Name: Broadband Access

Short Description: Percentage of households with a computer and access to broadband internet.

Data Source:

- Name: United States Census Bureau, American Community Survey (ACS)
- Link to Source: https://www.census.gov/programs-surveys/acs/data.html

Year(s): 2017-2021 (ACS 5-year Estimates)

Source Geographic Level: Zip Code Tabulation Area (ZCTA)

Stratification: Black populations

Selection Rationale: Access to reliable, high-speed broadband internet can enable access to healthcare resources, allowing individuals to receive care from mental health and substance use providers through telehealth. Access to broadband internet can also serve as a resource to find local mental health providers and resources. Additionally, broadband internet has become an important social determinant of health in communities.[1] In addition to providing access to health resources, it enhances access to opportunities (educational and employment among others), impacting overall socioeconomic status and community well-being.[2,3,4]

Strengths and Limitations

- **Strengths**:
    - [*Importance*] Because broadband internet can improve access to healthcare (by facilitating telehealth visits as well as searches for health information and local providers) and can enhance economic and community wellness overall, having access to high-speed broadband can positively impact mental health in the short and long term.
    - [*Equity*] This measure captures disparities experienced between population groups. In general, Black households are less likely to have home broadband

[1] Health Resources and Services Administration, Office of Health Equity. (2020). *Health Equity Report 2019-2020: Special Feature on Housing and Health Inequalities*. U.S. Department of Health and Human Services. https://www.hrsa.gov/sites/default/files/hrsa/health-equity/HRSA-health-equity-report.pdf

[2] Conroy, T., Deller, S., Kures, M., Low, S., Glazer, J., Huyke, G., & Stark, C. (2021). *Broadband and the Wisconsin Economy*. Division of Extension EDA University Center at University of Wisconsin-Madison. https://economicdevelopment.extension.wisc.edu/files/2021/01/2021-01-07-Broadband-Report.pdf

[3] Benda, N. C., Veinot, T. C., Sieck, C. J., & Ancker, J. S. (2020). broadband internet access is a social determinant of health! *American Journal of Public Health*, *110*(8), 1123–1125. https://doi.org/10.2105/ajph.2020.305784

[4] Tomer, A., Fishbane, L., Siefer, A., & Callahan, B. (2020). *Digital Prosperity: How broadband can deliver health and equity to all communities.* Brookings Metropolitan Policy Program. https://www.brookings.edu/wp-content/uploads/2020/02/20200227_BrookingsMetro_Digital-Prosperity-Report-final.pdf

access.[5] Additionally, COVID-19 has brought the digital divide to light, and some urban low-income communities have been systematically excluded by major network providers, while those that do have broadband access often struggle with a lack of provider options, reducing competition and making access less affordable.[6]

- [*Relevance and Usability*] This metric measures access to only high-speed broadband services (such as cable, fiber optic, or DSL) that are more likely to facilitate reliable access to support healthcare, education, and work-related needs, and does not include services that are less reliable (such as cellular data plans, satellite, or dial-up internet). Additionally, those with mental health conditions have been found to have poorer access to the internet, so taking action to ensure affordable and equitable access to broadband is important to prevent those needing mental health support from becoming further disadvantaged.[7]
- [*Scientific Soundness*] ACS data provide valid and reliable estimates. This measure is advantageous because it is both simple to calculate and simple to communicate.
- [*Feasibility*] This measure is readily available through the United States Census Bureau's ACS, an ongoing survey that provides data in the year immediately following the year in which they are collected.
- [*Equity*] Broadband access may facilitate online social support for those who experience stigma and marginalization (such as individuals in the LGBTQ+ community or those who are diagnosed with mental health conditions).[8,9]

- **Limitations**:
  - [*Relevance and Usability*] Although this metric measures only broadband access, it does not measure specific internet speeds or quality. Additionally, this measure does not provide insights regarding why households do not have access, so users can not infer whether this is due to high cost, lack of digital skills, insufficient infrastructure, or other reasons. Additional local data available on barriers to access and from internet speed tests can augment this measure.

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[5] Siefer, A., & Callahan, B. (2020, June). *Limiting Broadband Investment to "Rural Only" Discriminates Against Black Americans and other Communities of Color.* National Digital Inclusion Alliance. https://www.digitalinclusion.org/digital-divide-and-systemic-racism/

[6] Hall, S. L. (2020, August 14). *Digital Redlining*. NC State University Institute for Emerging Issues. https://iei.ncsu.edu/2020/digital-redlining/

[7] Too, L.S., Leach, L., & Butterworth, P. (2020). Mental health problems and internet access: results from an Australian national household survey. *JMIR Mental Health*, *7*(5), Article e14825. https://doi.org/10.2196/14825

[8] Naslund, A. (2016). The future of mental health care: peer-to-peer support and social media. *Epidemiology and Psychiatric Sciences, 25*(2), 113–122. https://doi.org/10.1017/S2045796015001067

[9] Ybarra, M. L., Mitchell, K. J., Palmer, N. A., & Reisner, S. L. (2015). Online social support as a buffer against online and offline peer and sexual victimization among U.S. LGBT and non-LGBT youth. *Child Abuse & Neglect*, *39*, 123–136. https://doi.org/10.1016/j.chiabu.2014.08.006

- [*Equity*] Access to adequate speeds needed for activities such as video calls for telehealth visits may vary, even among households reporting broadband access. Even with broadband internet access, vulnerable individuals from low socioeconomic position may still face challenges accessing health information online due to computer hardware barriers, internet connectivity barriers, frequent changes of address, or limited digital literacy.[10,11]
- [*Scientific Soundness*] This measure is self-reported and depends on the accuracy of the person surveyed.

Calculation:

Overall Population:

$$Broadband\ Access_{Overall} = \frac{households\ with\ a\ computer\ and\ a\ broadband\ Internet\ subscription}{all\ households} \times 100\%$$

ACS tables and variables used:

- Table B28003: Presence of a computer and type of internet subscription in household:
  - B28003_001: Estimate Total
  - B28003_004: Estimate Total Has a computer with a broadband Internet subscription

Black Populations:

$$Broadband\ Access_{Black} = \frac{Black\ households\ with\ a\ computer\ and\ a\ broadband\ Internet\ subscription}{all\ Black\ households} \times 100\%$$

ACS tables and variables used:

- Table B28009B: Presence of a Computer and Type of Internet Subscription in Household (Black or African American Alone)
  - B28009B_001: Estimate Total
  - B28009B_004: Estimate Total Has a computer with a broadband Internet subscription

[10] McCloud, R. F., Okechukwu, C. A., Sorensen, G., & Viswanath, K. (2016). Beyond access: barriers to internet health information seeking among the urban poor. *Journal of the American Medical Informatics Association*, *23*(6), 1053–1059. https://doi.org/10.1093/jamia/ocv204

[11] Nouri, S., Khoong, E.C., Lyles, C.R., & Karliner, L. (2020). Addressing Equity in Telemedicine for Chronic Disease Management During the Covid-19 Pandemic. *NEJM Catalyst Innovations in Care Delivery*. https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0123