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## Brief Report

## Mental health services in primary care: Evidence for the feasibility of telehealth during the COVID-19 pandemic



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## ABSTRACT

**Background:** This study examined the transition to telehealth services during the COVID-19 pandemic in terms of attendance rates, the provision of evidence-based interventions, and clinical outcomes.

**Methods:** The feasibility of in-person versus telehealth visits for integrated primary care sessions was compared using chart review data. Data on patient characteristics, attendance, symptom severity and improvement, and evidence-based intervention use were collected for patients ( $N = 173$ ) from an integrated primary clinic that primarily serves a low-income, diverse sample of adults and children whose primary presenting problems are depression and anxiety.

**Results:** Attendance significantly improved after the transition to telehealth, as indicated by fewer cancellations and more appointments attended. Patients showed significant improvement and decreases in symptoms. The quality of care was maintained, as indicated by consistent evidence-based intervention use over time.

**Limitations:** This study was limited by the fact that it took place in an academically-affiliated primary care clinic, which may not be representative of all community settings. In addition, analyses related to clinical symptoms were only conducted with a small subset of participants and there was no comparison group.

**Conclusions:** Telehealth through integrated primary care might be a viable option to improve accessibility of mental health services for low-income, racial/ethnic minority adults and children.

## 1. Introduction

Although nearly one in five adults and approximately 15% of youth have a mental health disorder (Polanczyk et al., 2015; Whitney and Peterson, 2019; Substance Abuse and Mental Health Services Administration, 2020), the majority do not receive needed treatment for these disorders (Whitney and Peterson, 2019; Merikangas et al., 2011). Families with lower incomes, as well as individuals belonging to racial and ethnic minority groups are less likely to receive access to mental health services (Merikangas et al., 2011; Ghandour et al., 2019; Williams et al., 2003). One way of addressing disparities in access to care is through integrated primary care. In this model, behavioral health providers are embedded within the primary care setting, where low-income families may be more likely to seek care (Olfson et al., 2014).

Despite the promise of integrated primary care to address health disparities, barriers to accessing services remain. For instance, inconvenient appointment times, transportation, and the need for childcare create obstacles for families with limited resources. Telehealth offers a potential avenue for addressing these concerns, especially when families are able to access telehealth services via familiar mobile applications (Katzow et al., 2020). Telehealth is an especially promising modality given that the vast majority of individuals, including those with lower incomes, have access to the internet via smartphones (Van Veen et al., 2019).

At the start of the novel Coronavirus 2019 (COVID-19) pandemic, a necessary shift away from in-person appointments led to the rapid up-take of telehealth as a modality for delivering mental health services. Federal and state restrictions regarding the delivery of mental health care via telehealth were lifted, allowing for mental health services via phone and videoconferencing at comparable rates of reimbursement to

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in-person visits. The effectiveness of telehealth delivery is supported by data from a meta-analysis examining the use of videoconferencing to deliver mental and behavioral health services, which suggests that telehealth leads to equivalent treatment outcomes compared to in-person services (Batastini et al., 2020). However, the studies included in this meta-analysis mostly included white patients and were not conducted in an integrated primary care setting. Studies assessing the outcomes for rapid scale-up of telehealth during the COVID-19 pandemic similarly have demonstrated promise for reducing no-show rates (Wood et al., 2020), but again have primarily included white individuals with private insurance.

The present study took place at a primary care clinic with integrated mental health services staffed by psychologists and psychology trainees. The clinic serves patients of all ages, including a high percentage of racial and ethnic minorities (72.7%) who are primarily on public insurance (72.3%). We sought to examine whether the transition to a telehealth format affected attendance rates, the provision of evidence-based interventions (EBIs), and clinical outcomes. Relative to in-person services, we expected that the transition to telehealth would lead to increased attendance, comparable EBI use, and clinical outcomes. This study extends the current literature by including a racially and ethnically diverse sample of patients and by considering the use of telehealth within an integrated primary care setting.

