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COVID-19 and the Vulnerabilities of Community-Dwelling Other Adults: Findings From a Statewide Survey of Home-Delivered Meals Recipients*

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Abstract

COVID-19's impact on community-dwelling older adults, especially those in rural and underserved areas, as well as those who are homebound, is of interest to policy makers and clinicians, now and in the future. This study aims to examine the consequences of the COVID-19 pandemic on community-dwelling older adults with the greatest social and economic needs residing in a mostly rural state. Using a self-administered survey, we collected data from 1852 home-delivered meal recipients, age 60 years and older, served by Nebraska's eight Area Agencies on Aging. Results highlight three areas of importance: social connections, healthcare access and utilization, and technology. We found that while most older adults maintained social interaction, despite the restrictions imposed by the pandemic, feelings of loneliness persisted or even increased, with 35% of respondents feeling lonelier because of the pandemic. Our findings further reveal that 42% of older adults skipped or postponed healthcare visits during the pandemic, although the majority expressed interest in using telehealth. Finally, the rural-urban divide was evident in our data, with less than one-half of respondents (45%) having access to reliable internet. Suggestions on how to prepare the most vulnerable people for similar crises are included.

Keywords

COVID-19, social connections, community-dwelling older adults, technology, healthcare access and utilization

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In March of 2020, COVID-19 became a household name. The World Health Organization declared COVID-19 a global pandemic and governments like the United States declared a national emergency. Persons of all ages, especially those of advanced age and thought to be most at risk (Gorenko et al., 2021), were restricted from their usual activities. Stay-at-home orders became the norm, with businesses and stores reducing hours or completely closing. In addition, more essential services, such as healthcare provider offices (e.g., medicine and dentistry), were closed or offered limited access. Constraining access to healthcare providers for routine checkups was a reality—and one that may have consequences in the long-term regarding the health and well-being of older adults (Machón Sobrado et al., 2021).

The unpredictability of the virus' transmission, coupled with the quick and lethal nature of the disease, led health departments and governments to require persons to take protective action for those most vulnerable to the virus, including older adults (Centers for Disease Control and Prevention [Centers for Disease Control and Prevention, 2021,

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March 8). For older adults, the introduction of such measures led to the closure of meal sites and senior centers. The providers of these services, Area Agencies on Aging (AAA), found their usual in-person coordination of programming and services for adults 60 and older with the greatest social and economic needs to be shuttered and moved to no-contact service delivery (Wilson et al., 2020). Meal sites turned rapidly from in-place dining to contactless home-delivered and grab-and-go meals for current and new clients (National Association of Area Agencies on Aging, 2020). Additionally, case managers and other AAA staff moved to telephone-only service in support of their clients (Gallo & Wilber, 2021).

Since the start of the pandemic, COVID-19's impact on the aging population has been documented widely (Su et al., 2021). Reports of infection rates, coupled with high mortality in persons 65 and older, highlight the devastating nature of the COVID-19 pandemic (Shahid et al., 2020). While the focus of the pandemic has been directed to persons living and dying in hospitals and nursing homes, there is a larger and more heterogenous group of older adults living in the community who are also impacted by COVID-19 (Cohen & Tavares, 2020).

In the current study, we investigate the impact of COVID-19 on community-dwelling older adults by conducting a survey of home-delivered meals (HDM) clients served by the eight AAAs in the state of Nebraska. Home-delivered meals are nutritious meals delivered to the homes of adults sixty years of age and older who are isolated, homebound, or frail (Administration for Community Living [ACL], 2022). The service ensures older adults receive a nutritious meal, and at the same time have a connection to someone to look in on them. To capture the pandemic experiences of older adults, we examine social connections, loneliness, healthcare access and utilization (i.e., missed or skipped doctor/nurse visits and telehealth), and technology use. We also include a discussion of the demographic make-up of older adults at the national, state, and Area Agency on Aging level, highlighting unique features of persons with the greatest social and economic needs that are the focus of AAAs across the United States.

