



Center for
Connected
Health Policy

The National Telehealth Policy Resource Center

Telemental Health Research Catalogue

August 2018

To increase and organize the evidence for the use of telehealth, the Center for Connected Health Policy (CCHP) has been examining published studies that have been designed to measure the use of telehealth in achieving one or more of the goals of the Triple Aim. CCHP has been cataloguing studies published in peer reviewed journals that meet certain criteria. This catalogue of telemental health studies is one result.

CCHP employed several search parameters when selecting telemental health studies. All studies selected are U.S. based, published post 2007, have a sample size of no less than 50 (for studies with control groups, there needed to be a minimum of at least 30 subjects per group), a study period of no less than 6 months and a primary focus on the outcomes, quality and or costs of a selected telehealth modality.

Retrospective studies and published pilot studies have been included separately, due to the absence of a widely accepted quality assessment scale for these types of studies. International pilot studies are also included.

PubMed, ProQuest, EBSCO, SAGE, Gale Academic OneFile, Wiley Online Library, Science Direct, and SpringerLink Journals were used in the peer-reviewed articles search. If CCHP was unable to obtain a copy of the full article, it was not included in the catalogue.

This catalogue was prepared by Laura Nasserri and the work supervised by Mei Wa Kwong and Christine Calouro. The catalogue was updated in August 2017 by Marcus Warren and again in July 2018 by Michelle Grant.

CONTROL TRIAL SUMMARIES:

Smolenski, D. J., Pruitt, L. D., Vuletic, S., Luxton, D. D., & Gahm, G. (2017). Unobserved heterogeneity in response to treatment for depression through videoconference. <i>Psychiatric Rehabilitation Journal</i> , 40(3), 303-308.							
Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
2 years	WA, OR	121	Video Conference	Growth Mixture Modeling, Randomized Controlled Trial	x		
Summary							
<p>Objective: This study examined treatment response heterogeneity in a recent randomized controlled trial of treatment for depression using videoconferencing technology compared to traditional in-office care.</p> <p>Method: Growth mixture modeling was used to identify subgroups of individuals in the trial based on treatment response trajectories. Demographic and baseline characteristics were included to identify correlates of subgroup membership.</p> <p>Results: There were two subgroups based on the trajectories of the Beck Hopelessness Scale. The first subgroup had less symptom severity at baseline, and there was no meaningful difference between the two treatment modalities in change over time. The second subgroup had higher symptom severity at baseline, and individuals who engaged in treatment through the videoconference modality had less symptom improvement than those who underwent the in-office modality. Older participants with higher loneliness and anxiety scores at baseline were more likely to be in the second group.</p> <p>Conclusions and Implications for Practice: Treatment of depression using videoconferencing to deliver care to an individual’s home offers opportunities for improved access to services, especially among those who are unwilling or unable to seek in-person treatment. However, videoconferencing may not be appropriate for everyone. An individual’s symptom level, age, and comorbidities are important clinical considerations when selecting an appropriate treatment modality.</p>							
<p>Access: https://www.ncbi.nlm.nih.gov/pubmed/28604014</p>							

Egede, Gebregziabher, Walker, Payne, Acierno, & Frueh. (2017). Trajectory of cost overtime after psychotherapy for depression in older Veterans via telemedicine. *Journal of Affective Disorders*, 207(C), 157-162.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
12 months	SC	241		Randomized Controlled Trial			

Summary

Background: Little evidence exists regarding the costs of telemedicine, especially considering changes over time. This analysis aimed to analyze trajectory of healthcare cost before, during, and after a behavioral activation intervention delivered via telepsychology and same-room delivery to elderly Veterans with depression.

Methods: 241 participants were randomly assigned into one of two study groups: behavioral activation for depression via telemedicine or via same-room treatment. Patients received 8 weeks of weekly 60-min individual sessions of behavioral activation for depression. Primary outcomes were collected at 12-months. Inpatient, outpatient, pharmacy, and total costs were collected from VA Health Economics Resource Center (HERC) datasets for FY 1998–2014 and compared between the two treatment groups. Generalized mixed models were used to investigate the trajectories over time.

Results: Overall cost, as well as, outpatient and pharmacy cost show increasing trend over time. Unadjusted and adjusted trajectories over time for any cost were not different between the two treatment groups. There was a significant overall increasing trend over time for outpatient ($p < 0.001$) and total cost ($p < 0.001$) but not for inpatient ($p = 0.543$) or pharmacy cost ($p = 0.084$).

Limitations: Generalizability to younger, healthier populations may be limited due to inclusion criteria for study participants.

Conclusion: Healthcare costs before, during, and after intervention did not differ between the telemedicine and in-person delivery methods. Outpatient costs accounted for most of the increasing trend of cost over time. These results support policies to use both **telehealth** and in-person treatment modalities to effectively and efficiently provide high quality care.

Access: <https://www.ncbi.nlm.nih.gov/pubmed/27721190>

Richards, K., Marko-Holguin, M.H., Fogel, J., Anker, L., Ronayne J., Van Voorhees, B. (2016). Randomized Clinical Trial of an Internet-Based Intervention to Prevent Adolescent Depression in a Primary Care Setting (CATCH-IT): 2.5-Year Outcomes. *Journal of Evidence-Based Psychotherapies*, 16(2): 113-134.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
2.5 years	IL, OH, NY	84	Internet Modules	Randomized Controlled Trial	x		

Summary

We developed and tested two primary care based approaches for the early identification and prevention of depressive disorders in adolescents. We conducted a randomized controlled trial originally intended to compare Brief Advice (BA) + Internet intervention with Motivational Interviewing (MI) + Internet intervention in primary care for adolescents experiencing persistent subthreshold depression (Project CATCH-IT). This is an exploratory long term 2.5 year follow-up study of a phase II study comparing pre/post outcomes and potential moderators of outcomes. Participants (n=44) in the entire cohort maintained from baseline and continued to reduce depressive symptoms and percentage of sub-syndromal depression. Greater motivation for depression prevention and lower ratings of self-efficacy at baseline were associated with greater declines in depression symptoms. These results suggest adolescents can be followed-up after Internet studies and there may be evidence of sustained reductions in depressed mood. The CATCH-IT model offers the possibility of a long term effect, but these results are limited by the small sample size and pre-post design. A large scale randomized clinical trial of the intervention is currently in progress.

Access: <https://uic.pure.elsevier.com/en/publications/randomized-clinical-trial-of-an-internet-based-intervention-to-pr>

Stoep, A., McCarty, C., Zhou, C., Rockhill, C., Schoenfelder, E., Myers, K. (2016). The Children's Attention-Deficit Hyperactivity Disorder Telemental Health Treatment Study: Caregiver Outcomes. *Journal of Abnormal Child Psychology*, 45(1):27-43.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
25 weeks	WA, OR	223	Video Teleconferencing & asynchronous technologies	Randomized Controlled Trial, Questionnaire	x		

Summary

The Children's Attention-deficit Hyperactivity Disorder (ADHD) Telemental Health Treatment Study (CATTs) tested the hypotheses that children and caregivers who received guideline-based treatment delivered through a hybrid telehealth service delivery model would experience greater improvements in outcomes than children and caregivers receiving treatment via a comparison delivery model. Here, we present caregiver outcomes. 88 primary care providers (PCPs) in seven geographically underserved communities referred 223 children (ages 5.5 - 12.9 years) to the randomized controlled trial. Over 22 weeks, children randomized to the CATTs service delivery model received six sessions of telepsychiatry and six sessions of caregiver behavior management training provided in person by community therapists who were trained and supervised remotely. Children randomized to the comparison Augmented Primary Care (APC) service model received management in primary care augmented by a single telepsychiatry consultation. Caregiver outcomes included changes in distress, as measured by the Patient Health Questionnaire (PHQ-9), Parenting Stress Index (PSI), Caregiver Strain Questionnaire (CSQ) and Family Empowerment Scale (FES). Caregivers completed five assessments. Multilevel mixed effects regression modeling tested for differences between the two service delivery models in caregiver outcomes from baseline to 25 weeks. Compared to caregivers of children in the APC model, caregivers of children in the CATTs service model showed statistically significantly greater improvements on the PHQ-9 ($\beta = -1.41$, 95 % CI = [-2.74, -0.08], $p < .05$), PSI ($\beta = -4.59$, 95 % CI = [-7.87, -1.31], $p < .001$), CSQ ($\beta = -5.41$, 95 % CI = [-8.58, -2.24], $p < .001$) and FES ($\beta = 6.69$, 95 % CI = [2.32, 11.06], $p < .01$). Improvement in child ADHD symptoms mediated improved caregiver scores on the PSI and CSQ. Improvement in child ODD behaviors mediated caregiver CSQ scores. The CATTs trial supports the effectiveness of a hybrid telehealth service delivery model for reducing

distress in caregivers of children with ADHD and suggests a mechanism through which the service model affected caregiver distress.

