# Use of Direct-to-Consumer Telemedicine to Access Mental Health Services

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**BACKGROUND:** The coronavirus disease 2019 pandemic has contributed to growing demand for mental health services, but patients face significant barriers to accessing care. Direct-to-consumer(DTC) telemedicine has been proposed as one way to increase access, yet little is known about its pre-pandemic use for mental healthcare.

**OBJECTIVE:** To characterize patients, providers, and their use of a large nationwide DTC telemedicine platform for mental healthcare.

**DESIGN:** Retrospective cross-sectional study.

**SETTING:** Mental health encounters conducted on the American Well DTC telemedicine platform from 2016 to 2018.

**PARTICIPANTS:** Patients and physicians.

**MAIN MEASURES:** Patient measures included demographics, insurance report, and number of visits. Provider characteristics included specialty, region, and number of encounters. Encounter measures included wait time, visit length and timing, out-of-pocket payment, coupon use, prescription outcome, referral receipt, where care otherwise would have been sought, and patient satisfaction. Factors associated with five-star physician ratings and prescription receipt were assessed using logistic regression.

**KEY RESULTS:** We analyzed 19,270 mental health encounters between 6708 patients and 1045 providers. Visits were most frequently for anxiety (39.1%) or depression (32.5%), with high satisfaction (4.9/5) across conditions. Patients had a median 2.0 visits for psychiatry (IQR 1.0–3.0) and therapy (IQR 1.0–5.0), compared to 1.0 visit (IQR 1.0–1.0) for urgent care. High satisfaction was positively correlated with prescription receipt (OR 1.89, 95% CI 1.54–2.32) and after-hours timing (aOR 1.18, 95% CI 1.02–1.36). Prescription rates ranged from 79.6% for depression to 32.2% for substance use disorders. Prescription receipt was associated with increased visit frequency (aOR 1.95, 95% CI 1.57–2.42 for ≥ 3 visits).

**CONCLUSIONS:** As the burden of psychiatric disease grows, DTC telemedicine offers one solution for extending access to mental healthcare. While most encounters were one-off, evidence of some continuity in psychiatry and therapy visits—as well as overall high patient satisfaction—suggests potential for broader DTC telemental health use.

## INTRODUCTION

Prior to the coronavirus disease 2019 (COVID-19) pandemic, roughly one in five adults in the US reported suffering from mental illness.[1] The pandemic has driven further demand for behavioral health services, while access to mental healthcare has decreased.[2–5] Significant barriers to access exist: limited insurance coverage, high costs, provider shortages, and long wait times. There are no psychiatrists practicing in many U.S. counties.[6] By some estimates, two-thirds of primary care physicians are unable to connect patients to outpatient mental healthcare, forcing them to assume central roles in behavioral health provision[5]; meanwhile, patients without regular care providers increasingly turn to emergency departments (ED) for mental healthcare.[7–9] Among adults who are able to access behavioral health services, 40% experience wait times longer than 1 week, and half travel ≥1 h for care.[3]

In response to this mismatch in supply and demand, a number of telemental health models have emerged, including video conferencing and electronic consultation with specialists.[10–13] Although use of telemedicine for mental health remained rare prior to the pandemic—representing <1% of visits, studies have suggested that telemental health produces comparable outcomes to traditional in-person care; however, these studies have focused on a limited range of diagnoses, underserved populations, or collaborative or consultative telemedicine models.[12,14–25]

Direct-to-consumer (DTC) telemedicine is distinct from those models in that it is neither provider-initiated nor specifically designed for mental healthcare. DTC telemedicine instead allows patients to connect with physicians around the clock via synchronous video visits.[13,26–28] It offers a convenient, affordable way to improve access for many health

conditions; insurance is not required, and out-of-pocket costs are generally lower than for traditional care.[26,29] Employers and payers frequently partner with DTC telemedicine companies to offer services.[27]

Historically, patients have used DTC telemedicine to address minor, urgent concerns, such as respiratory or urinary tract infections.[26,30–32] Yet as DTC telemedicine has expanded over the last decade, so too has the scope of conditions for which patients can receive care, which increasingly includes mental health concerns. While patients can request visits with psychiatrists or therapists, patients with behavioral health needs may also be cared for by urgent care physicians.

To date, no study has described mental healthcare provision via DTC telemedicine.[29] Given increased demand for both telemedicine and mental health services in the continuing wake of the COVID-19 pandemic and the rapid expansion of DTC models, understanding patterns of mental healthcare delivery via DTC platforms is needed. The objectives of our study were to characterize patients, providers, and their use of a large nationwide DTC telemedicine platform for mental healthcare, and to assess factors associated with prescription receipt and patient satisfaction.

