

COVID-19: Impact of Adult Obesity on Health Outcomes



A Resource for Improving Measurable Impact
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Key Findings:

Obesity is linked to worse outcomes from COVID-19

- Studies conducted worldwide during the pandemic have identified obesity as a risk factor for severe illness, hospitalization, and death from COVID-19 among adults.¹⁻⁹

Obesity affects many Americans

- The U.S. has a high prevalence of adult obesity and the greatest number of deaths from COVID-19 globally.^{10,11} Texas has the 12th highest obesity rate for adults in the U.S.¹³

Obesity increases risk for other conditions

- Obesity increases risk for other conditions associated with severity of COVID-19, like hypertension, cardiovascular disease and type 2 diabetes.^{5, 6, 12}

Minority populations are at higher risk

- Black and Hispanic populations are disproportionately affected by chronic diseases (including obesity), increasing their risk for worse outcomes from COVID-19.¹⁴⁻¹⁹

Stay-at-home orders impact healthy habits

- Many adults have difficulty maintaining a healthy diet and exercising, which are important precursors to maintaining a healthy weight, during stay-at-home orders.²⁰⁻²²

Impact of Obesity on COVID-19:

- Obesity is a stronger predictor of severe COVID-19-related illness than cardiovascular or pulmonary disease.⁶
- Hospitalized COVID-19 patients with severe obesity are **7 times more likely** to require use of ventilators compared to patients with normal weight.¹
- Obesity is a risk factor for death from COVID-19, and this risk is greater among younger adults (<50 years) compared to older adults (>50 years).⁷

Americans at Risk:

- Prevalence of **adult obesity is highest in the United States** (42.4%), compared to other countries with a high prevalence of COVID-19: China (6.2%), Italy (19.9%), and Spain (23.8%).^{11,12, 13}
 - Severe obesity is the most rapidly increasing group of all obese groups in the US and among ethnic minorities.²³
 - Prevalence of adult obesity in the U.S. has surpassed 40% for the first time – a 26% increase from 2007-2008.¹³
- In the U.S., **more deaths from COVID-19 occur in Black and Hispanic populations:**
 - **In Texas, 44% of deaths have been among Hispanic adults.**¹⁷



Table 1. COVID-19 Adult Hospitalizations and Death by Race/Ethnicity²⁴

Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native	Asian	Black or African American	Hispanic or Latino persons
Cases	1.7x	0.7x	1.1x	1.9x
Hospitalization	3.5x	1.0x	2.8x	2.8x
Death	2.4x	1.0x	2.0x	2.3x

Race and ethnicity are risk markers for other underlying conditions that affect health including socioeconomic status, access to health care, and exposure to the virus related to occupation, e.g., frontline, essential, and critical infrastructure workers.

Table recreated from Centers for Disease Control and Prevention: [COVID-19 Hospitalization and Death by Race/Ethnicity | CDC](#)

Impact of COVID-19 on Adults with Obesity:

