



The Evolution of Telepsychiatry for Substance Use Disorders During COVID-19: a Narrative Review

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Abstract

Purpose of Review This article aims to review and synthesize the current research evidence regarding the efficacy of telepsychiatry-delivered substance use disorder treatment using a narrative review with a focus on the effects of remote healthcare delivery within the substance abuse treatment space.

Recent Findings The COVID-19 pandemic exerted substantial pressures on all levels of society. Social isolation, loss of employment, stress, physical illness, overburdened health services, unmet medical needs, and rapidly changing pandemic restrictions had particularly severe consequences for people with mental health issues and substance use disorders. Since the start of the pandemic, addiction treatment (and medical treatment overall) using remote health platforms has significantly expanded to different platforms and delivery systems. The USA, in particular, reported transformational policy developments to enable the delivery of telehealth during the COVID-19 pandemic. However, systemic barriers such as a widespread lack of internet access and insufficient patient and provider digital skills remain.

Summary Overall, telepsychiatry is a promising approach for the treatment of substance use disorders, but more randomized controlled trials are needed in the future to assess the evidence base of available interventions.

Keywords Telepsychiatry · Telehealth · Substance use disorder · COVID · Pandemic · Review

Introduction

Substance use disorders are responsible for widespread morbidity and mortality and are drivers of the spiraling increase in healthcare spending in the USA. The Center for Disease Control reported 107,622 drug overdose deaths in the USA during 2021 and it is estimated that 40 million illnesses and injuries each year are attributable to addictive substances [1, 2]. According to the Obama Administration, the economic cost of substance misuse in the USA was estimated at \$193 billion in 2007, the last available estimate, including health care costs, lost worker productivity, and crime [1, 3, 4]. According to a 2019 survey from the Substance Abuse and Mental Health Services Administration, around 20 million teenagers and adults in the USA have a substance use disorder [5], although estimates on substance use disorders from national surveys may be subject to recall bias since people with substance disorders may not disclose symptoms in a survey setting, therefore underreporting true estimates [6].

The COVID-19 pandemic exerted severe pressures on all levels of society. Social isolation, overburdened health services, and rapidly changing pandemic restrictions led

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to particularly severe consequences for people with mental health issues and substance use disorders [7, 8]. Social isolation, unmet needs for mental health services, and decreased access to care exacerbated the situation [9]. Since the start of the COVID-19 pandemic, addiction treatment via telehealth has significantly expanded to unprecedented levels [10, 11]. The increasing availability of telepsychiatry for substance use disorders, coupled with regulatory changes and increased public interest, may offer a novel opportunity to provide specialized treatment to the most vulnerable [12–15]. While a number of previous reviews have examined the utilization and efficacy of telehealth [16, 17], relatively few articles have examined the current state of addiction telepsychiatry using a narrative review perspective. The aim of this review is to examine advances in addiction telepsychiatry, the legal frameworks and policy developments governing its use in the USA, potential financial considerations, evidence basis for efficacy as well as potential limitations and shortcomings that should be explored in the roll out of this medium of healthcare [18].

Telepsychiatry, Substance Use, and the Pandemic

Prior to the COVID-19 public health emergency, a vast majority (76%) of specialty addiction treatment facilities did not have the capability to engage in telemedicine encounters and there were many stigmatizing barriers to treatment for the substance-using population [19, 20]. Consequently, telehealth approaches were used in approximately 0.1% of addiction treatment encounters.

During the pandemic, substance use and mental health symptoms in vulnerable populations worsened. This consequently led to a serious worsening of pre-existing conditions and delays in treatment for those requiring acute care [21]. Some commonly offered group therapy support pathways, such as Narcotics Anonymous (NA), became less accessible due to social distancing [22] and started using remote meetings. The focus of healthcare systems on combating the pandemic may have decreased access to care for people with substance-related diagnoses [23]. People with SUDs were less likely to attend emergency rooms due to the fear of infection [22]. Social isolation of patients with substance use disorders increased the likelihood of risky drug use and heightened the risk of overdose due to a lack of oversight by peers [20]. Changes in usage and supply during the pandemic meant that people who inject drugs (PWID) were at a higher risk of overdose [19]. Substance-using patients are generally more prone to chronic diseases, which can then be exacerbated by continuing substance use. COVID-19 affected people with chronic conditions most severely [24]. COVID-related lockdowns and consequent

social isolation reduced access to basic health services for the PWID population [25]. While the pandemic presented serious challenges for mental health services globally, a door opened for the transformation of health care delivery. Telemedicine advances promised an inexpensive way to engage patients meaningfully. It was also an opportunity to assess the effectiveness and feasibility of doing so. Remote medicine had been a phenomenon for a while, but it had never had the chance to be scaled up out of necessity to the level we saw during the pandemic, overcoming commonly held acceptance issues that patients and providers may have experienced before.

