

# Telepsychiatry

## A New Treatment Venue for Pediatric Depression



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### KEYWORDS

- Telepsychiatry • Telehealth • Telemedicine • Depression • Child psychiatry
- Adolescent psychiatry

### KEY POINTS

- Telepsychiatry is being deployed to treat pediatric depression in several different models of care. The benefits of using it to provide direct care in homes, schools, primary care offices, juvenile correction centers, and residential facilities are well established.
- Telepsychiatry has the potential to improve prevention, early identification, and treatment of pediatric depression. Telepsychiatry removes the geographic barrier between patients and providers, which lowers the cost of providing treatment and decreases the time, effort, and lost income usually associated with transporting either patients/families or providers to rural and underserved communities.
- Telepsychiatry outcomes and patient satisfaction ratings are sometimes superior to sessions held in traditional face-to-face venues.
- Engaging, building relationships, and communicating with telepsychiatry patients are significantly different from traditional medical settings.
- Effective use of telepsychiatry requires Webside manners and the intentional shaping of both an authentic treatment experience and provider-patient relationships. When telepsychiatry staging and nonverbal and verbal communication skills are properly used, telepsychiatry sessions feel authentic to both patients and providers, and treatment outcomes meet or exceed traditional face-to-face venues.



Video content accompanies this article at [www.childpsych.theclinics.com](http://www.childpsych.theclinics.com).

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## INTRODUCTION

Contemporary children and adolescents are immersed in interactive media, including social media, online videos, video chat, and video games. It is estimated that more than 70% of teenagers are interacting on 1 or more social media sites on the Internet and approximately 25% of teenagers are constantly connected to Internet.<sup>1</sup> Although caution has been advised against such excessive media use, it reflects the exposure and comfort level youth have with technology. Because they are already using video technology to socialize and play, telepsychiatry is a good fit and appropriate treatment venue with most youth.

## TELEPSYCHIATRY

### *Definition*

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The Centers for Medicaid & Medicare Services defines telehealth as the use of telecommunications and information technology to provide access to health assessment, diagnosis, intervention, consultation, supervision, and information across distance that seeks to improve a patient's health by permitting 2-way, real-time, interactive communication between a patient and a physician or practitioner at a distant site. This electronic communication means the use of interactive telecommunications equipment that includes, at minimum, audio and video equipment.<sup>2</sup> The term, *telepsychiatry*, refers to behavioral and mental health services that are provided via synchronous telecommunications technologies, including discipline-specific applications, such as telepsychiatry and telepsychology. Telepsychiatry refers to the use of secure, Health Insurance Portability and Accountability Act (HIPAA)-compliant videoconferencing to connect the psychiatric provider at the destination site with youth and/or their families at the origination site. If the videoconference is live, it is called synchronous telepsychiatry or simply telepsychiatry. If the interaction involves the exchanging of information at different times over a period of time, it is considered asynchronous telepsychiatry.

### *Laws*

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The prescription of medications by a telepsychiatrist is impacted by clinical and legal requirements. The clinical monitoring responsibility can be shared with a physician extender or clinician at the origination site or the youth's primary care provider. Standard tools, however, such as the Abnormal Involuntary Movement Scale and other neuropsychiatric assessments, can be used reliably over videoconferencing<sup>3</sup> to monitor for neurologic side effects. When depressed youth have comorbid conditions, such as attention-deficit/hyperactivity disorder or anxiety, the telepsychiatrist has to comply with federal regulations when prescribing Schedule II controlled substances, including stimulant medications and benzodiazepines. These federal regulations began in 2008 with the Ryan Haight Online Pharmacy Consumer Protection Act and were updated in late 2018. The current regulations include specific situations that require special registration with the Drug Enforcement Administration and a requirement that at least 1 in-person visit occurs before prescription of the controlled substances.<sup>2</sup> The federal government update to this act in 2018 provides a special registration for telepsychiatry. This allows a provider to prescribe controlled substances without an in-person visit in 7 categories of clinical practice. These include public health emergencies, working with the Indian Health Service, collaboration with another practitioner at the patient site, and during medical emergencies. A good summary of this special registration is available online from the Congressional Research Service. Telepsychiatrists must maintain active medical licenses for the

state(s) in which the patient and provider are located at the time of treatment. Similar restrictions often apply to hospital credentialing and malpractice insurance. Several states have additional requirements and regulations, so the authors recommend telepsychiatrists regularly consult with agencies that track these changes. These include the Center for Connected Health Policy ([www.cchpca.org](http://www.cchpca.org)), the American Telemedicine Association ([www.americantelemed.org](http://www.americantelemed.org)), and the Center for Telehealth and e-Health Law ([www.ctel.org](http://www.ctel.org)).

