Journal of Traumatic Stress
August 2020, *33,* 380–390

ISTSS International Society for Traumatic Stress Studies

Delivering Prolonged Exposure Therapy via Videoconferencing During the COVID-19 Pandemic: An Overview of the Research and Special Considerations for Providers

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Leveraging technology to provide evidence-based therapy for posttraumatic stress disorder (PTSD), such as prolonged exposure (PE), during the COVID-19 pandemic helps ensure continued access to first-line PTSD treatment. Clinical video teleconferencing (CVT) technology can be used to effectively deliver PE while reducing the risk of COVID-19 exposure during the pandemic for both providers and patients. However, provider knowledge, experience, and comfort level with delivering mental health care services, such as PE, via CVT is critical to ensure a smooth, safe, and effective transition to virtual care. Further, some of the limitations associated with the pandemic, including stay-at-home orders and physical distancing, require that providers become adept at applying principles of exposure therapy with more flexibility and creativity, such as when assigning in vivo exposures. The present paper provides the rationale and guidelines for implementing PE via CVT during COVID-19 and includes practical suggestions and clinical recommendations.

Evidence accrued over several decades has supported prolonged exposure therapy (PE) as a way to reduce symptoms of posttraumatic stress disorder (PTSD) in veterans and nonveterans with various trauma histories. Based on emotional processing theory (EPT; Foa & Kozak, 1986; Rauch & Foa, 2006), PE is a short-term, exposure-based treatment typically delivered in eight to 15 sessions lasting 90 min each (Foa et al. 2019). The PE protocol systematically utilizes imaginal and in vivo exposure to activate negative trauma-related emotion structures and provide disconfirming information (i.e., the absence of feared consequences), thereby facilitating the extinction of conditioned fear responses.

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DOI: 10.1002/jts.22573

With the advent of the COVID-19 pandemic, individuals with PTSD may experience an increase in symptoms as they confront new stressors, such as illness, unemployment, and loss of routine, and new cases of PTSD may develop following exposure to COVID-19–related traumatic events, including the sudden loss of a loved one or increased domestic violence. For these reasons, access to evidence-based PTSD treatment is arguably more critical than ever. However, at the same time, public health guidelines for physical distancing reduce access to in-person mental health care (Center for Disease Control and Prevention [CDC], 2020b). Many providers and healthcare systems have adapted to these pandemic constraints by transitioning to clinical video teleconferencing (CVT), which enables patients and providers to meet synchronously in real-time through a video platform, such as Zoom, InTouch, or Skype, while in separate locations; this is often referred to as "telehealth," and this format provides patients with care virtually while adhering to physical distancing requirements. Although providing mental health services through CVT

allows providers to quickly pivot to a virtual platform of care, the advent of COVID-19 presents new challenges that need to be considered. These challenges include access to privacy during sessions and identifying in vivo exposure exercises that are effective and compliant with physical distancing guidelines. The goal of the present paper is to assist providers who are interested in delivering PE during the pandemic by providing recommendations for how to use CVT effectively while navigating the aforementioned considerations.

A Brief Review of the Efficacy of PE via CVT

Evidence supporting PE via CVT has grown significantly in the past decade. Building on positive results from pilot studies ($N = 27$, Franklin et al., 2017; $N = 12$, Tuerk et al., 2010) and an open trial ($N = 89$, Gros, Yoder, et al., 2011) that demonstrated the feasibility and initial effectiveness of CVT PE, two large randomized controlled trials (RCTs) have examined the efficacy of this modality relative to in-person PE. Consistent with preliminary findings (Yuen et al., 2015), the final results of a noninferiority trial ($N = 132$) showed that 8–12 weeks of telehealth PE was noninferior to in-person PE with regard to PTSD symptom reduction, with treatment gains maintained through 6 months posttreatment (Acierno et al., 2017). A second RCT ($N = 175$) examined PE delivered in three ways: home-based CVT; clinic-based CVT; and home-based, in-person PE (Morland et al., 2019). The results showed no significant differences between study conditions—all were associated with significant reductions in PTSD symptoms. However, the two CVT conditions were associated with significantly higher drop-out rates than the in-person, at-home condition. This pattern of increased dropout from CVT relative to in-person PE was also observed in one previous study (Gros, Allan, et al., 2018) but not in another study (Hernandez-Tejada et al., 2014). Moreover, Hernandez-Tejada et al. (2014) found that among participants who dropped out of treatment, those assigned to CVT completed more PE sessions, on average, than those assigned to in-person PE.

One of the clinical considerations of providers adopting CVT is the concern that this modality will adversely impact the therapeutic relationship. However, research has demonstrated strong, stable therapeutic alliances during PE via CVT, with patient and provider ratings of satisfaction and therapeutic alliance comparable to those found for in-person care (Gros, Lancaster, et al., 2018; Hernandez-Tejada et al., 2014). Data on patient preference indicate that many patients prefer PE delivered via CVT to in-person therapy, and among individuals who prefer CVT, home-based CVT has been shown to be preferable to clinic-based telehealth (Morland et al., 2019).

