

## **Empirical Evidence on the Use and Effectiveness of Telepsychiatry via Videoconferencing: Implications for Forensic and Correctional Psychiatry**

Diana J. Antonacci, M.D.,\*  
Richard M. Bloch, Ph.D.,<sup>†</sup>  
Sy Atezaz Saeed, M.D., M.S.,<sup>†</sup>  
Yilmaz Yildirim, M.D.<sup>†</sup> and Jessica Talley, M.D.<sup>†</sup>

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**A growing body of literature now suggests that use of telepsychiatry to provide mental health services has the potential to solve the workforce shortage problem that directly affects access to care, especially in remote and underserved areas. Live interactive two-way audio–video communication—videoconferencing—is the modality most applicable to psychiatry and has become synonymous with telepsychiatry involving patient care, distance education, and administration. This article reviews empirical evidence on the use and effectiveness of videoconferencing in providing diagnostic and treatment services in mental health settings that serve child, adolescent, and adult populations. Descriptive reports, case studies, research articles, and randomized controlled trials related to clinical outcomes were identified and reviewed independently by two authors. Articles related to cost-effectiveness, technological issues, or legal or ethical aspects of telepsychiatry were excluded. The review of the evidence broadly covers mental health service provision in all settings, including forensic settings. Given the sparse literature on telepsychiatry in forensic settings, we discuss implications for mental health care across settings and populations and comment on future directions and potential uses in forensic or correctional psychiatry. Copyright © 2008 John Wiley & Sons, Ltd.**

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\*Correspondence to: Diana J. Antonacci, M.D., Department of Psychiatric Medicine, Brody School of Medicine at East Carolina University, 600 Moye Boulevard, Suite 4E-100, Greenville, NC 27834, U.S.A.  
E-mail: antonaccid@ecu.edu

<sup>†</sup>Department of Psychiatric Medicine, The Brody School of Medicine at East Carolina University.

Many states have extreme disparities in population density and resource distribution, with substantial health and human service resources in urban centers and relative scarcity of services in rural areas. Such disparities are particularly evident in the area of mental health services (*New Freedom Commission on Mental Health, Subcommittee on Rural Issues: Background paper*, 2004). Many states have employed telepsychiatry to improve mental health services' cost, quality, and availability. Indeed, a growing body of literature now suggests that use of telepsychiatry to provide mental health services has the potential to mitigate the workforce shortage that directly affects access to care, especially in remote and underserved areas.

Telepsychiatry has been variously defined. The National Library of Medicine defines telemedicine as it applies to psychiatry [telepsychiatry] as the use of electronic communication and information technologies to provide or support clinical psychiatric care at a distance. This definition includes many communication modalities such as phone, Fax, e-mail, the Internet, still imaging, and live interactive two-way audio-video communication (*American Psychiatric Association resource document on telepsychiatry via videoconferencing*, 1998). Live interactive two-way audio-video communication—videoconferencing—is the modality most applicable to psychiatry and has become synonymous with telepsychiatry involving patient care, distance education, and administration. Regardless of how these applications are defined, telepsychiatry and e-mental health comprise one of the largest uses of telehealth nationwide (Grigsby *et al.*, 2002; Krupinski *et al.*, 2002). Videoconferencing primarily involves interactive audiovisual conferencing systems over high-capacity (high-bandwidth) networks. Historically, interactive telepsychiatry applications have used point-to-point network connections, usually as full or fractional T-1 or integrated services digital network (ISDN) circuits. However, the rapid diffusion of Internet and Ethernet networks has led to the development of videoconferencing systems that can work over these types of network, *i.e.* Internet Protocol (IP) networks. If a telepsychiatry application uses IP networks, then security must be ensured—this can be accomplished by using encrypted codecs or by setting up a virtual private network (VPN) and/or virtual local area networks (VLANs).

This article reviews empirical evidence on the use and effectiveness of videoconferencing in providing diagnostic and treatment services in the area of mental health. Based on our review of the literature, we draw conclusions regarding telepsychiatry in general mental health populations and comment specifically on implications for forensic or correctional psychiatry.

