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A Buprenorphine Program Evaluation Before and During the COVID-19 Pandemic



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ABSTRACT

Keywords: buprenorphine medication assisted treatment opioid use disorder telemental health

This project evaluated the service delivery (ie, attendance rate) of a buprenorphine management treatment program and compared patient recovery-related information between service methods. This was a medical record review and cross-sectional comparison of pre–COVID-19 vs post onset of COVID-19 data. In the sample of 28 adults, mean attendance rates did not differ significantly before (99.46%) vs during the pandemic (96.13%; t=1.92, P=.07). Patient participation in therapy before and during the pandemic did differ significantly ($\chi^2=1.98$, P=.03). The use of telemental health services within a BMT program may be a viable option when normal in-person services are disrupted.

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Introduction

Opioid use disorder (OUD) affects nearly 16 million people worldwide, 2.1 million people in the United States (US), and resulted in nearly 500,000 overdose deaths in the US from 1999 to 2019. The economic burden from the opioid crisis in the US was estimated at approximately \$631 billion from 2015 to 2018, which included health care costs, mortality, criminal justice, education, and lost productivity in the labor force. Medications, including buprenorphine, methadone, and naltrexone, are all used for medication-assisted treatment (MAT) in combination with psychosocial services for treatment of individuals with OUD.

Of these 3 medications, buprenorphine is the suggested first-line medication for individuals with moderate to severe OUD.⁴ Buprenorphine is a partial agonist with a high-affinity to the muopioid receptor and slow dissociation kinetics, making it different from drugs such as morphine, fentanyl, and heroin in that it has milder withdrawal symptoms and ceiling effects on respiratory depression.⁵

Buprenorphine is a schedule III substance compared with methadone, which is categorized as a schedule II substance by the US Drug Enforcement Administration (DEA). Therefore, during the initiation phase of treatment, methadone often is dispensed to patients on a daily schedule, compared with buprenorphine, which is often dispensed biweekly or monthly. It is used as a type of harm-reduction treatment to prevent overdoses and sustain recovery. Buprenorphine is often used in combination with naloxone, which is an opioid antagonist that is not absorbed orally but prevents the potential for diversion if the buprenorphine/naloxone were to be injected.

A significant amount of evidence supports the efficacy of buprenorphine management treatment (BMT) for OUD. Evidence suggests that BMT has a relatively high adherence rate and is effective at improving rates of sobriety, decreasing accidental overdoses, and decreasing criminal activity outcomes. ⁶⁻⁸

Since the COVID-19 pandemic has hit the US, federal agencies have relaxed the restrictions on opioid treatment programs. On March 31, 2020, the DEA enacted a change in policy to allow the use of telephone evaluations to initiate and maintain buprenorphine prescribing. Furthermore, on April 28, 2021, the US Department of Health and Human Services released new practice guidelines for the administration of buprenorphine for treating OUD, which stated that advanced practice providers registered with the DEA can treat up to 30 patients without completing the previously mandated MAT trainings. 11

The COVID-19 pandemic has resulted in a massive increase in demand for telemental health services. Data suggest that before the pandemic, approximately 7% of mental health encounters were completed via telemental health services, but after onset of the pandemic, there was a nearly 12-fold increase of approximately 86% of encounters using telemental health services. ¹² It is projected that approximately 35% of mental health visits in the future will be completed via telemental health services. ¹²

To operate effective and safe telemental health services, it is imperative to understand the potential positive and negative consequences of this type of service delivery method compared with normal in-person encounters for patients in a BMT program. Therefore, the purpose of this project was to evaluate the service delivery methods of a BMT program, including telemental health visits, in-person visits, or a combination of both. Specifically, the study compared the service delivery method of the BMT program before the COVID-19 pandemic (in-person encounters) to after onset of the COVID-19 pandemic (telemental health encounters or a

combination of telemental health and in-person) by assessing patient attendance rates to encounters.

