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ORIGINAL RESEARCH

Healthcare Disruptions and Use of Telehealth Services Among People With Multiple Sclerosis During the COVID-19 Pandemic

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Abstract

Objective: The current study examined health care disruptions and use of telehealth services among people with multiple sclerosis (pwMS) during the COVID-19 pandemic.

Design: Cross-sectional survey.

Setting: General community.

Participants: Participants (N=163) included 70 pwMS and 93 healthy controls (HCs). The majority of respondents were from the United States (88%).

Interventions: Not applicable.

Main Outcome Measures: Rates of health care disruptions (eg, missing/canceling appointments, experiencing delays) and telehealth use for MS and non-MS medical care and mental health care.

Results: In this U.S. majority, predominantly White, and high socioeconomic status sample, 38% to 50% of pwMS reported experiencing disruptions in their MS and non-MS medical care and 20% to 33% reported disruptions in their mental health care; this was significantly lower than the rates observed among HCs. Compared with HCs, pwMS were more likely to use telehealth than in-person services, especially for mental health care. The majority of pwMS and HCs reported being satisfied with telehealth services. Individuals with higher degrees of functional limitation experienced more health care disruptions and were more likely to use telehealth services than individuals with lower degrees of functional limitation.

Conclusions: Despite high health care disruption rates, pwMS frequently used and were highly satisfied with telehealth services during the COVID-19 pandemic. Due to physical limitations commonly observed in the MS population that may preclude travel, telehealth services should be continued even after resolution of the pandemic to expand access and reduce health care disparities.

To mitigate the transmission of the SARS-CoV-2 virus, which causes COVID-19, many public spaces temporarily shut down or limited access. This significantly disrupted in-person health care access and delivery (eg, canceled appointments, delays). Multiple sclerosis (MS) is a chronic and progressive neurological disorder and is the leading cause of nontraumatic disability among young and middle-aged adults. People with MS (pwMS) need routine follow-up visits with their neurologists and are more likely to have medical and mental health comorbidities that would require additional care. Therefore, the COVID-19 pandemic may have a greater effect on health care...
for pwMS compared with their healthy counterparts. Indeed, extant research has identified significant reductions in outpatient services after March 2020 compared with the same period in the previous year, including neurology and non-neurology visits, magnetic resonance imaging and laboratory tests, and rehabilitation services. Many MS providers have changed the way they prescribed disease-modifying therapies due to concerns of safety in relation to COVID-19 (eg, anti-CD20 therapies). PwMS reported being anxious about their disease-modifying therapy regimen (some stopped them altogether), missing hospital appointments, or not going to the hospital when they had a relapse. Although informative, these studies did not include a reference group, making it difficult to determine if rates of health care disruption were disproportionately affected in the MS population. Another limitation of these studies is the narrow focus on services directly related to MS care, which does not encompass other types of care pwMS may receive due to medical and mental health comorbidities. The current study will address these limitations by including a healthy control (HC) group and delineating among different types of health care received.

To minimize unnecessary exposure, telehealth appointments were viable and, in some cases, necessary alternatives to in-person visits. Both pwMS and MS providers reported increased use of telehealth services during the COVID-19 pandemic. However, telehealth access and use may depend on social determinants of health such as demographic and disease variables (eg, socioeconomic status, level of functional limitation). There is research suggesting that social determinants of health have had an effect on health care during the COVID-19 pandemic. Black Americans were more likely to experience health care disruptions and were less likely to use telehealth services compared with White Americans during the COVID-19 pandemic. In MS research, Moss et al found that pwMS who experienced disruptions in their rehabilitation and homecare services were more likely to be older, have a progressive disease course, use walking aids, and have more comorbidities.

The current study examined health care disruption and telehealth use among pwMS and HCs during the COVID-19 pandemic. The effect of MS disease variables, social determinants of health, and psychological distress from COVID-19 were also evaluated. Better understanding of how the pandemic has affected the health care landscape among pwMS will help inform optimal health care policy for this population.

Methods

Participants

The current study was part of a larger cross-sectional investigation of the effect of COVID-19 on adults with MS, traumatic brain injuries, and strokes. Participants were recruited through word of mouth and online advertisements. The current study only included data from the MS and HC groups. Inclusion criteria included self-reported diagnosis of MS (or no neurological diagnoses for the HC group) and age of 18 years or older. Exclusion criteria included neurological diagnoses other than MS or diagnoses of serious mental illnesses (eg, schizophrenia, bipolar disorder). The study was approved by the Kessler Foundation institutional review board. All participants provided informed consent via REDCap tools.

