

CADTH OPTIMAL USE

Internet-Delivered Cognitive Behavioural Therapy for Major Depressive Disorder and Anxiety Disorders: Patients' Perspectives and Experiences, Implementation, and Ethical Issues

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providing methodological input to the Implementation Issues review; Ken Bond for contributing to the protocol development for the Ethical Issues analysis; Pierre Martinelli for project management support; and Bert Dolcine for project development support. Further, the authors would like to thank the external stakeholders who submitted feedback on the draft report.

Conflicts of Interest

The authors declared no conflicts of interest relevant to this report.

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Abbreviations

CBT	cognitive behavioural therapy
cCBT	computerized cognitive behavioural therapy
CICI	Context and Implementation of Complex Interventions
eCBT	email cognitive behavioural therapy
eMH	electronic mental health
GAD	generalized anxiety disorder
HQO	Health Quality Ontario
HTA	health technology assessment
iCBT	Internet-delivered cognitive behavioural therapy
MDD	major depressive disorder
PHQ-9	Patient Health Questionnaire-9
SAD	social anxiety disorder
SR	systematic review

Protocol Amendments

Section	Amendment	Protocol Page Number
Patients' Perspectives	One of two reviewers critically appraised all included studies concurrently with data extraction.	435
Implementation Issues	Individual consultations were included in the protocol as an option but were not conducted during the course of the project because none of the survey participants provided information that required further exploration.	150
Implementation Issues	The draft survey/questionnaire underwent a pilot test by three, rather than two, clinicians because more clinicians than were anticipated were available to conduct the test.	156
Implementation Issues	One of two reviewers conducted full-text screening because it was determined that a single reviewer could adequately extract data for a literature review and assess the titles and abstracts of any additional publications submitted by external stakeholders.	217 to 222
Implementation Issues	As a second reviewer did not conduct full-text screening, data extraction was not submitted for verification.	228

Executive Summary

Background

Depression and anxiety are leading causes of disability worldwide, with estimates suggesting that as much as 40% of the Canadian population will require some form of treatment in their lifetime. Although forms of pharmacotherapy can be effective for some patients, literature suggests that adherence rates over time are generally poor and that only one-third of depressed patients fully respond to medication. In addition, up to 75% of psychiatric patients report a preference for psychological interventions over pharmacotherapy. These factors emphasize the importance of supporting the development of effective and acceptable psychotherapies.

Cognitive behavioural therapy (CBT) is the most commonly utilized form of psychotherapy for the treatment of patients with depression or anxiety disorders. Since the 1960s, CBT has been the subject of numerous studies that investigated its clinical effectiveness for the treatment of depression and anxiety. By combining the principles of cognitive and behavioural therapies, CBT aims to provide patients with the coping strategies and mechanisms needed to solve current problems and to change dysfunctional thoughts, behaviours, beliefs, and attitudes.

Despite the apparent clinical effectiveness of CBT, patients suffering from depression or anxiety disorders are frequently unable to access CBT, which is traditionally delivered during face-to-face sessions. Common barriers to CBT include high cost, perceived stigma, poor access to treatment in rural areas, long wait times, privacy issues, and a lack of trained clinicians. Internet-delivered CBT (iCBT) has shown promise as an effective means of providing treatment for depression and anxiety, potentially offering ways for patients to overcome some of these barriers. Essentially, iCBT involves the delivery of CBT through an online (electronic) platform with or without the support of a therapist (or other practitioner). Other aspects of iCBT vary widely and include, but are not limited to, electronic mode of delivery, cost, and level of practitioner support. Understanding these characteristics and factors, and how they may influence the experience of iCBT, is crucial for practitioners and health care facilities looking to offer iCBT to people suffering from depression or anxiety. Broadly speaking, there is a need to clarify current policy and appropriate use of iCBT in the context of major depressive disorder (MDD) and anxiety disorders in Canada.

Objectives

In collaboration, Health Quality Ontario and CADTH completed a Health Technology Assessment on the use of iCBT in patients with MDD and anxiety disorders. Both organizations contributed to the Health Technology Assessment, which involved analyses of clinical, economic, social, implementation, and ethics evidence relevant to the policy question: Should Internet-delivered cognitive behavioural therapy be offered to people with major depressive disorder or anxiety disorders? Analyses of the multi-disciplinary evidence are reported separately, with separate reports detailing the research questions and methods used to assess different considerations.

For its part, this report provides the results of three distinct yet complementary analyses performed by CADTH on (1) patients' perspectives and experiences with iCBT, (2) implementation issues, and (3) ethical considerations within the Canadian context and

internationally. Reports assessing evidence of clinical and economic effects are published separately.

Patients' Perspectives and Experiences Evidence

Methods

A systematic review and meta-synthesis of published primary qualitative studies on patients' perspectives and experiences were conducted. Once relevant studies were identified, their content was analyzed using a staged coding process similar to the qualitatively based grounded theory methodology.

Findings

In total, 24 studies were identified and included in the analysis. Most studies (n = 20) used mixed methods, within which qualitative methods were used to explore patients' experiences. Twenty-two of the 24 studies were a part of, or parallel to, a larger study, including 14 clinical trials. Overall, participants in the included studies were primarily adults 16 years of age and older, although participants as young as 13 years were included.

While studies generally reported participant acceptance of iCBT, it was clear that a one-size-fits-all solution is not applicable. As such, the included studies spoke to the importance of individual "fit" of iCBT that could relate to a patient's learning style as well as mental health and engagement needs. This could come in the form of critically thinking through the interventional relevance for a given user or patient, providing ongoing support and monitoring, and tailoring the intervention relative to patient need and situational nuance. Even then, patients' experiences with iCBT are layered and implicated within a greater web of preconceived notions of intervention benefits, changing life circumstances, or concurrent use of antidepressant medication. The need for careful consideration of risk and interventional fit is noted, especially in cases of severe condition, as iCBT may be ill-suited in these cases.

While a minority of represented participants valued the freedom to navigate iCBT by themselves and at their own pace, therapist involvement or support was generally valued. Furthermore, a blended approach between iCBT and face-to-face therapy was supported by many participants as it provides the opportunity for greater tailoring and individual support.

Given the variation of experiences, preferences, and challenges of iCBT, as summarized in this review of the literature, continued strategies that support optimal person-centred care and careful assessment of patient need are desired. Based on the published literature, such moves may be less about a prescriptive or formulaic approach, and more about a malleable approach that seeks resonance with considerations for both evidence-based and person-centred care. Continued critical reflection on the need for services in an adequately funded mental health care system, within which iCBT is embedded, invites sufficient resources to address the range of patient needs and proactivity in improving experiences and outcomes for service users.

