesity.[11]
  - Endometrial cancer is 2-4 times as likely in people with obesity compared to people without obesity.[11]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

2

- Heart Disease
  - Obesity is associated with elevated triglycerides (blood fat) and decreased high-density lipoprotein cholesterol ("good cholesterol").[10]
- COVID-19 Outcomes
  - Obesity increases the risk of severe illness from COVID-19.[12]
  - Obesity may triple the risk of hospitalization due to COVID-19.[12]
  - Higher BMI is associated with greater risk for hospitalization or death due to COVID-19, especially among individuals <65.[12]
- *Pregnancy Complications*
  - Pregnant women who are obese have a greater chance of developing gestational diabetes, having preeclampsia, and needing a cesarean section.[10]
- *Additional Consequences*
  - Sleep apnea (interrupted breathing while sleeping) is more common among obese individuals.[10]
  - Obesity can lead to mental health problems like depression, shame and guilt, and social isolation.[6]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

3

National Statistics and Disparities

Percentage of Adults 18+ with Obesity and Overweight Classification by Race/Ethnicity, United States, 2020

Legend: Obese (orange), Overweight (teal)

Percentage of Adults (y-axis)

Race/Ethnicity	Obese	Overweight
United States	31.9	34.8
NH White	30.7	35.4
NH Black	41.6	32.6
Hispanic	36.6	35.7
Asian	11.8	31.0
Hawaiian/Pacific Islander	38.5	34.3
American Indian/Alaska Native	38.8	31.4
2 or More Races	31.6	32.3

Source: Centers for Disease Control and Prevention.National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity.Data, Trend and Maps [online].
https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html.

Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667.
https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/
LiveWellSD.org. August 2022.

- According to the Behavioral Risk Factor Surveillance System (BRFSS), in 2020, 31.9% of adults aged 18 or older in the United States had obesity.[13]
- In 2020, non-Hispanic Black adults in the United States had the highest percentage of obesity (41.6%), followed by American Indian/Alaska Native (38.8%) and Hawaiian/Pacific Islanders (38.5%).[13]
- In 2020, Asian adults in the United States had the lowest percentage of obesity (11.8%) as well as the lowest percentage of people with overweight classification (31.0%).[13]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

4

Percentage of Adults 18+ with Obesity and Overweight Classification by Age, United States, 2020
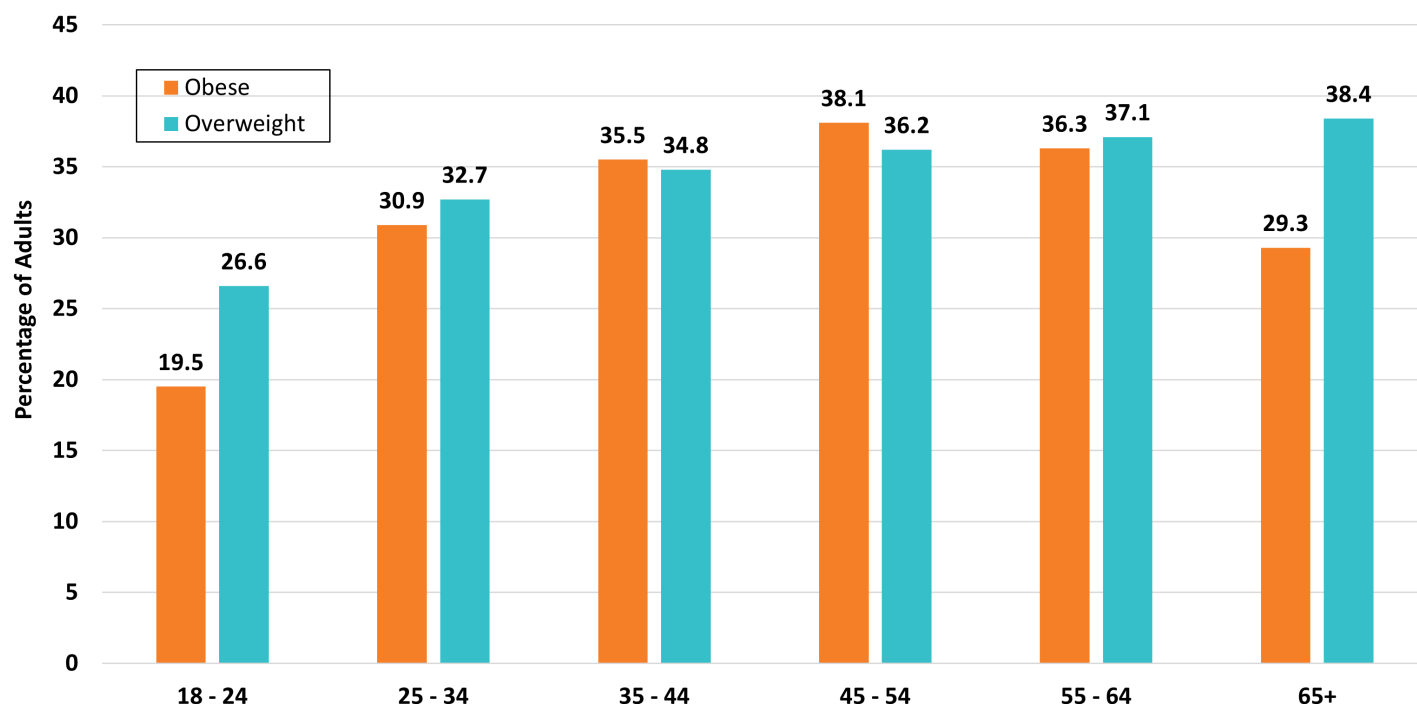
Percentage of Adults

