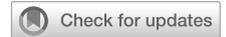# Substance Use Disorders and Telehealth in the COVID-19 Pandemic Era: A New Outlook

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Abstract

During the current coronavirus disease 2019 epidemic, many outpatient chemical dependency treatment programs and clinics are decreasing their number of in-person patient contacts. This has widened an already large gap between patients with substance use disorders (SUDs) who need treatment and those who have actually received treatment. For a disorder where group therapy has been the mainstay treatment option for decades, social distancing, shelter in place, and treatment discontinuation have created an urgent need for alternative approaches to addiction treatment. In an attempt to continue some care for patients in need, many medical institutions have transitioned to a virtual environment to promote safe social distancing. Although there is ample evidence to support telemedical interventions, these can be difficult to implement, especially in the SUD population. This article reviews current literature for the use of telehealth interventions in the treatment of SUDs and offers recommendations on safe and effective implementation strategies based on the current literature.

We live in an extraordinary time. The coronavirus disease 2019 (COVID-19) pandemic is a global public health crisis not seen since the influenza pandemic of 1918.[1] Social distancing and rigorous infectious disease prevention strategies are the new normal. Rapid changes and extreme uncertainty resulting from COVID-19 have driven individual fears, grief, apprehension, and a near omnipresent struggle to cope with social isolation, economic tumult, and displacement, all of which are associated with an increase in mental health concerns worldwide.[2] Before the international public health crisis of COVID-19, an epidemic of substance use disorders (SUDs) in the United States had been contributing to an unprecedented increase in deaths of despair from suicide and drug overdoses.[3] In 2018, 164.8 million people reported using addictive substances within the past month (1 in 5 people or 19.4% of the population). An estimated 21.2 million people needed SUD treatment, yet, However, only 1 in 10 of those individuals (11.1%) received treatment due to a significant lack of access to SUD providers.[4]

There is emerging evidence that the pandemic has worsened substance use and mental health symptoms in the most vulnerable populations.[5] While the need for support is growing, the access to help is diminishing. Self-help support options such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) have become even less accessible, as most US states have restricted group gathering and social distancing has become the mainstay of infectious disease prevention. Many formal group-based SUD programs are

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less accessible in an attempt to mitigate the spread of infection. There is also evidence that with health systems concentrating on COVID-19 patients, access to care for people with SUDs can be further diminished.[6] Emergency rooms, previously a common first stop for patients seeking help with their SUD, have become less accessible as patients hesitate to come to the emergency room due to fear of infection.[7] It is now more important than ever to provide chemical dependency assessment and care through modalities that are safe for the provider and the patient.

Telehealth, also sometimes known as telemedicine, is defined as the delivery of health care across a distance using telecommunications technology. Telehealth has been shown to improve access to care (especially for rural populations).[8] It can produce similar results to in-person treatment, reduce the burden of travel, and help reduce the perception of stigma. It has been shown to provide substantial patient and provider satisfaction with the delivery of care.[9,10] There is also a growing evidence base to support the benefit of telehealth in access to SUD-related care.[11] Although research shows a rapid (approximately 20-fold) increase in the use of this intervention for SUD from 2010 to 2017, it remains underused, representing just a fraction of overall telepsychiatry visits.[12]

Multiple barriers to the acceptance of tele–mental health services have been identified. These include both patient-based and provider-based factors. However, regulatory barriers have been one of the biggest hindrances so far, including insurance reimbursement and state licensure requirements.[13] In the midst of the pandemic, most of these impediments have been at least temporarily removed. On January 31, 2020, the Secretary of the US Department of Health and Human Services (HHS) declared a public health state of emergency, which included immediate (although temporary) regulatory changes at the federal level.[14] Many state legislatures declared similar states of emergency orders which included various measures to loosen restrictions on telehealth.[15-17]

Furthermore, the HHS Office for Civil Rights waived potential penalties for Health Insurance Portability and Accountability Act violations against health care providers that serve patients in good faith using virtual care technologies, such as FaceTime or Skype. The HHS also announced an easing of practice regulations across state lines "to meet the needs of hospitals that arise in adjoining areas" during the COVID-19 health emergency.