## USING TELEPSYCHIATRY TO TREAT DEPRESSION

### *Proved Efficacy*

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Landmark studies of the efficacy, feasibility, and acceptability of telepsychiatry service for children living in nonmetropolitan communities found high satisfaction rates in pediatric providers as well as youth. The service was shown to be feasible with good utilization rates in primary care settings.<sup>4,5</sup> Treating youth via telepsychiatry is well accepted by families and they report high satisfaction with the care delivered.<sup>6</sup> Telepsychiatry actually has several advantages over traditional face-to-face sessions. Youth treated with telepsychiatry feel a greater sense of safety and control when dealing with an unfamiliar adults (psychiatrists and other mental health professionals) and greater sense of personal space. They miss less school for sessions, and coordination of care with their other providers and teachers is improved.

Child and adolescent mental health studies of diagnostic accuracy and effectiveness of telepsychiatry treatment demonstrated positive outcomes for children in different settings.<sup>7,8</sup> The growing body of pediatric telepsychiatry literature also includes clinical guidelines for practicing telepsychiatry. The American Academy of Child and Adolescent Psychiatry has published clinical guidelines based on the systematic review and recommendations of the telepsychiatry committee.<sup>2</sup> The American Telemedicine Association published "Practice Guidelines for Telemental Health With Children and Adolescents" in 2017.<sup>9</sup>

### *Decrease Barriers to Care*

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Pediatric depression is associated with significant morbidity, including suicide. Despite the potential safety risks of this condition, only a small proportion of youth with depression receive adequate treatment in a timely manner due to barriers (discussed previously). The gap between the high need for care and limited access to care can be mitigated by telepsychiatry. Telepsychiatry has the potential to improve prevention, early identification, and treatment of pediatric depression. Telepsychiatry removes the geographic barrier between patients and providers, which lowers the cost of providing treatment and decreases the time, effort, and lost income usually associated with transporting either patients or providers to rural and underserved communities.<sup>10–12</sup>

### *Better Collaboration*

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Telepsychiatry potentially facilitates collaboration between child and adolescent mental health providers and other professionals. Schools and primary care providers can obtain consultations and collaborate with these providers through telehealth with a frequency and intensity usually unobtainable because of logistical barriers.<sup>13</sup> This makes telepsychiatry less expensive and more cost effective than other medical specialties that require additional technological devices necessary for physical examinations and testing. Cost savings have been demonstrated most clearly with newer

programs that do not rely on expensive equipment and use the recently available array of secure technology.<sup>14</sup>

### **Cost Benefits**

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Mental health disorders affect approximately 15 million children and adolescents in the United States and are a national public health concern. Pediatric depression not only clinically impairs children but also disrupts family systems, often reducing children's adult functioning when it persists into adulthood. Pediatric depression is a clinical burden to the patients and their families, and it is also a financial burden to our society. Although the cost of pediatric depression alone has not been definitively determined, because the total annual cost of adult depression is estimated to be more than \$83 billion, pediatric depression is likely a substantial portion of the total annual cost of all pediatric mental health disorders, which is at least \$247 billion.<sup>15,16</sup> The overall impact and cost of this mental health burden are expected to rise due to several barriers in providing timely and adequate treatment. These include a critical shortage of child and adolescent psychiatrists, inadequate access to mental health providers with specialized training in treating children, significant geographic distances to reach rural communities, and socioeconomic/resource disparities in rural areas where primary medical care facilities are less concentrated and specialty care access is often suboptimal.<sup>17</sup> These access issues pose overall disadvantages with regard to social determinants of health, such as financial burden to afford transportation, lost wages from attending sessions, specialist copays, affordability of medications, lack of health insurance, poverty, unstable housing, and decreasing income due to worsening economies in those areas.<sup>18</sup> The social determinants related to finances and access often result in the delay of early identification and intervention for childhood mental illness, nonadherence to treatment, inadequate frequency of therapeutic interventions, and overall poor long-term functional outcomes.