Our study is unique in that it provides information on older adults residing in rural communities. Most studies focus on urban communities given that access to participants is easier. In addition, our study includes older adults who benefit from the home-delivered meals program, which is restricted to those with disabilities or lower socioeconomic status. This population is typically excluded or neglected in most research studies. Further, we collected the data during the pandemic lockdown. Most research studies during this time were limited to data on participants who had access to internet and technology. Our creative approach to data collection made our sample inclusive to those without internet access.

Background

Disproportionally, older adults have been negatively impacted by COVID-19, with higher mortality rates and increased hospitalizations. In response to these negative COVID-19 impacts, older adults were advised to shelter in place and limit interactions with others to reduce exposure to the coronavirus (Bailey et al., 2021). However, since 2020, many brief reports and letters to editors have emphasized the important negative psychological, social, and cognitive consequences of social distancing in older adults (Armitage & Nellums, 2020; Carr, 2021; Cohen & Tavares, 2020). For example, one study highlighted the results of a survey on social isolation and loneliness due to COVID-19 among older adults (Kotwal et al., 2021). The study, based in the San Francisco Bay Area, suggests 64% of older adults above the age of 75 live alone, and 40% reported social isolation. 54% also reported to have experienced worsened loneliness due to COVID-19. A majority of participants indicated they experienced more depression (62%) and anxiety (57%) because of the pandemic. The authors showed a significant correlation between worsened loneliness, depression, and anxiety (Kotwal et al., 2021).

The unintended consequences of sheltering in place directives have been observed both within and outside the United States. A study conducted in Ireland of 150 older adults found 40% of respondents reported their mental health was "worse" or "much worse" and a similar number (40%) reported a decline in physical health while isolating or sheltering in place (Bailey et al., 2021). Some respondents reported not seeking medical services for an illness due to sheltering in place and the fear of acquiring COVID-19. A majority of respondents (57%) had a healthcare-related visit canceled while sheltering in place or self-isolating. Similarly, 57% of respondents reported loneliness while sheltering in place, and respondents were almost twice as likely to report loneliness if they lived alone (47% vs. 27%).

Another concern for older adults has been the potential to delay or avoid medical care for treatable and preventable healthcare conditions during the pandemic. In the USA, a nationwide (N = 4975) survey was conducted and showed that 30% of adults 65+ avoided seeking medical care for routine (such as annual appointments) and urgent/emergency medical care (illnesses requiring immediate attention) due to the pandemic (Czeisler et al., 2020). The survey reported that older adults with two or more underlying medical conditions reported not seeking emergency/urgent care at a significantly higher rate than those without underlying health care conditions. COVID-19 has increased the need for baseline information of older adults in both hospitalized and community-based settings in anticipation of their healthcare needs today and in the future.

Further, COVID-19 laid bare not only the social, but also the digital vulnerabilities of older adults, especially those in rural and underserved areas (Henning-Smith, 2020). Prior to the COVID-19 pandemic, the digital divide and technology gap among older American adults was clear and well documented (Weil et al., 2021). However, the pandemic created a critical need to close or, at least, reduce the divide

and gap for older adults. The Pew Research Center found a significant difference in internet use between older cohorts, with 82% of those 65 to 69 years using the internet compared to 44% of those 80 years and older (Anderson & Perrin, 2017). For those individuals aged 80 years and older, only 17% owned smartphones (Anderson & Perrin, 2017). In addition, a study of 1086 service coordinators working with older adults at residential properties in 48 states found that 97% of service coordinators reported that most or all residents had reliable phone access. By contrast, only 23% reported reliable internet access for residents, and one-third (35%) reported few or none of the residents possessing the technology for video calls (Ellison-Barnes et al., 2021). The service coordinators perceived the lack of internet access and technology literacy as barriers for older, low-income adults facing higher risks of coronavirus-related morbidity and mortality.