## METHODS

We performed a retrospective cross-sectional study of mental health encounters conducted on American Well's telemedicine platform between July 2016 and July 2018. This study was approved by Cleveland Clinic's Institutional Review Board.

## Data Source and Collection Procedures

American Well's web/mobile platform uses HIPAA-compliant technology to connect patients with healthcare providers for synchronous video encounters.

When patients log in, they provide demographic information and choose a visit type: urgent care or behavioral health. Those who select behavioral health then choose psychiatry or therapy. The cost (without insurance) is $199 for a psychiatry visit and $85 for therapy, and appointments—while not instantaneous—can usually be scheduled for the same day. Alternatively, patients can connect immediately to an urgent care provider for $69 (without insurance).

Providers are not associated with any particular medical group or health system. Employment agreements are heterogeneous, with some providers salaried and others paid per hour or per visit. Providers are drawn from around the country and vary in how much they work and when, with the average provider available 10 h per week. A detailed description of this platform has been published previously.[26]

## Mental Health Diagnoses

Mental health visits were identified via *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD10-CM) diagnosis codes. Up to seven codes could be entered per visit. We did not distinguish between primary versus secondary diagnoses. We assessed the 12 most common mental health diagnoses. A psychiatrist and two internists reviewed ICD-10 codes, which were grouped into the following categories: adjustment disorders, depressive disorders, anxiety disorders, mood disorders not otherwise specified (NOS), bipolar disorder, schizophrenia and psychotic disorders, post-traumatic stress disorder (PTSD) and other stress disorders, obsessive-compulsive disorder (OCD), attention-deficit/hyperactivity disorder (ADHD), nicotine use disorder, alcohol use disorder, substance use disorders, sleep disorders, and sexual disorders (see Appendix Table 1). Each diagnostic category was treated as an independent dichotomous variable.

## Patient Measures

Patient measures included age, gender, geographic region, insurance, and number of visits.

## Provider Measures

Provider characteristics included specialty and geographic region. We categorized physicians as psychiatrists versus urgent care providers. We separately examined mental health professionals available via the therapy option, as none were physicians. We captured number of visits per provider.

## Encounter Measures

Encounter measures included visit timing, wait time, patient out-of-pocket contribution, coupon use, visit length, prescription outcome, referral receipt, follow-up requested, alternative care site, and patient satisfaction. Visit timing was categorized as regular business hours (7 a.m.–5 p.m. weekdays), lunchtime (12 p.m.–2 p.m. weekdays), or after hours (on weekdays or anytime during weekends). Visit length was determined by the time that the patient was connected to the provider, as recorded by the platform. Visits shorter than 1 minute were excluded. Patient out-of-pocket contribution and coupon use for free/reduced-cost care were also recorded. Coupons are frequently offered by American Well, payers, and employers to encourage platform use.

Prescriptions were identified via National Drug Codes. Physicians could record up to seven medications. The Ryan Haight Act restricted DTC telemedicine physicians from prescribing controlled substances for patients in the absence of an in-person evaluation during the study period.[33] Some controlled substances, like methylphenidate and buprenorphine, are commonly used treatments for certain mental health conditions and were not prescribed via DTC telemedicine.

We also examined whether patients received a referral/follow-up request. Additionally, we noted where patients reported they would have otherwise sought care. Patient satisfaction was ascertained at the conclusion of each encounter

on a scale of 1 to 5 stars (with 5 being most satisfied and 1 not satisfied at all). We dichotomized this as receiving 5 stars versus not since most patients rated their providers with 5 stars.[26,31,32]

## Analysis

For patient, provider, and encounter measures, we reported frequencies (percentages) and measures of central tendency. We also described differences in prescribing patterns between psychiatrists versus urgent care physicians for the ten conditions for which medications were most commonly prescribed, using chi-square tests where appropriate. We then reported the most frequently prescribed medications by condition.

Finally, we estimated mixed-effects logistic regression models, accounting for clustering by provider. We modeled both odds of prescription receipt and of rating a provider five stars. Models included the physician, patient, and encounter characteristics described above.

All analyses were performed using SAS 9.4.

## RESULTS

The sample included 19,270 mental health encounters between 6708 patients and 1063 providers. During the study period, mental health diagnoses constituted only 1.7% of visits to physicians via the urgent care option.

