Recent Advances in Telepsychiatry: An Updated Review

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Objective: **In response to new developments and interest in the area of telepsychiatry, literature on this topic has greatly increased over the past three years. Because of this increase, the authors conducted a literature review of telepsychiatry to update a previously published review that covered the years 1970 to 2000.** ***Methods:*** **A search was conducted on the MEDLINE, PsycINFO, and Telemedicine Information Exchange (TIE) databases for literature published from March 2000 to March 2003 on telepsychiatry applications, using the following terms: telepsychiatry, telepsychology, telemental health, videoconferencing, and video conferencing.** ***Results:*** **Sixty-eight publications were identified over this three-year period, exceeding the 63 publications identified in the previous literature review. The authors summarize the results of findings in six areas: novel clinical demonstrations and current program descriptions; the reliability of clinical assessments; clinical outcomes; satisfaction of patients and clinicians; cost and cost-effectiveness; and legal, regulatory, and ethical issues. Studies describing existing programs and novel clinical applications support the belief that the use of telepsychiatry is expanding. Overall, studies continued to support the notion that telepsychiatry assessments can produce reliable results, telepsychiatric services can lead to improved clinical status, and patients and clinicians are satisfied with treatment delivered via telepsychiatry. Evidence supported the notion that telepsychiatry is a cost-effective means of delivering mental health services; however, this conclusion was based on limited studies of economic models of telepsychiatry programs. Also limited were papers on the topics of legal, regulatory, and ethical issues.** ***Conclusions:*** **Despite the rapid increase in information on telepsychiatry, methodologically sound studies in the area of telepsychiatry are still infrequent. (*Psychiatric Services* 54:1604–1609, 2003)**

In 2000 Frueh and colleagues (1) conducted a literature review to identify articles on telepsychiatry—the use of videoconferencing technology to provide mental health and psychiatric services. Findings from this review highlighted strengths and weaknesses in the area of telepsychiatry. For example, the literature supported telepsychiatry as a reliable means of gathering interview data and demonstrated that patients and clinicians generally experienced high levels of satisfaction with telepsychiatry. However, two key limitations in the literature were noted: the paucity of published reports on the use of telepsychiatry and the lack of rigorous empirical studies of telepsychiatry applications, including efficacy of clinical outcomes.

As technology has advanced in this area of service delivery, interest in the use of telepsychiatry has grown. As a result, literature on this topic has greatly increased since 2000. In the original review by Frueh and colleagues, 63 articles from January 1970 to February 2000 were cited. In the review reported here, 68 articles from March 2000 to March 2003 were identified.

Method

We reviewed the MEDLINE, PsycINFO, and Telemedicine Information Exchange (TIE) databases for literature on telepsychiatry applications. The following terms were independently used in this search: telepsychiatry, telepsychology, telemental health, videoconferencing, and video conferencing. Articles resulting from the search of videoconferencing and video conferencing that were unrelated to psychiatry were not reviewed. Only articles published in peer-reviewed journals were examined.

Results

We identified 68 articles from peer-reviewed journals. Findings from these reports are presented in six sections below: novel clinical demonstrations and current program descriptions; the reliability of clinical assessments; clinical outcomes; satisfaction of patients and clinicians; cost and cost-effectiveness; and legal, regulatory, and ethical issues. The bulk of

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the recent literature in the area of telepsychiatry appears to be presentations of novel uses for telepsychiatry and descriptions of telepsychiatry programs. Similar to what was found in the original review by Frueh and colleagues, only a limited number of empirical studies have been reported over the past three years and still fewer papers on legal, regulatory, and ethical issues have been published in this same time frame.

Clinical demonstrations and program descriptions

Specific forms of treatments and assessments delivered via telepsychiatry have been reported since 2000, such as cognitive-behavioral therapy (CBT) delivered via telepsychiatry. For example, a patient was treated with CBT for panic disorder with agoraphobia and major depression, and in 12 sessions the patient reported a significant decrease in symptoms of anxiety and depression and a significant improvement in functioning (2). Another study examined eight patients who had panic disorder with agoraphobia; all patients experienced a reduction in anxiety symptoms and an improvement in overall functioning following CBT delivered via telepsychiatry (3). The effectiveness of telepsychiatry was further demonstrated in a case study of an adolescent with major depressive disorder, oppositional defiant disorder, and attention deficit disorder when successful treatment was reported after several interventions of medication management, individual supportive therapy, and family therapy, all of which were delivered by telepsychiatry (4). Another case study of a patient awaiting a liver transplant found that six months of monthly telepsychiatry treatment sessions led to the patient's recovery from depression and psychological adjustment to the illness (5).

