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Addressing Barriers to Care Among Hispanic Youth: Telehealth Delivery of Trauma-Focused Cognitive Behavioral Therapy

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Prevalence and Impact of Traumatic Exposure Among Hispanic Youth

Exposure to potentially traumatic events (e.g., physical abuse, sexual abuse, witnessing domestic or community violence, violent or unexpected death of a loved one) is a significant public health concern with approximately half of all youth reporting experiencing at least one type of potentially traumatic event before the age of 18 (Finkelhor, Turner, Shattuck, & Hamby, 2013; Kilpatrick et al., 2003). Nationally representative surveys indicate that racial and ethnic minority youth, in particular Hispanics and African Americans, endorse higher rates of trauma exposure and greater rates of revictimization compared to Caucasian youth (Andrews et al., 2015; Crouch et al., 2000; Roberts et al., 2011). Hispanic female youth are a particularly vulnerable group, with approximately one in three endorsing some form of childhood maltreatment, with sexual assault, physical assault, and witnessing violence among the most commonly reported types of victimization (Warner, Alegría, & Canino, 2012).

Youth exposed to potentially traumatic events are at an increased risk of developing mental health disorders (e.g., posttraumatic stress disorder, depression, anxiety) and of engaging in risky behaviors (e.g., problematic substance use, self-injury, unprotected sex; Danielson et al., 2010; Hanson, Moreland, & Orenge-Aguayo, in press). Similar to findings regarding trauma prevalence, there is evidence to suggest that Hispanics, compared to non-Hispanic Caucasians, may be particularly vulnerable to developing psychopathology secondary to experiencing trauma (Alcántara, Casement, & Lewis-Fernández, 2013; Pole, Best, Metzler, & Marmar, 2005).

Barriers in Accessing Mental Health Services

Evidence-based, trauma-focused treatments that have preliminary evidence to be effective for diverse populations (Huey & Polo, 2008) and can be tailored for specific cultural groups, such as Hispanics (de Arellano, Danielson, & Felton, 2012), are available for children and adolescents (e.g., Trauma-Focused Cognitive Behavioral Therapy [TF-CBT]; Cohen, Mannarino, & Deblinger, 2006; de Arellano et al., 2012). However, Hispanic youths are less likely to have access to these mental health services, and more likely to prematurely

terminate services when they do engage in treatment (Alegría, Vallas, & Pumariega, 2010; Roberts et al., 2011; Smith, Domenech-Rodriguez, & Bernal, 2011). Common barriers to accessing mental health care include: (a) limited availability of linguistically appropriate services for Spanish-speaking children and families; (b) limited services available in rural areas; (c) lack of transportation to mental health facilities; (d) being under- or uninsured; and (e) caregiver employment barriers (e.g., scheduled work hours, leave restrictions; National Research Council and Institute of Medicine, 2009).

Telehealth as an Alternative

Telehealth (i.e., the use of interactive technologies such as videoconferencing via computer and/or tablet to deliver mental health services to patients) has been proposed as an alternative to office-based delivery of treatment in order to address disparities in access to care (e.g., Kazdin, 2008; Myers & Comer, 2016). Such technology can allow for providers trained in evidence-based trauma treatments, and who are culturally and linguistically competent (i.e., are fluent in Spanish and familiar with Hispanic culture), to reach youth who might otherwise remain untreated (Yellowlees, Marks, Hilty, & Shore, 2008; Yellowlees et al., 2013). For instance, Spanish-speaking providers can offer services to monolingual, Spanish-speaking families who might not have linguistically appropriate clinicians in their communities. Logistical barriers such as lack of transportation, costs of parking and travel, as well as extended travel times can also be addressed via the use of this technology. Furthermore, services can be offered in more naturalistic settings such as schools, daycares, and homes (Gloff, LeNoue, Novins, & Myers, 2015), which may in turn provide a more nuanced understanding of the youth's presenting problems, strengths, and social supports (Comer et al., 2014).

The available evidence to date suggests that mental health services delivered via telehealth are as effective as office-based treatment in addressing a number of disorders in youth (see Gloff et al., 2015, for a review). Additionally, preliminary evidence indicates that such treatment delivery modality is feasible to implement and acceptable among youth and their parents (Goldstein & Glueck, 2016). Telehealth might also be more cost-effective as compared with traditional office-based delivery. For example, telehealth can be utilized as a way to circumvent the associated costs with travel and loss of work to attend weekly appointments (Spaulding, Belz, DeLurgio, & Williams, 2010).