## **MODELS OF TELEPSYCHIATRIC CARE**

### ***Direct Care and Collaborative Care/Consultation***

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Telepsychiatry is being deployed to treat pediatric depression in several different models of care. The benefits of using it to provide direct care in homes, schools, primary care offices, emergency departments, juvenile correction centers, and residential facilities are well established.<sup>19–21</sup> Rapid adoption is being facilitated by the falling cost of telemedicine hardware and the ubiquity of Internet-connected personal devices capable of running telemedicine apps. Recently, collaborative care telepsychiatry consultation models have been adopted because Medicare is reimbursing these consultations. In this model of care, the treatment plan is devised collaboratively with the consulting psychiatrist, but the primary care provider is responsible for implementation of the treatment plan, including medication management, care coordination, monitoring, and follow-up. This collaborative relationship supports the primary care provider and improves patient access to quality care.<sup>22</sup>

### ***Project Extension for Community Healthcare Outcomes***

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Another model of telepsychiatry consultation is Project Extension for Community Healthcare Outcomes (ECHO). This hub-and-spoke model aims to improve primary care providers' abilities to confidently screen and provide care for children with mild to moderate psychiatric disorders. Project ECHO model outcomes indicate that it is an effective and potentially cost-saving model that increases participant knowledge and patient access to health care in remote locations.<sup>23</sup>

## ENGAGING PATIENTS, BUILDING RAPPORT, AND DEVELOPING GOOD WEBSITE MANNERS

Engaging, building relationships, and communicating with patients in the telepsychiatry venue are significantly different from traditional medical settings. Cameras, microphones, and speakers alter voices, change how participants are seen, and flatten emotional expressions. In order to appear as genuine, trustworthy, and empathic as they normally do in traditional clinical settings, telepsychiatrists need to adjust their communication patterns. Many of these adjustments are techniques used by newscasters, actors, and television studios to engage viewers and ensure clear and emotionally congruent communication with the audience.

Like an actor stepping onto the stage, telepsychiatrists must immediately engage a patient's attention and convince the patient that they are trustworthy, competent, empathic, and responsive to their needs.<sup>24</sup> Providers who seem naturally empathic and create good rapport are instinctually communicating well both verbally and nonverbally with their patients.<sup>25</sup> Adolescent depression treatment outcomes are better when the alliance is strong.<sup>26</sup>

The importance of using and observing congruent nonverbal communication cannot be overstated. More than two-thirds of communicated meaning comes from nonverbal messages, not the actual words spoken.<sup>27</sup> If a provider's nonverbal communication does not reinforce and support the verbal communication, the provider seems odd or insincere.<sup>28</sup> Insufficient, unobserved, or incongruent nonverbal communication weakens the provider-patient relationship.<sup>29</sup> It is often not what is said, but how it is said, that matters most to patients.<sup>25,30</sup>

A provider's bedside manner is the unique mixture of verbal and nonverbal communication used when communicating in a professional role with different patients in different settings.<sup>31</sup> During medical training, providers learned how to modify their bedside manner (consciously or unconsciously) to fit the clinical setting (hospital, emergency department, clinic, nursing home, or nursery). These modifications promote good communication that are appropriately nuanced to engage patients of different ages, genders, maturity, and cultures. It is the authors' opinion that telepsychiatry is not a technology but rather a new clinical setting in which providers must adjust how they communicate to engage patients and maintain therapeutic relationships. Telepsychiatrists must adapt their bedside manners to this venue, a communication style often called Website manners.

This unspoken need to operate differently in a new clinical venue may be a contributing factor to the pervasive but gradually decreasing resistance to telepsychiatry among established providers. A better understanding of nonverbal communication and mastery of the conscious adjustments providers can make, however, give novice telepsychiatrists more confidence and help them overcome the limitations of this technology. This article reviews the categories of nonverbal communication and how telepsychiatrists can intentionally use and monitor nonverbal communication to successfully engage, diagnose, and treat children and adolescents suffering from depression. This article also reviews the nonverbal impact of the physical setting, including room selection, participant arrangement, and camera framing, on engagement and rapport.

## ADOPTING GOOD WEBSITE MANNERS

A provider's physical appearance, grooming, uniform/dress, and interactions become a more significant part of how patients make a first impression and how they judge a provider as trustworthy, competent, and empathic.<sup>25,32</sup> The provider's physical

appearance is restricted by the camera frame, which limits patients’ ability to see the provider and surroundings. Patients have less visual information about the provider and where the provider is working to inform and influence their perception and acceptance of the provider (Box 1).

Erect and open body posture (Fig. 1) communicates to patients that a provider is a confident, nonjudgmental, and trustworthy authority figure who is paying attention to their needs.<sup>33,34</sup> Moving toward or away from the camera approximates the effect of interpersonal space during in-person sessions. For example, moving slightly closer to the camera communicates more interest or attention. If a depressed patient seems defensive, moving slightly away from the camera conveys the perception of giving the patient more space. The picture-in-picture function on the monitor helps providers to monitor how their image is projected and stay within the frame.