Access: <https://www.ncbi.nlm.nih.gov/pubmed/27117555>

McCarty, C., Stoep, A., Violette, H., Myers, K. (2015). Interventions Developed for Psychiatric and Behavioral Treatment in the Children’s ADHD Telemental Health Treatment Study. *Journal of Child and Family Studies*, 24(6), 1735-1743.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
Unspecified	WA, OR	111	Live Video	Survey Study	x	x	

Summary

Telemental health (TMH) is one approach to rectifying geographic disparity in access to evidence-based mental health treatment for ADHD. We describe a brief (6-session) intervention for the TMH delivery of medication treatment with psychoeducation and Caregiver Behavioral Training to families of children with ADHD from underserved communities. Information on family engagement, satisfaction, and fidelity to intervention protocols are presented. Overall, both parts of the intervention were well-received by families who engaged with the treatment, who learned information and skills, and who indicated very high levels of satisfaction with treatment, even though it was relatively brief in nature. Mean ratings of satisfaction for the combined ADHD treatment was 38 (range = 27–40) out of a possible total score of 40 on the Client Satisfaction Questionnaire. Both telepsychiatrists and therapists were highly faithful to the intervention protocols, as demonstrated by their independently-rated fidelity. Telepsychiatrists adhered to the intervention protocol with 91.6 ± 9.5% reliability, and therapists adhered to their intervention protocol with 94.3% (SD: 9.7%) reliability. This brief stabilization model of intervention is particularly relevant to working with a remote population where treatment resources are scarce. This study demonstrates that it is possible to provide direct psychiatric and behavioral services through telepsychiatry and to train and supervise therapists remotely.

Access: <http://link.springer.com/article/10.1007%2Fs10826-014-9977-5>

Pyne, J., Fortney, J., Mouden, S., Lu, L., Hudson, T., & Mittal, D. (2015). Cost-Effectiveness of On-Site Versus Off-Site Collaborative Care for Depression in Rural FQHCs. *Psychiatric Services : A Journal of the American Psychiatric Association.*, 66(5), 491-499.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
18 months	AR	364	Video Conference	Randomized, Pragmatic Comparative-Effectiveness Trial	X		X

Summary

Objective: Collaborative care for depression in primary care settings is effective and cost-effective. However, there is minimal evidence to support the choice of on-site versus off-site models. This study examined the cost-effectiveness of on-site practice-based collaborative care (PBCC) versus off-site telemedicine-based collaborative care (TBCC) for depression in federally qualified health centers (FQHCs). **Methods:** In a multisite, randomized, pragmatic comparative cost-effectiveness trial, 19,285 patients were screened for depression, 2,863 (14.8%) screened positive, and 364 were enrolled. Telephone interview data were collected at baseline and at six, 12, and 18 months. Base case analysis used Arkansas FQHC health care costs, and secondary analysis used national cost estimates. Effectiveness measures were depression-free days and quality-adjusted life years (QALYs) derived from depression-free days, the 12-Item Short-Form Survey, and the Quality of Well-Being (QWB) Scale. Nonparametric bootstrap with replacement methods were used to generate an empirical joint distribution of incremental costs and QALYs and acceptability curves.

Results: The TBCC intervention resulted in more depression free days and QALYs but at a greater cost than the PBCC intervention. The disease-specific (depression-free day) and generic (QALY) incremental cost-effectiveness ratios (ICERs) were below their respective ICER thresholds for implementation, suggesting that the TBCC intervention was more cost effective than the PBCC intervention.

Conclusions: These results support the cost-effectiveness of TBCC in medically underserved primary care settings. Information about whether to insource (make) or outsource (buy) depression care management is important, given the current interest in patient-centered medical homes, valuebased purchasing, and bundled payments for depression care.

Access: <https://ps.psychiatryonline.org/doi/pdf/10.1176/appi.ps.201400186>

Choi, N., Marti, N., Bruce, M., Hegel, M., Wilson, N., Kunik, M. (2014). Six-month post-intervention depression and disability outcomes of in-home telehealth problem-solving therapy for depressed, low-income homebound older adults, *Depression and Anxiety* 1(1), 1-9.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
6+ months	TX	158	Video conferencing (VTC)	Randomized Controlled Trial (RCT)		x	

Summary

BACKGROUND: Despite their high rates of depression, homebound older adults have limited access to evidence-based psychotherapy. The purpose of this paper was to report both depression and disability outcomes of telehealth problem-solving therapy (tele-PST via Skype video call) for low-income homebound older adults over 6 months post-intervention.

METHODS: A 3-arm randomized controlled trial compared the efficacy of tele-PST to in-person PST and telephone care calls with 158 homebound individuals who were aged 50+ and scored 15+ on the 24-item Hamilton Rating Scale for Depression (HAM-D). Treatment effects on depression severity (HAM-D score) and disability (score on the WHO Disability Assessment Schedule [WHODAS]) were analyzed using mixed-effects regression with random intercept models. Possible reciprocal relationships between depression and disability were examined with a parallel-process latent growth curve model.

RESULTS: Both tele-PST and in-person PST were efficacious treatments for low-income homebound older adults; however the effects of tele-PST on both depression and disability outcomes were sustained significantly longer than those of in-person PST. Effect sizes (dGMA-raw) for HAM-D score changes at 36 weeks were 0.68 for tele-PST and 0.20 for in-person PST. Effect sizes for WHODAS score changes at 36 weeks were 0.47 for tele-PST and 0.25 for in-person PST. The results also supported reciprocal and indirect effects between depression and disability outcomes.

CONCLUSIONS: The efficacy and potential low cost of tele-delivered psychotherapy show its potential for easy replication and sustainability to reach a large number of underserved older adults and improve their access to mental health services.

Access: <http://onlinelibrary.wiley.com/doi/10.1002/da.22242/abstract;jsessionid=8FB8DA31A8DD8DA38293755A175F5DDE.f02t01>

Seidel, R., Kilgus, M. (2014). Agreement between telepsychiatry assessment and face-to-face assessment for Emergency Department psychiatry patients. *Journal of Telemedicine and Telecare*, 20(2), 59-62.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
39 months	VA	73	VTC	RCT		x	

Summary

We compared psychiatrists' evaluations of Emergency Department (ED) mental health patients made face-to-face or by telemedicine. In a 39-month study, 73 patients presenting in the ED were enrolled after initial screening. Patients were interviewed by a psychiatrist either face-to-face in the ED or remotely by video. A second psychiatrist, acting as an observer, was in the room with the patient and independently completed the assessment. Based on the primary diagnosis of the interviewer, 48% of patients had a depressive disorder, 18% a substance use disorder, 14% a bipolar disorder, 11% a psychotic disorder, 6% an anxiety disorder and 4% other disorders. The raw agreement between the psychiatrists about disposition when both used face-to-face assessment was 84% and it was 86% when one used telemedicine. Using Cohen's kappa to evaluate agreement, there were no significant differences for disposition recommendation, strength of recommendation, diagnosis or the HCR-20 dangerousness scale. There was no significant difference for the intraclass correlation coefficients for the suicide scale. The results provide preliminary support for the safe use of telepsychiatry in the ED to determine the need for admission to inpatient care.