Procedures and measures

The study consisted of an online survey administered remotely through REDCap. Data collection occurred between September and October 2020. The current study focused on a subset of questions related to demographics, medical history, COVID-19 exposure and stressors, and health care utilization. Besides demographics and MS medical history, all questions used in this study were adapted from the COVID-19: Impact of the Pandemic and HRQOL in Cancer Patients and Survivors scale (F.J. Penedo, unpublished questionnaire, 2020). Questions related to cancer were modified to refer to MS. For health care questions, we expanded the questions to include MS care, care for a major medical condition, general medical care, and mental health care (see supplemental table S1, available online only at http://www.archives-pmr.org/, for details on these questions). Although we focused on health care utilization in the current article, we also published another study on changes in occupations of daily living among pwMS during the pandemic.

Statistical analysis

All data analyses were conducted using R, version 4.0.3. Group differences were analyzed using Welch’s 2 samples t tests for continuous variables, Pearson’s chi-square tests for nominal variables, and Wilcoxon rank-sum test for ordinal variables. For health care utilization, between-group differences were analyzed by Pearson’s chi-square tests, and within-subject differences (in-person vs telehealth) were examined using McNemar’s tests. For sake of parsimony, major and general medical care were combined into non-MS medical care given no significant differences between these health care categories. For chi-square tests containing cells with expected frequency of less than 5, Fisher exact tests for count data were used. If respondents checked off “prefer not to answer” or “don’t know” (<5% of overall data), these responses were designated as missing values in statistical analyses. Because health care access and shutdown policies may differ by country, we also examined rates of health care utilization among only respondents from the United States in a sensitivity analysis.

To identify predictors of health care disruption and telehealth use, binary variables were created to represent whether an individual experienced health care disruptions or used telehealth services. Many of the categorical variables contained categories with limited endorsement, so they were dichotomized for analyses (see supplemental table S2, available online only at http://www.archives-pmr.org, for more details). The MS and HC groups were combined in these analyses, except for MS disease characteristics. We also conducted sensitivity analyses with only the MS sample to ensure generalizability. A threshold of P less than .05 was used to determine statistical significance in all analyses.

List of abbreviations:

| Abbreviation | Description |
|--------------|-------------|
| HC           | Healthy control |
| MS           | Multiple sclerosis |
| pwMS         | People with MS |