Because patients can see only the facial expressions, gestures, movements, and activities that fall within the camera frame, providers must replace large gestures with smaller ones that are seen more easily.<sup>35</sup> Common gestures, like outstretched arms, can be replaced with hand gestures or emotionally congruent facial expressions.<sup>36</sup> Hand gestures, like waving and the thumbs-up sign, also can replace engaging physical contacts like handshakes and fist bumps. Children especially seem to enjoy these hand gestures (Fig. 2).

A provider’s tone of voice affects the relationship.<sup>37</sup> The provider must sound honest, compassionate, and intelligent while speaking slowly, loudly, and clearly enough to be easily heard and understood through the microphone but without sounding robotic. Many novice providers speak robotically due to performance anxiety or distractions by the electronics, for example, a medical record that is simultaneously projected onto a monitor during the session. Smiling while speaking makes a provider sound warm and approachable. Placing a smiley face sticker next to the camera is a good reminder for those who often look or sound too serious.

There is a transmission delay during synchronous telepsychiatry sessions that, although brief, affects communication. Therefore, pauses and turn-taking are more important for providers to manage. Giving the patient an extra moment to reply in conversation may seem like a long pause but replicates a normal pause during in-person conversation. If there is a significant lag between 1 or more parties in a multi-center session, the provider may need to allow for even longer pauses. When patients feel they are encouraged to speak, they are more likely to feel their needs were fulfilled.<sup>38</sup>

Box 1

Limitations of telepsychiatry technology on the provider

- See the patient
- Be seen by the patient
- Be heard and understood
- Make gestures
- Maintain eye contact
- Touch
- Smell
- Demonstrate usual good bedside manner



**Fig. 1.** Good posture suggests to others that you are healthy, confident, and deserving of their respect. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

Due to the slight audio transmission delay, verbal encouragers, like “yes,” “tell me more,” and “go on,” are harder to use during telepsychiatry. If participants have already resumed speaking, they stop speaking to listen to the encourager, thereby interfering with communication. Therefore, experienced providers frequently use gestures, such as the thumbs-up gesture, to facilitate the reciprocal exchange of information while maintaining engagement and without interrupting the speaker (Fig. 3). The other approach is to nod and smile. After thousands of telepsychiatry sessions, the authors suggest the most important nonverbal rapport-building strategy is to periodically nod and smile while a patient is talking. Nodding and smiling reassure patients that a provider is listening and encourages them to continue.<sup>25</sup> Consider placing a sticky note that says “Nod and Smile!” on the monitor until these become natural.

## OPTIMIZING THE AUTHENTICITY OF THE EXPERIENCE

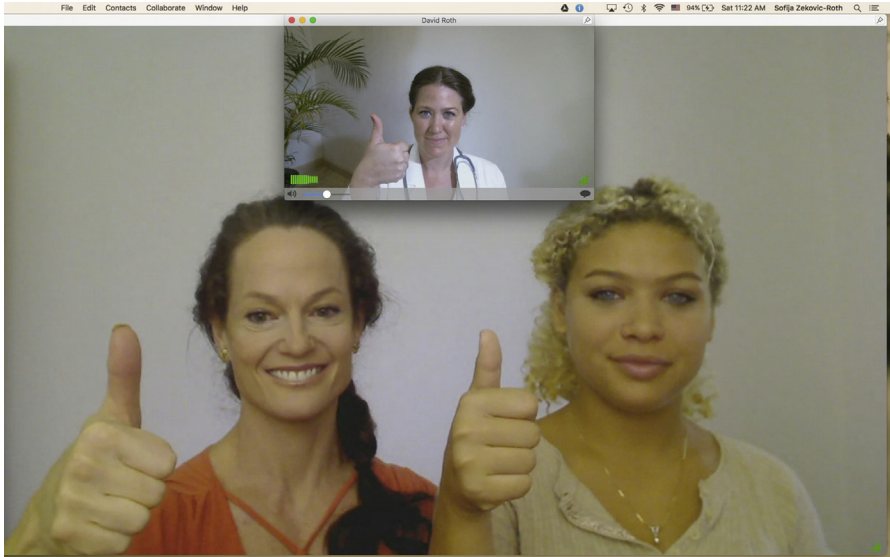
### *Room Selection*

Optimizing the telepsychiatry experience begins with appropriate room selection (Box 2). In telepsychiatry, the camera is turned on and—boom!—the provider is suddenly meeting with the patient. There are no grand hospital architecture, professional decor, and staff interactions to mentally prepare a patient for the clinical encounter. To



