Videoconferencing-Based Telemental Health: Important Questions for the COVID-19 Era from Clinical and Patient-Centered Perspectives

Emil Chiauzzi, Ashley Clayton, Jina Huh-Yoo

Submitted to: JMIR Mental Health
on: September 07, 2020

Table of Contents

Videoconferencing-Based Telemental Health: Important Questions for the COVID-19 Era from Clinical and Patient-Centered Perspectives

Emil Chiauzzi[1*] PhD; Ashley Clayton[2*] MA; Jina Huh-Yoo[3*] PhD

[1]Tridiuum Philadelphia US
[2]Yale University New Haven US
[3]Drexel University Philadelphia US
[*]these authors contributed equally

Corresponding Author:
Jina Huh-Yoo PhD
Drexel University
3675 Market St
Philadelphia
US

Abstract

The COVID-19 pandemic has intensified the search for digital solutions in mental health treatment, particularly due to social distancing by both patients and clinicians. This has resulted in the dramatic growth of Video-Based Telemental Health (V-TMH) services. It is critical to examine effects of V-TMH expansion on patients, clinicians, regulations, and public policy. Several key questions arise: (1) In what ways does V-TMH affect the practice of psychotherapy?; (2) To what extent are ethical and patient-centered concerns warranted in terms of V-TMH services?; and (3) How do factors related to user experience affect treatment dynamics for both the patient and therapist? As we consider the future delivery of mental healthcare services, these issues will have strong implications for technology innovation, adaptations of treatments to new technologies, and the training of professionals delivering V-TMH and other digital health interventions.

(JMIR Preprints 07/09/2020:24021)
DOI: https://doi.org/10.2196/preprints.24021

Original Manuscript

Videoconferencing-Based Telemental Health:

Important Questions for the COVID-19 Era from Clinical and Patient-Centered Perspectives

Emil Chiauzzi, Ph.D.[1]

Ashley Clayton, M.A.[2]

Jina Huh-Yoo, Ph.D.[3]

[1] Tridiuum, Inc.
[2] Yale School of Medicine
[3] Drexel University

Corresponding Author: Jina Huh-Yoo, MHCI, Ph.D.
Department of Information Science
College of Computing and Informatics
Drexel University
3141 Chestnut Street
Philadelphia, PA 19104
United States
Phone: 215.895.2092

Email: **jh3767@drexel.edu**

Abstract

The COVID-19 pandemic has intensified the search for digital solutions in mental health treatment, particularly due to social distancing by both patients and clinicians. This has resulted in the dramatic growth of Video-Based Telemental Health (V-TMH) services. It is critical to examine effects of V-TMH expansion on patients, clinicians, regulations, and public policy. Several key questions arise: (1) In what ways does V-TMH affect the practice of psychotherapy?; (2) To what extent are ethical and patient-centered concerns warranted in terms of V-TMH services?; and (3) How do factors related to user experience affect treatment dynamics for both the patient and therapist? As we consider the future delivery of mental healthcare services, these issues will have strong implications for technology innovation, adaptations of treatments to new technologies, and the training of professionals delivering V-TMH and other digital health interventions.

Keywords

Telehealth; Telemental health; COVID-19; videoconferencing; ethics; privacy; mental health; psychotherapy; patient-centered; lived experience

Introduction

Videoconferencing-Based Telemental Health (V-TMH) has been the subject of clinical and research discussions for many years. Since the advent of the Coronavirus Disease 2019 (COVID-19) pandemic, however, it has entered the public health discussion in a significant way [1,2]. Essentially, V-TMH operates on platforms used for business meetings, allowing users to make connections via their desktop computers or mobile devices (e.g., Doxy.me, Vidyo, VSee, and Thera-link). A number of these platforms are integrated into electronic health records (EHRs), which allow the use of existing workflows, record-keeping systems, and portals [3]. To facilitate treatment, these platforms often include scheduling, check-in, “waiting rooms” so that clients can begin their sessions when the clinician is available, high definition audio and video, adherence to HIPAA data privacy requirements, branding, and analytics. Some platforms do not require the user to download software or plugins but simply utilize a secure browser-based link. For HIPAA compliant platforms, audio and video communications are encrypted, no recordings are stored, and no personal health information (PHI) is collected (except in an EHR interface).

Despite clinician concerns about adverse effects on the therapeutic alliance, studies indicate high ratings of satisfaction and therapeutic alliance by both patients and clinicians [4,5]. Several systematic reviews support the efficacy of V-TMH and telehealth in general, indicating comparable effectiveness with face-to-face treatment across a variety of conditions (e.g., anxiety, depression, PTSD, and substance abuse) and age groups (e.g., adult, child, geriatric) [6,7]. However, there is limited information about which therapy modalities are most amenable to telemental care delivery, although there is empirical support for the use of cognitive behavioral therapy [7]. Additional data are needed to assess satisfaction for more relationally focused interventions, such as psychodynamic and interpersonal therapy [8].

Until recently the use of telemental health in psychiatry had been progressing at a relatively

slow pace. Practicing psychologists had engaged in only sporadic use of telecommunication technologies such as videoconferencing (25%), instant messaging (3%), or smartphone apps (7%), and spend less than 10% of their time delivering online psychotherapy [9]. Only 5% of psychiatrists treating Medicare patients delivered at least one telemedicine visit [10]. Many providers lack technical knowledge, were not incentivized financially to provide these services, or were concerned about safety and security issues [9,11,12].

During the pre-COVID-19 pandemic era, providers and institutions generally implemented V-TMH by choice. However, physical distancing regulations require that most non-acute psychiatric care be delivered remotely, resulting in dramatic growth in telemental health services. For example, Blue Cross Blue Shield of Massachusetts reported that the number of daily 2020 telehealth claims increased from 200 in February to 38,000 in May [13]. About half of all telehealth claims were for behavioral health services.

These trends have increased the urgency to examine the effects of telemental health expansion on patients, clinicians, regulations, and public policy. Several key questions arise: (1) In what ways does telemental health affect the practice of psychotherapy?; (2) To what extent are ethical and patient-centered concerns warranted in terms of video-based therapy services?; and (3) How do human-computer interaction factors affect treatment dynamics for both the patient and therapist? This article will address these questions and explore digital mental health solutions, particularly scoped within V-TMH, from three perspectives – clinical, ethical, and the user (clinician, patient) experience.

Videoconferencing-Based Telemental Health and the Practice of Psychotherapy

V-TMH is appropriate for a broad range of mental health patients, but the determination of patients who may benefit most from telemental health has revolved around several significant factors. These factors include logistical and clinical considerations, serious mental illness or

behavioral issues, and the ability to conduct formal assessments and psychological testing.