Telemental Health Outreach Program in Schools

The Telemental Health Outreach Program in Schools (TOPS; Stewart, de Arellano, & Wallace, 2016) program provides school-based telemental health treatment for children and adolescents. The goal of the TOPS program is to reach populations that have traditionally been underserved by office-based mental health care programs, especially racial/ethnic minorities and rural populations. The program provides evidence-based trauma-focused therapy for trauma-exposed children and families. Referrals come from a range of agencies and individuals, including child advocacy centers, child protective service agencies, law enforcement agencies, schools, and individual caregivers. Services are provided via

telehealth (e.g., HIPAA-compliant videoconferencing software) in schools in the southeastern United States.

The present study illustrates the feasibility of delivering TF-CBT via telehealth using a multiple-case study design aimed at answering the following exploratory questions: (1) What barriers did these youth initially have in accessing mental health services? (2) How did telehealth help address these barriers? (3) Did patients complete telehealth treatment? (4) What adaptations had to be made for a telehealth delivery format? and (5) Did we see clinically significant change in symptoms pre- to post-treatment with this mode of delivery?

Method

Participants

Participants were four consecutively referred female Hispanic children and adolescents ages 10 to 16 who were referred for treatment at a trauma treatment center in the southeastern United States. Three out of four Hispanic youth had an index trauma (i.e., an individual's self-defined "worst" traumatic event) of sexual assault, one had an index trauma of traumatic death of a loved one, and one had multiple index traumas including sexual abuse, physical abuse, and witnessing domestic violence (see Table 1). All youth met criteria for PTSD according to the *Diagnostic and Statistical Manual* (4th ed., text revision; DSM-IV-TR; American Psychiatric Association, 2000), at the time of treatment initiation.

Measures

UCLA PTSD Reaction Index for DSM-IV (UCLA PTSD RI; Steinberg, Brymer, Decker, & Pynoos, 2004)—The UCLA PTSD RI assesses trauma exposure and posttraumatic stress symptoms among children and adolescents, ages 7 to 18 years. Parent-, child-, and adolescent-report versions of the instrument are available. Part one consists of a lifetime trauma exposure screen. Part two evaluates A1 and A2 DSM-IV PTSD criteria of traumatic exposure and reaction to the exposure. Part three evaluates the frequency of occurrence of PTSD symptoms. Frequency of occurrence of PTSD symptoms during the past month is rated on a 5-point scale from 0 (*none of the time*) to 4 (*most of the time*). The UCLA PTSD RI yields a total scale score, as well as three subscale scores: reexperiencing, avoidance, and hyperarousal. To score the UCLA PTSD RI, the numerical ratings from items that comprise each subscale are summed. These scores range from 0–68, with higher scores representing higher distress. A score of 38 or higher is indicative of likely PTSD (Steinberg, Brymer, Decker, & Pynoos, 2004). The UCLA PTSD-RI can be used as either a self-report or clinician-administered instrument. In the present study the instrument was used as a clinician-administered instrument. The instrument has demonstrated good internal reliability in multiple studies, with Cronbach's α of 0.90–0.92. (Roussos et al., 2005; Steinberg et al., 2013).

Children's Depression Inventory (CDI; Kovacs, 1985)—The CDI is a well-established self-report instrument for depressive symptoms in children. The CDI is comprised of 27 items assessing children's cognitive, affective, and behavioral depressive

symptoms. The instrument has exhibited high internal consistency ($\alpha = .94$). A score of 12 or lower on the CDI is considered to be normal.

Screen for Children’s Anxiety Related Emotional Disorders, Child Version (SCARED; Birmaher et al., 1997)—The SCARED is a 41-item self-report measure for children’s anxiety symptoms. Internal consistency α values have ranged from .74 to .93. The clinical cutoff score for the SCARED is 25.

Intake Procedures

Participants completed a clinical evaluation consisting of semistructured clinical interviews completed separately with the child and a caregiver and completion of self-report questionnaires by the child and caregiver. The clinical interview elicited information related to trauma history, medical and psychiatric history, and current mental health. Self-report measures included measures of trauma, depressive symptoms, and anxiety symptoms. Initial assessments were conducted in person. After it was determined that the youth was appropriate for TF-CBT, school-based telehealth services were arranged and all subsequent psychotherapy sessions were provided via telehealth (i.e., HIPAA-compliant videoconferencing software). Assessment and treatment were provided in either English or Spanish, depending on the language preference of the child and caregiver. Services were provided in Spanish for two youths and in English for two youths. All caregivers preferred to receive services in Spanish and thus all parent sessions and conjoint child-parent sessions were conducted in Spanish. Assessment measures were used to track changes in PTSD severity, anxiety, and depression. Measures were administered at pretreatment and at the final session. PTSD measures were also administered at midtreatment (before beginning work on the trauma narrative). Table 2 presents individual participant scores at all assessment points.

