What About Telepsychiatry? A Systematic Review

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Background: Mental illness has become a significant worldwide health issue in recent years. There is presently insufficient evidence to definitively determine the clinical effectiveness and cost-effectiveness of different health care models. The objective of this study was to evaluate the effectiveness of videoconferencing in mental illness.

Data Sources: Literature searches were performed in Medline, EMBASE, PsycINFO, Centre for Reviews and Dissemination, and The Cochrane Library Controlled Trial Registry databases (1997–May 2008). A search of the following terms was used: *e-health*, *mental disorders* (MeSH term), *mental health* (MeSH term), *mental health services* (MeSH term), *telecare*, *teleconsultation*, *telehome*, *telemedical*, *telemedicine*, *telemental*, *telepsychiatric*, *telepsychiatry*, *televideo*, *videoconference*, and *videophone*.

Study Selection: Type of disease, interventions, and clinical outcomes or patient satisfaction were identified. Exclusion criteria included studies that did not analyze intervention outcomes and studies with a sample size of fewer than 10 cases. Peer review and quality assessment according to Cochrane recommendations were required for inclusion.

Data Extraction/Synthesis: Of 620 identified articles, 10 randomized controlled trials are included (1,054 patients with various mental disorders). There were no statistically significant differences between study groups for symptoms, quality of life, and patient satisfaction.

Conclusions: There is insufficient scientific evidence regarding the effectiveness of telepsychiatry in the management of mental illness, and more research is needed to further evaluate its efficiency. However, there is a strong hypothesis that videoconference-based treatment obtains the same results as face-to-face therapy and that telepsychiatry is a useful alternative when face-to-face therapy is not possible.

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Mental illness has become a significant worldwide health issue in recent years. By 2020, it is projected that the burden of mental and neurologic disorders will have increased to 15%.[1] The widespread and pervasive nature of mental illness, and many nations' limited ability to recognize and treat such conditions, has led the World Health Organization to attempt to increase international awareness of the dangers and prevalence of mental illness. Thus, it is clear that most people with mental disorders remain either untreated or poorly treated.[2] It is therefore critical to develop more effective mental health service delivery systems to enhance treatment access and quality.[3]

There is presently insufficient evidence to definitively determine the clinical effectiveness and cost-effectiveness of different health care models.[4] Nevertheless, there is a trend toward collaborative care models, including those incorporating a case management approach and/or using the services of a care manager or primary mental health care worker, showing some modest benefit, at least in the short term.[4] In addition, telephone care management interventions appear to be of some benefit to patients with mild-to-moderate mental health problems; however, telehealth care may be a more effective model of service delivery if combined with delivering specific interventions of proven effectiveness, such as cognitive-behavioral therapy.[4]

Videoconferencing plays an important role in most telemedicine initiatives.[5] Medical and mental health services often are inadequate in remote geographical areas with few specialist providers. Telepsychiatry provides clinical, consultative, and educational services to populations in remote regions and other isolated groups.[6] Telepsychiatry, in the form of videoconferencing, has been well received in terms of increasing access to care and user satisfaction.[7] Questions persist, however, about its effectiveness, because there are few clinical outcome studies[8] and limited patient populations for whom telepsychiatry is most suitable.[9]

The objective of this review is to evaluate the effectiveness of telepsychiatric services delivered via videoconferencing techniques.

METHOD

Literature Search

Computerized literature searches were performed in Medline, EMBASE, PsycINFO, Centre for Reviews and

Clinical Points

- Videoconference seems to be a useful tool for diagnosis, treatment, and follow-up of patients in remote areas.
- Telepsychiatry improves symptoms in various mental disorders.
- The main barrier to successful telepsychiatry implementation is professional acceptance.

Dissemination, and The Cochrane Library Controlled Trial Registry databases (1997–May 2008), in addition to a manual search of the identified meta-analyses and systematic reviews. A search of the following terms was used: *e-health*, *mental disorders* (MeSH term), *mental health* (MeSH term), *mental health services* (MeSH term), *telecare*, *teleconsultation*, *telehome*, *telemedical*, *telemedicine*, *telemental*, *telepsychiatric*, *telepsychiatry*, *televideo*, *videoconference*, and *videophone*.

Articles included in this review were selected on the basis of the following criteria: (1) design: randomized controlled trial (RCT) assessing any kind of intervention applying videoconferencing to manage mental illness versus face-to-face assessment; (2) participants: patients with mental disorders (according to *DSM-IV* definitions) who directly used the technology; (3) outcomes: studies must have included information on clinical outcomes (symptoms, quality of life, treatment adherence, laboratory data) or patient satisfaction; and (4) technology: use of videoconference or televideo. Exclusion criteria consisted of studies that did not analyze intervention outcomes in patients, studies with a sample size of fewer than 10 cases in each comparison group, and studies in which the intervention was only phone based or preventive.