## REVIEW OF THE LITERATURE

We searched the literature for reports about telepsychiatry programs and services. The search focused on the English language literature and identified journal articles and reports. The electronic databases MEDLINE via Ovid, PsycINFO and the Telemedicine Information Exchange were searched from 1950 to June 2007. Approximately 385 citations were identified by using the search terms telemedicine, telepsychiatry, telepsychology, or videoconferencing, along with psychiatry, child and adolescent psychiatry and forensic psychiatry. Abstracts were reviewed for relevance by two authors (D.A. and Y.Y.), who identified all citations pertaining to

telepsychiatry demonstration projects, program descriptions, empirical evaluations, satisfaction and acceptance, clinical outcome and cost-effectiveness. The initial review identified 121 articles. Articles related to cost-effectiveness, technological issues, and legal or ethical aspects of telepsychiatry were excluded. Descriptive reports, case studies, research reports, and randomized controlled trials related to clinical outcomes were identified and reviewed independently. Forty-five articles fulfilled these criteria.

In our literature review, 34 of 45 articles were related to clinical efficacy of telepsychiatry in general adult psychiatry (Table 1). Most of them were case-studies (Deutsch, Frueh, & Santos, 2000), case-series (Bose, McLaren, Riley, & Mohammedali, 2001; Bouchard et al., 2000; Himle et al., 2006; Cluver et al., 2005; Shepherd et al., 2006; Shore & Manson, 2004; Thomas, Miller, Hartshorn, Speck, & Walker, 2005), or studies of patient or clinician satisfaction (Bishop, O'Reilly, Maddox, & Hutchinson, 2002; Dongier, Tempier, Lalinec-Michaud, & Meunier, 1986; Frueh, Henderson, & Myrick, 2005; Greenwood, Chamberlain, & Parker, 2004; Griffiths, Blignault, & Yellowlees, 2006; Morland, Pierce, & Wong, 2004).

Only five articles could be considered randomized clinical trials (De Las Cuevas, Arredondo, Cabrera, Sulzenbacher, & Meise, 2006; Fortney et al., 2007; O'Reilly et al., 2007; Poon, Hui, Dai, Kwok, & Woo, 2005, Ruskin et al., 2004) related to treatment outcome. In addition to being recognized as markedly few in number (Frueh, Monnier, Elhai, Grubaugh, & Knapp, 2004; O'Reilly et al., 2007), these studies used mixed diagnostic groups, mixed medication and psychotherapy interventions, and a variety of outcome assessment measures to conclude that telepsychiatric intervention outcomes were equivalent to face-to-face outcomes (De Las Cuevas et al., 2006; O'Reilly et al., 2007; Ruskin et al., 2004). Lack of control comparisons and use of superiority designs rather than equivalence designs (McAlister & Sackett, 2001) were additional problems.

Articles without random assignment (Bouchard et al., 2004; Griffiths et al., 2006; Jones, Johnston, Reboussin, & McCall, 2001; Kennedy & Yellowlees, 2000, 2003; Marcin et al., 2005; Modai et al., 2006; Shepherd et al., 2006; Shore, Savin, Orton, Beals, & Manson, 2007; Urness, Wass, Gordon, Tian, & Bulger, 2006) included a single study in a forensic setting (Zaylor, Nelson, & Cook, 2001). All had similar methodological problems, with an even higher risk of bias.

A recent randomized, controlled study by Fortney et al. (2007) compared the usual primary care treatment of depression with primary care treatment plus collaborative psychiatric medication monitoring in 395 patients and demonstrated a strong positive effect of telepsychiatry on measures of treatment compliance, symptom improvement, remission, and satisfaction. This superiority trial shows that, whether or not telepsychiatric care is equivalent to in-person care, it is more effective than a common alternative care, and meets the criterion for an evidence-based treatment for depression. Because a single disorder was treated with a specified treatment via telepsychiatry, it is possible for providers to replicate this process, to recognize patients who are likely to benefit from it, and to compare their outcomes to those reported in the literature. This study suggests that collaborative telepsychiatric care is better than usual non-psychiatric care for depression. Although the Fortney study (Fortney et al., 2007) was conducted in a VA primary care setting, the results should apply to collaborative depression care in other settings as well. Extrapolating from this study, one could infer that

telepsychiatric management of antidepressant medications should produce similar benefits over usual medical care in forensic settings and correctional facilities.