## 2. Methods

### 2.1. Procedures

This study is a chart review of mental health visits at an academically-affiliated integrated primary care practice in the Northeastern United States. Historically, mental health visits (including intakes and therapy appointments) took place in-person for 30 minute appointments. Due to the COVID-19 pandemic, all mental health sessions were moved to telehealth visits beginning in March 2020. Telehealth visits were performed via video conferencing applications such as Zoom with a typical duration of 30 minutes. Some visits, typically due to patients' lack of internet service, took place via telephone. Data were coded from charts by a trained graduate research assistant and 20% were double coded by a psychologist to ensure reliability ( $\kappa$ s > 0.70). The study was approved by the hospital's Institutional Review Board and a waiver of informed consent was obtained.

### 2.2. Participants

Participants included patients ( $N = 173$ ) who were seen for at least one visit with a mental health provider in an integrated care setting during: (a) Wave 1: beginning 1-year prior to COVID-19 (March 2019–December 2019) and/or (b) Wave 2: following the transition to telehealth due to COVID-19 (March 2020–December 2020). Some participants started treatment following the impact of COVID-19 and only received services via telehealth ( $n = 40$ , 23.1%).

### 2.3. Measures

Data were collected from charts on the following variables:

#### 2.3.1. Demographics

Demographic data included age, gender, race, ethnicity, diagnosis, and insurance type.

#### 2.3.2. Appointment attendance

Patient appointment attendance was coded in the following ways for each Wave: number of attended appointments, number of canceled appointments, and number of no-show appointments. Total number of mental health appointments across time, including prior to the study period, was also calculated.

#### 2.3.3. EBI use

Data were collected from session notes to make a dichotomous determination for whether EBIs were provided to the patient during the course of psychotherapy. EBIs referenced in the notes included skills from cognitive behavioral therapy, dialectical behavior therapy, acceptance and commitment therapy, and motivational interviewing.

#### 2.3.4. Clinical Global Impressions (CGI) scales

The CGI is a 7-point clinician-rated scale used to assess overall clinical severity and improvement based on symptoms observed and impairment reported. Higher numbers indicate more severe symptoms and worse functioning. The CGI-Severity (CGI-S) and CGI-Improvement (CGI-I) were completed during Wave 1 and during Wave 2. CGI-S scores range from 1 (normal, not at all ill) to 7 (extremely ill). CGI-I scores range from 1 (very much improved) to 7 (very much worse).

#### 2.3.5. Psychiatric problems and medications

Total counts of psychiatric problems, medical problems, and medications were determined for each patient.

## 3. Results

### 3.1. Participant demographics

Participants ( $N = 173$ ) ranged in age from 4–73 years old ( $M = 28.32$ ;  $SD = 15.46$ ). The sample was mostly female ( $n = 124$ ; 71.7%). The majority of sessions were conducted in English ( $n = 150$ ; 86.7%) and 12.7% ( $n = 22$ ) used an interpreter. The majority of participants had public insurance (i.e., Medicare or Medicaid;  $n = 125$ ; 72.3%). Participants were predominantly Hispanic or Latino ( $n = 103$ ; 59.5%). The most commonly endorsed racial identity was "other" ( $n = 95$ ; 54.9%), followed by Black/African American ( $n = 49$ ; 28.3%). Among participants whose primary psychiatric diagnosis was noted in their chart ( $n = 122$ ; 70.5%), depression ( $n = 36$ ; 20.8%) and generalized anxiety disorder ( $n = 28$ ; 16.2%) were the most common diagnoses. The average number of psychiatric problems listed in each patient's chart was 1.90 ( $SD = 1.45$ ), and the average number of health problems was 6.92 ( $SD = 5.75$ ). The average number of medications was 7.40 ( $SD = 5.64$ ). Finally, the average number of mental health appointments scheduled across all time was 4.91 ( $SD = 5.97$ ). The modal number of appointments attended was 1 ( $n = 56$  participants; 32.4%).