Encounters were most frequently for anxiety (39.1%), followed by depressive (32.5%), adjustment (23.0%), bipolar (6.4%), and PTSD/stress disorders (5.1%). Schizophrenia and psychotic disorders accounted for <1% of visits.

## Provider and Patient Characteristics

Provider and patient characteristics are shown in Table 1.

Among physicians in our sample, 74 were psychiatrists. Among physicians available via the urgent care option, 414 were generalists (emergency medicine, internal medicine, family medicine, or pediatrics) and 60 were specialists (primarily dermatologists).

The 519 mental health professionals who were available for therapy self-identified as 141 psychologists, 4 social workers, 29 counselors, and 345 therapists.

Of the 19,270 mental health visits examined, 21.6% were seen by psychiatry, 22.2% by urgent care providers, and 56.2% by mental health professionals for therapy. Over the study period, psychiatrists had a median 71.0 (IQR 25.0–159.0) visits with patients as compared to 12.0 (IQR 4.0–30.0) encounters for urgent care providers and 34.0 (IQR 11.0–95.0) encounters for mental health professionals providing therapy.

Overall, 59.4% of patients were female with a median age of 34.0 years (IQR 28.0–43.0). Patients selecting the urgent care option were more likely to have used the platform only once during the study period (83.1% vs. 42.2% of those who were seen for psychiatry or therapy, $p < .0001$). Of patients

**Table 1 Patient and Physician Characteristics for Mental Health Encounters, 2016–2018**

| Variable | No. (%) | | | |
| --- | --- | --- | --- | --- |
| | **All** | **Psychiatry** | **Urgent care** | **Therapy** |
| Patient characteristics (N = 6708) | | | | |
| Female | 3983 (59.4) | 889 (60.4) | 1799 (53.8) | 1562 (68.4) |
| Age, y | | | | |
| < 18 | 204 (3.0) | 25 (1.7) | 56 (1.7) | 127 (5.6) |
| 18–29 | 2084 (31.1) | 567 (38.6) | 1009 (30.2) | 644 (28.2) |
| 30–39 | 2354 (35.1) | 520 (35.4) | 1185 (35.4) | 797 (34.9) |
| 40–49 | 1267 (18.9) | 224 (15.2) | 705 (21.1) | 389 (17.0) |
| 50–64 | 755 (11.3) | 131 (8.9) | 367 (11.0) | 302 (13.2) |
| 65 and over | 44 (0.7) | 4 (0.3) | 23 (0.7) | 24 (1.1) |
| Insurance reported | 4799 (71.6) | 954 (64.9) | 2255 (67.4) | 1839 (80.6) |
| Geographic region | | | | |
| Northeast | 1137 (17.0) | 263 (17.9) | 452 (13.5) | 492 (21.6) |
| Midwest | 1419 (21.2) | 260 (17.7) | 744 (22.2) | 486 (21.3) |
| South | 2550 (38.0) | 635 (43.2) | 1223 (36.6) | 870 (38.1) |
| West | 1602 (23.9) | 313 (21.3) | 926 (27.7) | 435 (19.1) |
| Number of telemedicine visits during the study period | | | | |
| One | 4063 (60.6) | 633 (43.0) | 2779 (83.1) | 952 (41.7) |
| Two | 983 (14.7) | 322 (21.9) | 370 (11.1) | 347 (15.2) |
| Three | 452 (6.7) | 158 (10.7) | 105 (3.1) | 206 (9.0) |
| Four | 295 (4.4) | 109 (7.4) | 58 (1.7) | 151 (6.6) |
| Five | 184 (2.7) | 60 (4.1) | 18 (0.5) | 106 (4.6) |
| Six or more | 731 (10.9) | 189 (12.9) | 15 (0.5) | 521 (22.8) |
| Provider characteristics (N = 1064) | | | | |
| Geographic region | | | | |
| Northeast | 217 (20.4) | 23 (31.1) | 88 (18.6) | 107 (20.6) |
| Midwest | 173 (16.3) | 11 (14.9) | 83 (17.5) | 79 (15.2) |
| South | 420 (39.5) | 24 (32.4) | 193 (40.7) | 205 (39.5) |
| West | 254 (23.9) | 16 (21.6) | 110 (23.2) | 128 (24.7) |
| Number of encounters per provider, median (IQR) | 31.0 (9.0–87.0) | 71.0 (25.0–159.0) | 12.0 (4.0–30.0) | 34.0 (11.0–95.0) |

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**Table 2  Mental Health Encounter Characteristics, 2016–2018**