Several articles addressed diagnosis or assessment studies with adult patients, including a meta-analysis (Hyer, Gangure, & Batchelder, 2005). There were four studies in forensic settings (Leonard, 2004; Lexcen, Hawk, Herrick, & Blank, 2006; Nelson, Zaylor, & Cook, 2004; Zaylor, Nelson, & Cook, 2001) (see Table 2). Like studies on treatment outcome, the assessment articles focused on patient or clinician satisfaction (Matsuura *et al.*, 2000) and equivalence of telepsychiatric assessment to in-person assessment (Baer *et al.*, 1995; Cullum, Weiner, Gehrman, & Hynan, 2006; Hersh *et al.*, 2002; Marcin *et al.*, 2005; Shore *et al.*, 2007; Zarate *et al.*, 1997). The forensic assessment studies compared prisoner self-ratings with telepsychiatric ratings (Nelson *et al.*, 2004; Zaylor *et al.*, 2001) or in-person ratings to telepsychiatric ratings (Leonard, 2004; Lexcen *et al.*, 2006). The presumption is that in-person assessments are the gold standard to be matched by telepsychiatric assessments. This was the assumption underlying the meta-analysis on telepsychiatric assessment (Hyer *et al.*, 2005). Patient selection factors, small study size, variable assessment instruments, varied patient problems, and lack of connection with treatment initiation and outcome are common study problems. However, there is no indication that telepsychiatric assessment, including forensic assessments and assessments in correctional facilities, induces systematic biases.

Application of telepsychiatry to child and adolescent patients has also been tested (see Table 3). In addition to case studies demonstrating feasibility (Alessi, 2003; Savin, Garry, Zuccaro, & Novins, 2006), telepsychiatry programs targeting children and adolescents have been described (Myers, Sulzbacher, & Melzer, 2004; Neufeld, Yellowlees, Hilty, Cobb, & Bourgeois, 2007; Starling, Rosina, Nunn, & Dossetor, 2003). In much the same way as in the adult literature, patient and clinician acceptance is relatively high.

There are only two randomized controlled trials with children, one on treatment efficacy and one on assessment reliability and satisfaction. The efficacy study compared eight weeks of in-person to telepsychiatry CBT treatment for depression (Nelson, Barnard, & Cain, 2003). Both telepsychiatry and in-person treatment produced significant reductions in depression scale scores, although the telepsychiatry condition produced faster reductions.

The assessment study (Elford *et al.*, 2000) compared telepsychiatric assessments with in-person assessments to see whether they produce the same diagnoses and are acceptable to patients, clinicians, and parents. There was a high degree of agreement between telepsychiatric and in-person diagnoses and general satisfaction with telepsychiatric care.

While not the focus of the current review, it should be noted that there are comparisons of successful telephone-based interventions that show better effects than usual care (Rollman *et al.*, 2005; Simon, Ludman, Tutty, Operskalski, & Von Korff, 2004). There is even a non-inferiority trial of telephone-delivered cognitive-behavior therapy for obsessive-compulsive disorder comparing eight 30 minute telephone sessions with nine 60 minute in-person sessions (Lovell *et al.*, 2006) that suggests that the same outcomes can be achieved with half the therapist time using telephone-delivered care. Some telepsychiatry studies hint at comparable advantages in time savings (Nelson *et al.*, 2003; Zaylor, 1999) or treatment adherence (Modai *et al.*, 2006).

Table 1. Telepsychiatry studies on treatment feasibility, satisfaction, efficacy or effectiveness in the general adult population

Author	Study objective	Main study outcomes
Ruskin et al. (2004)	Compared treatment outcomes of depressed patients treated in person with those treated remotely. To determine whether patients' rates of adherence to and satisfaction with treatment were as high with remote as compared with in-person treatment and to compare costs.	N = 119, 8 sessions of 20 minutes each over a 6 month period. Both groups were equally adherent. No between group differences in satisfaction or dropout rates. Telepsychiatry was more expensive until costs of psychiatrist travel were factored in. Telepsychiatry did not increase health care resource consumption.
Fortney et al. (2007)	This study evaluated a telemedicine based collaborative care model adapted for small clinics without on site psychiatrists.	N = 395 primary care patients in VA community clinics. Depression scores on the PHQ9 > 12. Intervention patients more likely to be adherent at 6 and 12 months. Intervention patients more likely to respond at 6 months and remit at 12 months. They reported larger gains in mental health status, improved health-related quality of life, and higher satisfaction.
O'Reilly et al. (2007)	Compared a variety of clinical outcomes after psychiatric consultation and, where needed, brief follow-up for OP referred to a psychiatric clinic with random assignment to telepsych. or F2F.	495 patients, 254 F2F and 241 telepsych. Consultation and follow-up produced clinical outcomes that were equivalent between the 2 groups. Patient satisfaction levels were similar. Telepsych. was at least 10% less expensive
De Las Cuevas et al. (2006)	Evaluated efficacy of telepsych. in the tx of mental disorders by comparing F2F treatment.	RCT of 140 OP. Tx was 8 consultations lasting 30 minutes over 24 weeks. Medications plus CBT were used. 130 completed, 534 teleconsultations, 522 F2F consultation. Both groups improved but no differences were observed between groups. Random assignment, N = 24 with 17 completing. Assessed 4 months after. Although there was a trend in favor of F2F the difference was not significant.
Bishop et al. (2002)	Pilot comparing satisfaction levels between patients seen F2F and those seen via VC.	N = 20, 3 withdrew. 9 to VC and 8 FTF. At end of 8 wks, 4 left in F2F and 8 left in VC. F2F attended 4.9 sessions and VC 6.3 sessions (not significant). No differences in levels of satisfaction in patients or clinicians. Retention of info. similar in both groups. VC can be used to provide coping skills.
Morland et al. (2004)	Investigated the feasibility of using VC to provide coping skills group for veteran pts with PTSD who live in remote locations.	VC can be used to provide coping skills.

