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### Authors

Ko, Jamie S

El-Toukhy, Sherine

Quintero, Stephanie M

et al.

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## Disparities in Telehealth Access, Not Willingness to Use Services, Likely Explain Rural Telehealth Disparities

Jamie S Ko, MPH<sup>1</sup>, Sherine El-Toukhy, PhD<sup>1</sup>, Stephanie M. Quintero, BA<sup>1</sup>, Miciah J. Wilkerson, BS<sup>1</sup>, Anna M. Nápoles, PhD<sup>1</sup>, Anita L. Stewart, PhD<sup>2</sup>, Paula D. Strassle, PhD<sup>1</sup>

<sup>1</sup>Division of Intramural Research, National Institute on Minority Health and Health Disparities, National Institutes of Health, Bethesda, MD

<sup>2</sup>University of California San Francisco, Institute for Health & Aging, Center for Aging in Diverse Communities, San Francisco, CA

### Abstract

**Purpose:** Although telehealth access and utilization have increased during the pandemic, rural and low-income disparities persist. We sought to assess whether access or willingness to use telehealth differed between rural and non-rural and low-income and non-low-income adults and measure the prevalence of perceived barriers.

**Methods:** We conducted a cross-sectional study using COVID-19's Unequal Racial Burden (CURB) online survey (12/17/2020-2/17/2021), which included two nationally representative cohorts of rural and low-income Black/African American, Latino, and White adults. Non-rural and non-low-income participants from the main, nationally representative sample were matched for rural vs. non-rural and low-income vs. non-low-income comparisons. We measured perceived telehealth access, willingness to use telehealth, and perceived telehealth barriers.

**Findings:** Rural (38.6% vs. 44.9%) and low-income adults (42.0% vs. 47.4%) were less likely to report telehealth access, compared to non-rural and non-low-income counterparts. After adjustment, rural adults were still less likely to report telehealth access (adjusted prevalence ratio [aPR]=0.89, 95% CI=0.79-0.99); no differences were seen between low-income and non-low-income adults (aPR=1.02, 95% CI=0.88-1.17). The majority of adults reported willingness to use telehealth (rural=78.4%; low-income=79.0%), with no differences between rural and non-rural (aPR=0.99, 95% CI=0.92-1.08) or low-income vs. non-low-income (aPR=1.01, 95% CI=0.91-1.13). No racial/ethnic differences were observed in willingness to use telehealth. Prevalence of perceived telehealth barriers were low, with the majority reporting no barriers (rural=57.4%; low-income=56.9%).

**Conclusions:** Lack of access (and awareness of access) is likely a primary driver of disparities in rural telehealth use. Race/ethnicity was not associated with telehealth willingness, suggesting equal utilization is possible once granted access.

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**Corresponding Author:** Paula D. Strassle, PhD, MSPH, Staff Scientist, Division of Intramural Research, National Institute on Minority Health and Health Disparities, National Institutes of Health, 6707 Democracy Boulevard, Suite 800, Bethesda, MD 20892-5465, paula.strassle@nih.gov, Telephone: (301) 594-5175.

**Disclosures.** The authors report no conflicts of interest.

## Keywords

telehealth; COVID-19; rural disparities; low-income disparities; racial/ethnic disparities

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## Introduction

Prior to the COVID-19 pandemic, telehealth use among rural<sup>1</sup> and low-income<sup>2</sup> communities were relatively limited. For example, in 2018 it was estimated that only 54% of U.S. rural hospitals had adopted telehealth services, compared to 75% of metropolitan hospitals.<sup>3</sup> However, compared to even a few years ago,<sup>4</sup> telehealth access and use in the U.S. has increased due to greater accessibility of smartphones and broadband services,<sup>5</sup> and increases in acceptability of telehealth as a viable method to receive healthcare.<sup>6</sup> During the pandemic, telehealth was further expanded through federal funding<sup>7–12</sup>, increased telehealth reimbursement from public and private insurers,<sup>13,14</sup> and by states relaxing telehealth provider requirements.<sup>15</sup> Given the rapid changes in telehealth access, attitudes, and use in the past few years, particularly during the pandemic, it is not surprising that increases in telehealth use have been observed in 2020.<sup>16</sup>

Although telehealth use and popularity among patients and physicians have recently increased, gaps remain in our knowledge of attitudes towards and barriers against the use of telehealth in rural and low-income communities. First, few studies have focused on willingness to use telehealth among racially/ethnically diverse rural and low-income communities, both of which are more likely to experience disparities in access to digital healthcare.<sup>3,17</sup> Second, most studies compare differences in telehealth utilization rates<sup>1,7,16</sup> or adoption of services by healthcare facilities<sup>3</sup>, rather than individual access (or perceived access) to such services. Similarly, most studies on willingness retrospectively analyzed patients' perspectives after their telehealth visits<sup>18–21</sup> or only included certain populations (e.g., older adults), with few focusing on attitudes towards telehealth irrespective of access and usage.<sup>17,22,23</sup>

In light of these dramatic changes in access, utilization, and available resources for telehealth, it is imperative to assess current access and attitudes towards telehealth among marginalized communities that may particularly benefit from telehealth services, given their high morbidity and mortality and limited access to healthcare.<sup>1,24–28</sup> Thus, the purpose of this study was to 1) assess whether perceived access to telehealth services and willingness to use telehealth differed between rural and non-rural and low-income communities and non-low-income adults, 2) assess differences in perceived access and willingness to use telehealth across race/ethnicity and other participant characteristics among rural and low-income adults, and 3) identify the main perceived barriers preventing rural and low-income individuals from utilizing telehealth services.