Access: <http://jtt.sagepub.com/content/20/2/59.short>

Fortney, J., Pyne, J., Mouden, S., Hudson, T., Schroeder, G., Williams, D., Bynum, C., Mattox, R., Rost, K. (2013). Practice-Based Versus Telemedicine-Based Collaborative Care for Depression in Rural Federally Qualified Health Centers: A Pragmatic Randomized Comparative Effectiveness Trial, American Journal of Psychiatry 170(1), 414-425.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
18 months	AR	364	VTC & telephone	RCT	x	x	

Summary

OBJECTIVE:

Practice-based collaborative care is a complex evidence-based practice that is difficult to implement in smaller primary care practices that lack on-site mental health staff. Telemedicine-based collaborative care virtually co-locates and integrates mental health providers into primary care settings. The objective of this multisite randomized pragmatic comparative effectiveness trial was to compare the outcomes of patients assigned to practice-based and telemedicine-based collaborative care.

METHOD: From 2007 to 2009, patients at federally qualified health centers serving medically underserved populations were screened for depression, and 364 patients who screened positive were enrolled and followed for 18 months. Those assigned to practice-based collaborative care received evidence-based care from an on-site primary care provider and a nurse care manager. Those assigned to telemedicine-based collaborative care received evidence-based care from an on-site primary care provider and an off-site team: a nurse care manager and a pharmacist by telephone, and a psychologist and a psychiatrist via videoconferencing. The primary clinical outcome measures were treatment response, remission, and change in depression severity.

RESULTS: Significant group main effects were observed for both response (odds ratio=7.74, 95% CI=3.94-15.20) and remission (odds ratio=12.69, 95%CI=4.81-33.46), and a significant overall group-by-time interaction effect was observed for depression severity on the Hopkins Symptom Checklist, with greater reductions in severity over time for patients in the telemedicine-based group. Improvements in outcomes appeared to be attributable to higher fidelity to the collaborative care evidence base in the telemedicine-based group.

CONCLUSIONS: Contracting with an off-site telemedicine-based collaborative care team can yield better outcomes than implementing practice-based collaborative care with locally available staff.

Access: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3816374/>

Chong, J. and Moreno, F. (2012). Feasibility and Acceptability of Clinic-Based Telepsychiatry for Low-Income Hispanic Primary Care Patients, *Telemedicine and e-Health* 18(4), 297-304.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
6 months	AZ	167	VTC	RCT		x	

Summary

BACKGROUND: The feasibility and acceptability of telepsychiatry for low-income Hispanic patients with major depression were assessed.

SUBJECTS AND METHODS: In total, 167 adult Hispanic patients with major depression recruited from a community health center (CHC) were randomly assigned to receive psychiatry services through a video Webcam (WEB) (n=80) or to treatment as usual (TAU) (n=87). The WEB condition consisted of monthly telepsychiatry sessions at the CHC for 6 months provided by one of two Hispanic psychiatrists using an online virtual meeting program. TAU patients received their care from their providers. Acceptability was assessed by comparing appointment keeping for primary care versus telepsychiatry, patients' perceived working alliance with their provider, visit satisfaction, and antidepressant use. Feasibility was assessed using depression outcomes, functional days (unproductive or days lost), and whether WEB and TAU patients differed in their appointment keeping.

RESULTS: WEB patients did not differ in the proportion of completed primary care versus telepsychiatry appointments and rated their working alliance with the psychiatrist and their visit satisfaction significantly higher than the TAU patients with their provider. Significantly more WEB than TAU patients used antidepressants. Although depression severity decreased faster among WEB than TAU patients, no differences were found in the overall depression score. WEB and TAU patients did not differ in the number of days that were lost or unproductive due to depression. Although WEB and TAU patients reported being willing to pay for mental health services provided by the CHC, almost proportionately twice as many WEB patients were willing to pay for telepsychiatry.

CONCLUSIONS: Results show that for low-income depressed Hispanic patients, telepsychiatry service for depression is acceptable, although its feasibility is questionable. The benefits of telemedicine were discussed in terms of improving patient care in ways other than directly providing services to the patients.

Access: <http://online.liebertpub.com/doi/abs/10.1089/tmj.2011.0126>

Moreno, F., Chong, J., Dumbauld, J., Humke, M., Byreddy, S. (2012). Use of Standard Webcam and Internet Equipment for Telepsychiatry Treatment of Depression Among Underserved Hispanics, *Psychiatric Services* 63(12), 1213-1217.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
24 months	AZ	167	VTC	RCT	x	x	

Summary

OBJECTIVE: Depression affects nearly one in five Americans at some time in their life, causing individual suffering and financial cost. The Internet has made it possible to deliver telemedicine care economically to areas and populations with limited access to specialist or culturally and linguistically congruent care.

METHODS: This study compared the effectiveness for Hispanic patients of depression treatment provided by a psychiatrist through Internet videoconferencing (Webcam intervention) and treatment as usual by a primary care provider. Adults (N=167) with a diagnosis of depression were recruited from a community clinic and were randomly assigned to treatment condition. Webcam participants met remotely each month with the psychiatrist, and treatment-as-usual patients received customary care from their primary care providers, all for six months. At baseline and three and six months, analyses of variance tested differences between conditions in scores on depression rating scales and quality-of-life and functional ability measures.

RESULTS: All participants experienced an improvement in depression symptoms. Ratings on the Montgomery-Åsberg Depression Rating Scale by clinicians blind to treatment group and self-ratings on the nine-item Patient Health Questionnaire, Quality of Life Enjoyment and Satisfaction Questionnaire, and Sheehan Disability Scale showed a significant main effect of time. On all four measures, a significant interaction of time by intervention favoring the Webcam group was noted.

DISCUSSION: Results suggest that telepsychiatry delivered through the Internet utilizing commercially available domestic Webcams and standard Internet and computer equipment is effective and acceptable. Use of this technology may help close the gap in access to culturally and linguistically congruent specialists.

Access: <http://ps.psychiatryonline.org/article.aspx?articleid=1367843>

Thorp, S., Fidler, J., Moreno, L., Floto, E., Agha, Z. (2012). Lessons Learned From Studies of Psychotherapy for Posttraumatic Stress Disorder Via Video Conferencing, *Psychological Services* 9(2), 197-199.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome?	Quality?	Cost?
6+ months	CA	196; 132	VTC	RCT		x	

Summary

We are conducting two ongoing randomized controlled trials that compare psychotherapy using VTC with in-person psychotherapy for veterans with PTSD. In one study, all veterans receive cognitive processing therapy (CPT), which teaches the patient how to monitor and challenge maladaptive thoughts. In the other study, all veterans receive prolonged exposure therapy (PE), which helps the patient repeatedly face feared (but safe) memories and situations. In the CPT study, we have screened 426 veterans and 196 have been randomized to date. In the PE study, we have screened 284 veterans and 132 have been randomized.

BIGGEST SUCCESSES:

Our veterans have expressed satisfaction with the decreased travel time, cost savings related to purchasing less gasoline, and fewer crowds and parking problems at the remote sites. Both veterans and therapists have been patient with the technology, and several have reported enjoying (even preferring) VTC sessions.

Access: <http://psycnet.apa.org/journals/ser/9/2/197/>

Morland, L., Greene, C., Rosen, C., Foy, D., Reilly, P., Shore, J., He, Q., Frueh, C. (2010). Telemedicine for Anger Management Therapy in a Rural Population of Combat Veterans With Posttraumatic Stress Disorder: A Randomized Non-inferiority Trial, *Journal of Clinical Psychiatry* 71(7), 855-863.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost

36 months	HI	125	VTC	RCT	x	x	
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Summary

OBJECTIVE:

To demonstrate the non-inferiority of a telemedicine modality, video teleconferencing, compared to traditional in-person service delivery of a group psychotherapy intervention for rural combat veterans with PTSD.