When providing PE through a CVT platform, providers can include mobile applications (i.e., "apps"), such as PE Coach, to facilitate treatment. The PE Coach app (Reger et al., 2013) is a patient-facing mobile app designed to support providers and patients engaged in PE. The app includes psychoeducational material and functionality to allow patients to record their trauma narrative, complete and track in vivo and imaginal exposure homework, practice breathing retraining, monitor PTSD symptoms, and schedule upcoming sessions. Preliminary data suggest good uptake of PE Coach and positive perceptions of the app among Veterans Affairs (VA) providers. In addition, PE Coach automates a number of PE therapy tasks and facilitates patient–provider sharing of therapy data, which could make it particularly useful to incorporate into PE delivered via CVT. For example, assessing PTSD symptoms during the course of therapy, which allows patients and providers to easily monitor treatment response over time, can otherwise be more challenging with CVT, as providers would not have the ability to pass the patient a paper-and-pencil form to fill out. Additionally, the app allows patients to obtain all the therapy materials they need without the provider having to send them, and sessions can be recorded and saved as password-protected documents on a personal device.

Safety Practices when Providing PE Through CVT

Providers may be concerned about managing safety during CVT because the patient is in a location unfamiliar to the provider, and providers do not have access to in-person clinical staff to assist in the event of an emergency (e.g., providing immediate consultation, walking a patient to the emergency room); therefore, it is important to have preestablished safety procedures (Luxton et al., 2014). Before beginning every appointment, providers should determine the patient's physical location (i.e., the address) and ensure the patient is in a safe environment. Providers should also identify a back-up means of communication, such as the telephone, for emergencies or CVT-related technical difficulties. Providers of PE may consider having the patient identify an emergency support person (ESP) if clinically indicated. It is ideal if the ESP resides at the same residence as the patient, but patients can identify other individuals if necessary. Providers will need to obtain a release of information early in treatment, often before the first PE session so that they can speak to the ESP during a clinical crisis, if needed (Luxton et al., 2014). Providers should document these details in each CVT clinical note (see The Supplementary Materials for example documentation for screening and therapy sessions), which will allow for a quick in-person response to clinical or medical emergencies, should they arise. For additional safety, it may be important to request that weapons, including guns or knives, be removed from the space where the patient will engage in the session. Given that some individuals may be reticent to be separated from a weapon, providers may need to discuss this at the outset and discuss other harm-reduction strategies as needed (e.g., safe weapon storage, giving the weapon to an adult family member during the session for safekeeping).

Providers can safely conduct PE via CVT for patients at low, moderate, or high risk for suicide, with the appropriate safety planning in place. Gros, Veronee, et al. (2011) presented a case

study demonstrating how CVT actually enhanced patient safety during PE when a patient experienced suicidal intent; CVT facilitated immediate engagement of the patient's support system (i.e., family, treatment team, local authorities), allowing for effective, real-time crisis management. Providers can conduct a safety plan via CVT and provide patients with a copy through secure messaging, screen sharing, file sharing, mailing a hardcopy (Luxton et al., 2014). If the patient is in imminent danger to themselves or others, the provider should contact local emergency services (i.e., 911) or, if the patient is a veteran and outside the provider's region, E911, which can be reached by calling the Emergency Relay Center (267-908-6605) and providing the patient's address. The operator will connect the provider to the patient's local emergency dispatch and facilitate emergency response. It is also helpful for providers to identify the local police or sheriff's departmental phone number. If an emergency occurs, providers should document all details about the incident and their efforts to manage risk and identify the appropriate agencies they contacted. Should the provider lose contact during a session and risk is present, the provider should document attempts to contact the patient, as well as a follow-up plan (e.g., interventions to manage distress in future sessions), in the patient's treatment record.

Other safety concerns might include mobility and physical health limitations. Notably, if a provider is meeting an individual for the first time over CVT, they may be unable to observe mobility devices, such as a wheelchair or walker, or prostheses that could potentially impact the feasibility of certain in vivo exposures. Providers should assess relevant medical history and identify any physical conditions at the start of therapy so the therapy can be applied safely.

Establishing Boundaries and Guidelines for the Delivery of PE via Telehealth

The informed consent process should include a discussion about boundaries for CVT, particularly during the pandemic, when there are more unique considerations, such as more family sheltering in place. A preemptive discussion of rules and guidelines for PE via CVT is important for creating a virtual therapeutic environment comparable to office-based settings that will promote physical and psychiatric safety, ensure adherence to the PE protocol, and reduce distractions during the session (see The Supplementary Materials for an example of guidelines that can be provided to patients prior to beginning therapy).