In addition, the study compared recovery-related information (eg, the level of cravings, accessibility/barriers to services, and patient satisfaction) after onset of the COVID-19 pandemic with recovery-related information of individuals receiving BMT before the COVID-19 pandemic to explore any differences in recovery-related information before and during the COVID-19 pandemic. The findings of this project can provide suggestions for future BMT programs that deliver care via telemental health services for patients with OUDs.

University secure server. These surveys were kept in 1 folder stored by the project leader.

Measures

Attendance rates. An attendance rate was defined by the percentage of calendar months between September 1, 2019, and March 31, 2021 that included documentation of ≥ 1 encounters by the provider in the electronic health record or paper record. A missed monthly encounter was defined as no records of any encounters occurring within a single calendar month based on the retrospective record review.

Attendance rates
$$= \left(1 - \frac{\text{\# of missed monthly encounters}}{\text{\# of months within time frame of interest}}\right) \times 100$$

Methods

Design and Sample

This project is an evaluation of a change in practice (in-person vs telemental health or combination) that used a retrospective medical record review (data from September 1, 2019—March 30, 2020 to data from March 31, 2020—March 31, 2021) to compare attendance rates and a cross-sectional, comparative, descriptive approach to explore recovery-related information (eg, the level of cravings, accessibility/barriers to services, and patient satisfaction) among individuals in a BMT program in a local mental health clinic in western Pennsylvania.

Samples included individuals who were \geq 18 years, diagnosed with OUD, and were currently being treated at the BMT program in a local mental health clinic. Aim 1 included all records of patients who received BMT from this clinic from September 1, 2019 through March 31, 2021. Aim 2 included all patients in the BMT program who voluntarily agreed to complete the revised Anonymous Survey of Buprenorphine Cravings and Health. The sample for aim 1 consisted of the same group of patients preonset vs postonset of the pandemic. The sample for aim 2 did not have identical groups preonset vs postonset of the pandemic.

Procedures

This evaluation of a change in practice project received approval from the office-based BMT practice and received a waiver from the University of Pittsburgh Institutional Review Board. An honest broker was trained and conducted a retrospective medical record review from a sample of 28 individual paper records as well as electronic health records to record patient attendance rates to encounters from September 1, 2019, to March 20, 2020, and rates from March 31, 2020, to March 31, 2021. Attendance data were deidentified upon collection from the electronic health record or paper record.

Survey data collected before the COVID-19 pandemic, from Palmer et al¹³ were used as pre—COVID-19 data. The post-onset of the COVID-19 pandemic data for aim 2 were collected using a revised version of the survey that was completed via interview-style questioning and recorded by clinicians, or via patient self-completion if they had an in-person encounter. Survey data were recorded via handwritten completion on a hard copy of the survey in a deidentified way. All data were entered into a Microsoft Excel spreadsheet on a password-protected laptop and then stored in the

Recovery related information. A revised version of the Anonymous Survey of Buprenorphine Cravings and Health¹³ was used to explore cravings, participation in therapy, frequency of primary care provider (PCP) encounters, and patient satisfaction with treatment. Newly added questions assessed adverse effects to BMT, socioeconomic changes, patient perceptions of barriers to telemental health services, and worsening symptoms of comorbid conditions.

Data Analysis

IBM SPSS Statistics for Windows 28 (IBM Corp) software was used to analyze data. A paired t test was used to compare pre—COVID-19 pandemic (in-person encounters alone) vs postonset of the COVID-19 pandemic (telemental health encounters alone or combined with in-person encounters) attendance rates. The pre—COVID-19 data for aim 2, collected from Palmer et al, ¹³ included 27 individuals who had voluntarily completed the survey. The postonset of COVID-19 data for aim 2 included 27 individuals who also voluntarily participated in the survey, and 1 individual in the BMT program declined to participate. Descriptive statistics, χ^2 tests, and independent sample t tests with an α level of 0.05 were used to compare recovery-related information preonset and postonset of the COVID-19 pandemic.