Logistical Considerations

The convenience of V-TMH has been promoted as one of its primary advantages. As V-TMH has improved, people in rural and underserved areas have been able to access care more readily [14]. V-TMH helps overcome mobility issues due to age or disability, scheduling problems, and limitations in transportation [15]. Those concerned about the stigma of being seen at a mental health clinic or who wish greater privacy may prefer V-TMH [15]. Conditions that reduce patient involvement in office-based treatment are good candidates for remote treatment. These conditions include severe anxiety and avoidant behavior, severe trauma-related disorders, and agoraphobia [15]. Telemental care may be preferable with patients with severe anxiety disorders [2,16]. Telemental care may be preferable with patients whose behaviors pose a risk to others, such as violent/homicidal tendencies or a history of sexual assault [15].

Addressing Serious Mental Illness

Although people with SMI have a lower rate of smartphone ownership than those in the general population, their ability to use apps and social media is comparable [17]. Despite a variety of clinical challenges, there is a consensus that V-TMH may be feasible, usable, and acceptable for people with serious mental illness (SMI) [18–20]. Across a broad set of telemental health applications (including mental health apps), promising outcomes have been obtained for self-management, medication adherence, psychoeducation, and symptom monitoring [17]. The use of V-TMH has been shown to reduce self-reported psychiatric symptoms as well as emergency room visits and hospital admissions [21]. Despite these positive outcomes, one review of telepsychiatry with a broad range of psychiatric disorders (including SMIs such as schizophrenia, schizoaffective disorder, and bipolar disorder) found little evidence that this modality affected rates of hospital readmission [22]. The APA Task Force on Serious Mental Illness/Severe Emotional Disturbance recommends several strategies: (1)

practice sessions to familiarize patients with telemental health technology; (2) use briefer and more frequent sessions to manage periods of distress and to reinforce the therapeutic alliance; and (3) promote team collaboration to help patients maintain access to prescriptions and lab testing [23].

Assessment and Psychological Testing

The administration of interview-based assessments and psychological testing within the V-TMH context present unique challenges. Psychological testing procedures that require physical manipulation of materials, standardized interactions, or observation in a physical environment may require adaptations [24]. This is particularly true of cognitive or neuropsychological assessments, which may be sensitive to the lack of physical presence and the technological comfort of the tester and patient [25]. Many of these assessments may be time-sensitive or involve high stakes, so there is a need to identify potential factors that influence test reliability and validity and find ways to account for them so that testing procedures can be optimized [25].

Emerging findings under controlled conditions do suggest that equivalence between face-to-face and videoconference-based assessments can be attained [26]. This has been demonstrated with brief cognitive test batteries [26] and may work better with neuropsychological testing involving visually-dependent rather than motor-dependent tasks [27]. The American Psychological Association suggests careful consideration of how V-TMH affects the presentation of materials (e.g., shadowing, blurriness), substituting subtests that do not require physical manipulation of objects and widening confidence intervals when interpreting results [24]. In recent years there has been a proliferation of mobile technology-based cognitive assessments that have demonstrated psychometric properties comparable to laboratory-based assessments [28]. These applications can support repeated measurements that increase detection sensitivity in a patient's natural environment and can supplement more formal traditional methods.

Ethical Considerations in Videoconferencing-Based Telemental Health

Forced V-TMH utilization during the COVID-19 global pandemic, and potentially post-pandemic, raises ethical concerns patient safety and privacy.

Patient Safety Risk

One of the primary ethical considerations in V-TMH is adequately ensuring the safety of the patient. Suicide prediction is challenging even under ideal assessment conditions and may be more difficult when V-TMH is used. Psychiatrists and the mental health community have invested in developing tools and predictive models to help determine who is at elevated risk of suicide with little success [29–31]. Relying on clinical intuition to assess suicidality is less than ideal in face-to-face encounters, but V-TMH may introduce subtle changes to interpersonal relationships, trust, and decision-making. For example, distortions or delays in the video can increase anxiety and disconnection in patients experiencing crises [32].

Because of the difficulty in determining treatment allocation based on suicide assessments [30], high stakes decisions such as seeking involuntary detainment of a patient require even more careful consideration. Involuntary commitment may be a tragic necessity during a psychiatric emergency and can cause potential harm and suffering for patients [33]. It is a difficult, perhaps the most stressful decision for any physician or licensed mental health provider to infringe on an individual's fundamental civil rights; however, there is precedence. In 1993, a patient was involuntarily committed to a psychiatric hospital by use of videoconferencing. The patient petitioned that his rights to due process were violated, alleging that "the 'quality' of information available through videoconferencing was limited and increased the 'risk of erroneous result'" [34,35]. On appeal, the court determined that videoconferencing was equal to a face-to-face evaluation, asserting that facial expressions and the patient's demeanor were easily observable therefore, videoconferencing did not increase the risk of erroneous result [35].

We do not yet know how V-TMH impacts clinicians' ability to predict who is acutely at risk of suicide; however, actions can be taken to assist in managing risks. Guidelines produced by the American Psychiatric Association and the American Telemedicine Association provide best practices for managing suicide risk [36]. Many of the guidelines mirror those for in-person care, e.g., having patient contact information, monitoring the patient's risk factors and use of substances, access to lethal means, and availability of a safety plan [37,38]. The major difference is technological, as an interruption in a connection between the clinician and patient at an inopportune time can interfere with a needed intervention. American Psychiatric Association guidelines stress the need for identification and consistency of the patient's location during sessions and the availability of multiple forms of contact information (phone, email, text) in case contact is interrupted [2]. Despite these guidelines, clinicians retain skepticism about whether mental health professionals can screen at-risk patients using telemental health [9]. At present, it is incumbent on providers to carefully consider the risks involved in client safety and liberty when providing services to individuals in acute crisis who are being treated remotely.

There has been a resurgence of enthusiasm for eased telehealth access to both in-home and cross-state health care [39]. We must carefully consider the significant implications such a model would have on individuals at elevated risk of suicide, especially when there is a heightened potential for detainment and involuntary hospitalization. Enlisting a second provider who is geographically closer to the client and building relationships with local services can support clinicians providing telemental health services across state lines while increasing patient safety [40].

Intimate Partner Violence

There is limited data on the safety and efficacy of telemental health treatment for individuals actively experiencing Intimate Partner Violence (IPV) [41]. A systematic review of IPV V-TMH studies found a small number of studies, with most studies focused on women who had experienced IPV in

the past [41]. Other studies of telehealth were designed for women in domestic violence shelters or within a mental health clinic [42,43]. There are no data available of V-TMH interventions within the home with this population, and risks and unintended negative consequences are currently unknown.

As reported from previous natural disasters such as Hurricanes Harvey and Katrina, shelter-in-place orders, restrictions on travel, increased basic need insecurity, and loss of jobs have likely increased instances of IPV [44,45]. Individuals who are currently experiencing violence within the home need access to support and services. For individuals receiving mental health treatment before COVID-19, the transition to telemental health services is exceedingly complicated. Perpetrators often restrict access and closely monitor electronic communication, making it difficult or victims to access help in general, and especially while within the home. Those who can attend V-TMH appointments may be unable to obtain any privacy within the home, thus are extremely unlikely to disclose current IPV experiences, which could place them in imminent danger. Similarly, the telehealth provider must be scrupulous with their words lest they say something that would upset the perpetrator, thus elevating the risk of danger. Data regarding the safety of V-TMH within the home are not yet available; however, crisis and other support lines have been supporting individuals experiencing IPV for decades.