Legend:
- Obese
- Overweight

Age Group	Obese	Overweight
18 - 24	19.5	26.6
25 - 34	30.9	32.7
35 - 44	35.5	34.8
45 - 54	38.1	36.2
55 - 64	36.3	37.1
65+	29.3	38.4

Source: Centers for Disease Control and Prevention.National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity.Data, Trend and Maps [online]. https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html.
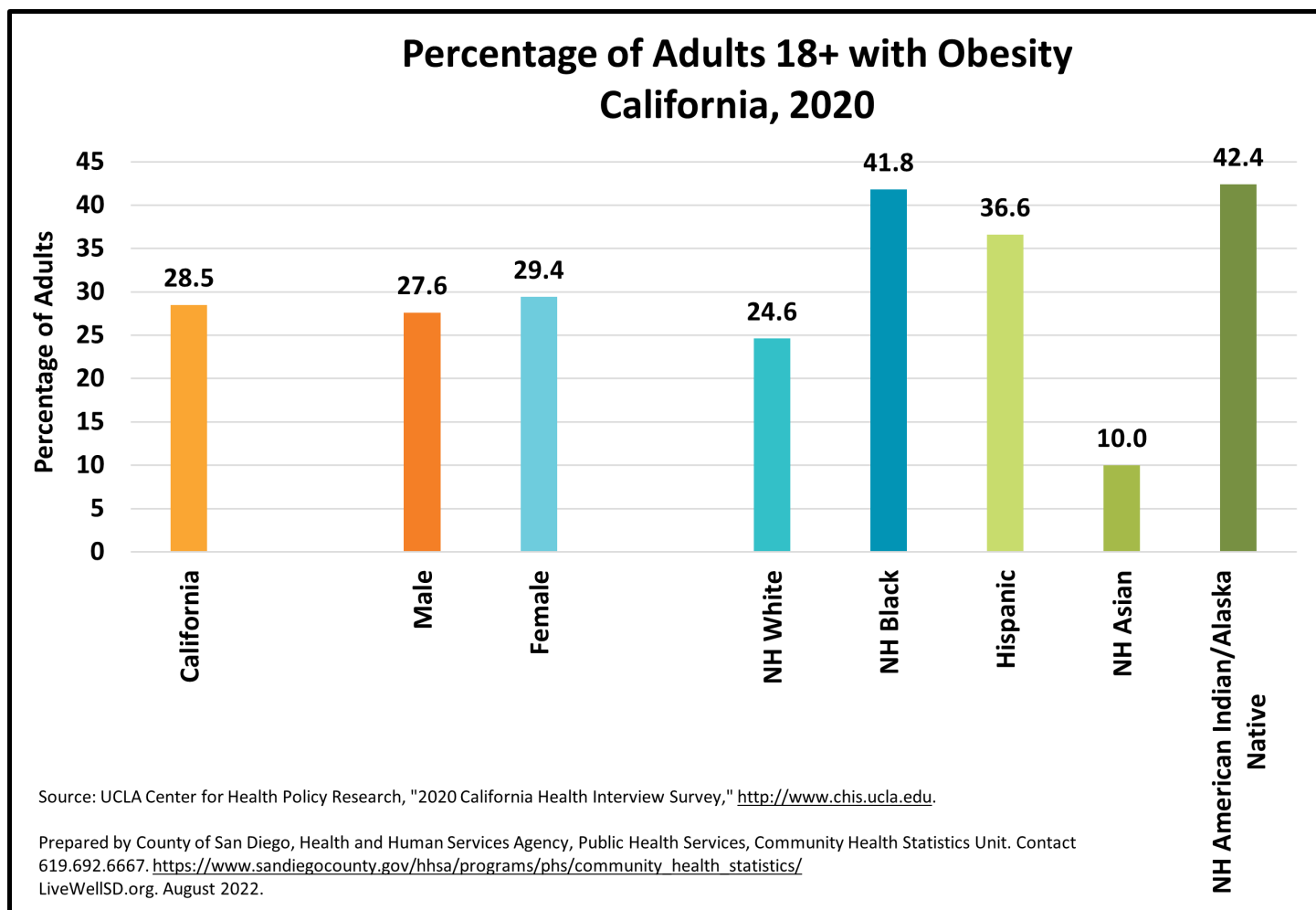
Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667. https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/
LiveWellSD.org. August 2022.