Results

Attendance Rates

Results indicated that the mean attendance rates for preonset and postonset of the COVID-19 pandemic were 99.49% (n = 28) and 96.13% (n = 28) respectively. This difference was not statistically significant (t = 1.92, P = .07).

Recovery-Related Information

Table 1 presents descriptive statistics of recovery-related information. Differences in the number of emergency department visits, satisfaction with care, frequency of cravings, having a PCP, and frequency of seeing a PCP were not statistically significant (all P > .05). However, as indicated by the frequencies cross-tabulated in Table 1, there was a statistically significant difference between

Table 1Descriptive Statistics of Recovery-Related Information

Variable	Before COVID-19 Pandemic ($N = 27$)	During COVID-19 Pandemic ($N = 27$)	t or χ ²	P Value
Emergency department visits, mean (SD), No.	0.70 (0.95)	0.65 (0.94)	0.19	.85
Satisfaction, mean (SD), No.	9.81 (0.48)	9.67 (0.62)	0.98	.33
Frequency of cravings				
Never to rare	19 (73)	20 (74)	0.01	.93
Daily to monthly	7 (27)	7 (26)		
Participation in drug, alcohol, or other type				
of individual therapy				
No	4 (15.4)	12 (46.2)	5.78	.03ª
Yes	22 (84.6)	14 (53.8)		
Having a primary care provider				
No	1 (3.7)	4 (14.8)	1.98	.35 ^a
Yes	26 (96.3)	23 (85.2)		
Frequency of seeing primary care provider				
None or as needed	3 (11.5)	4 (14.8)	0.12	1.00 ^a
Monthly to yearly	23 (88.5)	23 (85.2)		

Data are presented as n (%) unless indicated otherwise.

participation in drug, alcohol, or other types of individual therapy from pre–COVID-19 to postonset of the pandemic ($\chi^2 = 5.78$, P = .03).

Table 2 reports the descriptive statistics of recovery-related information postonset of the COVID-19 pandemic. Within this specific BMT program, none of the patients reported adverse effects with their treatment postonset of the pandemic (n=27). As seen in Table 2, socioeconomic changes postonset of the pandemic showed that 70.4% of patients denied any changes, 11.1% reported loss of job, 7.4% reported death in the family, 7.4% reported job gain, and 3.7% reported worse financial difficulties (n=27). Most individuals denied any barriers to telemental health (92.5%), 63% of patients reported no worsening symptoms or issues with comorbid conditions, 14.8% reported worsening anxiety, 11.1% reported worsening depression, and 11.1% reported worsening health issues or pain (n=27).

Discussion

BMT has a high adherence rate and is effective at improving rates of sobriety, decreasing accidental overdoses, and decreasing criminal activity outcomes. However, the COVID-19 pandemic has resulted in significant changes in the health care landscape, such as rapid implementation of telehealth services and relaxing mandatory regulations. People with OUD have traditionally relied on in-person services (eg, buprenorphine clinics, Narcotics Anonymous meetings); therefore, understanding the potential positive and negative consequences of using telemental health services for BMT programs is critical if we are to provide adequate continuity of care to this population to maintain their recovery.

The results of this project indicate that the use of telemental health services within BMT programs is unlikely to affect overall patient attendance rates to encounters compared with in-person

