

# 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.<sup>1-9</sup>

### Obesity affects many Americans

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

### 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.<sup>5, 6, 12</sup>

### 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.<sup>14-19</sup>

### 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.<sup>20-22</sup>

## Impact of Obesity on COVID-19:

- Obesity is a stronger predictor of severe COVID-19-related illness than cardiovascular or pulmonary disease.<sup>6</sup>
- Hospitalized COVID-19 patients with severe obesity are **7 times more likely** to require use of ventilators compared to patients with normal weight.<sup>1</sup>
- 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).<sup>7</sup>

## 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%).<sup>11,12, 13</sup>
  - Severe obesity is the most rapidly increasing group of all obese groups in the U.S. and among ethnic minorities.<sup>23</sup>
  - Prevalence of adult obesity in the U.S. has surpassed 40% for the first time – a 26% increase from 2007-2008.<sup>13</sup>
- In the U.S., more deaths from COVID-19 occur in Black and Hispanic populations:
  - **In Texas, 49.5% of deaths have been among Hispanic adults.**<sup>17</sup>



**Table 1.** COVID-19 Adult Hospitalizations and Death by Race/Ethnicity<sup>24</sup>

Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native	Asian	Black or African American	Hispanic or Latino persons
<b>Cases</b>	1.8x	0.6x	1.4x	1.7x
<b>Hospitalization</b>	4.0x	1.2x	3.7x	4.1x
<b>Death</b>	2.6x	1.1x	2.8x	2.8x

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 have reported:<sup>20, 21</sup>

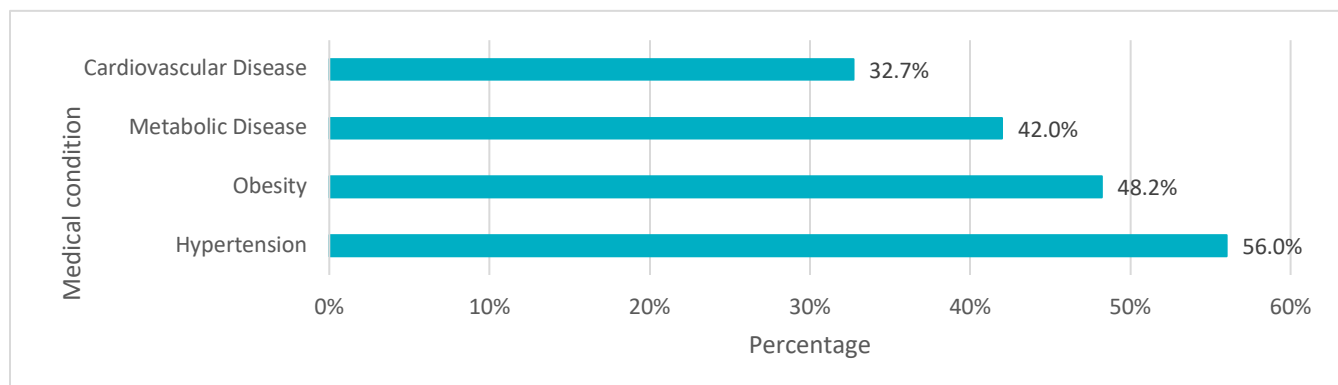
- Difficulty losing weight.
- Having less time for exercise and working out at lower intensities than before lockdown.
- Stockpiling food.
- Stress eating and difficulties following healthy eating patterns.
- Skipping meals (though most of the participants reported being food secure).
- Limited access 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.<sup>22,25</sup>

### **Underlying Medical Conditions and COVID-19 Adult Hospitalizations**

As of September 30, 2020, the CDC reported that among 8,465 adults hospitalized with COVID-19 and known condition status, 89.9% had an underlying health condition. The most common conditions are reported below – all of which frequently co-occur in adults who have obesity.<sup>26</sup>

**Figure 1.** COVID-19 Adult Hospitalizations of Selected Underlying Medical Conditions<sup>26</sup>



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.<sup>21,27</sup> 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.<sup>28</sup>
- Expand healthcare coverage for adult obesity care to include all obesity care and treatment options (e.g., pharmacotherapy, nutrition counseling).<sup>29,30</sup>