Evidence on the Use of Telepsychiatry for Mental Health

Some research has demonstrated that the use of telepsychiatry for mental health problems is possible, acceptable, and as effective as in-person therapies [26, 27]. A subgroup meta-analysis of 8 articles reported a significant standardized mean difference (SMD) when comparing telehealth to care as usual (0.29 (95% CI 0.16–0.41)), indicating telehealth produced a greater decrease in depressive symptoms [28•]. A rapid evidence assessment of 24 articles reported that telepsychiatry could be effective for common mental health disorders such as depression, anxiety, posttraumatic stress disorder, and adjustment disorder in a meta-analysis of synchronous treatments [29•]. Virtually delivered CBT has been found to be at least equally as effective as in-person CBT for a range of mental and physical conditions [30•, 31]. A meta-analysis of 15 articles representing 1254 participants comparing those receiving internet-delivered CBT to waitlisted individuals found a SMD of 0.62 (95% CI 0.41–0.84) [30•]. Another meta-analysis of 20 studies representing 1418 participants found no meaningful difference between those receiving internet-based CBT to face-to-face treatment (SMD 0.05 (95% CI –0.09–0.20)). Simultaneously, a longitudinal study following 1060 patients in intensive outpatient addiction treatment in the USA found no significant differences in delivery format ($\chi^2=0.4$, $p=0.81$), overall quality of life ($F=2.06$, $p=0.13$), psychological well-being ($F=0.72$, $p=0.49$), financial well-being ($F=2.30$, $p=0.10$), and the patient's confidence to stay sober between patients receiving virtual outpatient programming treatment for SUD as opposed to in-person ($F=0.21$, $p=0.81$) [32•]. In another narrative review, 7 out of 8 included studies comparing virtual and in-person provision of addiction treatment showed that telehealth was as effective but not better than in-person treatment in terms of retention, therapeutic alliance, and substance use [16]. Further research of 100 participants in West Virginia showed no significant differences in additional substance

use, average time to achieve 30/90 consecutive days of abstinence ($p=0.09$ and $p=0.22$, respectively), and treatment retention rates at 3 months ($p=0.99$)/1 year ($p=0.99$) between in-person and telehealth provided medication-assisted treatment for patients with OUD [33].

A randomized non-inferiority trial of 1843 participants suggests the equivalent efficacy of virtually delivered psychotherapy compared to face-to-face treatment ($\chi^2=1.78$, $p=0.41$) [34•]. A randomized controlled trial of digitally delivered acceptance and commitment therapy hosting 152 participants reported reduced general ($d=0.39$) and social anxiety ($d=0.70$), but not panic symptoms ($d=0.05$) compared to those on the waiting list, though no differences were observed between guided and unguided interventions [35]. Patients provided with a telehealth addiction consult service (ACS) during the early stages of the COVID-19 pandemic ($n=473$) showed lower 30-day readmission rates compared to those receiving face-to-face ACS before the pandemic ($n=370$) [36]. Counselling via telehealth has also been described as effective for treating SUDs [33, 37, 38]. A non-randomized cohort comparison study ($n=3733$ participants) supports this notion and found that those treated using telemedicine were more likely to be retained in therapy than patients treated in-person ($n=1590$; aOR = 1.27 (95% CI 1.14–1.41)) [39•].