It is easier to move to around to find privacy while on the phone versus video, and that the provider on the other end is not seen (therefore covers such as “I’m talking to my sister” can be used), it may be the case that phone calls are safer than V-TMH. At present, there is no empirical evidence that favors video-based care over audio-only care [1]. In fact, voice-only communications may enhance empathic accuracy and assessment of emotions [46]. Many insurers have temporarily allowed mental health providers to bill for telephone-delivered services during the COVID-19 pandemic, and this should be viewed as a viable option. However, as the temporary policy relaxations begin to roll back even as the public health crisis continues, it is essential to carefully consider how different

communication modalities impact access to care and support for vulnerable populations.

Protecting Privacy

Confidentiality is a core obligation and ethical standard for healthcare providers, especially for mental health clinicians who, by the nature of their work, treat a vulnerable and historically—and perhaps presently – marginalized population. Breaches of confidentiality within mental health care can decrease the efficacy of the therapy [47]. The US government temporarily relaxed HIPAA regulations, allowing telehealth care to be quickly scaled and to increase access to medical care while practicing shelter-in-place orders and physical distancing guidelines during the COVID-19 pandemic. The loosening of regulations correctly prioritized access to care over the "tools enabling it" [48].

Some V-TMH care, especially in hospitals and larger health systems, now utilize Electronic Health Records (EHRs). Before the COVID-19 pandemic, there had been some integration of psychiatric care into EHRs, yet confidentiality remains an issue. Documenting diagnosis and treatment plans within the EHR helps ensure providers are "on the same page;" however, the majority of EHRs do not have a section with restricted access where the provider can write confidential, detailed notes about the encounter, violating federal statute 42 CFR Part 2 [49]. This statute was intended to protect patient privacy to avoid adverse outcomes, but its unintended consequences have made integrated care difficult. While HIPAA allows for the sharing of patient information for care coordination, the sharing of psychiatric notes falls into ethical and legal grey areas. Providers should openly discuss the unique limitations of privacy when using an EHR, even if it is contained within written informed consent forms [50]. With the lightning-speed implementation of telemental health services, providers must take the time to research and share with their patients the benefits and risks of V-TMH, especially as differentiated from face-to-face treatment. This is critical if utilizing non-HIPPA-compliant platforms during the pandemic. Because informed consent requirements vary state-by-

state, and not all states require additional consent, providers need to stay attuned to regulatory changes.

User Experience with Videoconferencing-Based Telemental Health Clinician Perspective

More than 75% of psychologists in one survey were slightly or not at all confident that they could utilize telecommunication modalities (video, phone, email, chat, messaging) without an initial in-person assessment [9]. Now with the widespread uptake of telemental health during COVID-19, we are gaining a better understanding of everyday clinicians' lived experiences of treatment via V-TMH, not just their intention or attitude towards hypothetical V-TMH situations. Recent interviews with psychiatrists delivering telemental care during the COVID-19 pandemic found that clinical challenges such as the inability to conduct physical examinations, difficulties evaluating of extrapyramidal symptoms from antipsychotics, and home distractions that may negatively impact the quality of provider-patient interaction [51]. On the positive side, interviewees found it helpful to see their patients' living environments, gain access to underserved patients, and conduct treatment when patients were more relaxed in their homes.

Beyond clinical advantages and disadvantages, clinicians have been sharing their individual experiences related to the phenomenological aspects of V-TMH. Recent newspaper and magazine articles have highlighted the newfound intimacy that telemental health has introduced into the therapist/client relationship for some. However, the "newfound intimacy" may not be welcomed by all. For example, Dr. Jessi Gold recently shared her experiences as a psychiatrist now practicing teletherapy, where she highlights eight "very significant things" she misses about in-person treatment [52]. "It turns out I went into a field of talking to humans and listening to them because, quite simply, I like people. Online interactions aren't the same." A recent *New Yorker* article reveals multiple psychologists discussing their new consciousness of patients seeing *them* and highlights the difficulty of holding the therapeutic frame without the regular rituals of in-person care [53]. Additionally,

therapists report the disconcerting, and sometimes distracting, the experience of seeing their own faces. A mental health clinician in Washington DC experienced the loss of a “safe space” and spoke about how the transition from the refuge of the therapy office to receiving therapy within one’s home is difficult for both therapists and clients alike [54].

Patient Perspective

Evaluations of patients’ attitudes toward telehealth, in general, have focused primarily on satisfaction data and therapeutic alliance ratings [8]. While important, this is only one factor of patients’ satisfaction [8]. As V-TMH takes on an increasingly influential role in mental health treatment during the COVID-19 pandemic, it is useful to consider patient accounts that reflect less easily measured aspects of V-TMH interactions. V-TMH brings nuanced contexts that might interfere with the quality and privacy of mental health therapy sessions.

In many cases, clinicians may not be aware of practical decisions and dilemmas faced by their patients in attending these sessions. For instance, finding a private and comfortable space within one’s home may force one to consider using private, intimate spaces. Due to a lack of privacy within some homes, patients have taken to their “bathrooms and closets” [55]. Some choose to seek privacy in their cars or out on walks [56]. The second author of this paper faced such a dilemma during the transition from her regular mental health therapy sessions to V-TMH as a result of COVID-19:

> *“My first telemental health appointment was on a day when my husband was off work, so a few minutes before my session was scheduled to begin, I searched for privacy. I realized that there are only two rooms in our home that have a door and therefore offer privacy: our very tiny bathroom and our bedroom. I opted for the bedroom, but as soon as my session began, I quickly became anxious -- I did not want my therapist in my bedroom. It felt intrusive, and I quickly felt out of control. As a survivor of sexual abuse as a child, and sexual assault by someone in positional power as an adult, it felt like an intrusion into an intimate space where*

my therapist was not welcome. We ended the session early and agreed to find an appointment during a time when my husband worked. I was glad to be able to change the day of my appointments. However, had this not been possible, I would have been left with the difficult decision: to give up my privacy, to give-up a personally important boundary, or to temporarily pause treatment during a pandemic."