## Methods

We used data from the COVID-19's Unequal Racial Burden (CURB) survey, which measured the social, behavioral, and economic impact of the COVID-19 pandemic in the United States among diverse populations. The CURB survey was administered to

three distinct sample populations. The main, nationally representative sample of 5,500 U.S. adults 18 years old (1000 Asian, Black/African American, Latino [English- and Spanish-speaking], and White adults and 500 American Indian/Alaska Native and Hawaiian/Pacific Islander, and multiracial adults) has been previously described, n=5,500.<sup>29,30</sup> The rural sample included 1,500 rural Black/African American, Latino (English- and Spanish-speaking), and White adults (n=500 each), and the low-income sample included 1,500 low income Black/African American, Latino (English- and Spanish-speaking), AND White adults (n=500 each). Rural and low-income status was determined using self-reported information on residence (i.e., small town or rural) and poverty level (i.e., below the 2019 US Census poverty threshold based on reported household size and family income). English- and Spanish-speaking status was assigned based on survey language preference; 87.6% of Latino participants who took the survey in Spanish also self-reported poor English-speaking skills. The main, rural, and low-income samples were mutually exclusive, resulting in 8,500 unique adults surveyed. All baseline surveys were completed between December 17, 2020, and February 17, 2021.

Information on the development of the CURB survey for the main sample<sup>29,30</sup> and the rural sample<sup>31</sup> has been detailed elsewhere. CURB participants were recruited from the YouGov proprietary, opt-in survey panel comprised of over 1.8 million U.S. residents recruited through a variety of methods (e.g., telephone-to-Web recruitment, mail-to-Web recruitment) to help ensure diversity. For this study, YouGov first generated a theoretical cohort (target sample) for each sample using nationally representative datasets. For the main and low-income cohorts, target samples were constructed using the 2018 American Community Survey 1-year sample data; the 2016 Current Population Survey was used to construct the rural target sample. Panel members were then proximity matched to the target samples until quotas were met, using race/ethnicity, gender, age, education, and survey language (Latino sample only). Post-stratification survey weights were calculated using multivariable logistic regression, using race/ethnicity, age, gender, education, and U.S. region. This combination of weighting and matching allowed us to generate nationally representative cohorts of rural and low-income adults within each racial/ethnic group (e.g., rural White participants represent all rural White adults in the U.S.).

To enable comparisons of rural to non-rural and low-income to non-low-income populations, cohorts of non-rural and non-low-income Black/African American, Latino, and White adults using participants from the main CURB survey sample were created. Of the 3,000 eligible adults in the main sample, 2,277 were non-rural (i.e., lived in a big city, smaller city, or suburban area) and 1,188 were non-low-income (i.e., with a household annual income above the 2019 poverty line). Weights for the non-rural and non-low-income samples were calculated to generate nationally representative estimates for these populations (e.g., non-rural Latino participants represent all non-rural Latino adults in the U.S.). The non-rural and non-low-income comparison samples were not mutually exclusive.

Perceived access to telehealth was measured by asking: “Does the place where you usually go for care offer telehealth (virtual visits)?” (yes, no, don’t know). To assess willingness, participants were asked “Would you be willing to meet with a doctor or nurse by smartphone, telephone, tablet, or computer?” (no, yes without video, yes with video).

We also asked about potential barriers to telehealth – “Do you have any of the following concerns about telehealth or virtual visits (check all that apply)?” Options included: I do not have an internet connection; My smartphone has a limited data plan; I may have problems with the quality of the audio or video; I may have problems using the application for the virtual visit; I worry that I may not feel comfortable using the new technology; I do not have a telephone, smartphone, tablet, or computer that will work with the application; I may not have a private place to do a telehealth visit; I have vision or hearing problems that may make it harder to have a telehealth visit; They may not speak my language or have an interpreter available; Other (specify); and I have no concerns about using telehealth. The write-in responses for “Other” telehealth concerns were independently coded by two coders to identify salient themes, define each theme, and select illustrative quotes. The coders then discussed any coding discrepancies until consensus was reached.

Other covariates included age group, gender, health insurance, chronic conditions associated with increased risk of severe COVID-19 disease and mortality (cancer within the past year, chronic obstructive pulmonary disease, chronic kidney disease, diabetes, heart conditions, immunocompromised from transplant, obesity, or sickle cell anemia), self-reported overall physical health, education, and annual household income.