The Importance of Privacy When Conducting PE via CVT During COVID-19

Ensuring privacy can be more difficult during a pandemic, when multiple people may be sharing the same residence throughout the day. However, it is essential to encourage patients to maximize privacy during PE to the extent possible. Problem-solving to identify a private and safe location that can be used for each 90-min session and for daily listening to imaginal exposure audio recordings is essential. Patients may need to discuss privacy logistics with housemates or find another private location outside the home, such as a parked car, private outdoor area, or garage, for sessions. Providers may consider working with patients to practice conversations with family members or to include a family member in an initial appointment to help to create a productive therapeutic frame. Providers and patients may consider purchasing white noise machines for the home to help muffle noises in small shared spaces. Providers may also need to be flexible with the location and timing of sessions, such as offering flexible appointment times after children have gone to bed or during times when children are participating in online classes. Patients may also choose to use headphones during sessions as an additional means of privacy. Ensuring a quiet, private location for therapy is especially important for PE due to the focus required during imaginal exposures and the time needed for a full session.

It is important to remind patients that privacy also extends to the storage of session recordings and PE homework assignments between sessions. For patients using the PE Coach app, phones and the app can be password-protected with a pin to increase security, especially if the phone is used by multiple family members. Therapists should discuss secure locations, such as a home safe or vehicle glove box, to keep recordings and paper homework assignments for patients who are not using their smartphones. Brainstorming ways to protect privacy should be discussed at the outset of therapy and adapted as pandemic-related guidelines change.

Logistical and Technical Issues for the Use of CVT During COVID-19

Therapists should be prepared to navigate challenges that may arise with the use of technology, particularly during the COVID-19 pandemic, when technological servers' bandwidths may be overburdened. The PE Coach app can be a valuable adjunctive tool that allows providers and patients to track progress, record sessions, and complete homework worksheets (Reger et al., 2013). There are, however, limitations to PE Coach. If a patient is using an iOS phone for CVT sessions, they will need to put their phone on the "do not disturb" setting, and the recording will only record the voice of the person with the device (e.g., closet to the device) and not the therapist's voice. One significant limitation of the PE Coach app is that patients who use Android phones for their CVT sessions cannot record sessions through PE Coach, so they will need to use another recording device, such as a handheld recorder. Given that technology literacy varies across patients, having a pretreatment session with individuals who need additional help with technology could be beneficial. If CVT technology fails, therapists should follow the established backup plan identified at the outset of treatment, which often involves switching to the

Table 1
Methods of Sending and Receiving Prolonged Exposure (PE) Materials

Type of document	Methods of sending and receiving
Self-report questionnaires (e.g., PCL-5; BDI-II)	• Mail hard copies and have patient mail them back • Mail hard copies and have patient hold up to the screen for the provider to screenshot; scan and send electronically; or take a photo and send it through the file-sharing function on the video platform, if allowed • Send fillable PDFs through email, secure messenger, or encrypted email; use online survey tools with encryption functions; or file-share on the video platform, if allowed, and have patient send it back; share their screen to copy or screenshot the PDF; or read answers verbally to you • Use PE Coach and ask patient to read scores or hold the phone up to the camera with the scores displayed • Administer questions verbally and record electronically or as a securely stored hard file
PE treatment materials (e.g., homework forms)	• Mail hard copies and have patient mail them back • Mail hard copies and have patient hold up to the screen for the provider to screenshot; scan and send electronically; or take a photo and send it through the file-sharing function on the video platform, if allowed • Send fillable PDFs through email, secure messenger, or file-sharing function on the video platform, if allowed, and have patient send it back, share their screen to copy or screenshot the PDF, or read answers verbally to you • Have the patient read to the provider what they recorded on a paper form or the PE Coach app, and provider can fill in a copy either on the computer or a securely stored hard copy
Teaching new material (e.g., exposure hierarchy)	• Fill out a hard copy and hold it up to the screen for the patient to see, and they can follow along on a hard or electronic copy • Use a fillable PDF and share screen to allow the patient to follow along, or send an electronic copy through the file share function or a secure messaging software • Use PE Coach to have patient complete forms and read what they have written to the provider

Note. PCL-5 = Posttraumatic Stress Disorder Checklist for *DSM-5*; BDI-II = Beck Depression Inventory–Second Edition.

telephone. Although the research on telephone therapy is limited, there is some preliminary evidence that it is acceptable to patients (Cuijpers et al., 2019), but no research has examined telephone-based therapy in relation to PE.

The exchange of PE therapy materials requires more flexibility for CVT compared to in-person therapy, but data can be exchanged between patients and providers via an electronic exchange, such as encrypted mail, screenshots of shared screens, or file sharing on video platforms; verbally, with the patient reading responses to the provider; or, if needed, by mail (see Table 1 for more information about various ways to exchange and send PE documents). Providers should schedule enough time between appointments to account for potential technical difficulties or 5–10 min extra to verbally collect self-report questionnaires if needed. Please see Morland et al. (2020) for additional advice about sharing materials with patients.