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| Variable | No. (%) | | | |
|---|---|---|---|---|
| | **All**<br>*N* = 19,270 | **Psychiatry**<br>*N* = 4165 | **Urgent care**<br>*N* = 4276 | **Therapy**<br>*N* = 10,828 |
| Encounter characteristics | | | | |
| Number of encounters, by year, *N* (%) | | | | |
| 2016 | 1791 (9.3) | 126 (3.0) | 903 (21.1) | 762 (7.0) |
| 2017 | 8744 (45.4) | 2093 (50.2) | 2186 (51.1) | 4464 (41.2) |
| 2018* | 8735 (45.3) | 1946 (46.8) | 1187 (27.8) | 5602 (51.7) |
| Encounter timing, *N* (%) | | | | |
| After hours† | 10,094 (52.4) | 2873 (69.0) | 2276 (53.2) | 4945 (45.7) |
| Wait time (min), median (IQR) | 2.8 (1.3–6.2) | 3.1 (1.4–6.3) | 3.5 (1.7–8.3) | 2.4 (1.1–5.6) |
| Encounter length (min), median (IQR) | 36.9 (9.2–48.7) | 15.7 (9.3–30.5) | 6.2 (3.8–10.0) | 46.9 (41.5–53.3) |
| Patient out-of-pocket cost for visit ($), median (IQR) | 25.0 (0.0–79.0) | 90.0 (0.0–145.0) | 39.0 (1.0–59.0) | 20.0 (0.0–79.0) |
| Coupon used, *N* (%) | 2657 (13.8) | 1313 (31.5) | 461 (10.8) | 883 (8.2) |
| Prescription received, *N* (%) | 6076 (31.5) | 3133 (75.2) | 2943 (68.8) | n/a |
| Referral given | 241 (1.3) | 87 (2.1) | 126 (3.0) | 28 (0.3) |
| Mental health diagnosis, *N* (%) | | | | |
| Adjustment disorders | 4428 (23.0) | 118 (2.8) | 547 (12.8) | 3763 (34.8) |
| Anxiety disorders | 7543 (39.1) | 1716 (41.2) | 1847 (43.2) | 3980 (36.8) |
| PTSD/stress disorders | 977 (5.1) | 200 (4.8) | 41 (1.0) | 736 (6.8) |
| OCD | 304 (1.6) | 120 (2.9) | 17 (0.4) | 167 (1.5) |
| Depressive disorders | 6264 (32.5) | 2235 (53.7) | 937 (21.9) | 3092 (28.6) |
| Bipolar disorder | 1224 (6.4) | 654 (15.7) | 112 (2.6) | 458 (4.2) |
| Mood NOS disorders | 171 (0.9) | 8 (0.2) | 33 (0.8) | 130 (1.2) |
| ADHD | 689 (3.6) | 277 (6.7) | 106 (2.5) | 306 (2.8) |
| Nicotine use disorder | 352 (1.8) | 5 (0.1) | 326 (7.6) | 21 (0.2) |
| Alcohol use disorder | 311 (1.6) | 92 (2.2) | 38 (0.9) | 181 (1.7) |
| Substance use disorders | 219 (1.1) | 62 (1.5) | 53 (1.2) | 104 (1.0) |
| Sleep disorders | 214 (1.1) | 42 (1.0) | 147 (3.4) | 25 (0.2) |
| Schizophrenia/psychotic disorders | 66 (0.3) | 42 (1.0 | 1 (0.0) | 23 (0.2) |
| Sexual disorders | 62 (0.3) | 0 (0.0) | 50 (1.2) | 12 (0.1) |
| Two or more mental health diagnoses received, *N* (%) | 3538 (18.4) | 1204 (28.9) | 234 (5.5) | 2100 (19.4) |
| Patient rating of provider, mean (SD) | 4.9 (0.5) | 4.9 (0.4) | 4.8 (0.8) | 4.9 (0.4) |
| Where patients would have sought care otherwise, *N* (%) | | | | |
| Emergency department | 206 (1.1) | 35 (0.8) | 116 (2.7) | 55 (0.5) |
| Doctor's office | 3362 (17.5) | 1069 (25.7) | 1045 (24.4) | 1248 (11.5) |
| Urgent care/retail clinic | 1050 (5.4) | 121 (2.9) | 741 (17.3) | 188 (1.7) |
| Done nothing | 7633 (39.6) | 1559 (37.4) | 907 (21.2) | 5166 (47.7) |
| Other | 7019 (36.4) | 1381 (33.2) | 1467 (34.3) | 4171 (38.5) |

*Abbreviations: PTSDpost-traumatic stress disorder, OCDobsessive-compulsive disorder, NOS not otherwise specified, ADHD attention-deficit/hyperactivity disorder*
*\*2018 volumes are truncated, including only up to July 2018*
*†After-hours encounter timing refers to encounters that occur during the weekend or outside of traditional business hours (7 a.m.–5 p.m.) during the week*
*n/a = Not Applicable*

who sought psychiatry or therapy, over half had two or more visits.