### Statistical Analyses

Chi-square tests were used to assess differences in perceived access and willingness between rural and non-rural and low-income and non-low-income adults. Multivariable Poisson regression<sup>32</sup> was used to estimate differences in the perceived access to telehealth (yes vs. no/unsure), adjusting for race/ethnicity, age, gender, health insurance, chronic conditions, self-reported physical health, education, and annual household income. Multivariable Poisson regression was also used to assess differences in the willingness to use telehealth services (yes [with or without video] vs. no). Models were adjusted for all the variables listed above, as well as telehealth access.

We also performed several analyses restricted to our rural and low-income cohorts. First, we assessed potential racial/ethnic differences in perceived access and willingness to use telehealth, using multivariable Poisson regression, adjusting for the same covariates listed above. Chi-square tests were used to compare the prevalence of barriers across racial/ethnic groups.

All analyses were conducted in SAS version 9.4 (SAS Inc., Cary, NC) and weighted to obtain nationally representative estimates. Robust variance estimates were used to account for the complex survey design in all models. Due to small sample sizes, non-binary and transgender individuals were excluded from multivariable modeling.

### Results

Sample characteristics for the rural and low-income samples are reported in Supplemental Tables 1 and 2. Of note, we were only able to recruit 64 rural Spanish-speaking Latino adults; additional rural English-speaking Latino adults were recruited to meet the overall Latino quota. Among both cohorts, White adults tended to be older and more likely to

have private insurance compared to Black/African American and Latino adults. Sample characteristics for the non-rural and non-low-income cohorts are reported in Supplemental Tables 3 and 4.

Overall, 38.6% of rural adults reported they believed that they had access to telehealth services, compared to 44.9% of non-rural adults,  $p=0.0002$  (Figure 1A). Rural adults were also more likely to be unsure if they had access (44.6% vs. 39.7%,  $p=0.002$ ). Low-income adults were also less likely to believe that they had access to telehealth services, compared to their non-low-income counterparts (42.0% vs. 47.4%,  $p=0.006$ ) (Figure 1B). Participant characteristics, stratified by perceived telehealth access, among both rural and low-income participants are reported in Supplemental Table 5. After adjustment, rural adults were still more likely to report that they did not have access to telehealth services, compared to their non-rural counterparts (adjusted prevalence ratio [aPR]=0.89, 95% CI=0.79-0.99) (Figure 2). No differences were seen between low-income and non-low-income adults (aPR=1.02, 95% CI=0.88-1.17).

Small differences in willingness to use telehealth services were observed, with rural (78.4% vs. 83.2%,  $p=0.0002$ ) and low-income (79.0% vs. 82.1%,  $p=0.04$ ) adults slightly less likely to report being willing to use the services (Figure 1). After adjustment, differences in willingness were no longer observed (rural vs. non-rural: aPR=0.99, 95% CI=0.92-1.08; low-income vs. non-low-income: aPR=1.01, 95% CI=0.91-1.13) (Figure 2).

After adjustment, compared to rural White adults, rural Black/African American (aPR=1.38, 95% CI=1.11-1.71) and rural English-speaking Latino adults (aPR=1.27, 95% CI=1.01-1.61) were more likely to perceive having access to telehealth services (Table 1). Among the low-income cohort, Spanish-speaking Latino adults were more likely to perceive having access to telehealth services, compared to White adults (aPR=1.31, 95% CI=1.01-1.68). Rural women (aPR=1.20, 95% CI=1.00-1.43) and both rural and low-income adults with chronic conditions (rural: aPR=1.29, 95% CI=1.07-1.55; low-income: aPR=1.53, 95% CI=1.28-1.83) were more likely to perceive having access to telehealth. Being uninsured (rural: aPR=0.63, 95% CI=0.47-0.85; low-income: aPR=0.53, 95% CI=0.41-0.69) and having an annual income <\$20,000 (rural: aPR=0.80, 95% CI=0.64-1.00; low-income: aPR=0.82, 95% CI=0.68-0.97) appeared to be associated with lower access to telehealth services among both rural and low-income adults. Having less than a high school education, compared to a college graduate, was also associated with lower perceived access to telehealth among rural adults (aPR=0.59, 95% CI=0.37-0.92).

No racial/ethnic differences were seen in willingness to use telehealth among either rural or low-income adults. Among both rural and low-income adults, only perceived access to telehealth services was associated with willingness to use telehealth (rural: aPR=1.24, 95% CI=1.10-1.41; low-income: aPR=1.24, 95% CI=1.09-1.40) (Table 1).