**Fig. 2.** A fist bump or hand waving gesture can help open and close a session. This gesture replaces the physical contact like handshakes normally used as part of greeting patients. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)





**Fig. 3.** Using the thumbs-up and other meaningful gestures can signal agreement or other thoughts without interrupting the speaker. Audio transmission delays make it difficult to rapidly state an affirmative verbally without talking over the other speaker. These gestures also are helpful when many participants want to signal agreement or vote on an idea at the same time. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

make matters worse, a patient’s site may be a home, school, or another provider’s office—all settings the provider cannot control. It is entirely up to the provider to make it feel like an authentic medical experience.

Good room selection begins with thoughtful selection, arrangement, and appearance of the rooms at both patient and provider sites. Telepsychiatrists often have to work with a wide range of rooms, but with the right setup, sessions can be conducted successfully in classrooms, conference rooms, treatment rooms, offices, living rooms, and bedrooms. After the room at the patient’s site is selected, it should be tailored to support videoconferences, accommodate the routine number of participants, and maximize participants’ focus during the session. If a child’s motor skills, play,

Box 2

Room selection in telepsychiatry

Room selection should ensure that

- Everyone feels comfortable
- Distractions are minimized
- Everyone is able to see each other
- Everyone is able to hear each other
- The room maintains visual and auditory privacy
- Room size accommodates the clinical encounter
- Décor minimizes camera distortions



exploration, and movements are being assessed, the room should be large enough for these activities to fit within the camera frame (Fig. 4).

### **Power and Network**

One of the most important considerations in room selection for sites using consumer-based equipment or cloud videoconferencing is proximity to the Wi-Fi router to maintain a strong Internet connection. If connecting through a computer, it should be plugged into the router with an ethernet cable to provide the strongest and most stable video and auditory signals. Plugging the router, modem, computer, and monitor(s) into a combination surge protector and battery backup ensures that the connection does not drop if there is a momentary electrical surge or loss of power.

### **Privacy**

Commercial telepsychiatry vendors advertise whether they meet HIPAA standards, including software encryption, and if they would sign a HIPAA Business Associate Agreement. Many popular video chat programs like FaceTime and Viber are not HIPAA-compliant.

Both sites must ensure that they can restrict access to the session. Family sessions may be best accommodated in a kitchen or family room, but these are high-traffic areas. Individual sessions, and some parent-child sessions, may be conducted away from other family in a bedroom, office, or porch. Many depressed teenagers prefer the privacy of a bedroom. If the telepsychiatrist routinely wants a parent's input during the session, it should be set up to occur at the beginning and/or end of the session. This helps with consent for treatment changes and getting parental input about home and school functioning. It gives the telepsychiatrist a chance to assess the parent's feelings about the youth and treatment efficacy while preserving the youth's



**Fig. 4.** When working with children, it is necessary to widen the camera's field of view to appreciate the task given to the child or to observe the child's behavior. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

privacy, as appropriate. It may be helpful to tell the parent when to join the session. This decreases parent and youth anxiety about who should be in the room and who has input into the session, and the provider can avoid being carried around the home as the youth looks for the parent.

Audio privacy may be the largest obstacle to privacy (Box 3). The privacy of the patient site is held to the same HIPAA standards as a traditional clinic, nursing home, school, or hospital. Like any other clinical setting, the provider’s voice and the patient’s voice should be difficult or impossible to hear outside of the videoconferencing room.

Another privacy concern is whether to include a clinical staff member as a coordinator/presenter at the patient site during the session. Coordinators can provide valuable assistance with the telepsychiatry technology, emotionally support the patient, and provide immediate help in a clinical crisis. Additionally, they can provide educational material to patients’ families, assist with follow-through on recommendations, and help ensure continuity of care. The presence of a coordinator in the session, however, may negatively affect the therapeutic relationship with a depressed patient. An uncomfortable patient may withhold disclosing critical information to a provider, and shy patients may not ask the coordinator to leave the room. Technical, confidentiality, and ethics trainings for the coordinator are highly encouraged.

**Room Setup**

Selecting a room with a camera-friendly color scheme makes it easier a the camera to focus on the participant instead of the background. The camera should be focused on a wall that is painted a soft neutral shade to help the participant’s image stand out from the wall. Decorations in the provider’s room should be minimal and professional, reflecting the services delivered.