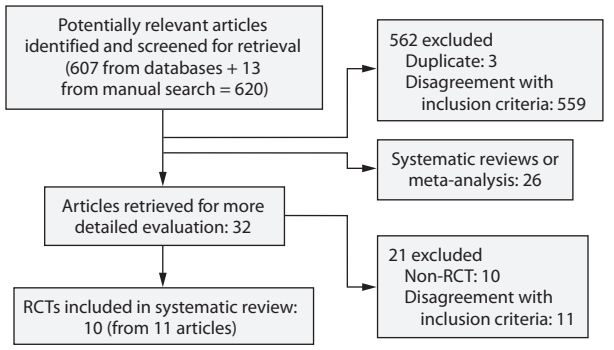
Selection of Publications and Extraction of Data

Initial screening of identified articles was based on their abstracts. Articles lacking an electronic abstract were initially excluded. Studies satisfying the inclusion criteria were thoroughly and independently examined by 2 reviewers with experience in data extraction in order to avoid double publication or redundancies as well as to assess the study quality using accepted criteria.[10,11] If disagreements arose, they were resolved by consensus.

RESULTS

Of the 620 references identified in the systematic search, 11 articles that met the inclusion and study quality criteria were selected, corresponding to 10 RCTs (Figure 1). Five of the trials were from the United States, 4 from Canada, and 1 from Spain. The main characteristics of these trials and their results can be found in Table 1.

Figure 1. Literature Selection for the Systematic Review



Abbreviation: RCT = randomized controlled trial.

The analyzed results originated from a total of 1,054 patients with various mental illnesses. The disorders studied by the 10 RCTs included multiple diseases (4), most often patients from general psychiatric services[5,12–14]; depression (2)[15,16]; panic disorder (1)[17]; posttraumatic stress disorder (1)[18,19]; bulimia nervosa (1)[20]; and schizophrenia (1).[21]

In general, the objective of each RCT was to assess the diagnosis and follow-up using videoconference versus face-to-face assessment. Five RCTs used cognitive-behavioral therapy, while the rest did not specify a psychotherapeutic approach.

Seven studies[5,13,15–18,20] with a total of 969 patients (474 from the telepsychiatry group and 495 from the control group) were considered in the evaluation of symptoms. As can be seen in Table 1, the intervention group's symptoms did not show statistically significant differences compared to those of the control group.

Seven studies[12–16,18,21] directly evaluated patient satisfaction with the conducted programs. There were no differences between the groups, although it is unclear if satisfaction was generated by the program or the technology. Only Nelson et al[15] and Ruskin et al[16] have published data on patient satisfaction with the utilized technology and its quality. In both cases, patients appeared satisfied. Professional satisfaction was evaluated in only 2 RCTs,[14,21] and both found the lowest level of satisfaction to be in the videoconferencing group.

Three studies evaluated quality of life. The interventions analyzed in this study have not produced a significant difference in quality of life between study groups.[13,16,20]

Regarding treatment adherence, Frueh et al[19] reported better outcomes in the control group ($P < .04$), and Ruskin et al[16] showed a statistically insignificant difference from the control group.