The proportion of rural and low-income adults that reported each barrier to telehealth use is described in Figure 3. While the prevalence of each potential barrier was relatively small, the top four concerns were: 1) they may have problems with audio or video quality (rural: 15.4%; low-income: 12.2%); 2) they may have problems using the telehealth

application (rural: 10.8%; low-income: 8.8%); 3) they may not feel comfortable using the new technology (rural: 10.4%; low-income: 10.2%); and 4) their smartphone has a limited data plan (rural: 8.2%; low-income: 9.8%). Almost half of the other, write-in responses (n=179) were focused on visit quality concerns (rural: 41.1%; low-income: 46.8%), such as the lack of in-person contact, impersonal nature of telehealth, and lower quality due to the lack of physical interaction (Supplemental Table 6). Overall, 57.4% of rural adults and 56.9% of low-income adults reported having no barriers to telehealth use.

Barriers to telehealth services were relatively consistent between rural and low-income Black/African American, English-speaking Latino, and White adults, but a few notable differences were seen among Spanish-speaking Latino adults (Supplemental Table 7). Compared to other racial/ethnic groups, both rural and low-income Spanish-speaking Latino adults were significantly more likely to report language barriers and potential lack of access to interpreters (rural: 30.4% vs. 0.8-1.9%; low-income: 21.9% vs. 0.8-2.0%;  $p < 0.0001$  for both). Rural Spanish-speaking Latino adults were also more likely than other rural racial/ethnic groups to report not having an internet connection (16.1% vs. 3.6-5.2%,  $p < 0.0001$ ) and not having a private place to conduct a telehealth visit (15.0% vs. 5.9-7.9%,  $p = 0.02$ ).

## Discussion

In our nationally representative survey of rural, low-income, non-rural, and non-low-income Black/African American, Latino, and White adults, less than half of all adults believed they had access to telehealth, and roughly the same proportion was unsure of their access. Prior to adjustment, both rural and low-income adults were less likely to report telehealth access, and rural access disparities persisted after adjustment. Conversely, over 75% of rural and low-income adults reported being willing to use telehealth services and no meaningful differences in willingness were seen between rural and non-rural or low-income and non-low-income adults. Racial/ethnic differences in perceived access and willingness to use telehealth among rural and low-income adults were also minimal. Additionally, the prevalence of almost all barriers to telehealth was also relatively rare, with language barriers being a notable exception among both rural and low-income Spanish-speaking Latino adults (30% and 22%, respectively). Taken together, these findings suggest that access (and perceived access) to telehealth services, not willingness or barriers, is a primary driver for rural telehealth use disparities in the US.

Telehealth has been viewed as an acceptable and effective way to provide virtual care, and both healthcare providers and patients generally express high levels of satisfaction with telehealth visits.<sup>33-35</sup> Among rural populations, healthcare providers and patients have favored these virtual visits over in-person ones due to convenience, efficiency, and reduced costs.<sup>36</sup> Telehealth usage in low-income populations have also been associated with high patient satisfaction<sup>37,38</sup> and effectiveness in helping patients achieve optimal health goals.<sup>37</sup> However, despite telehealth's generally positive reception, telehealth usage among rural<sup>1,3</sup> and low-income communities<sup>39</sup> lagged prior to the pandemic. Even after the expansion of telehealth during the pandemic, rural adults have still been less likely to use telehealth.<sup>1,40</sup> Even as healthcare systems return to in-person practices, telehealth remains an important mechanism for reducing health disparities by alleviating common barriers to



chronic disease prevention, management programs, and specialist care for rural adults and other marginalized communities.<sup>41–43</sup>

Willingness (and hesitancy) to use healthcare services have been used to estimate future health-related behaviors, most recently with COVID-19 vaccinations.<sup>29,44,45</sup> However, studies on a variety of health-seeking behaviors have shown limited access to services, lack of awareness of the availability of services, and barriers to care impede or inhibit utilization, even in the face of high willingness.<sup>46–48</sup> Given that willingness was high and perceived barriers were rare among rural adults in our study, this suggests that access (and awareness of access) of telehealth services is a primary driver of rural telehealth disparities. A recent study among Medicare beneficiaries found that out-of-state telehealth visits were more common among rural beneficiaries, further suggesting lower access to local telehealth services in rural populations.<sup>49</sup>

It is also important to note that almost half of rural and low-income adults were unsure about their telehealth access. We also found that adults with chronic conditions, which typically require regular interaction with the healthcare system, were more likely to report having access to telehealth. These findings suggest that rural (and low-income) adults may just not be aware of telehealth services offered by local healthcare facilities. Educational campaigns and community outreach to increase awareness of services offered at rural and low-income healthcare facilities could also help improve utilization and reduce disparities. Future research is needed to better understand how perceived access relates to utilization, as well as interventions that can improve awareness of available telehealth services.

Interestingly, we did not find that internet access was a major concern among participants. Broadband access, for both patients and healthcare facilities, is commonly reported as a potential barrier and reason for rural telehealth disparities.<sup>50</sup> At least one other study has also found that broadband concerns were low among rural community based health centers (5%).<sup>51</sup> Broadband access has increased over the past several years<sup>5</sup>, which may partially explain why it has become less of a concern. It is also possible that because our survey was conducted online, participants were more likely to have adequate internet access which may lead to underestimating the impact. Future research is needed to further explore the impact of broadband on the ability of healthcare facilities to adopt and handle the increased utilization of telehealth services, as well as patient access.