Telepsychiatry video conferencing was shown to be a successful method of supervising healthcare professionals and assessing those needing psychiatric assistance following the tsunami in Thailand in 2004 [40]. A narrative review containing 134 articles reported that telepsychiatry is comparable to in-person services in terms of the reliability of clinical assessments and treatment outcomes [41•]. A multi-centric clinical trial of 507 patients using an FDA-approved digital health app “reSET” also showed a significant increase in abstinence rates for patients with SUDs (OR 1.62 (95% CI 1.12–2.35)), particularly among patients with positive urine drug and/or breath alcohol screen at the point of study entry (OR 2.18 (95% CI 1.30–3.68)) [42•]. The telehealth provision of methadone medication management has also been shown to improve patient retention in two separate registry-based studies in the USA and Canada [33, 39•]. In fact, a study in Maryland showed that, out of 177 patients prescribed buprenorphine via telehealth, 57% remained in treatment after 3 months, and 86% no longer used opioids illegally [43]. A study of 3733 patients in Canada demonstrated that a year of telehealth-provided buprenorphine or methadone therapy was strongly correlated with reduced illegal drug use, relapse, and illegal activity [39•].

Telehealth has been shown to improve access to care, particularly for rural and underserved populations and can improve treatment for individuals in less accessible areas [12, 44, 45], expanding coverage but also diminishing

costs. Access to telehealth depends on internet literacy and access to adequate IT connectivity and platforms. Given the lack of healthcare workers trained in addiction medicine, particularly in rural areas, telehealth provision of addiction healthcare could expand access nationwide [16, 36], while also removing the costs of travelling to in-person appointments [46]. As a result, several key barriers to seeking healthcare are ameliorated such as limited time to travel to a clinic, lack of transportation or childcare, and the stigma of being seen at a clinic [47]. Telehealth provision might reduce disparities in access for people with disabilities, limited transport options, or those who live in areas with few providers able to prescribe opioid agonist treatment [12, 46]. For instance, an Addiction Telehealth Program in San Francisco was used by 67% Black and 100% unstably housed populations. These populations typically face increased barriers to healthcare provision due to a series of structural barriers such as lack of trust in the system, experiences of discrimination, and stressful living conditions that make it difficult to prioritize health [48, 49]. The high usage of this program by these patients highlights how telehealth can increase access for populations with typically decreased healthcare access and contribute to diminishing health disparities [50]. Another particularly vulnerable group involves women after giving birth. Health insurance benefits end for many women at this point, leaving the postpartum period as a serious gap for accessing healthcare, and increasing the risks of relapse and overdose [51]. The delivery of telehealth during this period could reduce maternal and newborn morbidity and mortality due to untreated SUDs [52].

Specific telehealth applications have been shown to offer significant socio-economic benefits to patients and families, healthcare providers and the healthcare system. The main benefits identified were as follows: increased access to health services, the cost-effectiveness of remote interventions, enhanced educational opportunities, improved health outcomes, better quality of care, better quality of life, and enhanced social support [12, 53–59]. Telepsychiatry is more cost effective than in-person mental health services in most studies [41•, 60]. Telehealth can increase the efficiency of patient care by optimizing the use of a health professional’s time [61]. Telehealth can allow for more flexibility in work hours, the possibility of working from home, increased job satisfaction and employee retention [62, 63]. This can potentially lead to longer-lasting therapeutic relationships between patients and providers [47, 64]. There is some evidence that telepsychiatry can increase patient adherence to treatment with reduced “No-shows.” Telepsychiatry is relatively safe with few reports of morbidity, mortality, or loss of confidentiality [41•]. That said, providers of telehealth for addiction noted that the relative benefit of telehealth was dependent on the service users’ circumstances

[41•, 65, 66]. New patients, homeless or isolated patients, patients with attention issues or low comfortability with technology, and patients without access to a suitable private space may not be able to leverage the benefits of digital healthcare and fare better with in-person treatment [12]. Patients with time pressures, young children, and technology-literate patients may benefit more from virtual treatment [16].

In contrast, a scoping review of 14 articles suggests that telepsychiatry may be less effective for patients with severe mental illnesses which impair cognitive ability such as schizophrenia and major neurocognitive disorder, or in patients with a significant social disadvantage, though these studies were characterized by selection bias and poor methodological quality [67•]. Nevertheless, individuals with serious mental illnesses can struggle to connect cognitively and emotionally during telehealth sessions with their counsellor [68]. Another systematic review of 14 RCTs of iCBT found no substantive evidence that iCBT was equally beneficial for patients with anxiety disorders as in-person services [69•], starkly contrasting previously described research [30•, 31]. It is also important to consider that more than 40% of the most rural USA counties do not have the necessary broadband infrastructure to support video based telehealth [46]. There is always the hovering risk that providers may not cover telehealth adequately and patient or providers may not be fully reimbursed [14, 70].