- In 2020, adults in the United States ages 45 – 54 had the highest percentage of obesity (38.1%) followed by adults ages 55 – 64 (36.3%).[13]

Cost[7]

- In 2019, the estimated annual medical cost of obesity in the United States was about $173 billion in 2019 dollars. Medical costs for adults who had obesity were almost $2,000 higher than those with healthy weight.
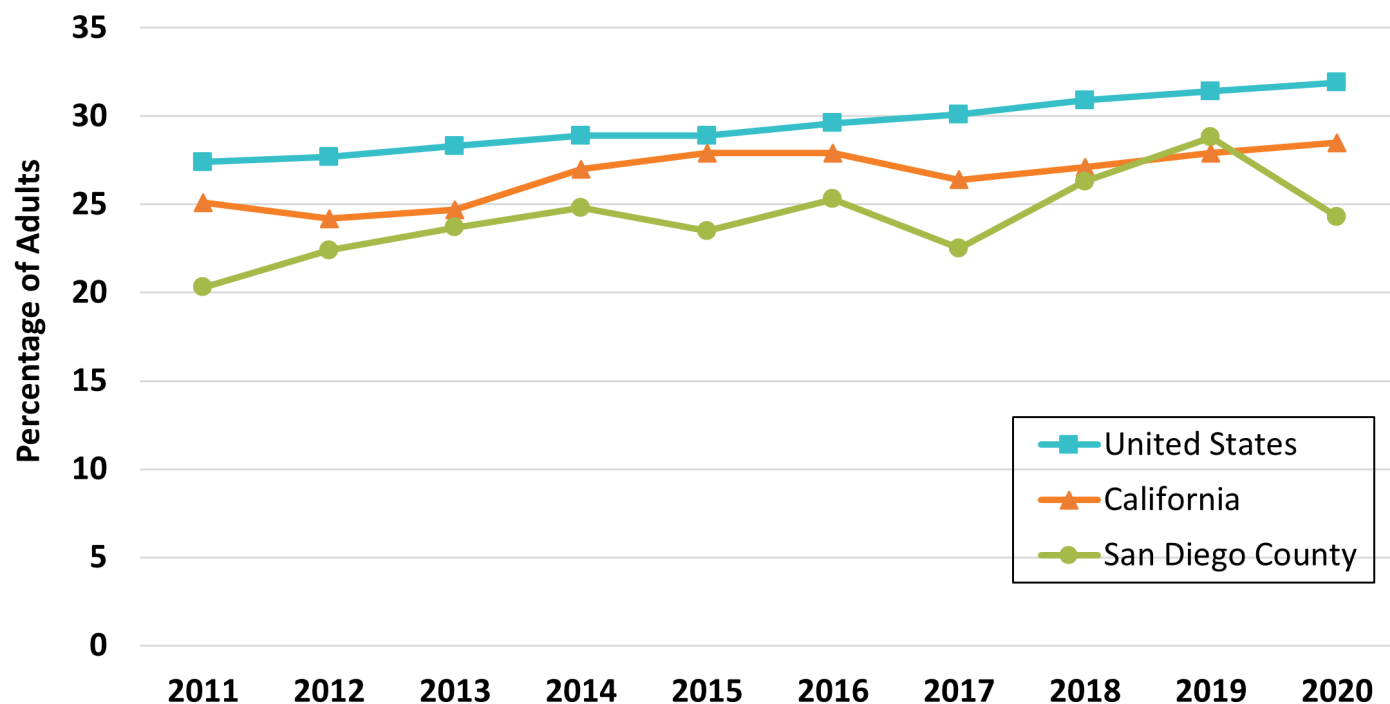
County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