Neuropsychological assessments also have been conducted via telepsychiatry, although with mixed results. For example, Schopp and colleagues (6) found that patients reported no differences between completing neuropsychological assessments via telepsychiatry or in person; however, psychologists were less satisfied with conducting these assessments via telepsychiatry. Telepsychiatry has been used to successfully conduct hypnosis as well, with ten of the 11 participating patients reporting satisfaction with the experience (7). This technology has also been used to provide assessments and psychotherapy to persons with brain injury; however, these patients were more likely to prefer assessments delivered via telepsychiatry than psychotherapy (8).

The use of telepsychiatry with geriatric patients is growing. Findings from several studies suggest that videoconferencing is a highly feasible means of conducting psychiatric assessments in this population and that this approach was acceptable to staff and patients and was less expensive than on-site visits (8–10). The elderly rural population, a particularly isolated group, also has been targeted for the use of telepsychiatry, and the assessment of feasibility is under way (11). It should be noted, however, that some characteristics shared by elderly persons, such as sensory impairments and discomfort with telepsychiatry equipment, are of concern given the recent increase in use of new technology with this population (12).

Past studies have supported telepsychiatry as a reliable means of gathering interview data.

Telepsychiatry projects that focus on prison populations (13,14) and veteran populations (15) also have been described recently. In these studies, telepsychiatry was shown to offer greater access to care and led to patient satisfaction. For the prison population, telepsychiatry had the added benefit of reducing risk to the general public, because the need to transport prisoners for therapy was eliminated. Further, although rural populations have typically been the focus of study in telepsychiatry applications, urban populations were recently shown to benefit from the use of telepsychiatric services, which increased patients' access to medical staff and mental health services (16).

Videoconferencing has been examined as an educational and consultative tool for mental health treatment providers and other health care providers (12,17). Such an approach appears to be beneficial. For example, the delivery of training on sexual abuse via videoconferencing increased the number of sexual abuse cases identified and evaluated in a rural state (18). Videoconferencing also increased the number of practitioners who live and work in rural, remote areas who are trained to deliver CBT and produced satisfied providers who had improved ability to deliver the treatment (19).

As previously reported (1), telepsychiatry programs have often been implemented on a large-scale basis. The Rural and Remote Mental Health Service, which is the South Australian telepsychiatry network, is a large and thoroughly described program. A recent report discussed the system as it exists now and how the system had to change to maximize its use and its usefulness (20). Other similar programs from Australia that focus on specific populations, such as children and adolescents, have been described (21–24). New efforts in Finland to create an effective telepsychiatry program were recently reported as well (25). Additionally, the U.S. military, at the National Naval Medical Center, recently developed an extensive system (Tele-Mental Healthcare), which allows for the delivery of telepsychiatric services from a military treatment facility to a remote military medical clinic (26). The University of California, Davis, developed and reported on the UC Davis Health System, a program that reaches those in urban, rural, and suburban primary care facili-

ties and hospitals with telepsychiatric services (27). The Medical College of Georgia developed a telepsychiatry program to serve persons in rural areas in an effort to provide a more equitable distribution of resources to those in Georgia with mental health needs (28).

Several papers discussed the mechanisms behind starting and maintaining a telepsychiatry program. For example, Darkins (29) outlined the requirements for establishing a viable telemental health service based on clinical need, practitioner acceptance, technical reliability, and revenue generation. However, not all programs follow Darkins' example. In a study that examined telepsychiatry programs from an organizational perspective, data from 16 of the most active programs in the world indicated a lack of strategic business plans for the provision of telepsychiatry services (30). Organizational and human factors also appear to be important in maintaining such systems (31,32). For example, some studies have found that a lack of organizational cooperation can lead to the failure of telepsychiatric programs, despite reported benefits by patients (33). Other studies have found that telepsychiatric connections can improve cooperation and support for telepsychiatric services between and within organizations (34).