Clinical Users of Telepsychiatry

A 2020 systematic review containing 38 articles found that clinician satisfaction levels and attitudes towards internet-delivered mental health care were largely positive [71•]. Simultaneously, the satisfaction of patients and providers with telepsychiatry has also been documented, highlighting extensive positive experiences from patients and mixed experiences from providers [41•]. Some clinicians express resistance to telepsychiatry, believing it to be less effective than in-person therapy, while others express concerns about patient privacy and the impact of utilizing video technology on building rapport and a therapeutic relationship due to reduced non-verbal communications [27]. Despite the positive attitudes of clinicians, they report more positive experiences with in-person sessions over sessions utilizing telehealth [72], but it is not clear what patient experiences are in relation to this, or furthermore, if clinician attitudes are relevant to the clinical effectiveness of a treatment delivery system such as this. Telepsychiatry providers tended to express more concern about the negative effects of virtual methods on therapeutic rapport [41•], though other factors relating to clinical hesitancy have been reported as well, such as concerns about training, confidentiality, clinician

acceptance, medication management, and reimbursement [16, 70]. Clinicians reported a distinct preference of video technology over telephone sessions, suggesting that the perceived utility varies across technologies [72], which also resulted in an increased intention to continue using video sessions over telephone sessions. Providers have been further limited in their ability to offer medications for OUD via telehealth due to low medical insurance reimbursement, and unwillingness to implement telehealth from licensing boards, professional associations, and public oversight bodies [73, 74]. Other barriers to providing telehealth medications for OUD include privacy concerns, the assumption that people with OUD would be unable or unwilling to participate, and a hesitancy from clinicians to change their current practices [74–76]. It is interesting to note though that what is called remote medicine or telehealth in a way is using the same delivery systems that have been available for some time such as the telephone and one could even argue it has repackaged an old technology with novel terms but in essence, it is the same medium. It is an important consideration since there is a broad evidence base about clinical delivery systems using the telephone. It is not clear how one should therefore classify interventions and the degree of novelty we are experiencing.

On the patient side, the majority of patients receiving telepsychiatric interventions reported being satisfied or very satisfied [41•, 77], with particular value being put on the accessibility, convenience, affordability, and privacy of telepsychiatry [77]. Telepsychiatry also has the ability to provide tailored support, which is often crucial for patients with SUDs [78, 79], while also having the potential to be more effective, cost-effective, and efficient [80]. Patients were more likely to attend their telehealth appointments than their in-person appointments, and so can optimize treatment engagement [47]. However, few telehealth tools are designed specifically for people who inject drugs [81], and individuals with serious mental illnesses often struggle to connect cognitively and emotionally during telehealth sessions with their counsellor [68], and there might be also important selection biases when assessing effectiveness because very severe patients might not be able to engage with the IT skills required and platforms used to deliver these interventions making them only fit for those experiencing milder symptoms or the more “functional-end” of the spectrum. Many people with OUD also may not have access to a quiet or private space in which to attend sessions [47]. Some forms of counseling for SUD may not even be feasible via telehealth such as intensive outpatient programs [47] or crisis intervention in patients with suicidal or homicidal ideations [37], that often require immediate action and face-to-face assessments. Other forms that are feasible may be difficult to deliver due to low phone or internet access in the patient group [82], as well as accommodation instability

and financial problems [83]. According to a survey of people who inject drugs in Canada, many participants had inconsistent access to phones, social media, or the internet. Only 34.5% of participants had access to a phone for a whole year—within this population, phones are often lost or damaged, and due to moving addresses and difficulties in paying phone bills [82]. Overall, telemedicine providers are able to predominantly provide medication-assisted treatment to patients with OUD in urban areas, seeing as 91–99% of rural areas lacked any providers in 2015 [84].

