Therapist-Guided Versus Self-Guided Cognitive-Behavioral Therapy:

A Systematic Review

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Abstract

Objective: To evaluate traditional versus guided cognitive-behavioral therapy (CBT) with the use of applications and technological innovations.

Data Sources: A systematic search was conducted in the MEDLINE/PubMed, SciELO, and Cochrane Library databases and included randomized controlled trials (RCTs) from inception to March 30, 2023, with no language restrictions. Only RCTs with available text were included, which is valid from the app versus traditional CBT comparison perspective. The search terms were "apps" OR "app" AND "cognitive behavior therapy" OR "self-guided cognitive behavioral therapy" OR "cognitive behavior therapy" OR "CBT" OR "self-guided CBT" OR "iCBT" OR "unguided iCBT."

Study Selection: Six RCTs were included in this review.

Results: The results of all the studies were positive for the use of applications and the internet, and the findings were encouraging for new methods of guided therapy and the inclusion of technology.

Conclusions: There is a need for studies that assess the mental health of individuals using and supporting technology, but these findings are encouraging for the continuation of the research.

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Globally, access to evidence-based psychological treatment is limited. Innovative self-help methods using smartphone applications and low-cost virtual reality have the potential to significantly improve the accessibility and scalability of psychological treatments.

Access to evidence-based psychological treatment for mental health disorders is a global challenge due to high treatment costs and limited availability of mental health professionals. Treatment coverage is below 50% and usually substantially lower. Novel technologies may contribute to accessible and affordable treatment options in important ways.[1,2]

Such interventions can be administered in either a guided or self-guided fashion. In guided treatments, the patient is supported by a clinician who provides brief support as the individual works through the internet program. Self-guided interventions do not involve clinician support during the intervention. However, it is important to note that there is considerable variability in the delivery of self-guided internet-based cognitive-behavioral therapy (iCBT). For example, some studies have significant involvement with a clinician during the recruitment stage and involve a pretreatment assessment interview via telephone, while others are fully automated with no clinician involvement during any aspect of the study (ie, recruitment, assessment, or treatment). Those that include contact with a clinician at any point of the study may increase supportive accountability,[3] which may subsequently lead to enhanced outcomes.[4]

Some professionals have restrictions with technology and others do not have time to learn, while some use technology as a resource for psychological and therapeutic work, including those who specialize in improving the understanding of the subject.[5] Additionally, some people limit themselves from accepting treatments and technological resources due to personal issues or beliefs.

App-based treatments to improve mental health are an increasingly popular method of service delivery, though research on the efficacy of these apps is limited.[2,6] Initial evidence of technology-driven delivery of standard treatment protocols for clinical disorders such as CBT for anxiety have demonstrated effect sizes comparable to conventional or traditional standards of care.[7]

The transition from in-person professional administration of CBT to digital, self-directed delivery was hypothesized to overcome many treatment barriers.[8] A recent systematic review and meta-analysis[9] of internet- and computer-delivered CBT for youth

Clinical Points

- Specific strategies and usage definitions are needed to aid physicians in the use of technology-based therapy and improve patient care.
- Barriers to successful technology-based treatment should be addressed if applicable, such as access to the use of apps and the internet and emotional openness to new treatment formats.
- Use of internet and technology as a support in treatment can be helpful given that many people have access to a smartphone.

confirmed the positive effects of these interventions on symptom reduction. However, adherence to many of these interventions is low despite the alignment of digital CBT with young people's help-seeking preferences.[8] This study aimed to evaluate traditional versus guided behavioral therapy with the use of applications and technological innovations.

METHODS

This systematic review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[10] A systematic search was conducted in the MEDLINE/PubMed, SciELO, and Cochrane Library databases from inception to March 30, 2023, with no language restrictions. Only randomized controlled trials (RCTs) with available text were included, which is valid from the app versus traditional CBT comparison perspective. In this comparison, we included articles that evaluated app versus traditional treatment for anxiety and comorbid disorders. We also included studies that reported on traditional treatments with a waiting list, wherein patients have to wait for the treatment to begin, or other factors that did not affect the methodological format of the research. Duplicates, unavailable studies, and studies with children or the elderly were excluded.

Study Selection

The search terms were "apps" OR "app" AND "cognitive behavior therapy" OR "self-guided cognitive behavioral therapy" OR "cognitive behavior therapy" OR "CBT" OR "self-guided CBT" OR "iCBT" OR "unguided iCBT."

Eligible studies included RCTs comparing unguided iCBT with guided CBT or against any type of control condition (business as usual, waiting list) in adults with anxiety symptoms, as established by specified cutoff points on self-report scales or diagnostic interviews. Studies were excluded if the intervention did not include cognitive restructuring as a major component, if unguided CBT was combined with traditional treatment, if symptoms other than anxiety were targeted, and if children or the elderly were targeted. Two authors (L.P. and L.A.Q.) selected the studies to be included. Discrepancies were resolved by a third author (A.E.N.).