### **Prevention and Management of Chronic Disease:**

- Strengthen state systems and expand resources to support community interventions for obesity prevention, such as workplace wellness programs.<sup>13,31</sup>
- Promote availability and accessibility of healthy foods and beverages in retail and community settings.<sup>13,27</sup>
- Enhance infrastructure in the built environment to improve access for physical activity.<sup>13,27</sup>
- 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).<sup>13,18,32-34</sup>
- Support, promote, and disseminate public health campaigns or messages to increase awareness of healthy eating and physical activity during the pandemic.<sup>13</sup>

## **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.

## TX RPC Network Member Content Experts

**Deanna Hoelscher, PhD, RDN, LD, CNS, FISBNPA**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in Austin

**Alexandra van den Berg, PhD, MPH**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in Austin

**Shreela Sharma, PhD, RD, LD**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in Houston

**Sarah Messiah, PhD, MPH**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in Dallas

**Emily Dhurandhar, PhD**

Metabologix, LLC

**Belinda Reininger, DrPH**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in Brownsville

**Leah Whigham, PhD, FTOS**

The University of Texas Health Science Center at Houston (UTHealth) School of Public Health in El Paso

## References:

1. Simonnet, A., Chetboun, M., Poissy, J., Raverdy, V., Noulette, J., Duhamel, A., ... & LICORN and the Lille COVID-19 and Obesity study group. (2020). High prevalence of obesity in severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) requiring invasive mechanical ventilation. *Obesity*.
2. Richardson, S., Hirsch, J. S., Narasimhan, M., Crawford, J. M., McGinn, T., Davidson, K. W., ... & Cookingham, J. (2020). Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. *Jama*. doi:10.1001/jama.2020.6775
3. Puig-Domingo, M., Marazuela, M., & Giustina, A. (2020). COVID-19 and endocrine diseases. A statement from the European Society of Endocrinology. *Endocrine*, 68(1), 2-5.
4. Gao, F., Zheng, K. I., Wang, X. B., Sun, Q. F., Pan, K. H., Wang, T. Y., ... & Zheng, M. H. (2020). Obesity is a risk factor for greater COVID-19 severity. *Diabetes Care*. doi.org/10.2337/dc20-0682
5. ObesityAction.org. Understanding Your Weight and Health: Classifications of Obesity. Retrieved from <https://www.obesityaction.org/get-educated/understanding-your-weight-and-health/classifications-of-obesity/>
6. Rychter, A. M., Zawada, A., Ratajczak, A. E., Dobrowolska, A., & Krela-Kaźmierczak, I. (2020). Should patients with obesity be more afraid of COVID-19? *Obesity Reviews*.
7. Klang, E., Kassim, G., Soffer, S., Freeman, R., Levin, M. A., & Reich, D. L. (2020). Morbid Obesity as an Independent Risk Factor for COVID-19 Mortality in Hospitalized Patients Younger than 50. *Obesity*.
8. Lighter, J., Phillips, M., Hochman, S., Sterling, S., Johnson, D., Francois, F., & Stachel, A. (2020). Obesity in patients younger than 60 years is a risk factor for Covid-19 hospital admission. *Clinical Infectious Diseases*.
9. Popkin, B. M., Du, S., Green, W. D., Beck, M. A., Algaith, T., Herbst, C. H., Alsukait, R.F., Alluhidan, M., Alazemi, N., & Shekar, M. (2020). Individuals with obesity and COVID-19: A global perspective on the epidemiology and biological relationships. *Obesity Reviews*.
10. World Health Organization. (2016). Retrieved from [https://www.who.int/gho/ncd/risk\\_factors/overweight\\_obesity/obesity\\_adults/en/](https://www.who.int/gho/ncd/risk_factors/overweight_obesity/obesity_adults/en/)
11. World Health Organization. (2020). Retrieved from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>
12. World Obesity. (2020). Coronavirus (COVID-19) & Obesity. Retrieved from <https://www.worldobesity.org/news/statement-coronavirus-covid-19-obesity>
13. Trust for America's Health. The State of Obesity 2020: Better Policies for a Healthier America. Retrieved from <https://www.tfah.org/report-details/state-of-obesity-2020/>
14. Yancy, C. W. (2020). COVID-19 and African Americans. *Jama*. doi:10.1001/jama.2020.6548
15. Reyes C, Husain N, Gutowski C, St Clair S, Pratt G. (2020, April 7). Chicago's coronavirus disparity: black Chicagoans are dying at nearly six times the rate of white residents, data show. *Chicago Tribune*. Retrieved from <https://www.chicagotribune.com/coronavirus/ct-coronavirus-chicago-coronavirus-deaths-demographics-lightfoot-20200406-77nlylhiavgjzb2wa4ckivh7mu-story.html>
16. Deslatte M. (2020, April 7). Louisiana data: virus hits blacks, people with hypertension. *US News World Report*. Retrieved from <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. (2020). COVID-19 Dashboard. Retrieved from <http://www.texaspandemic.org>.
18. Centers for Disease Control and Prevention (CDC). (2020). Consequences of Obesity. Atlanta, GA: U.S Department of Health and Human Services. Retrieved from

