The Role of Social Support in Telehealth Utilization Among Older Adults in the United States During the COVID-19 Pandemic

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Abstract
Background: Older adults may experience a significant digital divide and need support with using technology to transition to telehealth. This study examines the role of social support for telehealth utilization among older adults during the COVID-19 pandemic.

Materials and Methods: We used data from the COVID-19 Sample Person Interview to the National Health and Aging Trends Study. Using logistic regression, we measured the association between telehealth utilization and social support.

Results: Nearly one in five respondents used telehealth during the COVID-19 pandemic (weighted %: 20.6 [585/3188]). Currently living with family or friends and receipt of technical support were associated with telehealth utilization. Among residents of an assisted living facility, those who received communications technology support from the facility were more likely to use telehealth.

Conclusion: Health care providers and policies should aim to reduce barriers to telehealth among older adults, with efforts such as digital literacy support and training.

Keywords: telehealth; social support; COVID-19; aging

Introduction
Older adults face barriers to health care access during the COVID-19 pandemic. Since COVID-19, many providers have become more accessible through telehealth, yet older adults use less telemedicine.1,2 They may experience a significant digital divide and need support with using technology to transition to telehealth.3 This study examines the role of social support for telehealth utilization among older adults during the COVID-19 pandemic using the National Health and Aging Trends Study (NHATS) COVID-19 supplement.
Methods
We used data from the COVID-19 Sample Person Interview to NHATS and demographic data from Rounds 9 and 10. These data were from 3,188 participants aged 70 years and older. COVID-19 questionnaires were mailed from the end of June 2020 through October 2020, and collection continued through January 2021. The unweighted response rate was 83.5%. NHATS is sponsored by the National Institute on Aging (grant number NIA U01AG32947) and was conducted by Johns Hopkins University.

We measured the association between telehealth utilization and social support, conditional upon respondent characteristics. Our first model only included respondent characteristics, specifically age, gender, race/ethnicity, income, and presence of any chronic conditions associated with high risk for severe COVID-19. The second model controls for technological skill, measured by frequent use of e-mails or texts. The third model incorporates social determinants. The likelihood of telehealth use by 11 percentage points (SE: 2) for those aged 80–85 years and by 7 percentage points (SE: 2) for those aged 85 years and older. Compared with older adults with low income (≤$40,125), the likelihood of telehealth utilization is higher by 7 percentage points (SE: 2) for those with middle ($40,125–$85,525) and by 14 percentage points (SE: 2) for those with high (> $85,525) income. Upon adding technological skill in Model 2, the age effects are no longer statistically significant. However, technology skill increases the probability of telehealth use by 11 percentage points (SE: 2).

Results
Nearly one in five respondents used telehealth during the COVID-19 pandemic (weighted %: 20.6 [585/3188]) (Table 1). Model 1 shows that compared with 70–75-year olds, the probability of telehealth utilization is lower by 6 percentage points (SE: 3) for those aged 80–85 years and by 7 percentage points (SE: 2) for those aged 85 years and older. Compared with older adults with low income (≤$40,125), the likelihood of telehealth utilization is higher by 7 percentage points (SE: 2) for those with middle ($40,125–$85,525) and by 14 percentage points (SE: 2) for those with high (> $85,525) income. Upon adding technological skill in Model 2, the age effects are no longer statistically significant. However, technology skill increases the probability of telehealth use by 11 percentage points (SE: 2).

Model 3 incorporates social determinants. The likelihood of telehealth utilization is 5 percentage points (SE: 2) higher for those currently living with family or friends and 8 percentage points (SE: 2) higher for those receiving technical support. The receipt of technical support is a significant predictor conditional on living with family or friends (0.09, SE: 0.03, p = 0.003), but is no longer significant conditional on neither living with family or friends nor residing in an assisted living facility (0.08, SE: 0.04, p = 0.06) (not reported in Tables). Among residents of an assisted living facility, the receipt of communications technology support from the facility increases the probability of telehealth use by 14 percentage points (SE: 7) (Table 2).