## Encounter Characteristics

Over time, mental health encounter volumes increased, as did the proportion of patients who chose psychiatry and therapy (Table 2).

Insurance use was frequent (71.6%), and 13.8% of visits involved coupons for free/reduced-cost care. The median out-of-pocket payment for psychiatry was $90 (IQR $0–$145), as compared to $39 (IQR $1–$59) for urgent care and $20 (IQR $0–$79) for talk therapy.

The majority of mental health encounters occurred outside of regular business hours (58.8%) or during lunchtime (15.3%). Wait times were short (median 2.8 min, IQR 1.3–6.2). Median visit length with psychiatrists was 15.7 (IQR 9.3–30.5) min, as compared to 6.2 (IQR 3.8–10.0) min with urgent care providers and 46.9 (IQR 41.5–53.3) min with mental health professionals for therapy. Psychiatrists

prescribed medications at higher rates than urgent care providers (75.2% vs. 68.8%), and patients reported high satisfaction (4.9/5, SD: 0.5) with telemedicine providers across specialties and diagnoses.

If they had not used this platform, 39.6% of patients reported they would have done nothing, 1.1% would have gone to the ED, and 5.4% would have gone to an urgent care/retail clinic.

## Prescribing Patterns

Prescribing rates in psychiatry versus urgent care for the top ten mental health conditions appear in Fig. 1. Prescribing rates were high for adjustment (63.9), anxiety (74.0%), depressive (79.6%), bipolar (77.6%), PTSD/stress (68.9%), OCD (70.8%), and nicotine use disorders (74.9%). Prescribing rates were lower for ADHD (42.8%), alcohol use (50.0%), and substance use disorders (32.2%). The most frequently prescribed medications by diagnosis are presented in Appendix Table 2.
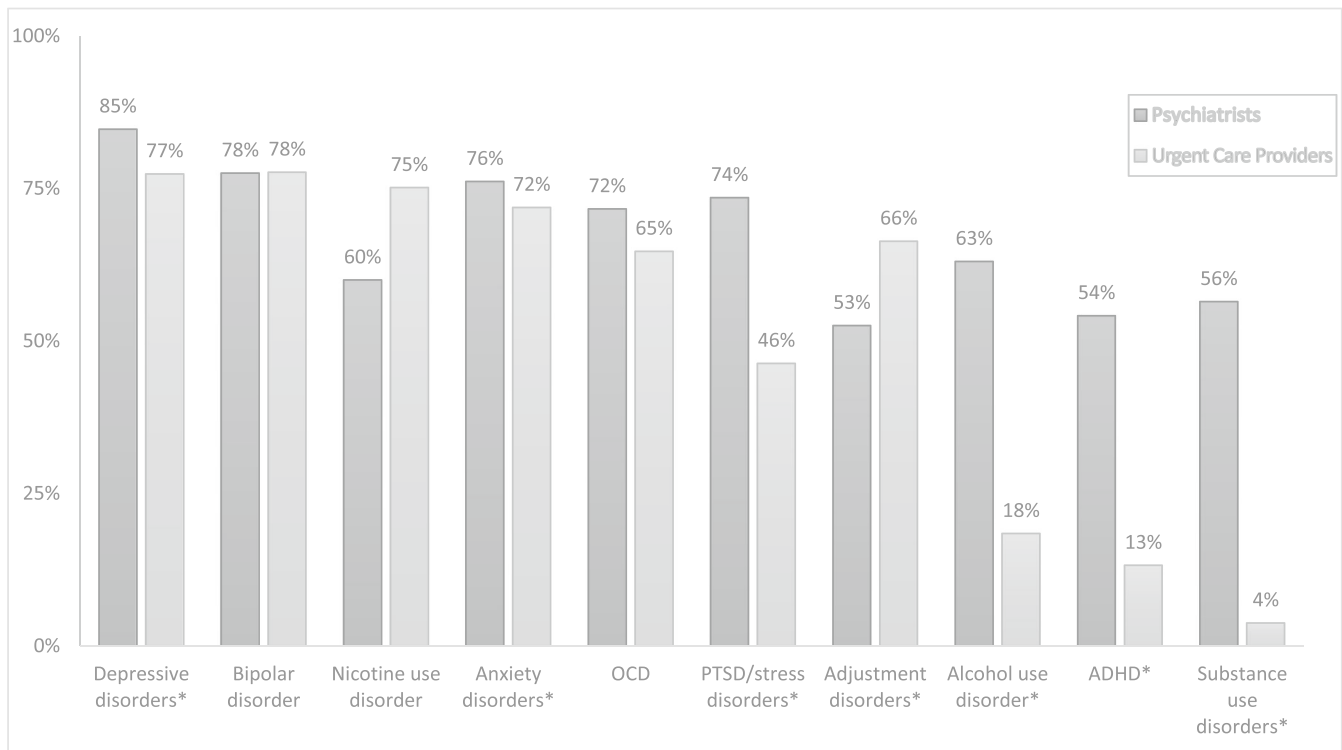
**Figure 1** Prescribing rates by specialty for the top ten mental health conditions for which medications were prescribed. Abbreviations: PTSD, post-traumatic stress disorder; OCD, obsessive-compulsive disorder; ADHD, attention-deficit/hyperactivity disorder. *Statistically significant at *p* < 0.05.

