Use of Technology to Provide Mental Health Care for Racial and Ethnic Minorities: Evidence, Promise, and Challenges

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Mental health disparities among racial and ethnic minorities (R&EM) are well documented. Some of the variables driving these disparities are limited care availability, difficulty accessing services, and attitudinal barriers. Although no single approach will eliminate all these obstacles, the use of technology to provide mental health services represents a paradigmatic shift in care delivery that could reduce unmet mental health need. Despite increasing evidence supporting the feasibility and efficacy of behavioral intervention technologies (BITs), such evidence is more limited among R&EM. For BITs to truly reduce disparities in care, these interventions need to overcome common barriers to treatment that disproportionally affect R&EM. This article reviews the empirical support of different BIT modalities with R&EM. We then provide informed clinical recommendations for the use of BITs with these groups, as well as a case example illustrating these guidelines. We conclude this article by discussing future directions that can inform the development and refinement of BIT approaches for R&EM.

In the United States, almost 50% of the adult population and one in three youth will present with at least one psychological disorder during their lifetime (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Kessler & Wang, 2008). Despite the ubiquity of mental illness, only 15%–25% of adults (Demyttenaere et al., 2004; Kessler et al., 2005) and 20%–45% of youth (Costello, He, Sampson, Kessler, & Merikangas, 2014; Kataoka, Zhang, & Wells, 2002; Merikangas et al., 2011) receive some type of mental health care. Additionally, studies suggest racial and ethnic minorities (R&EM) are less likely than non-Latinx Whites (NLW) to receive mental health services, even after controlling for socioeconomic status (SES), other demographic variables associated with service utilization (e.g., gender, age, marital status, insurance coverage), and disorder severity (Alegría et al., 2002; Cook, McGuire, & Miranda, 2007; Dobalian & Rivers, 2008; Wang et al., 2005; Wells, Klap, Koike, & Sherbourne, 2001). Among youth, similar mental health disparities have been found (Costello et al., 2014; Kataoka et al., 2002; Merikangas et al., 2011), disparities that seem to increase with age (Marrast, Himmelstein, & Woolhandler, 2016).

Despite efforts to reduce mental health disparities following publications such as *Healthy People*, mental health disparities have remained wider than other areas of health care (U.S. Department of Health and Human Services, 2013). These disparities are concerning given that R&EM experience mostly similar rates of mental illness as their NLW counterparts, and in some instances, have higher rates of mental health problems, such as higher prevalence of substance use disorder and depression in Native Americans (Beals et al., 2005; Huang et al., 2006), as well as higher rates of mood disorders in some Latinx subgroups (Alegría et al., 2008, 2007). To serve the almost 190 million R&EM individuals in this country (U.S. Census Bureau, 2017), it is necessary to consider the various factors that drive these disparities and to examine how innovations such as behavioral intervention technologies (BITs)—psychological intervention strategies that are enhanced by the use of technology—can be leveraged to provide equitable mental health care for all.

What Factors Influence Mental Health Disparities?

Several factors contribute to the persistence of mental health disparities, including distribution of and access to mental health providers, logistic factors (e.g., transportation, lack of time, limited care availability), and attitudinal barriers, to name a few. For instance, a recent investigation of the distribution of mental health services revealed that nearly twice as many communities in the highest income quartile of median household income had specialty mental health treatment providers (e.g.,

psychiatrists, psychotherapists) compared with communities in the lowest income quartile, in which R&EM are disproportionately represented (Cummings, Allen, Clennon, Ji, & Druss, 2017). Individuals who live in rural areas also experience greater problems with access to specialists than their urban counterparts (Cuffe, Moore, & McKeown, 2009); a disparity that is amplified among rural R&EM (Howell & McFeeters, 2008). Attitudinal barriers have also been implicated in contributing to mental health care disparities among R&EM, particularly stigma surrounding mental health disorders and treatment (Holden & Xanthos, 2009). This is concerning as previous data suggest that stigma associated with mental illness can prevent individuals from seeking care (Cooper-Patrick et al., 1997) and lead to poor treatment adherence and premature termination (Sirey et al., 2001). Provider and system-level factors, such as limited time, linguistic barriers, and lack of cultural competency training, can also deter appropriate service use for R&EM (Stockdale, Lagomasino, Siddique, McGuire, & Miranda, 2008).

The Promise of BITs to Reduce Mental Health Disparities

Although no single approach will eliminate all barriers that drive disparities in care among R&EM, the use of technology to provide mental health services represents a paradigmatic shift in care delivery that could reduce unmet mental health need. The idea of employing BITs is nothing new as more than 40 years ago some already recognized the role that technology could play in expanding mental health service care for underserved populations (Christensen, Miller, & Munoz, 1978). However, the last two decades have brought a deeper awareness of the need to diversify mental health care delivery to reduce the treatment gap (Kazdin, 2008; Kazdin & Blase, 2011; Kazdin & Rabbitt, 2013).

From communicating with friends and family to accessing services online, technology has profoundly changed the way that people interact with the world. In the mental health field, BITs have the potential to address the shortage of highly trained mental health professionals, most of whom concentrate in urban areas (Kazdin, 2015); to address the varied logistic barriers that interfere with service utilization and adherence (Kazdin, 2015; Kazdin & Rabbitt, 2013); to reduce costs associated with evidence-based treatment (EBT) implementation as BITs often require minimal or no involvement by highly trained mental health professionals and can be used repeatedly for a minimal cost (Kazdin, 2015; Muñoz et al., 2016); and to expand the ecological validity and generalizability of EBTs as BITs extend more readily to community settings (Kazdin & Rabbitt, 2013).

Are BITs Feasible and Effective for R&EM?

The feasibility of employing technology to disseminate psychological services is supported by extensive ownership of technological devices and widespread use of the internet in the United States. For instance, 95% of Americans own a mobile phone (Pew Research Center, 2018a) and 90% have some type of computer at home, including smartphones (U.S. Census Bureau, 2018a). Almost 90% of the population uses the internet and almost 80% does so on a daily basis (Pew Research Center, 2018b). Importantly, the percentage of R&EM that access the internet is similar to that of their NLW counterparts (Pew Research Center, 2018b), and approximately half of them use the internet to obtain health-related information (Pew Research Center, 2011). R&EM also have similar rates of ownership of mobile phones (Pew Research Center, 2018a) and at least one device with access to the internet (U.S. Census Bureau, 2018a). These statistics underscore the fact that technological devices and the internet are commonplace among R&EM groups. Furthermore, research suggests that R&EM clients can learn relatively easily how to employ technological supports in therapy, even those affected by severe mental illness (see Ben-Zeev et al., 2014) and those using a technological device for the first time (see Aguilera, Bruehlman-Senecal, Demasi, & Avila, 2017; Aguilera & Muñoz, 2011; Bruehlman-Senecal, Aguilera, & Schueller, 2017).

Despite the universality of technological devices and the internet, some have expressed concerns about the use of technology to provide mental health care. Early criticisms have included concerns about the therapeutic alliance in the absence of face-to-face contact (Fenichel, 2001), particularly for more collectivistic R&EM groups who tend to prioritize interpersonal relationships (Shore, Savin, Novins, & Manson, 2006). Other concerns have included the lack of nonverbal communication, potential for miscommunication, limitations in literacy skills, difficulty handling crises, and privacy issues (see Rochlen, Zack, & Speyer, 2004). Given the lack of regulations in the development of technology-based interventions, there are also concerns about the ability of potential users to identify BITs that adhere to evidence-based principles among the plethora of services available to the public (Bry, Chou, Miguel, & Comer, 2018; Neary & Schueller, 2018). In spite of these concerns, there has been an increasing amount of empirical evidence to support both the feasibility and efficacy of BITs with R&EM. As technology-enhanced interventions include a wide range of delivery methods (e.g., audio/videoconferencing, internet-based, messaging, apps), the level of empirical support for each modality varies. As such, we discuss the empirical

evidence for the most common BIT approaches and how this evidence extends to interventions with R&EM. A more extensive review of BITs used with R&EM, their characteristics, as well as their outcomes can be found in Table 1.