Treatment

TF-CBT—TF-CBT (Cohen, Mannarino, & Deblinger, 2006) is an empirically validated, manualized treatment protocol utilized to treat posttraumatic stress symptoms in children and adolescents. TF-CBT is usually delivered in 12 to 16 weekly sessions and includes the following major components: (a) psychoeducation; (b) coping strategies, such as relaxation, identification of feelings, and cognitive coping; (c) gradual exposure (also referred to as creating the child’s trauma narrative); (d) and processing or discussion of the abuse experience(s); (e) in vivo exposure to safe situations avoided due to distress caused by trauma memories; and (f) conjoint child-parent sessions. Efficacy for TF-CBT has been established through numerous randomized controlled trials in a range of populations (de Arellano et al., 2014).

Treatment was provided by a bilingual (English and Spanish) postdoctoral fellow with a Ph.D. in Clinical Psychology. The therapist received initial TF-CBT training and weekly clinical supervision from a licensed Clinical Psychologist who is a national trainer in TF-CBT.

Telehealth procedure—Telehealth patients presented at their local school for weekly TF-CBT sessions conducted in a private location within their school. Students connected to their telehealth sessions using a laptop computer and Vidyo (Vidyo Inc., 2010) videoconferencing software provided by our team. The therapist was located at an academic medical center located approximately 30 to 45 minutes away from the school locations. The therapist utilized a desktop computer and Vidyo videoconferencing software. Vidyo is a web-based videoconferencing tool that was chosen as the treatment delivery platform given its compliance with HIPAA confidentiality regulations and interactive capabilities. Vidyo allowed for the successful delivery of the individual treatment components, as the therapist was able to share treatment materials on the screen (e.g., psychoeducational fact sheets and TF-CBT workbook pages). In several cases, although the caregiver was unable to attend sessions at the school due to work- and transportation-related issues, the therapist was able to perform parallel caregiver sessions via telehealth in the caregiver’s home or work location through the use of cellular data-enabled iPads and Vidyo videoconferencing software. Cellular data-enabled iPads were used by the parents because the majority of caregivers did not have Internet access available in their home. iPads were loaned to the caregiver for the duration of treatment and returned to the therapist at the time of treatment termination. The treatment regimen followed the TF-CBT protocol described above. Treatment fidelity was maintained while providing services through the telehealth modality; however, the intervention required tailoring to address logistics associated with the telehealth service delivery model. One logistical variation in delivering TF-CBT via telehealth was that worksheets and informational sheets were presented digitally (via the clinician “sharing” her screen with the client). Physical copies of worksheets and informational sheets were sent to patients via traditional mail as needed. Another pragmatic variation was having children hold up drawings in front of the web cam in order to show clinicians what had been drawn. Further examples and details regarding telehealth adaptations for each participant are described below.

Results

Participant 1

Participant 1 was an 11-year-old Hispanic female with an index trauma of sexual abuse. Participant 1 presented with multiple symptoms of PTSD, including intrusive memories, nightmares, psychological reactivity to trauma cues, avoidance of trauma memories and trauma cues, difficulty experiencing positive emotions, sleep disturbance, hypervigilance, and exaggerated startle response. Telehealth was selected as the treatment modality for Participant 1 due to a lack of transportation and language preference of the caregiver (Spanish). The patient’s family lived within close physical proximity of the patient’s school. Thus, the patient’s mother was able to walk to the school to attend school-based telehealth appointments. A number of adaptations specific to the telehealth delivery format were included in treatment. For example, as a part of psychoeducation, the clinician read a trauma-specific children’s book with the patient. The clinician uploaded a digital copy of the book via scanner onto the clinician’s computer, with each page of the book displayed as a separate page of a PDF document. The clinician “shared” the clinician’s screen with the child, scrolling down the document page by page as the clinician read the book to the

patient. Other adaptations were incorporated while completing the trauma narrative. The child dictated the narrative while the clinician typed what the child said into a Microsoft Word document. The clinician was able to “share” the clinician’s screen with the child so that she could see the words that the clinician was typing in real time. Additionally, the child colored pictures with crayons and paper to illustrate specific elements of her traumatic event. When the patient completed each picture, she held it up in front of the camera. The clinician took a screen shot of the picture and then digitally added it to the child’s trauma narrative. In order to enhance engagement and positively reinforce the child’s appropriate behaviors during therapy, the clinician mailed several small stickers and a hand-written note to the child weekly following each session. The child’s mother reported to the clinician that the child enjoyed receiving mail each week and proudly displayed her stickers.