## Predictors of Receiving a Prescription

In our adjusted analysis (Table 3), anxiety (aOR 1.61, 95% CI 1.09–2.38), depressive (aOR 2.36, 95% CI 1.62–3.43), bipolar (aOR 2.21, 95% CI 1.46–3.34), and nicotine use (aOR 2.16, 95% CI 1.08–4.35) disorders were associated with higher odds of receiving a medication. Visits for ADHD (aOR 0.40, 95% CI 0.25–0.64), substance use (aOR 0.25, 95% CI 0.12–0.56), alcohol use (aOR 0.42, 95% CI 0.27–0.66), and sexual (aOR 0.16, 95% CI 0.07–0.38) disorders were less likely to result in prescriptions. Compared to 18–29-year olds, patients aged 65 and over were less likely to receive prescriptions (aOR 0.32, 95% CI 0.19–0.55). Finally, reporting insurance information (aOR 1.35, 95% CI 1.08–1.70) and having more visits (aOR 2.37, 95% CI 1.95–2.87 for two visits; aOR 1.95, 95% CI 1.57–2.42 for three or more visits) were associated with higher odds of receiving a medication.

## Predictors of Providers Receiving a Five-Star Rating

Visits resulting in a prescription (OR 1.89, 95% CI 1.54–2.32) and those occurring after hours (aOR 1.18, 95% CI 1.02–1.36) had higher odds of resulting in a five-star rating, whereas visits for diagnoses of substance use (OR 0.30, 95% CI 0.15–0.58) or sexual (OR 0.34, 95% CI 0.14–0.79) disorders were associated with lower odds of receiving five stars (Table 3).

## DISCUSSION

DTC telemedicine provides convenient access to talk therapy and pharmacotherapy for common mental health conditions. Our analyses of behavioral health encounters conducted on a large nationwide DTC telemedicine platform from 2016 to 2018 found that the majority of patient visits were for talk therapy, with use growing for both psychiatry and therapy. The most common visit diagnoses were adjustment, depressive, and anxiety disorders, for which prescribing rates of antidepressants were high. Patients sought both episodic and longitudinal care, and visit lengths and prescribing patterns appeared comparable to in-person encounters.[34–36] Patient satisfaction with providers was high.

The emergence of COVID-19 has driven increased demand for mental healthcare, with roughly 2 in 5 adults now reporting symptoms of anxiety/depression, and ED visits for suicidality and overdoses rising.[5] Yet in-person mental health provider staffing is decreasing nationwide.[5] Meanwhile, DTC telemedicine platforms—including behavioral health-focusedapplications—are proliferating, representing an alternative means of meeting this demand.[37]

Recent studies highlight telemedicine's potential to improve access across medical conditions.[16,29,38–40] For mental healthcare, specifically, DTC telemedicine may enhance access in several ways. First, it extends the current supply of both mental health professionals and generalists comfortable treating psychiatric disorders into geographically underserved