The questions of how and why older adults use technology are also central to the discussion. COVID-19 prompted an urgent need to increase the use of technology by older adults to reduce social isolation and address healthcare needs (Lee & Maher, 2021). The pandemic exemplified the importance of older adults to own or have access to devices such as a computer, tablet, and/or smartphone. Issues related to internet access and speed are of concern to facilitate communication and information sharing as COVID-19 restrictions increased the demand for communication platforms to include video-conferencing to address medical, social, and psychiatric needs (Saeed & Masters, 2021).

Understanding what makes community-dwelling older adults vulnerable to COVID-19 is of importance both now and in the future in anticipation of other crises of pandemic proportions (Su et al., 2021). Additionally, social connections, access to healthcare access and utilization, and availability of technology are of concern to community-dwelling older adults living in underserved and rural areas, especially in states where there are large numbers of older adults who have remained in place. The purpose of this study is to highlight what impact COVID-19 had on community-dwelling older adults receiving home-delivered meals in a mostly rural state. This study is also interested in increasing understanding of social connections, healthcare access and utilization, and technology use among those older adults served by AAAs, with the intent of finding strategies to support older adults with the greatest social and economic needs now and in the future.

Data and Methods

Sample

This study draws on data from a self-administered survey of home-delivered meals recipients across the state of Nebraska. To capture the pandemic experiences of older adults, we developed a two-page questionnaire that included questions related to the COVID-19 pandemic, social connections, healthcare access and utilization, and technology (see Appendix A for a list of the survey questions used in the present study). In July 2020, the surveys were distributed to home-delivered meals recipients across Nebraska's eight Area Agencies on Aging (AAAs) as well as a small number of grab-and-go meal recipients. To be eligible for the meals program, individuals had to be age 60 or older. The research team distributed 3725 surveys to all eight AAAs; the agencies, in turn, distributed the surveys to meal recipients through their paid drivers and at grab-and-go meal sites. Surveys were returned in sealed envelopes to the driver the next delivery day and then forwarded to the research team. The sample for this study comprised 1852 community-dwelling older adults residing in the state of Nebraska who voluntarily completed the survey (response rate = 50%). The researchers obtained unsigned consent, as written or verbal consent would have provided the only linkage of the participants to their responses. No identifying data were collected. This form of consent and the research was approved by the University of Nebraska Medical Center Institutional Review Board of the research team as exempt research.

The older adults represented by this study reflect those most likely to need support from AAAs, those with the greatest social and economic needs (ACL, 2022). Each Area Agency on Aging provided population characteristics for the time-period in which the survey was distributed and is highlighted in Table 1. Compared to the U.S. older adult population, those served by Nebraska's AAAs are more likely to be female, older, non-Hispanic white, to live alone, and to live below the poverty line. Similar patterns emerge when comparing AAA service users to the age 60 and older population in Nebraska. For instance, current data from the U.S. Census Bureau (2021) indicate that 27% of the 60 and older population in Nebraska lives alone. By comparison, for those receiving supportive services from AAAs, this percentage increases to 58%. In Nebraska, 54% of the older population is female, whereas 63% of older adults receiving services from AAAs are female. One reason for the larger proportion of female service users is that they skew older in the state's demographic composition (age 85+: 35% of older Nebraskans vs. 21% of Nebraska's AAA service users). In contrast, when looking at the proportion of female-to-male participants in the 60–69 age range, it is roughly equal. The older adult population in Nebraska is predominately non-Hispanic white, and this is reflected in the population of nonwhite older adults receiving services from AAAs (close to 9%). In Nebraska, 7% of persons 60 and older are living below the poverty level. For those served by AAAs, the percentage of older adults below the poverty level is 26%, almost 20 percentage points higher than the state average. Table 1 includes demographic information for the 60 and older population in the United States, Nebraska, and those receiving home-delivered meals across Nebraska's Area Agencies on Aging.

