Computer- and Internet-Based Psychotherapy Interventions

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Abstract

Computers and Internet-based programs have great potential to make psychological assessment and treatment more cost-effective. Computer-assisted therapy appears to be as effective as face-to-face treatment for treating anxiety disorders and depression. Internet support groups also may be effective and have advantages over face-to-face therapy. However, research on this approach remains meager.

Keywords

computer applications; Internet applications; psychotherapy and technology

In recent years, the increasing number of users of computer and Internet technology has greatly expanded the potential of computer- and Internet-based therapy programs. Computer- and Internet-assisted assessment methods and therapy programs have the potential to increase the cost-effectiveness of standardized psychotherapeutic treatments by reducing contact time with the therapist, increasing clients' participation in therapeutic activities outside the standard clinical hour, and streamlining input and processing of clients' data related to their participation in therapeutic activities. Unfortunately, the scientific study of these programs has seriously lagged behind their purported potential, and these interventions pose important ethical and professional questions.

COMPUTER-BASED PROGRAMS

Information

A number of studies have demonstrated that computers can provide information effectively and economically. An analysis of a large number of studies of computer-assisted instruction (CAI) found that CAI is consistently effective in improving knowledge (Fletcher-Flinn & Gravatt, 1995). Surprisingly, few studies evaluating the use of CAI for providing information related to mental health or psychotherapy have been conducted.

Assessment

Traditional paper-based self-report instruments are easily adapted to the computer format and offer a number of advantages that include ensuring data completeness and standardization. Research has found that computer-administered assessment instruments work as well as other kinds of self-report instruments and as well as therapist-administered ones. Clients may feel less embarrassed about reporting sensitive or potentially stigmatizing information (e.g., about sexual behavior or illegal drug use) during a computer-assisted assessment than during a face-to-face assessment, allowing for more accurate estimates of mental health behaviors. Studies show that more symptoms, including suicidal thoughts, are reported during computer-assisted interviews than face-to-face interviews. Overall, the evidence suggests that computers can make assessments more efficient, more accurate, and less expensive. Yet computer-based assessment interviews do not allow for clinical intuition and nuance, assessment of behavior, and nonverbal emotional expression, nor do they foster a therapeutic alliance between client and therapist as information is collected.

Recently, handheld computers or personal digital assistants (PDAs) have been used to collect real-time, naturalistic data on a variety of variables. For example, clients can record

their thoughts, behaviors, mood, and other variables at the same time and when directed to do so by an alarm or through instructions from the program. The assessment of events as they occur avoids retrospective recall biases. PDAs can be programmed to beep to cue a response and also to check data to determine, for instance, if responses are in the right range. The data are easily downloaded into computer databases for further analysis. PDAs with interactive transmission capabilities further expand the potential for real-time data collection. Although PDAs have been demonstrated to be useful for research, they have not been incorporated into clinical practice.

Computer-Assisted Psychotherapy

Much research on computer-based programs has focused on anxiety disorders (Newman, Consoli, & Taylor, 1997). Researchers have developed computer programs that direct participants through exercises in relaxation and restfulness; changes in breathing frequency, regularity, and pattern; gradual and progressive exposure to aspects of the situation, sensation, or objects they are afraid of; and changes in thinking patterns. Although the majority of studies report symptom reduction, most are uncontrolled trials or case studies and have additional methodological weaknesses (e.g., small sample sizes, no follow-up to assess whether treatment gains are maintained, focus on individuals who do not have clinical diagnoses).

Computer programs have been developed to reduce symptoms of simple phobias, panic disorder, obsessive-compulsive disorder (OCD), generalized anxiety disorder, and social phobia. In a multicenter, international treatment trial (Kenardy et al., 2002), study participants who received a primary diagnosis of panic disorder were randomly assigned to one of four groups: (a) a group that received 12 sessions of therapist-delivered cognitive behavior therapy (CBT), (b) a group that received 6 sessions of therapist-delivered CBT augmented by use of a handheld computer, (c) a group that received 6 sessions of therapist-delivered CBT augmented with a manual, or (d) a control group that was assigned to a wait list. Assessments at the end of treatment and 6 months later showed that the 12-session CBT and the 6-session CBT with the computer were equally effective. The results suggested that use of a handheld computer can reduce therapist contact time without compromising outcomes and may speed the rate of improvement.

An interactive computer program was developed to help clients with OCD, which is considered one type of anxiety disorder. The computer provided three weekly 45-min sessions of therapy involving vicarious exposure to their obsessive thoughts and response prevention (a technique by which clients with OCD are taught and encouraged not to engage in their customary rituals when they have an urge to do so). Compared with a control group, the clients who received the intervention had significantly greater improvement in symptoms. In a follow-up study with clients diagnosed with OCD, computer-guided telephone behavior therapy was effective; however, clinician-guided behavior therapy was even more effective. Thus, computer-guided behavior therapy can be a helpful first step in treating patients with OCD, particularly when clinician-guided behavior therapy is unavailable. Computers have also been used to help treat individuals with other anxiety disorders, including social phobia and generalized anxiety disorder, a condition characterized by excessive worry and constant anxiety without specific fears or avoidances.