Web-Based Interventions

Interventions delivered via computers with access to the internet—with or without therapist involvement—have repeatedly shown to be effective for a wide variety of disorders such as body dissatisfaction, sexual dysfunction, substance use disorder, eating disorders, encopresis, bipolar disorder, schizophrenia, among many others (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014; Barak, Hen, Boniel-Nissim, & Shapira, 2008; Mohr, Burns, Schueller, Clarke, & Klinkman, 2013). Most data supporting the efficacy of web-based interventions have emerged from studies of patients with depression and anxiety disorders (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010; Griffiths, Farrer, & Christensen, 2010; Grist & Cavanagh, 2013). Findings from these studies suggest that treatment effect sizes are often equivalent to those from face-to-face interventions (Andersson et al., 2014; Andrews et al., 2010; Barak et al., 2008; Grist & Cavanagh, 2013). At present, web-based interventions have been tested mainly with female, highly educated, middle to high income, NLW individuals (Griffiths et al., 2010), raising significant concerns about the generalizability of these findings to underserved populations (Arnberg, Linton, Hultcrantz, Heintz, & Jonsson, 2014).

However, there are exceptions to this trend, with some researchers focusing specifically on the dissemination of web-based interventions to underserved communities both nationally and internationally. For example, promising results, including high treatment satisfaction and symptom reduction, have been found in web-based smoking cessation/mood regulation programs for Spanish-speaking individuals (Muñoz et al., 2014; Muñoz et al., 2016); low income, Spanish-speaking Latinx women affected by postpartum depression (Barrera, Wickham, & Muñoz, 2015); as well as Asian and African-American depressed women who were prepregnant or considering becoming pregnant (Kelman, Evare, Barrera, Muñoz, & Gilbert, 2018). Web-based interventions also seem to be effective for R&EM with substance use disorders (Campbell et al., 2015), and for Chinese-speaking individuals affected by depression and suicidal ideation (Choi et al., 2012; Liu, Contreras, Muñoz, & Leykin, 2014). Among R&EM youth and their families, there is evidence that web-based parent training programs can effectively promote parenting skills, which in turn lead to child externalizing symptom reduction (Baggett et al., 2017; Comer et al., 2017).

In all these studies, R&EM typically received EBTs via a web-based program that included psychoeducational material (i.e., in text and/or video format), skill practice, as well as self-monitoring of symptoms and progress, through the course of the intervention. These web-based programs vary in the level of therapist involvement from completely self-guided interventions to those facilitated by therapist contact. In general, BITs with some level of therapist assistance seem to lead to better outcomes than completed self-guided interventions (Andersson & Cuijpers, 2009; Richards & Richardson, 2012; Spek et al., 2007). Importantly, some findings suggest that web-based interventions have similar treatment outcomes (Campbell et al., 2017), as well as similar utilization and dropout rates (Price, Davidson, Andrews, & Ruggiero, 2013), across racial/ethnic groups. This is particularly significant in light of previous research supporting differential rates of dropout from face-to-face interventions among R&EM when compared to NLW (Chavira et al., 2014; Sirey et al., 2001).

Telehealth Interventions

Telehealth approaches are varied but consist of the delivery of an EBT by a mental health professional via regular phone calls or videoconferencing. This approach has some of the strongest evidence for a wide range of disorders (e.g., mood, anxiety, externalizing, substance use) across diverse groups—youth, adult, elderly, veterans, urban, rural (Backhaus et al., 2012; Bashshur, Shannon, Bashshur, & Yellowlees, 2016; Hilty et al., 2013; Mohr et al., 2013). Data suggest that EBTs delivered remotely are at least as, and in some cases, more effective than those EBTs delivered face-to-face as telehealth approaches may facilitate treatment engagement by reducing transportation and time barriers (Backhaus et al., 2012; Bashshur et al., 2016). Unfortunately, this empirical support is more limited among R&EM.

In systematic reviews on the efficacy of telehealth approaches, only a minority of studies report race/ethnicity data, and most studies consist of predominantly NLW samples (Backhaus et al., 2012; Bashshur et al., 2016; Hilty et al., 2013). While limited, findings suggest that different telehealth approaches can be employed with R&EM populations. For instance, phone calls have been used to deliver a comprehensive treatment that include a culturally adapted intervention for depression, case management services, and anti-stigma psychoeducation for pregnant Latinx women (Baker-Ericzén et al., 2012). Using a different approach, weekly telephone calls from a therapist have been used to assist Latinx families learning cognitive-behavioral therapy (CBT) skills independently—via bibliotherapy—for their children with anxiety disorders (Chavira et al., 2018). Other studies

Table 1
Studies Examining the Employment of BITs With R&EM

Authors	n; % of R&EM	Setting	BIT Type	Therapist Role	EBT Delivered	Cultural Adaptations	Clinical Outcomes	Results
Aguilera and Berridge (2014)	20; 80% R&EM; 75% Spanish speakers	Community	Text-based	Provided group therapy	CBT	Group therapy translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Qualitative feedback	Qualitative feedback from Spanish speakers was related to feelings of social support; feedback from English speakers was related to introspection & self-awareness
Aguilera, Bruehlman-Senecal, Demasi, & Avila (2017)	85; 100% Spanish-speaking Latinx	Community	Text-based	Provided group therapy	CBT	Group therapy translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Attendance & depressive symptoms	Participants who received texts stayed longer in therapy; significant reduction in depressive symptoms across conditions; symptom reduction was similar in both groups
Aguilera and Muñoz (2011)	12; 58% Spanish speakers	Community	Text-based	Provided group therapy	CBT	Group therapy translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Response rate & acceptability	65% response rate; participants felt closer to the therapy group; high acceptability
Baggett et al. (2017)	159; 43% R&EM	Urban & rural communities in poverty	Web-based	Provided weekly coaching of parenting skills, & reviewed homework (30 min)	BPT	None	Parenting skills, engagement, & satisfaction	High risk & low risk families equally engaged in treatment & reported similar satisfaction; significant increase in positive parenting & significant decrease in negative parenting; gains were more pronounced among high risk families

Baker-Ericzén et al. (2012)	79; 100% Latinx	Community	Phone-based	Provided assessment & therapy	CBT	Culturally adapted intervention for low income Latinas	Engagement, adherence, & satisfaction	55% completed treatment; higher adherence to early modules of treatment; high levels of treatment satisfaction
Barrera, Wickham, and Muñoz (2015)	111; 83% Spanish speakers	23 countries	Web-based	None	CBT	Translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Postpartum depressive symptoms	Intervention failed to achieve significant results ($p = .061$); gains were more pronounced for more depressed women
Ben-Zeev et al. (2014)	33; 76% African American, 6% Latinx	Community	App-based	None	CBT	None	Psychotic & depressive symptoms, & feasibility	Participants used the app on 87% of the possible days; used the app an average of 5 times a day; high acceptability; significant reductions in psychotic & depressive symptoms
Broom, Ladley, Rhyne, and Halloran (2015)	58; 83% African-American	Community	Text-based	Provided therapy	CBT & MI	None	Feasibility & treatment perception	86% of text messages were delivered successfully; 89% of participants considered the messages helpful; 82% of them considered messages personally relevant; 75% of participants shared the messages with others
Bruehlman-Senecal, Aguilera, & Schueller (2017)	56; 100% Spanish speakers	Community	Text-based	Provided group therapy	CBT	Intervention translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Mood ratings & attendance	Mood rating completion predicted therapy attendance

Table 1 (*continued*)