www.archives-pmr.org
| Characteristics                                      | MS (n=70) | Mean (SD); Range | HC (n=93) | Mean (SD); Range |
|-----------------------------------------------------|-----------|------------------|-----------|------------------|
| Age, y                                               | 47.66 (12.96); 26-73 | 43.57 (14.60); 18-84 |
| Disease duration, y                                  | 12.77 (9.84); 5 mo to 40 y | — | — |
| Years since last exacerbation                        | 3.91 (5.82); <1 mo to 28.5 y | — | — |
| **No. (%)**                                          |           |                  |           |                  |
| MS phenotype                                         |           |                  |           |                  |
| Relapsing-remitting                                  | 48 (68.6) | —                | —         | —                |
| Secondary progressive                                | 9 (12.9)  | —                | —         | —                |
| Primary progressive                                  | 9 (12.9)  | —                | —         | —                |
| Not sure                                            | 4 (5.7)   | —                | —         | —                |
| **Used ambulatory assistive devices**                |           |                  |           |                  |
| Cane                                                | 27 (38.6) | —                | —         | —                |
| Walker                                              | 13 (18.6) | —                | —         | —                |
| Crutches                                            | 3 (4.3)   | —                | —         | —                |
| Knee ankle foot orthosis                             | 7 (10.0)  | —                | —         | —                |
| Manual wheelchair                                    | 7 (10.0)  | —                | —         | —                |
| Power wheelchair                                     | 4 (5.7)   | —                | —         | —                |
| Scooter                                             | 5 (7.1)   | —                | —         | —                |
| **Female**                                           | 57 (81.4) | 78 (83.9)        |
| Race                                                |           |                  |           |                  |
| White                                               | 52 (74.3) | 74 (79.6)        |
| Asian                                               | 5 (7.1)   | 8 (8.6)          |
| Black or African American                            | 3 (4.3)   | 6 (6.5)          |
| American Indian/Alaska Native                       | 2 (2.9)   | 1 (1.1)          |
| Other                                                | 5 (7.1)   | 2 (2.2)          |
| Prefer not to answer                                 | 3 (4.3)   | 2 (2.2)          |
| Ethnicity                                            |           |                  |           |                  |
| Hispanic, Latino, or Spanish origin                  | 11 (15.7) | 10 (10.8)        |
| Education                                            |           |                  |           |                  |
| 12th grade, no diploma                              | 1 (1.4)   | 0 (0)            |
| High school graduate                                 | 2 (2.8)   | 4 (4.3)          |
| GED or equivalent                                    | 2 (2.8)   | 2 (2.2)          |
| Some college, no degree                              | 14 (19.4) | 6 (6.5)          |
| Associate degree                                     | 4 (5.6)   | 1 (1.1)          |
| Bachelors degree                                     | 19 (26.4) | 35 (37.6)        |
| Masters degree                                       | 22 (30.6) | 33 (35.5)        |
| Doctoral degree                                      | 8 (11.1)  | 12 (12.9)        |
| Employment status*                                   |           |                  |           |                  |
| Employed full time                                   | 23 (32.9) | 48 (51.6)        |
| Employed part time                                   | 12 (17.1) | 12 (12.9)        |
| Laid off/furloughed due to COVID-19                  | 3 (4.3)   | 5 (5.4)          |
| Unemployed (unrelated to COVID-19)                   | 1 (1.4)   | 5 (5.4)          |
| Retired                                              | 8 (11.4)  | 4 (4.3)          |
| Unemployed due to disability                         | 22 (62.9) | 1 (1.1)          |
| Other (eg, student, homemaker)                       | 1 (1.4)   | 18 (19.4)        |
| Marital status                                       |           |                  |           |                  |
| Married                                              | 36 (51.4) | 45 (48.4)        |
| Part of an unmarried couple                          | 3 (4.3)   | 12 (12.9)        |
| Never married                                       | 18 (25.7) | 26 (28)          |
| Divorced                                             | 9 (12.9)  | 4 (4.3)          |
| Separated                                            | 1 (1.4)   | 0 (0)            |
| Widowed                                              | 1 (1.4)   | 4 (4.3)          |
| Other                                                 | 1 (1.4)   | 1 (1.1)          |
| Prefer not to answer                                 | 1 (1.4)   | 1 (1.1)          |
| Income*                                              |           |                  |           |                  |
| <$25,000                                             | 12 (17.1) | 9 (9.7)          |
| $25,000-$69,000                                      | 9 (12.9)  | 10 (10.8)        |

(continued on next page)
Results

Demographic and MS disease characteristics

A total of 70 pwMS and 93 HCs were included in this study. Table 1 summarizes demographic and MS disease characteristics. A significantly higher proportion of pwMS reported being unemployed due to a disability than HCs (31% in MS vs 1% in HC; \(x^2\) [1]=30.36; \(P\ < .001\)). The HC group reported significantly higher household incomes than the MS group (median income, $50,000-$74,000 in MS vs >$75,000 in HC; \(W=3209; P=.004\)). The MS group reported higher rates of comorbidities including major medical problems other than MS (30% in MS vs 4% in HC; \(x^2\) [1]=20.75; \(P<.001\)), depression (46% in MS vs 13% in HC; \(x^2\) [1]=21.82; \(P<.001\)), and anxiety (34% in MS vs 14% in HC; \(x^2\) [1]=9.39; \(P=.002\)). The majority of the sample was from the United States.

COVID-19 exposure and stressors

Table 2 summarizes COVID-19 exposure and stressors among the MS and HC groups. Significantly more HCs reported known exposure to someone with COVID-19 (7% in MS vs 23% in HC; \(x^2\) [1]=7.28; \(P=.007\)) or being tested for COVID-19 (26% in MS vs 41% in HC; \(x^2\) [1]=4.27; \(P=.039\)), relative to pwMS. A higher proportion of the HC group had a friend, coworker, or neighbor who was diagnosed with COVID-19 compared with the MS group (37% in MS vs 60% in HC; \(x^2\) [1]=8.95; \(P=.003\)).