(Continues)

Table 1. (Continued)

Author	Study objective	Main study outcomes
Poon <i>et al.</i> (2005)	This project examined and compared the feasibility, acceptability, and clinical outcome of a cognitive intervention program for older patients with mild cognitive impairment and mild dementia using TM vs F2F.	$N = 22$ . 12 sessions conducted via F2F or VC. Cognitive impairment was significant and comparable across groups. Compliance was 95% overall. Satisfaction was measured among pts and staff. Significant improvement in the areas of attention, memory, and language areas were observed following cognitive intervention with no difference in outcomes between the 2 intervention arms.
Bouchard <i>et al.</i> (2004)	Compared effectiveness of CBT for panic disorder when delivered F2F or by VC.	$N = 21$ . CBT F2F was just as effective as VC. Both groups improved. VC participants reported development of excellent DP relationships as early as the first session.
Jones <i>et al.</i> (2001)	Test the hypothesis that VC ratings based on visual observations of behavior would be less reliable than ratings based on patients' verbal reports of symptoms.	$N = 30$ VC assessments. BPRS was used. Reliability of BPRS subjective items was consistently higher than for the observational items (used low band width).
Modai <i>et al.</i> (2006)	Compared institutional ambulatory and hospital costs, treatment adherence, patient and physician satisfaction, and treatment safety between VC and F2F treatment.	1 year of telepsychiatry treatment ( $N = 39$ ) compared to previous year (F2F) and matched comparison group ( $N = 42$ ). Patients and physicians were satisfied and treatment was safe. Telepsychiatry was more expensive and there was a trend toward increased IP. Adherence rates before and during telepsych. were similar but were twice as high as the comparison group.
Kennedy and Yellowlees (2003)	Data were collected from 124 patients attending hospital and GP facilities. 32 were using telepsychiatry. Follow-up data were collected a year later.	There was a significant difference between initial assessment and follow-up in both groups but no significant difference between the face-to-face and telepsychiatry groups. Both groups were improved and telepsychiatry was as effective as face to face.
Urness <i>et al.</i> (2006)	Evaluated client satisfaction and one month MH outcomes for TP compared with F2F. The SF-12 survey was used.	48 of the 62 (77%) initial responders were available for <i>f/u</i> one month later. TP pts demonstrated significant improvements on pre and post tests while there was no change for the F2F group. This was a single first time consultation.