**Camera Framing and Positioning**

The telepsychiatry provider has to overcome the visual field deficit created by the camera. Cameras have a limited field of view, whereas the human eye has both central and peripheral vision. How the provider positions and zooms the camera determines what the participants see and can have a profound impact on engagement with the participant. It is a compromise between being too close, which greatly limits the viewing of gestures, and too far, which makes the provider harder to see and harder to hear and may include distracting background objects.

**Box 3**  
**Audio privacy in telepsychiatry**

Ways to improve audio privacy

- Close windows
- Block gaps below doors
- Place a white noise machine outside and beside the door to the telepsychiatry room.
- Put carpet or an area rug on the floor.
- Add pillows to couches, curtains on windows, and/or tapestries on walls to absorb sound
- When remodeling, use decoupling soundproofing construction techniques.
- Consider using a headset microphone

The telepsychiatry provider should sit approximately 2 ft to 4 ft directly back from the camera. This usually put the image in the middle of the frame. Providers should check this self-monitoring image at the beginning of each session to ensure their image is large, centered, and in focus. Telepsychiatry providers can then adjust their chair height or camera until the eyes are approximately one-third down from the top of the self-monitor image (**Fig. 5**). This creates the natural-looking framing commonly used to make television newscasters appear attentive and engaging. Encourage the patient to similarly adjust positioning and camera framing at the beginning of the session.

Thoughtful camera placement improves the mental status examination. A participant's camera should be positioned at a sufficient distance to allow visualization of a child's motor abilities and play as well as dysmorphic facial features, facial expressions, hygiene, clothing, tics, and gestures.

Provider eye contact is significantly related patients' perceptions of a provider's connectedness and empathy.<sup>39</sup> The camera may not be located above the monitor, however, causing participants to make eye contact in the wrong direction. Therefore, the provider's camera should be directly in front of the provider, positioned at eye level, and immediately above or below the participant's image (**Fig. 6**). If a separate Web camera is available, place it on top of the computer or on a shelf so that it is positioned directly over the patient's image on the screen.

When using a portable device for a telepsychiatry session, place it on a desk or table so it does not move around. Handheld devices should be propped up at shoulder height and at arm's length from the user's body to make the eye contact feel more natural. This also prevents excessive camera movement, which causes the camera to lose focus, degrades image quality, and can make the other participants feel seasick (**Video 1**). If a single participant is using a phone or tablet, it should be positioned in vertical/portrait orientation. This improves the eye contact between participants because the other participant's eyes are closer to the camera. If the device needs to capture 2 or more people in the frame, turning the device to the horizontal/landscape position often creates a larger frame that encompasses more of the room, but eye contact may be misaligned.

If an electronic medical record (EMR) is used during the session and can be projected onto the screen, place it in a window below the participants' images. This causes the provider to constantly nod up and down in a positive and affirmative



**Fig. 5.** Follow this rule used in television studios: when framing a person for a videoconference, have the person's eyes approximately one-third below the top of the frame and in the center of the frame. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)



**Fig. 6.** Virtual eye contact is created when you appear to be looking at the person because you have juxtaposed the participant's image and your camera. When juxtaposed, you are looking at the camera when you are looking at the participant's image on your screen. This is much easier than trying to look at a camera lens. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

manner when glancing at the EMR (**Fig. 7**). By contrast, if the EMR window is placed lateral to the participant images, the provider is constantly making negative, head-shaking gestures during the session. Medical providers spend 30% of the visit length gazing at the EMR.<sup>39</sup> Telepsychiatrists should minimize the time spent looking at the EMR to maintain eye contact and rapport with the patient, even if this means charting very little during the session.

