COMPUTERIZED COGNITIVE BEHAVIORAL THERAPY

Cognitive behavioral therapy (CBT) is empirically-supported for a wide range of mental health conditions and is often recommended as a first-line psychiatric treatment. However, access to CBT is limited by barriers such as high costs, lack of locally trained CBT therapists, inability to take time off work or other responsibilities to attend treatment, and stigma. Computerized CBT (cCBT) provides an option for treatment dissemination that can decrease these barriers and improve access to care. Like traditional face-to-face CBT, cCBT provides psychoeducation and guidance on implementing skills for behavior change; however, the information and skills are presented via a computerized platform. cCBT programs are quite heterogeneous and the various formats are outlined below.

Computerized vs. Internet

cCBT can be delivered via stand-alone devices (traditional cCBT) or via the internet (internet-delivered CBT; iCBT). Traditional cCBT programs were developed in the late 1990s and some examples of commonly used traditional cCBT programs include *FearFighter* (developed for the treatment of panic disorder and specific phobia), *BT STEPS* (developed for the treatment of obsessive-compulsive disorder), *Cope*, and *Beating the Blues* (both developed for the treatment of anxiety and depression). There is now a large body of evidence indicating that these programs are effective in reducing the targeted symptoms. However, access to these programs can often be limited as often the

patient would still be required to attend a treatment clinic to access the program. Reflecting this, more recent cCBT programs have been internet delivered. iCBT programs improve accessibility and convenience as patients can log-in any place with an internet connection. iCBT programs have now been developed and evaluated for numerous disorders and large iCBT treatment clinics and/or research teams can now be found worldwide. In many cases iCBT programs have also been demonstrated to be equally as effective as face-to-face treatments. It is important to note that a more recent development in this field is the use of smart phone applications to deliver treatment interventions. While these applications are a newer form of iCBT, further research is needed to understand their effectiveness in the treatment of mental health disorders.

Guided vs. Self-Guided

cCBT programs (incorporating traditional cCBT and iCBT) can be either 'guided' or 'self-guided'. Guided cCBT programs involve the use of a clinician or coach in treatment; however the clinical involvement is typically much less than would be seen in face-to-face treatment (usually around 10 minutes of contact per week). Occasionally, cCBT programs can be supplemented with face-to-face contact with a clinician, but the contact is more commonly provided over the phone, email or via secure messaging systems. Alternatively, cCBT programs can also be self-guided. Self-guided programs do not involve any clinician contact, however sometimes a diagnostic interview is administered by a clinician prior to treatment entry. Overall, it seems that guided cCBT programs are more effective than self-guided programs, however adding regular

automatic prompts and reminders (such as emails or text messages) to the program can improve outcomes in self-guided treatments.

Disorder Specific vs. Transdiagnostic

Traditional cCBT and iCBT programs can be either diagnosis specific or transdiagnostic. Disorder specific programs aim to treat only a single disorder within a program (for example, a cCBT program is designed to reduce symptoms of panic disorder). Transdiagnostic programs on the other hand utilize a broad range of skills which could be applied to treat symptoms of a variety of disorders. Transdiagnostic treatments are an efficient way to address co-occurring disorders, which is common in psychiatric patients.

Static vs. Interactive

cCBT programs can be either static or interactive. Static cCBT programs are those that deliver the same treatment materials to all patients that complete the program, whereas interactive programs are those that tailor the treatment materials to a particular patient. For instance, in a static program for obsessive-compulsive disorder all patients would receive the same information despite the type of obsessions and compulsions that the patient has. Alternatively, in an interactive program a person who has contamination obsessions may be automatically provided with slightly different treatment information to someone who has aggressive obsessions based on a program algorithm. Currently there is limited research investigating whether there are any differences in outcome between interactive cCBT programs and static cCBT programs.

Strengths and Limitations

There are a number of strengths and limitations of cCBT. The most obvious strength of cCBT programs, and in particular iCBT programs, is that treatment can reduce barriers to accessing high quality treatment. This is because cCBT programs are typically less expensive, do not require the patient to take time off from their usual role and overcomes stigma (especially self-guided programs). cCBT programs also allow individuals who would not normally be able to access a CBT therapist due to their geographical location to access high quality CBT.

cCBT programs are not only cost effective for the patient; they are also likely to be less costly for treatment providers. This is because the programs are largely automated and require far less therapist time than traditional face-to-face treatments. Because of the reduced pressure on therapist time more clients can receive care within a usual work day. For example, because only 10 minutes of therapist time is typically needed per patient per week a clinician can support 5-6 people in a cCBT program in the same amount of time that they could treat one client in a face-to-face treatment. As a consequence, in addition to the role they play in helping more rural patients access high quality care, cCBT programs may also help to reduce waiting lists in large urban clinics.