Participant 1 attended 18 sessions and successfully completed treatment. Her total UCLA-PTSD-RI score at baseline was 33. She met diagnostic criteria for PTSD according to DSM-IV symptom criteria at baseline. Participant 1’s posttreatment total UCLA-PTSD-RI score of 5 represents an 85% decrease compared with baseline. Participant 1 no longer met diagnostic criteria for PTSD at posttreatment. Baseline total CDI score was 7 and posttreatment CDI score was 2. Baseline total SCARED score was 21 and posttreatment SCARED score was 15. The reduction in UCLA, CDI, and SCARED scores suggests a significant reduction in PTSD, depression, and anxiety symptoms, which is consistent with the patient’s self-report of overall improvement in mood and PTSD symptoms. The patient and caregiver indicated that treatment was helpful and that they were happy with the telehealth format. The caregiver remarked that the telehealth delivery format allowed her child to reduce the amount of class time that she missed for therapy appointments, which helped her child to maintain her grades. The caregiver also remarked that she was thankful to receive treatment from a Spanish-speaking clinician.

Participant 2

Participant 2 was a 16-year-old Hispanic female with an index trauma of sexual abuse. Participant 2 presented with multiple symptoms of PTSD, including intrusive memories, nightmares, psychological and physiological reactivity to trauma cues, flashbacks, avoidance of trauma memories and trauma cues, difficulty experiencing positive emotions, feelings of detachment from others, inability to remember important aspects of the trauma, concentration difficulty, sleep disturbance, hypervigilance, and exaggerated startle response. Telehealth was selected as the treatment modality for Participant 2 due to multiple barriers to treatment engagement, including lack of transportation, language preference of the patient and caregiver (Spanish), and the caregiver’s chronic illness that prevented the caregiver from attending clinic-based appointments. Although other programs were able to provide therapy services for Spanish-speaking patients with the use of an interpreter, a Spanish-speaking clinician was not available through other programs at the time of treatment initiation.

A number of telehealth adaptations were utilized. For example, any printed materials needed during sessions, such as worksheets and psychoeducational materials, were presented electronically by the clinician through “sharing” the clinician’s screen with the patient. Printed materials that were needed for homework assignments were mailed to the patient’s

home. Materials were mailed several days before the scheduled session so that they would arrive on the day of the appointment or soon after the appointment. Review of written homework was also tailored for telehealth. For example, the patient was assigned homework to rate her distress level each day using a calendar. In order to review this homework, the patient held the paper calendar that she had completed up to the web camera. The clinician took a screen shot of the calendar and then shared it on the screen with the patient. In this way, the clinician was able to review the calendar with the patient while both viewed it on the screen. During the writing of the trauma narrative, the patient exhibited significant resistance to talking about certain details of her trauma. The clinician was able to overcome this resistance by allowing the patient to first write about her trauma without verbally discussing it. In order to accomplish this via telehealth, the clinician utilized the text chat feature of the Vidyo software. Through the text chat, the patient typed portions of her trauma narrative and the clinician then transferred that text into the Microsoft Word document containing the entire trauma narrative.

Participant 2 attended 14 sessions and successfully completed treatment. Her total UCLA-PTSD-RI score at baseline was 53. Participant 2 met diagnostic criteria for PTSD according to DSM-IV symptom criteria at baseline. Her posttreatment total UCLA-PTSD-RI score of 6 represents an 89% decrease compared with baseline. She no longer met diagnostic criteria for PTSD at posttreatment. Baseline total CDI score was 18 and posttreatment CDI score was 2. Baseline total SCARED score was 64 and posttreatment SCARED score was 12. These scores reflect clinically significant reductions in the patient's presenting PTSD, depression, and anxiety symptoms. The patient and caregiver reported that treatment was helpful. The patient also stated that she looked forward to appointments each week and liked talking with the clinician. The patient's caregiver remarked that she was grateful for the ability to attend sessions via iPad from her home, particularly due to her ongoing illness.