Hyler et al. (2005)	A review and meta-analysis of the literature comparing TP with in-person psychiatric assessments.	1956 to 2002. N = 380. 14 with N > 10 compared TP with IP using objective assessment instruments or satisfaction instruments. 14 studies with 500 patients. TP was similar to IP using objective assessments. Effect sizes were small, suggesting no difference. HB was slightly superior for assessments requiring detailed observation of subjects. Out of a large TP literature published over the last 40+ years, only a handful of studies have attempted to compare TP with IP directly using standardized assessments.
Hersh et al. (2002)	Systematic review of the literature to evaluate the efficacy of telemedicine for making dx and management decisions in 3 classes of application: office/hospital based, store and forward, and home based.	The strongest evidence came from psychiatry and dermatology. There was reasonable evidence for general medical history and physical exams. There is some evidence in cardiology and certain areas of ophthalmology. Despite widespread use, there is strong evidence in only a few specialties that dx and tx decisions provided by TM are comparable to F2F.
Shore et al. (2007)	Examined the reliability of SCID in the administration of psych. assessments by VC vs F2F.	N = 53, randomly assigned. Comparisons made with prevalences, the McNemar test and the kappa statistics. Percent agreement b/w modalities was >80% except for lifetime drug abuse (76%), lifetime substance abuse (72%) and lifetime MDD (66%). Externalizing disorders elicited a higher kappa than internalizing disorders. Overall SCID live did not differ from VC statistically. Highly similar test scores were obtained for the two groups.
Cullum et al. (2006)	Administered a brief battery of common neuropsych. tests via VC and F2F to 14 patients with mild cognitive impairment and 19 with AD.	The VC group had a partner to decrease anxiety and assist with equipment.
Kennedy and Yellowlees (2000)	Evaluated a pilot project that supported visiting psychiatrists and local private/public practitioners through telemedicine.	Data collected over 2 years with 124 patient subjects. Nine additional refused to participate. 32/124 used telemed. No significant improvements in wellbeing or quality of life. Most found moderately or greatly helpful. (98% preferred telemed. in combination with local service)
Deitsch et al. (2000)	Case report of a group therapy session with 4 patients. The group had been meeting with variable attendance	There was one 55 minute session. Feedback was by questionnaire and verbal. Patient satisfaction was rated as good to very good. Delay in responses was distracting to the remote therapist.

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Table 1. (Continued)

Author	Study objective	Main study outcomes
Cluver <i>et al.</i> (2005)	Feasibility study of remote psychotherapy with terminally ill cancer patients with dx of adjustment disorder or major depression.	N = 10. 6 sessions of CBT with remote alternating with face to face. 9 patients completed 53 therapy sessions. 21 remote and 32 face to face. Acceptance and perceptions were positive after almost all therapy sessions, regardless of delivery mode. N = 18 with 14 attending at least 4 sessions. Patients reported high levels of satisfaction, found intervention to be credible, and had good session attendance and attrition comparable to conventional tx. 82% indicated they would recommend the treatment.
Fruch <i>et al.</i> (2005)	Videoconferencing was used in open sessions for subjects with alcohol use disorders. 8 sessions of group therapy over a 4 week period.	Retrospective chart review. N = 223. Diagnosis changed in 48%, tx changed in 81.6% and clinical improvement was shown in 60.1%. Consistent with literature regarding changes in process of care with F2F. Changes in dx or tx found to be associated with clinical improvement.
Marcin <i>et al.</i> (2005)	Determine if OP telemed. specialist consultation to primary care clinicians resulted in changes in pt dx, management and outcomes.	12 sessions of CBT delivered by VC. N = 8. Improvements were made on measures of target symptoms and measures of global functioning. A very good therapeutic alliance was built after only the 1st session.
Bouchard <i>et al.</i> (2000)	Preliminary results of an outcome study on the effectiveness of telepsychiatry for panic disorder with agoraphobia.	N = 38. 35 completed an evaluation and 31 entered treatment. Anxiety and major affective disorders were the most commonly identified disorders followed by substance use disorders. Telepsych. can provide rapid crisis intervention and effective mental health services to victims of domestic violence in rural settings.
Thomas <i>et al.</i> (2005)	Description of a telemed. program that provides psychiatric screening, evaluation, treatment and referral for ongoing care to clients of a rural women's crisis center.	N = 15. CBT delivered to patients (and case managers (CM)). Dx of GAD, MDD, panic disorder. Outcome measures were Mental Health Inventory by pts and Health of the Nation Outcome Scale by CM. Significant improvement in all measures. TP consultations were acceptable to CM and pts.
Griffiths <i>et al.</i> (2006)	To explore the feasibility and acceptability of delivering CBT via TP to patients with depression and/or anxiety.	Near perfect interrater agreement on rating scale scores. Reliability was excellent in both. N = 50 clinic interactions in 7 months. Consisted of ongoing group tx, individual tx and med. mgmt. Patient satisfaction and comfort were rated highly.
Baer <i>et al.</i> (1995)	Assess reliability of rating scales administered in person and over video to patients with OCD.	
Shore <i>et al.</i> (2004)	This article describes a weekly TP clinic treating PTSD in American Indian veterans.	

