



reductions in PTSD symptoms compared to outcomes found in the treatment-as-usual condition and thus, enhanced treatment engagement and increased access to and delivery of EBTs relative to usual care (UC; Fortney et al., 2015).

Veterans with PTSD have shown high degrees of patient and clinician satisfaction (Deitsch, Frueh, & Santos, 2000) and rates of attendance (Greene et al., 2010) comparable to in-person care in other CVT studies. Furthermore, research investigating therapist effects in CVT indicates that therapist adherence (Morland et al., 2011), therapist competence, and therapist fidelity when delivering manualized treatment protocols is similar in CVT and in-person modalities (Frueh et al., 2007).

Based on positive results for office-based CVT, there is growing interest regarding whether CVT can be used to safely and effectively deliver PTSD therapy to patients in their own homes, thereby reducing travel burden for patients. A number of ongoing trials of in-home delivery of PTSD treatments with Veterans are currently underway. Yuen and colleagues (in press) reported the preliminary results of a RCT of home-based PE delivered via CVT for combat-related PTSD, which provided evidence that clinical outcomes and patient satisfaction for home-based PTSD treatment was similar between the CVT and in-person conditions. Another ongoing trial is assessing in-home delivery of an exposure therapy for co-occurring PTSD and depression in Operation New Dawn/Operation Enduring Freedom Veterans. Preliminary results demonstrated significant reductions in symptoms of PTSD, depression, and anxiety in both the home-based CVT and in-person conditions (Strachan, Gros, Ruggiero, Lejuez, & Acierno, 2012). Future large scale RCTs on PTSD treatments delivered via various telehealth modalities (e.g., home-based CVT, online, apps) are warranted.

## Online Interventions

Online tools offer a convenient way of providing information, screening and self-assessment, intervention, and social support to people who might otherwise not access formal treatment (Amstadter, Broman-Fulks, Zinzow, Ruggiero, & Cercone, 2009). Reputable websites that provide mental health information for trauma survivors include the websites of the National Center for PTSD, International Society of Traumatic Stress Studies, American Psychological Association, Anxiety and Depression Association of America, and Afterdeployment.org. There has been little empirical research on the effects of online educational material. In an uncontrolled study with 445 military families, Roy and colleagues (2012) found that family member scores on a PTSD knowledge test improved by 34% after a single session of using an educational website. Sadler and colleagues (2013) tested an online screening and information program designed for female Reserve and National Guard troops returning from deployment ( $N = 131$ ). Thirty-one percent said using the site made them feel more comfortable seeking mental health care and 42% said they planned to seek mental health treatment. Another online screening and recommendation program has been developed for disaster survivors (Ruggiero et al., 2012).

*Interapy* is an online, therapist-supported, narrative writing intervention for PTSD. Over a 5-week period, participants engage in writing exercises that include elements of exposure,

cognitive reappraisal, and farewell rituals. Therapists provide email feedback after each writing assignment. Three trials have tested *Interapy* among trauma-exposed individuals with PTSD symptoms. Although the first trial with *Interapy* showed large effects on PTSD and other symptoms among completers, the nearly 50% drop-out rate and lack of an intent-to-treat (ITT) analysis raised questions about its overall effectiveness (Lange et al., 2003). In subsequent trials with trauma-exposed individuals (Knaevelsrud & Maercker, 2007) and parents who lost a child during pregnancy (Kersting et al., 2013), retention was over 84% and ITT analyses showed *Interapy* produced large improvements in PTSD symptoms, depression and anxiety ( $d = .82-1.41$ ) relative to controls. Furthermore, stronger therapeutic alliance with the online clinician predicted greater improvement in two studies, suggesting that email contact is an important component of *Interapy* (Knaevelsrud & Maercker, 2007; Wagner, Brand, Schulz, & Knaevelsrud, 2012). Among survivors of the 9/11 Pentagon attack, another online CBT intervention with email support produced steeper reductions in PTSD symptoms than did online supportive counseling (Litz, Engel, Bryant, & Papa, 2007).

*My Disaster Recovery* (<http://disaster.bluesunsupport.com>) is an online tool designed to improve trauma survivor coping skills, which involves no written disclosure and is self-administered without any clinician contact. It consists of six modules: social support, self-talk, relaxation, trauma triggers, unhelpful coping, and professional help. A trial among 56 survivors of Hurricane Ike showed that using *My Disaster Recovery* for an average of 1.8 hours reduced worry more than use of a non-interactive electronic book (e-book) or usual care; changes on other symptoms were non-significant (Steinmetz, Benight, Bishop, & James, 2012). A Chinese variant of the website *My Trauma Recovery* (Wang, Wang, & Maercker, 2013) was tested in both an urban sample exposed to a variety of traumas ( $n = 93$ , retention rate < 38%) and rural survivors of the 2008 Szechuan earthquake ( $n = 93$ , retention rate > 87%). ITT analyses in both samples showed that PTSD symptoms improved more among those using the tool than among controls.

*VetChange* is a self-administered online intervention that uses elements of motivational interviewing, CBT strategies and self-control training to address problematic drinking in people with PTSD. A study conducted with 600 Veterans found that participants completed an average of four of eight modules. Both alcohol problems and PTSD symptoms declined more in the treatment than in the control condition (Brief et al., 2013). In another study evaluating the PTSD module of the self-administered intervention *Afterdeployment.org*, four of eleven Veterans showed reductions in PTSD symptoms (Bush et al., 2014). Taken together, these studies suggest that both therapist-supported and fully self-administered online interventions can produce psychological benefits for trauma survivors, but the effects for therapist-mediated interventions appear to be larger.

## mHealth Technologies

Phone and other mobile health technologies (i.e., tablet computers, e-books) hold significant promise for improving the assessment and treatment of PTSD. Similar to online interventions, they can provide information, facilitate screening/assessment, provide intervention, mobilize social support, potentially increase the

reach of psychosocial interventions at minimal incremental cost, strengthen self-management, and enhance process and outcomes assessment. A study focusing on assessment methodology demonstrated that PTSD Checklist (PCL) symptom assessments obtained via mobile device were equivalent to those recorded using traditional paper and pencil measures (Price et al., in press). By virtue of their relatively continuous access between treatment sessions, they can mobilize treatment processes in the natural environment by increasing situational coping, offering as-needed access to supportive resources, facilitating self-monitoring, enabling scheduling and reminding patients of therapeutic tasks. Initial publications have focused on descriptions of newly developed mobile apps and assessments of provider and patient perceptions of the technologies. To date, no research has investigated the impact of these tools on patient outcomes, either as adjuncts to treatment or as stand-alone interventions.