The COVID-19 pandemic makes it imperative for clinical practice to adapt rapidly to meet patient needs for SUD treatment while reducing risk of COVID-19 infection; hence, many providers are now using telehealth for the first time. This paper intends to focus on the evidence base for of telehealth services and provides recommendations for evidenced-based, safely delivered, SUD-focused telehealth visits.

TELEHEALTH MODALITIES IN SUBSTANCE USE TREATMENT

The general evidence base for telehealth in medical settings is characterized by significant heterogeneity of study designs, populations, interventions, and outcome measures.[18,19] The four most common modes of telehealth in SUD treatment programs are computerized assessments (45%), telephone-based recovery support (29%), telephone-based therapy (28%), and video-based therapy (20%).[20,21] Less used tools include texting, smartphone apps, and virtual reality interventions. Evidence for each tool will be discussed below.

Computerized/Web-based assessments and treatments with no live interaction are the most commonly used form of SUD virtual intervention; they offer improved ease of access to assessments. These interventions are considered asynchronous (ie, patients may access them at any time), with the advantage that patients may use them at critical moments in recovery. Although there is significant variation in the format, function, and aim of these tools, common features include: screening assessments (eg, the Alcohol Use Disorders Identification Test), cognitive behavioral therapy modules, motivational therapy sessions, psychoeducation,

behavioral skill-building, links to self-help recovery groups, and computerized brief interventions. The majority of studies consistently show positive effects of these tools in addiction treatment when they focus on the electronic delivery of evidence-based strategies. Furthermore, these tools have shown very few adverse outcomes.[22] For example, in a study of 84 alcoholic patients (assessed at 3, 6, and 12 months), improvement was noted in the percentage of days abstinent (14.5% to 27.2%), reduced mean drinks per drinking day (5.7 to 3.7 drinks), and reduced alcohol-related problems. Results were similar to traditional face-to-face interventions. No safety concerns were identified.[23] However, several reviews of asynchronous online smoking cessation resources showed that most programs were of mediocre quality and that the highest-quality websites attracted few visitors.[24] This may create risk if individuals are attempting to apply mediocre tools without consulting a physician for advice on quality. Further work is needed to determine adequate length (ie, dose) of the treatment, degree of integration needed with traditional treatment, and the sustainability of effects.[25-27]

Telephone-based recovery supports and therapy are the next most commonly used forms of telemedicine. They are labeled as synchronous, requiring real-time contact between patient and clinician. Phone calls offer support, link patients to resources, and deliver brief interventions. They are considered minimally resource intensive, in that apart from the capacity to deliver effective brief intervention, cost of infrastructure is low. However, cost-efficiency is limited by lower reimbursement rates which may vary geographically and by payer type. When compared with treatment as usual for alcohol use disorder, the addition of telephone-based services has been shown to improve abstinence rates and reduce binge drinking in the short term, but not after the cessation of the interventions examined with no increase in adverse outcomes. Current evidence only supports the use of telephone-based telemedicine in continuing care after completion of traditional addiction treatment and may be alcohol specific.[28,29]

As smartphones and tablets have become ubiquitous over the past decade, the use of synchronous videoconferencing in medical treatment has expanded.[12] According to a 2018 systematic review, studies have repeatedly shown that, compared with in-person treatment, videoconferencing for similar modality treatment of SUDs is no less effective and is associated with significant patient satisfaction and safety.[11] The use of videoconferencing for the treatment of alcohol use disorder is associated with reduced drop out, reduced alcohol consumption, higher abstinence rates, and high patient satisfaction compared with treatment as usual.[30-32] Similar results for videoconferencing have been shown for the treatment of opioid use disorder (OUD) with buprenorphine and methadone.[33,34] Videoconferencing for smoking cessation has also shown similar 12-month abstinence rates (25%) compared with in-person treatment (21%).[35] Several studies support improved 1-year retention with videoconferencing compared with in-person treatment, owed partially to the ease of access, perception of reduced stigma, and reduced burden of traveling to appointments.[32,33]