Implementation Issues Evidence

Methods

Implementation issues were evaluated using information from the CADTH Environmental Scan report *Internet-Delivered Cognitive Behavioural Therapy for Major Depressive Disorder and Anxiety Disorders* and a literature review of published articles. Reviewers used the Context and Implementation of Complex Interventions framework from the INTEGRATE-HTA guidance for the analysis of the data. The Context and Implementation of Complex Interventions framework provides a structure for conceptualizing, assessing, and documenting the relevant interacting domains of context and implementation of a health technology.

Findings

This report involves a summary of information from 24 survey respondents and information from 29 articles (nine reviews and 20 primary studies). Seven survey responses were submitted from Ontario, four from Nova Scotia, three from Manitoba, two each from British Columbia, Newfoundland and Labrador, Quebec, and Saskatchewan, and one each from Alberta, New Brunswick, and Prince Edward Island.

Sixteen of the primary studies derived qualitative and quantitative data from patients, health care practitioners, or researchers. One study used conversation analysis to evaluate the transcripts from online therapeutic sessions, while another derived information from reports that were written by consultant-trainers. Nine studies extracted quantitative data directly from software programs. The published studies covered a range of iCBT programs that were hosted either on open-access free websites or websites that required paid subscriptions. Alongside iCBT, some studies included computer-based cognitive behavioural therapy programs that offer CBT at stand-alone computers using CD-ROMs or other static storage devices. This literature review focused on identifying the various factors that might influence implementation of iCBT rather than comprehensively quantifying their effects. While some of the information suggests that certain factors may be facilitators, barriers, or have no impact on implementation, their effects may be context-specific.

According to the literature, strategies to facilitate the uptake of iCBT focused on engaging and collaborating with all stakeholders involved in the delivery of iCBT. Specifically for Aboriginal peoples and Torres Straits Islanders (Australia), authors suggested increasing advertising and promotion in schools and health centres by health professionals, and incorporating into the programs topics such as colonization, intergenerational trauma, identity, methamphetamines, cyberbullying, and the influence of peers. Using a stepped care approach when initially integrating iCBT into clinical practice might allow patients and clinicians to experiment with multiple methods of delivering CBT so that they can determine what works best within their specific context, although such an approach could also introduce frustration or disappointment if treatment does not appear effective initially. Practitioners preferred integrating iCBT into care pathways by offering it as a short-term, alternate option, or by offering it in conjunction with face-to-face therapy. Practitioners benefited from having supportive managers who promoted iCBT. Therapist or administrative support was identified as an important facilitator of uptake and adherence of iCBT by patients; yet, in circumstances where patients have a high severity of symptoms that require elevated support, attrition may be observed. Survey respondents used quality improvement frameworks to monitor the success and performance of iCBT programs; however, they did

not provide details on their results or how the frameworks may have been used to modify iCBT programs.

The literature review, though comprehensive, may not be considered systematic as a quality assessment of the studies was not performed. Further work that evaluates the implementation issues that potentially arise when iCBT is utilized for other indications, such as post-traumatic stress disorder, addiction disorders, insomnia, chronic pain, or other mental health conditions, may provide additional insight into the application of the intervention. Broader engagement and enhanced communication and collaboration among relevant stakeholders involved in the delivery of iCBT may provide guidance for future research and program development.

Ethical Analysis

Methods

An analysis of the empirical and normative bioethics, clinical, and public health literatures was conducted to identify ethical issues related to the implementation of iCBT. The ethical issues identified, values described, and solutions proposed in the literature were evaluated using the methods of ethical (applied philosophical) analysis, which includes applying standards of logical consistency and rigour in argumentation, particularly where specific implications are identified and specific solutions advocated; evaluating their responsiveness to important values of health care and health care policy in the field in which iCBT is proposed for implementation; evaluating their adequacy to the context for iCBT is being considered; and evaluating the representation of perspectives from diverse relevant communities, particularly marginalized and vulnerable populations.

Findings

The analysis is informed by a review of 57 reports identified through a literature search. Themes that emerged from this body of included literature fell under the following seven broad ethical principles or domains: trust and the therapeutic alliance, privacy and confidentiality in the context of Internet-delivered therapies, beneficence and the uncertainty of new treatment modalities, nonmaleficence and limitations to client safety, justice and enhanced access, respect for autonomy and informed consent, and professional and legal issues.

In large part, many of this review's findings reflect practical, technical, or logistical matters (e.g., compromises to confidentiality due to the spectre of data insecurity; jurisdictional licensing) that present ethical challenges, but which may be addressed with relatively straightforward measures and due attention (e.g., data security protocols and informing clients of limits to confidentiality; creative licensing arrangements across jurisdictions). This is not to say, however, that such ethical issues and their solutions are of little or no importance. Rather, what this means is that the more intractable ethical concerns raised by iCBT have received relatively scant attention. Given the themes identified in the literature and the novel ethical analysis provided, these ethical issues or considerations include the following: (1) while iCBT may enhance access to mental health services for some, it may also produce, perpetuate, or exacerbate inequities of access for others, and so these justice-enhancing and justice-diminishing features must be carefully considered and balanced; (2) iCBT may render it challenging for providers to fulfill their ethical obligations of nonmaleficence in the face of limitations to client safety that may be inherent to the therapy's mode of delivery, and it would be ethically problematic to conclude that this concern can be

easily circumvented by simply informing clients of this fact, and; (3) it may be challenging for iCBT providers to establish a trusting alliance with their clients relative to traditional face-to-face iCBT, which may render them less capable or incapable of effectively fulfilling their ethical obligations. Considered together, while iCBT has the capacity to enhance access to mental health services, these justice-enhancing features of iCBT may only be viewed as virtues where the prospect of increased access extends to those less privileged, and where the therapeutic environment doesn't entirely eliminate an alliance between therapist and client where ethical practice is possible.

Limitations

Substantial heterogeneity in definitions used to describe terms like iCBT, guidance, support, or treatment medium, complicated efforts to synthesize information across studies. Without the certainty that each study was working from the same homogenous set of terms, there is a possibility that the study findings may have been misinterpreted. Experiences and opinions of patients and health care providers generally reflected samples of individuals who volunteered to participate in an iCBT intervention. Accordingly, there is a lack of detail related to those who may have been systematically excluded from participation (e.g., those without computer access, those who lack linguistic proficiency in the language of the intervention and those with cognitive issues that precluded engagement in a CBT intervention). Further consideration of the range of needs of individuals with depression and anxiety warrants consideration, relative to offering mental health services. Notably, the review was limited to individuals 16 years or older, leaving out vulnerable populations of adolescents and children.