5

State Statistics and Disparities

Percentage of Adults 18+ with Obesity
California, 2020

Percentage of Adults

Category	Value
California	28.5
Male	27.6
Female	29.4
NH White	24.6
NH Black	41.8
Hispanic	36.6
NH Asian	10.0
NH American Indian/Alaska Native	42.4

Source: UCLA Center for Health Policy Research, "2020 California Health Interview Survey," http://www.chis.ucla.edu.

Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667. https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/
LiveWellSD.org. August 2022.

- According to the California Health Interview Survey, in 2020, 28.5% of California adults had obesity.[14]
- In 2020, non-Latino American Indian/Alaska Native adults in California had the highest percentage of adults with obesity (42.4%), followed by non-Latino Black adults (41.8%).[14]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.
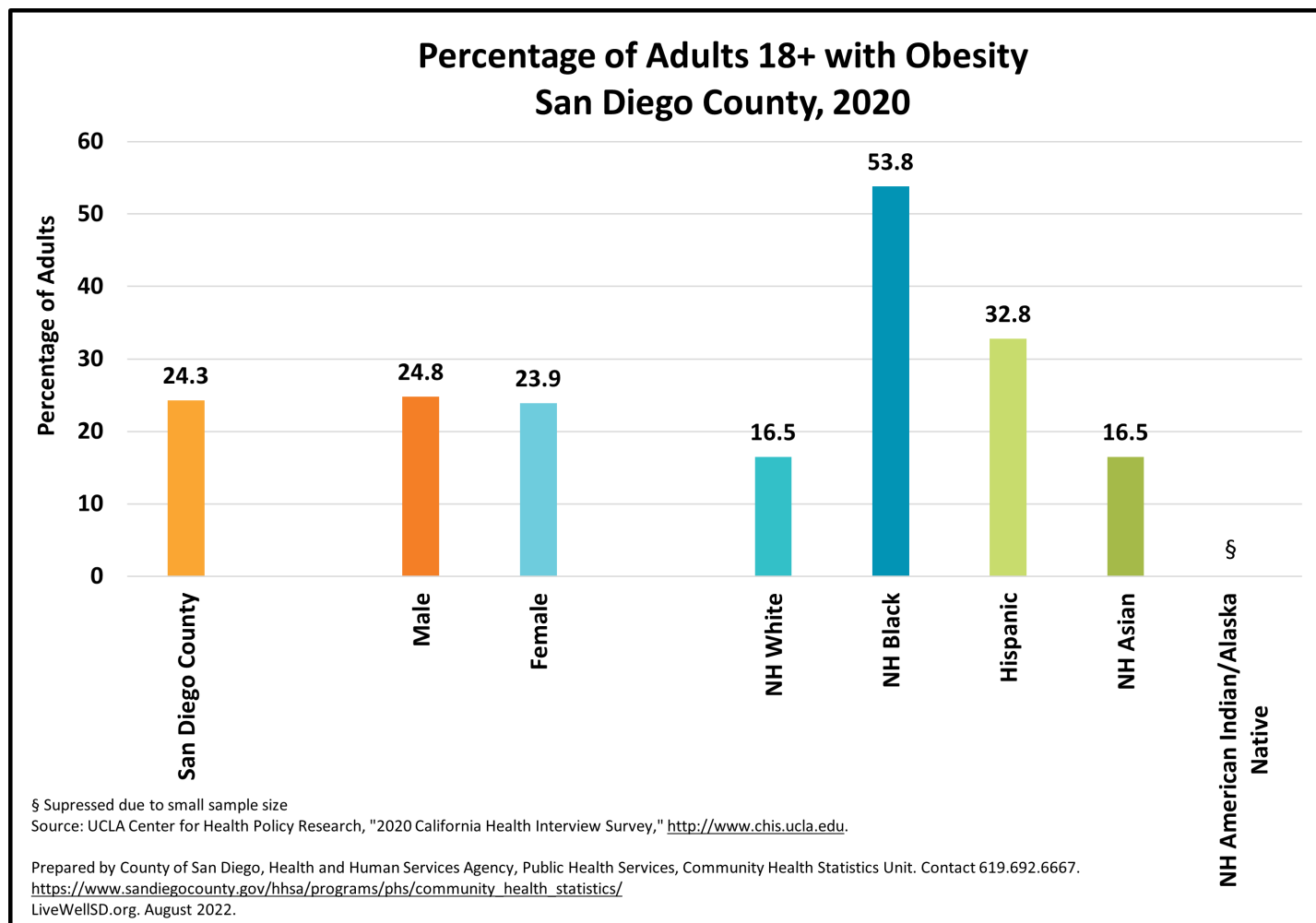
6