METHOD:

A randomized controlled non-inferiority trial of 125 veterans with PTSD (according to DSM criteria on the Clinician-Administered PTSD Scale) and anger difficulties was conducted at 3 Veterans Affairs outpatient clinics. Participants were randomly assigned to receive anger management therapy delivered in a group setting with the therapist either in-person (n=64) or via video teleconferencing (n=61). Participants were assessed at baseline, mid-treatment (3 weeks), post-treatment (6 weeks), and 3 and 6 months post-treatment. The primary clinical outcome was reduction of anger difficulties, as measured by the anger expression and trait anger subscales of the State-Trait Anger Expression Inventory-2 (STAXI-2) and by the Novaco Anger Scale total score (NAS-T). Data were collected from August 2005-October 2008.

RESULTS:

Participants in both groups showed significant and clinically meaningful reductions in anger symptoms, with post-treatment and 3 and 6 months post-treatment effect sizes ranging from .12 to .63. Using a non-inferiority margin of 2 points for STAXI-2 subscales anger expression and trait anger and 4 points for NAS-T outcomes, participants in the video teleconferencing condition demonstrated a reduction in anger symptoms similar ("non-inferior") to symptom reductions in the in-person groups. Additionally, no significant between-group differences were found on process variables, including attrition, adherence, satisfaction, and treatment expectancy. Participants in the in-person condition reported significantly higher group therapy alliance.

CONCLUSIONS:

Clinical and process outcomes indicate delivering cognitive-behavioral group treatment for PTSD-related anger problems via video teleconferencing is an effective and feasible way to increase access to evidence-based care for veterans residing in rural or remote locations.

Access: http://article.psychiatrist.com/dao_1-login.asp?ID=10006703&RSID=33231527644349

Pyne, J., Fortney, J., Tripathi, S., Maciejewski, M., Edlund, M., Williams, K. (2010). Cost-effectiveness Analysis of a Rural Telemedicine Collaborative Care Intervention for Depression, *JAMA Psychiatry* 67(8), 812-821.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
24 months	3 Mid-South States	395	Electronic Medical Record and Telephone	RCT		x	x

Summary

CONTEXT: Collaborative care interventions for depression in primary care settings are clinically beneficial and cost-effective. Most prior studies were conducted in urban settings.

OBJECTIVE: To examine the cost-effectiveness of a rural telemedicine-based collaborative care depression intervention.

DESIGN: Randomized controlled trial of intervention vs usual care.

SETTING: Seven small (serving 1000 to 5000 veterans) Veterans Health Administration community-based outpatient clinics serving rural catchment areas in 3 mid-South states. Each site had interactive televideo dedicated to mental health but no psychiatrist or psychologist on site.

PATIENTS: Among 18,306 primary care patients who were screened, 1260 (6.9%) screened positive for depression; 395 met eligibility criteria and were enrolled from April 2003 to September 2004. Of those enrolled, 360 (91.1%) completed a 6-month follow-up and 335 (84.8%) completed a 12-month follow-up.

INTERVENTION: A stepped-care model for depression treatment was used by an off-site depression care team to make treatment recommendations via electronic medical record. The team included a nurse depression care manager, clinical pharmacist, and

psychiatrist. The depression care manager communicated with patients via telephone and was supported by computerized decision support software.

MAIN OUTCOME MEASURES: The base case cost analysis included outpatient, pharmacy, and intervention expenditures. The effectiveness outcomes were depression-free days and quality-adjusted life years (QALYs) calculated using the 12-Item Short Form Health Survey standard gamble conversion formula.

RESULTS: The incremental depression-free days outcome was not significant ($P = .10$); therefore, further cost-effectiveness analyses were not done. The incremental QALY outcome was significant ($P = .04$) and the mean base case incremental cost-effectiveness ratio was \$85,634/QALY. Results adding inpatient costs were \$111,999/QALY to \$132,175/QALY.

CONCLUSIONS: In rural settings, a telemedicine-based collaborative care intervention for depression is effective and expensive. The mean base case result was \$85,634/QALY, which is greater than cost per QALY ratios reported for other, mostly urban, depression collaborative care interventions.

Access: <http://archpsyc.jamanetwork.com/article.aspx?doi=10.1001/archgenpsychiatry.2010.82>

Thompson, D., Leiming, R., Gower, G., Winsett, R. (2009). Assessment of Depressive Symptoms During Post-Transplant Follow-Up Care Performed via Telehealth. *Telemedicine and e-Health*, 15(7), 700-706.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
12+ months	TN	138	VTC	RCT		x	

Summary

Telehealth provides a successful medium for the treatment of depression and other mental health illnesses. Often, inadequate treatment for this condition is found in patients with chronic co-morbid conditions such as those presented by the transplant recipient, a population at risk for depression. One concern of healthcare providers is the inability to adequately screen for

symptoms of depression. This secondary analysis describes depression screening of 138 transplant recipients receiving follow-up care via telehealth (TH) and standard care (SC) as part of a larger National Institute of Nursing Research–funded randomized clinical trial. Of subjects who consented, 70 (51%) were randomized to the TH portion of the study. Depressive symptoms were measured by the Center for Epidemiologic Studies–Depression (CES-D™) survey at study entry and at 6 and 12 months post-consent into the study. Univariate and subgroup analyses using SAS found no differences between the TH (n=70) and SC (n=68) group for demographic and social characteristics. No differences in CES-D scores were found between TH and SC groups. The concern in adding distance in the care of this medically fragile population was not substantiated in this study.

Access: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2957236>

Mitchell, J., Crosby, R., Wonderlich, S., Crow, S., Lancaster, K., Simonich, H., Swan-Kremeier, L., Lynse, C., Myers, T. (2008). A randomized trial comparing the efficacy of cognitive-behavioral therapy for bulimia nervosa delivered via telemedicine versus face-to-face. *Behavior Research and Therapy; Elsevier*, 46(1), 581-592.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
12+ months	ND	128	VTC	RCT	x		

Summary

OBJECTIVE:

A major problem in the delivery of mental health services is the lack of availability of empirically supported treatment, particularly in rural areas. To date no studies have evaluated the administration of an empirically supported manual-based psychotherapy for a psychiatric condition via telemedicine. The aim of this study was to compare the relative efficacy and acceptability of a manual-based cognitive–behavioral therapy (CBT) for bulimia nervosa (BN) delivered in person to a comparable therapy delivered via telemedicine.

METHOD:

One hundred twenty-eight adults meeting DSM-IV criteria for BN or eating disorder—not otherwise specified with binge eating or purging at least once per week were recruited through referrals from clinicians and media advertisements in the targeted geographical areas. Participants were randomly assigned to receive 20 sessions of manual-based, CBT for BN over 16 weeks delivered either face-to-face (FTF-CBT) or via telemedicine (TV-CBT) by trained therapists. The primary outcome measures were binge eating and purging frequency as assessed by interview at the end of treatment, and again at 3- and 12-month follow-ups. Secondary outcome measures included other bulimic symptoms and changes in mood.

RESULTS:

Retention in treatment was comparable for TV-CBT and FTF-CBT. Abstinence rates at end-of-treatment were generally slightly higher for FTF-CBT compared with TV-CBT, but differences were not statistically significant. FTF-CBT patients also experienced significantly greater reductions in eating disordered cognitions and interview-assessed depression. However, the differences overall were few in number and of marginal clinical significance.

CONCLUSION:

CBT for BN delivered via telemedicine was both acceptable to participants and roughly equivalent in outcome to therapy delivered in person.