Healthcare disruption and telehealth use

Table 3 summarizes rates of health care disruption and telehealth utilization during the COVID-19 pandemic. Among pwMS, 38% to 50% experienced a disruption (ie, missing/canceling an appointment, experiencing a delay) in their MS and non-MS medical care. Sixty-six percent of pwMS experienced a disruption in their medical care, which was significantly higher than pwMS (\(x^2\) [1]=12.16; \(P<.001\) for missing/canceling appointments; \(x^2\) [1]=3.89; \(P=.049\) for delay). Disruption rates in mental health care were slightly lower than medical care at 20% to 33% in pwMS and 26% in HCs, which was comparable between groups (\(P>.05\)). Relatively few pwMS and HCs experienced disruptions in emergency care and fulfilling medical prescriptions (<17%). Higher proportions of pwMS attended telehealth than in-person appointments across all health care types (\(x^2\) [1]=6.08; \(P=.014\) for MS care; \(x^2\) [1]=6.26; \(P=.012\) for non-MS medical care; \(x^2\) [1]=19.17; \(P<.001\) for mental health care), although this was observed in mental health (\(P=.001\) but not in medical care among HCs. Telehealth use was the most frequent in mental health care with 90% in pwMS and 79% in HCs. Among pwMS, 77%, 74% to 84%, and 93% reported that they were very satisfied or somewhat satisfied with their MS medical, non-MS medical, and mental telehealth care, respectively. Similarly high rates were observed among HCs: 71% to 80% and 80% for medical and mental telehealth care, respectively. In sensitivity analyses, rates of health care disruption and telehealth use among respondents from the United States (n=144) were comparable to rates observed in the overall sample.
Predictors of healthcare disruption and telehealth use

Contrary to expectations, most demographic and MS disease characteristics were not significantly associated with healthcare disruption or telehealth use (Table 4). PwMS who experienced mental health care disruption had significantly shorter MS disease duration (mean, 8.74y) than pwMS who did not experience mental health care disruption (mean, 16.00y; t[22.35]=2.62; P=.015). Use of an assistive device for ambulation (e.g., cane, wheelchair) was significantly associated with greater non-MS medical telehealth use (x^2 [1]=16.44; P<.001). In the overall sample, being unemployed due to a disability (x^2 [1]=12.58; P<.001) and number of debilitating symptoms (t[125.23]=−4.27; P<.001) were associated with greater non-MS medical telehealth use. Greater psychological distress from COVID-19 was significantly associated with mental health care disruptions (t[43.54]=−2.12; P=.040) and tended to be related to greater non-MS medical telehealth use (t[144.74]=−1.91, P=.057). Sensitivity analyses with only the MS sample yielded similar findings as observed with the overall sample.

Table 2  COVID-19 exposure

| Exposure to COVID-19                                      | MS (n=70) | HC (n=93) | MS vs HC |
|----------------------------------------------------------|-----------|-----------|----------|
| Known exposure to someone with COVID-19                  | 5 (7.1)   | 21 (22.6) | .007     |
| Tested for COVID-19                                      | 18 (25.7) | 38 (40.9) | .038     |
| Positive for COVID-19                                    | 3 of 18 (16.7) | 2 of 38 (5.3) | NS       |
| A family or household member tested positive for COVID-19 | 8 (11.4)   | 12 (12.9) | NS       |
| A family or household member died from COVID-19          | 3 (4.3)    | 3 (3.2)    | NS       |
| A friend, coworker, or neighbor diagnosed with COVID-19  | 26 (37.1)  | 56 (60.2)  | .003     |
| A friend, coworker, or neighbor died from COVID-19       | 12 (17.1)  | 17 (18.3)  | NS       |

NOTE: Group differences were analyzed by Pearson's chi-square tests (MS vs HC). Abbreviation: NS, not statistically significant.

Table 3  Healthcare disruption and telehealth utilization during COVID-19 pandemic

| MS Care (n=69 Received Care)                      | MS (n=69) | No. (%) | MS vs HC |
|--------------------------------------------------|-----------|---------|----------|
| Missed/Canceled appointment                       | 68        | 26 (38.2) | .014     |
| Experienced a delay                               | 66        | 26 (39.4) | .001     |
| Attended in-person appointment                     | 69        | 27 (39.1) | .001     |
| Attended telehealth appointment                    | 69        | 42 (60.9) | .001     |
| In-person vs telehealth                           | .012      | NS      | .001     |