Table 1. Demographics of Older Adults Receiving Home-Delivered Meals Across Nebraska's Area Agencies on Aging (AAA).

	U.S. Age 60 and Older Population[a]	Nebraska Age 60 and Older Population[a]	AAA Population[b]
Age			
Under 60			1.0[c]
60–74	70.0	68.8	30.9
75–84	21.1	21.1	32.8
85 or older	8.8	10.1	35.3
Female	54.6	53.9	62.8
Live alone	[d]	27.3	57.8
Nonwhite	24.1	7.5	8.5
Below poverty	9.6	7.4	26.4

[a]2015-2019 American Community Survey Tables and Public Use Microdata Samples, U.S. Census Bureau.
[b]Percentages are based on the state's age 60+ population located in each AAA area; a small percentage of service users reported being under age 60.
[c]A small percentage of service users indicated that they were under age 60.
[d]Data not available.

Measurement

Subjective appraisal of COVID-19. The impact of the COVID-19 pandemic was captured using a single-item measure: "Has your life changed because of COVID-19?" The binary variable was coded 1 for an affirmative response and 0 for no.

Social Connections

We asked a series of questions related to social connections and engagement during and prior to the onset of the pandemic. First, we measured pre-pandemic social engagement using the following question: "When restrictions are not in place, what community places do you frequently attend?" The possible response options included (a) church/place of worship, (b) library, (c) senior center, (d) other, and (e) none. We created separate binary variables for each response category, with 1 equal to an affirmative response (0 = no).

Second, respondents were asked about their life situation during the pandemic. Compared to pre-COVID-19, frequency of leaving home during the pandemic was coded using an ordinal variable. Response categories included 1, "less now"; 2, "about the same"; and and 3, "more now." There were a small number of respondents who reported being unable to leave their home/apartment now compared to pre-COVID-19; these respondents were grouped together with those who reported leaving their home less now. In addition, measures for duration of time since respondents (a) last left their home and (b) last interacted with someone by phone/video chat or in-person ranged from 1 to 4, with response categories equal to 1, "within the last day"; 2, "more than a day ago, but within the last week"; 3, "more than a week ago, but within the last month"; and 4, "over a month ago."

Third, we gathered information about respondents' current social life and feelings of loneliness. For support network members, we utilized a binary variable indicating whether respondents could contact someone if they needed help or would like to visit by phone or video chat. Loneliness was measured using a single item derived from the following question: "Do you feel lonely?" (1 = yes; 0 = no). We also queried respondents about the impact of the pandemic on their feelings of loneliness. Loneliness due to the pandemic is a binary variable coded 1 for "I feel lonelier" and 0 for "I feel less lonely" or "it did not change my feelings of loneliness."

Healthcare access and utilization. We used three variables to examine healthcare access and utilization during the pandemic. Missed healthcare visits capture whether respondents had to skip or postpone doctor/nurse visits due to COVID-19 (1 = yes; 0 = no). Ever used telehealth indicates whether respondents ever received health services via telephone/landline or video chat (1 = yes; 0 = no). The variable willingness to use telehealth is a binary measure derived from the question, "If a community place near you offered services through telehealth (calls or video chats with a healthcare provider), to promote your health and well-being, would you be willing to use it?" with 1 equal to an affirmative response (0 = no).

Technology. We utilized three variables to investigate access to technology. We first used a series of binary variables that include telephone, smartphone, computer, and tablet to indicate which devices respondents reported owning or having access to. In addition, we created a binary variable to capture those who have access to at least one of the aforementioned devices (1 = yes; 0 = no). Internet access was coded using three mutually exclusive dichotomous variables: no internet access, non-reliable internet access, and reliable internet access.