CBT also has been adapted for the computer-delivered treatment of depressive disorders. Selmi, Klein, Greist, Sorrell, and Erdman (1990) conducted the only randomized, controlled treatment trial comparing computer- and therapist-administered CBT for depression. Participants who met the study's criteria for major, minor, or intermittent depressive disorder were randomly assigned to computer-administered CBT, therapist-administered CBT, or a wait-list control. Compared with the control group, both treatment groups reported significant improvements on depression indices. The treatment groups did not differ from each other, and treatment gains were maintained at a 2-month follow-up.

Little information exists on the use of computer-assisted therapy for treating patients with complicated anxiety disorders or other mental health problems. Thus, further study is needed.

THE INTERNET

Internet-based programs have several advantages over stand-alone computer-delivered programs. The Internet makes health care information and programs accessible to individuals who may have economic, transportation, or other restrictions that limit access to face-to-face services. The Internet is constantly available and accessible from a variety of locations. Because text and other information on the Internet can be presented in a variety of formats, languages, and styles, and at various educational levels, it is possible to tailor messages to the learning preferences and strengths of the user. The Internet can facilitate the collection, coordination, dissemination, and interpretation of data. These features allow for interactiv-

ity among the various individuals (e.g., physicians, clients, family members, caregivers) who may participate in a comprehensive treatment plan. As guidelines, information, and other aspects of programs change, it is possible to rapidly update information on Web pages. The medium also allows for personalization of information. Users may select features and information most relevant to them, and, conversely, programs can automatically determine a user's needs and strengths and display content accordingly.

Information

Patients widely search the Internet for mental health information. For example, the National Institute of Mental Health (NIMH) public information Web site receives more than 7 million "hits" each month. However, the mental health information on commercial Web sites is often inaccurate, misleading, or related to commercial interests. Sites sponsored by nonprofit organizations provide better and more balanced information, but search engines often list for-profit sites before they generate nonprofit sites. Furthermore, education Web sites rarely follow solid pedagogical principles.

Screening and Assessment

Many mental health Web sites have implemented screening programs that assess individuals for signs or symptoms of various psychiatric disorders. These programs generally recommend that participants who score above a predetermined cutoff contact a mental health provider for further assessment. The NIMH and many other professional organizations provide high-quality, easily accessible information combined with screening instruments. Houston and colleagues (2001) evaluated the use of a Web site that offered a computerized version of the Center for Epidemiological Studies' depression scale (CES-D; Ogles, France, Lunnen, Bell, & Goldfarb, 1998). The scale was completed 24,479 times during the 8-month study period. Fifty-eight percent of participants screened positive for depression, and fewer than half of those had previously been treated for depression. The Internet can incorporate interactive screening, which already has been extensively developed for desktop computers. Screening can then be linked to strategies that are designed to increase the likelihood that a participant will accept a referral and initiate further assessment or treatment.

On-Line Support Groups

Because Internet-delivered group interventions can be accessed constantly from any location that has Internet access, they offer distinct advantages over their face-to-face counterparts. Face-to-face support groups often are difficult to schedule, meet at limited times and locations, and must accommodate inconsistent attendance patterns because of variations in participants' health status and schedules. On-line groups have the potential to help rural residents and individuals who are chronically ill or physically or psychiatrically disabled increase their access to psychological interventions.

A wide array of social support groups is available to consumers in synchronous (i.e., participants online at the same time) or asynchronous formats. The Pew Internet and American Life Project (www.pewinternet.org) estimated that 28% of Internet users have attended an on-line support group for a medical condition or personal problem on at least one occasion. After a morning television show featured Edward M. Kennedy, Jr., promoting free on-line support groups sponsored by the Wellness Community (www.wellness-community.org), the organization received more than 440,000 inquiries during the following week! The majority of published studies on Internet-based support groups suggest that the groups are beneficial; however, scientific understanding of how and when is limited. Studies that examine the patterns of discourse that occur in these groups indicate that members' communication is similar to that found in face-to-face support groups (e.g., high levels of mutual support, acceptance, positive feelings).

Only a few controlled studies have examined the effects of Internet-based support programs. One such study investigated the effects of a program named Bosom Buddies on reducing psychosocial distress in women with breast cancer (Winzelberg et al., in press). Compared with a wait-list control group, the intervention group reported significantly reduced depression, cancer-related trauma, and perceived stress.

On-Line Consultation

On-line consultation with "experts" is readily available on the Internet. There are organizations for on-line therapists (e.g., the International Society for Mental Health Online, www.ismpo.org) and sites that verify the credentials of on-line providers. However, little is known about the efficacy, reach, utility, or other aspects of on-line consultation.

Advocacy

The Internet has become an important medium for advocacy and political issues. Many organizations

use the Internet to facilitate communication among members and to encourage members to support public policy (e.g., the National Alliance for the Mentally Ill, www.nami.org).