To facilitate efforts to rapidly deploy telehealth during COVID-19, a number of free, public resources have been made available to providers interested in adopting this technology. The American Psychological Association (APA) has developed a free online continuing education program on telepsychology best practices (https://apa.content.online/catalog/product.xhtml?eid=15132&eid=1921) and a free technology checklist (https://www.apa.org/practice/programs/dmhi/research-information/telepsychological-services-checklist) for providers; see these materials for more helpful information.

Utilizing Social Support during PE in the Midst of a Pandemic

Patients are often interested in including loved ones in their PTSD treatment and have been shown to respond to PE more effectively when there are family and peer supports included in their care (Batten et al., 2009; Hundt et al., 2015). Utilizing family or peer support during PE may increase engagement, decrease dropout, and enhance clinical outcomes (Hernandez-Tejada et al., 2017; Meis et al., 2019; Price et al., 2013, 2018). For example, Meis et al. (2019) found that veterans with loved ones who encouraged them to approach anxiety-provoking situations and sit with their distress rather than avoid it were twice as likely to complete trauma-focused PTSD treatment (e.g., PE or cognitive processing therapy). If a patient consents, providers may consider meeting with the patient and their social support or supports via CVT after the first session of PE to summarize psychoeducation about PTSD, avoidance, and exposure therapy and provide information about how they can

support the patient to engage in approach behaviors rather than collude with avoidance. Partner accommodation (i.e., partners' altering their own behaviors due to the patient's PTSD symptoms) is often well-intended but can prevent opportunities for corrective learning (Fredman et al., 2014). Additionally, patients may need to ask partners, family members, and friends to cover childcare, homeschooling, or household responsibilities during their PE appointments to minimize distractions so that they can fully engage in their sessions, especially during imaginal exposures.

Providers should leverage opportunities to use social support during in vivo exposure practice assignments while also being thoughtful about when they may serve as safety signals (e.g., permitting inappropriate avoidance of fear). For some groups, peers are an especially appropriate source of social support during exposure homework (Hernandez-Tejada et al., 2017). It is appropriate and helpful to include loved ones in in vivo exposures when the exposures are designed to target themes such as intimacy, trust, fear of interpersonal rejection, or physical contact; these can include sharing vulnerable emotions or holding hands with a partner. These types of in vivo exposures provide opportunities for new learning to occur about one's beliefs about themselves and others. Additionally, loved ones may be included in exposures lower on the fear hierarchy while the patient works toward independence; for example, the patient may first go to a grocery store with their partner before eventually going alone. When including others in exposures, ensure that the patients' supports are facilitating the therapeutic process and not interfering. For instance, if an individual feels unable to engage in an in vivo exposure without a partner's presence, the therapeutic goal should be to eventually have the patient do the exposure alone. Although you may start with an exposure that includes the partner, as the patient's anxiety is reduced, the partner should stop participating in exposures. Providers may review the guidelines for effective exposure practice with loved ones. Having a well-intentioned partner suggest that the patient engage in safety behaviors (i.e., behaviors a patient does to reduce their anxiety that are not actually related to reduced risk, such as carrying a pill bottle or sitting with their back to the door) would be counterproductive. In this case, the provider can discuss with the patient the importance of removing safety signals and behaviors to maximize learning and, if necessary, develop a plan to wean the safety signal gradually; for example, a loved one might be present but physically distant at a grocery store and later wait outside the grocery store during in vivo practice.

Clinical Considerations for PE during COVID-19 and through CVT

There are some clinical considerations unique to providing PE through telehealth during COVID-19, which we review below.

Imaginal Exposure Considerations

The application of imaginal exposure is unlikely to be impacted by COVID-19. However, there are some general clinical considerations worth noting with regard to implementing imaginal exposures using CVT. When providing PE through CVT, providers may need to be more attentive to individuals' underengagement or overengagement during imaginal exposure, as CVT offers less access to patient nonverbal cues relative to in-person therapy. In the event that a session needs to transfer to telephone due to technological difficulties, issues around monitoring engagement are even more important, as providers cannot see nonverbal cues of engagement or distress. If providers sense that an individual is underengaging with the trauma memory and the associated emotions, providers may use more verbal prompts (e.g., "What are you feeling?) during the imaginal exposures to help elicit emotions, physiological arousal, and a more detailed memory to sufficiently activate the fear network and allow for corrective learning to occur. Additionally, if a provider thinks that the individual had been underengaged in the imaginal exposure, the provider may allow more silence following completion of imaginal exposures to allow the individual to sit with the emotional experience for a few minutes prior to processing it. Overengagement during an imaginal exposure is often more obvious, and providers can utilize the standard techniques for managing overengagement provided in the latest PE manual (Foa et al., 2019). Providers may choose to elicit subjective units of distress (SUDs) ratings more frequently during imaginal exposures via CVT to better monitor changes in engagement. Providers may want to check in with patients about their experience with imaginal exposures through CVT. This discussion provides valuable input about the patient's subjective experience and allows for the opportunity to problem-solve ways to promote more effective imaginal exposures through CVT, such as closing a window so there are fewer distractions.