The use of V-TMH may also create an unanticipated sense of self-consciousness and discomfort during V-TMH sessions for patients. This may potentially affect self-disclosure or heighten emotional reactions. Self-disclosure is defined as "the verbal revealing of personal information, thoughts, or feelings about oneself" [57] and is one of the most salient behaviors in Computer-Mediated Communication (CMC) [58]. Self-disclosure plays a critical role in relationship development and maintenance in CMC and face to face relationships [59]. Patients' comfort for self-disclosure on V-TMH will bring controversial results, similar to how CMC literature sees disagreement about the consistency, size, and direction of differences in self-disclosure in CMC [58]. Self-view is a unique V-TMH feature that allows the viewing of one's own face during conversations. Because this is dramatically different than in-person conversations and treatment, it may create interference with V-TMH's affordance in participants' self-disclosure:

"It's a strange and distracting experience to look at myself during a therapy session. I have found that looking at myself while I am becoming upset or tearful impacts my willingness to emote, to be honest about how poorly I might be doing, and I find I quickly reign in my emotions. Part of this might have to do with the pressure to "hold it together" during a pandemic due to the physical health risks that emergent psychiatric care now poses. Although I do not consider myself a particularly vain person, there is something that feels undignified about watching myself express intense emotions. Also, when I'm in the middle of a depressive episode or working on something in therapy related to the trauma I've experienced, shame is an all-too-present emotion. Shame is a hard emotion to tolerate. Part of my therapy is to

explore and unravel my shame – it's simply too much to get into that material while being forced to look at myself, and while being physically alone. Luckily, on most platforms, I can hide my self-view, but there's a strong pull to turn it back on – I simultaneously do not want to see myself, but I also want to know what my therapist is seeing. I end up in this weird dance of turning my self-view on and off and back on again.

"Another issue that has impacted my treatment has been the video's quality for some of my sessions. The video through telehealth software that my therapist uses is less clear than my other telehealth experiences through the patient portal in my EHR or my work meetings via Zoom. The blurriness is frustrating, and we even switched to FaceTime for better video during a few sessions. The disruptions and delays deter me from getting into heavier therapeutic topics and leave me to feel stranded. Perhaps the technology will get better and internet bandwidth will expand such that these disruptions during sessions are a thing of the past. Still, for now, they negatively impact my therapy and are a glaring reminder that this is not the therapeutic modality I would choose under typical circumstances."

Despite reservations about V-TMH, the second author recognizes its potential convenience:

"I don't think telemental health is all bad; it's just not what I would choose right now. But there have been times in my life when I would have preferred this modality – like when I was in college. For the entire duration of my undergraduate life, I traveled almost six hours a week to and from therapy. I didn't get to take some classes that I wanted to because I needed to keep two afternoons a week free. I missed out on post-lunch hangouts and study sessions. The travel time and its associated cost were a burden; it would have been nice to swap at least one session a week for telemental health – three additional hours a week to hang out with friends, study, or even take a nap would have been a gift.

This patient experience showed how the ability to see oneself while being on the call her mental health therapist, various cues around the surrounding environments, and the video call quality affect

their experiences with the provider. CMC literature supports these experiences. The visual anonymity of CMC, for instance, fosters significantly higher self-disclosure than face-to-face in most cases [60]. However, the self-view feature of V-TMH tools is a direct counteract to the critical role that CMC plays in self-disclosure. Furthermore, V-TMH generates an environment in which gestural interaction and non-verbal cues (e.g., eye gaze) may be distorted and communicated inadequately due to technological factors, such as video bandwidth, camera viewpoint, and image resolution quality [61–64]. What might be considered as small technological feature differences, such as the screen size, also affected perceptions of trust toward the objects shown in the video mode [65]. A sense of proximity can generate effective V-TMH experience, such as matching eye gaze or including more body image (e.g., as opposed to just a headshot) [66]. As such, what seem to be minor differences, such as the background of the speaker and whether one can see one's own face, can work as moderating factors to affective and cognitive trust as well as a sense of proximity, telepresence, and social and emotional connection.

People will eventually get accustomed to the affordances of available V-TMH technologies and eventually learn to regulate their interactions better [67]. However, during the COVID-19 era, patients lack options on seeking mental health services and may feel forced to utilize V-TMH using this modality over others because of public health regulations. This raises several unresolved questions and many implications to consider for thinking toward the post-COVID-19 era.

Implications of V-TMH in the Peri- and Post-COVID-19 Era

Because the COVID-19 pandemic has forced patients and clinicians to shift quickly from face-to-face mental health therapy sessions to V-TMH, the focus of V-TMH turned to implementation and access. This has allowed little consideration of the nuances of the V-TMH treatment experience, leaving many unresolved questions that software developers, healthcare administrators, organizations, patients, and clinicians need to consider. As we navigate through the current pandemic

and prepare hopefully for a post-pandemic recovery, these questions are highly relevant to the future viability of V-TMH.

How can V-TMH services assist those whose mental health is affected by COVID-19?

Past studies of SARS survivors find increases in PTSD, depression, chronic pain, OCD, chronic fatigue syndrome [68]. Negative quarantine effects increase with perceived difficulty with compliance, length of quarantine, compliance with quarantine requirements, infection fears, lack of supplies, financial pressures [69], and unemployment is of particular concern. Past data have shown that a 5% increase in unemployment is associated with 4000 additional suicides and an additional 775 deaths for each additional percentage point [70]. The Well Being Trust estimates that between 27,644 and 154,037 additional deaths due to suicide and substance abuse, based on the effectiveness of recovery efforts [71]. These data show the high demand for mental health services. Future models of mental health care delivery will need to address the influx of new cases through more flexible treatment options, including V-TMH. Because mental health clinicians have been treating patients during the pandemic, many have gained experience addressing both COVID-19-related and mental health challenges through V-TMH. Cost-effective, readily available, and socially distanced treatment will be necessary for those dealing with mental health crises, the aftereffects of quarantine, unemployment, and social adjustment issues. Because many clinicians have backgrounds in behavior change techniques, they may also have a role in supporting the behavioral strategies used to prevent the transmission of SARS-Cov-2 (mask use, hand washing, etc.) [72].

How can we better address the digital divide by helping patients to effectively use technology?

Because most Americans (including those who previously showed had a lack of internet access) increasingly access the Internet through their smartphones, V-TMH has potential to become more readily available. Telehealth has typically been viewed a service that was useful in hard to reach locales (e.g., rural areas) or with underserved populations. This shows no signs of abating. For example, since the pandemic began, telehealth adoption rate for primary care visits was 28% higher

in urban compared to rural areas [73]. There is lower telehealth adoption in Medicaid population [73]. With COVID-19, there is a broader need for access among mental health patients, as evidenced by a telehealth adoption rate of 61.8% among psychiatrists [74].

The digital divide question is more nuanced than mere access to the Internet, as improved access to broadband is critical [75]. The quality of one's connection (i.e., high-speed vs. low-bandwidth) brings more richness and variation to the Internet experience [76]. With V-TMH, it is about making software usable and relevant to a broader audience, enabling active participation in online discussions, and interpreting social cues from an interpersonal context that is more limited than in face-to-face sessions.

Social determinants of health such as cultural expectations about technology, digital literacy, economic factors, and comorbidities that affect the use of technology may perpetuate inequalities [77]. Programs such as the Digital Opportunities for Outcomes in Recovery Services (DOORS) has been developed to address low digital literacy in patients with serious mental illness [78]. This interactive training program helps patients learn safe smartphone usage, using technology to build wellness habits, and learning new skills through online resources. While DOORS was developed specifically designed to support the use of digital health apps, its guiding principles and framework could easily be adapted to support the use of V-TMH. Older adults living in assisted and independent living communities, with basic training on using computers and navigating through the internet, are able to reduce loneliness and increase social contact [79]. These findings provide critical evidence of how technology training can resolve negative outcomes that stem from the isolation that vulnerable populations may face with COVID quarantine.