Authors	*n*; % of R&EM	Setting	BIT Type	Therapist Role	EBT Delivered	Cultural Adaptations	Clinical Outcomes	Results
Campbell et al. (2015)	40; 100% Native American	Community	Web-based	None	CRA	None but study explored users' perception of the intervention to culturally adapt the BIT in the future	Substance use, ethnic identity, & treatment acceptability	80% reported 30-day abstinence; perceived discrimination & mainstream comfort was associated with perceptions of modules; high acceptability
Campbell et al. (2017)	507; 22% African American, 11% Latinx; 14% Other	Multi-site across the U.S.	Web-based	None	CBT	None	Substance use symptoms, retention, social functioning, coping, craving, & acceptability	Similar results in abstinence rates, retention, social functioning, & craving compared to NLW; African American & Latinxs also reported greater acceptability of the intervention
Chavira et al. (2018)	31; 100% Latinx	Low income rural community	Phone-based	Provided assessment & therapy for 4-6 months	CBT	Bilingual therapists; translated into Spanish; adapted for low literacy; addressed time limitations as well as negative attitudes towards treatment; included trust-building component	Anxiety symptoms, barriers to treatment, satisfaction, & adherence	Few barriers reported; high satisfaction; higher dose of treatment compared to control condition; 50% achieved remission
Cheng et al. (2019)	658; 21% African American, 6% Other	Community	Web-based	None	CBT-I	None	Insomnia & depressive symptoms	Significant reduction in insomnia symptoms in active condition; higher treatment response & remission rates in active condition; significant reduction in depressive symptoms in active condition; Other ethnicity was associated with higher dropout rate compared to NLW; SES variables, age, sex, & race/ethnicity did not moderate treatment

								response
Choi et al. (2012)	55; 100% Chinese speakers	Australia	Web-based	Provided weekly emails & phone contact (10 min) to reinforce progress, review skills, normalize difficulties, & encourage treatment completion	CBT	Translated into Chinese; included illustrations with Asian features; modified concepts to align them with the Chinese culture; emphasis on challenging cultural myths about depression; reframed skills to collectivistic values	Depressive & anxiety symptoms, distress, acceptability, & treatment completion	68% completed all modules; reductions in depressive & anxiety symptoms, & reductions in distress from pre- to post-treatment; high levels of treatment satisfaction
Choi et al. (2014)	121; 44% African American, 25% Latinx	Community	VC	Provided weekly sessions	PST	None	Depressive symptoms & treatment acceptance	High acceptability; similar treatment outcomes compared to face-to-face therapy
Chong and Moreno (2012)	167; 100% Latinx	Community	VC	Provided monthly sessions	CBT	Bilingual/bicultural providers	Depressive symptoms, engagement, satisfaction, acceptability, & medication adherence	Significant decrease in depressive symptoms; similar acceptability as traditional care; users more likely to use antidepressants than those receiving traditional care; users more satisfied than those receiving traditional care
Comer et al. (2017)	40; 42% R&EM	Multi-site across the U.S.	VC	Provided initial assessment, & weekly coaching of parenting skills	BPT	None	Comparison between clinic-based vs internet-based PCIT: disruptive behavior problems, caregiver burden, barriers to treatment, & treatment satisfaction	Reductions in disruptive behavior problems; reductions in burden to caregiver; 55% & 40% of families showed treatment response after 6 months in I-PCIT & standard PCIT, respectively; I-PCIT was associated with fewer barriers to treatment; high satisfaction in I-PCIT
Dennis and O'Toole (2014)	78; 30% Asian, 16%	College	App-based	None	ABM	None	Attentional bias to threat, & anxious	Reduction in attentional bias; reduction in anxiety

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Table 1 (*continued*)

Authors	*n*; % of R&EM	Setting	BIT Type	Therapist Role	EBT Delivered	Cultural Adaptations	Clinical Outcomes	Results
	Latinx, 5% African American						state	state
Dwight-Johnson et al. (2011)	101; 100% Latinx	Rural community	Phone-based	Provided assessment & therapy	CBT	Translated into Spanish; illustrations & names adapted to Latinx culture; relevant situations to individuals in rural areas	Depressive symptoms & satisfaction	Decrease of 50% in depressive symptoms after 3 months; gains maintained at 6-month follow-up; high satisfaction
Gonzales, Ang, Murphy, Glik, and Anglin (2014)	80; 38% Latinx, 10% African American, 8% Asian	Community	Text-based	None	CBT	None	Substance abstinence	48% less likely to relapse; significant less substance use problem severity; more likely to participate in recovery activities
Hantsoo et al. (2018)	72; 84% African American, 8% Latinx	Community	App-based	Contacted participants when symptoms worsened	CBT	None	Depressive & anxiety symptoms, & patient engagement	Users self-perception of care behavior was higher; increases in number of phone contacts with mental health providers; users employed the app 76% of the days; anxiety & depressive symptoms significantly decreased
Heilemann, Soderlund, Kehoe, and Brecht (2017)	28, 100% Latinx	Community	Phone- & app-based	None	Psycho-ed	Latinx actors; feedback on relatability & appropriates of storyline from focus groups & individual interviews	Depressive & anxiety symptoms, & help-seeking attitudes/ behaviors	High acceptability; participants watched all videos; anxiety & depressive symptoms significantly decreased; participants employed other resources & perceived that they would be able to seek services if needed
Hertzberg et al. (2013)	22; 59% R&EM	Community	App-based	Provided two counseling sessions	CBT	None	Smoke cessation & feasibility	High compliance at baseline (93%) & during treatment (92%); 82% reported quitting smoking; no differences in smoke cessation rates compared to control condition

Ince et al. (2013)	96 Turkish immigrants living in the Netherlands	Community	Web-based	Provided weekly feedback on homework via email	PST	Intervention translated into Turkish; use of cultural idioms to describe disorders; explicit discussion of culture & migration experience; including culturally recognizable examples	Depressive, anxiety, & somatic symptoms; quality of life, & treatment satisfaction	No significant differences between active & control condition; there were significant decreases in depressive & anxiety symptoms among treatment completers;42% & 62% of participants did not complete post & follow-up, respectively; higher attrition in the active condition at follow-up; moderate satisfaction with treatment
Karyotaki et al. (2018)	4889; 57% R&EM	Community & clinic-based samples from 7 countries	Web-based	Different levels of therapist support across studies	CBT, ACT, PST, PD, & CBM	None	Depression symptoms	Higher treatment response & remission rates among those in the treatment group; age & R&EM status moderated these outcomes (i.e., adults & NLWs benefited more)
Kelman, Evare, Barrera, Muñoz, and Gilbert (2018)	123; Asian 29%, African American 8%, Latinx 6%	U.S & India	Web-based	None	CBT & CFT	None	Depressive & anxiety symptoms, self-reassurance, & criticism	Increases in self-reassurance; reductions in self-criticism as well depressive & anxiety symptoms in both CBT & CFT; CFT more effective to reduce depression symptoms than CBT
Lazev, Vidrine, Arduino, and Gritz (2004)	20; 80% African American	Low income urban community	Phone-based	Provided counseling over 2 weeks	CBT	None	Smoke cessation	95% made an attempt to quit smoking; point-abstinence rate of 75%
Liu, Contreras, Muñoz, and Leykin (2014)	4,709; 100% Chinese speakers	Worldwide	Web-based	None	Screening, psycho-ed & referrals	Translated into Chinese	Depressive symptoms, suicidal ideation, & help-seeking behaviors	49% met criteria for depression; 60% endorsed suicidal ideation; almost 80% had never sought help
Moreno, Chong, Dumbauld, Humke, and	167; 100% Latinx	Community setting	VC	Provided monthly sessions	CBT	Bilingual/bicultural providers	Depressive symptoms, quality of life, & functional	Significant decrease in depressive symptoms; significant increases in

Table 1 (*continued*)

Authors	*n*; % of R&EM	Setting	BIT Type	Therapist Role	EBT Delivered	Cultural Adaptations	Clinical Outcomes	Results
Byreddy (2012)							ability	quality of life & functional ability
Morland et al. (2010)	125; 33% Pacific Islander, 27% Asian, 6% Other	Rural community	VC	Provided twice-weekly sessions over a 6-week period	AMT	None	Anger disposition/severity, PTSD symptoms, attrition, adherence, satisfaction, & TA	VC was not inferior to face-to-face treatment in reducing anger symptoms; no differences in attrition, or adherence; higher TA in clinic-based condition; significant decrease in anger symptoms across conditions; significant decrease in PTSD symptoms across conditions
Morland et al. (2014)	125; 16% Other, 15% Asian, 14% Pacific Islander	Rural community	VC	Provided twice-weekly sessions over a 6-week period	CPT-C	None	PTSD symptoms, attrition, adherence, satisfaction, & TA	VC was not inferior to face-to-face treatment; no differences in attrition, adherence or TA between conditions; significant decrease in PTSD symptoms across conditions
Muñoz et al. (2014)	57,882; 72% Spanish speakers	U.S., Latin America, & Spain	Web-based	None	CBT	Translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed acculturative stress	Smoke Cessation	38% of Spanish speakers achieved 1-week self-reported abstinence after a month of treatment
Muñoz et al. (2016)	18,154; 73% Spanish speakers	1 6 8 countries	Web-based	None	CBT	Translated into Spanish; adapted vocabulary; culturally relevant examples & sayings; incorporated social support system & religiosity components; addressed	Smoke Cessation	40%, 46%, 47%, 51% of Spanish speakers achieved 1-week self-reported abstinence at 1-, 3-, 6-, & 12-month follow-ups, respectively