**Table 3 Mixed-Effects Logistic Regression, Odds of Receiving a Prescription, and Odds of Receiving a Five-Star Patient Rating**

| Variable | Prescription receipt | | Receipt of five-star rating | |
|---|---|---|---|---|
| | aOR | 95% CI | aOR | 95% CI |
| Patient characteristics | | | | |
|   Female (versus male) | 1.01 | 0.89-1.16 | 0.88 | 0.76-1.01 |
|   Age | | | | |
|     18–29 | Ref | – | Ref | – |
|     30–39 | 1.13 | 0.99–1.30 | 0.99 | 0.83–1.19 |
|     40–49 | 0.99 | 0.84–1.16 | 0.94 | 0.76–1.16 |
|     50–64 | 0.87 | 0.60–1.27 | **0.45** | **0.34–0.61** |
|     65+ | **0.32** | **0.19–0.55** | 0.44 | 0.15–1.26 |
|   Number of telemedicine visits during the study period | | | | |
|     One | Ref | – | Ref | – |
|     Two | **2.37** | **1.95–2.87** | 1.11 | 0.88–1.40 |
|     Three or more | **1.95** | **1.57–2.42** | 1.08 | 0.87–1.33 |
| Physician characteristics | | | | |
|   Specialty | | | | |
|     Psychiatry (versus urgent care) | 0.84 | 0.62–1.15 | 0.92 | 0.72–1.18 |
|   Geographic region | | | | |
|     Northeast | Ref | – | Ref | – |
|     Midwest | 1.31 | 0.88–1.95 | 0.76 | 0.56–1.02 |
|     South | **1.51** | **1.06–2.16** | 0.84 | 0.63–1.12 |
|     West | 1.31 | 0.97–1.79 | 0.80 | 0.61–1.05 |
| Encounter characteristics | | | | |
|   Insurance reported (versus not) | **1.35** | **1.08–1.70** | 1.07 | 0.86–1.34 |
|   Encounter timing | | | | |
|     After hours[*] (versus business hours) | 1.18 | 0.95–1.47 | **1.18** | **1.02–1.36** |
|     Prescription received | n/a | n/a | **1.89** | **1.54–2.32** |
|   Diagnoses (versus not) | | | | |
|     Adjustment disorders | 1.17 | 0.77–1.78 | 0.90 | 0.57–1.42 |
|     Anxiety disorders | **1.61** | **1.09–2.38** | 0.99 | 0.71–1.40 |
|     Depressive disorders | **2.36** | **1.62–3.43** | 1.02 | 0.75–1.39 |
|     Bipolar disorder | **2.21** | **1.46–3.34** | 0.90 | 0.57–1.42 |
|     PTSD/stress disorders | 1.17 | 0.64–2.15 | 0.78 | 0.48–1.27 |
|     ADHD | **0.40** | **0.25–0.64** | 1.05 | 0.65–1.69 |
|     Substance use disorders | **0.25** | **0.12–0.56** | **0.30** | **0.15–0.58** |
|     Nicotine use disorder | **2.16** | **1.08–4.35** | 0.67 | 0.39–1.16 |
|     Alcohol use disorder | **0.42** | **0.27–0.66** | 0.75 | 0.46–1.23 |
|     OCD | 1.09 | 0.60–1.97 | 1.00 | 0.53–1.87 |
|     Sleep disorders | 0.72 | 0.43–1.19 | 0.83 | 0.46–1.47 |
|     Mood NOS disorders | 1.59 | 0.73–3.47 | 1.14 | 0.36–3.59 |
|     Schizophrenia/psychotic disorders | 2.79 | 0.98–7.96 | 0.80 | 0.41–1.57 |
|     Sexual disorders | **0.16** | **0.07–0.38** | **0.34** | **0.14–0.79** |
|   Encounter length (min) | 1.00 | 0.99–1.01 | 1.00 | 1.00–1.01 |
|   Two or more mental health diagnoses received (versus not) | 0.74 | 0.48–1.16 | 0.97 | 0.64–1.48 |

[*]*After-hours encounter timing refers to encounters that occur during the weekend or outside of traditional business hours (7 a.m.–5 p.m.) during the week*

areas. Second, it may increase the overall availability of existing providers, particularly psychiatrists, as many were available part time after normal business hours, potentially in addition to their full-time jobs. Third, DTC telemedicine improves timeliness of access to mental healthcare, facilitating on-demand services as compared to average wait times of 25 days for in-person visits.[41] Long wait times have been linked to ED utilization, where patients are more likely to leave without adequate psychiatric treatment.[42,43] Finally, when asked where they would have otherwise sought care, 40% of patients reported that they would have done nothing; DTC telemedicine represents an attractive option to meet this population's unmet needs.