Analysis. Using STATA 16.1, we first examined the descriptive statistics for the study variables. These included the range, mean (or percentage), and standard deviation, where applicable. Second, to investigate associations between the impact of COVID-19 and respondents' experiences related to social connections, healthcare access, and

technology, we conducted chi-square tests between respondents' subjective appraisal of the COVID-19 pandemic (1 = perceived life changes due to COVID-19; 0 = no perceived life changes due to COVID-19) and each of the study variables. *p*-values equal to less than 0.05 were considered statistically significant. Listwise deletion was used to handle item-missing data.

Results

Table 2 presents the means and standard deviations of the study variables. The results indicate that COVID-19 has impacted the sample of older adults receiving supportive services from Nebraska's AAAs. Indeed, more than two-thirds (70%; n = 1282) of the respondents stated that their lives had changed due to the pandemic. While the majority of respondents (85%; n = 1580) reported attending at least one community place pre-pandemic, most respondents indicated a change in the frequency of leaving home. Specifically, the results show that 64% (n = 1169) of respondents left their home less often or not at all compared to pre-COVID-19. Most respondents (93%; n = 1694), however, reported interacting with others via phone/video chat or in-person within the past day or week. Moreover, the vast majority of respondents (98%; n = 1808) stated that they could contact someone (e.g., family, friends/neighbors, and case managers) if they needed help or wished to visit. It is noteworthy, 39% (n = 713) of respondents stated that they felt lonely, whereas 35% (n = 597) indicated that they felt lonelier because of the pandemic.

More than one-third of respondents (42%; n = 760) in the study indicated missing a healthcare visit due to the pandemic. While access to technology can help older adults remain connected, only about one-quarter of respondents (27%; n = 486) reported ever using healthcare services via telephone or video chat. However, more than one-half of respondents (54%; n = 919) indicated they would use telehealth services if available through a nearby community place. Access to technological tools varied. The majority of respondents had telephones (88%; n = 1635), with fewer having access to smartphones (31%; n = 575), computers (35%; n = 644), and tablets (21%; n = 391). Less than one-half of respondents (45%; n = 802) reported reliable internet access.

Table 3 presents the means of social connection variables by subjective appraisal of the pandemic. The results suggest that those who perceived that their life had changed due to COVID-19 reported more disruptions to their social life. In particular, those who reported a change in their lives due to the pandemic indicated leaving their home less, on average, compared to their pre-COVID-19 life, along with a longer duration of time since last leaving their home. Perceived pandemic life changes were also associated with more frequent pre-pandemic attendance at community places. In addition, the results show significant associations between perceived pandemic life changes and feelings of loneliness. Indeed, among those who reported being affected by the pandemic, 49% felt lonely, compared to just 16% of those who perceived themselves as unaffected.

Tables 4 and 5 present the means of healthcare access and utilization, and technology variables, respectively, by subjective appraisals of the pandemic. In terms of healthcare access and utilization, those who perceived life changes due to the pandemic reported more missed healthcare visits, but also a greater willingness to use telehealth services in the future. In addition, both reliable internet and access to technological devices such as smartphones, computers, and tablets were higher among those who perceived that their life had changed due to the pandemic.

Discussion

The results of this study of community-dwelling older adults highlight their unique experiences of sheltering in place in a largely rural state during a global pandemic. Their experiences help to inform practice today and in the future in three areas of interest: social connections, healthcare access and utilization, and technology.

The social consequences of the pandemic have been brought to light by various scholars since the beginning of the pandemic (Armitage & Nellums, 2020; Berg-Weger & Morley, 2020; Carr, 2021; Cohen & Tavares, 2020). Further, our results highlight the findings of others regarding social isolation and related loneliness due to COVID-19 among older adults (Kotwal et al., 2021). The results also reveal the experiences of community-dwelling older adults and their response to the pandemic as something not as well-represented in the literature.