Himle et al. (2006)	Three cases of OCD treated with CBT via VC.	12 wk manualized therapy including family members in sessions 1, 6 and 12. ERP was primary intervention, delivered in session and as homework. Measures YBOCs, CGI, Ham D, Working Alliance Inventory and Telepresence and VC Scale.
Shepherd et al. (2006)	Studies anxiety, depression and quality of life in rural cancer patients.	25 patients, average of 3 CBT sessions. Data collected pre, post and 1 month later. Hospital Anxiety and Depression Scale, Functional Assessment of Cancer Therapy—General, patient satisfaction questionnaire. Anxiety decreased and quality of life increased. The service was practical and acceptable.
Matsuura et al. (2000)	Assess the reliability of psych. evals via VC.	Interrater reliability measured with BPRS and Interclass Correlation Coefficient. Compared F2F with VC. Reliability showed perfect agreement. N = 17, 9 were volunteers and 8 were patients
Bose et al. (2001)	Evaluated patient satisfaction	N = 13. Brief counseling of non-psychotic patients, 4 month duration, 11 men and 2 women for 29 total sessions. 93% would like to use it again, 75% said could see well and 86% said they could hear. Overall patients were happy.
Dongier et al. (1986)	To carry out a quantified and controlled assessment of patients' and staffs' reactions to TP and to examine feasibility of TP.	50 telepsych. consultations and 35 F2F consultations compared from among those normally presenting to the 3 psychiatric consultants on staff. Consultant, patient, and consultee slightly preferred F2F but TP consultation was well accepted.
Greenwood et al. (2004)	Evaluate a TP clinical service in rural New South Wales. A retrospective evaluation was done to determine acceptance of TP and F2F.	N = 31 referred to a specialty mood clinic in a rural setting. 20 completed. A F2F semistructured interview was done on admission and immediately afterward a VC interview was performed. Dx were mood do (80%), anxiety do (20%). High satisfaction with F2F. Differences b/w F2F and TP were difficulty discussing problems, not finding consultation informative, not feeling comfortable on camera. 80% indicated they would use TP again.
Zarate et al. (1997)	Assessed reliability of BPRS, SAPS, SANS (1) in person, (2) by VC at low bandwidth, (3) by VC at high bandwidth.	N = 45 with dx of schizophrenia. 15 in each group. No significant differences existed among the groups.

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Table 1. (Continued)

Author	Study objective	Main study outcomes
Zaylor et al. (2000)	Retrospective review of charts comparing clinical outcomes of patients seen by TP and F2F.	N = 49 with SZA or MDD. GAF was used as measure at initial visit and subsequent visits. Patients seen by TP had a greater attendance rate and follow-up visitstook less than half the time compared to F2F.

VC = video conferencing.  
 F2F = face to face.  
 TP = telepsychiatry.  
 TM = telemedicine.  
 tx = treatment.  
 dx = diagnosis.

Table 2. Telepsychiatry studies on treatment feasibility, satisfaction, efficacy or effectiveness in the forensic population

Authors	Objective	Outcomes
Brodey et al. (2000)	Level of satisfaction with TP evaluations was determined.	N = 43. A forensic psychiatrist interviewed 20 in person and 23 by VC. Satisfaction was moderately high in both groups with no difference between the 2 groups. The psychiatrist felt comfortable with his ability to dx remotely.
Leonard (2004)	This article reviews the current prison health care system and then describes a research study focused on development and evaluation of a TP service for prisoners.	N = 80. Pt assessed by 1 psychiatrist at the local site doing the interview by VC and simultaneously by a 2nd psychiatrist at the remote site in the same room as the prisoner. Satisfaction was measured with 20 prisoners and 2 staff. Only study design is outlined.
Nelson et al. (2004)	The effectiveness of a jail telepsychiatry service was evaluated by comparing psychiatrist and inmate report of psychopathology.	N = 62 inmates, 107 consultations in a rural county jail. Inmates completed the SCL-90-R and the psychiatrist completed a Psychiatrist Evaluation Form including a CGI. Most inmates were rated as mildly to moderately ill. There was significant high correlation between TP psychiatrist rating on CGI and inmate report on SCL-90-R. The findings support effectiveness of TP evaluation for the jail population.
Zaylor et al. (2001)	The effectiveness of a prison telepsychiatry service was evaluated from the user perspective.	N = 45. Completed the SCL-90-R three times. The psychiatrist completed the CGI. Mean SCL scores decreased with time. The psychiatrists reported improvement over time on CGI. Telepsychiatry is an effective means of delivering MH services to the prison population.
Lexcen et al. (2006)	The authors investigated the quality of results from VC vs F2F with 72 forensic patients. Three administration and observation conditions were used.	Intrater reliability for 2 VC interview conditions were compared to those for F2F using BPRS—Anchored version and MacArthur Competence Assessment Tool—Criminal Application.