Also, because of the proliferation of smartphones, health care organizations are increasingly using text messages to support health care delivery. Most often used as appointment reminders, text messaging has been shown to decrease the frequency of missed appointment.[34] Additional texting interventions include craving helplines, automated cognitive behavioral therapy, relapse prevention skills support, personalized messages delivery based on stage of change, and personalized motivational reminders. Importantly, texting interventions can be used in vivo at moments of critical decision making. When used for smoking cessation, either as stand-alone treatment or combined with traditional treatment, texting interventions have shown improved long-term abstinence rates in 11 randomized controlled trials with nearly 13,000 combined participants.[36] Furthermore, a stand-alone texting

intervention after an emergency room visit, when compared with controls, showed a reduction in alcohol intake: 3.4 fewer heavy drinking days per month and 2.1 fewer drinks per drinking day over a 3-month period.[37] As a simple and cost-effective tool, text messaging is an often underused method of supporting SUD treatment.

Smartphone apps are a promising new technologies to further improve SUD treatment options. Rarely out of arm's reach, smartphones represent a nearly continuous opportunity for patients to engage in virtual addiction treatment. Smartphone apps represent a rapidly emerging market attracting the attention of patients, clinicians, and third-party payers. In addition to sharing features with Web-based tools (discussed above), apps offer features such as personalized push notifications, direct connections to support persons (ie, sponsor, family, etc), in vivo assessments, real-time interventions for cravings, contingency management—based rewards, and global positioning system—tracking alerting the patient when they approach a high-risk location.[38] Such apps have been shown to reduce hazardous drinking and drinks per day.[39] Some use predictive modeling to identify patients at high risk for relapse and to deliver personalized interventions.[40] In addition, AA and NA have developed free apps that provide a one-stop repository for local entities to provide information on location, daily reflections, local meeting guidelines, news et cetera. Although most commonly used as augmentation stratagems to traditional treatment, they appear to be safe ways to enhance skills conducive to maintaining sobriety.

Virtual reality for SUD treatment offers the possibility of both asynchronous and synchronous environments. Asynchronous virtual environments are primarily designed to simulate reality for patients to test reactions to environmental cues. In contrast, synchronous virtual worlds allow patients to create digital avatars to interact in real time with peers and clinicians. Studies have shown that virtual reality can reliably recreate cravings, although no studies to date have evaluated the effects of a synchronous virtual world in SUD treatment. Apart

from the lack of evidence, these virtual worlds can cost up to $100,000 — a prohibitive cost for most treatment centers.[41]

Despite evidence supporting the safe use of all the above-mentioned modalities, there are limitations. Many patients with SUDs have relied on intrapersonal, face-to-face interactions that may be disrupted by the fluidity (or lack of fluidity) of virtual interactions; many may not have reliable phone service or Internet access, and some lack necessary equipment. A 2012 analysis showed that less than 1% of SUD treatment centers had adopted telemedicine technologies.[20] Surveys show that clinicians tend to be most concerned about patient outcomes, work efficiency due in part to the implementation of new technology, and reimbursement. Widespread implementation of telemedicine has also been hindered by complex reimbursement and regulatory barriers at the state and federal levels.[42] Many telemedicine products are now being marketed directly to third-party payers to alleviate reimbursement concerns. Additionally, patients remain concerned about their privacy in a digital world, and health care organizations must carefully evaluate prospective technology to ensure products meet privacy/security requirements.

PSYCHOSOCIAL ASPECTS OF TELEHEALTH

Although most physicians do not provide or facilitate psychosocial interventions, it is important to understand that these treatments are perhaps even more important during a time of viral pandemic restrictions. There is a substantial body of literature supporting the efficacy of both individual and group-based behaviorally oriented treatment components and self-help group intervention in patients with SUD.[43] Understandably, many patients and providers have concerns about whether video-based interactions can provide the same quality of interaction as in-person treatment. A number of studies have shown that group-based treatment by videoconference can provide safe intervention, high patient satisfaction, and have similar outcomes to in person treatments.[11,44] However, a few studies of group treatment by

videoconference (in post-traumatic stress disorder and with inmates) have indicated that there may be a reduction in patient-reported group cohesion and treatment alliance.[44] Nonetheless, virtual groups are a practical alternative to face-to-face treatment that has become limited due to social distancing. In addition to professionally led groups, patients should be encouraged to participate in virtual 12-step and other self-help meetings, obtain an online sponsor, or maintain a virtual connection with their current sponsors.[45] Additional care and preparation should be taken regarding safety planning for medical or psychiatric emergencies during the course of group treatment.[10,46] Additional research is needed to explore potential limitations of video group treatment, particularly in the area of SUD treatment.