The most used PTSD-related app is PTSD Coach, now downloaded over 180,000 times in 89 countries. This app is designed to educate users about PTSD, enable self-assessment of PTSD symptoms, and increase self-management of symptoms by providing coping tools and promoting use of social support and community resources. Kuhn, Greene, Hoffman, and colleagues (2014) surveyed 45 Veterans receiving PTSD treatment about their perceptions of the PTSD Coach app. After using the app over a brief three-day period, almost 90% of Veterans indicated that they were moderately or extremely satisfied with the app and ratings of app helpfulness were very positive. Ratings of helpfulness and satisfaction were unrelated to the Veteran's age. A larger survey of 188 Veterans receiving outpatient VA PTSD treatment found that 85% were interested in using apps as part of treatment. Access to the technology was good (76% reported owning a smartphone or tablet) and, while age was correlated with ownership of a device, it was unrelated to use of apps in treatment (Erbes et al., 2014).

An important potential role for mobile apps involves support for delivery of EBTs (Reger et al. 2013) described the PE Coach app, designed to enable patients to understand psychoeducational content, schedule upcoming sessions, complete and self-monitor in vivo and imaginal exposure homework assignments, master breathing retraining, and measure PTSD symptom change. A survey on perceptions of PE Coach completed by 163 VA mental health clinicians found that perceptions of the relative advantage, compatibility with care, and complexity of using the app were mildly favorable (Kuhn, Eftekhari, Hoffman, et al., 2014). The study was conducted prior to the launch of the app, thus ratings were obtained in response to written descriptions of app capabilities rather than experiences with use. Younger clinicians (<40 years old) rated PE Coach significantly more favorably than older clinicians and reported greater levels of intention to use the app.

## Summary

A solid research base does exist that supports the use of CVT to deliver EBTs. Some research has demonstrated efficacy of online interventions; however, research on outcomes of mobile apps is in its infancy. For both online and mobile app interventions, more research is needed to establish their efficacy, identify active elements and core processes of change, determine

effective ways of increasing uptake and engagement, and explore ways of combining these modalities to maximize the impact of unique features associated with each technology. There is little data demonstrating the efficacy of these tools; however, many of these psychoeducational tools that support delivery of established treatments pose little risk of harm and can be used to augment psychotherapy or case management and provide initial psychoeducation to patients not yet receiving formal treatment. Given the potential utility of online materials, clinicians should explore including them as supplements to face-to-face care. It also seems reasonable to use apps designed to support established psychotherapies (e.g., PE Coach) as they offer advantages over paper-and-pencil workbooks and pose no risk. Clinicians using any telemedicine tools should familiarize themselves with the content and processes of the tools and actively monitor their use and impact on patient care.

The technologies outlined here offer a path toward improving the efficiency and effectiveness of trauma-related interventions. Potentially, they can improve outcomes while at the same time enabling mental health professionals to serve greater numbers of patients. They can also form a core element of public health interventions that can reach large numbers of trauma survivors and help them to better self-manage their post-trauma difficulties. Given the anticipated spread of these technologies around the world in the next decade or so, they hold promise of making a significant contribution to reducing the global burden of mental health problems experienced by trauma survivors.

## FEATURED ARTICLES

Backhaus, A., Agha, Z., Maglione, M. L., Repp, A., Ross, B., Zuest, D., et al. (2012). **Videoconferencing psychotherapy: A systematic review.** *Psychological Services, 9*, 111-131. doi:10.1037/a0027924

Individuals with mental health problems may face barriers to accessing effective psychotherapies. Videoconferencing technology, which allows audio and video information to be shared concurrently across geographical distances, offers an alternative that may improve access. We conducted a systematic literature review of the use of videoconferencing psychotherapy (VCP), designed to address 10 specific questions, including therapeutic types/formats that have been implemented, the populations with which VCP is being used, the number and types of publications related to VCP, and available satisfaction, feasibility, and outcome data related to VCP. After electronic searches and reviews of reference lists, 821 potential articles were identified, and 65 were selected for inclusion. The results indicate that VCP is feasible, has been used in a variety of therapeutic formats and with diverse populations, is generally associated with good user satisfaction, and is found to have similar clinical outcomes to traditional face-to-face psychotherapy. Although the number of articles being published on VCP has increased in recent years, there remains a need for additional large-scale clinical trials to further assess the efficacy and effectiveness of VCP.

Erbes, C. R., Stinson, R., Kuhn, E., Polusny, M., Urban, J., Hoffman, J., et al. (2014). **Access, utilization, and interest in mHealth applications among Veterans receiving outpatient care for PTSD.** *Military Medicine*, 179, 1218-1222. doi:10.7205/MILMED-D-14-00014

Mobile health (mHealth) refers to the use of mobile technology (e.g., smartphones) and software (i.e., apps) to facilitate or enhance health care. Several mHealth programs act as either stand-alone aids for Veterans with PTSD or adjuncts to conventional psychotherapy approaches. Veterans enrolled in a Veterans Affairs (VA) outpatient treatment program for PTSD ( $N = 188$ ) completed anonymous questionnaires that assessed Veterans' access to mHealth-capable devices and their utilization of and interest in mHealth programs for PTSD. The majority of respondents ( $n = 142$ , 76%) reported having access to a cell phone or tablet capable of running apps, but only a small group ( $n = 18$ ) reported use of existing mHealth programs for PTSD. Age significantly predicted ownership of mHealth devices, but not utilization or interest in mHealth apps among device owners. Around 56% to 76% of respondents with access indicated that they were interested in trying mHealth programs for such issues as anger management, sleep hygiene, and management of anxiety symptoms. Findings from this sample suggest that Veterans have adequate access to, and interest in, using mHealth apps to warrant continued development and evaluation of mobile apps for the treatment of PTSD and other mental health conditions.

Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2007). *Prolonged Exposure therapy for PTSD: Emotional processing of traumatic experience: Therapist guide*. New York: Oxford University Press. This guide gives clinicians the information they need to treat clients who exhibit the symptoms of PTSD. It is based on the principles of Prolonged Exposure Therapy, the most scientifically-tested and proven treatment that has been used to effectively treat victims of all types of trauma. Whether your client is a veteran of combat, a victim of a physical or sexual assault, or a casualty of a motor vehicle accident, the techniques and strategies outlined in this book will help.

Fortney, J. C., Pyne, J. M., Kimbrell, T. A., Hudson, T. J., Robinson, D. E., Schneider, R., et al. (2015). **Telemedicine-based collaborative care for posttraumatic stress disorder: A randomized clinical trial.**

*JAMA Psychiatry*, 72, 58-67. doi:10.1001/jamapsychiatry.2014.1575

**Importance:** PTSD is prevalent, persistent, and disabling. Although psychotherapy and pharmacotherapy have proven efficacious in randomized clinical trials, geographic barriers impede rural Veterans from engaging in these evidence-based treatments. **Objective:** To test a telemedicine-based collaborative care model designed to improve engagement in evidence-based treatment of PTSD. **Design, Setting, and Participants:** The Telemedicine Outreach for PTSD (TOP) study used a pragmatic randomized effectiveness trial design with intention-to-treat analyses. Outpatients were recruited from 11 Department of Veterans Affairs (VA) community-based outpatient clinics serving predominantly rural Veterans. Inclusion required meeting diagnostic criteria for current PTSD according to the Clinician-Administered PTSD Scale. Exclusion criteria included receiving PTSD treatment at a VA medical center or a current diagnosis of

schizophrenia, bipolar disorder, or substance dependence. Two hundred sixty-five Veterans were enrolled from November 23, 2009, through September 28, 2011, randomized to UC or the TOP intervention, and followed up for 12 months. **Interventions:** SD care teams located at VA medical centers supported on-site community-based outpatient clinic providers. Off-site PTSD care teams included telephone nurse care managers, telephone pharmacists, telepsychologists, and telepsychiatrists. Nurses conducted care management activities. Pharmacists reviewed medication histories. Psychologists delivered cognitive processing therapy via interactive video. Psychiatrists supervised the team and conducted interactive video psychiatric consultations. **Main Outcomes and Measures:** The primary outcome was PTSD severity as measured by the Posttraumatic Diagnostic Scale. Process-of-care outcomes included medication prescribing and regimen adherence and initiation of and adherence to cognitive processing therapy. **Results:** During the 12-month follow-up period, 73 of the 133 patients randomized to TOP (54.9%) received cognitive processing therapy compared with 16 of 132 randomized to UC (12.1%) (odds ratio, 18.08 [95% CI, 7.96-41.06];  $P < .001$ ). Patients in the TOP arm had significantly larger decreases in Posttraumatic Diagnostic Scale scores (from 35.0 to 29.1) compared with those in the UC arm (from 33.5 to 32.1) at six months ( $\beta = -3.81$ ;  $P = .002$ ). Patients in the TOP arm also had significantly larger decreases in Posttraumatic Diagnostic Scale scores (from 35.0 to 30.1) compared with those in the UC arm (from 33.5 to 31.7) at 12 months ( $\beta = -2.49$ ;  $P = .04$ ). There were no significant group differences in the number of PTSD medications prescribed and adherence to medication regimens were not significant. Attendance at eight or more sessions of cognitive processing therapy significantly predicted improvement in Posttraumatic Diagnostic Scale scores ( $\beta = -3.86$  [95% CI, -7.19 to -0.54];  $P = .02$ ) and fully mediated the intervention effect at 12 months. **Conclusions and Relevance:** Telemedicine-based collaborative care can successfully engage rural Veterans in evidence-based psychotherapy to improve PTSD outcomes.

Kazdin, A. E., & Blase, S. L. (2011). **Rebooting psychotherapy research and practice to reduce the burden of mental illness.**

*Perspectives on Psychological Science*, 6, 21-37. doi:10.1177/1745691610393527 Psychological interventions to treat mental health issues have developed remarkably in the past few decades. Yet this progress often neglects a central goal—namely, to reduce the burden of mental illness and related conditions. The need for psychological services is enormous, and only a small proportion of individuals in need actually receive treatment. Individual psychotherapy, the dominant model of treatment delivery, is not likely to be able to meet this need. Despite advances, mental health professionals are not likely to reduce the prevalence, incidence, and burden of mental illness without a major shift in intervention research and clinical practice. A portfolio of models of delivery will be needed. We illustrate various models of delivery to convey opportunities provided by technology, special settings and nontraditional service providers, self-help interventions, and the media. Decreasing the burden of mental illness also will depend on integrating prevention and treatment, developing assessment and a national database for monitoring mental illness and its

burdens, considering contextual issues that influence delivery of treatment, and addressing potential tensions within the mental health professions. Finally, opportunities for multidisciplinary collaborations are discussed as key considerations for reducing the burden of mental illness.

Kersting, A., Dölemeyer, R., Steinig, J., Walter, F., Krokoer, K., Baust, K., et al. (2013). **Brief internet-based intervention reduces posttraumatic stress and prolonged grief in parents after the loss a child during pregnancy: A randomized controlled trial.** *Psychotherapy and Psychosomatics*, *82*, 372-381.

[doi:10.1159/000348713](https://doi.org/10.1159/000348713) *Background:* The loss of a child during pregnancy causes significant psychological distress for many women and their partners, and may lead to long-lasting psychiatric disorders. Internet-based interventions using exposure techniques and cognitive restructuring have proved effective for PTSD and prolonged grief. This study compared the effects of an Internet-based intervention for parents after prenatal loss with a waiting list condition (WLC). *Methods:* The Impact of Event Scale—Revised assessed symptoms of PTSD; the Inventory of Complicated Grief and the Brief Symptom Inventory assessed depression, anxiety, and general mental health. The 228 participants (92% female) were randomly allocated to a treatment group (TG;  $n = 115$ ) or a WLC group ( $n = 113$ ). The TG received a five-week cognitive behavioral intervention including (1) self-confrontation, (2) cognitive restructuring, and (3) social sharing. *Results:* The TG showed significantly reduced symptoms of posttraumatic stress, prolonged grief, depression, and anxiety relative to the WLC control group. Intention-to-treat analysis revealed treatment effects of between  $d = 0.84$  and  $d = 1.02$  for posttraumatic stress and prolonged grief from pre- to posttreatment time points. Further significant improvement in all symptoms of PTSD and prolonged grief was found from the posttreatment evaluation to the 12-month follow-up. The attrition rate of 14% was relatively low. *Conclusions:* The Internet-based intervention proved to be a feasible and cost-effective treatment, reducing symptoms of posttraumatic stress, grief, depression, anxiety, and general mental health after pregnancy loss. Low-threshold e-health interventions should be further evaluated and implemented routinely to improve psychological support after pregnancy loss.