It is encouraging that at least two-thirds of the older adults in our study reported to have maintained their social interaction with friends and neighbors, as well as family members, despite the restrictions imposed by the pandemic. This is promising given the positive psycho-social effects of social interactions (Matthews et al., 2016), especially in difficult times, such as during a global pandemic. Nevertheless, nearly 40% of respondents reported feeling lonely and more than 35% felt lonelier during the pandemic. These findings indicate that while social interactions may provide a buffer against loneliness, they do not necessarily eliminate loneliness, especially for homebound older adults who have become distanced from their formal social lives and relationships (Cheng et al., 2021). For these individuals, the quality of new social interactions may be a more important factor in abating loneliness than the quantity of these interactions. Meal delivery programs, which reduce loneliness, increase independence, and encourage autonomy, offer homebound older adults' new relationships of potentially high quality (Abedini et al., 2019; Cheng et al., 2021; Thomas et al., 2016).

Yet, the impact of COVID-19 and the restrictions associated with it resulted in older adults not being able to socially connect with others as they did pre-pandemic. Those sheltering in place and unable to leave their homes were more likely to report that the pandemic impacted their lives than others who were able to leave their homes. In addition, older

Table 2. Descriptive Statistics of Study Variables (*N* = 1852).

	Range	Mean or %	SD
Subjective appraisal of COVID-19	0, 1	70.1	
Community places attended pre-pandemic			
Church/place of worship	0, 1	56.1	
Library	0, 1	17.8	
Senior center	0, 1	40.9	
Other	0, 1	39.4	
None attended	0, 1	14.6	
Frequency of leaving home during pandemic	1–3	1.394	0.558
Less now (64%)			
About the same (32%)			
More now (4%)			
Duration of time since last left home	1–4	1.938	0.956
Within the last day (41%)			
More than a day ago; within last week (34%)			
More than a week ago; within last month (17%)			
Over a month ago (8%)			
Duration of time since last social interaction	1–4	1.352	0.671
Within the last day (74%)			
More than a day ago; within last week (19%)			
More than a week ago; within last month (5%)			
Over a month ago (2%)			
Support network members	0, 1	97.7	
Feel lonely	0, 1	39.3	
Lonelier due to pandemic	0, 1	34.9	
Missed healthcare visit	0, 1	41.7	
Ever used telehealth	0, 1	26.9	
Willingness to use telehealth	0, 1	54.5	
Devices own or have access to			
Telephone	0, 1	88.3	
Smartphone	0, 1	31.0	
Computer	0, 1	34.8	
Tablet	0, 1	21.1	
Own or have access to at least one device	0, 1	98.8	
Internet access			
No internet access	0, 1	46.1	
Non-reliable internet access	0, 1	8.6	
Reliable internet access	0, 1	45.2	

adults who perceived that their lives had been impacted by the pandemic were also consistently more likely to have access to the internet as well as other technological devices (i.e., smartphone, computer, and tablet). On the other hand, those without internet access did not indicate that their lives had changed because of the pandemic. One interpretation for this finding may be that internet access improved individuals' ability to recognize and attribute life changes to the pandemic due to an increased awareness of current events. Not surprisingly, recent research has shown an increase in internet use among older adults following the onset of the pandemic (Nimrod, 2020). Moreover, exposure to "new media" (e.g., digital sources, including social media), but not "traditional media" (e.g., radio, newspapers, and television), during the pandemic, has been linked to various psychological outcomes among adults (Chao et al., 2020).

The precautions taken to protect older adults, while well meaning, prevented them from interacting with family, friends, and the public in the usual way (Donovan & Blazer, 2020). While some in our sample were able to reach out to others using more sophisticated means such as video chatting and texting, there were others who were limited by location and access to technology. Despite these obstacles, 98% of the sample reported having someone they could contact via telephone if they needed help. A basic telephone was used by most of our sample and is still of value especially for the oldest-

Table 3. Social Connections Variables by Subjective Appraisal of the Pandemic.