Conclusions

Though the patient-focused literature generally supports the use of iCBT for major depressive and anxiety disorders, the reported variation in participants' experiences emphasizes the importance of program tailoring to fit various patient needs. Participants' opinions of what they considered as supportive processes, appropriate content, or even adequate levels of therapist engagement varied and seem difficult to align within a single intervention or approach to iCBT. As such, policy choices regarding the use of iCBT for major depressive and anxiety disorders may be more useful if they afford a flexible approach rather than one that is prescriptive and universal.

The variation in the programs that were available and the contexts under which they were administered preclude drawing general conclusions about the effect that certain factors have on the uptake and implementation of iCBT. Nonetheless, implementation strategies that could be applied across the board include integrating iCBT into existing clinical pathways, introducing iCBT on a limited basis, engaging the community in the development of iCBT programs, engaging the help of practitioners who are champions of iCBT, including content to fit the needs of specific populations, and establishing policies that support the procurement of tools that are needed for iCBT.

This report highlights some important issues for policy-makers to consider when contemplating the public provision of iCBT for adults with MDD or anxiety disorders in Canada.

Introduction

Background

Depression and anxiety (including generalized anxiety disorder [GAD], panic disorder, social anxiety disorder [SAD], and specific phobias) are leading causes of disability worldwide, with estimates suggesting as much as 40% of the Canadian population will require some form of treatment in their lifetime.¹⁻³ Treatment of depression and anxiety disorders includes a wide range of options that can be broadly classified as either pharmacotherapy or psychotherapy. Although forms of pharmacotherapy (e.g., treatment with antidepressants) can be effective for some patients,⁴ literature suggests that the adherence rates over time are generally poor and that only one-third of depressed patients fully respond to medication.⁵⁻⁷ In addition, up to 75% of psychiatric patients report a preference for psychological interventions over pharmacotherapy.⁷ These factors emphasize the importance of supporting the development of effective and acceptable psychotherapies.

Cognitive behavioural therapy (CBT) is the most commonly utilized form of psychotherapy for the treatment of patients with depression or anxiety disorders.¹ Initially developed in the 1960s,⁸ CBT has been the subject of numerous studies demonstrating its clinical effectiveness for the treatment of depression and anxiety.⁹⁻¹¹ By combining the principles of cognitive and behavioural therapies, CBT aims to provide patients with the coping strategies and mechanisms to solve current problems and to change dysfunctional thoughts, behaviours, beliefs, and attitudes.¹² Some of the techniques employed in CBT include graded exposure, relaxation training, challenging negative automatic thoughts, activity scheduling, social skills training, and behavioural experiments.^{12,13}

Despite the apparent clinical effectiveness of CBT,⁹⁻¹¹ patients suffering from depression or anxiety disorders are frequently unable to access treatment, which is traditionally delivered during face-to-face sessions.^{14,15} Common barriers to CBT include high cost, perceived stigma, poor access to treatment in rural areas, long wait times, privacy issues, and a lack of trained clinicians. Internet-delivered CBT (iCBT) has shown promise as an effective means of providing treatment for depression and anxiety, potentially offering ways for patients to overcome some of these barriers.¹⁶ Essentially, iCBT involves the delivery of CBT through an online software platform with or without the support of a therapist (or other practitioner).¹⁷ Consistent with face-to-face CBT, iCBT programs use cognitive and behavioural methods such as psycho-education, cognitive restructuring, behavioural activation, acceptance and mindfulness, and problem-solving to address various mental health conditions.^{18,19} Programs are offered in multiple modules over several weeks, at fixed intervals or at the discretion of the user.^{18,20} iCBT programs vary in mode of delivery (e.g., computer, smartphone), cost, and level of practitioner support,²¹ as well as in duration, content, and timing of delivery.

Understanding these characteristics and features, and how they may influence the experience of iCBT, is crucial for practitioners and health care facilities looking to offer iCBT to people suffering from depression or anxiety. Broadly speaking, there is a need to clarify current policy and appropriate use of iCBT in the context of major depressive (MDD) and anxiety disorders in Canada.

Policy Question

The overarching policy question for the report was:

- Should Internet-delivered cognitive behavioural therapy be offered to people with major depressive disorder or anxiety disorders?

Objectives

In collaboration with HQO, CADTH has completed a Health Technology Assessment (HTA) on the use of iCBT in patients with MDD and anxiety disorders.²² The objective of the collaboration was for both organizations to address the policy question.²² The HTA involved analyses of evidence relevant to clinical, economic, social, implementation, and ethical issues.

HQO led the development of a systematic review to assess the clinical effectiveness and cost-effectiveness of iCBT, as well as an economic analysis, and undertook direct patient engagement to explore patients' preferences and values. CADTH conducted a systematic review of the evidence on patients' perspectives and experiences, a literature review of implementation issues, a survey of stakeholders across Canada²³ to inform an assessment of implementation issues, and an analysis of ethical issues related to iCBT. This report outlines the results of the work undertaken by CADTH.

Research Questions

To respond to the policy question, analyses relevant to the following series of distinct yet complementary research questions were developed:

Patients' Perspectives and Experiences

- How do patients with major depressive disorder or anxiety disorders experience Internet-delivered cognitive behavioural therapy?

Implementation Issues

- What Internet-delivered cognitive behavioural therapy programs have been established to treat patients with major depressive disorder or anxiety disorders?
- What are the enablers (facilitators) and barriers to the implementation and uptake of Internet-delivered cognitive behavioural therapy?
- What strategies (including quality improvement frameworks) have been used to facilitate the implementation of Internet-delivered cognitive behavioural therapy?

Ethical Issues

- What are the major ethical issues raised by the provision, development, and use of Internet-delivered cognitive behavioural therapy for major depressive disorder or anxiety disorders?
- How might these major ethical issues or concerns be addressed?

Terminology

In this report, the terms "client," "individual," "participant," "patient," "person," and "user" are interchangeably used to describe people who receive iCBT, and "clinician," "therapist," "practitioner," and "provider" are used to describe people who offer iCBT. The use of multiple terms reflects variation found in the literature. Similarly, "computer-based CBT," "e-mental

health,” and “Internet-delivered services” are used in place of “iCBT” in some sections, as some issues pertaining to iCBT were relevant to multiple Internet-based modes of therapy and were discussed under the broader contexts in the cited literature. Wherever possible “CBT” was referred to as “traditional face-to-face CBT” to differentiate it from “iCBT”; however, in certain instances (particularly pertaining to patients’ experiences), some discussion applies to both iCBT and CBT.

Patients’ Perspectives and Experiences

Study Design

A systematic review and meta-synthesis of published primary qualitative studies of patient (first-person) perspectives and experiences were conducted to address the following research question:

- How do patients with major depressive disorder or anxiety disorders experience Internet-delivered cognitive behavioural therapy?