Knaevelsrud, C., & Maercker, A. (2007). **Internet-based treatment for PTSD reduces distress and facilitates the development of a strong therapeutic alliance: a randomized controlled clinical trial.** *BMC Psychiatry* 2007, 7:13 [doi:10.1186/1471-244X-7-13](https://doi.org/10.1186/1471-244X-7-13)

*Background:* The present study was designed to evaluate the efficacy of an internet-based therapy (Interapy) for PTSD in a German speaking population. Also, the quality of the online therapeutic relationship, its development and its relevance as potential moderator of the treatment effects was investigated. *Method:* Ninety-six patients with posttraumatic stress reactions were allocated at random to ten sessions of Internet-based cognitive behavioural therapy (CBT) conducted over a five-week period or a waiting list control group. Severity of PTSD was the primary outcome. Secondary outcome variables were depression, anxiety, dissociation and physical health. Follow-up assessments were conducted at the end of treatment and three months after

treatment. *Results:* From baseline to post-treatment assessment, PTSD severity and other psychopathological symptoms were significantly improved for the treatment group (intent-to-treat group  $\times$  time interaction effect size  $d = 1.40$ ). Additionally, patients of the treatment condition showed significantly greater reduction of co-morbid depression and anxiety as compared to the WLC. These effects were sustained during the three-month follow-up period. High ratings of the therapeutic alliance and low drop-out rates indicated that a positive and stable therapeutic relationship could be established online. Significant improvement of the online working alliance in the course of treatment and a substantial correlation between the quality of the online relationship at the end of treatment and treatment outcome emerged. *Conclusion:* Interapy proved to be a viable treatment alternative for PTSD with large effect sizes and sustained treatment effects. A stable and positive online therapeutic relationship can be established through the Internet which improved during the treatment process.

Kuhn, E., Eftekhari, A., Hoffman, J. E., Crowley, J. J., Ramsey, K. M., Reger, G. M., et al. (2014). **Clinician perceptions of using a smartphone app with prolonged exposure therapy.** *Administration and Policy in Mental Health and Mental Health Services*, *41*, 800-807.

[doi:10.1007/s10488-013-0532-2](https://doi.org/10.1007/s10488-013-0532-2) Clinician perceptions of clinical innovations affect their adoption and spread. This study investigated mental health clinicians' ( $n = 163$ ) perceptions of a patient-facing smartphone app for prolonged exposure (PE) therapy for PTSD, before its public release. After reading a description of the app, participants rated perceptions of it based on diffusion of innovations theory constructs. Perceptions were generally favorable regarding the app's relative advantage over existing PE practices, compatibility with their values and needs, and complexity. Age ( $< 40$  years), smartphone ownership, and having used apps in care related to more favorable perceptions. Smartphone ownership, relative advantage, and complexity significantly predicted intention to use the app if it were available. These findings suggest that clinicians are receptive to using a PE app and that dissemination efforts should target sub-groups of PE clinicians to maximize adoption.

Kuhn, E., Greene, C., Hoffman, J., Nguyen, T., Wald, L., Schmidt, J., Ramsey, K. M., & Ruzek, J. (2014). **Preliminary evaluation of PTSD Coach, a smartphone app for post-traumatic stress symptoms.** *Military Medicine*, *179*, 12-18. [doi:10.7205/MILMED-D-13-00271](https://doi.org/10.7205/MILMED-D-13-00271)

PTSD Coach is a mobile application (app) designed to help individuals who have PTSD symptoms better understand and self-manage their symptoms. It has wide-scale use (over 130,000 downloads in 78 countries) and very favorable reviews but has yet to be evaluated. Therefore, this study examines user satisfaction, perceived helpfulness, and usage patterns of PTSD Coach in a sample of 45 Veterans receiving PTSD treatment. After using PTSD Coach for several days, participants completed a survey of satisfaction and perceived helpfulness and focus groups exploring app use and benefit from use. Data indicate that participants were very satisfied with PTSD Coach and perceived it as being moderately to very helpful with their PTSD symptoms. Analysis of focus group data resulted in several categories of app use: to manage acute distress and PTSD

symptoms, at scheduled times, and to help with sleep. These findings offer preliminary support for the acceptability and perceived helpfulness of PTSD Coach and suggest that it has potential to be an effective self-management tool for PTSD. Although promising, future research is required to validate this, given study limitations.

Lange, A., Rietdijk, D., Hudcovicova, M., van de Ven, J.-P., Schrieken, B., & Emmelkamp, P. M. G. (2003). **Interapy: A controlled randomized trial of the standardized treatment of posttraumatic stress through the internet.** *Journal of Consulting and Clinical Psychology, 71*, 901-909. doi:10.1037/0022-006X.71.5.901 Online therapy offers many advantages over face-to-face therapy. Interapy includes psychoeducation, screening, effect measures, and a protocol-driven treatment via the Internet for people suffering from posttraumatic stress. The present article reports the results of a controlled trial on the Internet-driven treatment of posttraumatic stress and grief in a group of people who manifested mild to relatively severe trauma symptoms. Participants in the treatment condition ( $n = 69$ ) improved significantly more than participants in the waiting-list control condition ( $n = 32$ ) on trauma-related symptoms and general psychopathology. The effect sizes were large. On most subscales, more than 50% of the treated participants showed reliable change and clinically significant improvement, with the highest percentages being found for depression and avoidance.