### 3.2. In-person versus telehealth comparisons

#### 3.2.1. Attendance

We compared attendance rates for in person (Wave 1) and telehealth services (Wave 2) using *t*-tests. Results indicated a significant increase in number of appointments attended after starting telehealth services ( $M = 2.17$ ,  $SD = 4.36$ ) compared to in-person services ( $M = 1.19$ ,  $SD = 2.08$ ),  $t(171) = -3.08$ ,  $p = .002$ . There was also a significant decrease in the number of cancellations (patient or clinician initiated) during the telehealth services time period ( $M = 0.14$ ,  $SD = 0.49$ ) compared to the in-person time period ( $M = 0.53$ ,  $SD = 1.03$ ),  $t(172) = 4.29$ ,  $p < .001$ . There was not a significant difference in the number of no-shows across the two time periods ( $p > .05$ ). We conducted the same analyses with the subset of participants who attended more than one appointment during Wave 1 or Wave 2 ( $n = 82$ ) and found the same pattern of results, including a significant increase in attendance,  $t(81) = -3.23$ ,  $p = .002$ , decrease in cancellations,  $t(81) = 3.95$ ,  $p < .001$ , and no change in no-shows ( $p > .05$ ).

#### 3.2.2. EBI use

We examined the presence of EBIs for participants who had more than one session during the study period (March 2019–December 2020;  $n = 82$ ). The initial (intake) session was not coded given that skills are not typically taught during the first session. Although we planned to

conduct a statistical comparison of the number of participants who received EBIs in Wave 1 versus Wave 2, 100% of patients received EBIs in their sessions in both Waves. Given the lack of variability in EBI use over time, inferential analyses were not conducted.

### 3.2.3. Clinical outcomes

A total of 25 participants had appointments during both Waves (i.e., in-person and telehealth). A subset of those participants also had CGI-S and CGI-I measures administered at both time points ( $n = 18$ ). The participants with missing CGI data ( $n = 7$ ) did not significantly differ from the participants with CGI data ( $n = 18$ ) on any demographic or clinical variables. CGI scores were compared using paired samples  $t$ -tests. Results indicated significant decreases in symptom severity scores (CGI-S) from Wave 1 (in person;  $M = 3.61$ ;  $SD = 0.70$ ) to Wave 2 (telehealth;  $M = 3.33$ ,  $SD = 0.97$ ),  $t(17) = 2.56$ ,  $p = .020$ . Similarly, there was evidence of greater improvement in symptoms (CGI-I) from Wave 1 (in person;  $M = 3.06$ ,  $SD = 0.87$ ) to Wave 2 (telehealth;  $M = 2.44$ ,  $SD = 0.51$ ),  $t(17) = 3.72$ ,  $p = .002$ .

## 4. Discussion

This study examined whether a transition from in-person to telehealth services due to COVID-19 affected attendance rates, clinical symptoms, and EBI delivery among a sample of adults and children receiving mental health services at an integrated primary care clinic. Participants included individuals who face disparities in accessing mental health EBIs, including racial and ethnic minorities and families with public insurance.

Findings regarding attendance were largely consistent with hypotheses and indicated an increase in the number of appointments attended following the transition to telehealth. This may be because telehealth allows for more flexibility in scheduling and a reduction in logistical barriers (e.g., transportation) that often affect lower income families in particular (Katzow et al., 2020). There were also fewer canceled appointments following the transition to telehealth, likely due to reduced barriers. The number of no-show appointments did not change over time. Although telehealth minimizes several logistical barriers to attendance, barriers such as physical illness, psychiatric symptoms, and motivation to engage in treatment are not addressed. These remaining concerns have been shown to account for a large proportion of outpatient psychotherapy appointment no-shows (Defife et al., 2010) and warrant continued evaluation.

Participants demonstrated a decrease in symptom severity and an improvement in symptoms over the transition from in-person to telehealth services. Although the lack of a control condition limits our ability to make inferences about the effectiveness of treatment, it is notable that symptoms improved over this time period, especially given the additional psychosocial stress associated with the pandemic (Pfefferbaum and North, 2020). Another notable finding was the continued delivery of EBIs throughout the transition to telehealth, which may have contributed to improvements in symptoms.