Table 1. Participant Characteristics by Telehealth Use

| Characteristic | Total | Telehealth use | No telehealth use |
|---------------|-------|----------------|------------------|
| Total         | 3,188 (100.0) | 585 (20.6)   | 2,603 (79.4)    |
| Age, years    |       |               |                  |
| <70           | 932 (100.0)  | 181 (19.5)   | 751 (80.5)      |
| 70 and <75    | 2,256 (100.0) | 404 (18.0) | 1,852 (82.0)    |
| 75 and <80    | 2,508 (100.0) | 474 (19.3) | 2,034 (80.7)    |
| 80 and <85    | 1,870 (100.0) | 358 (19.1) | 1,512 (80.9)    |
| ≥85           | 742 (100.0)  | 138 (18.8)   | 604 (81.2)      |
| Gender        |       |               |                  |
| Female        | 2,026 (100.0) | 387 (19.1) | 1,639 (80.9)    |
| Male          | 1,162 (100.0) | 208 (17.9) | 954 (82.1)      |
| Race/ethnicity|       |               |                  |
| White, non-Hispanic | 1,829 (100.0) | 361 (19.7) | 1,468 (80.3)    |
| Black, non-Hispanic | 749 (100.0)  | 126 (16.9)  | 623 (83.1)      |
| Other         | 590 (100.0)  | 108 (18.1)   | 482 (81.9)      |
| Income ($)    |       |               |                  |
| ≤$40,125      | 1,590 (100.0) | 327 (20.4) | 1,263 (79.6)    |
| >$40,125 and ≤$85,525 | 2,426 (100.0) | 438 (22.6) | 1,988 (77.4)    |
| >$85,525      | 572 (100.0)  | 114 (20.1)   | 458 (79.9)      |
| Has a high-risk chronic conditiona |       |               |                  |
| No            | 2,141 (100.0) | 445 (20.9) | 1,696 (79.1)    |
| Yes           | 1,047 (100.0) | 202 (19.3) | 845 (80.7)      |
| E-mails or texts often |       |               |                  |
| No            | 2,026 (100.0) | 374 (18.5) | 1,652 (81.5)    |
| Yes           | 1,162 (100.0) | 252 (21.6) | 910 (78.4)      |
| Currently living with family or friends |       |               |                  |
| No            | 2,026 (100.0) | 374 (18.5) | 1,652 (81.5)    |
| Yes           | 1,162 (100.0) | 252 (21.6) | 910 (78.4)      |
| Learned a new technology or program to go onlineb with someone’s help |       |               |                  |
| No            | 2,141 (100.0) | 445 (20.9) | 1,696 (79.1)    |
| Yes           | 1,047 (100.0) | 202 (19.3) | 845 (80.7)      |
| Assisted living facility helped residents keep in touch with family or friends online |       |               |                  |
| No            | 76 (100.0)    | 13 (17.2)    | 63 (82.8)       |
| Yes           | 139 (100.0)   | 30 (21.6)    | 109 (78.4)      |

‡With binary independent variables, marginal effects measure how predicted probabilities change as the binary independent variable changes from 0 to 1. Marginal effects for continuous independent variables measure the amount of change in the dependent variable that will be produced by a 1-U change in the explanatory variable.

*With binary independent variables, marginal effects measure how predicted probabilities change as the binary independent variable changes from 0 to 1. Marginal effects for continuous independent variables measure the amount of change in the dependent variable that will be produced by a 1-U change in the explanatory variable.
Discussion

We find that nearly one in five older U.S. adults used telehealth during the study period. Affluent and tech-savvy seniors are much more likely to use telemedicine. Respondents’ living arrangements (living with family or friends) and receipt of technical support from family or friends are also important predictors, together accounting for more than half of telehealth utilization. Facility staff appear to play a similar role for respondents in assisted living facilities.

Previous studies have found limited telemedicine adoption among the elderly. Data from the National Poll on Healthy Aging showed that only 4% of adults aged 50–80 years had ever participated in a telehealth visit in May 2019. A study by Lam et al. of 4,525 older adults in the United States using 2018 NHATS data estimated that 38% were not ready for video visits, primarily due to inexperience with technology. Our study highlights the important role of social support for telehealth utilization among older adults who have limited experience and comfort with technology.