		Life Changed Because of COVID-19	
	Range	Yes (n = 1282)	No (n = 546)
Community places attended pre-pandemic			
Church/place of worship	0, 1	0.604[a]	0.456***[b]
Library	0, 1	0.212	0.099***
Senior center	0, 1	0.444	0.326***
Other	0, 1	0.429	0.313***
None attended	0, 1	0.112	0.227***
Frequency of leaving home during pandemic	1–3	1.242	1.760***
Duration of time since last left home	1–4	1.975	1.844**
Duration of time since last social interaction	1–4	1.352	1.353
Support network members	0, 1	0.974	0.982
Feel lonely	0, 1	0.492	0.161***
Lonelier due to pandemic	0, 1	0.459	0.074***

[a]Mean (proportion for binary variables).
[b]p value from χ^2 tests.
*p < 0.05. **p < 0.01. ***p < 0.001 (two-tailed).
Note: Ns vary across χ^2 tests due to item-missing data.

Table 4. Healthcare Access and Utilization Variables by Subjective Appraisal of the Pandemic.

		Life Changed Because of COVID-19	
	Range	Yes (n = 1282)	No (n = 546)
Missed healthcare visit	0, 1	0.509[a]	0.201***[b]
Ever used telehealth	0, 1	0.283	0.242
Willingness to use telehealth	0, 1	0.584	0.447***

[a]Mean (proportion for binary variables).
[b]p value from χ^2 tests.
*p < 0.05. **p < 0.01. ***p < 0.001 (two-tailed).
Note: Ns vary across χ^2 tests due to item-missing data.

old (85+). Low-tech programming like telephone reassurance remains of benefit to older adults living in underserved and rural areas, and unaccustomed to more high-tech options. Basic phone service continues to be a viable option for routine contact of older adults by members of their community, post-pandemic, to check on their well-being.

Our findings reflect a national trend with healthcare visits; older adults skipped or postponed visits during the pandemic. There are some instances in which a visit can be delayed without consequence, but others demand more immediate attention. While this study did not probe for additional information about which visits were skipped or postponed (e.g., dentist and physician) or who initiated the cancellation of the visit, learning more about this detail is of future importance. Do finances make a difference? Highest level of education attained? Also, did older adults reschedule these postponed visits? If not, why? These are all important questions for researchers to consider.

Although our sample expressed interest in using telehealth, persons who are older, have less education, or are Black are typically less likely to use this form of healthcare (Ellison-Barnes et al., 2021; Fischer et al., 2020). It is important to note that telehealth is not accessible for everyone. The rural-urban divide is also evident as it relates to technology (Cortelyou-Ward et al., 2020; Whitacre & Mills, 2007). Finding alternative ways to give older adults access to devices such as smartphones may be one way to address the existing deficiencies and is reflected in a more recent survey from the Pew Research Center (Vogels, 2021, June 22). What is encouraging and reflected in our results is that those older adults who had never used telehealth pre-pandemic, and missed a healthcare visit, are open to telehealth. Finding ways to make this available to them is a good next step, especially those with limited funds to acquire the necessary technology to make this a reality (Vogels, 2021, June 22).

Table 5. Technology Variables by Subjective Appraisal of the Pandemic.

		Life Changed Because of COVID-19	
	Range	Yes (n = 1282)	No (n = 546)
Devices own or have access to			
Telephone	0, 1	0.873[a]	0.903
Smartphone	0, 1	0.348	0.229***[b]
Computer	0, 1	0.374	0.286***
Tablet	0, 1	0.230	0.170**
Own or have access to at least one device	0, 1	0.990	0.985
Internet access			
No internet access	0, 1	0.433	0.527***
Non-reliable internet access	0, 1	0.095	0.068
Reliable internet access	0, 1	0.473	0.405**

[a]Mean (proportion for binary variables).
[b]p value from χ^2 tests.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$ (two-tailed).
Note: Ns vary across χ^2 tests due to item-missing data.