During stay-at-home orders, adults with obesity in Texas reported:^{20,21}

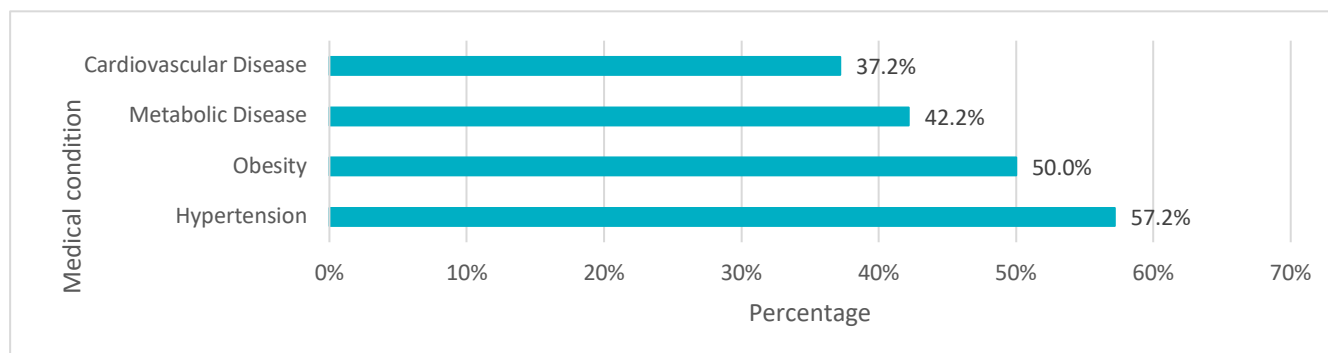
- Difficulty losing weight.
- Having less time for exercise and working out at lower intensities than before lockdown.
- Stockpiling food.
- Stress eating and difficulties following healthy eating patterns.
- Skipping meals (though most of the participants reported being food secure).
- Limited access to healthcare among patients with obesity.

Socioeconomic inequities may be exacerbated by COVID-19, as many people have limited resources to exercise at home and purchase healthy foods during lockdowns.^{22,25}

Underlying Medical Conditions and COVID-19 Adult Hospitalizations

As of October 20, 2021, the CDC reported that among 205,767 adults hospitalized with COVID-19 and known condition status, 91.4% had an underlying health condition. The most common conditions are reported below – all of which frequently co-occur in adults who have obesity.²⁶

Figure 1. COVID-19 Adult Hospitalizations of Selected Underlying Medical Conditions²⁶



Centers for Disease Control and Prevention, COVIDView, September 26, 2020.

Mitigation & Prevention Recommendations:

Improve Access to Healthcare:

- Enhance telehealth infrastructure for screening, prevention and treatment of obesity.^{21, 27} Telemedicine can be an effective approach for providers to address the health needs of adults – especially those at risk for worse outcomes from COVID-19 – while preventing hospital overcrowding and exposure to critically ill patients.²⁸
- Expand healthcare coverage for adult obesity care to include all obesity care and treatment options (e.g., pharmacotherapy, nutrition counseling).^{29, 30}

Prevention and Management of Chronic Disease:

- Strengthen state systems and expand resources to support community interventions for obesity prevention, such as workplace wellness programs.^{13, 31}
- Promote availability and accessibility of healthy foods and beverages in retail and community settings.^{13, 27}
- Enhance infrastructure in the built environment to improve access for physical activity.^{13, 27}
- Improve mental and physical health for adults at the individual level by eating a variety of healthy foods, cooking food at home, exercising 150-300 minutes per week, enrolling in stress management programs, getting plenty of sleep, connecting with others, taking breaks from media exposure, and returning to activities they enjoy (e.g., painting, reading, walking).^{13, 18, 32-34}
- Support, promote, and disseminate public health campaigns or messages to increase awareness of healthy eating and physical activity during the pandemic.¹³

Summary

Adults with obesity are at increased risk for severe illness, invasive mechanical ventilation, hospitalization, and death due to COVID-19. Prevalence of obesity and deaths from COVID-19 are substantially greater in the United States compared to other countries. Further, minority populations are disproportionately impacted by obesity and other pre-existing conditions, increasing their risk for severe illness and hospitalization due to COVID-19. Recommendations to combat obesity in Texas include promotion of telemedicine during the pandemic to keep at-risk populations safe, strengthening of systems to support healthy eating and physical activity habits, public health messages aimed towards adults who have obesity to increase COVID-19 testing, and monitoring for underlying health conditions.