Table 2Descriptive Statistics of Recovery Related Information

Questions	Responses	No. (%) $(N = 27)$
Craving management strategies ^a	Not available	16 (47.1)
	Distraction	8 (23.5)
	Talking to others—nonprofessional	2 (5.9)
	Talking to others—professional	1 (2.9)
	Go to meeting	2 (5.9)
	Religious	3 (8.8)
	Think of past consequences	1 (2.9)
	Medication	1 (2.9)
Health symptoms related to cravings ^a	Not available	20 (70.4)
	Pain	5 (18.5)
	Stress	1 (2.9)
	Tiredness	2 (5.9)
	Nonhealth related	1 (2.9)
Adverse effect to BMT	None	27 (100)
Changes in socioeconomic status after the onset of treatment	None	19 (70.4)
	Loss of job	3 (11.1)
	Death in family	2 (7.4)
	Worse financial difficulty	1 (3.7)
	Gained job	2 (7.4)
Barriers to telemental health	None	25 (92.5)
	Difficulty in accessing telephone	1 (3.7)
	Trouble getting labs completed	1 (3.7)
Worse symptoms with comorbid conditions	None	17 (63.0)
• •	Worsening anxiety	4 (14.8)
	Worsening depression	3 (11.1)
	Worsening health issue or pain	3 (11.1)

BMT = buprenorphine management treatment.

a Fisher exact test.

^a Multiple responses are available.

visits, and therefore, is a potentially viable option when extenuating circumstances disrupt normal in-person encounters. Although telemental health only requires the patient to have a phone or computer with internet access, one major concern for this is the divide it creates between the socially vulnerable who are most at risk and the patient population who have highly reimbursed care and easy access to their providers via telephone, computers, and internet. Certain institutions have attempted to provide phones to those in need to increase accessibility to telemental health services during disruptions in normal service delivery methods such as the social distancing practices of the COVID-19 pandemic. Since the onset of the COVID-19 pandemic, pharmacies have functioned as buprenorphine initiation locations and are also being considered as locations for telemental health-capable kiosk installments to increase access to providers.

The project highlights the potential issues regarding the accessibility patients have to therapy and/or Narcotics Anonymous/Alcoholics Anonymous meetings. One possible explanation for the significant difference in therapy attendance preonset vs postonset of the pandemic may include the COVID-19 health risk of gathering individuals for group therapy, which is generally a cornerstone method of Narcotics Anonymous/Alcoholics Anonymous meetings. Another study indicated that therapists who already used telemental health services pre—COVID-19 reported an overall increase in requests for therapy services from current clients, whereas late-adopter therapists reported a decrease in requests for therapy services from current clients. ¹⁵ If telehealth services were not being used prepandemic by providers, this may be a potential explanation for the significant decrease in therapy participation observed in this project.

A recent study mentions that the top 3 concerns of psychotherapists in switching to telemental health services were security/ confidentiality, inability to handle emergency situations, and lack of personal training or education in this area.¹⁵ Preonset of the COVID-19 pandemic, providers endorsed their lack of training as the largest barrier to using clinical video telemental health services.¹⁶ Another consequence of the lack of training in providing telemental health services is poor comfortability with telemental health services and needing to provide patient education on how to use these services, which were cited by mental health providers as main reasons for a recent increase in provider "burn out." It highlights the need for increased training and comfortability of the provider regarding the use of telemental health services to appropriately accommodate the increased demand for services.

In regards to the use of a combination of telemental health services and in-person encounters vs only in-person encounters, none of the patients (n=27) reported any adverse effects to their BMT treatment when using the combination of delivery of care methods. Also, there was no difference in the satisfaction level of patients regarding their care when using a combination of delivery of care methods. Furthermore, 92.5% of individuals (n=27) denied any barriers to accessing telemental health services. All of these results highlight the fact that based on these criteria, telemental health services used in combination with in-person encounters are equally effective compared with a delivery of care method solely relying on in-person encounters.

Moving forward, telemental health services will continue to be used at increased rates by mental health providers compared with prepandemic rates. Veterans Affairs hospitals and Medicare have relaxed reimbursement restrictions during the pandemic to create equal pay to providers for in-person and telemental health encounters. Maintaining the adjustments to government policies regarding BMT practice guidelines due to the COVID-19 pandemic will have a large impact on the use of telemental health services in the future. It is essential for advanced practice psychiatric

providers, particularly psychiatric mental health nurse practitioners, to receive proper MAT training, acquire appropriate telemental health service training, expand their geographic range for MAT coverage/licensure, and recognize the benefits of telemental health services when it comes to effective implementation of BMT.