In PE, it is important to eliminate safety behaviors during imaginal exposures. However, identifying subtle safety behaviors can be more difficult to detect when PE is delivered via CVT compared to in person. For example, with the camera focused on the patient's face, the provider may not be able to see what the patient is holding (e.g., a pet on their lap). Discussing expectations upfront may prevent this, but providers may consider asking prior to each session if the patient has any safety signals, such as pets, in the room. Providers may need to more frequently remind individuals of the importance of not engaging in safety behaviors during both imaginal and in vivo exposures to afford the most opportunity for corrective learning. In addition, providers can ask individuals to discontinue safety behaviors if the provider becomes aware of them during the session. Finally, distractions during imaginal exposures are more common in the home, especially during COVID-19, than during office-based sessions, so providers should problem-solve with patients about how to reduce distractions.

Table 2
COVID-19 Pandemic–Appropriate In Vivo Exposures

Theme	Example exposures
At-home exposures	
Safety	Open curtains during the day, remove or safely store weapons; abstain from checking locks multiple times, sit with back towards doors and windows, sleep on the side of the bed away from the door
Physical intimacy	Cuddle with a partner, give a hug to someone in the household, hold hands with a partner
Emotional intimacy	Personal disclosure to a friend on the phone
Trust	Share part of trauma experience with a supportive person, have partner watch children while you go on a walk, share feelings about daily stressors
Grief/loss	Read the obituary of a loved one, write a letter to a loved one, look at photos of loved ones who have passed, talk to a supportive person about a loved one who has passed
Enclosed areas	Prolonged periods in closet, shower stall, or pantry; lie on the floor with a towel on the face; sit in a parked or moving car for a prolonged period
Social connection	Virtual "hang out" with friends, play video or board games remotely or in-person with friends or family
Behavioral activation	Home workouts, cooking or baking, listening to music, play games with children, mechanical projects, building projects, art projects
Sensory	Use a lotion that smells like perpetrator; handle meat (i.e., similar to flesh); safely stand near a hot oven, grill, stove, or fireplace; take out the trash to the trash bins (e.g., the smell of trash); watch videos online of loud noises (e.g., cars backfiring, helicopters, explosions)
Media	Watch war-related movie (e.g., helicopters, explosives); lookup social media (e.g., Facebook) group for old military unit; watch the news; watch documentaries about similar traumatic events
Exposures outside of the home[a]	
Crowds	Grocery stores with masks, walks in the park or on a beach
Safety	Have a picnic at a park, stand in line without turning around
Sensory	Park near a loud airport (loud noises), drive to a desert (heat), go to a gas station (smell), go to wooded areas with trees (jungle)
Grief/loss	Visit a cemetery, visit war memorials
Behavioral activation	Go on a walk around the neighborhood, garden in the backyard, go for a drive, engage in water sports, take photos outside, play tennis, ride a bike
Social connection	Park the car somewhere near another parked car with friends or family members and communicate through open windows, play a lawn game with friends, go camping with another person, go for a walk
COVID-19–specific exposures	
Distrust of government	Make an appointment at VA, call to ask questions about unemployment benefits
Health anxiety	Reduce handwashing to CDC recommended 20 s, leave the home for socially distanced activities
Interoceptive cues	Wear a mask and practice desensitization
Safety	Be around people in masks who remind the patient of individuals with face coverings at the time of trauma exposure
Media	Increase exposure to COVID-19-related media if avoiding because of fear, decrease exposure to COVID-19–related media if watching excessively out of fear

Note. VA = Veterans Affairs; CDC = Centers for Disease Control and Prevention.
[a]Patient should wear protective gear, such as a mask, and practice social distancing.

In Vivo Exposure Considerations

Given current public health guidelines regarding physical distancing, restrictions to public areas and stores, and minimizing the risk of contracting or spreading COVID-19, providers and patients need to be more creative about generating safe in vivo exposures (see Table 2 for a list of possible in vivo exposures to do at home and in public during the COVID-19 pandemic). In addition, CVT offers a rare glimpse into patients' homes, which may reveal unique opportunities to tailor

treatment in impactful ways. For example, providers may generate ideas for exposures based on the information gathered through the video, such as an observation that the curtains are shut during the day or all the furniture in the living room is facing the front door. Thoughtful in vivo exposures are especially important during COVID-19 because individuals with PTSD may also be engaging in avoidance behaviors driven by anxiety rather than by physical distancing guidelines. We outline herein several suggestions for providers for flexibly applying in vivo exposures during COVID-19.

Leveraging Exposures At-Home

Many useful in vivo exposures can be successfully conducted within an individual's home. This is crucial during COVID-19 when individuals will likely be in public less often and stay within their homes more often due to physical distancing guidelines. Although in vivo exposures will be tailored to each individual patient, we outline several common concerns and provide examples of possible in vivo exposures that can be done from home.