Local Statistics and Disparities

Percentage of Adults with Obesity
National, State, and Local, 2011 - 2020

Source: UCLA Center for Health Policy Research, "2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 California Health Interview Survey," http://www.chis.ucla.edu.
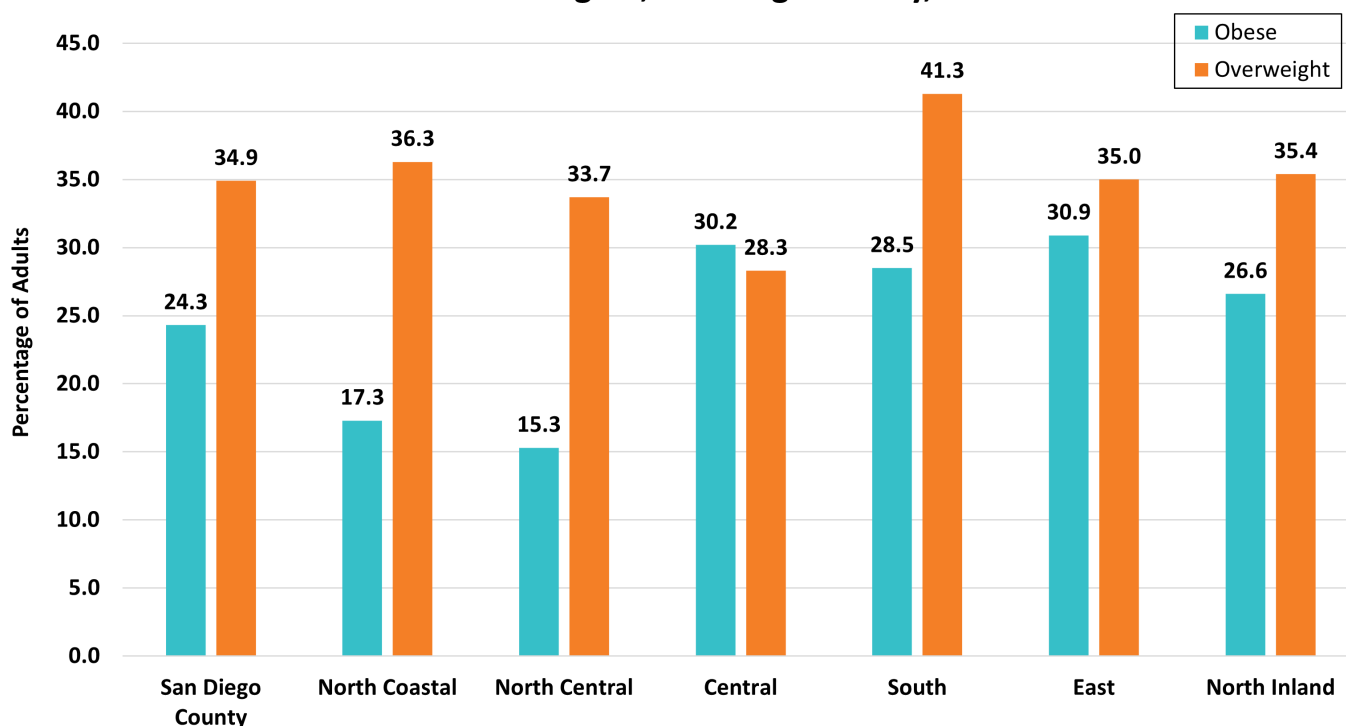
Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667. https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/ LiveWellSD.org. August 2022.