| Non-MS Medical Care (n = 157)                      | n         | No. (%) | HC (n=157) | No. (%) | MS vs. HC |
|--------------------------------------------------|-----------|---------|------------|---------|-----------|
| Missed/Canceled appointment                       | 62        | 23 (37.1) | 88        | 58 (65.9) | <.001     |
| Experienced a delay                               | 62        | 31 (50.0) | 83        | 55 (66.3) | .049      |
| Attended in-person appointment                     | 61        | 24 (39.3) | 87        | 37 (42.5) | NS        |
| Attended telehealth appointment                    | 62        | 37 (59.7) | 87        | 33 (37.9) | .009      |
| In-person vs. Telehealth                          | .012      | NS      | .001      | .001    | NS        |

| Mental Healthcare (n=51)                          | n         | No. (%) | HC (n=51) | No. (%) | MS vs. HC |
|--------------------------------------------------|-----------|---------|------------|---------|-----------|
| Missed/canceled appointment                       | 30        | 10 (33.3) | 19        | 5 (26.3) | NS        |
| Experienced a delay                               | 30        | 6 (20.0)  | 19        | 5 (26.3) | NS        |
| Attended in-person appointment                     | 29        | 5 (17.2)  | 19        | 3 (15.8) | NS        |
| Attended telehealth appointment                    | 30        | 27 (90.0) | 19        | 15 (79.0) | NS        |
| In-person vs. Telehealth                          | <.001     | NS      | .001      | .001    | NS        |

| Miscellaneous                                    | n         | No. (%) | HC (n=51) | No. (%) | MS vs. HC |
|--------------------------------------------------|-----------|---------|------------|---------|-----------|
| Chose not to seek emergency care                  | 59        | 7 (11.9) | 65        | 11 (16.9) | NS        |
| Difficulty fulfilling prescriptions               | 65        | 8 (12.3) | 77        | 12 (15.6) | NS        |

NOTE: Between-subject differences were analyzed by Pearson’s chi-square tests (MS vs HC). Within-subject differences were examined using McNemar’s test (in-person vs telehealth). Abbreviation: NS, not statistically significant.
between medical and mental health care services among pwMS. and is the first to include a HC reference group and delineate standing of health care utilization during the COVID-19 pandemic than HCs. The current study significantly contributes to our under-rate of telehealth use was the highest for mental health care among infections and complications, it is possible that more pwMS are promised and therefore may be more vulnerable to SARS-CoV-2 infections and mortality. Additionally, our results indicate that rate of telehealth use was the highest for mental health care among both pwMS and HCs compared with other types of care. This was not surprising given the nature of mental health services, which can be more easily conducted remotely compared with medical services (which often require physical examinations). Mental health treatment is more important now than ever due to the COVID-19 pandemic. Since the COVID-19 outbreak, there have been significant increases in mental health diagnoses, including higher incidences of anxiety and depressive disorders, trauma and COVID-19 stress-related disorders, substance use disorders, and suicidal ideation.18,19 The results of this study provide support for the continued use and expansion of tele-mental health services to meet the increased demands during the pandemic.19,20

We further argue that some of the temporary governmental pol-icy changes aimed to expand telehealth services during the COVID-19 pandemic should be made permanent, even after the res-olution of the pandemic. Although the current public health crisis has highlighted the need for telehealth services at a population-wide scale, certain groups of individuals have always had difficulty accessing in-person health care, such as individuals with significant physical limitations or lower socioeconomic status,21 as well as rural residents. For example, many pwMS have to travel far to reach a MS clinic, which is challenging for those with significant physical limitations.22 According to a recent American Academy of Neurol-ogy update, telehealth visits reduced travel for pwMS by 258 km, saved more than $144 of travel costs associated with cognitive test- ing, reduced lodging costs by 17%, and decreased missed employ-ment by 65%.23 In support of expanded telehealth use, the current study found that the vast majority of pwMS and HCs (74%-93% in the MS group and 71%-80% in the HC group) were satisfied with their telehealth experiences. That being said, there are limitations to telehealth, such as the inability to perform physical examinations, imaging, and laboratory tests. Therefore, clinicians must exercise their clinical judgment and follow the guidelines established by consensus expert panels.24,25

Contrary to our hypotheses, most social determinants of health did not predict health care disruptions or telehealth use. This may be partly due to the homogeneity of our sample (eg, 74% identified as White) and definitions of certain categorical variables (eg,