Moving forward, four action points have been repeatedly highlighted to ensure a successful transition to telehealth for SUD treatment [46, 72, 81, 82, 85]: (1) investing in telehealth infrastructure; (2) training and equipping providers to provide treatment for SUD via telehealth; (3) providing patients with hardware, training in using telehealth services, and social and financial support; and (4) making the temporary changes to telehealth regulations permanent. As telehealth may not be suitable for all medication types for OUD patient, it is recommended that a hybrid care delivery model is developed that can manage both patient and provider needs [47]. Patients in hybrid in-person/virtual programs reported higher levels of general health than those in entirely virtual intensive outpatient programming treatment for SUD [32]. Hybrid delivery systems may offer flexibility and effectiveness in many circumstances.

Legislative Changes from the Start of Pandemic to the Present

Before the pandemic, provision of care via telehealth for patients with SUDs was restricted by legislative and regulatory barriers including the Ryan Haight Online Pharmacy Consumer Protection Act of 2008 [66, 86, 87], which required that prescriptions for controlled substances to be initiated *in person* and the drug Addiction Treatment Act of 2000 [88], which required providers to have a waiver to be allowed to prescribe buprenorphine. State licensing requirements also prohibit many healthcare workers from treating patients using telehealth across state borders in the USA [89]. Unsurprisingly, telehealth for addictions was underutilized prior to the pandemic. Studies showed low usage rates of telehealth for SUDs, that telehealth was primarily used to complement in-person care [86]. Telehealth was used less for addiction treatment than for other healthcare areas [70]. Telepsychiatry for mental health was used much more widely than telepsychiatry for SUDs [86]. The use of telehealth services can vary according to ethnicity, age, type of organization, and service location. Clinician hesitancy to employ telehealth related to concerns about training, confidentiality, clinician acceptance, and reimbursement [70]. Stakeholders called

on congress to update the Ryan Haight Act to allow addiction treatment providers to register with the DEA and prescribe controlled substances through telehealth. There was a proposed legal solution related to the Opioid Crisis Response Act of 2018, which would require the Attorney General to initiate these special registrations [90].

The corona virus outbreak led to the Federal government declaration of a public health emergency. The Drug Enforcement Agency (DEA) then announced that clinicians could prescribe schedule II–V medications via telemedicine to patients, even if they had not been seen in person, so long as there were legitimate medical reasons to prescribe. This led to important changes as to the scope of what is possible in mental health service provision and this allowed the utilization of online telepsychiatry encounters, and later telephonic encounters, to start treatment for opioid use disorder with buprenorphine without seeing the patient in person. Laws were also relaxed concerning telehealth reimbursement, who can provide telehealth services, and where they can be accessed from [7, 91]. An overview of policy developments is shown in Table 1. In tandem with these policy changes, certain calls occurred for these changes to be made permanent in order to continue the effective provision of services [46, 92]. These same calls arose surrounding the relaxation of regulations from the DEA that allow telehealth provision of services for patients with OUD, as well as to expand them nationwide [50, 93].

Policy Consequences and Effectiveness of Telehealth SUD Interventions During COVID-9

When assessing the effect of the treatment expansion for take-home methadone during the COVID-19 pandemic for stable and less stable patients, research has shown that the percentage of overdose deaths involving methadone declined between January 2019 and August 2021, though an acute increase in methadone-involved overdose deaths was observed when the policy was introduced [100]. However, this acute increase was attributed to the rise in overall drug overdose deaths driven by illicitly produced fentanyl early in the COVID-19 pandemic rather than associated with the policy changes [100, 101]. Furthermore, the number of overdose deaths involving buprenorphine did not proportionally increase with the newly introduced prescribing flexibilities [102]. In fact, emergency changes permitting telehealth have reportedly led to improved access to care for patients with OUD at the VICTA mental health clinic in Rhode Island [47]. These findings suggest that the inflexibility of counselling systems in place before the pandemic that required in-person appointments prevented many people with OUD from receiving medical help for their condition [47].