For individuals who have anxiety about social activities or groups of people, feel socially disconnected from others, or have difficulty trusting others, negative beliefs about their likability and worth, or fears of interpersonal rejection, patients can arrange in vivo exposures with other individuals to be conducted on electronic platforms (e.g., Zoom). If individuals do not have access to these to electronic platforms, they can schedule phone calls with individuals or groups of people through telephone conference functions. Individuals can gradually adjust the difficulty of the in vivo exposure by increasing the number or types of people present on the call or the types of information that they share with others (i.e., personal disclosures to facilitate emotional intimacy). Patients can also do in vivo exposures to target emotional intimacy or trust by disclosing personal information or engaging in lengthier conversations with supportive individuals in their homes. Using technology and leveraging other members of the household can target multiple themes, such as trust and intimacy.

Individuals with PTSD tend to have exaggerated concerns about the safety of themselves, their home, and their loved ones, and they often engage in safety rituals or behaviors to reduce anxiety. There are numerous opportunities within the home to eliminate safety rituals and practice eliminating hypervigilant behaviors. For example, as relevant, individuals can reduce checking on locks, leave window curtains open during the day, eliminate looking out the windows to monitor neighborhood activity, turn on television or music so that they cannot hear every small noise, sit with their back to windows and doors, and reduce or stop engaging in perimeter checks when they hear noises outside. Many individuals with PTSD have weapons strategically placed throughout the home, such as by their bed, to help them feel safer. Providers can work with individuals to remove or safely store unloaded, locked guns or other weapons throughout the house. For patients who carry weapons outside the home, weapons can be left at home while the patient engages in exposures or activities outside of the home. There are ample opportunities to practice safety-related in vivo exposures without leaving the home.

Individuals may also engage in in vivo exposures to safe but avoided trauma-related material through media, such as television, news, movies, online videos, and photos found online. For example, many veterans with PTSD avoid war-related movies, shows, documentaries, or footage of military-related stimuli, such as helicopters, military fatigues, or explosive noises. Individuals can engage in vivo exposures that target these stimuli by finding relevant material online or through television or movies. Individuals who avoid watching the news out of fear of trauma-related triggers may practice gradually increasing exposure to news, such as starting by watching for 5 min and slowly increasing the time.

Individuals with PTSD often avoid small spaces or locations they fear they cannot escape if they are endangered. For example, it is common to assign an exposure to ride in an elevator to approach small spaces, but it may be difficult or unsafe to access elevators during the COVID-19 pandemic. Individuals can participate in exposures to enclosed spaces in the home by lying on the floor and covering their face with a towel or spending prolonged periods of time in a smaller space, such as a pantry, laundry room, closet, or shower stall, if available. The home also provides an opportunity to practice in vivo exposures to trauma-related reminders that are tied to smells, tastes, and textures. For example, individuals can use lotions that remind them of smells tied to a perpetrator or handle meat that has textures that remind them of elements of the traumatic experience (i.e., meats that feel similar to flesh). Although participation in exposures outside the home is recommended, there are opportunities to arrange applicable home-based exposures as well.

It is common to incorporate behavioral activation activities into weekly PE practice assignments given the comorbidity between PTSD and depression. This is even more important during the COVID-19 pandemic when individuals may be at an increased risk of depression due to isolation and decreased opportunities for positive reinforcement from the environment. Although what is pleasurable will differ for each person, several behavioral activation activities could be scheduled from within the home. For example, people may engage in exercise in or around the home either alone or with family members or housemates. Exercise can also be safely done outside if individuals follow physical distancing guidelines, such as walks or runs while staying 6 feet apart from others. People may also try engaging in cooking, baking, art projects, music, craftsmanship, and mechanical activities (e.g., working on a car). For patients with children, this could mean playing games at home or in an accessible outdoor space.

Engaging in Relatively Safe In Vivo Exposures Outside of the Home

Due to safety-related fears and mistrust of others, it may be tempting for individuals with PTSD to remain isolated at home without ever leaving the house during the COVID-19 pandemic.

Although individuals need to practice prudent safety precautions as prescribed by their local public health officials during the pandemic, some in vivo exposures outside the home are possible, and certain activities out of the home may be required while adhering to COVID-19 safety guidelines. Examples of in vivo exposures that are not possible or advisable during the pandemic include visiting certain businesses, including movie theaters and crowded bars, and driving in heavy traffic. As businesses reopen, individuals can consider engaging in in vivo exposures in public places while maintaining physical distance guidelines (e.g., remaining 6 feet away from others at all times), wearing a mask to help prevent the risk of infection or transmission, and carrying hand sanitizer or disinfectant wipes to use in public. For example, individuals may practice standing in lines, talking to cashiers while making eye contact, purposefully going down each aisle of a store without rushing, and practicing not scanning for exits. They may sit in their car while visiting busier parking lots or may practice driving on the freeway in slightly lighter traffic to build confidence for driving when there is more traffic. Additionally, individuals can engage in activities outside, such as walking while physically distancing from others at outdoor parks, trails, beaches, or around one's neighborhood. However, some outdoor recreational areas have narrow pathways (e.g., hiking trails) that may make it difficult to maintain physical distancing at all times, so masks should be worn and caution should be taken. Individuals who avoid places with loud noises can park near loud locations like airports or military bases. Driving exposures can be practiced, even with lighter traffic, and can be combined with other in vivo exposures. For example, a patient could drive to a grocery store that is 30 min away or to a park to spend the day with their family. The types of in vivo exercises done outside the home must take into account both the current COVID-19 safety guidelines, patient risk factors (e.g., advanced age, autoimmune or respiratory disorders), and the patient's environment (e.g., access to safe outdoor spaces, access to safe means of transportation).