Methods

Literature Search Methods

The literature search was performed by an information specialist using a peer-reviewed search strategy.

Information related to patients’ perspectives and experiences was identified by searching the following bibliographic databases: MEDLINE (1946–) with in-process records and daily updates via Ovid; PsycINFO (1806–) via Ovid; The Cochrane Library (2018, Issue 2) via Wiley; Cumulative Index to Nursing and Allied Health Literature (CINAHL) (1981–) via EBSCO; and PubMed. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were Internet-based cognitive therapy and depressive or anxiety disorders.

Methodological filters were applied to limit retrieval to qualitative studies or studies relevant to patients’ perspectives. No date limit was applied. The search was limited to English-language publications. See Appendix 1 for the detailed search strategy.

The initial searches were completed in April 2018. Regular alerts were established to update the searches until the publication of the final report. Regular search updates were performed on databases that did not provide alert services. Studies identified in the alerts that met the selection criteria of the review were incorporated into the review if they were identified prior to the completion of the stakeholder feedback period of the final report and offered new analytical insight.

Grey literature (literature that is not commercially published) was identified by searching sources included in the *Grey Matters* checklist (<https://www.cadth.ca/grey-matters>), which includes the websites of HTA agencies, clinical guideline repositories, systematic review (SR) repositories, and professional associations. Google was used to search for additional Web-based materials. These searches were supplemented by reviewing the bibliographies of key papers.

Iterative Search Process

Qualitative research can be difficult to locate due to inconsistency in index terms and potential challenges in retrieving qualitative studies using search filters.²⁴ Accordingly, we made provision for the modification and rerunning of the literature search, depending on the set of studies identified that met the inclusion criteria, and reflective of the iterative refinement that is common in some qualitative approaches.^{25,26} In this instance, however, rerunning the literature search was not required. The search strategy was developed as follows: initially, all qualitative research potentially relevant to patients’ experiences in iCBT for MDD or anxiety disorders was retrieved and then screened for eligibility. The titles and abstracts of identified citations were reviewed to identify potentially relevant articles for full-text review. As the full-text of potentially relevant articles were reviewed, memos on the topics, populations, and outcomes within articles were identified to develop an understanding of what type of information is present in this literature. At this point, an assessment was made about whether the initial research question was answerable with this data set. In this case, the data set was deemed sufficient and no further searching was required.

Study Selection Criteria

Eligible studies consisted of primary English-language qualitative studies or mixed methods studies with separate reporting of the qualitative component. For the purpose of this review, qualitative studies were defined as studies that produce data from qualitative data collection methods (e.g., interviews and participant observation) and utilize qualitative data analysis methods (e.g., constant comparative method, content analysis, and thematic analysis). Studies that have multiple publications using the same data set were not included unless they reported on distinct research questions.

No limits were placed on countries studied, and as previously noted, studies that reported patients’ experiences with iCBT for MDD or anxiety disorders were included. To be eligible, studies had to have explored participants’ own perspectives directly, not indirectly (i.e., through another person). There is no standard approach to including primary studies and syntheses in a qualitative synthesis. Typically in quantitative syntheses, only primary studies are included to avoid the issue of “double counting” or giving undue weight to one set of study findings. Following these principles, qualitative syntheses were excluded. Table 1 summarizes the eligibility criteria that were followed.

Table 1: Inclusion Criteria

Definition of Patient Perspective or Experience	Experience, view, or reflection of individuals participating in an iCBT intervention for mild or moderate major depressive disorder and/or anxiety
Target Population Age	Persons 16 years of age or over (adult-based studies); studies were included if the reported mean or median age of participants was 16 years or older
Time Frame	Unlimited
Study Designs	Qualitative studies and mixed method studies (with a focus on qualitative data)

iCBT = Internet cognitive behavioural therapy.

The following elements rendered a study ineligible for inclusion in this review:

- studies not focused on iCBT for MDD or anxiety or major depressive disorder

- studies addressing postpartum depression, post-traumatic stress disorder, or drug/alcohol dependence-related depression/anxiety
- studies addressing topics other than patients' experience of iCBT
- commentaries, case reports, or editorials
- non full-text publications (e.g., abstracts)
- work that has had not been peer-reviewed or not published (e.g., theses, editorials, letters to the editor, reports)
- book chapters
- studies labelled "qualitative" but that did not use a qualitative descriptive or interpretive methodology (e.g., case studies, experiments, surveys, or observational analyses not using qualitative approaches)
- studies not involving the first-person perspectives of patients receiving iCBT.

Study Selection Method

Two reviewers independently assessed titles and abstracts of potentially eligible citations arising through the literature search in DistillerSR.²⁷ Disagreements about eligibility at the title and abstract level were resolved through discussion, with a third reviewer, if required. Full-text screening and assessment of studies for inclusion were conducted independently by two reviewers. Again, differing judgments about study inclusion were resolved through discussion. Study selection is documented in a PRISMA flow diagram in Appendix 2.²⁸

The draft list of included studies was posted online for stakeholder review for 10 business days, during which stakeholders could submit feedback or additional publications for potential inclusion. No additional publications were brought forward during the review period.

Data Extraction and Quality Assessment

Descriptive data extraction for the included studies was conducted using standardized data extraction forms in a Microsoft Excel spreadsheet. The forms were designed to extract relevant information from the study reports, including author; publication year; country; funding source; study objectives; study design; inclusion and exclusion criteria; participant characteristics, including number of participants, age, sex, diagnosis, and comorbidities; description of iCBT; and description of subgroups of interest.

Two reviewers piloted the data extraction form, in duplicate, on a representative sample of included studies until consistency was reached (i.e., the reviewers achieved agreement on all extracted information). Subsequently, two reviewers independently extracted the data; disagreements were resolved through discussion, involving a third reviewer as necessary. NVivo 11²⁹ was used to extract and manage qualitative data from included studies. Sections of the publications' reported findings were coded (excluding the background and discussion sections) to ensure the capture of qualitative data and findings (rather than re-presenting findings or interpretations of background literature or authors' conclusions).

One reviewer independently critically appraised all included studies concurrently with data extraction. The items of the Critical Appraisal Skills Program Qualitative Checklist³⁰ guided this appraisal process. Studies were not excluded or differently weighted on the basis of the quality appraisal.