Table 1 A chronological overview of the US policy developments for telehealth during the COVID-19 pandemic

Date	Policy change
27–01-2020	The U.S. Department of Health and Human Services (HHS) declared COVID-19 a nationwide health emergency. Shortly after, HHS lessened Health Insurance Portability and Accountability (HIPPA) Act requirements to allow telehealth to be provided using free platforms such as FaceTime [94, 95]
19–03-2020	The Substance Abuse and Mental Health Services Administration (SAMHSA) relaxed the requirement for in-person evaluation before prescribing buprenorphine [96]. SAMHSA issues new guidance for Opioid Treatment Programs (OTPs) to prescribe buprenorphine via telehealth and liberalized the number of take-home medications, reducing in-person visits
31–03-2020	DEA and SAMHSA announced that prescriptions for controlled substances could be given to patients without an in-person evaluation [97]
27–07-2022	The Advancing Telehealth Beyond COVID-19 Act of 2022 modifies the extension of certain Medicare telehealth flexibilities after the end of the COVID-19 public health emergency [98]. Specifically, the bill provides that certain flexibilities continue to apply until December 31, 2024, if the emergency period ends before that date. These flexibilities include: (a) beneficiaries to continue to receive telehealth services at any site, regardless of type or location (e.g., the beneficiary’s home) (b) occupational therapists, physical therapists, speech-language pathologists, and audiologists to continue to furnish telehealth services (c) federally qualified health centers and rural health clinics to continue to serve as the distant site (i.e., the location of the health care practitioner) (d) evaluation and management and behavioral health services to continue to be provided via audio-only technology (e) hospice physicians and nurse practitioners to continue to complete certain requirements relating to patient recertifications via telehealth The bill also delays implementation of certain in-person evaluation requirements for mental health telehealth services until January 1, 2025, or the first day after the end of the emergency period, whichever is later
29–12-2022	With the signing of the Consolidated Appropriations Act of 2023 [99], Congress eliminated the “DATA-Waiver Program.” The Mainstreaming Addiction Treatment (MAT) Act was signed into federal law and became effective. Important changes resulting from the MAT Act include the following: (a) elimination of the requirement for a special registration through the federal Drug Enforcement Administration (commonly referred to as an X-waiver) to prescribe or dispense buprenorphine for the treatment of opioid use disorder (OUD) (b) elimination of the limitations on the number of patients a practitioner was permitted to treat with buprenorphine for OUD (c) a practitioner holding a standard DEA registration to prescribe controlled substances may now prescribe buprenorphine for the treatment of OUD, without limitation to the number of patients Additionally, the new federal law now requires all healthcare providers, with a few exceptions, who prescribe any controlled substances to complete 8 h of training in the identification and treatment of substance use disorders when any practitioner first applies for a DEA registration or at the time of their next DEA registration renewal. The training requirement becomes effective in June 2023 Furthermore, the 1.7 trillion USD bill included a 2-year extension of key telehealth provisions, such as coverage for Medicare beneficiaries to have phone or video medical appointments at home. But it also signaled political reluctance to make the payment changes permanent, requiring federal regulators to study how Medicare enrollees use telehealth

Studies of opioid-dependent patients on medication-assisted treatment have shown comparable outcomes for telepsychiatry and in-person intervention in 2020 [16]. As previously stated, there were no differences in outcome between videoconference and face-to-face medication-assisted treatment for opioid dependents and no significant statistical difference between telepsychiatry and in-person buprenorphine medication-assisted treatment for breakthrough substance use, time to 30 and 90 days of abstinence, or retention rates at 90 days and 1 year [33, 43]. Three literature reviews (two narrative and one systematic) also reported that retention rates were higher or consistent between those receiving in-person OUD treatment and those receiving integrated treatment through telemedicine [52, 103, 104]. Telephone-based treatment shows feasibility in the treatment of OUD and was effective at initiating buprenorphine prescriptions, with minimal associated harms [47, 50]. Ultimately, providing opioid agonist treatment through telehealth has been shown to be a feasible and successful option [25, 39•]. However, there was little

evidence that available opioid-related apps meet basic quality standards even though they addressed key stakeholders and were consistent with strategies to address the opioid crisis (e.g., prevention, treatment, overdose) [105].