What have we learned about the user experience and clinical implications for those who have transitioned from face-to-face treatment to V-TMH?

Treatment effectiveness will depend on how well clinicians and patients will adapt to new ways of delivering and receiving mental health services. New technology adoption is not simply driven by

the efficiency or technological advancement—but it is governed by multiple contextual factors, including the meanings that people put on them. The implications of particular gestures are different with a limited view of a person's face and chest as opposed to the gestures portrayed in hands and legs [62]. Beyond the lack of quality of V-TMH due to internet bandwidth, the more significant problem lies in how the contexts in which V-TMH is being serviced and how people interpret what it means to use V-TMH for the purpose of mental health therapy. What would it mean to not meet the provider in person anymore; what does it mean to blend the therapy hour into one's daily schedule instead of having delineated time in a professional office; for clinicians, what does it mean to not be able to physically hand over a tissue box to the patient? And how do these meanings that people place around the technological tool affect the treatment outcomes? These are questions we have not dealt with at the scale we are anticipating. The study of the effectiveness of mental health service adaptations during the COVID-19 pandemic remains mainly anecdotal, and quality measures to assess effectiveness have yet to be proposed [80].

Given the popularity and efficacy of V-TMH, what are the privacy implications for loosening post-COVID federal and state regulations governing V-TMH delivery and reimbursement?

During a global pandemic, the risk of in-person treatment far outweighs the benefit (with some exclusions), which has led to a variety of changes in telehealth regulations [81]. The Coronavirus Preparedness and Response Supplemental Appropriations Act 2020 has allowed Medicare patients to receive telehealth services in their homes, waived HIPAA violation penalties for providers who treat patients on platforms that do not meet HIPAA standards (e.g., Skype and Facetime), and provide federal waivers to a number of states to allow providers to treat their patients out-of-state.

These and other changes have had the effect of significantly reducing barriers to telemental health service provision, but they also increase risks to personal privacy. It may indeed be the case that the risks involved may be tolerated by both the patient and clinician alike, especially when telemental health enables access to care for people who do not otherwise have the resources and luxury to

regularly attend in-person treatment) [8]. However, digital technology utilization generates a large amount of data that can reveal a lot of personal information, especially when data from multiple data sources are combined. All digital technology data have the potential to be PHI [82]. In addition, there are unresolved issues around reidentification, marketability, and invisibility (how people are unaware of how their data are being used and tracked) in digital technology data [83,84]. Experts in digital research and privacy regulation have a difficult time understanding the risks of using digital technology, and there are no concrete laws to effectively regulate privacy surrounding digital technology that is constantly evolving [82]. We would expect these challenges to be even greater for practicing clinicians and their patients. In order to facilitate transparency, informed consent resources have become available, e.g., a Telehealth Consent Teach-back Documentation sheet developed by the Agency for Healthcare Research and Quality [85].

How can we prepare clinicians for more effective use of V-TMH and the development of more V-TMH-based treatment models?

Because the skills used in face-to-face sessions do not necessarily translate to V-TMH sessions, recent studies with mental health professionals suggest the need for training in clinical, legal, and technical issues [9,86]. Clinicians may be particularly challenged by emergencies in a V-TMH environment [9]. Driven by a relaxing of regulations, the need for an immediate pandemic response has led to the rapid and successful deployments of V-TMH in large academic centers [1] and clinical training programs [87]. These case studies have identified important recommendations for optimizing physical arrangements for sessions (e.g., eliminating visual and auditory distractions), setting up technology (e.g., reducing open programs on one's screen), and communicating effectively with patients (e.g., clarifying expectations, benefits, and back-up plans in case of loss of access).

Expanded V-TMH deployment may also require consideration of new specialties or service offerings, e.g., *professional clinical technologists* (individuals familiar with a wide variety of digital health resources) [88]. Their main functions would be to match and train patients on health technologies

that address their clinical needs, as well as train, educate, and support providers. The development of "virtual clinics" is another potential vehicle for delivering digital care, as treatment is constructed around the use of technology with patients while increasing access and offering clinical services [89].

Conclusion

Given the uncertain future with COVID-19, addressing these important questions will be critical in maximizing the value of V-TMH for patients and providers. V-TMH may have been disseminated through forced use, but it is unlikely to disappear once the current public health crisis has ended. The issues described above will have strong implications for technology innovation, adaptations of treatments to new technologies, and the training of professionals delivering V-TMH and other digital health interventions. Regulations and reimbursement policies need to encourage broader use of V-TMH, which has the potential to expand access to treatment. The infrastructure needs to be better developed - people need reliable internet access and technology with the capability for V-TMH. This is an issue of social justice and should be a primary concern. High-speed internet, innovative delivery tools, and training programs for professionals using those tools can more equitably address the mental health needs of the currently served, underserved, and unserved.

Authors Contribution

EC, AC, and JH were all involved in manuscript conceptualization, literature review, and writing.

Conflicts of Interest

EC is an employee of Tridiuum, Inc. AC and JH have no conflicts to declare.

Abbreviations

COVID-19: Coronavirus Disease 2019
V-TMH: Videoconferencing-Based Telemental Health
EHR: Electronic Health Records (EHRs)
SMI: Serious Mental Illness
IPV: Intimate Partner Violence
CMC: Computer-Mediated Communication
DOORS: Digital Opportunities for Outcomes in Recovery Services

REFERENCES

1. Chen JA, Chung WJ, Young SK et al. COVID-19 and telepsychiatry: Early outpatient experiences and implications for the future. Gen Hosp Psychiatry 2020;66:89–95. [doi: https://doi.org/10.1016/j.genhosppsych.2020.07.002]

2. Shore JH, Yellowlees P, Caudill R, Johnston B, Turvey C, Mishkind M, Krupinski E, Myers K, Shore P, Kaftarian E, Hilty D. Best Practices in Videoconferencing-Based Telemental Health April 2018. Telemed e-Health 2018;24(11):827–832. [doi: 10.1089/tmj.2018.0237]

3. Jason C. Telehealth EHR Integration Key to Meet COVID-19 Demand [Internet]. EHR Intell. [cited 2020 Jun 8]. Available from: https://ehrintelligence.com/news/telehealth-ehr-integration-key-to-meet-covid-19-demand

4. Connolly SL, Miller CJ, Lindsay JA, Bauer MS. A systematic review of providers' attitudes toward telemental health via videoconferencing. Clin Psychol Sci Pract 2020;(December 2018):1–19. [doi: 10.1111/cpsp.12311]

5. Berger T. The therapeutic alliance in internet interventions: A narrative review and suggestions for future research. Psychother Res 2017;27(5):511–524. [doi: 10.1080/10503307.2015.1119908]