DTC telemedicine also addresses accommodation barriers to access for patients with difficulty attending frequent visits during work hours, or who desire convenient care from home.[44] Approximately 60% of behavioral health encounters occurred on evenings or weekends, compared to 48% of visits

for other health concerns.[45]After-hours visits were associated with higher satisfaction. Even during traditional business hours, we observed roughly 15% of virtual visits occurred during lunchtime, which may reflect the ease with which virtual encounters can be integrated into the work day.

Lastly, DTC telemedicine may help to overcome affordability barriers.[46,47] While COVID-19 has brought greater reimbursement parity to telemedicine, it is unclear whether this will continue.[2] DTC telemedicine's relative affordability could improve access for those with inadequate or no insurance coverage for behavioral health given its transparent pricing model and generally lower out-of-pocket costs than for in-person visits.[29]

Our results affirm that patients are highly satisfied with DTC virtual visits for mental healthcare, with the highest satisfaction rates noted among repeat patients.[26] The care provided over the platform also appears comparable to in-person visits in terms of length and prescribing patterns.[48–51]

The average in-person therapy visit is 50–55 min long, similar to the 47 min that we observed.[52,53] Fifteen-minute visits are increasingly standard for in-person psychiatry,[54,55] and we found televisits with psychiatrists lasted a median 16 min. Moreover, we found prescriptions were generally guideline-concordant.

Patients sought both acute and longitudinal care for common psychiatric conditions like adjustment, anxiety, and depressive disorders. Patients choosing the urgent care option (as opposed to behavioral health) had shorter visits and appeared to use this model for discrete needs (e.g., refilling medications); for these patients, DTC telemedicine may provide a bridge to in-person care or alternative access point when a regular care provider is not available. Among patients who sought psychiatry or therapy, however, over half returned for follow-up visits, with a quarter of those receiving therapy returning for five or more visits. This finding suggests that DTC telemedicine may substitute for in-person continuity care for some and represents a potential growth opportunity.

We found that < 1% of our sample was over age 65, with patients over age 50 comprising a smaller portion of mental health patients than of patients seeking other telemedicine care.[56] More research is needed to understand the poor uptake in this demographic. Wireless penetration and digital literacy have been suggested as potential explanations, although widespread telemedicine adoption during the pandemic may improve acceptability and comfort over time.[57–59]

Prior telemedicine studies in mental health have been limited to a single payer, a particular institution or practice, or certain populations, such as veterans, rural beneficiaries, or incarcerated individuals.[56,60–64] These have established the non-inferiority in outcomes and patient satisfaction of more common provider-driven telemental health models, such as clinic-based videoconferencing, electronic consultation, or collaborative models in the assessment or treatment of specific behavioral health conditions, as compared to in-person visits.[8,11,12,18,20–23,65–68] To our knowledge, this is the first study to characterize DTC telemedicine usage for mental health in a national population, irrespective of payer and across mental health diagnoses and provider specialties. Our results highlight the different providers and services patients can access through this model to address their mental health needs.

Our study has several limitations. The analysis was restricted to items captured for administrative purposes. We did not have visibility into physician documentation. This limited our ability to draw conclusions regarding the quality of care provided. Our analysis of platform users is also subject to selection bias. It remains unclear whether this platform was primarily a bridge to long-term in-person care versus a substitutive entity. Additionally, limited information available about telemedicine providers restricted our ability to draw broader conclusions about them. Research demonstrates substantial differences in access to behavioral healthcare by patient race/ethnicity. Unfortunately, as we had no information on patient race/ethnicity, we were unable to evaluate this.[69] Because of restrictions governing controlled substance prescribing via DTC telemedicine during the study period, moreover, prescribing rates for conditions such as SUD and ADHD—where controlled substances are common treatments—may be artificially low. Finally, our study was performed on one large nationwide telemedicine platform, so it is unknown how generalizable these findings are to other DTC providers.

Our analysis confirms steady growth in DTC telemental health prior to the COVID-19 pandemic.[16,56] Given the increasing burden of psychiatric disease during the pandemic, mental health professional shortages, and uneven insurance coverage, novel models for delivering mental health services are needed.[8,70] DTC telemedicine platforms are rapidly expanding and offer one potential solution. Our findings suggest that there is growing patient interest in the timely, convenient, price transparent, and affordable mental healthcare that these platforms can provide. While most encounters were one-off rather than a substitute for longitudinal mental healthcare, some evidence of continuity in therapy and psychiatry visits as well as overall high patient satisfaction ratings suggest potential for broader use.

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