- From 2011 and 2020, the percentage of adults with obesity was higher in the United States than San Diego County and California.[15]
- Between 2011 and 2020, the percentage of adults with obesity was higher in California than in San Diego County every year except 2019.[15]
- The percentage of adults with obesity in San Diego County increased from 2017 to 2019 but decreased between 2019 and 2020.[15]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

7

Percentage of Adults 18+ with Obesity
San Diego County, 2020

Percentage of Adults

Category	Value
San Diego County	24.3
Male	24.8
Female	23.9
NH White	16.5
NH Black	53.8
Hispanic	32.8
NH Asian	16.5
NH American Indian/Alaska Native	§

§ Supressed due to small sample size
Source: UCLA Center for Health Policy Research, "2020 California Health Interview Survey," http://www.chis.ucla.edu.

Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667.
https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/
LiveWellSD.org. August 2022.

- According to the California Health Interview Survey, in 2020, 24.3% of San Diego County adults had obesity.[14]
- In 2020, Black adults in San Diego County had the highest percentage of obesity (53.8%) compared to other race/ethnicities.[14]
- San Diego County male adults had a higher percentage of obesity (24.8%) compared to female adults (23.9%).[14]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

8

Percentage of Adults 18+ with Obese and Overweight Weight Status by HHSA Region, San Diego County, 2020

Region	Obese	Overweight
San Diego County	24.3	34.9
North Coastal	17.3	36.3
North Central	15.3	33.7
Central	30.2	28.3
South	28.5	41.3
East	30.9	35.0
North Inland	26.6	35.4

Y-axis: Percentage of Adults (0.0 to 45.0)

Source: UCLA Center for Health Policy Research, "2020 California Health Interview Survey," http://www.chis.ucla.edu

Prepared by County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. Contact 619.692.6667. https://www.sandiegocounty.gov/hhsa/programs/phs/community_health_statistics/ LiveWellSD.org. August 2022.

- In 2020, South Region had the highest percentage of overweight adults (41.3%), while East Region had the highest percentage of obese adults (30.9%).[14]
- In 2020, Central Region had the lowest percentage of overweight adults (28.3%), while North Central Region had the lowest percentage of obese adults (15.3%).[14]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

9

Obesity and Its Complications: Prevention for Individuals

Five to ten percent weight loss can have significant health benefits. Healthy lifestyle changes are recommended to prevent obesity. Such changes may include:

- *Healthy Eating and Caloric Intake*
    - The DASH Eating PLAN can help provide nutritional goals as well as help plan a meal plan that is low in saturated fat and artificial sweetener.[16]
    - The Aim for a Health Weight program offers menu plans and weight control tips.[17]
    - Follow the Dietary Guidelines for Americans (www.health.gov/dietaryguidelines).
- *Get Regular Physical Activity*
    - Most adults should get 150 minutes of aerobic activity a week. Children should get 60 minutes each day.[2]
- *Get Enough Good-Quality Sleep*
    - Adults ages 18 to 64 are recommended to get 7-9 hours of sleep per night.[5]