6. Hilty DM, Ferrer DC, Parish MB, Johnston B, Callahan EJ, Yellowlees PM. The effectiveness of telemental health: A 2013 review. Telemed e-Health 2013;19(6):444–454. [doi: 10.1089/tmj.2013.0075]

7. Berryhill MB, Culmer N, Williams N, Halli-Tierney A, Betancourt A, Roberts H, King M. Videoconferencing Psychotherapy and Depression: A Systematic Review. Telemed e-Health 2019;25(6):435–446. [doi: 10.1089/tmj.2018.0058]

8. Jenkins-Guarnieri, MA Pruitt, LD Luxton, DD Johnson K. Patient Perceptions of Telemental

Health : Systematic Review of Direct Comparisons to In-Person Psychotherapeutic Treatments. Telemed e-Health 2015;21(8):652–60. [doi: 10.1089/tmj.2014.0165]

9. Glueckauf RL, Maheu MM, Drude KP, Wells BA, Wang Y, Gustafson DJ, Nelson EL. Survey of psychologists' telebehavioral health practices: Technology use, ethical issues, and training needs. Prof Psychol Res Pract 2018;49(3):205–219. [doi: 10.1037/pro0000188]

10. Choi, S; Wilcock, AD; Busch A et al. Association of Characteristics of Psychiatrists With Use of Telemental Health Visits in the Medicare Population. JAMA Psychiatry 2019;76(6):654–657. [doi: 10.1001/jamapsychiatry.2019.0052]

11. Cowan KE, McKean AJ, Gentry MT, Hilty DM. Barriers to Use of Telepsychiatry: Clinicians as Gatekeepers. Mayo Clin Proc Mayo Foundation for Medical Education and Research; 2019;94(12):2510–2523. [doi: 10.1016/j.mayocp.2019.04.018]

12. Mace S, Boccanelli A, Dormond M. The use of telehealth within behavioral health settings: Utilization, opportunities, and challenges. 2018;(March):1–18.

13. Waddill K. Mental Health Visits Take Majority of 1M Payer Telehealth Claims [Internet]. Heal Intell. 2020 [cited 2020 Jun 8]. Available from: https://healthpayerintelligence.com/news/mental-health-visits-take-majority-of-1m-payer-telehealth-claims

14. Mehrotra A, Huskamp HA, Souza J, Uscher-Pines L, Rose S, Landon BE, Jena AB, Busch AB. Rapid growth in mental health telemedicine use among rural Medicare beneficiaries, wide variation across states. Health Aff 2017;36(5):909–917. [doi: 10.1377/hlthaff.2016.1461]

15. Morland LA, Poizner JM, Williams KE, Masino TT, Thorp SR. Home-based clinical video teleconferencing care: Clinical considerations and future directions. Int Rev Psychiatry 2015;27(6):504–512. [doi: 10.3109/09540261.2015.1082986]

16. Hubley S, Lynch SB, Schneck C, Thomas M, Shore J. Review of key telepsychiatry outcomes.

World J Psychiatry 2016;6(2):269. [doi: 10.5498/wjp.v6.i2.269]

17. Naslund JA, Aschbrenner, KA, Bartels S. How people with serious mental illness use smartphones, mobile apps, and social media. Psychiatr Rehabil J 2016;39(4):364–367. [doi: https://doi.org/10.1037/prj0000207]

18. Berry N, Bucci S, Lobban F. Use of the Internet and Mobile Phones for Self-Management of Severe Mental Health Problems: Qualitative Study of Staff Views. JMIR Ment Heal [Internet] 2017;4(4):e52. [doi: 10.2196/mental.8311]

19. Berry N, Lobban F, Emsley DcPR, Bucci S. Acceptability of interventions delivered online and through mobile phones for people who experience severe mental health problems: A systematic review. J Med Internet Res 2016;18(5). [doi: 10.2196/jmir.5250]

20. Naslund JA, Marsch LA, McHugo GJ et al. Emerging mHealth and eHealth interventions for serious mental illness: A review of the literature. J Ment Heal 2015;24:321–332.

21. Pratt, SI; Naslund, JA; Wolfe, RS; Santos, M; BArtels S. Automated telehealth for managing psychiatric instability in people with serious mental illness. J Ment Heal 2015;24(5):261–265. [doi: doi:10.3109/09638237.2014.928403]

22. Koblauch H, Reinhardt SM, Lissau W, Jensen PL. The effect of telepsychiatric modalities on reduction of readmissions in psychiatric settings: A systematic review. J Telemed Telecare 2018;24(1):31–36. [doi: 10.1177/1357633X16670285]

23. American Psychological Association. Serious mental illness and COVID-19: How to help your patients right now [Internet]. 2020. Available from: https://www.apaservices.org/practice/legal/technology/serious-mental-illness-covid-19

24. Wright, AJ; Mihura, JL; Hadas Pade, H; McCord D. Guidance on psychological tele-assessment during the COVID-19 crisis [Internet]. 2020. Available from: https://www.apaservices.org/practice/reimbursement/health-codes/testing/tele-assessment-

covid-19

25. Luxton DD, Pruitt LD, Osenbach JE. Best practices for remote psychological assessment via telehealth technologies. Prof Psychol Res Pract 2014;45(1):27–35. [doi: 10.1037/a0034547]

26. Munro Cullum C, Hynan LS, Grosch M, Parikh M WM. Teleneuropsychology: Evidence for Video Teleconference- Based Neuropsychological Assessment. J Int Neuropsychol Soc 2014;20(10):1028–33. [doi: 10.1017/S1355617714000873.]

27. Brearly TW, Shura RD, Martindale SL, Lazowski RA, Luxton DD, Shenal B V., Rowland JA. Neuropsychological Test Administration by Videoconference: A Systematic Review and Meta-Analysis. Neuropsychol Rev [Internet] Neuropsychology Review; 2017;27(2):174–186. PMID:28623461

28. Moore RC, Swendsen J, Depp CA. Applications for self-administered mobile cognitive assessments in clinical research: A systematic review. Int J Methods Psychiatr Res 2017;26(4):1–12. [doi: 10.1002/mpr.1562]

29. Belsher, B. E., Smolenski, D. J., Pruitt, L. D., Bush, N. E., Beech, E. H., Workman, D. E., ... & Skopp NA. Prediction Models for Suicide Attempts and Deaths: A Systematic Review and Simulation. JAMA Psychiatry 2019;76(6):642–651. [doi: 10.1001/jamapsychiatry.2019.0174]

30. Carter, G., Milner, A., McGill, K., Pirkis, J., Kapur, N., & Spittal MJ. Predicting suicidal behaviours using clinical instruments: systematic review and meta-analysis of positive predictive values for risk scales. Br J Psychiatry 2017;210(6):387–395. [doi: 10.1192/bjp.bp.116.182717]

31. Rudd, M. D., Berman, A. L., Joiner Jr, T. E., Nock, M. K., Silverman, M. M., Mandrusiak, M., ... & Witte T. Warning signs for suicide: Theory, research, and clinical applications. Suicide Life-Threatening Behav 2006;36(3):255–262. [doi: 10.1521/suli.2006.36.3.255]