### 4.1. Limitations

This study had several limitations, including the small sample size for analyses related to clinical symptoms. It is likely that participants who had clinical symptom data available may have been more engaged in treatment given that they had at least one visit during each time pe-

riod. In addition, because clinical symptom data were collected at only two time points over less than two years, this limits conclusions that can be made about trajectories of change in symptoms and longitudinal outcomes. The lack of comparison treatment or control group also limits conclusions that can be drawn about the effectiveness of treatment. Another limitation is that there was no way to determine whether cancellations were initiated by providers or patients, and specific reasons for cancellations or no-shows were not obtained. Finally, this study took place in an academically-affiliated primary care clinic with a convenience sample, which may limit generalizability to other community settings.

### 4.2. Conclusions

Despite its limitations, this study provides promising evidence that providing integrated mental health services via telehealth might be a viable option to improve accessibility of services for low-income, racial/ethnic minority adults and children. Future work will indicate whether telehealth continues to be equally effective outside of the context of a pandemic and its associated stressors.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### References

- Polaczyk, G.V., Salum, G.A., Sugaya, L.S., Caye, A., Rohde, L.A., 2015. Annual research review: a meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *J. Child Psychol. Psychiatry* 56 (3), 345–365.
- Whitney, D.G., Peterson, M.D., 2019. US national and state-level prevalence of mental health disorders and disparities of mental health care use in children. *JAMA Pediatrics* 173 (4), 389–391.
- Merikangas, K.R., He, J.P., Burstein, M., et al., 2011. Service utilization for lifetime mental disorders in US adolescents: results of the national comorbidity survey–adolescent supplement (NCS-A). *J. Am. Acad. Child Adolesc. Psychiatry* 50 (1), 32–45.
- Ghandour, R.M., Sherman, L.J., Vladutiu, C.J., et al., 2019. Prevalence and treatment of depression, anxiety, and conduct problems in US children. *J. Pediatr.* 206, 256–267 e253.
- Williams, D.R., Neighbors, H.W., Jackson, J.S., 2003. Racial/ethnic discrimination and health: findings from community studies. *Am. J. Public Health* 93 (2), 200–208.
- Olson, M., Blanco, C., Wang, S., Laje, G., Correll, C.U., 2014. National trends in the mental health care of children, adolescents, and adults by office-based physicians. *JAMA Psychiatry* 71 (1), 81–90.
- Katzow, M.W., Steinway, C., Jan, S., 2020. Telemedicine and health disparities during COVID-19. *Pediatrics* 146 (2).
- Substance Abuse and Mental Health Services Administration, 2020. *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health* (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (US), Center for Behavioral Health Statistics and Quality, Rockville, MD (NSDUH-2019-DS0001).
- Van Veen, T., Binz, S., Muminovic, M., et al., 2019. Potential of mobile health technology to reduce health disparities in underserved communities. *West. J. Emerg. Med.* 20 (5), 799.
- Batastini, A.B., Paprzycki, P., Jones, A.C., MacLean, N., 2020. Are videoconferenced mental and behavioral health services just as good as in-person? A meta-analysis of a fast-growing practice. *Clin. Psychol. Rev.*, 101944.
- Wood, S.M., White, K., Peebles, R., et al., 2020. Outcomes of a rapid adolescent telehealth scale-up during the COVID-19 pandemic. *J. Adolesc. Health* 67 (2), 172–178.
- Defife, J.A., Conklin, C.Z., Smith, J.M., Poole, J., 2010. Psychotherapy appointment no-shows: rates and reasons. *Psychother. Theory Res. Pract. Train.* 47 (3), 413.
- Pfefferbaum, B., North, C.S., 2020. Mental health and the Covid-19 pandemic. *N. Engl. J. Med.* 383 (6), 510–512.