Data Extraction and Quality Score

The following variables were extracted from the studies: authors, year of publication, study design, and main outcome. Quality assessment was performed using the Newcastle-Ottawa Scale.[11] Data were extracted by 2 authors (L.P. and L.A.Q.), and all authors agreed with the final inclusion of studies in the systematic review, data abstraction, and quality assessment.

RESULTS

The search yielded a total of 255 studies. No additional studies were identified through a manual search of references. After the elimination of duplicates, 104 articles were screened, and 98 articles were excluded for being outside the proposed theme or subject, leaving 6 selected articles for the final review (Figure 1).

There are some similarities between the 6 articles that describe research findings on anxiety and mental health with the use of internet-enabled applications or devices. Table 1 describes the articles included in the review, and Table 2 provides the quality analysis.

Fitzpatrick et al[12] reported that iCBT apps have demonstrated efficacy but are characterized by poor adherence, although conversational agents may offer a convenient, engaging way of getting support at any time. Their study aimed to determine the feasibility, acceptability, and preliminary efficacy of a fully automated conversational agent to deliver a self-help program for college students who self-identify as having symptoms of anxiety and depression. Participants' comments suggest that process factors were more influential on their acceptability of the program than content factors, mirroring traditional therapy.[12]

Another controlled trial[13] evaluated the acceptability and additive effects of self-monitoring avoidant and randomized valued functions of behavior on a mobile app in the context of self-monitoring physical activity and behavior. The self-monitoring approach was based on the acceptance and commitment therapy (ACT) matrix. A sample of 102 adults interested in improving their diet and physical activity were randomized to a health behavior tracking (HBT) app, HBT plus ACT matrix (HBT + ACT) app, or waitlist condition. Online self-report assessments were completed at baseline, mid-intervention (2 weeks), and post-intervention (4 weeks). Participants reported high usability but mixed satisfaction with both apps.[13]

Two articles explored the treatment of anxiety with applications for specific phobias using virtual reality. One of the studies[14] examined the effectiveness of ZeroPhobia, a fully self-guided, app-based virtual reality (VR) CBT for acrophobia using low-cost (cardboard)

Figure 1.

Preferred Reporting Items for Systematic Reviews and Meta-Analyses Flow Diagram

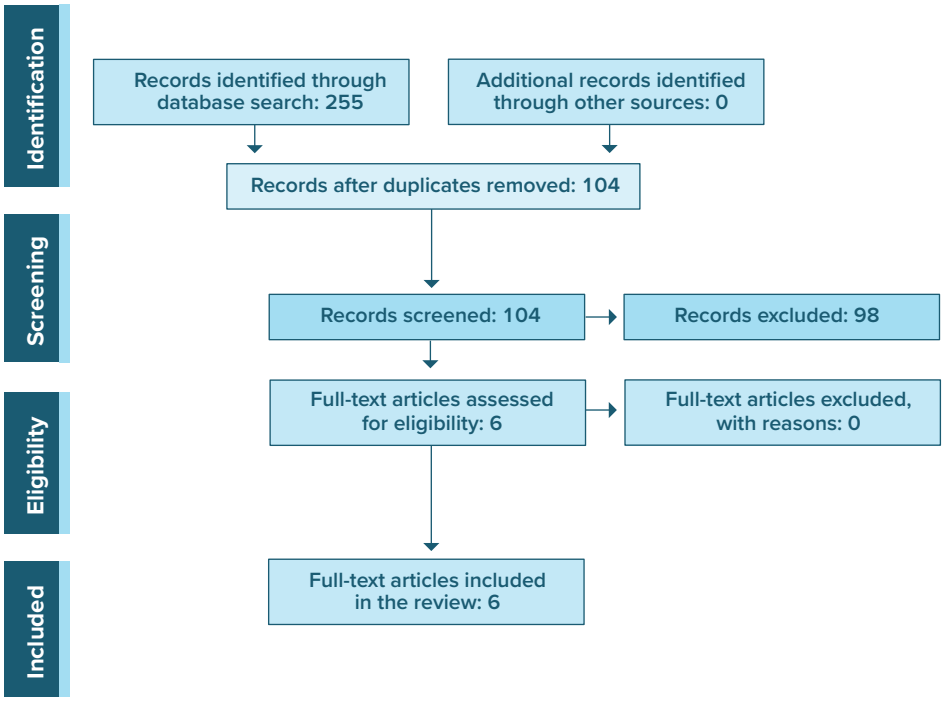

Table 1.