						acculturative stress			
Muroff et al. (2017)	79; 89% Latinx	Community	App-based	None	CBT	Translated into Spanish with guidance of bicultural team; inclusion of sayings; emphasis on acculturative stress	Usability	73% completed treatment; 96% of Latinx users were active with treatment after 4 months
Pratap et al. (2017)	1180; 100% Latinx; 65% Bilingual	U.S.-wide	Phone- & app-based	None	CBT & PST	None	Feasibility	Feasible to collect data on GPS activity & depressive symptoms
Price, Davidson, Andrews, and Ruggiero (2013)	1,249; 14% African American, 6% Latinx	Urban & rural communities affected by hurricane Ike	VC & web-based	None	CBT & MI	None	Engagement & attrition	Similar engagement & attrition rates compared to NLW individuals
Shore et al. (2012)	85; 100% Native American	Rural community/ Native American reservations	VC	Provided assessment, individual & group therapy, & medication check-ups	No specified	None	Service use	Since the introduction of VC, the number of users receiving therapy or medication significantly increased
Shore and Manson (2004)	Unspecified; 100% Native American	Rural community/ Native American reservations	VC	Provided assessment, individual & group therapy, & medication check-ups	No specified	None	Feasibility	Feasible method to provide services in Native American reservations
Shore et al. (2008)	53; 100% Native American	Rural community/ Native American reservations	VC	Provided assessment	SCID	None	Satisfaction, & cultural competence	Similar satisfaction & cultural competence compared to face-to-face services
Stewart, Orengo-Aguayo, Cohen, Mannarino, and de Arellano (2017)	15; 48% Latinx, 40% African American	Rural & urban communities	VC	Provided assessment & therapy	TF-CBT	Bilingual/bicultural therapists	PTSD, depressive, anxiety, & externalizing, symptoms; satisfaction	Significant decreases in PTSD, anxiety, & externalizing symptoms; all users were satisfied with the intervention & considered it easy to use
Stoll, Pina, Gary, and Amresh (2017)	132; 29% Latinx, 10% African American, 5% Asian, 23% Other	Community	App-based	None	CBT	None	Usability & perceived stigma	High overall usability; high scores on ease of use & satisfaction; low scores on perceived

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Table 1 (*continued*)

Authors	*n*; % of R&EM	Setting	BIT Type	Therapist Role	EBT Delivered	Cultural Adaptations	Clinical Outcomes	Results
Vidrine, Arduino, Lazev, & Gritz, 2006	95; 71% African America, 21% Latinx	Low income urban community	Phone-based	Provided counseling over 2 months, 2-month follow-up call, & hot-line access	CBT	None	Smoke cessation	stigma 37% achieved abstinence; users were 3.6 times more likely to quit smoking
Wang, Wang, and Maercker (2013)	183; 100% Chinese	Urban & rural communities in China	Web-based	No support in urban sample; technical support in rural sample	CBT	Translated into Chinese; all illustrations included Chinese individuals; new audio material in Chinese was developed	PTSD & depressive symptoms, social functioning, & trauma coping skills	Significant decreases in PTSD symptoms in the active condition across urban & rural samples; significant decrease in depressive symptoms in urban sample; most effects disappeared at Time 3 or Time 4; intervention was more effective in urban sample
Weiner, Rossetti, and Harrah (2011)	85; 100% Native American	Community	VC	Provided neuro-eval, & physical check-ups	Neuro-eval	Addressed institutional mistrust; collaborative research with the community; hired members of the tribe as staff	Acceptability & usability	High diagnostic accuracy; no-show rate was 3%; only 2 people in 5 years refused further VC visits
Ye et al. (2012)	16; 100% Asian	Community	VC	Provided evaluation, medication check-ups, & therapy	CBT	Bilingual/bicultural therapists	Acceptability, usability, & cultural sensitivity	High acceptability & usability; although relatively high, lowest score was on cultural sensitivity

Approach, MI = Motivational Interviewing, PD = Psychodynamic Therapy, PST = Problem-Solving Therapy, PTSD = Post-Traumatic Stress Disorder, R&EM = Racial & Ethnic Minority, SCID = Structured Clinical Interview for DSM, SES = Socioeconomic Status, TA = Therapeutic Alliance, TF-CBT = Trauma-Focused Cognitive Behavioral Therapy, VC = Videoconferencing.

have used videoconferencing in community care centers to provide Latinx patients with monthly appointments with a psychiatrist (Chong & Moreno, 2012; Moreno, Chong, Dumbauld, Humke, & Byreddy, 2012). These studies suggest that different telehealth approaches, using varying levels of therapist contact, can be effective with R&EM. Furthermore, while technology has prompted concerns about the quality of the therapeutic encounter, data from telehealth interventions with R&EM suggest similar comfort, satisfaction, therapist cultural competence, and therapeutic alliance as in face-to-face services (Shore et al., 2008; Simpson & Reid, 2014).

Mobile-Based Interventions

Mobile devices (i.e., telephones, smartphones, tablets, wearables) can be used to gather clinical data and provide psychological interventions by employing instant messaging, email, media player, and access to the internet (Ehrenreich, Righter, Rocke, Dixon, & Himelhoch, 2011; Mohr et al., 2013). At present the use of mobile-based interventions has produced small treatment effects (Lindhiem, Bennett, Rosen, & Silk, 2015) for conditions such as anxiety, schizophrenia, eating disorders, depression, bipolar disorder, and substance use disorder (Heron & Smyth, 2010; Mohr et al., 2013). Compared to other BITs, mobile-based interventions have been tested mainly in case studies and uncontrolled trials, with only a few randomized control trials (RCTs) examining this modality (Heron & Smyth, 2010; Lindhiem et al., 2015; Mohr et al., 2013). Nevertheless, some data support that mobile-based interventions can be effective with underserved populations around the world, including low-income individuals, indigenous groups, rural communities, and R&EM (García-Vázquez, Ferrás-Sexto, Rocha, & Aguilera, 2016).

Among R&EM in the United States, mobile-based interventions, which use phone call, texting, and internet capabilities of mobile devices, have been shown to be effective in promoting smoking cessation among low-income, HIV-positive African American and Latinx individuals (Lazev, Vidrine, Arduino, & Gritz, 2004; Vidrine, Arduino, Lazev, & Gritz, 2006), as well as reducing substance use relapse among Latinx, African American, and Asian American young adults (Gonzales, Ang, Murphy, Glik, & Anglin, 2014). Mobile devices have also been employed to deliver transmedia psychoeducation on depression and anxiety for Latinx women, showing increases in help-seeking attitudes and decreases in anxiety and depressive symptoms (Heilemann, Soderlund, Kehoe, & Brecht, 2017). Researchers have also examined text messaging as an adjunctive intervention to promote homework and self-monitoring completion, and to improve treatment adherence among depressed, low income, Spanish-speaking individuals

receiving group CBT, with favorable results (Aguilera & Berridge, 2014; Aguilera et al., 2017; Aguilera & Muñoz, 2011; Bruehlman-Senecal et al., 2017). Thus, in this regard, mobile-based interventions may reduce disparities in care quality among R&EM by improving treatment engagement, which is often associated with better treatment outcomes (Chu & Kendall, 2004).

App-Based Interventions

Although part of the mobile-based approach, there has been a recent surge in research focusing on the use of smartphone applications (apps) to provide mental health services. The phrase "there's an app for that" extends to mental health, as there are now countless apps for the treatment of anxiety, schizophrenia, substance use disorder, trauma-related disorders, depression, among other problems (Lui, Marcus, & Barry, 2017; Radovic et al., 2016). At present, most apps, especially those available to the public, lack empirical support (Mehrotra & Tripathi, 2018; Radovic et al., 2016). For instance, content analyses of apps available in the market revealed that only a few of them had therapeutic components that could be considered evidence-based, and even fewer had been empirically tested (Bry et al., 2018; Huguet et al., 2016; Mehrotra & Tripathi, 2018). Currently, greater efforts are being made to examine the usability as well as efficacy of apps with evidence-based components. Examples of these efforts include rating platforms such as PsyberGuide, ORCHA, and MindTools that include information on level of empirical evidence, user experience, and data security (see Neary & Schueller, 2018). At present, none of these app rating platforms include information on usability and efficacy across different racial/ethnic groups.