VC = video conferencing.  
 F2F = face to face.  
 TP = telepsychiatry.  
 TM = telemedicine.  
 tx = treatment.  
 dx = diagnosis.

Table 3. Telepsychiatry studies on treatment feasibility, satisfaction, efficacy or effectiveness in the child and adolescent population

Authors	Objective	Outcomes
Nelson <i>et al.</i> (2003)	This is an evaluation of an 8 week CBT intervention for childhood depression, either F2F or VC.	28 children were randomized to 2 tx groups. CBT across the 2 conditions was effective. Patients and parents were satisfied with VC and preferred VC over F2F. CBT was effective across both delivery methods. 82% no longer met criteria at the end. VC reported a greater decrease in depressive symptoms over time as compared to F2F. This is a model for RC trials in the future. N = 23 children with parents. 2 psychiatric assessments completed, one F2F and one VC. Order was randomized. In 22 cases (96%) dx and tx recommendations were same across both groups. Psychiatrists said VC assessment was adequate but F2F was preferred. Satisfaction measured in patients and parents was the same across groups. The majority of children liked TP and preferred it to F2F. Most parents indicated they preferred VC to traveling a long distance.
Elford <i>et al.</i> (2000)	The authors established a TP system for children and conducted an assessment of its utility.	Diagnosis was changed, medications discontinued and the patient improved. All scales showed reduced severity of symptoms. 21 evaluations in 12 months. 2 cases illustrate issues encountered. Patients and families were receptive. Cost is similar to F2F. Emphasizes importance of alcohol abuse in this population. 136 rural families, 20 rural clinicians and 8 psychiatrists. Satisfaction was high, with clinicians and families the most satisfied. Psychiatrists felt that they were usually able to perform an adequate consultation but few felt the consultations were as satisfactory as F2F. Other initiatives included telnursing, professional skills training, sabbaticals for rural clinicians and a clinical skills workshop.
Alessi (2003)	Case report of 15 year old evaluated and treated by telepsychiatry.	N = 369, 2 clinics. Youth evaluated were broadly comparable in both. TP appears to serve youth that are representative of those seeking psych. care. Diagnoses were similar and suggest that TP provides adequate technical resolution and doctor-patient rapport to detect psychopathology.
Savin <i>et al.</i> (2006)	Description of twice monthly child and adolescent telepsych service.	289 consults in first year. ADHD was most common dx in kids, mood disorders in adults. A convenience sample of 33 adults (SF-12 health status measure) showed improvements in MH status at 3 and 6 months.
Starling <i>et al.</i> (2003)	This article describes the initial evaluation of the child and adolescent psychological telemedicine outreach service in New South Wales and changes made to the service after the initial evaluation.	
Myers <i>et al.</i> (2004)	Examined whether TP patients are representative of those in usual OP care.	
Neufeld <i>et al.</i> (2007)	Describes the University of CA program. Used for clinical services, consultation and education.	

Comparisons between telepsychiatry via video conferencing and telephone have not been made. Having shown success with specific populations using telephonic interventions, it may be more appropriate to conduct equivalence studies with telepsychiatry via videoconferencing compared with telepsychiatry via telephone rather than comparing videoconferencing to face to face treatment. Likewise, finding that telephone interventions may require less time for an equivalent effect (Lovell et al., 2006) suggests that telepsychiatry interventions should be tested for a similar effect. The growing literature on both telephone-aided and video-conferencing treatments makes the determination of which technology is effective with what types of patient, and the need to match technology with patient values and needs (Ryan, Kobb, & Hilsen, 2003), a possibility. Telephonic interventions may be more feasible in settings where videoconferencing equipment is unavailable or impractical, including forensic and correctional facilities.

This review of the literature covers a time period of over half a century, but efficacy and effectiveness data are still rather sparse. The limited evidence is from 2000 or later and is relatively weak due to the problems discussed above. The literature began with descriptive articles looking at feasibility, acceptance, satisfaction, and cost. There was then movement toward comparing telepsychiatry to services provided face to face. A few studies that provide the same treatment across the two modalities and measure clinical outcomes have emerged. However, the treatment is very limited, usually medication management or a short course of CBT, and if there is therapy it is often paired with some type of face-to-face contact as well. Outcomes appear to be the same. Acceptance is good in general. If there are acceptance problems, it is usually the professional who is reluctant, not the patient or family. Usage is primarily in rural areas or jails, or with underserved subpopulations such as children. The state of the literature is generally weak but there is more in psychiatry than other medical specialty areas, probably because of the greater reliance on the mental status examination and verbal communication and not on a physical examination.