IMPLEMENTATION OF VIRTUAL VISITS

There is a substantial body of literature supporting the efficacy of face-to-face treatment modalities in helping improve addiction-related outcomes and overall symptom burden in patients with SUDs.[47] In contrast to face-to-face interventions, there are no current consensus best practice recommendations available for medical visits focused on addiction treatment via telehealth. A guide for general clinical videoconferencing in mental health was developed in collaboration with the American Psychiatric Association and the American Telemedicine Association — "Best Practices in Videoconferencing-based Telemental Health."[9] Their guide represents a model based on research evidence, expert consensus, patient needs, and available resources, and it aims to assist in providing safe and effective medical care (Table 1). These guidelines are helpful for general mental health considerations in primary care virtual patient interactions, but they do not consider all the nuances associated with treating individuals with SUDs.

General recommendations for a mental health—focused primary care telehealth visit based on best practice guidelines include a quiet space with good lighting and an uncluttered and professional looking environment (home or office). Perhaps most importantly, an adequate transmission speed and bandwidth of (at least) 384 Kbps are needed for videoconferencing. Good transmission speed is especially important in behavioral health visits in order to support the detection of facial cues and to prevent fragmented movement because decreased ability of a provider to recognize nonverbal cues can adversely affect rapport building.[13] If possible, the camera should be positioned at eye level as this will provide better eye contact with the patient. Clinicians' attitudes should be open, supportive, and non judgmental using measured gesticulation which should reflect engagement and attention.[9]

BEST PROVIDER PRACTICES FOR CONDUCTING AN SUD-FOCUSED MEDICAL VISIT

Initial synchronist video-based telehealth assessment for SUD should contain all the elements obtained in an in-person visit: this includes making a Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnosis based on complete history of substance use; as well as past treatments and responses; periods of recovery; prior episodes of overdose; medical, psychiatric, social, and family histories; a review of systems; and a state prescription monitoring program review. In addition, clinicians should also have a protocol for emergencies such as suicidal ideation, overdose, et cetera, which should include a process to access emergent in-person care if necessary. Although the primary goals of an initial assessment are diagnostic clarification and treatment recommendations, the initial interview also presents an opportunity for motivational enhancement and education.

Some information needed in an assessment is directly obtainable virtually. However, vital signs, physical exam, urine drug screen, and observation for indications of intoxication introduces new considerations of what standard of care may mean in this setting, and it will require creative thinking to address. Vital signs and physical exams are difficult to do virtually, but despite these limitations, even predominantly physical

TABLE 1. Best Provider Practices for Telehealth Visits
Establish a clean and professional-looking office space
Reliable Internet
Camera positioned at eye level
Try to maintain a positive attitude
Ensure patient is in a private setting
Establish an alternative way to connect if service is disrupted (eg, phone)

medical complaints such as sore throats can be safely assessed without these portions of the visit.[48] Observational parts on the physical exam certainly could still be performed and recorded. For a rough assessment of vital signs, patients could procure and use home-based tools (eg, automated electronic blood pressure monitoring cuff, thermometer, etc.) at some additional cost. The main goal of the urine drug screen is to objectively assess for substance use. Even during restrictions related to the pandemic, most patients are able to access labs where they could provide a urine sample. However, there are also many remote options for monitoring substance use that could be used, including oral fluid and hair analysis in select cases.[49] However, there is high risk for tampering with unobserved collection methods outside of the clinic. Observed oral fluid testing, for example, has been integrated into apps where the patients are observed placing their fluids into the testing cups; other methods of monitoring have been used within the criminal justice system.[50,51] All of these have their relative strengths and weaknesses. As urine drug screens performed in certified labs are likely to be the only option reimbursed by most insurance companies, they remain the modality of choice.