A major limitation of the study is its cross-sectional design with most of the questionnaires completed in July and August 2020. Thus, we cannot address how patterns changed as the pandemic, and experience with telemedicine evolved over time. Furthermore, our ability to assess causal relationships is limited. Last but not least, as the data do not document Medicare FFS versus Medicare Advantage plans, we are unable to address the roles of insurance coverage and benefit design, which has serious implications for the future of Medicare telehealth policy.

Conclusion

Health care providers and policies should aim to reduce barriers to telehealth among older adults, with efforts such as digital literacy support and training. Future research evaluating interventions to improve technology skills among the elderly is warranted.

Authorship Contribution Statement

I affirm that I have listed everyone who contributed significantly to the study. G.S.C. provided the conception and design of the study, acquisition of data, analysis and interpretation of data, and drafting and revisions of the article; C.S.E. provided feedback on drafts of the article and gave final approval of the version to be submitted; J.S.M. provided feedback on the analysis and interpretation of data, revised the article critically for important intellectual content, and gave final approval of the version to be submitted.

### Table 2. Results of Multivariable Logistic Regression Analyses Examining Telehealth Use as the Outcome

| Characteristic                                      | Model 1 Marginal probability (SE) | Model 2 Marginal probability (SE) | Model 3 Marginal probability (SE) | Model 4 Marginal probability (SE) |
|-----------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Currently living with family or friends             | 0.05 (0.02)*                      | 0.08 (0.02)**                     | 0.11 (0.02)**                     | 0.14 (0.07)*                      |
| Learned a new technology or program to go online    |                                   |                                   |                                   |                                   |
| with someone’s help                                  |                                   |                                   |                                   |                                   |
| Assisted living facility helped residents keep in   | 0.02 (0.02)                       | 0.007 (0.02)                      | 0.008 (0.02)                      | −0.17 (0.06)**                     |
| touch with family or friends online                 |                                   |                                   |                                   |                                   |
| E-mails or texts often                              |                                   |                                   |                                   |                                   |
| Age (years)                                         |                                   |                                   |                                   |                                   |
| <75                                                 | Referent                          | Referent                          | Referent                          | Referent                          |
| ≥75 and <80                                         | −0.01 (0.02)                      | −0.004 (0.02)                     | −0.005 (0.02)                     | 0.24 (0.17)                       |
| ≥80 and <85                                         | −0.06 (0.03)*                     | −0.04 (0.03)                      | −0.04 (0.03)                      | −0.18 (0.15)                      |
| ≥85                                                 | −0.07 (0.02)**                     | −0.04 (0.02)                      | −0.03 (0.02)                      | −0.07 (0.15)                      |
| Female gender                                       |                                   |                                   |                                   |                                   |
| White, non-Hispanic                                 | 0.02 (0.02)                       | 0.007 (0.02)                      | 0.008 (0.02)                      | −0.17 (0.06)**                     |
| Black, non-Hispanic                                 | 0.03 (0.03)                       | 0.04 (0.03)                       | 0.04 (0.03)                       | −0.06 (0.11)                      |
| Other                                               | 0.07 (0.04)                       | 0.07 (0.04)                       | 0.06 (0.04)                       | −0.15 (0.07)**                     |
| Income ($)                                          |                                   |                                   |                                   |                                   |
| ≤$40,125                                           | Referent                          | Referent                          | Referent                          | Referent                          |
| >$40,125 and ≤$85,525                                | 0.07 (0.02)**                     | 0.05 (0.02)**                     | 0.04 (0.02)                       | −0.06 (0.07)                      |
| >$85,525                                           | 0.14 (0.02)**                     | 0.10 (0.03)**                     | 0.07 (0.02)**                     | 0.08 (0.07)                       |
| Has a high-risk chronic condition                   | 0.06 (0.03)*                      | 0.06 (0.03)*                      | 0.07 (0.03)*                      | 0.05 (0.10)                       |
| No. of observations                                 | 3,188                             | 3,188                             | 3,188                             | 215                               |

*p < 0.05; **p < 0.01; ***p < 0.001.

*Missing values of the “learned a new technology or program to go online with someone’s help” imputed using multiple random imputation.

†Limited to study participants in an assisted living facility.

SE, standard error.
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Abbreviations Used
NHATS = National Health and Aging Trends Study
SE = standard error

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