Litz, B. T., Engel, C. C., Bryant, R. A., & Papa, A. (2007). **A randomized, controlled proof-of-concept trial of an internet-based, therapist-assisted self-management treatment for posttraumatic stress disorder.** *American Journal of Psychiatry, 164*, 1676-1683. doi:10.1176/appi.ajp.2007.06122057 *Objective:* The authors report an 8-week randomized, controlled proof-of-concept trial of a new therapist-assisted, Internet-based, self-management cognitive behavior therapy versus Internet-based supportive counseling for PTSD. *Method:* Service members with PTSD from the attack on the Pentagon on September 11th or Operation Enduring Freedom (OEF) / Operation Iraqi Freedom (OIF) / Operation New Dawn (OND) were randomly assigned to self-management cognitive behavior therapy ( $N = 24$ ) or supportive counseling ( $N = 21$ ). *Results:* The dropout rate was similar to regular cognitive behavior therapy (30%) and unrelated to treatment arm. In the intent-to-treat group, self-management cognitive behavior therapy led to sharper declines in daily log-on ratings of PTSD symptoms and global depression. In the completer group, self-management cognitive behavior therapy led to greater reductions in PTSD, depression, and anxiety scores at six months. One-third of those who completed self-management cognitive behavior therapy achieved high-end state functioning at six months. *Conclusions:* Self-management cognitive behavior therapy may be a way of delivering effective treatment to large numbers with unmet needs and barriers to care.

Morland, L. A., Mackintosh, M., Greene, C. J., Rosen, C. S., Chard, K. M., Resick, P., et al. (2014). **Cognitive Processing Therapy for posttraumatic stress disorder delivered to rural Veterans via telemental health: A randomized noninferiority clinical trial.** *Journal of Clinical Psychiatry, 75*, 470-476. doi:10.4088/JCP.13m08842

*Objective:* To compare clinical and process outcomes of cognitive processing therapy-cognitive only version (CPT-C) delivered via videoteleconferencing (VTC) to in-person in a rural, ethnically diverse sample of Veterans with PTSD. *Method:* A randomized clinical trial with a noninferiority design was used to determine if providing CPT-C via VTC is effective and “as good as” in-person delivery. The study took place between March 2009 and June 2013. PTSD was diagnosed per *DSM-IV*. Participants received 12 sessions of CPT-C via VTC ( $n = 61$ ) or in-person ( $n = 64$ ). Assessments were administered at baseline, midtreatment, immediately posttreatment, and three and six months posttreatment. The primary clinical outcome was posttreatment PTSD severity, as measured by the Clinician-Administered PTSD Scale. *Results:* Clinical and process outcomes found VTC to be noninferior to in-person treatment. Significant reductions in PTSD symptoms were identified at posttreatment (Cohen  $d = 0.78$ ,  $P < .05$ ) and maintained at three- and six-month follow-up ( $d = 0.73$ ,  $P < .05$  and  $d = 0.76$ ,  $P < .05$ , respectively). High levels of therapeutic alliance, treatment compliance, and satisfaction and moderate levels of treatment expectancies were reported, with no differences between groups (for all comparisons,  $F < 1.9$ ,  $P > .17$ ). *Conclusions:* Providing CPT-C to rural residents with PTSD via VTC produced outcomes that were “as good as” in-person treatment. All participants demonstrated significant reductions in PTSD symptoms posttreatment and at follow-up. Results indicate that VTC can offer increased access to specialty mental health care for residents of rural or remote areas.

Resick P. A., Monson, C. M., & Chard, K. M. (2007). *Cognitive Processing Therapy treatment manual: Veteran/military version*. Boston, MA: U.S. Department of Veterans Administration. Cognitive Processing Therapy (CPT) is a 12-session therapy that has been found effective for both PTSD and other corollary symptoms following traumatic events (Monson et al, 2006; Resick et al, 2002; Resick & Schnicke, 1992, 1993). Although the research on CPT focused on rape victims originally, we have used the therapy successfully with a range of other traumatic events, including military-related traumas. This revision of the manual is in response to requests for a treatment manual that focuses exclusively on military trauma. The manual has been updated to reflect changes in the therapy over time, particularly with an increase in the amount of practice that is assigned and with some of the handouts. It also includes suggestions from almost two decades of clinical experience with the therapy.

Roy, M. J., Taylor, P., Runge, W., Grigsby, E., Woolley, M., & Torgeson, T. (2012). **Web-based post-traumatic stress disorder education for military family members.** *Military Medicine, 177*(3), 284-290. doi:10.7205/MILMED-D-11-00350 *Objective:* Since PTSD is common after military deployment and affects both military service members and their families, we sought to both improve PTSD-related knowledge of military family members and to foster actions to help service members with their symptoms. *Methods:* Focus groups were conducted with military family members and their feedback was incorporated into an educational website to improve family members' knowledge of PTSD. We pilot-tested the site and a 25-item questionnaire, then used it to assess the knowledge of 497 family members before and after their use of

the website. *Results:* Use of this educational website improved military family members' PTSD-related knowledge on a 25-item test, with an increase from a mean 13.9 correct responses beforehand to 18.7 after website use ( $p < 0.001$ ; effect size 1.2). In addition, 217 family members returned to the site  $\geq 10$  days after their initial visit; 57% had taken actions such as discussing the service member's symptoms with them or persuading them to get medical attention, and 82 to 95% of them believed their actions to be beneficial. *Conclusion:* A web-based intervention can both improve PTSD-related knowledge and foster behavioral changes in military family members.

Sadler, A. G., Mengeling, M. A., Torner, J. C., Smith, J. L., Franciscus, C. L., Erschens, H. J., et al. (2013). **Feasibility and desirability of web-based mental health screening and individualized education for female OEF/OIF Reserve and National Guard war Veterans.** *Journal of Traumatic Stress, 26*, 401-404. doi:10.1002/jts.21811 OEF/OND Reserve and National Guard (RNG) service members have an increased risk for postdeployment mental health (MH) and readjustment problems, yet most do not access needed care. It is unknown if RNG servicewomen experiencing postdeployment readjustment symptoms are aware these may signify treatable MH concerns or if this knowledge activates care-seeking. The aims of this proof-of-concept study were to determine the feasibility of web-based MH screening for postdeployment MH symptoms to inform individualized psychoeducation, and to assess user perceptions about the online instrument and process, MH care access, and VA and other MH care. A midwestern sample ( $N = 131$ ) of recently deployed (past 24 months) OEF/OIF RNG Army and Air Force servicewomen participated. High rates of combat experiences (95%) and military sexual trauma (50%) were reported. Positive screens for key symptoms of MH problems were prevalent. One third (31%) of satisfaction survey completers indicated online information reduced discomfort with seeking MH care; 42% reported they would subsequently seek MH assessment. Participants interviewed by telephone indicated that stigma and limited knowledge about women-specific services were key reasons servicewomen do not use MH care. This study demonstrated web-based screenings with individualized psychoeducation are implementable and favorable to RNG servicewomen.