Intoxication/withdrawal during the interview can be assessed by clinical observation and using instruments such as the Clinical Institute Withdrawal Assessment for alcohol or the Clinical Opiate Withdrawal Scale for opioids. Home-monitoring kits (eg, a Bluetooth-enabled breathalyzer) can also be used to assess acute intoxication, but these are not widely available for most patients. Intoxication with the potential for overdose can be particularly challenging and sometimes difficult to assess remotely. If this is at all suspected, then immediate use of emergency services (ie, local to the patient) would be extremely important.

While the COVID-19 public health emergency lasts, urine testing for buprenorphine treatment does not have to be mandatory.[52] In areas where access to laboratory services are difficult, the clinician can consider pausing urine drug testing in clinical practice if they consider the patient at low risk for substance use; it can be restarted when patients are able to access laboratory services again.

Some strategies for risk reduction in a situation where frequent and optimal urine drug monitoring is not feasible include patient education regarding the risks of overdosing, more frequent clinical encounters, prescribing smaller quantities of medications, prescribing naloxone for individuals on opioid agonist medications, and training the patient and any family members engaged with the patient's care to use naloxone. There are many unique features and considerations for providing effective telehealth visits to SUD patients (Table 2), and an important research opportunity exists to build a deeper evidence base for best practices in this domain.

MEDICATION-ASSISTED TREATMENT

Conducting telehealth medication-assisted treatment visits for OUDs represents a unique challenge. Prescribing controlled substances such as buprenorphine for patients seen exclusively via virtual visits was previously restricted, but it is now possible with temporary emergency legislative changes during the COVID-19 pandemic. However, methadone still requires in-person visits for induction.[53] Medications for OUD require the greatest supervision and observation due to the risk of misuse and diversion.[10,46,54]

For new patients seen via telehealth with OUD, buprenorphine has advantages over methadone or injectable naltrexone. Buprenorphine allows greater prescribing

TABLE 2. Conducting an Addiction-Focused Telehealth Visit[a]
Assessment
Complete history of substance use
Use DSM-5 criteria to establish SUD diagnosis
Look for visual signs of intoxication or withdrawal
Use standardized questionnaires to establish significance of withdrawal symptoms
Evaluate for current depression or suicidal thoughts (SI)
Have patient do drug testing (using a mail-in kit or by coming into a lab)
Provide treatment recommendations
Assess medical and mental health comorbidities
Prescribe anti-craving medications
Introduce asynchronous addiction treatment resources (using an evidence-based psychotherapeutic strategy)
Subsequent visits
Monitor substance use through either remote process or random urine drug screens at labs
Encourage ongoing participation in virtual treatment groups
Encourage use of asynchronous sources
Encourage use of virtual self-help resources (AA/NA)
Augment with phone-based support as needed

[a]AA = Alcoholics Anonymous; DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; NA = Narcotics Anonymous; SI = suicidal ideation; SUD = substance use disorder.

flexibility and a better safety profile than methadone (greater risk of overdose early in induction, concern for stacking with other opioids, and a need for lab workup and electrocardiogram monitoring). Injectable naltrexone requires an office visit which can pose difficulty because of social distancing recommendations, but it typically can be done safely with the appropriate protective equipment.

As noted previously, outpatient induction of controlled substances such as buprenorphine is currently permissible even if the patient does not have a face-to-face evaluation with the provider. Similarly, it became possible to refill a buprenorphine prescription for a patient who has previously not been seen in office, but who has been seen via telehealth.[53] Home induction of buprenorphine via a telehealth visit should follow most of the steps that this process would entail during an in office visit (Table 3)[55,56]

Methadone treatment (in licensed opioid treatment programs) has also undergone some changes. Per the Substance Abuse and Mental Health Services Administration, face-to-face evaluation is still needed for methadone induction; however, in light of the COVID-19 pandemic, more flexible take-home dosing is possible.[53]