Description and Organization of Articles Included in the Review

Study	Design	Sample	Objective	Main Results	Cohen *d*
Levin et al, 2022[13]	Randomized controlled	102 participants	Evaluated the acceptability and additive effects of self-monitoring avoidant functions and valued functions of behavior in the context of self-monitoring physical activity and dietary behavior on a mobile app.	Participants reported high usability but mixed satisfaction with both apps. Overall, findings suggest some benefits of the ACT matrix app for addressing physical activity by tracking valued/avoidant functions but mixed findings on acceptability.	0.21
Fitzpatrick et al, 2017[12]	Randomized controlled	70 participants	To determine the feasibility, acceptability, and preliminary efficacy of a fully automated conversational agent to deliver a self-help program for college students who self-identify as having symptoms of anxiety and depression.	Participants' comments suggest that process factors were more influential on their acceptability of the program than content factors, mirroring traditional therapy.	4.41
Donker et al, 2019[14]	Randomized controlled	193 participants	To examine the effectiveness of ZeroPhobia, a fully self-guided app-based VR-CBT using low-cost (cardboard) VR goggles, compared with a waitlist control group and to determine its user friendliness.	Low-cost fully self-guided app-based VR-CBT with rudimentary VR goggles can produce large acrophobia symptom reductions.	0.07
Donker et al, 2020[15]	Randomized controlled	2,608 participants	To examine user engagement with ZeroPhobia, a self-guided app-based VR-CBT for acrophobia symptoms using cardboard VR viewers.	Low-cost fully self-guided app-based VR-CBT with rudimentary VR goggles can produce large acrophobia symptom reductions.	1.69
Ciuca et al, 2018[16]	Randomized controlled	111 participants	Primary outcomes were the severity of self-reported panic symptoms and diagnostic status. Secondary outcomes were symptoms of depression, functional impairment, catastrophic cognitions, fear of sensations, and body vigilance.	Treatment gains were maintained at successive follow-ups, and the guided treatment became superior to the unguided treatment at 6-month follow-up ($d = 0.72$–1.05, all Ps $< .05$).	1.04
Wootton et al, 2019[17]	Randomized controlled	190 participants	To examine the efficacy and acceptability of iCBT for OCD symptoms when delivered in a self-guided format.	The results indicate that self-guided iCBT may be a viable treatment option for some individuals with OCD symptoms.	1.05

Abbreviations: ACT= acceptance and commitment therapy, iCBT = internet-based cognitive-behavioral therapy, OCD = obsessive-compulsive disorder, VR-CBT = virtual reality cognitive-behavioral therapy.

Table 2.
Quality Analysis[a]

	Quality Analysis Criteria		
Study	Selection[b]	Comparability[c]	Outcome[d]
Levin et al, 2022[13]	***	**	***
Fitzpatrick et al, 2017[12]	****	**	***
Donker et al, 2019[14]	***	**	***
Donker et al, 2020[15]	***	**	***
Ciuca et al, 2018[16]	**	**	***
Wootton et al, 2019[17]	***	**	***

[a]This table has been verified in accordance with the Newcastle-Ottawa Scale manual.
[b]A maximum of 4 asterisks (****) can be allotted: (1) adequate case definition, (2) representativeness of the cases, (3) selection of controls, (4) definition of controls.
[c]A maximum of 2 asterisks (**) can be allotted: cases and controls must be matched in the design and/or confounders must be adjusted for in the analysis. Statements of no differences between groups or that differences were not statistically significant are not sufficient for establishing comparability.
[d]A maximum of 3 stars (***) can be allotted in this category: (1) assessment of outcome, (2) follow-up long enough for outcomes to occur, (3) adequacy of cohort follow-up.

VR goggles compared with a waitlist control group to determine its user friendliness. In total, 193 participants were randomly assigned to the intervention (n = 96) or a waitlist control group (n = 97). An intent-to-treat analysis showed a significant reduction of posttest acrophobia symptoms at 3 months for the VR-CBT app compared with the controls. Sensitivity and robustness analysis confirmed the findings. Pretreatment attrition was 22 of 96 (23%) due to smartphone incompatibility. Of the 74 participants who started using the VR-CBT app, 57 (77%) completed the intervention in full.[14] The other study[15] also looked at app anxiety treatment using virtual reality and included 96 adult participants using ZeroPhobia. Results showed an optimum exposure level at which increasing practice time does not result in increased benefit. Self-guided VR acrophobia treatment is effective and leads to consistent reductions in self-reported anxiety both between levels and after treatment. Most participants progressed effectively to the highest self-exposure level despite the absence of a therapist.[15]