Steinmetz, S. E., Benight, C. C., Bishop, S. L., & James, L. E. (2012). **My disaster recovery: A pilot randomized controlled trial of an internet intervention.** *Anxiety, Stress & Coping, 25*, 593-600. doi:10.1080/10615806.2011.604869 This pilot study tested the efficacy of the *My Disaster Recovery* (MDR) website to decrease negative affect and increase coping self-efficacy. Fifty-six survivors of Hurricane Ike were recruited from a larger study being conducted at the University of Texas Medical Branch at the first anniversary of the storm. Restricted randomization was used to assign participants to the MDR website, an information-only website, or an UC condition. Group  $\times$  time interactions indicated that MDR reduced participant worry more than the other conditions. A similar trend was also identified for depression. Both websites were accessed a small to moderate amount and participants reported mixed satisfaction for both websites. Although the

effect sizes for worry and depression were in the moderate to large range, small sample size and timing of the intervention qualify the findings. These preliminary findings encourage further evaluation of MDR with a larger, demographically diverse sample and indicate that the MDR website might be helpful in reducing worry and depression.

Strachan, M., Gros, D. F., Ruggiero, K. J., Lejuez, C. W., & Acierno, R. (2012). **An integrated approach to delivering exposure-based treatment for symptoms of PTSD and depression in OIF/OEF Veterans: Preliminary findings.** *Behavior Therapy, 43*, 560-569. doi:10.1016/j.beth.2011.03.003 Combat-exposed military personnel from the wars in Iraq and Afghanistan report high rates of PTSD and associated psychiatric problems. A formidable body of research supports exposure therapy as a front-line intervention for PTSD; however, relative to studies of civilians, fewer investigations have evaluated the effectiveness of exposure therapy using military samples. Specifically, barriers to care (e.g., stigma associated with receiving mental health services) may compromise utilization of evidence-based psychotherapy. As such, researchers have argued that Veterans with PTSD may require an integrated and innovative approach to the delivery of exposure techniques. This paper presents the rationale for and preliminary data from an ongoing clinical trial that compares the home-based telehealth (HBT) application of a brief, behavioral treatment (Behavioral Activation and Therapeutic Exposure; BA-TE) for Veterans with PTSD to the standard, in-person application of the same treatment. Forty OIF/OEF Veterans with PTSD and MDD were consented, enrolled, and randomized to condition (BA-TE in-person, or BA-TE HBT) and symptoms of anxiety and depression were assessed at pre- and posttreatment. Participants in both conditions experienced reductions in depression, anxiety, and PTSD symptoms between pre- and posttreatment, suggesting that HBT application of an integrated PTSD treatment may be feasible and effective.

Tuerk, P. W., Yoder, M., Ruggiero, K. J., Gros, D. F., & Acierno, R. (2010). **A pilot study of prolonged exposure therapy for posttraumatic stress disorder delivered via telehealth technology.** *Journal of Traumatic Stress, 23*, 116-123. doi:10.1002/jts.20494 The authors present a pilot study of 12 Veterans diagnosed with combat-related PTSD and treated with PE therapy via telehealth technology. A reference sample of 35 combat Veterans treated with in-person PE in the same clinic is also included for a comparison. Feasibility and clinical outcomes of interest include technical performance and practicality of the telehealth equipment, patient safety, treatment completion rates, number of sessions required for termination, and clinical outcomes. Results indicated large statistically significant decreases in self-reported pathology for Veterans treated with PE via telehealth technology. Preliminary results support the feasibility and safety of the modality. Suggestions for the implementation of PE via telehealth technology are discussed.

Wang, Z., Wang, J., & Maercker, A. (2013). **Chinese My Trauma Recovery, a web-based intervention for traumatized persons in two parallel samples: Randomized controlled trial.** *Journal of Medical Internet Research, 15*(9), e213. doi:10.2196/jmir.2690 *Background:* Guided self-help interventions for PTSD are a

promising tool for the dissemination of contemporary psychological treatment. **Objective:** This study investigated the efficacy of the Chinese version of the My Trauma Recovery (CMTR) website. **Methods:** In an urban context, 90 survivors of different trauma types were recruited via Internet advertisements and allocated to a randomized controlled trial (RCT) with a waiting list control condition. In addition, in a rural context, 93 survivors mainly of the 2008 Sichuan earthquake were recruited in-person for a parallel RCT in which the website intervention was conducted in a counseling center and guided by volunteers. Assessment was completed online on a professional Chinese survey website. The primary outcome measure was the Post-traumatic Diagnostic Scale (PDS); secondary outcome measures were Symptom Checklist 90-Depression (SCL-D), Trauma Coping Self-Efficacy Scale (CSE), Post-traumatic Cognitive Changes (PCC), and Social Functioning Impairment (SFI) questionnaires adopted from the My Trauma Recovery website. **Results:** For the urban sample, findings indicated a significant group×time interaction in post-traumatic symptom severity ( $F_{1,88} = 7.65, P = .007$ ). CMTR reduced post-traumatic symptoms significantly with high effect size after one month of treatment ( $F_{1,45} = 15.13$ , Cohen's  $d = 0.81, P < .001$ ) and the reduction was sustained over a three-month follow-up ( $F_{1,45} = 17.29$ , Cohen's  $d = 0.87, P < .001$ ). In the rural sample, the group×time interaction was also significant in post-traumatic symptom severity ( $F_{1,91} = 5.35, P = .02$ ). Post-traumatic symptoms decreased significantly after treatment ( $F_{1,48} = 43.97$ , Cohen's  $d = 1.34, P < .001$ ) and during the follow-up period ( $F_{1,48} = 24.22$ , Cohen's  $d = 0.99, P < .001$ ). Additional outcome measures (post-traumatic cognitive changes, depression) indicated a range of positive effects, in particular in the urban sample (group×time interactions:  $F_{1,88} = 5.32-8.37$ , all  $P$ s  $< .03$ ), contributing to the positive evidence for self-help interventions. Differences in the effects in the two RCTs are exploratorily explained by sociodemographic, motivational, and setting feature differences between the two samples. **Conclusions:** These findings give support for the short-term efficacy of CMTR in the two Chinese populations and contribute to the literature that self-help web-based programs can be used to provide mental health help for traumatized persons.