Participant 3

Participant 3 was a 15-year-old Hispanic female with multiple index traumas, including sexual abuse, physical abuse, and witnessing domestic violence. She presented with multiple symptoms of PTSD, including intrusive memories, nightmares, psychological and physiological reactivity to trauma cues, avoidance of trauma memories and trauma cues, difficulty experiencing positive emotions, feelings of detachment from others, inability to remember important aspects of the trauma, concentration difficulty, sleep disturbance, irritability, hypervigilance, and exaggerated startle response. Telehealth was selected as the treatment modality for Participant 3 due to multiple barriers to treatment engagement, including lack of transportation, language preference of the patient and caregiver (Spanish), and caregiver's work schedule. The patient's caregiver worked full-time and was unable to secure the extended amount of time off necessary to attend clinic-based sessions. The family lived approximately 45 minutes from clinic-based services. The time needed to pick the child up from school, drive to and from the clinic, park, and attend the session would have required several hours weekly. Through telehealth, the caregiver was able to attend sessions during her lunch break utilizing an iPad to connect with the clinician. Other telehealth adaptations included the use of Power-Point presentations, digital worksheets, and digital games. For example, when teaching about varying intensity levels of emotions, the clinician

utilized an animated PowerPoint presentation to show a thermometer with the temperature rising as emotions intensified. When reviewing physiological responses to emotions, the clinician utilized a worksheet that asked the patient to indicate where in her body she felt specific emotions. The clinician utilized a PDF version of the document and enabled the “edit text and images” option in order to add text and images to the document. The patient indicated where in her body she felt a particular emotion and the clinician then colored the corresponding area of the body on the worksheet. The patient was able to see the clinician change the worksheet in real time through the use of screen sharing via the Vido software. Another adaptation was the use of a Jeopardy-style game presented via PowerPoint, which was used to review psychoeducation regarding sexual abuse, physical abuse, and witnessing domestic violence. Additionally, the game Connect 4 was utilized briefly at the end of several sessions to reinforce appropriate participation during sessions. The clinician utilized Microsoft Excel to create an electronic Connect 4 board. The patient told the clinician where she wanted her marker to be placed on the board and the clinician then added a colored dot to that space.

Participant 3 attended 19 sessions and successfully completed treatment. Her total UCLA-PTSD-RI score at baseline was 29. Participant 3 met diagnostic criteria for PTSD according to DSM-IV symptom criteria at baseline. Her posttreatment total UCLA-PTSD-RI score of 10 represents a 66% decrease compared with baseline. Participant 3 no longer met diagnostic criteria for PTSD at posttreatment. Baseline total CDI score was 16 and posttreatment CDI score was 11. Baseline total SCARED score was 21 and posttreatment SCARED score was 15. The significant reduction in symptoms was reflected not only via these scores, but also via the patient’s self-report of overall improvement in mood and PTSD symptoms. The patient and caregiver indicated that treatment was helpful and that they were appreciative of the telehealth format. The patient reported that she liked talking with a therapist in Spanish, which she had never been able to do previously. The caregiver stated that she greatly appreciated being able to meet with the clinician via telehealth during her lunch break. She said that as a single mother, she would not have been able to afford to take time off work in order to take her daughter to clinic-based appointments.

Participant 4

Participant 4 was a 10-year-old Hispanic female with an index trauma of the violent death of a family member. She presented with multiple symptoms of PTSD, including intrusive memories, nightmares, psychological and physiological reactivity to trauma cues, avoidance of trauma memories and trauma cues, difficulty experiencing positive emotions, concentration difficulty, sleep disturbance, hypervigilance, and exaggerated startle response. Telehealth was selected as the treatment modality for Participant 4 due to lack of transportation, lack of child care, and language preference of the patient and caregiver (Spanish). The patient’s caregiver was unable to attend telehealth sessions at the patient’s school and did not have Internet access at home. Thus, the caregiver attended telehealth appointments utilizing an iPad, which was provided by the clinician. Multiple telehealth adaptations were utilized during treatment. For example, when practicing diaphragmatic breathing and progressive muscle relaxation, the patient indicated that she would prefer to listen to music while completing these tasks. The patient selected particular songs that she

would like to hear and the clinician located YouTube videos of the songs that the clinician played as the patient practiced the relaxation techniques. Further, while practicing diaphragmatic breathing and progressive muscle relaxation, the clinician had the patient move her chair farther away from the computer so that the majority of the patient's body could be seen, rather than just the patient's upper body. In this way the clinician could see if the patient was correctly engaging in diaphragmatic breathings and progressive muscle relaxation.