32. Murphy K. Why Zoom Is Terrible [Internet]. New York Times. 2020 [cited 2020 Jun 8].

Available from: https://www.nytimes.com/2020/04/29/sunday-review/zoom-video-conference.html?searchResultPosition=14

33. Borecky, A., Thomsen, C., & Dubov A. Reweighing the ethical tradeoffs in the involuntary hospitalization of suicidal patients. Am J Bioeth 2019;19(10):71–83. [doi: https://doi.org/10.1080/15265161.2019.1654557]

34. Godleski L, Darkins A, Peters J. Outcomes of 98,609 U.S. Department of Veterans Affairs patients enrolled in telemental health services, 2006-2010. Psychiatr Serv 2012;63(4):383–385. [doi: 10.1176/appi.ps.201100206]

35. US District Court for the Eastern District of North Carolina. United States v. Baker, 836 F. Supp. 1237 (E.D.N.C. 1993) [Internet]. 1993 [cited 2020 Jun 8]. Available from: https://law.justia.com/cases/federal/district-courts/FSupp/836/1237/1948932/

36. Shore JH, Yellowlees P, Caudill R, Johnston B, Turvey C, Mishkind M, Krupinski E, Myers K. Best Practices in Videoconferencing-Based Telemental Health April 2018. 2018;24(11):827–833. [doi: 10.1089/tmj.2018.0237]

37. Fletcher TL, Hogan JB, Keegan F, Davis ML, Wassef M, Day S, Lindsay JA. Recent Advances in Delivering Mental Health Treatment via Video to Home. Curr Psychiatry Rep Current Psychiatry Reports; 2018;20(8). [doi: 10.1007/s11920-018-0922-y]

38. Luxton DD, O'Brien K, Pruitt LD, Johnson K, Kramer G. Suicide risk management during clinical telepractice. Int J Psychiatry Med 2014;48(1):19–31. [doi: 10.2190/PM.48.1.c]

39. Fishpaw, M; Zawada S. Telehealth in the Pandemic and Beyond: The Policies That Made It Possible, and the Policies That Can Expand Its Potential [Internet]. 2020. Available from: https://www.heritage.org/health-care-reform/report/telehealth-the-pandemic-and-beyond-the-policies-made-it-possible-and-the

40. Gros DF, Veronee K, Strachan M, Ruggiero KJ AR. Managing suicidality in home-based

telehealth. J Telemed Telecare 2011;17(6):332–335. [doi: 10.1258/jtt.2011.101207]

41. Goldstein KM, Gierisch JM, Zullig LL et al. Telehealth Services Designed for Women: An Evidence Map [Internet]. 2017. Available from: https://www.ncbi.nlm.nih.gov/books/NBK532574/

42. Hassija, CM; Gray M. The Effectiveness and Feasibility of Videoconferencing Technology to Provide Evidence-Based Treatment to Rural Domestic Violence and Sexual Assault Populations. Telemed e-Health 2011;17(4):309–15. [doi: 10.1111/j.1745-7599.2002.tb00077.x]

43. Mattson S, Shearer N LC. Exploring telehealth opportunities in domestic violence shelters. J Am Acad Nurse Pr 2002;14(10):465–70. [doi: 10.1111/j.1745-7599.2002.tb00077.x]

44. Abramson A. How COVID-19 may increase domestic violence and child abuse [Internet]. 2020 [cited 2020 Jun 8]. Available from: https://www.apa.org/topics/covid-19/domestic-violence-child-abuse

45. Campbell A. M. An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. Forensic Sci Int Reports 2020;2:100089. [doi: doi.org/10.1016/j.fsir.2020.100089]

46. Kraus MW. Voice-only communication enhances empathic accuracy. Am Psychol 2017;72(7):644–54. [doi: https://doi.org/10.1037/amp0000147]

47. Donner, M. B., VandeCreek, L., Gonsiorek, J. C., & Fisher CB. Balancing confidentiality: Protecting privacy and protecting the public. Prof Psychol Res Pract 2008;39(3):369–376. [doi: 10.1037/0735-7028.39.3.369]

48. Torous J, Wykes T. Opportunities From the Coronavirus Disease 2019 Pandemic for Transforming Psychiatric Care With Telehealth. JAMA psychiatry [Internet] 2020; PMID:32391857

49. Bipartisan Policy Center. Integrating Clinical and Mental Health: Challenges and Opportunities [Internet]. Washington, DC; 2019. Available from: https://bipartisanpolicy.org/wp-content/uploads/2019/01/Integrating-Clinical-and-Mental-Health-Challenges-and-Opportunities.pdf

50. Lustgarten, S. D., Garrison, Y. L., Sinnard, M. T., & Flynn AW. Digital privacy in mental healthcare: current issues and recommendations for technology use. Curr Opnion Psycholgy 2020;25–31. [doi: 10.1016/j.copsyc.2020.03.012]

51. Uscher-Pines L; Sousa J; Raja P; Mehrotra A; Barnett MHH. Suddenly Becoming a “Virtual Doctor”: Experiences of Psychiatrists Transitioning to Telemedicine During the COVID-19 Pandemic. Psychiatr Serv 2020; [doi: 10.1176/appi.ps.202000250]

52. Gold JA. I’m Struggling With Teletherapy Too—And I’m a Psychiatrist [Internet]. Self. 2020 [cited 2020 Oct 8]. Available from: https://www.self.com/story/teletherapy-psychiatrist-coronavirus

53. Gopnick A. The new theatrics of remote therapy [Internet]. New Yorker. 2020 [cited 2020 Oct 8]. Available from: https://www.newyorker.com/magazine/2020/06/01/the-new-theatrics-of-remote-therapy

54. Borges A. What It’s Like to Provide Mental Health Services During a Pandemic [Internet]. Self. 2020 [cited 2020 Oct 8]. Available from: https://www.self.com/story/what-its-like-therapist

55. Gottlieb L. In Psychotherapy, the Toilet Has Become the New Couch [Internet]. New York Times. 2020 [cited 2020 Oct 8]. Available from: https://www.nytimes.com/2020/04/30/opinion/psychotherapy-remote-covid.html?searchResultPosition=2

56. Burgoyne N; Cohn AS. Lessons from the Transition to Relational Teletherapy During COVID-

19. Fam Process 2020; [doi: https://doi.org/10.1111/famp.12589]

57. Derlega VJ, Metts S, Petronio S MS. Self-disclosure. Sage Publications; 1993.

58. Jiang LC; Bazarova NN; Hancock JT. The Disclosure–Intimacy Link in Computer-Mediated Communication: An Attributional Extension of the Hyperpersonal Model. Hum Commun Res 2011;37(1):58–77. [doi: https://doi.org/10.1111/j.1468-2958.2010.01393.x]