Yuen, E. K., Gros, D. F., Price, M., Zeigler, S., Tuerk, P. W., Foa, E. B., et al. (in press). **Randomized controlled trial of home-based telehealth versus in-person Prolonged Exposure for combat-related PTSD in Veterans: Preliminary results.** *Journal of Clinical Psychology*. doi:10.1002/jclp.22168 **Objectives:** Telehealth technology may reduce the effect of treatment barriers and improve participation in treatment for Veterans with PTSD. The present study is an ongoing randomized controlled trial comparing the effectiveness of PE delivered via in person or home-based video telehealth modalities. **Method:** A total of 52 Veterans with combat-related PTSD were randomized to receive 8-12 weeks of PE through either home-based telehealth or standard in-person office-based care. **Results:** Participants evidenced significant reductions in symptoms of PTSD, depression, and anxiety from pre- to posttreatment across both conditions. Analyses conducted within a noninferiority framework suggested nonsignificant treatment outcome differences in clinician-reported PTSD and self-reported anxiety between the conditions. Results were inconclusive for self-reported PTSD and depression symptoms.

Patient satisfaction ratings did not significantly differ between the two groups. **Conclusions:** Results suggest that PE can be delivered via home-based telehealth with outcomes and satisfaction ratings comparable to in-person practices for certain symptoms, however additional research is needed. This modality has the potential to address stigma- and geographic-related barriers to treatment, such as travel time and cost.

## ADDITIONAL CITATIONS

Amstadter, A. B., Broman-Fulks, J., Zinzow, H., Ruggiero, K. J., & Cercone, J. (2009). **Internet-based interventions for traumatic stress-related mental health problems: A review and suggestion for future research.** *Clinical Psychology Review, 29*, 410-420 doi:10.1016/j.cpr.2009.04.001 This article is a review of the research literature on computerized and internet-based interventions (IBIs) for traumatic stress-related conditions. Effect sizes comparable to in-person psychological treatment were found for computerized or IBIs for depression and anxiety, while lower effect sizes were evidence for interventions aimed at alcohol and smoking cessation. The authors identify directions for future research, including mechanisms of change in IBI and novel web-based approaches to treatment.

Brief, D. J., Rubin, A., Keane, T. M., Enggasser, J. L., Roy, M., Helmuth, E., et al. (2013). **Web intervention for OEF/OIF Veterans with problem drinking and PTSD symptoms: A randomized clinical trial.** *Journal of Consulting and Clinical Psychology, 81*, 890-900. doi:10.1037/a0033697 Veterans who served in Operation Enduring Freedom (OEF) and Operation New Dawn (OND) with alcohol misuse and symptoms of PTSD, recruited through targeted Facebook ads, were randomized to evaluate the efficacy of a newly developed, eight-module, self-management web intervention (VetChange) based on motivational and cognitive-behavioral principles to reduce alcohol consumption, alcohol-related problems, and PTSD symptoms. Six hundred and four participants were randomized to an Initial Intervention Group (IIG); four and 196 to a Delayed Intervention Group (DIG) that waited eight weeks for access to VetChange. Intent-to-treat analyses showed that IIG and DIG as well as within-group changes. **Results:** IIG participants demonstrated greater reductions in drinking ( $p < .001$ ) and PTSD symptoms ( $p = .009$ ) between baseline and end-of-intervention than did DIG participants. DIG participants showed similar improvements following participation in VetChange. Improvement in alcohol symptoms was sustained at three-month follow-up.

Bush, N. E., Prins, A., Laraway, S., O'Brien, K., Ruzek, J., et al. (2014). **A pilot evaluation of the AfterDeployment.org online posttraumatic stress workshop for military service members and Veterans.** *Psychological Trauma: Theory, Research, Practice, and Policy, 6*, 109-119. doi:10.1037/a0032179 This pilot study examined the impact of an eight-week online self-management posttraumatic stress (PTS) workshop on symptoms of PTS, depression, and functional impairment on Veterans ( $N = 11$ ) with PTS. Reductions in symptoms and improvements in general functioning were found for some of the Veterans. These preliminary findings suggest the online PTS workshop may be effective in reducing PTS symptoms for some Veterans.



Deitsch, S. E., Frueh, B. C., & Santos, A. B. (2000). **Telepsychiatry for post-traumatic stress disorder.** *Journal of Telemedicine and Telecare*, 6(3), 184-186. doi:10.1258/1357633001935194 This study investigated the one time use of a group therapy delivered to male combat Veterans ( $N = 4$ ) via CVT. Results indicated that group members were satisfied with the CVT equipment and reported CVT as a valuable alternative treatment delivery modality. The authors concluded that CVT can contribute to therapy group cohesion.

Frueh, B. C., Monnier, J., Grubaugh, A. L., Elhai, J. D., Yim, E., & Knapp, R. (2007). **Therapist adherence and competence with manualized cognitive-behavioral therapy for PTSD delivered via videoconferencing technology.** *Behavior Modification*, 31, 856-866. doi:10.1177/0145445507302125 This project was the first study to test CVT for PTSD. The therapist adherence and competence ratings were compared between CBT for PTSD delivered via an in-person or CVT modality to 38 male Veterans. Clinical and process outcomes between the two conditions were similar; however, Veterans in the in-person condition reported more comfort in talking to their therapist at post-treatment compared to Veterans receiving CBT via CVT. The findings of this study suggest that therapist competence and adherence to CBT is similar between in-person and CVT delivery modalities.

Germain, V., Marchand, A., Bouchard, S., Drouin, M.-S., & Guay, S. (2009). **Effectiveness of cognitive behavioural therapy administered by videoconference for posttraumatic stress disorder.** *Cognitive Behaviour Therapy*, 38, 42-53. doi:10.1080/16506070802473494 The effectiveness of CBT for PTSD delivered via CVT ( $n = 16$ ) compared to in-person delivery ( $n = 32$ ) was examined in this study. Significant decreases in PTSD symptoms and improvements in overall functioning were found in participants in both conditions. The effectiveness of the treatment did not differ between the two delivery modalities.