It is noteworthy that the pandemic has prompted the availability of emergency funds through the Federal Communications Commission to support internet access for persons of limited means (Federal Communications Commission [FCC], 2021). Once funding ceases, ongoing effort will be needed to make internet accessible to everyone through other measures such as including this in utility calculations for affordable housing, as suggested by Ellison-Barnes et al. (2021). This includes appropriate access that can support such broadband intensive services as telehealth (Saeed & Masters, 2021). Doing so will include those whose resources limit the luxury of an important social determinant of health.

However, while internet access is necessary, connecting older adults to telehealth alone is not enough. Training older adults on how to use technology is key, along with ensuring they engage in digital safety. There are examples of training already in place in larger metropolitan areas. Finding ways to bring this knowledge and effort to rural areas in states like Nebraska is an important step after the necessary internet and cellular coverage is obtained.

The older adults served by AAAs represent those with the greatest social and economic need as noted in the demographics section. These are the people who are the most vulnerable to the consequences of a global pandemic. As the U.S. population ages, the opportunities for supporting older adults residing in rural and underserved areas continues to grow. Our findings reveal areas of immediate concern and attention. Identifying practical and affordable solutions is critical in anticipating the next crisis.

Limitations

The results of the survey are limited to the demographic data provided by the respective Area Agencies on Aging represented in this study. Respondents tend to reflect the population served by the AAAs, which include those who are frail, female, 60 and older, and homebound. In addition, loneliness was measured as a single item. While it has been treated as a single-item measure in other studies (e.g., Ferreira-Alves et al., 2014; Jylhä, 2004), we acknowledge a multi-item measure would be of value for further research. Additionally, the voices of older adults from more diverse backgrounds are needed to further explain the challenges of a global pandemic in their lives. Finally, this survey was conducted during the early phases of the pandemic and may present different results from what could be captured today.

Conclusion

A combination of rural and underserved older adults were faced with the challenges of COVID-19. This study attempted to capture a more accurate picture of the lived experience of older adults receiving HDM during a time of uncertainty, especially for older adults. This study also offers a statewide insight into the experiences of community-dwelling older adults. Finally, the results highlight the challenges of older adults living in rural and underserved areas and their lack of access to support systems such as internet and broadband capability. Any future events of pandemic proportions will benefit from addressing the issues identified though this study.

APPENDIX

Appendix A

Summary of Variables in the COVID-19 Data of Home-Delivered Meals Recipients.

Has your life changed because of COVID-19?
Yes
No
When restrictions are not in place, what community places do you frequently attend? (Check all that apply)
Church/place of worship
Library
Senior center
Other
None
Compared to your pre-COVID-19 life, how often do you leave your home?
Less now
About the same
More now
Since COVID-19 began, when was the last time that you left your home/apartment to do something other than get your mail, newspaper, etc.?
Within the last day
More than a day ago, but within the last week
More than a week ago, but within the last month
Over a month ago
Since COVID-19 began, when was the last time you interacted with someone by phone/video chat or in person?
Within the last day
More than a day ago, but within the last week
More than a week ago, but within the last month
Over a month ago
Who can you contact if you need help or would like to visit by phone or video chat?
Family
Friends/neighbors
Care manager
Other
No one
Do you feel lonely?
Yes
No
How do you think COVID-19 has impacted your feeling of loneliness?
I feel lonelier
I feel less lonely/it did not change my feeling of loneliness
Have you had to skip or postpone doctor/nurse visits due to COVID-19?
Yes
No
Have you ever received healthcare services via telephone or video chats (Skype, Zoom, FaceTime, etc.)?
Yes
No
If a community place near you offered services through telehealth (calls or video chats with a healthcare provider) to promote your health and well-being, would you be willing to use it?
Yes
No

Appendix A Continued

Please indicate if you own or have access to any of the following by checking all that apply.
Telephone
Smartphone
Computer/laptop iPad or tablet
Which statement best describes your internet access at home?
I have reliable internet access
I have internet access, but it is not reliable
I do not have internet access

Note. The coding scheme is presented as shown in Table 1.

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