Racial and Geographic Disparities in Internet Use in the U.S. Among Patients With Hypertension or Diabetes: Implications for Telehealth in the Era of COVID-19

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The coronavirus disease 2019 (COVID-19) pandemic has created challenges for the provision of care for patients with diabetes. Increased physical distancing may worsen the preexisting disease burden and lead to progressively worse outcomes as a result of inadequate outpatient follow-up (1). In such an environment, the telehealth model may offer a valuable solution. However, there may be disparities in access to the internet, especially among individuals suffering from chronic medical conditions and minority patients, which may affect the implementation of the telehealth model. We aimed to assess 1) the disparities in internet access among those with hypertension or diabetes versus those without, 2) the disparities in internet access among Blacks and Hispanics compared with Whites, and 3) the extent of such disparities across the U.S. states.

We used data from the 2016 to 2017 Behavioral Risk Factor Surveillance System (BRFSS), a nationwide telephone-based questionnaire administered by the Centers for Disease Control and Prevention among a random sample of U.S. adults regarding health-related behaviors, chronic health conditions, and the use of preventive services, to identify patients ≥18 years who reported having hypertension or diabetes (2). Participants were considered to have used the internet if they answered “Yes” to the question, “Have you used the internet in the past 30 days?”

We analyzed these cross-sectional data using survey weights for BRFSS to account for the survey design. We used logistic regression models to study the association between hypertension, diabetes, race, and internet use adjusting for age, sex, education, employment status, language spoken, income, and U.S. state. Relative difference was calculated as the prevalence of internet use among Blacks or Hispanics minus the prevalence of internet use among Whites divided by the prevalence in Whites. This relative difference was used as a measure to assess the disparity of internet access among people of color as compared with Whites.

We identified 910,655 participants, of whom 37% were older than age 45 years and 51% were female, 63% White, 12% Black, and 17% Hispanic. Compared with those who did not use the internet in the preceding 30 days, frequent internet users were more likely to be White, educated, employed, and younger and to have health care coverage.

The prevalence of internet use was 84% in the overall population and 72% among those with self-reported hypertension or diabetes, which translates to ~213 million and 63 million U.S. adults, respectively. The prevalence of internet use was 74% among those with hypertension compared with 89% among those without hypertension (adjusted odds ratio [AOR] 0.99 [95% CI 0.94–1.04] and 65% among those with diabetes compared with 86% among those without diabetes (AOR 0.89 [0.85–0.93]).

When considering differences by race, we found that the prevalence of internet use among those with hypertension or diabetes was 77% in Whites, 62% in Blacks, and 56% in Hispanics. The AOR...
Figure 1—Heat maps demonstrating the relative difference in the prevalence of internet use in those with hypertension or diabetes and comparing the prevalence of internet use among Blacks (bottom) and Hispanics (top) compared with Whites. The median (IQR) difference* in the prevalence of internet use across all states was −16.54% (IQR −10.16, −20.22) for Blacks compared with Whites among those with hypertension or diabetes. The median (IQR) difference* in the prevalence of internet use across all states was −15.58% (IQR −3.67, −24.12) for Hispanics compared with Whites among those with hypertension or diabetes. In some states (such as Idaho, Hawaii, Guam) the prevalence of internet use was higher in Blacks and Hispanics compared with Whites, which may be a reflection of the low proportion of the population in these states that is Black or Hispanic and may not be reflective of the national trend. *The relative difference in the prevalence of internet use was calculated as the prevalence of internet use among Blacks/Hispanics minus the prevalence in Whites divided by the corresponding prevalence in Blacks/Hispanics. These differences are among patients with diabetes or hypertension.
for the association between internet use and race was 0.49 (95% CI 0.44–0.53) for Blacks and 0.58 (0.51–0.66) for Hispanics compared with Whites. In general, across all U.S. states, Blacks and Hispanics with hypertension or diabetes had a lower prevalence of internet use compared with Whites (Fig. 1). The median difference in prevalence of internet use across all states was −16.54% (interquartile range [IQR] −10.16, −20.22) for Blacks and −15.58% (−3.67, −24.12) for Hispanics compared with Whites.

Comorbidities of hypertension and diabetes disproportionately affect Blacks and Hispanics (3). However, these minorities often report lower rates of health care literacy and resources such as telehealth (4). As a result, the relative difference in the prevalence of internet access of −15% among Blacks and −22% among Hispanics may disproportionately affect millions who need adequate follow-up care. Such disparities may further be unmasked by COVID-19, which has disproportionately affected Black and Hispanic communities. Further, these disparities may exist disproportionally across the U.S., as socioeconomic and racial disparities are more common in some states (e.g., Southern and Midwestern states) compared with others. Knowledge of these statewide disparities is important, as some of these states have a high population-attributable risk for hypertension and diabetes. These differences are also important from a public health policy standpoint to ensure all patients receive equitable health care. Efforts are needed to mitigate these disparities to ensure equitable care delivery across the U.S. (5).

Our study has certain limitations. The design of the BRFSS does not capture the quality of the internet connection or whether the internet was accessed from home or accessed at work or a public library. These analyses also do not account for internet access on a smartphone. These factors could impact the quality of the telehealth encounter beyond just access to the internet. The threshold of internet access of once in 30 days may overestimate the actual internet availability for infrequent users.

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