Greene, C. J., Morland, L. A., Macdonald, A., Frueh, B. C., Grubbs, K. M., & Rosen, C. S. (2010). **How does tele-mental health affect group therapy process? Secondary analysis of a noninferiority trial.** *Journal of Consulting and Clinical Psychology*, 78, 746-750. doi:10.1037/a0020158 The effect of CVT on group therapy processes was examined in this secondary analysis of a randomized noninferiority trial (Morland et al., 2010) of an anger management treatment conducted with Veterans ( $N = 111$ ) via a CVT compared to an in-person delivery modality. No significant differences were found on most process variables between the CVT and in-person groups. Results support the use of CVT to deliver group psychotherapy.

Gros, D. F., Yoder, M., Tuerk, P. W., Lozano, B. E., & Acierno, R. (2011). **Exposure therapy for PTSD delivered to Veterans via telehealth: Predictors of treatment completion and outcome and comparison to treatment delivered in person.** *Behavior Therapy*, 42, 276-283. doi:10.1016/j.beth.2010.07.005 This study investigated the effectiveness of 12-session exposure therapy delivered either via telehealth ( $n = 62$ ) or in person ( $n = 27$ ) in Veterans with PTSD. Exposure therapy delivered via telehealth was effective in reducing the symptoms of PTSD, anxiety, depression, stress, and general impairment with large effect sizes. Interestingly,

exposure therapy via telehealth was less effective than exposure therapy delivered in person; however, lack of random assignment to condition limits conclusions of differential effectiveness. Overall, these findings support the utility of telehealth services to provide effective, evidence-based psychotherapies.

Morland, L. A., Hynes, A. K., Mackintosh, M.-A., Resick, P. A., & Chard, K. M. (2011). **Group cognitive processing therapy delivered to Veterans via telehealth: A pilot cohort.** *Journal of Traumatic Stress*, 24, 465-469. doi:10.1002/pts.20661 A pilot investigation of the clinical and process outcomes of a non-inferiority designed RCT examining group CPT delivered to combat Veterans with PTSD ( $N = 13$ ) via an in-person or CVT modality was reported in this article. Reductions in PTSD symptoms were observed across conditions. No significant between-group differences were observed in either clinical or process variables between conditions. The feasibility and acceptability of group psychotherapy for PTSD delivered via CVT is supported by the results of this study.

Price, M., Kuhn, E., Hoffman, J., Ruzek, J., & Acierno, R. (in press). **Validation of the PTSD Checklist (PCL) administered via mobile device.** *Journal of Traumatic Stress*. This article reported findings of an investigation of administering the PCL to trauma-exposed individuals ( $N = 153$ ) via a mobile device compared to paper and pencil administration. Participants completed the PCL both via a mobile app and on paper. Results indicated that reported PTSD symptoms did not differ between modality of assessment administration. The authors concluded that valid results can be obtained by self-report measures that are administered through mobile apps.

Reger, G. M., Hoffman, J., Riggs, D., Rothbaum, B. O., Ruzek, J., Holloway, K. M., et al. (2013). **The "PE Coach" smartphone application: An innovative approach to improving implementation, fidelity, and homework adherence during prolonged exposure.** *Psychological Services*, 10, 342-349. doi:10.1037/a0032774 The PE Coach, a mobile app designed to be used to augment PE treatment, is described in this article. The functions of PE Coach involve a range of capabilities for use during and after PE, including the ability to audio record sessions onto the patient's device, construct the in vivo hierarchy, complete homework exercises, review homework adherence, schedule sessions, provide reminders and notifications, and present a visual display of symptom improvement and habituation to items on the in vivo hierarchy at the conclusion of treatment. The authors note that PE Coach may improve convenience, provider implementation and adherence, and patient compliance with treatment.

Rizvi, S. L., Dimeff, L. A., Skutch, J., Carroll, D., & Linehan, M. M. (2011). **A pilot study of the DBT Coach: An interactive mobile phone application for individuals with borderline personality disorder and substance use disorder.** *Behavior Therapy*, 42, 589-600. doi:10.1016/j.beth.2011.01.003 The goal of this study was to develop and test the feasibility of an app designed specifically to enhance generalization of a specific Dialectical Behavior Therapy (DBT) skill (opposite action), DBT Coach, among individuals with borderline personality disorder and

## ADDITIONAL CITATIONS *continued*

comorbid substance use disorders. Participants were 22 individuals who were enrolled in DBT treatment program were provided with and instructed to use the DBT Coach as needed for 10 to 14 days. Results demonstrated high ratings of helpfulness and usability and decreases in emotion intensity, urges to use substances, depression and general distress, thus indicating that apps may be a useful tool in the treatment of substance use disorders.

Ruggiero, K. J., Resnick, H. S., Paul, L. A., Gros, K., McCauley, J. L., Acierno, R., et al. (2012). **Randomized controlled trial of an internet-based intervention using random-digit-dial recruitment: The Disaster Recovery web project.** *Contemporary Clinical Trials*, 33, 237-246. [doi:10.1016/j.cct.2011.10.001](https://doi.org/10.1016/j.cct.2011.10.001) This article describes a unique study design intended to evaluate a highly individualized online intervention with a disaster-affected population-based sample. The authors discuss challenges to developing and evaluating online interventions that target post-disaster mental health problems and provide implications for future research and practice.

Wagner, B., Brand, J., Schulz, W., & Knaevelsrud, C. (2012). **Online working alliance predicts treatment outcome for posttraumatic stress symptoms in Arab war-traumatized patients.** *Depression and Anxiety*, 29, 646-651. [doi:10.1002/da.21962](https://doi.org/10.1002/da.21962) This trial assessed the quality of the working alliance and its relationship with treatment outcomes of an online CBT intervention conducted with Arabic-speaking traumatized patients in Iraq ( $N = 55$ ). High ratings of therapeutic alliance, which remained stable through treatment, were found early in treatment and working alliance predicted treatment outcomes for PTSD symptoms. The authors conclude that it is possible to establish a stable online therapeutic relationship in instable settings and regions of conflict where individuals experience ongoing exposure to human right violations through war and dictatorships.