Access: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2633728>

Morgan, R., Patrick, A., and Magaletta, P. (2008). Does the use of telemental health alter the treatment experience? Inmates' perceptions of telemental health versus face-to-face treatment modalities, *American Psychological Association* 76(1), 158-162.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
Not specified	TX	186	VTC	Comparative study	x		

Summary

In corrections, where staffing limitations tax an overburdened mental health system, telemental health is an increasingly common mode of mental health service delivery. Although telemental health presents an efficient treatment modality for a spectrum of mental health services, it is imperative to study how this modality influences key elements of the treatment experience. In this study, the authors compared inmates' perceptions of the working alliance, post-session mood, and satisfaction with psychiatric and psychological mental health services delivered through 2 different modalities: telemental health and face-to-face. Participants consisted of 186 inmates who received mental health services (36 via telepsychology, 50 via face-to-face psychology, 50 via telepsychiatry, and 50 via face-to-face psychiatry). Results indicate no significant differences in inmates' perceptions of the work alliance with the mental health professional, post-session mood, or overall satisfaction with services when telemental health and face-to-face modalities were compared within each type of mental health service. Implications of these findings are presented.

Access: <http://psycnet.apa.org/journals/ccp/76/1/158/>

RETROSPECTIVE SUMMARIES

Wennergren, J., Munshi, I., Fajardo, A., George, V. (2014). Implementation of Clinical Video Telemedicine (CVT) within a VA Medical Center is Cost Effective and Well Received, *International Journal of Clinical Medicine* 5(1), 711-716.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
3 years	IN	14,708	VTC	Retrospective study		x	x

Summary

BACKGROUND:

The Veterans Administration (VA) has been using telehealth to enhance Veteran access to high quality VA care for over a decade. Clinical video telehealth (CVT) is one such Telehealth tool that allows Veterans the opportunity to be evaluated by specialists at the Indianapolis VA while they actually remain in their community (in their local healthcare setting). Such tools are reported to improve satisfaction by avoiding the need to make the long, stressful, and often costly trips to the Medical Center. Our goal is to describe the results of CVT implementation at the Indianapolis VA.

METHODS:

A retrospective review of the data from 2011-2014 related to the use of CVT at the Indianapolis VA was undertaken. The data collected during this time period included: the number of CVT visits per year by specialty, the number of miles in travel avoided per visit, and patient satisfaction survey data, which are obtained after each CVT visit.

RESULTS:

A total of 14,708 Veterans have enrolled in our CVT telehealth program since 2011. There were 23,267 visits in 2013. 486,170 miles related to travel were avoided (calculating the number of miles avoided in travel from home to a local satellite site as compared to having to travel from home to the Indianapolis VA). At the current Government reimbursement rate of \$0.42/mile, this is expressed in a cost avoidance of \$209,053. In total, since 2011, the telehealth CVT program has saved the Government \$331,132, a total of 770,075 miles saved in travel for our Veterans. In addition, the CVT program has been very well received by our Veterans with an overall satisfaction score of 96%.

CONCLUSION:

Our results indicate that the implementation of CVT is cost effective and is well received by Veterans. Telehealth modalities such as CVT are viable options that enhance Veteran satisfaction by decreasing the time and the costs related to travel while continuing to offer high quality health care.

Access: <http://online.liebertpub.com/doi/abs/10.1089/tmj.2012.0263>

Myers, K., Vander Stoep, A., McCartsy, C., Klein, J., Palmers, N., Geyer, J., Melzer, S. (2010). Child and adolescent telepsychiatry: variations in utilization, referral patterns and practice trends, *Journal of Telemedicine and Telecare* 16(1), 128-133.

Study Length	State	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
6 years	WA	701	VTC	Retrospective study		x	

Seattle Children’s Hospital is a tertiary referral hospital that has provided telepsychiatry to seven partner sites in the northwest since 2001. Service utilization data, patient demographics and diagnoses were collected for the period from the service inception in October 2001 until November 2007. During the study period, 701 patients were treated with a mean of 2.8 appointments per patient (SD 1.9). Five psychiatrists and four psychologists provided care. Utilization varied across referring sites and was largely dependent upon the availability of telepsychiatrists, although the degree of support from administration and stakeholders also contributed to the success of the service. A total of 190 primary care practitioners referred patients to telepsychiatry, including 106 family physicians and 71 pediatricians. Pediatricians referred to the service more frequently than family physicians ($t \frac{1}{4} 2.8$, $P, 0.05$). Overall, telepsychiatry with young people is feasible, acceptable and increases access to mental health care. There appear to be four core components necessary to a successful telepsychiatry program: psychiatrists who are interested in exploring new ways to reach underserved young people; clearly identified stakeholders who can collaborate with one another to make good use of the telepsychiatry service; a children’s mental health ‘champion’ who represents these stakeholders and wants services for their community; and a stable administration that perceives telepsychiatry as valuable for their patients and their doctors.

Access: <http://jtt.sagepub.com/content/16/3/128.short>

PILOT STUDY SUMMARIES

Khatru, N., Marziali, E., Tchernikov, I., Shepherd, N. (2014). Comparing Telehealth-based and clinic-based group cognitive behavioral therapy for adults with depression and anxiety: a pilot study, *Clinical Interventions in Aging* 4(9), 765-770.

Telehealth Modality Type: VTC

Funder: The Department of Psychological Medicine, Royal Alexandra Hospital for Children (RAHC).

Summary

BACKGROUND: The primary objective of this pilot study was to demonstrate reliable adherence to a group cognitive behavioral (CBT) therapy protocol when delivered using on-line video conferencing as compared with face-to-face delivery of group CBT. A secondary aim was to show comparability of changes in subject depression inventory scores between on-line and face-to-face delivery of group CBT.

METHODS: We screened 31 individuals, 18 of whom met the criteria for a DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition) diagnosis of mood and/or anxiety disorder. All qualifying participants had the necessary equipment (computer, webcam, Internet) for participation in the study, but could exercise their preference for either the on-line or face-to-face format. Eighteen completed the 13 weekly session intervention program (ten face-to-face; eight video conferencing). We coded adherence to protocol in both intervention formats and generated pre–post changes in scores on the Beck Depression Inventory Second Edition (BDI-II) for each participant.

RESULTS: Application of the CBT protocol coding system showed reliable adherence to the group CBT intervention protocol in both delivery formats. Similarly, qualitative analysis of the themes in group discussion indicated that both groups addressed similar issues. Pre–post intervention scores for the BDI-II were comparable across the two delivery formats, with 60% of participants in each group showing a positive change in BDI-II severity classification (e.g., from moderate to low symptoms).

CONCLUSION: This pilot study demonstrates that group CBT could be delivered in a technology-supported environment (on-line video conferencing) and can meet the same professional practice standards and outcomes as face-to-face delivery of the intervention program.

Access: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4019624/>

Pratt, S., Bartels, S., Mueser, K., Naslund, J., Wolfe, R., Pixley, H., Josephson, L. (2013). Feasibility and Effectiveness of an Automated Telehealth Intervention to Improve Illness Self-Management in People with Serious Psychiatric and Medical Disorders, *American Psychological Association* 36(4), 297-305.

Telehealth Modality Type: Not specified (Automated Telehealth Intervention)

Funder: Endowment for Health, the Community Service Fund, and Robert Bosch Healthcare

Summary

OBJECTIVE: Effective monitoring and treatment are needed to address the elevated rates of medical comorbidity among individuals with serious mental illnesses. This study examined the feasibility and potential effectiveness of an automated telehealth intervention, supported by nurse health-care management, among adults with serious mental illnesses and chronic medical conditions.

METHODS: We conducted a single-arm pilot trial with 70 individuals with serious mental illnesses and chronic medical conditions who were medically unstable (determined by treatment team or defined as multiple emergency room visits/hospitalizations within the past year). The telehealth intervention was delivered for 6 months with feasibility and acceptability as the primary outcomes. Measures of illness management self-efficacy, psychiatric symptoms, subjective health status, health indicators, and service use were also collected at baseline and at 6 months.