[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, A. (2020). Are African American and Hispanics Disproportionately Affected by COVID-19 Because of Higher Obesity Rates? *Surgery for Obesity and Related Diseases*.
20. Almandoz, J. P., Xie, L., Schellinger, J. N., Mathew, M. S., Gazda, C., Ofori, A., ... & Messiah, S. E. (2020). Impact of COVID-19 Stay-at-Home Orders on Weight-Related Behaviors Among Patients with Obesity. *Clinical Obesity*, e12386.
21. Almandoz, J.P., Xie, L., Schellinger, J.N., Mathew, M.S., Edwards, K., Ofori, A., Kukreja, S., Schnieder, B., Messiah, S.E. (2020). Telehealth utilization among multiethnic patients with obesity during the COVID-19 pandemic. *Obesity*.
22. Sallis, J. F., Adlakha, D., Oyeyemi, A., & Salvo, D. (2020). An international physical activity and public health research agenda to inform COVID-19 policies and practices. *Journal of Sport and Health Science*.
23. Messiah, S. E., Xie, L., Atem, F., Mathew, S. M., Qureshi, F., Schneider, B. E., & Muñoz, N. C. (2020). Disparity Between United States Adolescent Class II and III Obesity Trends and Bariatric Surgery Utilization, 2015-2018. *Annals of surgery*.
24. Centers for Disease Control and Prevention (CDC). (2020). Hospitalization and death by race/ethnicity. 2020. Updated November 30, 2020. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
25. Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, 5(5), e243-e244.
26. Centers for Disease Control and Prevention (CDC). (2021, January 2). COVIDView: A Weekly Surveillance Summary of U.S. COVID-19 Activity. Atlanta, GA: U.S Department of Health and Human Services. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/pdf/covidview-01-08-2021.pdf>.
27. Texas Department of State Health Services. (2018). Department of State Health Services Obesity Prevention Program Priority Objectives 2016-2021. Retrieved from [https://www.dshs.texas.gov/obesity/pdf/OPP\\_StratPlan\\_01032018.pdf](https://www.dshs.texas.gov/obesity/pdf/OPP_StratPlan_01032018.pdf)
28. Rockwell, K. L., & Gilroy, A. S. (2020). Incorporating telemedicine as part of COVID-19 outbreak response systems. *Am J Manag Care*, 26(4), 147-148.
29. Jannah, N., Hild, J., Gallagher, C., & Dietz, W. (2018). Coverage for obesity prevention and treatment services: analysis of medicaid and state employee health insurance programs. *Obesity*, 26(12), 1834-1840.
30. Medicare.gov. The Official U.S. Government Site for Medicare. Obesity behavioral therapy. Retrieved from: <https://www.medicare.gov/coverage/obesity-behavioral-therapy>
31. Staples, T., Lakey, D., & Williams, M. (2015). A Report to the Texas Legislature from the Interagency Obesity Council. Retrieved from [https://dshs.texas.gov/uploadedFiles/Content/Prevention\\_and\\_Preparedness/obesity/2015\\_InteragencyObesityReport\\_Final.pdf](https://dshs.texas.gov/uploadedFiles/Content/Prevention_and_Preparedness/obesity/2015_InteragencyObesityReport_Final.pdf)
32. Silva, C. A., Queiroz, L. B., Fonseca, C. D. B., Silva, L. E. V. D., Lourenço, B., & Marques, H. H. S. (2020). Spotlight for healthy adolescents and adolescents with preexisting chronic diseases during the COVID-19 pandemic. *Clinics*, 75. doi:10.6061/clinics/2020/e1931
33. World Health Organization. (2020). Healthy at Home – Physical Activity. Retrieved from <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). (2020, July). Coping with Stress. Atlanta, GA: U.S Department of Health and Human Services. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>.