One notable exception to perceived barriers was that roughly 1 in 3 rural and 1 in 4 low-income Spanish-speaking Latino adults reported language barriers for telehealth use. Rural Spanish-speaking Latino adults were also more likely to report not having a private place for telehealth visits. This is consistent with other studies conducted during the pandemic that found patients with limited English proficiency were less likely to use telehealth<sup>26</sup> and more likely to report issues with using telehealth, including lack of private spaces for virtual visits.<sup>52</sup> Providing resources to address and eliminate barriers to telehealth use among non-English speaking patients (e.g., providing automatic interpretation services for telehealth visits, building private “telemedicine booths” to increase access in communities)<sup>53</sup> should be incorporated into new and existing telehealth programs.



This study has a few limitations. First, although participants were recruited through various methods, and rural and low-income adults were intentionally oversampled to obtain large, nationally representative samples, the survey was conducted online. Adults without access to a computer or smartphone or with low digital literacy would be less likely to participate and may have led to an overestimation of telehealth willingness and underestimation of barriers. Second, we only conducted our survey in English and Spanish (Latino participants only) and Black/African American and White adults with limited English proficiency, and non-English or Spanish-speaking Latino adults are less likely to have participated. Our results are also not generalizable to other racial/ethnic groups living in rural areas or who are low-income (e.g., Asian adults).

We were also unable to recruit the pre-determined quota of rural Spanish-speaking Latino adults, so results for this group should be interpreted with caution. Third, access to telehealth was self-reported (perceived access), and we were unable to confirm if telehealth services were offered at their usual healthcare location. Finally, this survey was conducted in early 2021, and changes in telehealth access and utilization may have continued to expand over time. Future studies are needed to assess current telehealth willingness, access, and utilization among rural and low-income adults.

Despite these limitations, this study is one of the first to use nationally representative data focused on rural and low-income Black/African American, Latino (English and Spanish-speaking), and White adults to understand their access and willingness to use telehealth services during the pandemic, as well as their concerns about using such services. The findings from our study provide critical insights into potential drivers of telehealth disparities and ways for addressing them, namely continuing to expand access to telehealth services and invest in targeted campaigns to raise awareness of telehealth services.