Another 3-arm RCT[16] compared the efficacy of guided with unguided iCBT (12 weeks intervention) and a waitlist. A total of 111 individuals meeting the diagnostic criteria for panic disorder were randomly assigned to 1 of 3 conditions. Primary outcomes were the severity of self-reported panic symptoms and diagnostic status. Secondary outcomes were symptoms of depression, functional impairment, catastrophic cognitions, fear of sensations, and body vigilance. At posttreatment, both active conditions showed superior outcomes regarding panic disorder and associated symptoms. The 2 active conditions did not differ significantly in posttreatment self-reported symptom reduction, but the guided treatment was superior to the unguided treatment in terms of diagnostic status. Treatment gains were maintained at successive follow-ups, and the guided treatment became superior to the unguided treatment at 6-month follow-up.[16]

The final study[17] examined the efficacy and acceptability of iCBT for obsessive-compulsive disorder (OCD) symptoms when delivered in a self-guided format. In this study, 190 participants were randomized to either a self-guided iCBT condition or a waitlist control group. A total of 140 participants completed the baseline assessment, initiated treatment, and were included in the analyses. The between-group effect size at posttreatment was large on the self-reported version of the Yale-Brown Obsessive-Compulsive Scale. Twenty-seven percent of the iCBT condition met conservative criteria for clinically significant change at posttreatment, which increased to 38% at 3-month follow-up. Participants rated the program as highly acceptable. The results indicate that self-guided iCBT may be a viable treatment option for some individuals with OCD symptoms.[17]

DISCUSSION

Studies show that iCBT packages aiming to be effective and efficient might choose to include beneficial components and exclude those that are potentially detrimental. Web apps can facilitate shared decision-making by the therapist and patient in choosing their preferred iCBT package.[12–14,18]

Research to synthesize the literature on digital CBT for depression and anxiety in young people has been conducted. These investigations aimed to describe how appropriate use was defined and communicated to users and how adherence was measured, as well as to determine associations between adherence and treatment outcomes.[19]

Appropriate usage definitions are unique to each digital CBT intervention. However, appropriate usage statements are not systematically reported in the literature. Furthermore, the extent to which usage recommendations are communicated to users is also not regularly reported. Despite appropriate single usage definitions, adherence was generally operationalized generically as the degree of completion of the intervention and was not consistently associated with outcomes. As seen in the RCTs included in this review, preparation and structure are necessary for these new processes using the internet and technology to be considered in an organized way by users.[12–15,17] Offering iCBT is an effective and acceptable alternative to therapist-administered treatments for anxiety and depression.[12–17,20]

Ongoing research shows the aforementioned beneficial effects of iCBT for self-guided patients, but these effects remain incipient. While studies are reportedly planned and in progress, which is encouraging, more work is needed to establish noninferiority to current first-line treatments, explore momentum for change, establish optimal levels of guidance, investigate cost-effectiveness, measure adverse events, and determine predictors of dropout.[12,14–17,20]

The effects of the treatment on quality of life and the improvements received by the patient with the intervention were also evaluated in some studies, showing the remission of anxiety symptoms in adults.[12,14–17,21] Therapist-supported iCBT appears to be an effective treatment for anxiety in adults. Evidence comparing therapist-supported iCBT with waiting list, care, information, or control-only online discussion groups was of low to moderate quality; evidence comparing therapist-supported iCBT with unguided iCBT was of very low quality; and therapist-supported iCBT comparisons with face-to-face CBT were of low quality. Further research is required to better define and measure any potential harm resulting from treatment. These findings suggest that therapist-supported iCBT is more effective than waiting list, care, information, or control-only online discussion groups and that there may not be a significant difference in outcome between unguided CBT and therapist-supported iCBT; however, this latter judgment should be interpreted with caution due to imprecision.[21] Evidence suggests that therapist-supported iCBT may not be significantly different from face-to-face CBT in reducing anxiety. Future research should explore heterogeneity among studies that meet the quality of the body of evidence, involve equivalence trials comparing iCBT and face-to-face CBT, examine the importance of the therapist's role in iCBT, and include iCBT strength trials in real-world settings.[18–21]

This review shows that there are already positive findings for further research using iCBT with the use of self-guided applications. Of the 6 randomized studies, good results were found in different subtypes of pathology with anxiety, such as OCD, panic disorder, and phobia, with a variety of patients using apps and self-guided therapy. It is clear from the results of the 6 studies that further research is required to validate findings on the use of applications for psychological and clinical treatment.[12–17] It should be emphasized that the results were positive for the use of iCBT and encouraging for new methods of guided therapy and the inclusion of technology.

CONCLUSION

This systematic review adds to the development of innovative and scalable delivery methods of evidence-based treatments and underscores that these new technologies have the potential to transform mental health care worldwide.[14] To be effective and efficient, iCBT packages may include beneficial components and exclude those that are potentially detrimental. Web apps can facilitate shared decision-making by the therapist and patient in choosing their preferred iCBT package.[18]

In addition to further studies, it will always be necessary to specify the clinical demand based on the formats that the applications and technologies can offer. The aim should be to provide the best of the available therapies and to expand research to include more patients and providers in a greater variety of treatments.

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