Finally, cCBT programs can be incorporated into stepped care models of treatment, where patients start treatment with the least restrictive and cost-effective treatment, such as cCBT, before progressing on to higher intensity (and higher cost) treatments, such as face-to-face outpatient or inpatient treatments. However stepped care

treatments are only cost effective when patients are commenced at the appropriate level of care and at this stage we do not know who responds best to cCBT and who might require traditional face-to-face treatment as their initial intervention. Thus, further research into this area is required before stepped care treatments can be widely disseminated.

Despite the strengths of cCBT there are also a number of limitations. Firstly, this is a new field of research and many cCBT programs have not been directly compared with best practice face-to-face treatment, thus for some disorders it is not clear if cCBT is as effective as face-to-face treatment. Further research is needed where cCBT and face-to-face treatments are directly compared in robust research designs, such as randomized controlled trials. On a related note, the bulk of the cCBT literature is based on *efficacy* studies. These are tightly controlled studies that may not reflect patients in standard practice. Therefore, in addition to testing cCBT programs against face-to-face interventions we also need further evidence for cCBT from *effectiveness* studies, which will help to determine if cCBT programs also reduce patient symptoms in standard treatment clinics (outside of a research study).

Secondly, because cCBT is a new way of conducting treatment there is some reluctance from clinicians to utilize and refer to cCBT treatments. Many clinicians are dubious about cCBT because they feel that an adequate therapeutic alliance cannot be formed when the bulk of the intervention is provided by a computer. However, there is some literature indicating that high levels of therapeutic alliance can be established between the patient and therapist in cCBT programs. Additionally, many clinicians are

also concerned about not being able to access their client's non-verbal information. However, numerous research trials now demonstrate that this is not required in order for the client to obtain good outcomes from CBT.

Finally, there are also practical issues with the wide-scale dissemination of cCBT programs. For instance, developing and rolling out cCBT programs is incredibly expensive, however, once the program is developed the ongoing costs of maintenance are quite small. Additionally, for those clinicians practicing in countries without national registration systems (such as the United States) it can be difficult to set up cCBT programs. Currently, in these jurisdictions clinicians can only support clients through cCBT programs who live in the same State(s) where they are licensed. Other countries (such as Australia) have a national registration system and thus cCBT interventions can be more widely and easily disseminated as a clinician can work with a client in any State in the country.

Summary

cCBT interventions are a novel way to provide treatment and utilize the same evidence-based skills that traditional face-to-face clinicians use. cCBT programs can vary quite widely and may be presented on a stand-alone computer or device, or on the internet; may be guided in nature, or may be self-guided; may be disorder specific or transdiagnostic; and may be static or interactive. There are a number of strengths of cCBT including cost effectiveness, and reducing barriers to treatment. However there are also a number of challenges to wider dissemination of this form of treatment including

clinician reluctance, and practical issues such as development costs and program rollout in countries that do not have national registration system.

FURTHER READINGS

Andersson, G., & Titov, N. (2014). Advantages and limitations of Internet-based interventions for common mental disorders. *World Psychiatry, 13*(1), 4-11. doi: 10.1002/wps.20083

Andersson, G., Carlbring, P., Ljótsson, B., & Hedman, E. (2013). Guided internet-based CBT for common mental disorders. *Journal of Contemporary Psychotherapy, 43*(4), 223-233.

Andrews, G., Cuijpers, P., Craske, M. G., McEvoy, P., & Titov, N. (2010). Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: A meta-analysis. *PLoS ONE, 5*(10). doi: 10.1371/journal.pone.0013196

Kaltenthaler, E., Brazier, J., De Nigris, E., Tumur, I., Ferriter, M., Beverly, C., . . . Sutcliffe, P. (2006). Computerized cognitive behavior therphy for depression and anxiety update: A systematic review and economic evaluation. *Health Technology Assessment, 10*(33), 1-70.

Lindefors, N. & Andersson, G. (Eds) *Internet based treatment for mental disorders*. Springer.

Marks, I. M., Mataix-Cols, D., Kenwright, M., Cameron, R., Hirsch, S., & Gega, L. (2003). Pragmatic evaluation of computer-aided self-help for anxiety and depression. *British Journal of Psychiatry, 183*(JULY), 57-65. doi: 10.1192/bjp.183.1.57

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See also Bibliotherapy; Cognitive-Behaviour Therapy; Computer-Assisted Assessment; E-Therapy; Teletherapy.