Reliability of clinical assessments

Recent studies highlighted strengths and weaknesses of the use of telepsychiatry for clinical assessments. For example, in studies involving the use of videoconferencing systems to conduct either child psychiatry assessments (35) or psychiatric assessments of depression and cognitive status among elderly medically ill veterans (36), telepsychiatry was found to be an adequate alternative to in-person assessments and did not interfere with diagnosis. The literature suggested, however, that to determine the reliability of telepsychiatry for specific populations, additional research may be needed, such as studies employing standardized structured interviews, using trained interviewers, and studying interrater reliability (37). Results from cognitive assessments of individuals with a history of alcohol abuse indicated that teleconsultations were significantly longer than the in-person sessions, but both produced similar results (38). Reliability analyses of the assessment of geriatric patients, using the Brief Psychiatric Rating Scale, indicated that the accuracy of telemedicine ratings that require visual observation of behavior were consistently lower than ratings that require only self-report (39). The use of videoconferencing to conduct psychiatric interviews with patients who have schizophrenia has been studied as well (40). This study found that intraclass correlation coefficients were lower for interviews that were conducted by using low-bandwidth equipment than for interviews that were conducted with broad-bandwidth equipment or in person. Because most psychiatric settings currently have low-bandwidth equipment, this study suggests that such interviews cannot be reliably conducted (40).

Both patients and clinicians report high satisfaction with and acceptance of telepsychiatry services.

Clinical outcomes

Clinical outcome studies appear in the literature less often than studies describing new programs or studies examining levels of satisfaction with such programs. Results of these outcome studies provide preliminary support for the idea that patients can improve with services delivered via videoconferencing (13,41). Zaylor and colleagues (42) evaluated clinical outcomes in a prison telepsychiatry clinic for inmates seeking treatment for general psychiatric problems. They found that patients' self-reports of psychiatric distress, using the Symptom Rating Checklist-90-Revised, decreased over time. They also found that the treating psychiatrist, using the Clinical Global Impression Scale-Severity Index, reported that patients improved over time. Another study found that although there were no significant improvements in well-being or quality of life of patients who were seen via videoconferencing, both the patients and the practitioners said that the patients were no worse off because of telepsychiatry treatment (43). Further, in studies in which telepsychiatry was compared with in-person services, no differences were found in clinical status, attendance, or improvement (44,45). A different study examined the effect of case management on the use of substance abuse, medical, and mental health services by substance abuse treatment clients after their residential treatment (46). Results of this study indicated that case managers who worked via telepsychiatry were less effective in influencing patients' use of the above-mentioned services.

Satisfaction

Overall, patients and clinicians report high satisfaction with and acceptance of the use of remote technology for treatment and assessment. Telepsychiatry patients appear to be satisfied with the service, equipment, and setting. Patients also prefer telepsychiatry to in-person appointments, because travel time, time off from work, and child care is not an issue with telepsychiatry. Specifically, high levels of satisfaction were reported for patients in jail populations (14) and in rural settings (47–50), child and adolescent patients and their families (51–53), geriatric patients (39), nonpsychotic patients (54,55), and patients with limited access to health care (56,57).

On the basis of current studies, however, it is difficult to determine whether patients would prefer the use of telepsychiatry over in-person services. For example, Kopel and col-

leagues (51) found that most patients rated telepsychiatry as "almost as good" or "as good" as in-person services, but the patients did not express a definitive preference for either method of therapy. In addition, Simpson and colleagues (48) found that most patients would rather use telepsychiatry instead of traveling and waiting for an inpatient visit, but only a few patients said that overall they would rather consult with a psychiatrist via telepsychiatry.

A telephone survey conducted among residents of a rural Midwestern state found that two-thirds of respondents were willing to participate in psychiatric treatment delivered via videoconferencing equipment (44). Concerns were expressed, however, about maintaining confidentiality and the impersonal nature of telepsychiatry. Additionally, those who were willing to use telepsychiatry services were younger than those who were not (50.1±17.6 years compared with 59.9±15.4 years), while those who were not willing were more likely to be Medicare enrollees (55 percent compared with 74 percent).

Some evidence suggested a gender effect, with more female than male telepsychiatry patients reporting greater satisfaction with telepsychiatry than with in-person counseling (58). In only one study, however, were patients randomly assigned to treatment groups (59). In this randomized study, patients were generally satisfied with both modes of treatment delivery; however, those in the telepsychiatry group were shy and nervous about speaking and expressed concerns about confidentiality.

Health professionals who delivered services to rural populations reported being highly satisfied with telepsychiatry (41,49,51,52,56). Other studies have indicated, however, that telepsychiatric methods are not appealing to those providing treatment, because these methods are perceived to make communication difficult and interfere with the therapeutic relationship (38,41,60,61).