Data Analysis

Descriptive Analysis

The analysis followed a staged coding process similar to the qualitatively-based grounded theory methodology via three stages: open or line-by-line coding, descriptive coding, and developing analytic themes or constructs.³¹ The constant comparison method was adapted to include comparing codes within and across studies. The synthesis was conducted by one reviewer with experience in primary qualitative research and syntheses. This individual conducted line-by-line coding of an initial set of five studies. Line-by-line coding encourages “staying close to the data,” a process that encourages the inductive development of codes. Upon completing this initial set and reflecting on the coding process, a decision was made to move toward developing descriptive codes, given that patterns had emerged in the newly developed codes. The reviewer used the research question as a guide in developing and refining a set of descriptive codes. During descriptive coding, the reviewer used text passages, as relevant, to group and cluster codes using descriptive concepts that remained close to the data. In this report, text quotes from reviewed studies are included. Upon completing a subset, the reviewer reflected on the breadth and meaning of descriptive codes and their related concepts as part of refining the coding set. Once codes were outlined that described the dimensions of the data relevant to the research question, the reviewer coded the remaining studies using the set of descriptive codes.

The reviewer continued to verify descriptive codes through a review of these codes and their structure — through ongoing coding of data. The reviewer compared and contrasted codes within and across the reviewed studies. As the codes solidified, higher-order constructs or categories (for which other codes are dimensions or facets) emerged via relationships between codes. Through this process, the analysis evolved from coding to analytic synthesis.

Analytic synthesis is the development of themes or abstracted constructs that are interpretations of the data. To develop analytic themes, memoing was used to assemble and sort the previously established descriptive codes, going back to the data to further develop the relationship between themes and codes. In keeping with the iterative nature of qualitative analysis, the reviewer at times reverted to descriptive coding to additionally describe dimensions or facets of particular codes or themes, in order to develop themes that are conceptually rich in detail and supported by data. This analytic approach ensured that the review was more than a summary of findings of qualitative studies, in that a new synthesis or interpretation of the reviewed data emerged in response to the research question. Data that were relevant to the research question of this review but that did not feature prominently in the data set were coded and analyzed even if there was an absence of theoretical saturation around those codes and they remained descriptive versus analytic.

Reflexivity is an epistemological principle and methodological approach in qualitative research that recognizes the role of the researcher as a key instrument in the research. Reflexive practices and techniques allow for and offer means to seek greater transparency in how researchers make observations and interpretations from the data. To this end, reflexive practices of memoing and frequent dialogue among team members were done to probe and position the review process.

In this review, we have intentionally utilized an extensively narrative presentation in seeking to represent content from individual studies. Text quotes from reviewed studies are included to corroborate emergent themes as well as to exemplify the variation and nuance within

synthesized findings. This approach seems pragmatic and integrative in the aim of more fully representing the richness, diversity, and illumination of data from primary sources.

Given the disparate orientation, aims and findings within reviewed studies, there is inherent risk of data detail omission or more or less accentuation of particular aspects of detail from various studies. Reviewer reflexivity cannot help but have a bearing on qualitative syntheses, yet there was a concerted effort to be inclusive and accurate in rendering the perspectives of primary research papers. Notwithstanding this commitment and process, we believe that integrative qualitative writing invariably both synthesizes and interprets across diversities. While accuracy and “staying close to the data” were heartily sought, we acknowledge that editorial or interpretive latitude may have emerged within this account, as can emerge within a synthesis of a large, disparate, and dense qualitative data set.

Results

Literature Sources

A total of 1,321 citations were retrieved from the literature searches (i.e., following removal of duplicates). After title and abstract screening, 98 articles were retrieved for full-text review, in addition to four reports identified through hand searching. Of these 102 articles, 78 were excluded for the following reasons: irrelevant intervention (n = 23), irrelevant disorder (n = 19), irrelevant population (n = 2), irrelevant study design (n = 21), or non-English language or inappropriate publication type (n = 13). Twenty-four studies were identified that offer qualitative data addressing the perceptions of iCBT from the perspective and direct experience of individuals who had received iCBT, with one study³² including both iCBT and physical exercise as an integrated intervention. The final list of included studies is in Appendix 3 and brief summaries of the studies are in **Error! Reference source not found.** Table 2. Most studies consisted of mixed methods (n = 20 studies), within which qualitative methods addressed patient experience. Twenty-two studies were a part of, or parallel to, a larger study,^{15,20,32-51} including 14 clinical trials and randomized controlled trials.^{20,33-36,39-41,45-48,50,51} The list of excluded studies along with the reasons for exclusion are provided in Appendix 5.

Study Characteristics

All studies included participants with anxiety or depressive conditions; however, the level of severity and the extent to which the condition was detailed in studies varied. Methodologic approaches also varied widely, including one-on-one interviews, focus groups, and mixed method designs where the qualitative component within a given study was a relatively small element of the overall inquiry. The relative lack of focus regarding qualitative research in this area warranted a liberal interpretation and inclusion of qualitative studies. This necessitated openness to a broad range of approaches often without specific demonstration or description of substantial methodological rigour in individual studies. In this review, only the qualitative component of these larger projects was included, and in that qualitative component, only content that focused on patient experience was utilized. Accordingly, study data — qualitative or otherwise — that focused on elements such as outcomes, program delivery approaches, or service provider perspectives about patient experience, for instance, were not included unless this information was from the direct perspective of intervention users with a focus on their experience of iCBT.

The reviewed studies reflect a wide range of qualitative approaches, methods, nuanced substantive focuses, and levels of conceptual depth in data analysis and discussion. Within

each study, only the qualitative findings, as noted, that specifically reflected first-person experiences of iCBT patients/users, were included. Accordingly, we did not analyze information in the introduction, literature review, methods, or discussion sections of papers, but rather these additional sections informed reviewer orientation and contextualization of the findings of respective primary studies.

Synopsis

Reviewed data that is reported on herein reflect the direct experiences and perceptions of individuals who engaged in iCBT. It is important to note that there was substantial variability across the reviewed studies in terms of the modality of the iCBT approach, the duration of the intervention, the engagement and method of therapist moderation, and identified rates of user engagement (if documented).

Overall, this review revealed that there are limited studies of first-person patient or user experience using a qualitative inquiry approach. No studies were found that had been published prior to 2009, with the majority of studies (16 out of 24) published within the last five years (2014 to 2018).^{15,20,32,34,37-40,42,43,45,47-50,52} Patient ages in study samples ranged from 13 to 76 years. Two studies included participants younger than 16 years with one of them indicating a mean age of 16.39 years⁴² and the other indicating a range of 15 year to 20 years.⁴⁰ Otherwise, the sample comprised adults 16 years of age and older.