Nevertheless, some studies with R&EM have shown that app-based treatments can be used to provide EBTs as sole interventions (Ben-Zeev et al., 2014; Dennis & O'Toole, 2014; Muroff et al., 2017; Pratap et al., 2017) or as adjunctive tools (Hantsoo et al., 2018; Hertzberg et al., 2013; Stoll, Pina, Gary, & Amresh, 2017). For instance, culturally adapted app-based interventions have been used to prevent substance use relapse among Latinx individuals, showing high treatment adherence (Muroff et al., 2017). Other approaches have used apps to deliver computerized cognitive training programs such as Attention Bias Modification (ABM) with anxious youth and adults (Dennis & O'Toole, 2014). The ABM paradigm may represent a promising approach for some R&EM as it does not require ongoing therapist involvement, homework practices are minimal, and there is little emphasis on written text; variables that may perpetuate mental health disparities among lesser educated and individuals living in underresourced areas.

Do BITs Improve Access and Reduce Common Barriers to Mental Health Care Among R&EM?

Using the technological infrastructure already in place, mental health providers have the opportunity to integrate BITs into people's lives and go beyond the predominant clinic-based, one-to-one, and face-to-face model of care that has had limited effect on reducing disparities and the burden of mental illness among R&EM. Arguably the best examples of how technology can make psychological services widely available is the use Massive Open Online Interventions (MOOIs; Muñoz et al., 2016). As free of cost, self-guided, web-based interventions, MOOIs have the potential to provide evidence-based care to a vast number of users without any cost to the individual or the health-care system. For instance, initially, *MoodGYM* (Christensen, Griffiths, & Korten, 2002) was a free web-based intervention for depression and anxiety with results to support its implementation more broadly. Developed in Australia, the expansion of *MoodGYM* has included its translation into six languages and utilization in several countries showing positive results (Twomey & O'Reilly, 2017). Currently, *MoodGYM* has over 1 million registered users who receive evidence-based care for an annual fee (https://moodgym.com.au/). As another example, the program developed by Muñoz et al. (2016) for smoking cessation and mood management has served a significant number of R&EM individuals, especially Spanish speakers. In this web-based program, the Spanish version was culturally adapted to improve treatment acceptability and engagement. This intervention has reached almost 300,000 individuals in 168 countries, with many showing significant rates of smoking cessation (Muñoz et al., 2016).

Indeed, MOOIs represent an optimal approach when it comes to disseminating psychological treatments to a maximal number of people. However, as previously reviewed, various other approaches have been used to improve access, including telehealth interventions in underserved urban and rural settings (e.g., Chavira et al., 2018; Hilty et al., 2013; Stewart, Orengo-Aguayo, Cohen, Mannarino, & de Arellano, 2017). Similar evidence exists for the use of mobile phones to reach traditionally underserved communities, such as inner city neighborhoods, rural settings, indigenous peoples, and R&EM (García-Vázquez et al., 2016). Given such outcomes, it is reasonable to conclude that BITs are well on their way to increasing access to mental health care for R&EM.

BITs can also reduce barriers to treatment and improve engagement when implemented as adjunctive strategies to more traditional forms of therapy. For instance, regular call and text reminders have been shown to increase adherence to care appointments and medication (Bashshur et al., 2016) and to reduce psychotherapy dropout rates (Mohr et al., 2013). Similar results have been found with Spanish-speaking Latinxs who received weekly text reminders and stayed in treatment longer compared to those who did not receive those reminders (Aguilera et al., 2017). In a similar study with Spanish speakers, the completion of self-monitoring activities via text messaging was also found to predict attendance (Bruehlman-Senecal et al., 2017). Moreover, data suggest that underserved R&EM may exhibit higher engagement and satisfaction with BIT interventions compared to individuals with more constant access to mental health services (Campbell et al., 2015; Tofighi et al., 2016). Thus, these BIT strategies seem to have the potential to address important and meaningful barriers to treatment among R&EM.

Despite these favorable findings, there are significant concerns regarding treatment engagement in BITs. Enrollment rates in BIT trials range from 3%–25% (Kaltenthaler et al., 2008), and only about half of participants in web-based interventions receive what can be considered a full course of treatment (Waller & Gilbody, 2009). This lack of adherence to BITs is problematic as implementation efforts have shown that BITs can lose their potency to such a degree that they are indistinguishable from control conditions (Gilbody et al., 2015; Ince et al., 2013). Attrition is also a problem, with many studies reporting high dropout rates (Christensen, Griffiths, & Farrer, 2009). Among the most common reasons to terminate the use of a BIT are personal circumstances (e.g., users being too busy to continue, significant life events), rather than difficulties with technology or negative perceptions towards the BIT (Kaltenthaler et al., 2008; Waller & Gilbody, 2009). These studies suggest that although BITs can be accessible and well accepted for NLW and R&EM alike, barriers similar to those from traditional face-to-face approaches still need to be surmounted.

Do BITs Need to Be Culturally Adapted for R&EM Groups?

When working with R&EM, cultural factors can play a significant role in the therapeutic process. Some argue that all EBTs—including BITs—need to be culturally adapted for each minority group. According to this theoretical perspective, EBTs have been developed with mostly NLW samples that differ significantly from R&EM groups in terms of culture (i.e., norms, language, beliefs, customs), and as such EBTs need to be adapted to ensure their validity, relevance, and effectiveness (Bernal, Bonilla, & Bellido, 1995; Bernal & Sáez-Santiago, 2006). Indeed, there is an increasing interest in the role of culture in the development and utilization of BITs for diverse groups including R&EM (Mohr, Schueller, Araya, Gureje, & Montague, 2014).

Some researchers have employed BIT approaches to deliver EBTs that were already culturally adapted in their face-to-face format (e.g., Aguilera et al., 2017; Muñoz et al., 2016), while others have employed traditional frameworks for EBT cultural adaptation (e.g., Bernal et al., 1995) to design the content of the BIT from its inception (e.g., Davidson, Soltis, Albia, de Arellano, & Ruggiero, 2015). Similarly, others have relied on the clinical expertise and cultural background of clinicians and staff to ensure the cultural appropriateness and accessibility of the content (e.g., Muroff et al., 2017). Another approach has been the use of *instructional design* that relies on the collection of theory-driven data on the target population, identification of user needs, and selection of adequate BIT media (Burns, Montague, & Mohr, 2013). Although there is evidence that culturally adapting EBTs leads to small (Benish, Quintana, & Wampold, 2011; Huey & Polo, 2008) and medium (Hall, Ibaraki, Huang, Marti, & Stice, 2016; Smith, Domenech Rodríguez, & Bernal, 2011) gains in the traditional face-to-face intervention literature, in the case of BITs, data are significantly more limited. To our knowledge, the only study examining the effects of culturally adapting BITs suggests that the number of cultural adaptations made is associated with improved treatment outcomes (Harper Shehadeh, Heim, Chowdhary, Maercker, & Albanese, 2016), which is consistent with face-to-face cultural adaptation findings (Smith et al., 2011). Despite the potential benefit of culturally adapting BITs, this process can be complex, time consuming, costly, and simply not sustainable in some underresourced settings. Moreover, research comparing culturally adapted BIT protocols against standard BIT programs is nonexistent. Without denying the importance of addressing cultural variables that could affect treatment engagement and outcomes among R&EM, at the present moment it is difficult to determine whether culturally adapting every BIT is necessary.

Informed Clinical Recommendations for the Use of BITs With R&EM Groups

Overall research findings suggest that the use of BITs —culturally adapted or not—with R&EM is a viable clinical approach with the potential to reduce traditional barriers that prevent individuals from accessing and utilizing mental health services. Since relatively few studies have employed BITs with R&EM individuals, at this point is difficult to provide "evidence-based" guidelines for their use with these groups. However, lessons learned from the implementation of EBTs in underserved communities can be used to develop *informed clinical recommendations* for the use of BITs with R&EM. These recommendations are intended to maximize the proba-

bility that R&EM will engage in, adhere to, and benefit from BITs.