59. Altman I T DA. Social penetration: The development of interpersonal relationships. Holt, Rinehart & Winston; 1973.

60. Joinson AN. Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. Eur J Soc Psychol 2001;31(2):177–192. [doi: https://doi.org/10.1002/ejsp.36]

61. Chen M. Conveying conversational cues through video. PhD Diss. Stanford University; 2003.

62. Fullwood C. The effect of mediation on impression formation: A comparison of face-to-face and video-mediated conditions. Appl Ergon 2007;38(3):267–73. [doi: 10.1016/j.apergo.2006.06.002]

63. Huang WOJOG. Camera angle affects dominance in video-mediated communication. CHI ’02 Ext Abstr Hum Factors Comput Syst Minneapolis MN; 2002. p. 716–717. [doi: https://doi.org/10.1145/506443.506562]

64. Kim D; Frank MG; Kim ST. Emotional display behavior in different forms of Computer Mediated Communication. Comput Human Behav 2014;30:222–29. [doi: https://doi.org/10.1016/j.chb.2013.09.001]

65. Kim KJ; Sundar SS. Mobile Persuasion: Can Screen Size and Presentation Mode Make a Difference to Trust? Hum Commun Res 2016;42(1):45–70. [doi: https://doi.org/10.1111/hcre.12064]

66. O'Malley C; Langton S; Anderson A; Doherty-Sneddon G; Bruce V. Comparison of face-to-face and video-mediated interaction. Interact Comput 1996;8(2):177–192. [doi: https://doi.org/10.1016/0953-5438(96)01027-2]

67. Brubaker JR; Venolia G; John C. Tang JC. Focusing on shared experiences: moving beyond the camera in video communication. Proc Des Interact Syst Conf 2012. p. 96–105. [doi: https://doi.org/10.1145/2317956.2317973]

68. Lam, M. H. B., Wing, Y. K., Yu, M. W. M., Leung, C. M., Ma, R. C. W., Kong, A. P. S., … Lam SP. Mental morbidities and chronic fatigue in severe acute respiratory syndrome survivors long-term follow-up. Arch Intern Med 2009;169(22):2142–2147. [doi: https://doi.org/10.1001/archinternmed.2009.384]

69. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020;395(10227):912–920. [doi: 10.1016/S0140-6736(20)30460-8]

70. Reger, M.A., Stanley, I.H., & Joiner TE. Suicide mortality and coronavirus disease 2019 - A perfect storm? JAMA Pyschiatry [Internet]. Available from: https://doi.org/10.1001/jamapsychiatry.2020.1060.https

71. Petterson S; Westfall JM; Miller BF. Projected Deaths of Despair During COVID-19 [Internet]. 2020. Available from: https://wellbeingtrust.org/wp-content/uploads/2020/05/WBT_Deaths-of-Despair_COVID-19-FINAL-FINAL.pdf

72. West R, Michie S, Rubin GJ, Amlôt R. Applying principles of behaviour change to reduce SARS-CoV-2 transmission. Nat Hum Behav [Internet] Springer US; 2020;4(May):451–459. [doi: 10.1038/s41562-020-0887-9]

73. Chartis Group. Telehealth: Current Trends and Long-Term Implications [Internet]. 2020.

Available from: https://www.chartis.com/resources/images/Telehealth-Current-Trends-and-Long-Term-Implications.pdf

74. Chartis Group. Telehealth Adoption Tracker [Internet]. 2020. Available from: https://reports.chartis.com/telehealth_trends_and_implications-aug2020/

75. Velasquez D; Mehrotra A. Ensuring the growth of telehealth during covid-19 does not exacerbate disparities in care [Internet]. Health Aff. 2020. Available from: https://www.healthaffairs.org/do/10.1377/hblog20200505.591306/full/

76. Davison EL; Cotton SR. Connection Disparities: The Importance of Broadband Connections in Understanding Today's Digital Divide. IGI Global; 2010. [doi: 10.4018/978-1-60566-699-0.ch019]

77. Ramsetty A, Adams C. Impact of the digital divide in the age of COVID-19. J Am Med Inform Assoc 2020;27(7):1147–1148. [doi: 10.1093/jamia/ocaa078]

78. Hoffman L, Wisniewski H, Hays R et al. Digital Opportunities for Outcomes in Recovery Services (DOORS): A Pragmatic Hands-On Group Approach Toward Increasing Digital Health and Smartphone Competencies, Autonomy, Relatedness, and Alliance for Those With Serious Mental Illness. J Psychiatr Pr 2020;26(2):80–88. [doi: 10.1097/PRA]

79. Cotton SR; Anderson WA; McCullough BM. The Impact of ICT Use on Loneliness and Contact with Others among Older Adults. J Med Internet Res 2013;15(2):e39. [doi: 10.2196/jmir.2306]

80. Cabrera MA; Karamsetty L; Simpson SA. Coronavirus and its implications for psychiatry: a rapid review of the early literature. Psychosomatics 2020; [doi: 10.1016/j.psym.2020.05.018 [Epub ahead of print]]

81. Conrad, R; Rayala, H; Diamond, R; Busch B, Kramer N. Expanding Telemental Health in Response to the COVID-19 Pandemic [Internet]. Psychiatr Times. 2020. Available from:

https://www.psychiatrictimes.com/view/expanding-telemental-health-response-covid-19-pandemic

82. Huh-Yoo J RE. It's the Wild, Wild West: Lessons Learned From IRB Members' Risk Perceptions Toward Digital Research Data. Proc ACM Human-Computer Interact 2020. p. 1–22.

83. Khan S HA. Digital health data: A comprehensive review of privacy and security risks and some recommendations. Comput Sci J Mold 2016;71(2):273–92.

84. Nebeker C, Linares-Orozco R CK. A Multi-Case Study of Research Using Mobile Imaging, Sensing and Tracking Technologies to Objectively Measure Behavior: Ethical Issues and Insights to Guide Responsible Research Practice. J Res Adm 2015;46(1):118–137.

85. Agency for Healthcare Research and Quality. How to Obtain Consent for Telehealth [Internet]. 2020 [cited 2020 Nov 8]. Available from: https://www.ahrq.gov/health-literacy/obtain-consent-telehealth.html

86. Stoll J, Müller JA, Trachsel M. Ethical Issues in Online Psychotherapy: A Narrative Review. Front Psychiatry 2020;10(February):1–16. [doi: 10.3389/fpsyt.2019.00993]

87. Perrin PB, Rybarczyk BD, Pierce BS, Jones HA, Shaffer C IL. Rapid telepsychology deployment during the COVID-19 pandemic: A special issue commentary and lessons from primary care psychology training. J Clin Psychol 2020;76(6):1173–1185. [doi: 10.1002/jclp.22969.]

88. Ben-Zeev, D; Marsch L. Clinical technology specialists. 2015;350:h945. [doi: doi.org/10.1136/bmj.h945]

89. Torous J, Hsin H. Empowering the digital therapeutic relationship: virtual clinics for digital health interventions. npj Digit Med [Internet] Springer US; 2018;1(1):16. [doi: 10.1038/s41746-018-0028-2]