Participant 4 attended 12 sessions and successfully completed treatment. Her total UCLA-PTSD-RI score at baseline was 44. She met diagnostic criteria for PTSD according to DSM-IV symptom criteria at baseline. Participant 4's posttreatment total UCLA-PTSD-RI score of 12 represents a 73% decrease compared with baseline. She no longer met diagnostic criteria for PTSD at posttreatment. Baseline total CDI score was 19 and posttreatment CDI score was 12. Baseline total SCARED score was 46 and posttreatment SCARED score was 19. The reduction in UCLA, CDI, and SCARED scores suggests a significant reduction in PTSD, depression, and anxiety symptoms, which is consistent with the patient's self-report of overall improvement in mood and PTSD symptoms. The patient remarked that treatment was very helpful, which came as a surprise given that she did not feel like she would ever get better prior to beginning treatment. The caregiver reported that treatment was beneficial and that she appreciated the option to use telehealth as it facilitated her being able to attend appointments consistently.

Summary of Outcome Results

Participants' main barriers to treatment engagement included distance to clinic, lack of transportation, language preference of the patient and caregiver (Spanish), lack of childcare, caregivers' work schedules, and caregiver chronic illness. Barriers were effectively addressed and all participants successfully completed treatment. The clinician was able to adhere to the TF-CBT model and treatment components while providing services through the telehealth modality; however, the intervention required tailoring to better meet needs associated with the delivery model. Tailoring such as digitally presenting written materials, utilizing the web camera to view patient's drawings, and screen "sharing" to edit documents in real time enhanced patient engagement in therapy sessions.

The average number of treatment sessions attended across participants was 16 sessions (range = 12–19). As a whole, the overall reported percent reduction in trauma-related symptoms for participants, as measured by total UCLA-PTSD-RI score, was 74%. Additionally, at posttreatment, all participants no longer met diagnostic criteria for PTSD. The overall reported percent reduction in depressive symptoms, as measured by the CDI, was 57%. The overall reported percent reduction in anxiety symptoms, as measured by the SCARED, was 44%. The reduction in UCLA, CDI, and SCARED scores suggests a significant reduction in PTSD, depression, and anxiety symptoms among all participants.

Discussion

Despite the high rates of PTSD among female Hispanic youth and the availability of efficacious clinic-based treatments for PTSD, significant and unique barriers to accessing

and completing treatment remains (National Research Council and Institute of Medicine, 2009). The purpose of this multiple-case study was to determine the feasibility of the telehealth delivery of TF-CBT among female Hispanic youth to address their unique barriers to access and completion of mental health treatment. The cases presented in this paper reflect these unique barriers that female Hispanic youth and their families face. Specifically, lack of transportation (all patients), distance to clinic (Patient 3), Spanish-language preference (all patients), lack of childcare (Patient 4), and caregiver illness (Patient 2) were listed as barriers to receiving traditional clinic-based TF-CBT for the cases described in the current study. Results from this multiple-case study reveal that telehealth can be a feasible mode to deliver TF-CBT among Hispanic youth and may adequately address some of the unique barriers that this population faces when in need of treatment. Further, the treatment resulted in clinically meaningful change for all patients.

The current study reveals preliminary findings that TF-CBT can be delivered via telehealth for female Hispanic youth to address barriers to receiving treatment for PTSD. Hispanic youth are not only less likely to access PTSD treatment, but they are also more likely to drop out of treatment prematurely (Alegría, Vallas, & Pumariega, 2010; Roberts et al., 2011; Smith, Domenech-Rodriguez, & Bernal, 2011), suggesting that there is a need to address barriers to this population. By using telehealth as a delivery modality, patients were able to access and complete treatment, perhaps for several reasons. First of all, the barriers of lack of transportation and distance from the clinic were overcome by not requiring patients and their parents to attend clinic-based sessions. Second, the Spanish language preference of both the patients and their parents was able to be addressed using telehealth because a Spanish-proficient therapist can be made available over telehealth more easily than through home-based treatments by reducing travel time to deliver treatment. Third, caregivers' work schedules were able to be accommodated by scheduling therapy sessions during the caregivers' lunch break. Finally, lack of childcare and caregiver illness were addressed by completing home-based telehealth sessions with caregivers via data-enabled iPads loaned out by the clinicians, thus eliminating the need for caregivers to leave their homes or incur in additional costs.

Treatment fidelity was maintained while providing services through the telehealth modality. Nonetheless, a number of adaptations specific to the telehealth delivery format were included in treatment to better meet needs associated with this delivery model. These included digitally presenting written materials using the screen "sharing" function, utilizing the web camera to view patient's drawings, using the "text chat" feature to allow a patient to write part of her trauma narrative, and using the screen "sharing" function to edit documents in real time, play interactive games with the patients, and illustrate skills (e.g., identifying intensity of an emotion on a thermometer). All of these adaptations served to enhance patient engagement across therapy sessions.