1. Case Conceptualization in BITs

BITs can reduce factors that impede reaching successful treatment outcomes, such as low attendance, transportation burden, poor homework completion, or insufficient treatment dosage. By reducing these barriers, technological tools can improve the magnitude of outcomes obtained in treatment (e.g., by using text reminders attendance increases, which in turn improves treatment outcomes). Nevertheless, these supports do not necessarily modify the mechanisms of change behind a particular EBT (e.g., the use of videoconferencing to deliver CBT does not affect *why* CBT works for a particular disorder). Accordingly, BITs still rely on the clinician's case conceptualization, selection of an appropriate treatment modality, and design of an intervention plan. Thus, the choice of potential technological supports (e.g., videoconferencing, text-based reminders) or fully designed BITs (e.g., app- and web-based interventions) is guided by the clinician's assessment. This clinical formulation of the case is especially important to minimize potential risks associated with the use of BITs with minimal therapist contact (see Reflect on Ethical, Legal, and Privacy Issues section below).

2. Determine Whether Technology Is a Feasible Option

Although BITs can be used even with some of the most underserved R&EM families, this group is still somewhat affected by a *digital divide* (i.e., differences in access to technology). For instance, with the exception of Asian Americans, R&EM own desktops and laptops at a significantly lower rate and are less likely to have broadband internet compared to NLW (Pew Research Center, 2018b; U.S. Census Bureau, 2018a). Similarly, some R&EM groups such as Latinxs and African Americans are more likely to rely on smartphones as their only method to access the internet (Pew Research Center, 2018b; U.S. Census Bureau, 2018a). This gap in access widens among those who are low income, elderly, poorly educated, limited English proficient, or live out of metropolitan areas (Pew Research Center, 2011, 2018a, 2018b; U.S. Census Bureau, 2018a).

Considering potential lack of access to some technologies, clinicians need to first assess the feasibility of the technological approach selected based on the availability and reliability of the technological devices at hand (e.g., phone, internet, smartphone, desktop computer, tablet), as well as the ability to have access to these services continuously during treatment (e.g., ownership of the device, ability to pay for internet or phone plan

throughout the course of treatment). Therefore, one of the clinician's tasks during the initial stages of treatment, where BIT is an option, is to identify and problem-solve tech-related barriers to increase the probability of success in treatment. For example, even when an individual is a perfect candidate for videoconferencing therapy, if this person does not have the financial means to afford internet service, the therapist needs to suggest alternative methods to deliver care (e.g., employing a phone call approach instead). Furthermore, mental health providers employing or recommending BITs are responsible for the selection of technological approaches supported by empirical evidence (see American Psychological Association, 2013). In the case of app-based interventions, for example, clinicians can employ PsyberGuide (https://psyberguide.org/), a nonprofit rating platform that evaluates apps available to the public using a metric that includes the strength of their empirical evidence, user experience, and privacy policies (Neary & Schueller, 2018). With other self-guided tools, this information is normally available on the BIT's website (e.g., the MoodGym's website has a FAQ section that includes studies supporting its efficacy). When information on the efficacy of the technological support is not available, care providers need to reflect on its potential benefits (e.g., being able to track negative thoughts in vivo) and risks (e.g., being triggered by constant text reminders). These steps are especially important as potential users of BITs are more likely to employ these approaches when mental health providers recommend them (Aitken & Lyle, 2015). In short, clinicians need to be aware how to effectively use evidence-based BITs with R&EM as technological approaches are intended to facilitate the provision of care, not to complicate sometimes already complex clinical cases.

3. Assess Comfort Level With Technology

Clinicians can increase their success employing BITs with R&EM by understanding their own and their clients' level of comfort with technology. Therapist self-assessment is important because a significant number of practitioners perceive BITs as useful, yet few providers have actual experience using these tools in their clinical practice (Glueckauf et al., 2018). Given the professional and technical competence needed to employ BITs, mental health providers may need to pursue additional training experiences before using these approaches in their everyday work. Educational experiences include reviews of the current literature, training workshops, continuing education (CE) courses, among others. Being proficient in the use of technology to provide mental health care is especially important as practitioners also need to assess the client's level of comfort

with given technologies and determine whether they need to provide clients with additional technological instruction.

After deciding the technological support(s) that will be employed, clinicians can review with the client how this device will be used in therapy, model how to use it during session, and let the client practice in simulated situations while providing feedback. For example, when introducing the use of videoconferencing software, clinicians can explain to clients how to use the technological device selected (e.g., computer, tablet) and the software functions that the client would use during treatment. Later the clinician can model how a session would unfold from beginning to end, and practice in session until the client feels comfortable with this process. Alternatively, clinicians can design a "step-by-step" guide with instructions and illustrations that will serve as a support for the client. This technological instruction does not necessarily imply a burdensome task as there is evidence that R&EM clients can learn relatively quickly how to employ technological supports in therapy (see Aguilera & Berridge, 2014; Aguilera et al., 2017; Aguilera & Muñoz, 2011; Ben-Zeev et al., 2014; Bruehlman-Senecal et al., 2017). These recommendations, regardless of their simplicity, can facilitate the use of BITs with R&EM as they address some of the concerns about the lack of technological skills among underserved groups. However, it is also possible that for some R&EM, especially those with limited exposure to technology (e.g., older adults in rural communities), the use of BITs may be foreign enough and the learning curve steep enough to preclude their use with some individuals from that group.

Preferences, beliefs about mental health treatment, and attitudes towards technology are also important to consider when gauging comfort with technology. For example, for some individuals BITs represent a less stigmatizing way to receive mental health care compared to traditional face-to-face therapy (Kauer, Mangan, & Sanci, 2014). As such, these interventions could be well received among R&EM who may be reluctant to seek services otherwise. However, others may believe that BITs are less effective, impersonal, or simply "strange," especially when delivered without therapist support (Chavira et al., 2014). Given that R&EM may have lower levels of mental health literacy (Mendenhall & Frauenholtz, 2015), it is recommended that clinicians query the client's knowledge about BITs approaches, as well as their attitudes and beliefs about this mode of delivery. The clinician may need to address beliefs that BITs are "less effective" approaches, and that successful therapy requires face-to-face interaction. Also, there may be concerns about the client's self-efficacy in using the BITs that need to be addressed. In general, systematic

reviews and metaanalyses have shown that the levels of acceptability and satisfaction with BITs are very high (Andrews et al., 2010; Backhaus et al., 2012; Bashshur et al., 2016; Reyes-Portillo et al., 2014), even among users who were at first skeptical about their use (Brenes, Ingram, & Danhauer, 2011).

4. Consider Cultural Factors that May Affect BIT Implementation

Although in some BIT approaches the intervention content cannot be modified (e.g., app-, web-based interventions), clinicians still can use a data-driven, culturally informed approach (Lau, 2006) to tailor some aspects of the delivery that can improve treatment acceptability, satisfaction, as well as engagement in BITs. Trying to minimize the burden on practitioners while at the same time assessing cultural factors, we advocate for the use of a short semistructured interview (i.e., Short Cultural Assessment [SCA]) that assesses these variables. The SCA allows for a time-limited, yet informative strategy that can improve the cultural fit of the intervention. Furthermore, this approach occurs at the client level such that any adaptation made to BIT delivery is based on client's assessment data and not their affiliation with any cultural group, a strategy that prevents stereotyping and maximizes practitioners' time by focusing only on cultural factors that are relevant for that client. Informed by this individual-level cultural assessment, clinicians may be able to identify variables that could interfere with (e.g., stigma towards mental health treatment) or enhance (e.g., involving family members in treatment) the use of the BIT. The inclusion of cultural factors may increase client engagement, which in turn may improve treatment outcomes for R&EM—which are significant concerns in face-to-face and BIT trials. Questions in the SCA, the rationale behind them, and their clinical implications, are presented in Table 2.

5. Reflect on Ethical, Legal, and Privacy Issues

Despite the significant implications that BITs can have for the provision of mental health care for R&EM, the novelty of this approach also entails new ethical, legal, and privacy challenges for practitioners. Although these concerns are beyond the scope of this paper (for an exhaustive discussion see Barnett & Kolmes, 2016; Kramer, Kinn, & Mishkind, 2015), some of these issues are especially relevant for R&EM. For instance, as some R&EM may be less likely to seek support from a therapist when using self-guided BITs due to stigma concerns, adequate safety protocols will be needed. Although it is common for those BITs to have such protocols in place (e.g., Aguilera & Muñoz, 2011; Liu et al., 2014), some level of therapist involvement may be indicated. By conducting

a comprehensive risk assessment when there is potential for harm (e.g., suicidal/homicidal ideation, child maltreatment) a therapist could determine whether the self-guided BIT is still appropriate or more close monitoring is indicated. At that point, therapists can also use other technological supports (e.g., text messages, phone calls) as part of a risk management plan that finds a middle ground between the user's desire for privacy and their safety.