Cost

The issue of cost and cost-effectiveness is at the heart of the debate of whether or not telepsychiatry has a future. Results of the studies published over the past few years have added some clarity to this issue. Researchers have found preliminary evidence that telepsychiatry programs can be less expensive for patients, reducing travel time, travel costs, and time off from work (38,54). Others have found that meeting the "break-even point" at which a telepsychiatry service would be cost-effective is difficult for some programs because of low patient demand as well as other factors (48,62). Similarly, Werner (63) pointed out that rural populations, the target of most telepsychiatry programs, do not generate high-use volumes and therefore may not provide enough patients to make telepsychiatry cost-effective. Finally, certain forms of telepsychiatry delivery have been found to be more cost-effective than others. For example, Dunn and colleagues (15) reported that establishing a high-speed wide-area network, which allows for telepsychiatry along with other telemedicine activities, could reduce monthly telecommunications costs by approximately 67 percent.

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Legal, regulatory, and ethical issues

Only a limited number of articles have recently been published that discuss legal, regulatory, and ethical issues related to the delivery of behavioral health services or social work services by electronic means (64–66). Koocher and colleagues (64) surveyed state attorney generals about legal and regulatory issues related to the delivery of behavioral health services by electronic means in their states, and the researchers received responses from attorney generals from 41 states and the District of Columbia. This study found that only three of the responding states had statutes in place that specifically addressed telehealth issues involving psychotherapy or counseling. This study also found that two states reported receiving some complaints involving telehealth. Results from this survey indicated that most states were developing or were in the process of approving new regulations and legislation that deal with telehealth.

In another study, McCarty and colleagues (65) reported concerns related to the effects of modern communications technologies, such as interactive videoconferencing, on social work practice. These concerns included licensing and regulation issues related to providing care across state lines; liability and malpractice issues, such as a lack of legal precedent to determine the provider's liability when delivering services via telepsychiatry; and privacy and consent issues, such as unclear guidelines as to whether or not separate informed consent is needed before care is delivered by telemedicine.

Capner (66) reported on legal issues and professional licensing and liability issues in psychology. These issues included deciding when a therapist-patient relationship has been established and when a telepsychiatry provider becomes liable for harm to the patient; resolving whether the site of treatment delivery is at the provider's site or the patient's site, as it relates to licensing concerns; and determining whether the lack of clear standards for telepsychiatry may increase the likelihood of providers' being charged with malpractice because they do not have any accepted standards of care. Capner suggests, however, that because of advances in telemedicine, failure to obtain a consultation may soon be deemed a violation of the "standard

of care" as such a consultation would be readily available using telemedicine technology (67).

Discussion and conclusions

Telepsychiatry, as suggested by this review, is a growing field with the potential to deliver high-quality, much needed assistance in a variety of settings to persons in need of mental health services. We found that the prospective, empirical literature provides evidence that patients and care providers are satisfied with this mode of service delivery. Our review also discovered preliminary evidence suggesting that some disorders, such as depression, can be effectively treated via such technology. Additional evidence suggests that various populations can benefit from treatment delivered via telepsychiatry. Although these studies appear promising, they are often limited by their lack of methodologically sound approaches. Overall, research is still lacking in this field that includes reliable baseline data gathered before the implementation of programs, evaluation of clinical outcomes, randomized experimental design with appropriate control groups, cost analyses, and determination of the effectiveness and efficacy of telepsychiatry for specific patient populations.

The question of cost-effectiveness remains unanswered. Recent commentary highlights the lack of key information currently available and identifies myriad variables that need to be considered if cost-effectiveness analyses are to provide satisfactory answers (63,67). Some of these variables include expenses associated with the per-use cost of equipment, transmission lines, and other infrastructure as well as the cost of technical personnel; documentation requirements, such as additional patient consent; space; and hiring and training staff. Further, broader social issues, such as the importance of social contact, also need to be considered when cost-effectiveness is evaluated (63).

Although legal, regulatory, and ethical guidelines in the area of telepsychiatry remain underdeveloped, recent advances have been made in setting standards and establishing guidelines for treatment providers and technicians. As technological advances continue to be made, however, changes to guidelines and standards must follow. It remains to be seen how well the field of telepsychiatry will keep up with this moving target. ♦

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