More work is needed to ensure that telehealth can adequately address the unique barriers to treatment for female Hispanic youth with PTSD. Although these case studies do demonstrate feasibility and initial clinical improvements, several other steps are needed. First, it is imperative to continue to assess barriers to treatment access and completion among this population and to assess if telehealth delivered by Spanish-speaking clinicians addresses

these barriers adequately or if other adaptations are needed to service delivery. Further, a clinical trial would be necessary to determine if telehealth-based treatment is as good as clinic-based treatments for this particular population, consistent with adults and veterans (e.g., Acierno et al., 2016). These case studies represent an important first step in determining how to best address the mental health needs and barriers in access to care of trauma-exposed female Hispanic youth.

References

- Alegría M, Vallas M, Pumariega AJ. Racial and ethnic disparities in pediatric mental health. *Child & Adolescent Psychiatry Clinics of North America*. 2010; 19:759–774.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th. Washington, DC: Author; 2000. text revision
- Andrews AR, Jobe-Shields L, Lopez CM, Metzger IW, de Arellano MA, Saunders B, Kilpatrick DG. Polyvictimization, income, and ethnic differences in trauma-related mental health during adolescence. *Social Psychiatry and Psychiatric Epidemiology*. 2015; 50:1223–1234. [PubMed: 26048339]
- Birmaher B, Khetarpal S, Brent D, Cully M, Balach L, Kaufman J, Neer S. The Screen for Child Anxiety Related Emotional Disorders (SCARED): Scale construction and psychometric characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997; 36:545–554. [PubMed: 9100430]
- Cohen, JA., Mannarino, AP., Deblinger, E. *Treating trauma and traumatic grief in children and adolescents*. New York: Guilford Press; 2006.
- Comer JS, Furr JM, Cooper–Vince CE, Kerns CE, Chan PT, Edson AL, et al. Internet delivered, family-based treatment for early-onset OCD: A preliminary case series. *Journal of Clinical Child & Adolescent Psychology*. 2014; 43:74–87. [PubMed: 24295036]
- Crouch JL, Hanson RF, Saunders BE, Kilpatrick DG, Resnick HS. Income, race/ethnicity, and exposure to violence in youth: Results from the national survey of adolescents. *Journal of Community Psychology*. 2000; 28:625–641.
- Danielson CK, Macdonald A, Amstadter AB, Hanson RF, de Arellano MA, Saunders BE, Kilpatrick DG. Risky Behaviors and Depression in Conjunction with—or in the Absence of—Lifetime History of PTSD Among Sexually Abused Adolescents. *Child Maltreatment*. 2010; 15:101–107. [PubMed: 19926627]
- de Arellano, MA., Danielson, CK., Felton, JW. Children of Latino descent: Culturally modified TF-CBT. In: Cohen, JA, Mannarino, AP., Deblinger, E., editors. *Trauma-focused CBT for children and adolescents: Treatment applications*. New York: Guilford Press; 2012. p. 253–279.
- de Arellano MA, Lyman RD, Jobe-Shields L, George P, Dougherty RH, Daniels AS. Trauma-focused cognitive-behavioral therapy for children and adolescents: Assessing the evidence. *Psychiatric Services*. 2014; 65:591–602. [PubMed: 24638076]
- Finkelhor D, Turner HA, Shattuck A, Hamby SL. Violence, crime, and abuse exposure, in a national sample of children and youth: An update. *Journal of the American Medical Association: Pediatrics*. 2013; 167:614–621. [PubMed: 23700186]
- Gloff NE, LeNoue SR, Novins DK, Myers K. Telemental health for children and adolescents. *International Review of Psychiatry*. 2015; 27:513–524. [PubMed: 26540584]
- Goldstein F, Glueck D. Developing rapport and therapeutic alliance during telemental health sessions with children and adolescents. *Journal of Child and Adolescent Psychopharmacology*. 2016; 26:204–211. [PubMed: 26491890]
- Hanson, R., Moreland, A., Orenge-Aguayo, R. Treatment of trauma in children and adolescents. In: Butcher, JN, Hooley, J., Kendall, PD., editors. *APA Handbook of Psychopathology*. Washington, DC: American Psychiatric Press; (in press)
- Huey SJ, Polo AJ. Evidence-based psychosocial treatments for ethnic minority youth. *Journal of Clinical Child & Adolescent Psychology*. 2008; 37:262–301. [PubMed: 18444061]