Alcohol and Tobacco Use and Telehealth as Comparative Case Studies

An interesting case study for telehealth is the comparison between SUD and alcohol use disorder that have used telehealth platforms for years and telehealth alcohol treatment that has been offered for years by healthcare professionals and programs specializing in addiction [16, 106]. More than 18 million Americans are currently suffering from alcohol use disorder [5] making this an important element of treatment options for a large share of the American population. Outpatient psychosocial treatments for AUD, such as Alcoholics Anonymous and 12-step programs, remain popular and are utilized more than pharmacotherapy in the community

[107]. It is an effective tool in reducing alcohol consumption and increasing patients' accessibility to healthcare services or health providers and social support outside of healthcare settings [106, 108, 109]. That said, Medicare and other insurers only recently expanded their coverage to encompass telehealth services [14]. In the case of tobacco, the use of telehealth videoconferencing to provide small groups of patients with a smoking cessation intervention produced results similar to in-person groups [110], highlighting the potential of telehealth interventions for tobacco use disorders. Other studies found higher smoking cessation rates as a result of videoconferencing than those achieved through web-based interventions or (phone-based) quitlines [110–112]. Simultaneously, mindfulness training via smartphone app did not lead to reduced smoking rates compared with the control groups [113].

Contingency management is behavioral therapy for substance use and related disorders and can be conducted in group settings. It uses tangible reinforcements, such as rewards and prizes, to encourage behavioral changes and ultimately abstinence (e.g., giving a patient a voucher for a negative urine toxicology) [114]. Since the start of the COVID-19 pandemic, virtually delivered contingency management has been shown to be efficacious for alcohol and nicotine use disorders [114, 115]. Examples of virtually delivered contingency management involve urine toxicology completed at outpatient locations with prizes electronically delivered with prepaid gift cards [115]. Another behavioral therapy for substance use involves mindfulness-based interventions, which are usually a combination of mindfulness meditation linked with cognitive and behavioral approaches. These include mindfulness-based cognitive therapy, mindfulness-based relapse prevention, mindfulness-based stress reduction, and mindfulness-oriented recovery enhancement [116]. These interventions have shown to reduce the misuse of alcohol, nicotine, cannabinoids, and opioids by focusing on improving the patient's self-awareness of maladaptive feelings and thoughts, such as cravings brought on by environmental cues, while increasing adaptive control of thoughts and behaviors [116]. Existing data suggest that mindfulness training may improve outcomes and that mobile applications are a feasible method of delivery for this treatment [105, 113]. All comparative case studies provide ample evidence as to the limitations and possible scope in expanding and increasing the effectiveness for telehealth interventions in SUD and include important experiences for the delivery of interventions aimed at both conditions.

Conclusion

This article aimed to examine advances in addiction telepsychiatry, the legal frameworks governing its use, financial considerations, evidence basis for efficacy as well as

potential limitations. The COVID pandemic led to widespread societal disruption with particularly difficult effects for the poor, underserved, and chronically ill population, and among them, people with mental health and substance use disorder issues. While new research studies underscore the potential of telepsychiatry to increase access to treatments, there is still a dearth of evidence showing that telepsychiatry leads to improved retention and treatment outcomes as compared with in-person care but still requires further research and assessment of the efficacy in order to establish the evidence base for further development of these interventions.

This review identified several avenues for future research. First, using previously established policies and platforms such as the few digital health applications for smoking cessation that have been tested in large, well-designed randomized controlled trials [105], this shows a lack of a robust evidence base for the further implementation of digital health. Similarly, there are currently no FDA-approved medications for stimulant and cocaine use disorders [115] which present an important burden in SUD. Second, regulatory and reimbursement frameworks fit to assess novel digital health tools need to be developed. Third, further expansion of the digital infrastructure is vital to ensure the equitable access to digital healthcare for substance and opioid abuse [45, 117].

Ultimately, recent legislative and administrative changes in response to the COVID-10 pandemic have opened the door for the provision and expansion of telepsychiatry for addictive disorders. Increased access to treatment can have many positive effects for patients and addiction telepsychiatry is a promising treatment approach. Current research suggests that addiction telepsychiatry is a viable tool for helping chronically ill patients receive ongoing care and preventing expensive emergency episodes. Moving forward, more studies are needed to demonstrate the potential for decreased morbidity, mortality, and healthcare spending that may be potential benefits of expanding addiction telepsychiatry.

Declarations

Conflict of Interest The authors declare no competing interests.

Human and Animal Rights and Informed consent This study did not use human or animal subjects.

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