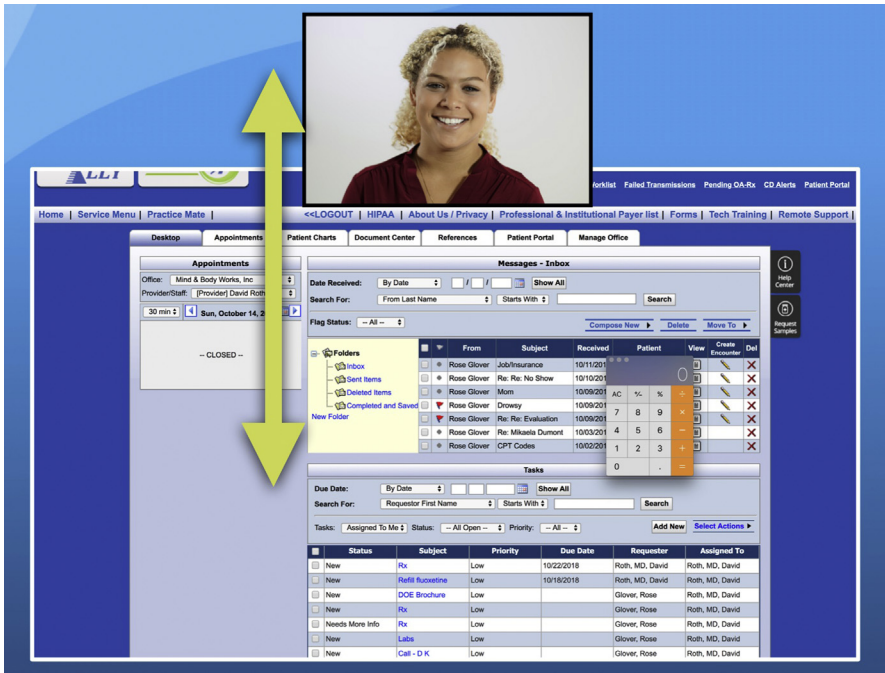
### ***Staying Within the Camera Frame***

Drifting out of the camera frame is a common problem, because people move around in their chairs and often slouch (**Fig. 8**). Most software displays the provider's picture as a smaller self-monitor image on the screen. Even if providers are uncomfortable watching themselves on camera, they need to monitor their image. If they do not, they run the danger of disappearing from the other participants' screens, diminishing their ability to perceive the provider and distracting them. When the provider moves out of the frame the participants are reminded they are not face-to-face and this detracts from the authenticity of the experience.

Providers should ensure their hand and arm gestures are visible within the frame. Exclude moving objects like fans from the frame because they are distracting and degrade the picture. Digitally rendering these movements uses up valuable bandwidth and computer processing power, causing the participant's image and voice clarity to degrade.

### ***Youth and Family Seating Arrangement***

If there is only 1 participant at the remote site, the participant should sit 2 ft to 4 ft away from the camera and screen (**Fig. 9**). Each additional participant should be moved another 2 ft back from the camera (**Fig. 10**). If 2 people to 3 people want to sit within 3 ft of the camera, they have to sit shoulder to shoulder to fit in the frame (**Fig. 11**). Although armchairs are comfortable, chairs with straight backs and without armrests accommodate 2 people to 3 people closer to the camera. This often is necessary when the microphone or speakers are marginally adequate to the task.



**Fig. 7.** By stacking a patient's image above or below the EMR, your head is moving up and down in a "yes" movement every time you reference the EMR. When arranged side-by-side, your head repeatedly makes a "no" movement. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

When working with families, have them position the camera far enough away to see most of the room and keep all the participants within the frame so they do not have to adjust it during the session. Many seating arrangements can work for children. Children can sit next to a parent, between parents, on a parent's lap, or in front of parents



**Fig. 8.** Drifting out of the frame reminds the patient that you are on a screen and takes away from immersion in the experience. This often happens when telehealth providers turn off or hide their self-monitoring image. The way self-consciousness novice providers feel when seeing themselves on camera commonly fades with practice. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)





**Fig. 9.** If there is only 1 participant at the remote site, the participant should sit 2 ft to 4 ft feet away from the camera and screen. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

in either their own chair or on the floor ([Fig. 12](#)). When focusing on a single youth who can remain in a chair, have the youth sit close to the camera. The chairs should be stationary to keep children from rolling them out of the frame and light enough for the parent to reposition them. Sometimes a hyperactive or agitated youth cannot remain in the camera frame. Consider keeping the parent(s) in the frame and call the child back to the camera when needed to answer a question ([Video 2](#)). Occasionally anxious, depressed, and defiant youth refuse to sit within the camera frame. If behavior management strategies fail to move the youth, then prior to the next session instruct the parent or session facilitator to turn off the self-monitor image and sit the youth farther away from the camera. This makes it more likely that the youth is at least partially within the camera frame.

### **Lighting**

Lighting affects quality of the videoconferencing session.<sup>35</sup> Cameras need more light than human eyes to produce a clear image with accurate colors. An insufficiently illuminated room prevents participants from seeing each other clearly, detecting



**Fig. 10.** Move each additional participant 2 ft or more back from the camera. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)



**Fig. 11.** If 2 people or 3 people want to sit within 3 ft of the camera, they have to sit shoulder-to-shoulder to fit in the frame. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

nonverbal communication, and identifying physical signs and symptoms and detracts from the authenticity of the experience.<sup>32</sup> Backlighting should be avoided. This occurs when a bright light comes from behind the person, such as when participants are seated with their backs to a window or bright light (Fig. 13).