### Table 4

|                               | Healthcare Disruption |      | Telehealth Use |      |
|-------------------------------|-----------------------|------|----------------|------|
|                               | MS    | Non-MS Medical | Mental | MS      | Non-MS Medical | Mental |
| Disease duration               | NS    | NS            | 0.015  | NS      | NS            | NS     |
| Time since last exacerbation   | NS    | NS            | NS     | NS      | NS            | NS     |
| MS phenotype (RRMS vs PMS)     | NS    | NS            | NS     | NS      | NS            | NS     |
| Use of assistive device for ambulation (yes vs no) | NS | NS | NS | NS | NS | NS |
| Age                            | NS    | NS            | NS     | NS      | NS            | NS     |
| Education                      | NS    | NS            | NS     | NS      | NS            | NS     |
| Race (White vs non-White)      | NS    | NS            | NS     | NS      | NS            | NS     |
| Unemployed due to a disability (yes vs no) | NS | NS | NS | NS | NS | NS |
| Number of debilitating symptoms | NS  | NS            | NS     | NS      | NS            | NS     |
| Income level                   | NS    | NS            | NS     | NS      | NS            | NS     |
| Financial hardship during COVID-19 | NS | NS | NS | NS | NS | NS |
| Psychological distress from COVID-19 | NS | NS | 0.040 | NS | 0.057 | NS |

NOTE. Respondents (MS and HC groups combined) were categorized as either having experienced healthcare disruption or not (ie, missing/canceling appointment or experienced a delay) and utilized telehealth services or not. Values represent P values for respective analyses. Abbreviations: NS, not statistically significant; PMS, progressive MS; RRMS, relapsing-remitting MS.
annual household income had only 4 levels with $75,000 or higher as the highest level, which comprised 41% of the sample; see Table 1). Disparities have been evident throughout the COVID-19 pandemic. Extant research has identified higher SARS-CoV-2 infection and death rates among Black and Latinx Americans,26−28 households with lower income,13 and U.S. counties with higher poverty rates.26 In MS, before the pandemic, inequalities in health care access had been documented in people with lower socioeconomic status and less education as well as non-White and rural residents.29 Interestingly, a recent multicenter study found that the number of non-White MS patients who used teleneurology increased from pre- to postpandemic, which the authors attributed to governmental policies that expanded telehealth access.12 This suggests that continuation of such policies may help reduce health care disparities in the MS population.

In contrast to findings from Moss et al.,4 we did not find significant associations between most MS disease variables and whether respondents experienced health care disruption. Paradoxically, we did find that shorter MS disease duration was associated with greater mental health care disruptions. It is unclear at this time why we found this association. Future studies may conduct a qualitative interview with pwMS to understand the mechanisms mediating the relationship between disease duration and health care disruptions. Importantly, greater degree of functional limitation (ie, being unemployed due to a disability, use of an assistive device for ambulation, greater number of debilitating symptoms) was significantly associated with more frequent telehealth use among both pwMS and HCs. This may be the result of increased anxiety regarding COVID-19 infections and mortality in functionally limited individuals. Such fears are not unfounded, as illustrated by an epidemiological study of 369 counties across the United States in which higher disability rates were associated with higher COVID-19 death rates.20

Study limitations
Given that this was an online, anonymous survey study, we were unable to verify MS diagnosis status with physicians in the MS sample. The current study had a relatively small sample size, which may affect the generalizability of these results. There is a potential selection bias given the mode of survey distribution (ie, internet based) and the predominantly White and high socioeconomic status sample. Thus, rates of telehealth use may be higher in this sample because respondents were more technologically savvy and had more economic resources. Moreover, we did not collect data on health insurance status (eg, whether respondents had insurance, private vs public), which could have affected health care disruptions and telehealth use. Furthermore, there were very few respondents who were diagnosed with COVID-19, so we were unable to determine if a history of COVID-19 had an influence on our health care outcomes. Finally, we did not collect information about presence of relapses and use of and changes in disease-modifying therapies for the MS respondents.

Conclusions
In this U.S. majority, predominantly White, and high socioeconomic status sample, high rates of disruptions across MS and non-MS medical and mental health care were reported by pwMS during the COVID-19 pandemic, but these rates were lower than those observed among HCs. Telehealth services may counteract these disruptions. PwMS were more likely to use telehealth than in-person services, especially for mental health care. Greater degree of functional limitation (ie, being unemployed due to a disability, use of an assistive device for ambulation, greater number of debilitating symptoms) was significantly associated with more frequent use of telehealth services among both pwMS and HCs. Due to significant physical limitations common in the MS population that interfere with travel to MS clinics and high degree of satisfaction with telehealth visits as shown in the current study, telehealth services should be continued for this population even after resolution of the pandemic (in cases when physical examinations are not required) to expand access and reduce health care disparities.
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