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

10

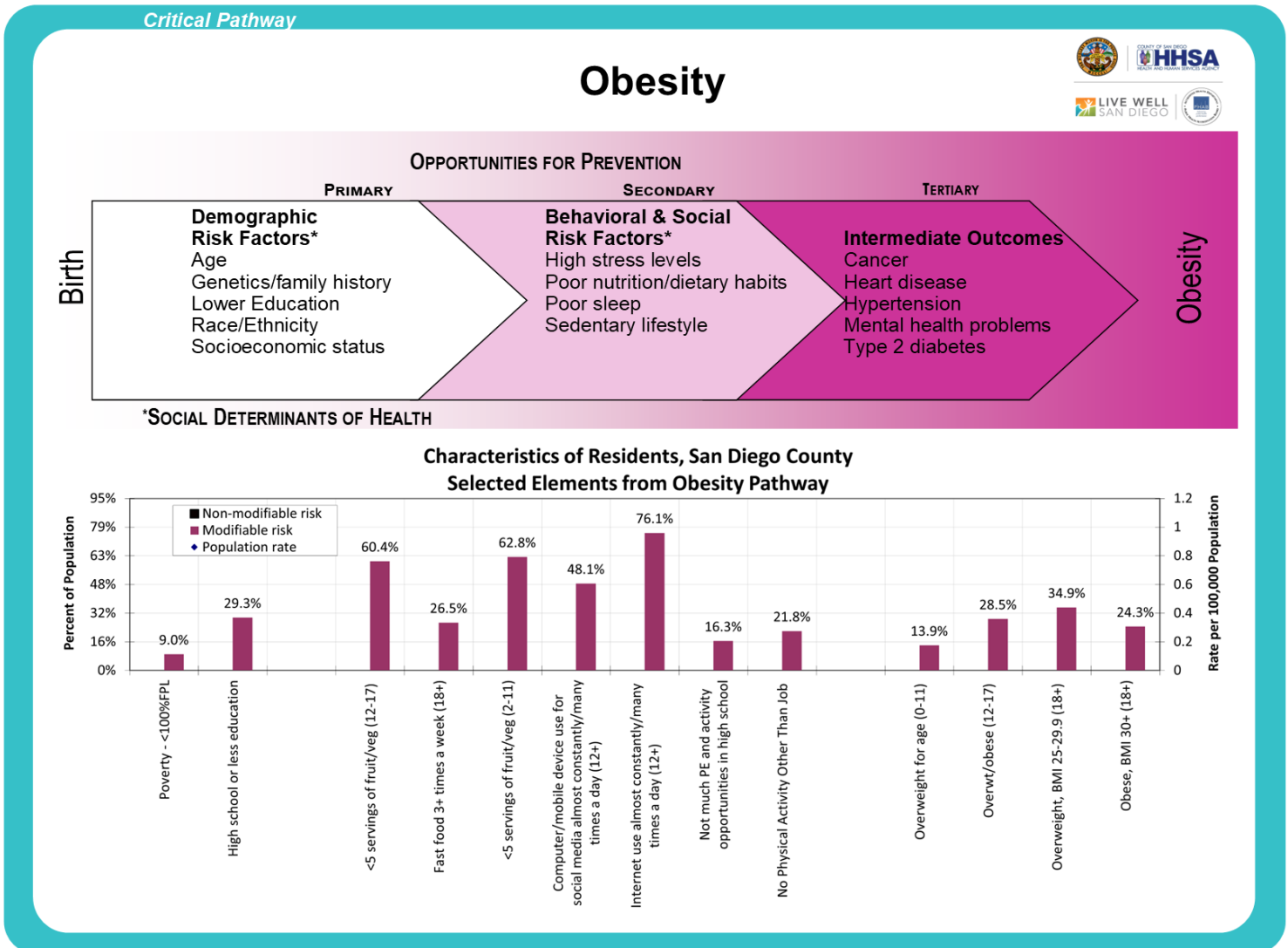## Prevention Tools for Public Health Professionals: Obesity Critical Pathway

There are many opportunities for public health professionals in the community to help reduce the risk of obesity and to improve the health outcomes of individuals who already have the disease. To assist in community health efforts, an *Obesity Critical Pathway* was developed.

The *Obesity Critical Pathway* is a tool to be used in health promotion and disease prevention efforts. Its purpose is to identify populations at greater risk for obesity, and to identify prevention and early intervention opportunities. The *Obesity Critical Pathway* displays a diagram of the major risk factors and intermediate outcomes or related diseases that have an impact on, or result from, obesity. Risk factors are marked as non-modifiable (black striped bars) such as race/ethnicity or sex and modifiable (solid colored bars) such as physical activity or high blood pressure.

Beneath the risk factors diagram is a data grid describing the San Diego resident population in relation to selected elements of the pathway. The data grid is designed to assist in quick identification of opportunities for interventions that might have a high impact on a particular disease. The data represent all San Diegans, not only those with a particular disease. The left axis (bar) indicates the percent of the population with a known risk factor or intermediate outcome. The right axis (diamond) indicates the rate of a particular medical encounter within the population that is specified. The data are described fully described fully in the complete version of the *Critical Pathways*.[18]

In addition, the Community Health Statistics Unit website (www.SDHealthStatistics.com) provides detailed demographic, health and facility data including maps of geographically formatted health data. Also available are links to other County data sources, state and national sites of interest. For further assistance with data or interpretation, please contact the Community Health Statistics Unit.