## Conclusion

In a nationally representative survey of rural, low-income, non-rural, and non-low-income Black/African American, Latino, and White adults, we found that less than half of adults reported having access to telehealth services. After accounting for sociodemographics, rural adults were significantly less likely to report access to telehealth services compared to non-rural adults. Despite low perceived access, 75% of rural and low-income adults were willing to use telehealth services, similar to non-rural and non-low-income adults. Perceived barriers to telehealth were also relatively rare. Taken together, these findings suggest that known disparities in rural telehealth utilization are due to lower access and awareness of telehealth resources among rural communities. Since willingness to use telehealth services is high among rural and low-income adults, it is critical to continue to expand telehealth access and awareness in rural and low-income communities to promote equitable telehealth use and reduce health disparities during and after the COVID-19 pandemic.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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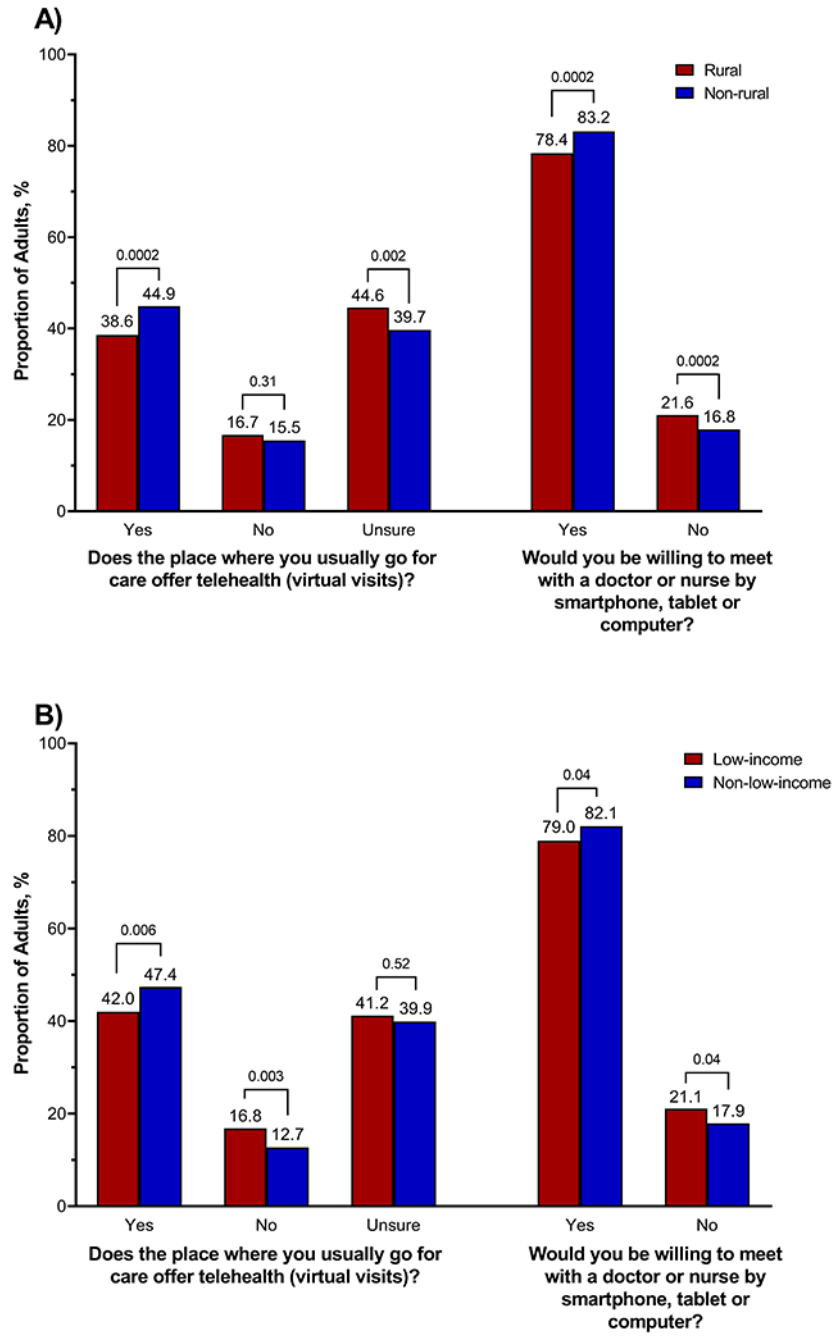
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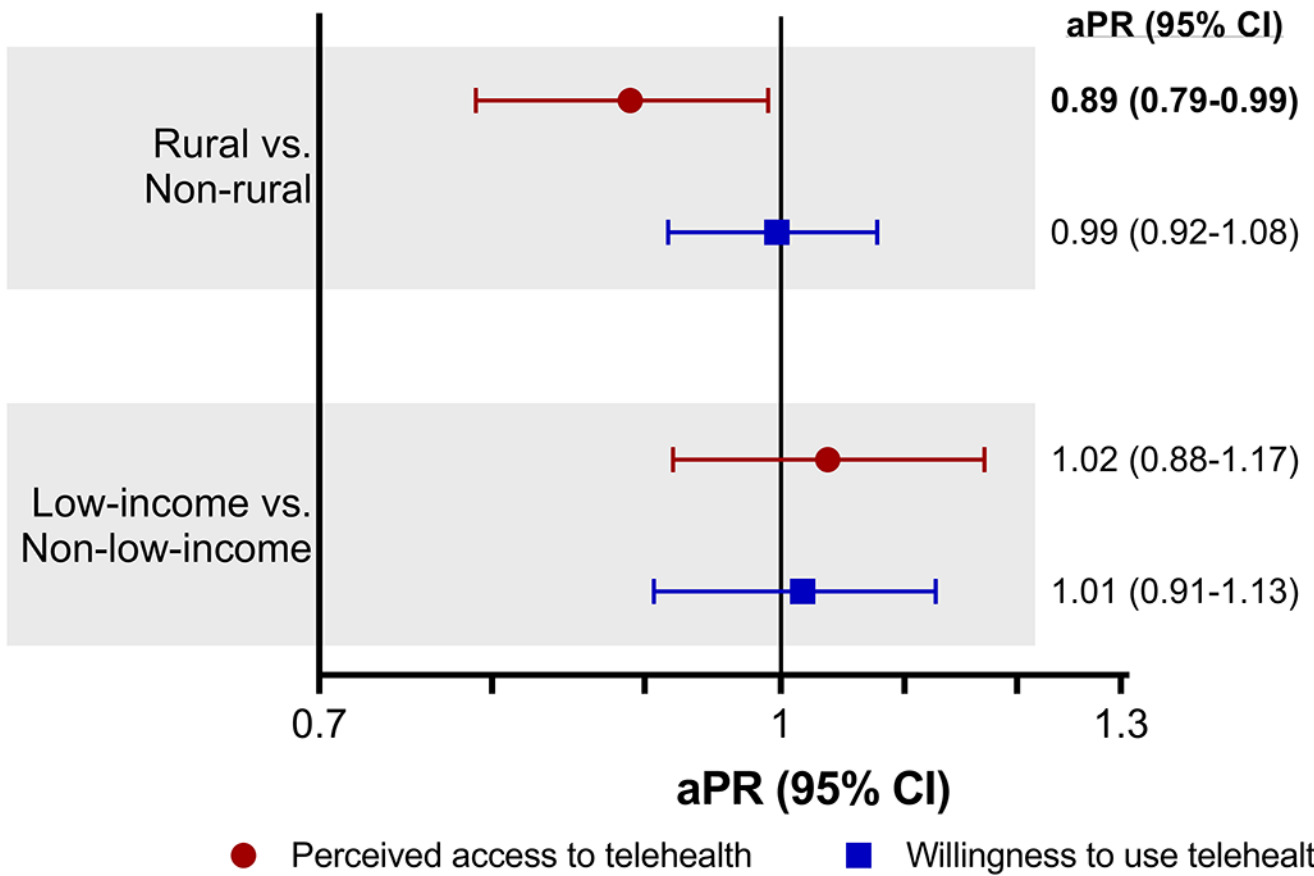
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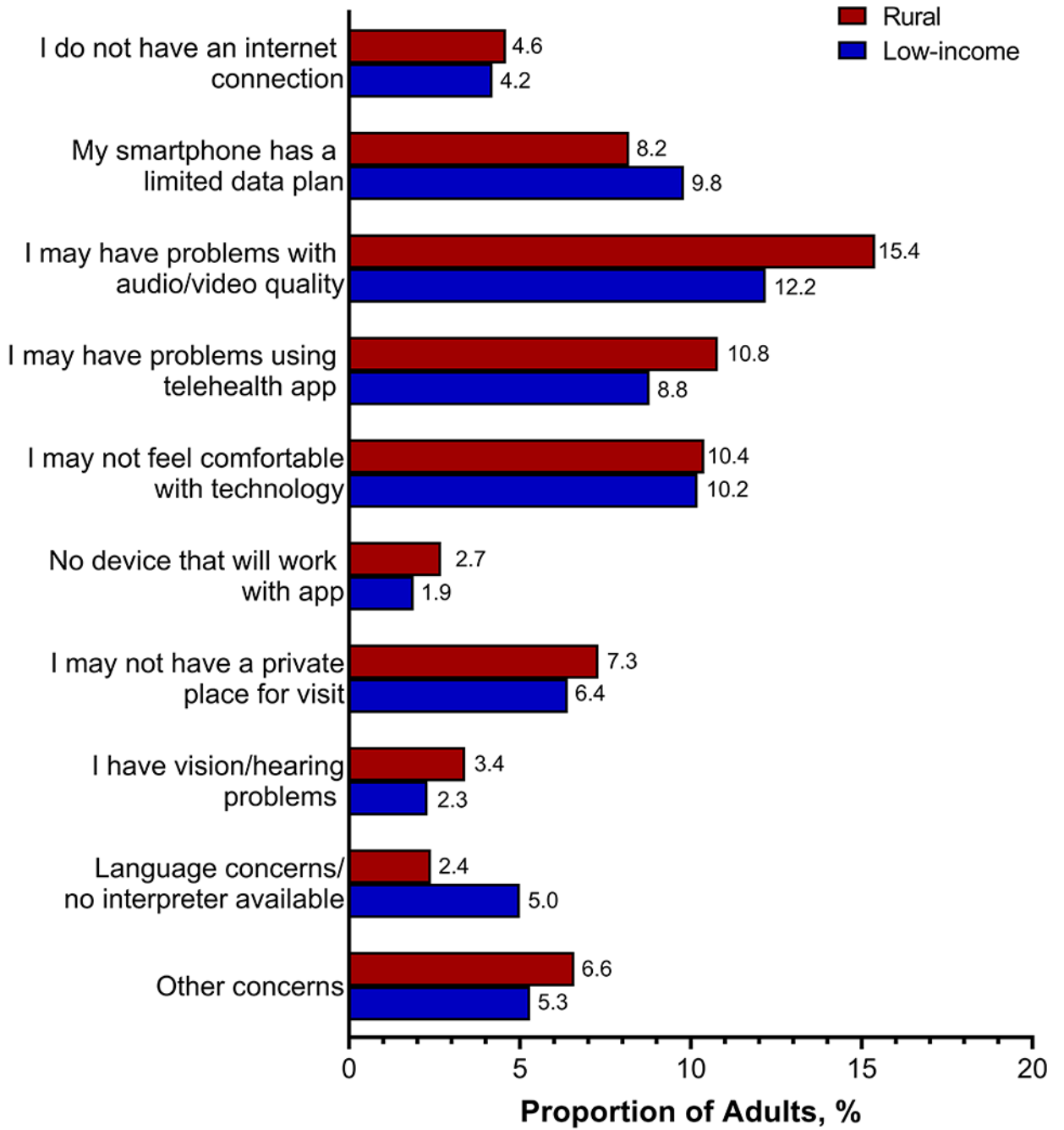