RESULTS: Most individuals ($n=62$; 89%) participated in at least 70% of the telehealth sessions. Participation was associated with improvements in self-efficacy for managing depression and diastolic blood pressure. Almost all participants ($n = 68$; 98%) rated their understanding of their medical condition as “much better” or “somewhat better” postintervention. Among a subgroup of individuals with diabetes, decreases in fasting blood glucose were achieved, and among those with diabetes and major depression or bipolar disorder there were reductions in urgent care and primary care visits.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE: These results demonstrate the feasibility and acceptability of automated

telehealth supported by a nurse care manager and the potential effectiveness of this technology in improving self-management of psychiatric symptoms and chronic health conditions among these high-risk individuals.

Access: <http://web.a.ebscohost.com/ehost/detail/detail?vid=2&sid=7df1617b-5dcb-4b0d-aec2-ba7771cfc672%40sessionmgr4001&hid=4207&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=96119966>

Aburizik, A., Dindo, L. Kaboli, P., Charlton, M., Klein, D., Turvey, C. (2013). A pilot randomized controlled trial of a depression and disease management program delivered by phone, *Journal of Affective Disorders* 151(1), 769-774.

Telehealth Modality Type: Phone-based Intervention

Funder: The Department of Veterans Affairs Office of Rural Health

Summary

BACKGROUND: Depression in medically ill patients occurs at twice the rate found in the general population. Though pharmacologic and psychotherapeutic interventions for depression are effective, response to treatment and access to care are barriers for this population. A multidimensional telehealth intervention was designed to focus on these barriers by delivering a phone based intervention that addressed managing one's illness and coping emotionally.

METHODS: Veterans with diabetes, hypertension, or chronic pain and depressive symptoms were randomized to one of three conditions: Usual Care (n=23), Illness Management Only (n=31), or Combined Psychotherapy and Illness Management (n=29). Those randomized to the Combined or Illness Management Only intervention group received 10 phone visits. Veterans in the Combined group received all aspects of the illness management program plus a manualized depression intervention. Subjects completed assessments at baseline, week 5, and 10 to test the main hypothesis that veterans in the Combined condition would have a greater decline in depressive symptoms.

RESULTS: The Combined intervention yielded a significant decline in depressive symptoms when compared with Usual Care. However, there was no significant difference between the Combined and Illness Management Only groups.

LIMITATIONS: This is a pilot study with a small sample size relative to a standard randomized controlled trial in psychotherapy.

CONCLUSIONS: This telephone-based intervention succeeded in reducing depressive symptoms in veterans with chronic illness. It adds to the building evidence base for providing phone-delivered mental health services.

Access: <http://www.ncbi.nlm.nih.gov/pubmed/23871127>

Sorocco, K., Bratkovich, K., Wingo, R., Quershi, S., Mason, P. (2013). Integrating Care Coordination Home Telehealth and Home Based Primary Care in Rural Oklahoma: A Pilot Study, *Psychological Services* 10(3), 350-352.

Telehealth Modality Type: VTC

Funder: Oklahoma City Veteran's Affairs Medical Center

Summary

The purpose of this program was to evaluate the benefits of integrating VA Care Coordination Home Telehealth and Telemental health within HBPC. A case study design was used to determine quality assurance and quality improvement of incorporating additional home telehealth equipment within Home Based Primary Care (HBPC). Veterans with complex medical conditions and their caregivers living in rural Oklahoma were enrolled. Veterans received the same care other HBPC patients received with the addition of home telehealth equipment. Members from the interdisciplinary treatment team were certified to use the telehealth equipment. Veterans and their caregivers were trained on use of the equipment in their homes. Standard HBPC program measures were used to assess the program success. Assessments from all disciplines on the HBPC team were at baseline, 3, and 6 months, and participants provided satisfaction and interview data to assess the benefits of integrating technology into standard care delivery within an HBPC program. Six veterans were enrolled (mean age = 72 yrs) with a range of physical health conditions including: chronic obstructive pulmonary disease, cerebrovascular accident, spinal cord injury, diabetes, hypertension, and syncope. Primary mental health conditions included depression, dementia, anxiety, and PTSD. Scores on the Mini-Mental State Examination ranged from 18 to 30. Over a 6-month period, case studies indicated improvements in strength, social functioning, decreased caregiver burden, and compliance with treatment plan. This integration of CCHT and HBPC served previously underserved rural veterans having complex medical conditions and appears both feasible and clinically beneficial to veterans and their caregivers.

Access:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=Integrating+Care+Coordination+Home+Telehealth+and+Home+Based+Primary+Care+in+Rural+Oklahoma%3A+A+Pilot+Study>

Vaskinn, A., Wilsgard, I., Holm, A., Wootton, R., Elvevag, B. (2013). A feasibility study of a telephone-based screening service for mild cognitive impairment and its uptake by elderly people, *Journal of Telemedicine and Telecare* 19(1), 5-10.

Telehealth Modality Type: Phone-based Intervention

Funder: Northern Norwegian Regional Health Authority (Helse Nord RHF).

Summary

The risk of developing mild cognitive impairment (MCI), and subsequently dementia, increases with age. Early detection requires a comprehensive clinical examination, which is time consuming and expensive; a face-to-face examination can also be problematic for people living in rural areas which may result in unequal access to services. Telephone-based screening may provide a feasible method of identifying people who would benefit from a full diagnostic workup. We conducted a pilot study in which we offered telephone screening to all patients aged over 60 years at a health clinic in rural northern Norway (n = 259). Fifteen percent of them volunteered (n = 39). Screening identified a number of suspicious cases and we recommended to their general practitioner that 7 patients (18%) be offered a follow-up appointment. Surveys showed that the volunteers were generally positive towards the service, as was the general practitioner who found it helpful to be provided with such information about the elderly patients in his care. In addition, we surveyed the opinions of all general practitioners (n = 480) in the three northernmost counties of Norway concerning a potential service. There was a response rate of 40% (n = 190). Almost half of respondents (45%) would like to make use of such a service if it existed, and 34% believed that their patients would make use of it if available. The pilot study demonstrates the feasibility of telephone screening for clinically significant memory decline, and that users (general practitioners and the elderly) are positive towards such a service.

Access: <http://www.ncbi.nlm.nih.gov/pubmed/?term=feasibility+study+of+a+telephone-based+screening+service+for+mild+cognitive+impairment+and+its+uptake+by+elderly+people>

Jang, Y., Chiriboga, D., Molinari, V., Roh, S., Park, Y., Kwon, S., Cha, H. (2013). Telecounseling for the Linguistically Isolated: A Pilot Study with Older Korean Immigrants, *The Gerontologist* 54(2), 290-296.

Telehealth Modality Type: VTC

Funder: Agency for Healthcare Research and Quality

Summary

PURPOSE: Responding to the critical needs of the linguistically isolated, this pilot study tested the use of telehealth technology in providing access to culturally and linguistically appropriate mental health services. The goal of the study was to explore the feasibility and preliminary efficacy of a telecounseling program in the client's native language.

DESIGN AND METHODS: Using a small sample of older Korean immigrants living in a low-income housing facility in Orlando, Florida, who had concerns about depressive moods ($n = 14$), the pilot telecounseling program was implemented via videoconferencing. Four weekly sessions were conducted by 4 Korean mental health counselors based in New York.

RESULTS: A high level of completion (86%) and overall satisfaction with the program were observed. Participants also exhibited a significant reduction in depressive symptom severity shortly after completion of the program. At the 3-month follow-up, the participants' depressive symptom scores remained significantly lower than those at the initial assessment.

IMPLICATIONS. The findings support the value of telecounseling for linguistically isolated populations and suggest further efforts to extend such programs.

Access:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=Telecounseling+for+the+Linguistically+Isolated%3A+A+Pilot+Study+With+Older+Korean+Immigrants>

Jacob, M., Larson, J., Craighead, E. (2012). Establishing a Telepsychiatry Consultation Practice in Rural Georgia for Primary Care Physicians: A Feasibility Report, *Clinical Pediatrics* 51(11), 1041-1047.