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

11

Obesity Critical Pathway to Disease

Critical Pathway

Obesity

OPPORTUNITIES FOR PREVENTION

PRIMARY   **SECONDARY**   **TERTIARY**

Birth

Demographic Risk Factors*
Age
Genetics/family history
Lower Education
Race/Ethnicity
Socioeconomic status

Behavioral & Social Risk Factors*
High stress levels
Poor nutrition/dietary habits
Poor sleep
Sedentary lifestyle

Intermediate Outcomes
Cancer
Heart disease
Hypertension
Mental health problems
Type 2 diabetes

Obesity

*SOCIAL DETERMINANTS OF HEALTH

Characteristics of Residents, San Diego County
Selected Elements from Obesity Pathway

Legend:
- Non-modifiable risk
- Modifiable risk
- Population rate

Element	Percent
Poverty - <100%FPL	9.0%
High school or less education	29.3%
<5 servings of fruit/veg (12-17)	60.4%
Fast food 3+ times a week (18+)	26.5%
<5 servings of fruit/veg (2-11)	62.8%
Computer/mobile device use for social media almost constantly/many times a day (12+)	48.1%
Internet use almost constantly/many times a day (12+)	76.1%
Not much PE and activity opportunities in high school	16.3%
No Physical Activity Other Than Job	21.8%
Overweight for age (0-11)	13.9%
Overwt/obese (12-17)	28.5%
Overweight, BMI 25-29.9 (18+)	34.9%
Obese, BMI 30+ (18+)	24.3%

County of San Diego ■ Health and Human Services Agency ■ Public Health Services ■ Community Health Statistics Unit ■ www.SDHeathStatistics.com ■ (619)692-6667   08/2022

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

12

Data Sources

[1] Centers for Disease Control and Prevention. (2022). *Defining Adult Overweight & Obesity*. https://www.cdc.gov/obesity/basics/adult-defining.html.

[2] National Institutes of Health. National Heart, Lung, and Blood Institute. (2022). *Overweight and Obesity. Causes and Risk Factors*. https://www.nhlbi.nih.gov/health/overweight-and-obesity/causes.

[3] National Institutes of Health. National Heart, Lung, and Blood Institute. (2022). *Overweight and Obesity. What are Overweight and Obesity?* https://www.nhlbi.nih.gov/health/overweight-and-obesity.

[4] Centers for Disease Control and Prevention. (2021). *Defining Childhood Overweight & Obesity*. https://www.cdc.gov/obesity/basics/childhood-defining.html.

[5] National Institutes of Health. National Institute of Diabetes and Digestive and Kidney Disease. (2018). *Factors Affecting Weight & Health*. https://www.niddk.nih.gov/health-information/weight-management/adult-overweight-obesity/factors-affecting-weight-health.

[6] Mayo Clinic. (2021). *Obesity*. https://www.mayoclinic.org/diseases-conditions/obesity/symptoms-causes/syc-20375742.

[7] Centers for Disease Control and Prevention. (2022). *Adult Obesity Facts*. https://www.cdc.gov/obesity/data/adult.html.

[8] Centers for Disease Control and Prevention. (2020). *Access to Healthy Foods*. https://www.cdc.gov/nutrition/healthy-food-environments/improving-access-to-healthier-food.html.

[9] Sánchez CN, Maddalena N, Penalba M, Quarleri M, Torres V, Wachs A. Relación entre nivel de instrucción y exceso de peso en pacientes de consulta externa. Estudio transversal [Relationship between level of education and overweight in outpatients. A transversal study]. Medicina (B Aires). 2017;77(4):291-296. Spanish. PMID: 28825572.

[10] National Institutes of Health. National Institute of Diabetes and Digestive and Kidney Disease. (2018). *Health Risks of Overweight and Obesity*. https://www.niddk.nih.gov/health-information/weight-management/adult-overweight-obesity/health-risks.

[11] National Institutes of Health. National Cancer Institute. (2022). *Obesity and Cancer*. https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet#q3.

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

13

[12] Centers for Disease Control and Prevention. (2022). *Obesity, Race/Ethnicity, and COVID-19*. https://www.cdc.gov/obesity/data/obesity-and-covid-19.html.

[13] Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. Data, Trend and Maps [online]. https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html. Accessed 08/2022.

[14] UCLA Center for Health Policy Research, "2020 California Health Interview Survey," http://www.chis.ucla.edu.

[15] UCLA Center for Health Policy Research, "2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 California Health Interview Survey," http://www.chis.ucla.edu.

[16] National Institutes of Health. National Heart, Lung, and Blood Institute. (2021). *DASH Eating Plan*. https://www.nhlbi.nih.gov/education/dash-eating-plan.

[17] National Institutes of Health. National Heart, Lung, and Blood Institute. (n.d). *Aim for a Healthy Weight*. https://www.nhlbi.nih.gov/health/educational/lose_wt/index.htm.

[18] County of San Diego Health and Human Services Agency, Public Health Services. Community Health Statistics Unit. (2022). *Critical Pathways: Obesity*. August 2022.

County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 08/2022.

14