The BMT program evaluated in this project incorporated a few aspects to the program that were likely to benefit its effectiveness. First, nearly all initial encounters meant for buprenorphine initiation were completed in-person, whereas most follow-up maintenance encounters used telemental health services. Second, the clinic staff were highly involved in case management and assistance to patients. Third, the clinic provided on-site urine drug screens if patients were unable to complete recommended urine screens at local laboratory facilities. Finally, the clinic had a very flexible schedule throughout the day and actively called patients for their encounters. All of these aspects of this BMT program likely played a role in its effectiveness during the COVID-19 pandemic.

Limitations to this project include the small sample size and its setting in a single practice, which preclude generalizing these findings to the larger population. Nearly all patients in this project were stabilized pre—COVID-19 and predominately receiving maintenance treatment compared with buprenorphine initiation. Considering that this project relied on provider documentation to evaluate attendance rates to encounters, any confounding variables that may cause a deficiency in provider documentation may skew some results. The social distancing practices of the COVID-19 pandemic may cause providers to work remotely, where access to an electronic health record is difficult.

Other limitations to this project were that multiple advanced practice providers treated patients within this particular BMT program. Different characteristics of providers may affect the overall satisfaction of patients regarding their care. No standardized assessment tools are available to assess the subjective responses to the recovery-related aspects evaluated in this project.

Finally, it is important to note that within this BMT program, providers actively called patients via telephone or video conference for telemental health encounters compared with in-person encounters (prepandemic) that required patients to physically present to the clinic. Nevertheless, this project provides valuable information regarding the use of telemental health services in a BMT program.

Further projects are necessary to assess the satisfaction of providers with telemental health services and to assess difficulties patients face in completing their required laboratory tests when telemental health services are used. The overall relapse rate and initiation of BMT need to be assessed when normal delivery-of-care methods are disrupted and programs depend solely on telemental health services. Further replication of these data over a larger, more diverse sample is necessary to make stronger recommendations regarding the optimal delivery of care method for BMT programs. Further studies are needed that do not rely solely on provider documentation to evaluate attendance rates so that more accurate conclusions can be drawn in regards to the possible difference in attendance rates between telemental health and in-person visits.

In conclusion, the use of telemental health services within a BMT program may be a viable option in regards to attendance rates, lack of adverse events, and patient satisfaction when normal inperson services are disrupted.

Implication for Practice

Regulatory changes such as the Comprehensive Addiction and Recovery Act (CARA), signed into law in 2016, launched efforts to increase MAT and use evidence-based opioid treatment programs. This has placed advanced practice nurses on the front lines of the battle against the opioid epidemic through the use of MAT programs such as the BMT program examined in this project. One implication of this project is that, beyond the extenuating circumstance, telemental health services can expand the geographic reach of treatment to underserved rural areas and populations. Current data suggest that less than 40% of individuals have access to MAT.¹⁷

Moreover, the largest recent increases in opioid mortality and injury occurred in rural states such as Kentucky, West Virginia, Alaska, and Oklahoma, which highlights the need for increased accessibility to MAT in these areas.¹⁷ There is a geographic disparity among providers who are MAT certified in that they are predominantly located in urban areas despite the rapidly growing opioid crisis in rural regions.¹⁸ Telemental health services have the capability to reach a wider geographic range for treatment and thereby address the difficulties rural areas face due to the opioid epidemic.

We were not well prepared to provide telehealth services due to a rapid shift from in-person visits to telemental health visits during the time of crisis. Roughly 96% of professionals providing psychotherapy reported their undergraduate/graduate university programs did not provide them with any education regarding the use of telemental health services. The incorporation of telehealth education into the educational curricula of health care providers should be considered to increase their telehealth competency.

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