Telehealth Modality Type: VTC

Funder: The Neuroscience Initiative of Emory University, the Brock Family Fund, the Fuqua Family Fund, the Center for the Study of Law and Religion at Emory University, and the John Templeton Foundation.

Summary

OBJECTIVE: One approach to solving mental health care disparity issues in rural areas is by establishing a telepsychiatry consultation practice for children, in which a psychiatrist sees a child via videoconferencing for a limited number of sessions and then provides a treatment plan to that child's primary care physician and family.

METHOD: The present study offered a 2-session telepsychiatry consultation clinic, consisting of a psychiatric evaluation session and a recommendation session, with patients located remotely in rural Georgia.

RESULTS. Fifteen consultations with children aged 4 to 18 years ($M=9.73$, $SD=3.39$) with varying diagnoses were completed. Parental satisfaction with the telepsychiatry consultation model was high, overall mean of 4.58 ($S=0.63$) on a 5-point scale ($n=11$).

CONCLUSION: Establishing a child telepsychiatry consultation practice is feasible in rural areas. This report describes the benefits and challenges of our telepsychiatry consultation clinic with rural pediatric patients.

Access:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=Establishing+a+telepsychiatry+consultation+practice+in+rural+Georgia+for+primary+care+physicians%3A+a+feasibility+report>.

Niles, B., Klunk-Gillis, J., Ryngala, D., Silberbogen, A., Paysnick, A. (2012). Comparing Mindfulness and Psychoeducation Treatments for Combat-Related PTSD Using a Telehealth Approach, *Psychological Trauma: Theory, Research, Practice, and Policy* 4(5), 538-547.

Telehealth Modality Type: Telephone-based Intervention

Funder: Samueli Institute for Information Biology and the National Center for PTSD, Behavioral Sciences Division, VA Boston Healthcare System

Summary

This pilot study examined two telehealth interventions to address symptoms of combat-related posttraumatic stress disorder (PTSD) in veterans. Thirty-three male combat veterans were randomly assigned to one of two telehealth treatment conditions: mindfulness or psychoeducation. In both conditions, participants completed 8 weeks of telehealth treatment (two sessions in person followed by six sessions over the telephone) and three assessments (pretreatment, post-treatment, and 6-week follow-up). The mindfulness treatment was based on the tenets of mindfulness-based stress reduction and the psychoeducation manual was based on commonly used psychoeducation materials for PTSD. Results for the 24 participants who completed all assessments indicate that: (1) Telehealth appears to be a feasible mode for delivery of PTSD treatment for veterans; (2) Veterans with PTSD are able to tolerate and report high satisfaction with a brief mindfulness intervention; (3) Participation in the mindfulness intervention is associated with a temporary reduction in PTSD symptoms; and (4) A brief mindfulness treatment may not be of adequate intensity to sustain effects on PTSD symptoms.

Access: <http://psycnet.apa.org/journals/tra/4/5/538/>

Postel, M., De Haan, H., De Jong, C. (2012) Evaluation of an E-Therapy Program for Problem Drinkers: A Pilot Study, *Substance Use and Misuse* 45(1), 2059-2075.

Telehealth Modality Type: synchronous and asynchronous meeting via the Internet (not video-based)

Funder: GGZ Nederland

Summary

An e-therapy program with therapist involvement for problem drinkers was evaluated in a population of 527 Dutch-speaking patients. In a pre-post design weekly alcohol consumption, alcohol-consumption-related health problems, and motivation were assessed. Although the dropout rate was high, patients showed a significant decrease of alcohol consumption and alcohol-consumption-related health complaints. Patients' satisfaction with the e-therapy program was high. The e-therapy program proved

to be feasible and attracted patients who were otherwise unlikely to seek help. A randomized controlled trial has to provide more information about reasons for dropout, effectiveness, and the population that benefits most from the e-therapy program. The study's limitations are noted.

Access: <http://web.a.ebscohost.com/ehost/detail/detail?vid=7&sid=20866e2e-558b-47f6-8fd0-5c74ee23c3b8%40sessionmgr4001&hid=4207&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=mnh&AN=20438314>

Morland, L., Hynes, A., Mackintosh, M., Resick, P., Chard, K. (2011) Group Cognitive Processing Therapy Delivered to Veterans via Telehealth: A Pilot Cohort, *Journal of Traumatic Stress* 24(4), 465-469.

Telehealth Modality Type: VTC

Funder: Department of Defense and Office of Research and Development, Medical Research Service, Department of Veterans Affairs.

Summary

The authors report clinical findings from the pilot cohort of the first prospective, non-inferiority designed randomized clinical trial evaluating the clinical outcomes of delivering a cognitive-behavioral group intervention for posttraumatic stress disorder (PTSD), cognitive processing therapy (CPT), via video teleconferencing (VT) compared to the in-person modality. The treatment was delivered to 13 veterans with PTSD residing on the Hawaiian Islands. Results support the general feasibility and safety of using VT. Both groups showed clinically meaningful reductions in PTSD symptoms and no significant between-group differences on clinical or process outcome variables. In keeping with treatment manual recommendations, a few changes were made to the CPT protocol to accommodate this population. Novel aspects of this trial and lessons learned are discussed.

Access: <http://web.a.ebscohost.com/ehost/detail/detail?vid=5&sid=20866e2e-558b-47f6-8fd0-5c74ee23c3b8%40sessionmgr4001&hid=4207&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=mnh&AN=21793047>

Tuerk, PW., Yoder, M., Ruggiero, KJ., Gros, DF., Acierno, R. (2010) A pilot study of prolonged exposure therapy for posttraumatic stress disorder delivered via telehealth technology, *Journal of Traumatic Stress* 23(1), 116-123.

Telehealth Modality Type: VTC

Funder: Department of Veterans Affairs Pacific Islands Healthcare System

Summary

The authors present a pilot study of 12 veterans diagnosed with combat-related PTSD and treated with prolonged exposure therapy (PE) 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.

Access: <http://onlinelibrary.wiley.com/doi/10.1002/jts.20494/abstract>

Huijbregts, M., McEwen, S., Taylor, D. (2009) Exploring the Feasibility and Efficacy of a Telehealth Stroke Self-Management Programme: A Pilot Study, *Physiotherapy Canada* 61(4), 210-220.

Telehealth Modality Type: VTC

Funder: The Northern Ontario Remote Telehealth (NORTH) Network

Summary

PURPOSE: "Moving On after STroke" (MOST) is an established self-management program for persons with stroke and their care partners. Through 18 sessions over 9 weeks, each including discussion and exercise, participants learn about goal-setting, problem-solving, exercise, and community-reintegration skills. This study was undertaken to evaluate the feasibility and efficacy of telehealth delivery of MOST.

METHOD: Efficacy was evaluated using an experimental non-randomized trial comparing a telehealth MOST intervention group (T-MOST) (n = 10) with a waiting list control group (WLC) (n = 8). Outcome measures included the Berg Balance Scale (BBS), the Reintegration to Normal Living Index, the Stroke-Adapted Sickness Impact Profile, Goal Attainment Scaling, and the Geriatric Depression Scale. The feasibility evaluation included attendance rates, focus groups, and facilitator logs. In MOST Telehealth, one co-facilitator was local and the other was connected by videoconference.

RESULTS: Attendance rates for persons with stroke (83.9%, SD = 2.6) and care partners (76.7%, SD = 2.9) and participant and facilitator experiences indicated feasibility of this mode of program delivery. There was a significant difference in BBS scores between the T-MOST group and the WLC group (mean difference -4.27, 95%CI: -6.66 to -1.87). Participants reported additional benefits, including increased motivation and awareness of partners' needs. Videoconferencing was reported to decrease their sense of isolation.