Room lighting should be considered early in room selection and when the position of the camera is determined. Copious indirect lighting, such as floor lamps that bounce light off the ceiling, is key to a good lighting plan (Fig. 14). It looks natural and softer and does not cause glare or shadows. Removing or covering reflective surfaces that cause glare also helps optimize the video image.

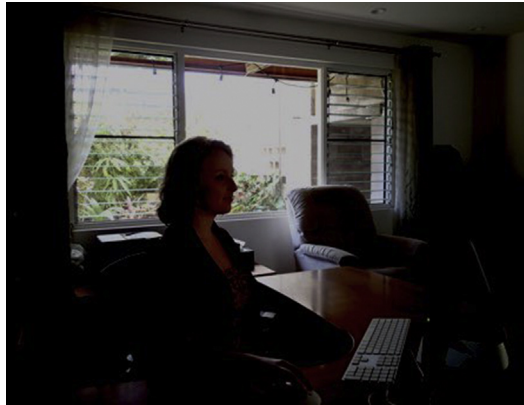
### **Audio Quality**

Rooms should be selected to minimize common interfering sounds, including printers, air conditioners, fans, intercoms, animals, lawn equipment, and outside traffic. Most



**Fig. 12.** When working with small children, having children sit on a parent's lap is a good way to keep them within the camera frame and engaged in the session. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

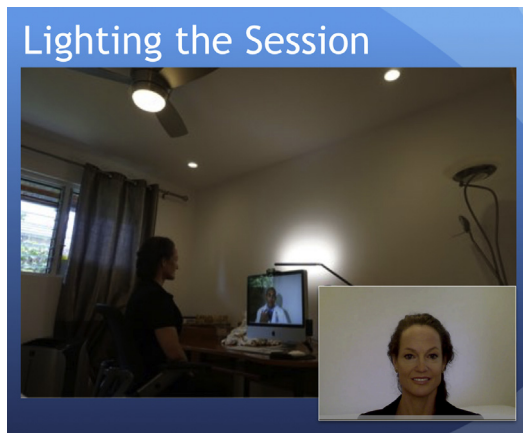




**Fig. 13.** Backlighting is a common problem in telehealth sessions. Cameras need more light in front of the subject rather than behind or to the side. When the light is misplaced, the camera is unable to properly render colors and light balance and keep the people brighter than the background. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

rooms are not perfectly quiet, however, and the provider should work with staff at the patient site to implement strategies to decrease background noise. If the provider is the only person in the room, the provider could use a headset microphone that eliminates most background sounds, minimizes keyboard clicks, and also ensures that participants' voices are not overheard.

Telepsychiatry providers must have a backup plan in case the audio connection fails. Usually, a conference speakerphone or smartphone can provide an adequate duplex connection, allowing the session to continue with suboptimal but sufficient video.



**Fig. 14.** Telehealth sessions need to be lit more brightly than other rooms to appear as they normally do to the human eye. Cameras need more light to correctly render the image details including color, contrast, and depth of field. A simple rule to follow is have 1 additional light in front of the subject or indirectly (and off camera) lighting the whole room to make the room seem as bright on camera as it does in face-to-face sessions. (Courtesy of D. Roth, MD, FAAP, FAPA, Honolulu, HI.)

## SUMMARY

Telepsychiatry is rapidly becoming an established medical venue for treating depressed children and adolescents. Effective use of telepsychiatry requires Web-side manners and the intentional shaping of both an authentic treatment experience and provider-patient relationships. When these staging and nonverbal and verbal communication skills are properly used, telepsychiatry sessions feel authentic to both patients and providers, and treatment outcomes meet or exceed traditional face-to-face venues and improve access to care. With sufficient practice, providers can become as effective and comfortable treating depressed pediatric patients via telepsychiatry as they are in other clinical venues. Additional resources for optimizing the telepsychiatry session are available at [www.telepsychiatryguide.org](http://www.telepsychiatryguide.org), [www.telepsychiatryresourcecenter.org](http://www.telepsychiatryresourcecenter.org), and [www.americantelemed.org](http://www.americantelemed.org).

## SUPPLEMENTARY DATA

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chc.2019.02.007>.

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