Substantial cultural diversity is offered by virtue of a fairly wide geographic spread of study authors worldwide. It is important to note that studies typically did not report social determinants of health-based participant data. Therefore, variability of samples relative to various determinants (e.g., ethnocultural or socio-economic status) within studies may be limited. Also, it is important to note that studies were conducted in relatively high income nations, as follows: Australia,^{34,35} Canada,^{37,38} Ireland,^{40,45,46,52} the Netherlands,^{36,41} New Zealand,⁴² Norway,³² Sweden,^{33,39,43,44,47} Switzerland,⁵⁰ the UK,^{20,48,49,51,53} and the US.¹⁵

Critical Appraisal of Individual Studies

Overall, qualitative studies or qualitative components of studies included in this report appeared to range in quality. See Table 3 in Appendix 6 for a brief summary of the critical appraisal of included studies.

The research aim was stated for all studies, and the use of qualitative methodology was appropriate for all studies. Seven of the 24 included studies used qualitative data analysis methods to explore objectives that seemingly were somewhat quantitative or variable in focus and orientation (e.g., likes and dislikes, acceptability, therapeutic alliance).^{34,37,38,40,46-48} In several studies (and to varying degrees), limited study detail in reports may have hindered reviewer understanding of the precision of methods.

Recruitment strategies in three studies involved advertisement or referral from health care facilities or units.^{15,37,38} Three studies focused on maximum variation of participant characteristics, conditions, or interventions,^{33,36,47} and three studies employed random sampling.^{35,46,48} Five studies explicitly stated the use of purposive sampling.^{33,34,41,47,51} Two studies claimed to continue data collection until theoretical saturation was reached.^{34,35} Generally, sampling methods seemed suitable for the research questions presented in their respective studies. However, several studies did not provide justification for sampling decisions or did not extensively describe the sampling method, therefore yielding questions such as whether depth or diversity in experiences further could be sought.

A range of qualitative data collection methods were used. Fourteen studies used semi-structured interviews,^{15,20,32-36,41-43,50-53} and four studies used a combination of qualitative approaches with interviews, focus groups, or written feedback^{39,40,44,53}. One study examined user reviews from relevant iCBT software applications (apps) from both iOS and Android platforms.⁴⁹ Six studies collected qualitative data from open-ended questions presented at the end of, or along with, surveys.^{37,38,40,46-48} Three studies indicated developing interview guides that were informed by literature searches or pilot interviews.^{20,35,52} Three studies conducted data collection after a substantial amount of time since participants completed the intervention.^{33,35,39} Three studies noted that data collection was completed once data saturation was attained.^{20,35,40} In summary, data collection methods generally were appropriate to address the research goals of each study; however, recall may have been an issue for those studies that conducted data collection long after participants completed iCBT.

Studies variably demonstrated and several specifically reported on strategies to enhance rigour, for example, with considerations related to interview context,^{20,35,40-42,44} excerpt presentation,⁴⁷ credibility checking,³³ member checking,^{36,42} peer debriefing,³³ use of at least two independent coders or reviewers,^{15,20,33,34,36,38-42,44-46,49-53} reflective memoing,^{15,38} and consideration of researcher involvement.^{35,42} Generally (although within a range of approaches), other studies did not describe explicit processes to enhance rigour, and the relationship between researchers and participants tended not to be substantially addressed.

Of the 24 studies, 18 studies reported a method of analysis consistent with their qualitative approach to addressing the research objectives. Reporting in some studies was unclear in regards to specific qualitative analytic approaches or procedures; however, in most studies, findings were well described and supported by the data.

Overall, while somewhat scant and diverse, the body of literature appears credible and trustworthy in terms of adding insight into how patients experience iCBT for MDD and anxiety.

Substantive Results

Substantive results reflect a range of perceived benefits and challenges as well as experiences associated with iCBT. Following a summary of benefits and challenges, user experiences are addressed that include elements related to: (1) content, (2) process, (3) relationality, and (4) context (definitions for each of these terms are offered in the Elements of Patients' Experiences section). Sub-themes emerging within these four key elements are discussed.

Patient Experiences and Perceived Benefits

The reviewed studies collectively present a wide range of experiences of iCBT, marked by commonality and diversity of perspectives both within and across studies, including both variation in the level of iCBT engagement by participants as well as perceived positive experiences or outcomes and challenges associated with iCBT.^{15,32-34,37,39,41-46,48,49,51}

Overall, patient experience with iCBT reportedly ranged as variably positive, mixed, and in some cases, negative. Negative elements of a program were typically interspersed with positive elements of experience for a substantial number of participants per study.

Examples of perceived benefits were: information or awareness, skills or insight,^{15,32,34,36,37,41,44,45,51,52} self-awareness or self-reflection,^{15,41,50-52} improved well-being,^{41,45} improved affect or mood,^{32,41,51} improved relaxation,⁴⁰ decreased agitation,⁵¹

better sleep,⁵¹ improved relationships or connection,^{15,37,45,51} support or validation,⁴⁵ expression or relief,⁴⁵ self-efficacy, sense of achievement or empowerment,⁴⁵ management of thoughts and emotions,⁴⁰ management of future mental health problems,³⁴ understanding or acceptance of one's condition,^{15,32,36,41,43,50,51} application of coping skills or behavioural change,^{15,32,40,44,45,50,52} and asking for help.⁴⁰ In considering how participants reflected on, adapted, interpreted, or processed iCBT content relative to their needs, participant descriptions entailed an integration of relevant program elements and elements of moving from awareness to action in daily living.^{15,34,36,40,41,44,50-52} Of note, some participants within several studies were reported to have difficulty identifying limitations of iCBT.^{15,32,37}

Perceived processes of learning and growth associated with iCBT were described within studies. These elements were variably described to nurture learning as well as to aid in the application of learning^{15,34-38,41,44,45,49-52} and could come in the form of tactile items like downloadable DIY ("do it yourself") lesson summaries³⁸ or more process-oriented elements like platform accessibility and the use of personal stories or examples.⁴⁵ Beyond CBT, users reportedly identified beneficial features such as relaxation tracks, meditation, activities to improve mood, tracking of worry or anxiety, and diarizing or journaling.⁴⁹

Helpful core elements of iCBT (and CBT) were described across studies. These included the engagement and resources that offered tools to deal with emotions, thoughts, and mental health challenges, and program elements that left participants feeling less isolated.^{15,37,52} Hovland et al.³² described participant satisfaction relative to iCBT along with an interventional regime of physical exercise; the combined approach used in this study reportedly resulted in no participants believing, "that either one of the interventions in isolation would have been equally effective"³² (p.281). Lillevoll et al.⁴¹ stated that "[p]atients described changes in both thought and behavior as essential. Some changes were clearly related to what they learned from the self-help program; e.g., testing the truth value of their negative thinking or using specific techniques from the program; whereas other changes had been discussed with the therapist in the sessions and were not directly related to the self-help program. Changes in thought patterns, where patients started to question the content and validity of their depressive ideas, were a specific result of the self-help techniques"⁴¹ (p.6).