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References:

1. Simonnet A, Chetboun M, Poissy J, et al. High Prevalence of Obesity in Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) Requiring Invasive Mechanical Ventilation [published correction appears in *Obesity (Silver Spring)*. 2020 Oct;28(10):1994]. *Obesity (Silver Spring)*. 2020;28(7):1195-1199. PMID: 32271993
2. Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area [published correction appears in *JAMA*. 2020 May 26;323(20):2098]. *JAMA*. 2020;323(20):2052-2059. PMID: 32320003
3. Puig-Domingo M, Marazuela M, Giustina A. COVID-19 and endocrine diseases. A statement from the European Society of Endocrinology. *Endocrine*. 2020;68(1):2-5. PMID: 32279224
4. Gao F, Zheng KI, Wang XB, et al. Obesity Is a Risk Factor for Greater COVID-19 Severity. *Diabetes Care*. 2020;43(7):e72-e74. PMID: 32409499
5. Obesity Action Coalition. Understanding Your Weight and Health: Classifications of Obesity. Obesity Action Coalition website. April 27, 2018. <https://www.obesityaction.org/get-educated/understanding-your-weight-and-health/classifications-of-obesity/>
6. Rychter AM, Zawada A, Ratajczak AE, Dobrowolska A, Krela-Kaźmierczak I. Should patients with obesity be more afraid of COVID-19?. *Obes Rev*. 2020;21(9):e13083. PMID: [32583537](https://pubmed.ncbi.nlm.nih.gov/32583537/)
7. Klang E, Kassim G, Soffer S, Freeman R, Levin MA, Reich DL. Severe Obesity as an Independent Risk Factor for COVID-19 Mortality in Hospitalized Patients Younger than 50. *Obesity (Silver Spring)*. 2020;28(9):1595-1599. PMID: [32445512](https://pubmed.ncbi.nlm.nih.gov/32445512/)
8. Lighter J, Phillips M, Hochman S, et al. Obesity in Patients Younger Than 60 Years Is a Risk Factor for COVID-19 Hospital Admission. *Clin Infect Dis*. 2020;71(15):896-897. PMID: 32271368
9. Popkin BM, Du S, Green WD, et al. Individuals with obesity and COVID-19: A global perspective on the epidemiology and biological relationships. *Obes Rev*. 2020;21(11):e13128. PMID: 32845580
10. World Health Organization. Noncommunicable disease: Risk factors. World Health Organization website. 2016. https://www.who.int/gho/ncd/risk_factors/overweight_obesity/obesity_adults/en/