As other users of technology, R&EM may not be familiar with the privacy policies of the technological tools they utilize. Similarly, it is likely that they are accustomed to using services that are not Health Insurance Portability & Accountability Act (HIPAA) compliant, such as Skype, Google Hangouts, and FaceTime, three of the most popular free videoconferencing software. Thus, using one of these platforms to provide mental health services remotely could lead to privacy violations, violations that could have a differential impact across R&EM groups. For example, among undocumented individuals, the loss of privacy during treatment could represent a significant source of stress, a stressor that may have effects at both the individual and community level (e.g., mistrust from these communities, threat of deportation). Thus, clinicians need to be familiar with the BIT approach selected and the best privacy practices associated with a given BIT. In general, clinicians working with BITs need to be current in their knowledge of privacy practices and compliance with HIPAA standards (see Barnett & Kolmes, 2016).

Mental health providers intending to use BITs in their work with R&EM will also need to be familiar with the most up-to-date regulations in the field. For instance, licensing requirements vary from state to state, and in some cases these regulations do not allow for the provision of services across states/countries (American Psychological Association, 2013; Barnett & Kolmes, 2016), which somewhat limits the promise of telehealth approaches. Similarly, clinicians need to have knowledge of billing codes for telepsychology services to avoid reimbursement issues (Barnett & Kolmes, 2016).

Case Example

The case example describes the use of a telephone-delivered, parent-guided, CBT intervention for youth with anxiety disorders with technological components (Chavira et al., 2018). The intervention is a culturally adapted version of the Cool Kids Outreach Program (Lyneham & Rapee, 2006; Rapee, Abbott, & Lyneham, 2006) originally developed in Australia to increase accessibility to evidence-based treatments for rural youth with anxiety disorders. The major components of the intervention include psychoeducation about anxiety, changing unhelpful thoughts, exposure activities, problem-solving exercises, parent management of anxious behavior, and assertiveness skills.

Table 2
Short Cultural Assessment (SCA) for the Use of BITs

Question	Rationale	Implications for the use of a BIT
How do you identify yourself (e.g., African American, Latinx, Asian, Native American)?	Identification of client's own ethnic/racial/cultural group	Avoids stereotyping the client as a member of any particular group based on superficial characteristics (e.g., physical appearance, ethnic name)
What are the most important aspects of this identity for you?	Elicitation of information on client's cultural values, customs, and beliefs	Facilitates the identification of cultural norms and preferences that can be incorporated into treatment plan (e.g., collectivistic attitudes, traditional gender roles)
Some people in the [racial/ethnic minority group] community have beliefs or strong opinions about mental illness and receiving therapy. What are those beliefs in your group?	Identification of attitudes towards mental illness and mental health care	Guides the provision of psychoeducation to improve BIT buy-in and destigmatize therapy by 1) addressing cultural stereotypes about mental illness with the client and/or family members (e.g., being "crazy" or "weak"), 2) building trust around privacy/confidentiality and institutional mistrust (e.g., immigration status, previous experiences with institutional discrimination), and 3) reframing goals for treatment in a strength-based perspective (i.e., developing skills and abilities)
In your particular case, what aspects of this identity do you think make a difference for your [mental health problem]?	Recognition of possible areas for cultural adaptation of the content, plan, and treatment implementation	Assists with 1) changing terminology to improve acceptability (e.g., mentoring vs parent training, *nervios* vs anxiety), 2) determining level of involvement for family members (e.g., incorporating supportive family members in sessions, teaching skills to avoid confrontation with family members not supportive of treatment), 3) providing relevant information/activities in treatment (e.g., information related to acculturative stress for recent immigrants, design of feasible homework activities for families with significant competing responsibilities), 4) providing tailor level of face-to-face support (e.g., case management support), among other possible adaptations
Some people have beliefs or strong opinions about using [BIT approach] for their care. What is your opinion? Do you think this approach will work for you? What are the pros and cons?	Assessment of beliefs about and attitudes towards the use of technology to receive mental health care	Helps identify attitudinal barriers that may interfere with BIT acceptability, satisfaction, engagement, and ultimately outcomes. Gives the opportunity to provide the client with psychoeducation about the efficacy of BIT as well as potential benefits from this approach. Facilitates to instill a sense of self-efficacy towards the use of technology in the client

Each week the parent-child dyad is directed to read a chapter on a given CBT skill, complete activities designed to help them apply what they learned and conduct various activities with their child. Audio versions of the parent and child workbooks, as well as video exemplars (presented on CDs and DVDs) of the core CBT skills are given to families to address possible issues with literacy and to facilitate learning. During telephone sessions (30–40 minutes each), the therapist reviews the previous week's homework activities with the parent, clarifies concepts and skills, and provides feedback and support to the parent. Various therapeutic techniques are used to support the intervention, including role-plays to enhance skill development, problem solving to address barriers to adherence, validation of difficult experiences, as well as praise to increase rapport and sense of self-efficacy.

Families that participated in this program were from a low-income, rural area near the U.S.-Mexico border, where there is a significant shortage of mental health providers. Jessica—a 10-year-old, bilingual Spanish/English, Latinx female—and her family received the telephone-based intervention. Jessica's parents were both foreign-born immigrants with a high school education, whose native language was Spanish. Intervention materials for Jessica's parents were provided in Spanish; Jessica received bilingual workbooks in order to address differences related to language fluency. According to family's preference, all telephone contacts were conducted in Spanish with the option of switching to English when Jessica needed it. In those instances, the therapist translated the content of the conversation back to Spanish for Jessica's parents.

According to her parents and teachers, Jessica was a very shy child. Her parents were concerned about the fact that Jessica did not seem to have friends and only appeared to enjoy being with her family. Also, for the past few months Jessica had been worrying about the transition to middle school, new teachers, and meeting new children. According to her mother, Jessica worried all the time, avoided most social situations, and had trouble with her sleep. Jessica had never received any kind of treatment for mental health problems. At the age of 8, because she seemed lonely at school, her teachers suggested that Jessica receive therapy; however, Jessica's parents were unable to find services in their area. Jessica's parents came across a flyer advertising a 10-week, skills-building program for kids with anxiety, stress, and worries at their pediatrician's office. Initially her parents were concerned that such a program would be too difficult for them given that they both work and their health care clinic was at least 30 miles from their home. They were pleased when they found out the program was offered by telephone, and meetings could be arranged at a time that fit their busy schedules.

While at first the parents described the program as being "weird," since they would not be meeting with a therapist in person (*Pues te diré que es algo raro; Well, I'll tell you that is somewhat weird*), they felt more assured once they were able to visit a website and see a photo of the therapist and read more about the treatment team. During the initial telephone session, the therapist gave them information about how therapies such as CBT work, and how many of the goals of CBT can be accomplished even if the parents and children were not meeting in person with the therapist every week. Jessica's parents could see many benefits to the telephone approach, particularly the fact that they would not have to take time off of work and attend multiple appointments that were a long distance from their house. Furthermore, the parents were pleased that they would not have to go to their local community

mental health clinic, which primarily sees patients who have serious mental illnesses. However, a few concerns remained, including whether their child would comply with the treatment, as well as their own ability to teach their child the CBT skills (*A lo mejor va ser difícil para mí porque voy a estar dudando, cómo hago esto? It may be hard for me because I will be second guessing myself about how do I do this ?*). The therapist reassured the parents that they would provide support during phone calls regarding any problems they might have with implementing the program. Additionally, the therapist explained how adjunctive components of the intervention (i.e., audio recordings of the chapters, videos of the skills on DVD) could facilitate their success in the program. The initial session was devoted to addressing parents' concerns about therapy in general and the telephone approach, as well as discussing the feasibility and their comfort with adjunctive technology supports.