In Vivo Exposures Specific to COVID-19

Due to the pandemic, individuals with PTSD may have COVID-19–related fears that can be incorporated into the fear hierarchy as additional homework. Individuals may be avoiding all COVID-19–related news due to anxiety or, in contrast, compulsively checking COVID-19–related news. If so, providers can help individuals to approach or set appropriate limits to COVID-19–related news. Some individuals may experience distress related to the physical sensations associated with restricted breathing and not follow current recommendations to wear masks, which could increase their risk of contracting COVID-19. If so, providers can help patients desensitize themselves to wearing a mask by following the guidelines provided here: https://adaa.org/sites/default/files/Tips%20for%20Getting%20Comfortable%20in%20Your%20Mask%20and%20with%20PPE_UChicago%20Medicine%2C%20NYU%2C%20Emory%20.pdf

Some individuals have also reported that seeing others wearing masks serves as a trauma trigger due to past experiences where individuals' faces were partially covered during traumatic events. Therefore, providers may need to have patients practice being in situations with other people wearing masks without looking away or leaving. If individuals have comorbid obsessive–compulsive disorder or have developed excessive fear of contamination or illness due to COVID-19, they may engage in excessive handwashing rituals. Although frequent handwashing is necessary during the COVID-19 pandemic and individuals should follow public health recommendations (i.e., wash hands for 20 seconds; CDC, 2020a) they may practice washing hands only one time following each exposure to potential contaminants and washing only for the recommended 20 s. Individuals with PTSD who have experienced loss-related trauma or have lost loved ones to COVID-19 may be especially triggered by the news of death rates. Individuals should be supported and encouraged to feel their natural emotions, such as sadness or grief, rather than engaging in experiential avoidance. Finally, some individuals may experience an exacerbated distrust of the government in relation to COVID-19. In such cases, providers and patients should work together to decrease problematic avoidance related to this distrust (e.g., call to ask questions about unemployment benefits).

Continuing Exposure After COVID-19

To encourage the long-term maintenance of skills, providers should encourage patients to continue engaging in exposures following the completion of PE and the end of the pandemic. For example, providers and patients could generate a list of potential in vivo exposures that are not feasible to do during the pandemic but will be practiced in the future once it is safe to do so, such as sitting in heavy traffic or standing closer than 6 feet to others in lines. This will be especially important for individuals who may be subtly avoiding under the guise of physical distancing but really are avoiding due to fear and anxiety. Reminding patients that exposure is a lifestyle change rather than a short-term solution, can help people get the maximum benefit from PE even after the pandemic.

Disparities in Access to Care via CVT

Although CVT increases access to care (e.g., by reaching individuals in rural areas), the COVID-19 pandemic has highlighted existing health inequities and socioeconomic class differences with regard to access to care as mental health services have transitioned to CVT. Some individuals with PTSD cannot afford the necessary equipment for CVT, including a smartphone, tablet, wireless Internet, or large data plans, or they may be unable to afford supportive equipment, such as audio recorders. Patients may only have access to cell phones or computers that are shared with family members who may also require access to these devices during the pandemic; for example, a shared computer might need to be accessed by the patient's

child for virtual schooling. Access to high-speed broadband Internet is improving, but it remains a barrier to CVT for some patients, especially those in rural areas. Patients and providers embedded within large healthcare systems, such as the VA Health Administration, or those providing treatment in the context of funded RCTs may be able to provide patients with the necessary equipment, such as wireless Internet–enabled tablets, on an as-needed basis to help individuals connect with providers (Zulman et al., 2019). Providers working within larger healthcare systems also often have access to administrative support staff or information technology staff who can assist with test calls or troubleshooting technological difficulties, which makes CVT easier for both the provider and the patient. In contrast, providers working in small private practices or community clinics may have more limited resources, making it more difficult to provide CVT to patients who are unable to supply the necessary technology themselves. The COVID-19 Telehealth Program is providing $200,000,000 (USD) in funding, which was appropriated by Congress as a part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The purpose of this aid is to help providers deliver services to patients in their homes or other locations during the COVID-19 pandemic. Nonprofit and public health agencies are eligible for funding through the CARES COVID-19 Telehealth Program (https://www.fcc.gov/covid-19-telehealth-program), which can support telecommunications services and devices. Although providers may consider offering care through telephone to patients who cannot access video-enabled devices, it is unclear whether PE via telephone is a safe or effective modality, and using the telephone as a back-up modality for PE, when CVT equipment fails, still requires that patients have adequate minutes on their phones to support weekly 90-min sessions.