## **IMPLICATIONS FOR FORENSIC OR CORRECTIONAL PSYCHIATRY**

Our review of the literature yielded 12 articles from forensic settings. Five addressed efficacy and are included in our review. The total number of subjects in these five articles was 345. One article (Leonard, 2004) only outlined study design, one looked at symptom improvement (Zaylor et al., 2001), two examined patient satisfaction (Brodey, Claypoole, Motto, Arias, & Goss, 2000; Myers et al., 2004), one examined interrater reliability in telepsychiatric assessments based on interviews (Lexcen et al., 2006) and one focused on the effectiveness of a jail telepsychiatry service (Nelson et al., 2004). The Myers study (Myers et al., 2004) looked at an adolescent population while the others focused on adults. All studies had significant methodological limitations, making confident conclusions difficult.

The overall view that emerges is that, despite methodological problems, telepsychiatry seems to be an appropriate option to provide services to patients in correctional facilities in order to improve access to psychiatric services. The Zaylor study (Zaylor et al., 2001) showed improvement in symptoms per patient and

psychiatrist report. The Nelson study (Nelson *et al.*, 2004) showed a high correlation between the telepsychiatrist evaluation and inmate report of symptoms. The Brodey study (Brodey *et al.*, 2000) notes that the physician felt comfortable making diagnoses via telepsychiatry and did not find a difference in satisfaction between those who received care via telepsychiatry and those who received care in person.

Telepsychiatric treatment in correctional facilities may differ from telepsychiatric treatment in outpatient clinics in important ways. Because the patients are in correctional facilities, it is most likely they will have at least one staff member present during their telepsychiatry session. This eliminates the privacy usually available in a physician/patient relationship. Indeed, the youths in the Myers article expressed concerns about their lack of privacy. It would be difficult to eliminate this problem completely, as correctional facilities must maintain safety and security at all costs. This lack of privacy may be most noticeable to those patients who have had outpatient experiences with psychiatric providers outside the correctional system.

When initiating a telepsychiatry service within a correctional facility, it will be important to clearly identify the facility's expectations of the psychiatrist and the limits of the physician/patient relationship. It should be understood how the recommendations made will be carried out by correctional facility staff. In addition, a plan would be needed for dealing with patient problems when the psychiatrist is not available. It will also be important to plan ahead and anticipate how potential growth of a telepsychiatry clinic will be handled in order to ensure adequate time for new evaluations and follow-up treatment.

## **OPPORTUNITIES FOR CORRECTIONAL AND FORENSIC PSYCHIATRY**

Despite the methodological cautions, there are no data that demonstrate that telepsychiatric services are harmful, either to general psychiatric patients, children, or to prisoners. It appears that telepsychiatric assessments are acceptable to individuals in forensic and correctional facilities, and that telepsychiatric services can be used effectively with prisoners with certain psychiatric disorders. More comparisons on specific psychiatric subgroups, using specific treatment interventions, are needed to optimally match the technological medium of intervention with particular prisoner or patient problems.

While telepsychiatry seems to be a viable option for providing psychiatric care to those in correctional facilities, there is still a need for more research in this field. Comparing telephone and telepsychiatry treatments with each other and with usual care would be useful, as telephonic consultation may be more feasible than videoconferencing in some correctional settings. It would also be beneficial to look at efficacy differences for different disorders and for differences related to demographic factors such as age, race, and gender.

In terms of the long-term development of telepsychiatry, we offer the following recommendations for correctional systems.

1. Foster pilot projects in telepsychiatry, particularly utilizing evidence-based approaches.
2. Aggressively pursue tele-training, leveraging existing resources to the greatest practical extent. Extensive high-speed networking and videoconferencing

resources may already be in place. Additional video-conferencing resources may be available through public and private higher education institutions, Area Health Education Center (AHEC) offices, and Public Health systems.

3. In situations where teleconferencing cannot be implemented, telephone services should be considered.
4. The correctional systems should look to professional societies and other states' telepsychiatry programs to develop guidelines and best practices.
5. The forensic systems should identify technology infrastructure needs, and then implement a plan to meet these needs. There are many Federal programs that can assist with infrastructure, including the FCC Universal Services Fund (communications subsidies) and the U.S. Department of Agriculture/Rural Utility Service's Telemedicine and Distance Learning grant and loan program (equipment purchases).

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