**Figure 1.** A) Rural vs. non-rural and B) low-income vs. non-low-income perceived access to telehealth services and willingness to use telehealth services, weighted to be nationally representative within racial/ethnic groups.



**Figure 2.** Adjusted prevalence of perceived access to and willingness to use telehealth services among rural vs. non-rural, and low-income vs. non-low-income adults, weighted to be nationally representative within racial/ethnic groups. **Bold** text indicated statistically significant results ( $p < 0.05$ ).





**Figure 3.** Prevalence of barriers to using telehealth services among rural and low-income adults, weighted to be nationally representative within racial/ethnic groups. 57.4% of rural adults and 56.9% of low-income adults reported having no barriers to telehealth use (data not shown).

**Table 1.**

Adjusted associations between sociodemographics and health characteristics in the prevalence of perceived access and willingness to use telehealth services among rural and low-income adults, weighted to be nationally representative within racial/ethnic groups.

	<u>Perceived Access to Telehealth</u>		<u>Willingness to Use Telehealth</u>	
	Rural	Low-Income	Rural	Low-Income
	aPR (95% CI) <sup>a</sup>	aPR (95% CI) <sup>a</sup>	aPR (95% CI) <sup>a</sup>	aPR (95% CI) <sup>a</sup>
<b>Race/ethnicity</b>				
Black/African American	<b>1.38 (1.11-1.71)</b>	0.96 (0.79-1.18)	1.07 (0.92-1.25)	1.03 (0.87-1.23)
Latino				
English-speaking	<b>1.27 (1.01-1.61)</b>	1.14 (0.90-1.43)	1.00 (0.85-1.18)	1.07 (0.93-1.24)
Spanish-speaking	1.08 (0.64-1.84)	<b>1.31 (1.01-1.68)</b>	1.29 (0.94-1.76)	1.15 (0.95-1.39)
White	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
<b>Age group</b>				
18-29	0.80 (0.59-1.08)	0.87 (0.67-1.13)	0.91 (0.74-1.11)	1.06 (0.88-1.29)
30-39	1.15 (0.85-1.55)	0.89 (0.67-1.17)	0.96 (0.78-1.19)	1.06 (0.86-1.31)
40-49	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
50-59	0.88 (0.66-1.19)	0.88 (0.66-1.17)	0.92 (0.75-1.12)	1.09 (0.87-1.34)
60-69	1.03 (0.77-1.39)	0.83 (0.62-1.10)	0.90 (0.73-1.12)	1.08 (0.87-1.34)
70	0.94 (0.65-1.34)	0.82 (0.58-1.17)	0.84 (0.65-1.08)	0.96 (0.72-1.27)
<b>Women<sup>b</sup></b>	<b>1.20 (1.00-1.43)</b>	1.08 (0.92-1.28)	1.06 (0.94-1.20)	1.04 (0.92-1.17)
<b>Health insurance</b>				
Any private	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
Public insurance only	1.10 (0.91-1.35)	1.05 (0.86-1.28)	0.98 (0.85-1.14)	1.00 (0.86-1.17)
Uninsured	<b>0.63 (0.47-0.85)</b>	<b>0.53 (0.41-0.69)</b>	0.92 (0.76-1.10)	0.98 (0.81-1.16)
<b>Any chronic conditions<sup>c</sup></b>	<b>1.29 (1.07-1.55)</b>	<b>1.53 (1.28-1.83)</b>	1.08 (0.94-1.23)	1.10 (0.96-1.26)
<b>Fair/poor physical health</b>	1.07 (0.88-1.31)	1.00 (0.83-1.20)	1.01 (0.88-1.17)	0.94 (0.82-1.07)
<b>Education</b>				
Less than high school graduate	<b>0.59 (0.37-0.92)</b>	0.85 (0.60-1.20)	0.78 (0.58-1.04)	0.86 (0.67-1.12)
High school/GED	0.85 (0.66-1.09)	0.91 (0.70-1.18)	0.95 (0.80-1.14)	0.94 (0.77-1.15)
Some college/vocational school	0.92 (0.71-1.19)	0.89 (0.67-1.17)	0.95 (0.79-1.15)	1.02 (0.82-1.25)
College graduate or more	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
<b>Annual income &lt;\$20,000</b>	0.80 (0.64-1.00)	<b>0.82 (0.68-0.97)</b>	0.95 (0.81-1.10)	0.96 (0.84-1.08)
<b>Perceived access to telehealth</b>				
Yes	N/A	N/A	<b>1.24 (1.09-1.41)</b>	<b>1.24 (1.09-1.40)</b>
No/unknown	N/A	N/A	1.0 (ref)	1.0 (ref)

Abbreviations: aPR, adjusted prevalence ratio; CI, confidence interval; N/A, not included in the model

**Bold** indicates statistically significant results (p<0.05)

<sup>a</sup>Adjusted for age, gender, insurance, any comorbidities, self-reported physical health, highest education, household income, and access to telehealth services (willingness to use telehealth only)

<sup>b</sup>Compared to men; due to low sample sizes transgender and non-binary adults were excluded

<sup>c</sup>Comorbidities included cancer, COPD, chronic kidney disease, diabetes, heart conditions, immunocompromised from transplant, obesity, and sickle cell anemia

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