Individuals from lower-income households may have difficulty finding a private space for 90-min PE sessions. Due to living in smaller spaces and potentially with multiple people who are home more often because of the pandemic, not all individuals with PTSD have access to garages, porches, offices, private vehicles, or other locations where they can be alone. In addition, it may be difficult or impossible for individuals responsible for caregiving to protect 90-min for therapy appointments, as they may also have childcare and homeschooling responsibilities. If accessing the time and space for CVT PE sessions proves to be a frequent problem that is significantly impacting therapeutic momentum (e.g., sessions are often missed and rescheduled, causing long gaps between appointments), providers may wish to discuss the pros and cons of delaying treatment until these logistic barriers can be better resolved, such as when children return to school. Alternatively, providers may consider offering the 60-min version of PE (Nacasch et al., 2015), PE for Primary Care (Cigrang et al., 2017), or written exposure therapy (Sloan et al., 2018), which are less time-intensive.

Conducting in vivo exposures safely during the pandemic requires taking protective measures, such as maintaining physical distance, wearing a mask, and carrying hand sanitizer and disinfectant wipes following exposures. However, individuals may face more challenges obtaining these supplies, such as being unable to afford supplies or unable to shop when these supplies are most likely to be found in stores. In addition, some patients may be less familiar with the current public health guidelines or may view them as excessively cautious and wish to disregard them, placing the provider in the potentially uncomfortable position of trying to ensure that safe practices are followed while maintaining therapeutic rapport. These types of concerns may be common among individuals with PTSD if they already have negative beliefs about the government and difficulty trusting authority figures. Physical distancing is also more difficult for individuals who reside in densely populated areas. In addition, many individuals do not have health insurance and cannot afford mental health services, a problem that has been made worse by the pandemic as unemployment has increased (e.g., Carrasquillo, 2020). Finally, undocumented immigrants living within the United States often are not eligible for health insurance, preventing access to mental health care, or they may be fearful of seeking mental health care due to a fear of negative sociopolitical repercussions (Page et al., 2020). Related to this, historically, CVT has not always been eligible for reimbursement (Ohannessian et al., 2020), although the huge increase in CVT during the pandemic should serve as an impetus for insurance companies to reevaluate their policies and begin reimbursing CVT services commensurately to in-person services.

These inequities limit the accessibility of PE via CVT for certain groups. It is important for providers to be aware of these inequities and to problem-solve to identify workable solutions to the challenges. For example, providers are encouraged to acquire necessary CVT equipment through CARES for use by their patients or practice, as needed. Additionally, although many insurance companies currently provide coverage for CVT appointments during COVID-19, providers will need to advocate for insurance companies to continue to cover and reimburse appointments through CVT after the pandemic wanes. Providers can consider offering a sliding scale fee, when feasible within their practice, to accommodate patients who are otherwise unable to afford treatment. Providers can also contact legislators to encourage increased funding for telehealth equipment and infrastructure for healthcare systems and small mental health practices.

Conclusions and Future Considerations

Prolonged exposure therapy is a robust and flexible treatment for PTSD that has been shown in numerous studies to be safe and effective when delivered through CVT. The use of CVT allows providers to continue to provide evidence-based PTSD treatment that may not be otherwise accessible during the pandemic due to physical distancing requirements and stay-at-home orders. We encourage providers to incorporate CVT as a standard part of their clinical practice for individuals who can benefit from CVT even after the COVID-19 pandemic

ends. If providers integrate CVT as a standard option for care delivery, they can engage in shared decision making with patients to accommodate their preference for how to receive their mental health treatment. Toward this end, mental health providers should be trained in using CVT as a standard part of curricula to help increase the sustainable adoption of CVT (Smith et al., 2020). Policymakers may consider increasing funding to support purchasing CVT equipment for hospitals and community clinics to issue to patients for the duration of therapy if they cannot afford their own devices. Incorporating CVT into healthcare systems as a standard part of routine care, including for mental health services, can increase the likelihood of uptake by providers (Smith et al., 2020) and ultimately increase the reach of PTSD treatments.

The COVID-19 pandemic has required a rapid pivot to virtual care for providers across the globe. This will likely change the landscape for how mental health care is delivered well beyond the pandemic. Although the pandemic poses unique clinical considerations to effective implementation of PE, the virtual delivery of PE over CVT in conjunction with the flexible application of exposures allows for the effective delivery of this first-line PTSD treatment. The financial uncertainty and increased social isolation of the COVID-19 pandemic will likely have a significant long-term impact on mental health, including PTSD, so it is imperative to offer accessible evidence-based mental health services.

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