CONCLUSION: It appears feasible to deliver the MOST program with two facilitators, one connected by videoconference and one in person. In addition, preliminary evidence suggests that the program is associated with improved well-being in persons with stroke and their care partners. Practitioners delivering self-management programs may consider wider dissemination using videoconferencing.

Access: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2793695/>

Collie, K., Kreshka, M., Ferrier, S., Parsons, R., Graddy, K., Avram, S., Mannell, P., Chen, X., Perkins, J., Koopman, C. (2007) Videoconferencing for delivery of breast cancer support groups to women living in rural communities: a pilot study, *Psycho-Oncology* 16(8), 778-782.

Telehealth Modality Type: VTC

Funder: The California Breast Cancer Research Program of the University of California

Summary

Women with breast cancer in rural areas are likely to exhaust their usual sources of psychosocial support while still facing challenges

posed by breast cancer, but are unlikely to have access to professionally led support groups. In this community-based project, we assessed the feasibility and acceptability of providing support groups to women with breast cancer in a large rural area using videoconferencing and a workbook journal, and we assessed the intervention's potential to reduce distress and increase emotional expression and self-efficacy for coping with cancer. Twenty-seven women in the Intermountain Region of northeastern California participated in eight-session support groups led by an oncology social worker by going to nearby videoconferencing sites. Feasibility and acceptability were demonstrated. Older as well as younger women were comfortable using videoconferencing and said the groups were valuable because they promoted information sharing and emotional bonds with other women with breast cancer. They emphasized the importance of a professional facilitator and identified advantages of using videoconferencing for support groups. Pretest and posttest comparisons showed significant decreases in depression and posttraumatic stress disorder symptoms. The results suggest that the intervention has the potential to provide a valuable service that is not readily available in rural communities.

Access: <http://onlinelibrary.wiley.com/doi/10.1002/pon.1145/abstract>

Matano, R., Koopman, C., Wanat, S., Winzelberg, A., Whitsell, S., Westrup, D., Futa, K., Clayton, J., Mussman, L., Taylor, B. (2007)
A pilot study of an interactive web site in the workplace for reducing alcohol consumption, *Journal of Substance Abuse Treatment* 32(1), 71-80.

Telehealth Modality Type: VTC

Funder: The Center for Substance Abuse Prevention

Summary

An interactive web-site-based intervention for reducing alcohol consumption was pilot tested. Participants were 145 employees of a work site in the Silicon Valley region of California, categorized as low or moderate risk for alcohol problems. All participants were given access to a web site that provided feedback on their levels of stress and use of coping strategies. Participants randomized to the full individualized feedback condition also received individualized feedback about their risk for alcohol-related problems. Some evidence was found for greater alcohol reduction among participants who received full individualized feedback, although due to difficulties in recruiting participants, the sample size was inadequate for evaluating treatment effects on drinking. The results provide preliminary support for using an interactive web site to provide individualized feedback for persons at risk for alcohol problems. However, the low participation rate (2.7%) suggests that such an intervention must address the challenges of

recruiting employees through their work site.

Access: [http://www.journalofsubstanceabusetreatment.com/article/S0740-5472\(06\)00190-5/abstract](http://www.journalofsubstanceabusetreatment.com/article/S0740-5472(06)00190-5/abstract)

Morland, LA., Pierce, K., Wong, MY. (2004) Telemedicine and coping skills groups for Pacific Island veterans with posttraumatic stress disorder: a pilot study, *Journal of Telemedicine and Telecare* 10(5), 286-289.

Telehealth Modality Type: VTC

Funder: The Department of Veterans Affairs and by the National Center for PTSDs

Summary

Patients with post-traumatic stress disorder (PTSD) were randomly assigned to either an eight-week videoconferencing PTSD coping skills group or a traditional face-to-face PTSD coping skills group. Levels of attrition and compliance, patient satisfaction, clinician satisfaction and patients' retention of information were compared between the two conditions. Of the 41 referred veterans, 20 were eligible and agreed to participate in the study. Three of these participants withdrew from the study before randomization. By the end of the study, 89% of the patients remained in the videoconferencing group, whereas only 50% remained in the face-to-face group. Patients in the face-to-face group attended an average of 4.9 sessions and patients in the videoconferencing group attended 6.3 sessions (this difference was not significant). There was no difference between levels of patient satisfaction or clinician satisfaction at weeks 4 or 8. Patients' retention of information was similar in the two groups. The results show that videoconferencing can be used to provide coping skills groups for veteran patients with PTSD who reside in remote rural locations.

Access: <http://web.a.ebscohost.com/ehost/detail/detail?vid=15&sid=20866e2e-558b-47f6-8fd0-5c74ee23c3b8%40sessionmgr4001&hid=4207&bdata=JnNpdGU9ZWZvc3QtbGl2ZQ%3d%3d#db=mnh&AN=15494087>

Rees, C., Gillam, D. (2001) Training in cognitive-behavioral therapy for mental health professionals: a pilot study of videoconferencing, *Journal of Telemedicine and Telecare* 7(5), 300-303.

Telehealth Modality Type: VTC

Funder: The Centre for Mental Health Services Research

Summary

A foundation course in cognitive-behavioral therapy (CBT) was developed specifically for delivery via videoconferencing at 256 kbit/s. A two-part, 20-week program was evaluated at seven sites, with a total of 12 participants, in rural and remote Western Australia. Eleven of the participants completed a pre- and post-training knowledge test. There was a significant improvement in their knowledge of CBT after training. Ten participants also completed a satisfaction questionnaire. The majority were satisfied with the training they received and stated that the training had given them greater confidence in their ability to use CBT with their patients. This study lends support to the use of videoconferencing in the training of rural and remote mental health practitioners.

Access: <http://jtt.sagepub.com/content/7/5/300.short>

Kwong Tang, W., Chiu, H., Woo, J., Hjelm, M., Hui, E. (2001) Telepsychiatry in Psychogeriatric Service: A Pilot Study, *International Journal of Geriatric Psychiatry* 16(1), 88-93.

Telehealth Modality Type: VTC

Funder: The Department of Psychiatry of the Chinese University of Hong Kong

Summary

A pilot study on telepsychiatry was conducted in which a videoconferencing link was established between a regional hospital and a care and attention home. Using this system, a psychogeriatric outreach team provided 149 psychiatric assessments to 45 residents of the care and attention home over 11 months. Videoconferencing was found to be highly feasible. It was acceptable to staff and patients and more cost-effective than on-site visits.

Access: <http://www.ncbi.nlm.nih.gov/pubmed/11180491>

Dossetor, Nunn, K., Fairley, M., Eggleton, D. (1999). A child and adolescent psychiatric outreach service for rural New South Wales: A telemedicine pilot study, *Journal of Pediatrics and Child Health* 35(1), 525-529.

Telehealth Modality Type: VTC

Funder: Centre for Mental Health within the New South Wales (NSW) Department of Health

Summary

OBJECTIVE: To examine the feasibility of a tertiary outreach service in child and adolescent psychiatry to two rural health centers in New South Wales, Australia.

METHODS: Following a site visit to Dubbo Hospital and Bourke Hospital, telemedical videoconferencing was provided for 2 h/week for 32 weeks. Details of referrers, patients' diagnosis and outcome, and satisfaction with the service were obtained.

RESULTS: Cases were triaged by a nominated rural adolescent mental health worker. The service provided detailed assessment and management of severe, complex, mental and neuropsychiatric disorders. Fifty-four young people were assessed and 72 joint consultative videoconferencing interviews were undertaken, including 26 initial consultations. Twenty-three initial consultations were undertaken on the visit to the rural centers. Clinical descriptions illustrate the flexibility and sensitivity of the service.

CONCLUSION: Telepsychiatry provides access to a flexible, effective tertiary service for those with special, complex needs, including the disadvantaged or isolated. It makes a valuable, economic contribution to supporting and educating rural health professionals, thereby enriching rural mental health services.

Access: <http://onlinelibrary.wiley.com/doi/10.1046/j.1440-1754.1999.00410.x/abstract>