Mixed and Negative Experiences

Along with positive experiences and perceived beneficial impacts as described and previously illustrated, challenges, difficult experiences, or areas for improvement related to iCBT were also identified in the reviewed studies. Again, it is important to note that some of these features were associated with CBT rather than Internet mediation itself. Examples of identified challenges or areas recommended for improvement are: relevance or responsiveness to need,^{15,34,36,41,42,46,50,52,53} flexibility,^{15,34,50,52} content-related issues,^{15,35,39,45,47,50,53} therapist input or engagement,^{15,20,35,39,45,47,50,52,53} patient demand or time,^{35,39,43-47,50,52,53} and technology.^{36,39,40,43,45-48,50,51,53}

Studies variably described instances in which some iCBT users questioned the "fit" or perceived benefits, enjoyment, or experience of the reviewed program or intervention of iCBT or interventional elements therein.^{20,37-39,41,42,44,45,47,48,50-53} As one example, Richards et al.⁴⁵ identified "hindering events"⁴⁵ (p.42 to 43) listed as "platform features/design, external factors, internal factors, supporters' feedback, [and] content of the program"⁴⁵ (p.39). When a program was not effectively working for an individual, perceived negative impacts could include patient confusion^{34,45} and what Richards et al.⁴⁵ noted as "disappointment, frustration/irritation, mood deterioration, [and] self-critical/blaming"⁴⁵ (p.39).

As illustrated here, some participants in varying studies reportedly were unsure or less confident about the benefit of iCBT, with Beattie et al.⁵¹ further noting a lack of clarity for some users about whether beneficial program impacts actually reflected interventional benefits or other elements such as changing life circumstances or antidepressant medication. Variably, participants reportedly felt or did not feel that iCBT (or CBT) had resulted in gain, and occasionally there was concern that the therapy had evoked personal revisiting of elements that had been “dealt with”⁵¹ (p.49), and concern in terms of challenges integrating CBT techniques in daily life.⁵¹ Several patients in Rozental et al.’s study⁴⁷ identified difficulties with interventional tasks; in particular, exposure to circumstances or emotions that were unfamiliar or tended to be avoided, as well as assuming personal responsibility in treatment. This was reported, at times, to leave patients viewing themselves as failing and incited personal questioning about whether they were able to engage in treatment or achieve recovery.

The following is further development of specific elements of patients’ experiences that emerged from this data set. Specifically, iCBT-related patient experiences are distilled categorically, as depicted in the reviewed literature. As noted in the background section, it is important to recognize that these elements of patient experience at times conflate elements of CBT and iCBT. Uncoupling the perceived impact of Internet mediation from CBT itself was variably difficult; hence, caution in interpreting these findings is advised.

Elements of Patients’ Experiences

Content, Process, Context, and Relationality

A range of components was variably described in association with user or patient experience. Categorization of these findings, as they emerged from coding and analysis, resonated with an organizational schema of experiential iCBT that was recently published by Hadjistavropoulos et al., and is included within this review.³⁸ Hadjistavropoulos et al.³⁸ organized patient-identified strengths and challenges of therapist-assisted iCBT within domains of “content” (“cognitive behavioural information taught during the course”)³⁸ (p.3), “process” (“patients’ experiences of learning and practicing the skills of the course”)³⁸ (p.3), and “therapist contact” (“communication with the assigned therapist”)³⁸ (p.3). Because this schema resonated with the emergent results, it was used herein, although with adaptation, as noted in the following list of category definitions. It is important to note that there is overlap in assigning elements to categories, as subsequently presented. For instance, elements of iCBT “content” (e.g., pace and technological mediation) arguably also could have been represented within another category of iCBT “process.” For the purpose of judiciously presenting this report; however, reviewer judgment was made in assigning such elements to what seemed to be the most appropriate category.

Thematic Categories

Content: This category consists of elements of an iCBT intervention, such as information, exercise, or activity. Content elements identified include: information, design, organization, duration, pace, monitoring, and technology. These content-based areas speak to elemental components of the intervention described as reflective of the experience of participants.

Process: This category consists of patient or professional actions, or other aspects of iCBT that affect its delivery, ability to be understood by the patient and hopeful integration into their lives. This collection of themes seemingly extends beyond what iCBT is; i.e., elements of “content,” to include features that enact utility (or challenge utility) for individuals in terms of how iCBT is felt and experienced. Process elements that emerged were: iCBT

accessibility, convenience, flexibility, privacy and anonymity, “fit,” iCBT work demands, and temporality.

Relationality: This category consists of elements of engagement with a therapist or supporter in iCBT, which has been termed in various ways such as a “blended,” “guided,” or “therapist-assisted Internet-delivered.” Relationality elements typically entailed blended approaches, which by definition, integrated the engagement of a therapist and online activity, exercises, stories, and so forth.

Context: This category consists of elements that situate iCBT experience within its broader context. Contextual elements are both personal (e.g., severity and presentation of condition) and systemic (e.g., accessibility of iCBT [e.g., potential socio-demographic barriers associated with the social determinants of health]).

The following are the elements that emerged within the identified categories.

1. **Content:** The elements include Information, Design, Organization, Duration, and Pace; Tailored Approaches; Communication Features; Relevance; Monitoring; and Technology Mediation

1a. Content: Information, Design, Organization, Duration, and Pace

As a part of core iCBT content, several studies addressed elements that were liked (or disliked) or valued (or not valued), relative to a given iCBT program or intervention.^{15,20,32,36-38,40,42,44-47,50,51,53} While overall experiences are described earlier in this section, participants in some studies reportedly identified specific content elements that were associated with their experiences. Accordingly, the following elements were variably described as salient to content relevance and impact:

- information, content, skills, and strategies^{15,36-38,40,42-44,48,50-53}
- design elements^{15,20,34,36,38-42,44-50,52}
- pace, work demands, and duration^{15,32,37-39,43,44,46-48,50,52,53}
- therapist relationship and support.^{15,20,32,36-39,41,45,47,49-52}

In their review of therapist-assisted iCBT, Hadjistavropoulos et al.³⁸ noted that 45% of user comments reflected content. This domain included perspectives about how information was conveyed, including examples or stories given, design, organization, and lesson length. While participants were generally positive regarding iCBT content, Hadjistavropoulos et al.³⁸ identified participant recommendations for less scripted lessons and repetition, more examples (examples or stories were generally appreciated), additional audiovisual components, a recalibration of informational content (some sought more, some sought less), and additional resource materials. Amid positive feedback, Hadjistavropoulos et al.³⁷ cited participant concern about the “generality of information”³⁷ (p.308).