11. World Health Organization. Coronavirus disease (COVID-19) weekly epidemiological update and weekly operation update. World Health Organization website. 2020.
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>
12. World Obesity. Coronavirus (COVID-19) & obesity. World Obesity Website. 2020.
<https://www.worldobesity.org/news/statement-coronavirus-covid-19-obesity>
13. The Robert Wood Johnson Foundation and Trust for America's Health. (2021). The State of Obesity in Texas. State of Childhood Obesity website. <https://stateofchildhoodobesity.org/states/tx/>.
14. Yancy CW. COVID-19 and African Americans. JAMA. 2020 May 19;323(19):1891-1892. PMID: 32293639
15. Reyes C, Husain N, Gutowski C, St Clair S, Pratt G. Chicago's coronavirus disparity: black Chicagoans are dying at nearly six times the rate of white residents, data show. *Chicago Tribune*. April 7, 2020.
<https://www.chicagotribune.com/coronavirus/ct-coronavirus-chicago-coronavirus-deaths-demographics-lightfoot-20200406-77nlylhiavgjzb2wa4ckivh7mu-story.html>
16. Deslatte M. Louisiana data: virus hits blacks, people with hypertension. *US News World Report*. April 7, 2020. <https://www.usnews.com/news/best-states/louisiana/articles/2020-04-07/louisiana-data-virus-hits-blacks-people-with-hypertension>
17. UTHealth School of Public Health. COVID-19 Dashboard. October 14, 2021.
<http://www.texaspandemic.org>.
18. Centers for Disease Control and Prevention (CDC). Consequences of Obesity. Centers for Disease Control and Prevention website. 2020.
[https://www.cdc.gov/obesity/adult/causes.html#:~:text=High%20blood%20pressure%20\(Hypertension\),Coronary%20heart%20disease](https://www.cdc.gov/obesity/adult/causes.html#:~:text=High%20blood%20pressure%20(Hypertension),Coronary%20heart%20disease)
19. El Char M, King K, Galvez Lima A. Are black and Hispanic persons disproportionately affected by COVID-19 because of higher obesity rates?. *Surg Obes Relat Dis*. 2020;16(8):1096-1099. PMID: 32522406
20. Almandoz JP, Xie L, Schellinger JN, et al. Impact of COVID-19 stay-at-home orders on weight-related behaviours among patients with obesity. *Clin Obes*. 2020; PMID: 32515555
21. Almandoz JP, Xie L, Schellinger JN, et al. Telehealth utilization among multi-ethnic patients with obesity during the COVID-19 pandemic [published online ahead of print, 2021 Mar 4]. *J Telemed Telecare*. 2021. PMID: 33663260
22. Sallis JF, Adlakha D, Oyeyemi A, Salvo D. An international physical activity and public health research agenda to inform coronavirus disease-2019 policies and practices. *J Sport Health Sci*. 2020; PMID: 32450160
23. Messiah SE, Xie L, Atem F, et al. Disparity Between United States Adolescent Class II and III Obesity Trends and Bariatric Surgery Utilization, 2015-2018 [published online ahead of print, 2020 Sep 15]. *Ann Surg*. 2020; PMID: 32941272
24. Centers for Disease Control and Prevention (CDC). Hospitalization and death by race/ethnicity. Centers for Disease Control and Prevention website. September 9, 2021.
<https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
25. Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: a social crisis in the making. *Lancet Public Health*. 2020;5(5):e243-e244. PMID: 32275858
26. Centers for Disease Control and Prevention (CDC). COVID-NET: A Weekly Summary of U.S. COVID-19 Hospitalization Data. Laboratory-Confirmed COVID-19-Associated Hospitalizations. Centers for Disease Control and Prevention website. October 20, 2021.
https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html.
27. Texas Department of State Health Services. Department of State Health Services Obesity Prevention Program Priority Objectives 2016-2021. Texas Health and Human Services website. 2018.
https://www.dshs.texas.gov/obesity/pdf/OPP_StratPlan_01032018.pdf
28. Rockwell KL, Gilroy AS. Incorporating telemedicine as part of COVID-19 outbreak response systems. *Am J Manag Care*. 2020;26(4):147-148. PMID: 32270980

29. Jannah N, Hild J, Gallagher C, Dietz W. Coverage for Obesity Prevention and Treatment Services: Analysis of Medicaid and State Employee Health Insurance Programs. *Obesity (Silver Spring)*. 2018;26(12):1834-1840. PMID: 30426721
30. Medicare.gov. Obesity behavioral therapy. The Official U.S. Government Medicare website. <https://www.medicare.gov/coverage/obesity-behavioral-therapy>
31. Staples, T., Lakey, D., & Williams, M. A Report to the Texas Legislature from the Interagency Obesity Council. 2015. https://dshs.texas.gov/uploadedFiles/Content/Prevention_and_Preparedness/obesity/2015_InteragencyObesityReport_Final.pdf
32. Silva CA, Queiroz LB, Fonseca CB, Silva LEVD, Lourenço B, Marques HHS. Spotlight for healthy adolescents and adolescents with preexisting chronic diseases during the COVID-19 pandemic. *Clinics (Sao Paulo)*. 2020;75:e1931. PMID: 32401965
33. World Health Organization. #Healthy at Home – Physical Activity. World Health Organization website. <https://www.who.int/news-room/campaigns/connecting-the-world-to-combat-coronavirus/healthyathome/healthyathome---physical-activity>
34. Centers for Disease Control and Prevention (CDC). Coping with Stress. Centers for Disease Control and Prevention. January 22, 2021 <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>.