- Kazdin A. Evidence-based treatments and delivery of psychological services: Shifting our emphases to increase impact. *Psychological Services*. 2008; 5:201–215.
- Kilpatrick DG, Ruggiero KJ, Acierno R, Saunders BE, Resnick HS, Best CL. Violence and risk of PTSD, major depression, substance abuse/dependence and co-morbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology*. 2003; 71:692–700. [PubMed: 12924674]
- Kovacs M. The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin*. 1985; 21:995–998. [PubMed: 4089116]
- Myers K, Comer JS. The case for telemental health for improving the accessibility and quality of children's mental health services. *Journal of Child and Adolescent Psychopharmacology*. 2016; 26:186–191. [PubMed: 26859537]
- National Research Council and Institute of Medicine. Adolescent Health Services: Missing Opportunities Committee on Adolescent Health Care Services and Models of Care for Treatment, Prevention, and Healthy Development. In: Lawrence, RS, Appleton Gootman, J., Sim, LJ., editors. Board on Children, Youth, and Families Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press; 2009.
- Pole N, Best SR, Metzler T, Marmar CR. Why are Hispanics at greater risk for PTSD? *Cultural Diversity and Ethnic Minority Psychology*. 2005; 11:144–161. [PubMed: 15884985]
- Roberts AL, Gilman SE, Breslau J, Breslau N, Koenen KC. Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine*. 2011; 41:71–83. [PubMed: 20346193]
- Roussos A, Goenjian AK, Steinberg AM, Sotiropoulou C, Kakaki M, Kabakos C, Karagianni S, Manouras V. Posttraumatic stress and depressive reactions among children and adolescents after the 1999 earthquake in Ano Liosia, Greece. *American Journal of Psychiatry*. 2005; 162:530–537. [PubMed: 15741470]
- Smith TB, Domenech-Rodríguez M, Bernal G. Culture. *Journal of Clinical Psychology*. 2011; 67:166–175. [PubMed: 21105069]
- Spaulding R, Belz N, DeLurgio S, Williams AR. Cost savings of telemedicine utilization for child psychiatry in a rural Kansas community. *Telemedicine and e-Health*. 2010; 16:867–871. [PubMed: 20925567]
- Steinberg AM, Brymer MJ, Kim S, Briggs EC, Ippen CG, Ostrowski SA, Gully KJ, Pynoos RS. Psychometric properties of the UCLA PTSD Reaction Index: Part I. *Journal of Traumatic Stress*. 2013; 26:1–9. [PubMed: 23417873]
- Steinberg AM, Brymer M, Decker K, Pynoos RS. The UCLA PTSD Reaction Index. *Current Psychiatry Reports*. 2004; 6:96–100. [PubMed: 15038911]
- Stewart, RW., de Arellano, M., Wallace, M. Development and implementation of the Telemental health Outreach Program in Schools (TOPS) program. Poster presented at the annual meeting of the School-Based Health Care Alliance; Arlington, VA. 2016 Jun.
- Vidyo. Vidyo unveils groundbreaking videoconferencing telemedicine solution: Connects multiple practitioners and patients via the internet. 2010. Retrieved from <https://www.vidyo.com/press-release/vidyo-unveils-groundbreaking-videoconferencing-telemedicine-solution-connects-multiple-practitioners-and-patients-via-the-internet>
- Warner LA, Alegría M, Canino G. Childhood maltreatment among Hispanic women in the United States: An examination of subgroup differences on psychiatric disorder. *Childhood Maltreatment*. 2012; 17:119–131.
- Yellowlees PM, Marks SL, Hilty DM, Shore JH. Using e-health to enable culturally appropriate mental health care in rural areas. *Telemedicine Journal and e-Health*. 2008; 14:486–492. [PubMed: 18578685]
- Yellowlees PM, Odor A, Losif AM, Parish MB, Nafiz N, Patrice K, Xiong G, McCarron R, Sanchez R, Ochoa E, Hilty D. Transcultural psychiatry made simple: Asynchronous telepsychiatry as an approach to providing culturally relevant care. *Telemedicine Journal and e-Health*. 2013; 19:1–6. [PubMed: 23316687]

Table 1

Participants

Participants	Gender	Age	Index Trauma Type(s)
Participant 1	Female	11	Sexual Abuse
Participant 2	Female	16	Sexual Abuse
Participant 3	Female	15	Sexual Abuse, Physical Abuse, Witnessing Domestic Violence
Participant 4	Female	10	Violent death of family member

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Table 2

Pre-, Mid-, and Posttreatment Scores for All Participants

Participant	UCLA PTSD-RI			CDI			SCARED		
	Pre	Mid	Post	Pre	Post	Pre	Post	Pre	Post
1	33	15	5	7	2	21	15		
2	53	39	6	18	2	64	12		
3	29	33	10	16	11	21	35		
4	44	27	12	19	12	46	19		