Internet-Based Psychotherapy

The Internet facilitates the creation of treatment programs that combine a variety of interactive components. The basic components that can be combined include psychoeducation; social support; chat groups; monitoring of symptoms, progress, and use of the program; feedback; and interactions with providers. Although many psychotherapy programs developed for desktop computers and manuals are readily translatable to the Internet format, surprisingly few have been adapted in this way, and almost none have been evaluated. Studies show that Internet-based treatments are effective for reducing symptoms of panic disorder. Compared with patients in a wait-list control group, those who participated in an Internet-based posttraumatic stress group reported significantly greater improvements on trauma-related symptoms. During the initial 6-month period of operation, an Australian CBT program for depression, MoodGYM, had more than 800,000 hits (Christensen, Griffiths, & Korten, 2002). In an uncontrolled study of a small subsample of participants who registered on this site, program use was associated with significant decreases in anxiety and depression. Internet-based programs also have been shown to reduce symptoms of eating disorders and associated behaviors. Users consistently report high satisfaction with these programs.

Treatment programs for depression, mood swings, and other mental health disorders are being designed to blend computer-assisted psychotherapy and psychoeducation with case management (in which a therapist helps to manage a client's problems by following treatment and therapy guidelines) and telephone-based care. These programs might also include limited face-to-face interventions, medication, and support groups. The effectiveness of these programs remains to be demonstrated.

Eventually, the most important use of the Internet might be to deliver integrated, home-based, case-managed, psychoeducational programs that are combined with some face-to-face contact and support groups. Unfortunately, although a number of such programs are "under development," none have been evaluated in controlled trials.

ETHICAL AND PROFESSIONAL ISSUES

Web-based interventions present a number of ethical and professional issues (Hsiung, 2001). Privacy is perhaps the most significant concern. The Internet creates an environment where information about patients can be easily accessed and disseminated. Patients may purposely or inadvertently disclose private information about themselves and, in on-line support groups, about their peers. Although programs can be password-protected, and electronic records must follow federal privacy guidelines, participants must be clearly informed that confidentiality of records cannot be guaranteed.

Internet interventions create the potential that services will be provided to patients who have not been seen by a professional or who live in other states or countries where the professionals providing the services are not licensed to provide therapy. Professional organizations are struggling to develop guidelines to address these concerns (e.g., Hsiung, 2001; Kane & Sands, 1998).

Because of its accessibility and relative anonymity, patients may use the Internet during crises and report suicidal and homicidal thoughts. Although providers who use Internet support groups develop statements to clearly inform patients that the medium is not to be used for psychiatric emergencies, patients may ignore these instructions. Thus, providers need to identify ancillary procedures to reduce and manage potential crises.

Given the continuing advances in technology and the demonstrated effectiveness and advantages of computer- and Internet-based interventions, one might expect that providers would readily integrate these programs into their standard care practice. Yet few do, in part because programs that are easy to install and use are not available, there is no professional or market demand for the use of computer-assisted therapy, and practitioners may have ethical and professional concerns about applying this technology in their clinical practice. Thus, in the near future this technology may primarily be used for situations in which the cost-effectiveness advantages are particularly great.

CONCLUSION

Computers have the potential to make psychological assessments more efficient, more accurate, and less expensive. Computer-assisted therapy appears to be as effective as face-to-face therapy for treating anxiety disorders and depression and can be delivered at lower cost. However, applications of this technology are in the early stages.

A high priority is to clearly demonstrate the efficacy of this ap-

proach, particularly compared with standard face-to-face, "manualized" treatments that have been shown to be effective for common mental health disorders. Studies that compare two potentially efficacious treatments require large samples for us to safely conclude that the therapies are comparable if no statistically significant differences are found. Kenardy et al. (2002) demonstrated that multisite, international studies sampling large populations could be conducted relatively inexpensively, in part because the intervention they examined was standardized. If a treatment's efficacy is demonstrated, the next step would be to determine if the therapy, provided by a range of mental health professionals, is useful in large, diverse populations. Examination of combinations of therapies (e.g., CBT plus medication) and treatment modalities (Taylor, Cameron, Newman, & Junge, 2002) should follow. As the empirical study of this technology advances, research might examine the utility and cost-effectiveness of adapting these approaches to treating everyone in a community who wants therapy.

Continued use of the Internet to provide psychosocial support and group therapy is another promising avenue. As in the case of individual therapy, research is needed to compare the advantages and disadvantages between Internet and face-to-face groups, determine which patients benefit from which modality, compare the effectiveness of professionally moderated groups and self- or peer-directed groups, and compare the effectiveness of synchronous and asynchronous groups.

As research progresses, new and exciting applications can be explored. Because on-line text is stored, word content can be examined. This information may teach us more about the therapeutic process or may automatically alert providers to patients who are depressed, dangerous, or deteriorating.

Although research in many aspects of computer-assisted therapy is needed, and the professional and ethical concerns are substantial, computers and the Internet are likely to play a progressively important role in providing mental health assessment and interventions to clients. Thus, mental health professionals will need to decide how they will incorporate such programs into their practices.

Recommended Reading

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Note

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