DISCUSSION

The COVID-19 pandemic has brought on unprecedented challenges for the health care system generally, as well as specific challenges for patients coping with SUDs. Fortunately, for patients with Internet and wifi access, federal and state agencies have rapidly responded to the crisis by loosening restrictions on telehealth to provide much needed medical care. This has been a necessary and vital step in providing needed services, but it presents many challenges for patients and providers. We do not yet fully understand the ramifications of the rapid switch to virtual medical visits. Some patients may benefit tremendously by coming to the clinic, meeting with the counseling staff, sharing experiences with other patients in treatments, taking medication-assisted treatments, giving a urine test, and getting encouragement and feedback, whereas other patients may appreciate the convenience of virtual options. Many providers have been ill-prepared to launch a telehealth practice, often over the course of just a few days, leading to a significant delay or potentially even termination in their patient contact. Although there are many available resources to guide clinicians in providing a safe and effective video-based practice, this is not a

TABLE 3. Buprenorphine Home Induction[a]

Start with a visit to establish
    DSM-5 diagnosis
    Complete history of substance use
    Full medical, social, and psychiatric history
    Evaluate for current depression or suicidal thoughts (SI)
    PMP review

Provide medications for breakthrough withdrawal symptoms targeting insomnia, nausea, muscle aches, and abdominal cramping.

Warn patient of precipitated withdrawal

Initial prescription should be sufficient for the patient to complete the induction phase, stabilize, and return in 1 week or less

Most patients stabilize on 8 to 16 mg of buprenorphine

After-hours clinical contact information must be provided to address questions or concerns

Always good practice to provide patients with OUD a prescription for naloxone kit

[a]DSM-5 = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; SI = suicidal ideation; OUD = opioid use disorder; PMP = prescription monitoring program.

substitute for more organized and well-designed training programs. Furthermore, these landmark regulatory changes may well be temporary, which fuels further uncertainty.

This time of crisis has forced a tremendous leap forward in the use of technology to improve quality of care and access to services for patients with SUDs. Telemedicine is a good and required response to the crisis, but its value in the provision of clinical care in the post-pandemic health care systems will be different depending on unique features of the health systems where it is applied. Telemedicine is one means of delivering health care and must be contextualized — and perhaps used in conjunction with in-person and/or asynchronous care delivery — to solve specific care delivery challenges. More randomized trials of in-clinic versus telemedicine practices will be necessary to evaluate short- and long-term outcomes for patients with SUDs, evaluating retention, overdose, concurrent illness, emergency room visits, urine test results, and return to premorbid function. Treatment of SUDs without independent evaluation of outcomes such as urine testing or interviews with employer, partner, and friends is difficult to evaluate. Many longitudinal outcome studies have allowed researchers to look at which aspects of SUD treatment

patients have deemed most helpful to their recovery. Of the various components, group treatment and sharing were at the top of the list. It is possible but difficult to imagine virtual meetings being as compelling over the long-term as in-person care. Greater implementation and experimentation with potential combinations of in-person, asynchronous, and telemedicine options may help define optimal structure of care delivery and clinical communication.

Telehealth during the COVID-19 crisis is reimbursed at the same rates as in-person care, but may not be reimbursed at these rates going forward. It remains unclear whether the broad capability to provide telehealth without previous restrictions imposed by government and private payers and state licensure will continue beyond the immediate COVID crisis period. However, as patients and providers quickly adapt to these new options for treatment, it is likely that telehealth will continue to be a growing component of the health care system overall. Therefore, it is essential that all health care providers become competent in the use of telehealth, including video visits. Tele—behavioral health competencies have been developed and should be systematically implemented in training programs across medical disciplines. Health care systems and regulatory agencies will need to continue to work together to solve challenges in using telehealth to optimize treatment for individuals with substance use disorders.

CONCLUSION

While in-person groups and individual sessions remain the gold standard, we believe that virtual synchronous SUD-focused telehealth can be delivered in a safe and effective manner. Asynchronous modalities appear to be safe and effective when based on sound therapeutic principles and as augmentation strategies for more traditional treatments. Providers should warn patients about the possibility of exposure to mediocre-quality asynchronous modalities. For reasons of cost, service delivery, and safety, especially in the current setting of easily transmittable

infectious diseases, virtual groups and sessions offer a safe and effective alternative.

Abbreviations and Acronyms: AA/NA = alcoholics anonymous/narcotics anonymous; **COVID-19** = coronavirus disease 2019; **OUD** = opioid use disorder; **SUD** = substance use disorder

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