Table 1. Randomized Controlled Trials Included in the Systematic Review

Study (location)	Kind of Disorder, n (intervention/ control)	Quality Assessment	Intervention	Age, y (follow-up)	Results
Stevens et al, 1999 (Canada)[14]	Multiple, 40 (20/20)	1	Objectives: diagnosis and follow-up Program: NSp Duration: NSp	< 18 (NSp)	Patient satisfaction: NS Professional satisfaction: worse in intervention group ($P < .001$)
Bishop et al, 2002 (Canada)[12]	Multiple, 24 (11/10)	3	Objectives: diagnosis and follow-up Program: NSp Duration: 4 mo	> 18 (4 mo)	Satisfaction: NS
De Las Cuevas et al, 2006 (Spain)[5]	Multiple, 140 (70/70)	1	Objectives: diagnosis, treatment, and follow-up Program: CBT and prescription Duration: >8 sessions of 30 min in 24 wk	All ages (24 wk)	Symptoms: pre/post intervention: improvement in intervention and control groups ($P < .001$); intervention/control: NS Treatment: prescription similar in both groups
O'Reilly et al, 2007 (Canada)[13]	Multiple, 495 (241/254)	1	Objectives: diagnosis and follow-up Program: treatment management, psychoeducation, counseling, and short-time consults Duration: 4 mo	18–65 (12 mo)	Symptoms improve in intervention vs control: NS Quality of life: NS Satisfaction: NS Cost: 10% less expensive on average in intervention group Hospitalization: during 12 mo, NS
Nelson et al, 2003 (United States)[15]	Depression, 28 (14/14)	3	Objectives: diagnosis and treatment Program: CBT Duration: 1 session/wk with children and parents for 8 wk	8–14 (8 wk)	Symptoms: better in intervention group ($P < .05$) Telepsychiatry satisfaction: high
Ruskin et al, 2004 (United States)[16]	Depression, 119 (59/60)	3	Objectives: education and treatment Program: treatment management, psychoeducation, and counseling Duration: 8 sessions of 20 min for 26 wk (wk 1, 3, 7, 11, 15, 19, and 26)	Mean: 49.7 (6 mo)	Symptoms and quality of life: NS Adherence: NS Telepsychiatry satisfaction: patients, NS; therapist, better in control group ($P < .05$) Cost: lower in control group ($P < .001$)
Bouchard et al, 2004 (Canada)[17]	Panic with agoraphobia, 21 (11/10)	3	Objectives: treatment Program: CBT, psychoeducation Duration: 1 session/wk for 12 wk	24–63 (6 mo)	Symptoms: pre/post and 6 mo, NS Panic attack frequency: lower in intervention group ($P < .05$)
Frueh et al, 2007 (United States)[18,19]	Posttraumatic stress disorder, 38 (17/21)	2	Objectives: treatment Program: CBT for war veterans Duration: sessions of 90 min/wk for 14 wk	Mean: 56 (3 mo)	Symptoms: NS (posttest and follow-up) Overall satisfaction: NS Adherence to treatment: better in control group ($P = .04$) Adherence to sessions: NS Competence of treatment: NS
Mitchell et al, 2008 (United States)[20]	Bulimia/eating disorder, 128 (62/66)	3	Objectives: treatment Program: CBT Duration: 20 sessions of 30 min each over 16 wk	≥ 18 (12 mo)	Symptoms: NS at 3 mo; better in control group at 12 mo Quality of life: NS Illness knowledge: better in control group ($P < .001$) Depression: lower in control group ($P < .037$)
Manguno-Mire et al, 2007 (United States)[21]	Schizophrenia spectrum, 21 (11/10)	1	Objectives: mental competency evaluation for trial Program: application of a competency test Duration: 30 min	Mean: 42 (NSp)	Diagnosis capacity: NS Satisfaction: patients, NS; therapist, less in intervention group ($P = .009$)

Abbreviations: CBT = cognitive-behavioral therapy, NS = not significant, NSp = not specified.

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DISCUSSION

Establishing systems for patient care in psychiatry using videoconferencing is feasible, but there is little evidence of clinical benefits. The studies provided positive results for outcomes such as symptoms, quality of life, patient satisfaction, and treatment adherence. However, the evidence regarding cost-effectiveness is poor. Videoconferencing seemed to improve accessibility to services, serve an educational function, and produce savings of time, costs, and travel.[22] However, these findings should be clearly demonstrated in future research.

The results of this review show that the available evidence on the effectiveness of telepsychiatry programs is limited in general. However, in agreement with other authors,[8,9,22–26] we believe all data point toward videoconferencing as feasible and effective. Patients reported high levels of satisfaction with the process. In addition, no RCT showed complications, so we think telepsychiatry is safe. Although these results need to be confirmed over the long term, we believe telepsychiatry should play a main role in redesigning health systems in order to improve the quality of care for patients with mental disorders.

Another aspect to consider in assessment of telepsychiatry effectiveness is the rapid advancement in technology, as image quality and bit rate are improving every day. It is probable that the same interventions with better technologies will improve the results.

In spite of the fact that only 2 RCTs[14,15] studied children, the results indicated that cooperation of both child and parent, clear communication of treatment recommendations, involvement of the school and local health providers, stability of the agencies, and availability of services were key components of successful implementation of recommendations.[22,27]

Telepsychiatry appears to be a reasonable alternative for situations in which it is difficult or impractical to arrange face-to-face assessments. Whether telepsychiatry can replace face-to-face assessment for ongoing therapy requires more study. If telepsychiatry and face-to-face assessments are found to be similar, then there is no a priori reason to dismiss the idea that telepsychiatry may serve as a replacement for face-to-face assessment for ongoing therapy in certain situations. We may see the development of a hybrid model in which continuing treatment might be conducted via telepsychiatry. Rigorous studies are needed to perform complete economic evaluations, to further describe the interventions, to carry out cost calculations, and to establish a sufficient follow-up period to verify treatment results over time. Potential benefits of telepsychiatry in this area are clear: the possibility of permanently providing educational and orientation programs for patients and an obvious improvement in accessibility to health care services.[28]

The limitations of this study are due partly to the quality of the included RCTs, the variability of the interventions, and the heterogeneity of the follow-up periods, including the loss of follow-up in several of the analyzed RCTs.

In conclusion, there is insufficient scientific evidence regarding the effectiveness of telepsychiatry in the management of mental illness, and more research is needed to further evaluate its efficiency. However, health care providers, health care managers, and politicians have a big challenge: provide medical and mental health care in remote geographical areas or without dangerous delays, as per the ethical principle of equality and universal rights for all citizens. In our opinion, there is a strong hypothesis that videoconference-based treatment produces the same results as face-to-face therapy and that telepsychiatry is a useful alternative when face-to-face therapy is not available.

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