After that initial session, the parents were doing well with reading the workbook and doing the exercises with the child. When they got behind with reading, they were able to use the audio recordings of the intervention materials to catch up. Jessica's mother enjoyed listening to the recordings on the way to work or when preparing dinner. Occasionally, it became a family affair, where Jessica's grandmother also wanted to read and listen to the workbook materials in order to help her granddaughter. With Jessica's and her parents' permission, her grandmother also participated in the telephone calls to ask questions about the skills and provide examples regarding Jessica's behaviors. Further, the family also watched the video exemplars of the CBT skills on a DVD player together. These videos demonstrated two approaches when teaching the various skills. First, the therapist demonstrated how to use the skills (e.g., how to create a fear hierarchy) with a parent-child dyad. Then, a parent (who had previously participated in the intervention) taught the skill to their child without therapist support. Overall, the telephone delivery approach more readily allowed for the inclusion of other family members than face-to-face delivery, a factor that was particularly important for this family given their emphasis on family cohesion. Moreover, the use of the video exemplars facilitated learning and promoted self-efficacy by allowing parent-child dyads to see a more realistic delivery of the skill by an actual parent. By the end of treatment, Jessica's family reported reductions in her anxiety symptoms, high treatment satisfaction, and very few barriers to treatment engagement.

In the current example, the case conceptualization supported the use of a telephone-based, parent-mediated approach to provide a CBT intervention for a 10-year-old Latinx female with an anxiety disorder. Factors that were considered included the child's presenting problems, as well as the absence of risk factors such as suicidal ideation

or potential child maltreatment. Additionally, barriers that would affect the family's ability to access and adhere to traditional face-to-face mental health treatment were considered, including work schedules, long distances from health care clinics, and the family's reluctance to seek services at a mental health specialty clinic. In this case example, there were no concerns about the feasibility of the intervention as the primary technological support was a telephone and the family did not report difficulties using this technology for weekly calls with a therapist. Additionally, the family also had several CD players to listen to audio recordings of the intervention materials (in house and in car) and a DVD player to watch videos. However, it should not be assumed that such technological resources are always present in low-income households. Thus, therapists may need to problem-solve alternatives in the absence of such resources. During the initial session, parents were also given the opportunity to discuss their beliefs/attitudes about a telephone-based approach with technological supports (i.e., level of comfort with technology). This initial discussion gave the therapist the opportunity to explain the approach, dispel myths about the use of technology, and address any potential barriers to the use of this intervention (e.g., unfamiliarity with technology, concerns about lack of face-to-face visits, self-efficacy). While these topics were the focus of the initial session, engagement is a dynamic process that should be considered throughout the course of treatment. In the current example, other important family members were also included in the intervention, a strategy aligned with this family's cultural values (i.e., strong family orientation). Thus, the use of phone- and video-supported approach allowed for the delivery of a more culturally robust intervention. However, in other situations, cultural factors, such as institutional mistrust, and concerns about privacy may deter the use of technology when working with hard-to-reach and potentially vulnerable populations. Therapists are advised to consistently reflect on these and other related ethical issues in order to ensure that optimal care is being provided in diverse contexts.

Conclusions and Future Directions

We live in a time when the use of the internet and other technologies is so common that it only seems natural that these innovations will be adopted in the mental health field. From new methods to screen and assess, to making evidence-based care accessible 24/7, technological tools have the potential to radically change the way that mental health care is provided. Among its many promises is the ability of technology-based interventions to make services available for traditionally underserved populations such as R&EM and to reduce longstanding disparities in care. At this point, the field

remains somewhat nascent and more evidence is needed in both research in clinical practice settings to support the promise of BITs in achieving these goals.

An important first step in this direction would be to encourage researchers to include demographic information of study participants. It is not uncommon in BIT research to omit this information as evident in most systematic reviews and metanalytic work to date (e.g., Grist & Cavanagh, 2013; Heron & Smyth, 2010; Hilty et al., 2013; Lui et al., 2017). However, this information is crucial to understanding the efficacy of these approaches among R&EM. Furthermore, the inclusion of more racially/ethnically diverse samples could facilitate the design of studies examining differential treatment responses across groups. Indeed, increasing evidence suggests that BITs are effective to treat numerous psychological disorders, yet little is known about for whom these interventions are most effective. The study of potential moderators of treatment is a neglected area in this field, but it is crucial to the development of interventions that are relevant and effective for those most in need. For instance, although rarely examined in individual studies, metaanalytic work indicates that user age moderates treatment outcomes such that elderly and very young individuals benefit less from some BITs (Barak et al., 2008; Grist & Cavanagh, 2013; Karyotaki et al., 2018). Of special interest, a recent metanalysis suggests that R&EM benefit less from therapist-guided BITs compared to their NLW peers (Karyotaki et al., 2018). Additional research examining factors that contribute to these differential effects, such as nativity, level of acculturation, immigration status, mental health stigma, literacy, and technological skills, is warranted.

Another important area of research is to examine whether technology-based interventions in fact reduce traditional face-to-face treatment barriers (e.g., transportation, stigma, engagement). Although there is some evidence of the potential of BITs to reduce barriers associated with clinic-based mental health treatment (e.g., Comer et al., 2017), most studies still indicate that engagement and attrition are significant concerns in technology-based interventions (Christensen et al., 2009; Gilbody et al., 2015; Kaltenthaler et al., 2008; Waller & Gilbody, 2009). Research on barriers to treatment, engagement, and attrition among R&EM using BITs may be especially important given that these are persistent concerns in more traditional face-to-face therapy with these populations (Sirey et al., 2001). Similarly, as efforts to create and expand BITs continue, researchers need to empirically examine whether these approaches are actually fulfilling their promise to make mental health care widely available in underserved communities. In most studies, BIT users have been provided with the technological means to participate in these interventions.

Thus, researchers still have to test whether BITs can be delivered—and whether are equally effective—making use of the more limited technological resources that families in underserved communities own (Jones, 2017). This line of research is crucial given disparities in access to technology among the most vulnerable segments of the population, including R&EM families (Pew Research Center, 2011, 2018a, 2018b; U.S. Census Bureau, 2018a). Future studies also need to examine whether underserved families seeking care independently (e.g., by using self-guided, web-based interventions) in fact access evidence-based BITs. This area is important as it is possible that low SES individuals with limited mental health literacy and lesser technological skills may face more barriers to access to and benefit from evidence-based, technology-supported, care than their more affluent counterparts.

As the interest in using BITs in community settings continues to increase, new training standards for practitioners will also be required. To date, there is a significant disconnect between the flourishing BIT-related research conducted at universities and the limited training opportunities on BIT use available in those same institutions. Not surprisingly, most community providers —who are very likely graduates from those programs—do not feel well equipped to deal with confidentiality issues, licensure regulations, and emergency situations associated with BIT employment (Glueckauf et al., 2018). Until extensive training is included in all programs (for a curriculum example, see Colbow, 2013), CE initiatives may represent a viable path for practitioners to acquire competence in the use of BITs. Fortunately, professional organizations such as the American Psychological Association (APA) and the Association for Behavioral and Cognitive Therapies (ABCT) regularly offer such CE opportunities. From workshops and clinical round tables at conferences, to webinars and online courses, APA- and ABCT-sponsored training opportunities are available throughout the year. The acquisition of BIT training through existing CE licensure requirements may also avoid additional burden for mental health providers.

Even if practitioners working in community settings regularly employed BITs, current telehealth policies and regulations could also inadvertently perpetuate disparities in care. For instance, the lack of uniform licensing requirements for the practice of telepsychology across states and countries (American Psychological Association, 2013; Barnett & Kolmes, 2016) could disproportionately affect R&EM as they traditionally reside in communities with fewer mental health providers (Cummings et al., 2017). Thus, it is possible that individuals who would benefit from telehealth services are those who could already access more traditional, face-to-face mental health care. Furthermore, as billing procedures for telehealth services could be especially onerous, and only few states have regulations to guarantee coverage for these services through Medicaid or private insurance (Perle, Langsam, & Nierenberg, 2011), R&EM might not significantly benefit from the introduction of BITs in the mental health care system. This may be especially true given that R&EM are less likely to have health insurance coverage compared to their NLW peers (U.S. Census Bureau, 2018b). The importance of setting adequate standards of care through policy is undeniable; thus, input from researchers and community providers employing BITs will be fundamental for the design of future telehealth regulations that address these potential new disparities.

Through reviewing the empirical evidence supporting the feasibility and efficacy of BITs among R&EM, we hope to increase confidence in the use of technology to reduce pervasive mental health disparities that disproportionately affect R&EM. Moreover, it is our intention that the informed clinical recommendations be used as a starting point to guide the utilization of BITs in everyday practice with R&EM groups, while acknowledging that best practices can only emerge once there has been sufficient implementation of BITs in community settings with large representation of R&EM. Finally, we hope that this work encourages clinicians and researchers to work collaboratively in order to understand how to better disseminate these interventions into varied practice settings, such as primary care, private practice, and community clinics.

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