It is important to note that content findings were mixed as some participants sought change whereas some successfully engaged with design features as they were.^{37,52} Some participants across studies appreciated a range of content and design elements of online programs, including assignments and activities,^{36,38,48} gaming features such as avatar customization or characters,^{40,42} as well as format, messaging, and reminders,^{34,42} challenge completion,⁴⁰ and ease of use.⁴⁰ As an example of component impact on patient experience, Beattie et al.⁵¹ reported beneficial content elements from participants’ perspectives: “the individualized approach and homework (e.g., thought records and mood sheets), which provided them with useful tools to manage their thoughts and emotions” (p.49). Månsson et

al.⁴⁴ described largely positive views about “sharing information and homework over the Internet” (p.9).

Conversely, participant “dislikes” consisted of negatively reported elements such as perceptions of iCBT content as boring,⁴⁰ insufficiently challenging,^{40,42} overly slow,⁴⁰ having non-optimal communicative (talk or writing) presentation,^{40,42,51} and lacking or needing customization or fit.^{40,42} Gerhards et al.³⁶ identified barriers and motivators (experienced with computerized CBT [cCBT]) that reportedly were associated with “course content” and “contextual factors” such as social, computer, and research aspects. In a study on iCBT for anxiety and depression among recent cancer survivors, some participants experienced challenges associated with their level of attention and concentration, and made recommendations for reorganizing lessons into digestible “chunks”; this speaks to the importance of “fit” of content and organization of information relative to the target population.¹⁵ The most commonly identified drawback of therapy identified by Hadjistavropoulos et al.³⁷ related to elements of CBT more than iCBT, including elements related to homework or dislike of some strategies offered.

1b. Content: Tailored Approaches

Tailoring iCBT relative to patient preferences and needs was noted in several studies.^{20,35,36,41,42,49,50,52,53} For instance, instruction length modulation (e.g., long or short versions) and navigating module pace and repeating topics were valued.⁵⁰ In their review of apps, Stawarz et al.⁴⁹ noted that users appreciated when an app could be customized, and some participants in Lucassen et al.’s study⁴² recommended program content with a focus on salient issues and age targets for the given population being served. Providing more direction to users regarding interventional pace was also viewed as beneficial.³⁵ Inviting iCBT users to identify area and activity preferences reportedly encouraged greater user appreciation in that participants felt that their priorities were being addressed, which was thought to encourage honesty and reflection in the therapeutic process.³⁵ Knowles et al.²⁰ described the majority of participants in their study as “recognising the potential benefits but struggling with lack of adaptive content and also with the didactic presentation style within the program. For those participants who reported ambivalent experiences, cCBT was not rejected outright but was considered ineffective without greater external support and frustrating due to the lack of personalization of material within the programme” (p.4).

1c. Content: Communication Features

Studies all addressed issues of communication with the person being treated, but some extended that to other people within and across the community. Walsh et al.⁵² noted participant recommendations of “improvements to the social features of the platform [which] included the development of an online chat forum where participants could discuss in an informal manner their problems with other users of the programme” (p.25). However, Walsh et al.⁵² offered commentary suggesting that interaction among fellow users in online communication risks potential for “unhelpful and negative communication” (p.25). Identified concern and caution regarding user safety was noted.⁵² In their review of CBT apps, Stawarz et al.⁴⁹ identified a forum for users to support each other; however, this feature was described as polarizing with users either strongly liking or disliking it. Emergent in this discussion of communicative and illustrative content, iCBT features such as personal stories were noted and generally valued but also critiqued.^{38,45}

1d. Content: Relevance

The relevance of informational and communicative content was identified in the context of user experience.^{35,38,41,42,44-46,48-50,53} In Lillevoll et al.'s study,⁴¹ participants conveyed more satisfaction with standard CBT content rather than with content that was focused on specific issues. It was noted that “[p]atients could accept some parts of the content being of little relevance to them, as long as they could find other parts that they could learn from” (p.5).⁴¹ In contrast, Walsh et al.⁵² identified a lack of resonance for some participants with module content such as, “the ‘personal’ stories and examples featured in the programme” (p.24). Lillevoll et al.⁴¹ stated that when relevance was lacking, learning was negatively impacted. As illustrated in the previously mentioned examples, targeted content relative to the population, such as consideration for age and developmental level, appeared to improve patient experience.

1e. Content: Monitoring

Walsh et al.⁵² reported perceived benefits for iCBT users in being able to share program material with therapy-based supporters (serving as therapists). Patients perceived sharing program material allowed for personalized and meaningful responses. In Clarke et al.'s study,³⁴ self-monitoring data were offered, and in Walsh et al.'s study,⁵² participants received reviews of their progress from an online supporter that reportedly offered “a sense of achievement and motivation to engage with the programme material” (p.22).⁵² The timeliness, i.e., weekly communication, of therapist feedback to participants on their progress was viewed to support program advancement.⁵² A minority of participants in Alberts et al.'s study¹⁵ sought more direction relative to practice, re-reading of materials and resource access, and several studies noted participants valuing, or desiring more therapist engagement (as discussed in detail in subsequent sections).

1f. Content: Technology Mediation

Technology mediation was referenced in all papers. It was variably presented as an integral component of iCBT relative to therapy accessibility, communication, interaction, or safety.^{34,39,44,48,49,51,52} Internet or computer mediation was reported to contribute to communication (e.g., iCBT homework submission,⁵¹ interactive elements³⁴) and feedback.⁵²

On the other hand, varying technical or comfort level challenges with the iCBT program platform, computer, or the Internet, were identified.^{36,39,40,43,45-48,51,53} Examples of challenges reported in studies included: the need to generate new passwords and uncertainty among users regarding whether homework assignments had been submitted;⁴³ problems with headphones, program passwords, and mobile device applications;³⁹ challenges managing the online tool;⁵⁰ game freezing; inability to save progress; design issues such as graphics, characters being slow, insufficient instructions, some repetition, and restrictions from skipping sections,⁴⁰ excessive text, or talking/narrative,^{40,42,52} and page expiration.⁴⁸ In Lundgren et al.'s sample,⁴³ technology challenges were identified as especially taxing at the beginning of programming, and in Hind et al.'s study,⁵³ health issues among participants induced physical discomfort related to computer use.

Holst et al.³⁹ noted that “[s]everal [participants] highlighted the importance of flawlessly functioning technology since depression means low tolerance for adversity” (p.50). While apps were reported to contribute to mental well-being, Internet service or technology reliability were deemed important, and losing data was noted as “devastating” (p.8).⁴⁹ Technical difficulties were reportedly considered frustrating for some participants,^{36,45} with

varied levels of ease or difficulty in navigating technology, such as in Kuosmanen et al.'s study⁴⁰ in which technical limitations were indicated to have caused frustration among participants. Frustration with technology, coupled with content or form challenges and mood issues, were noted to increase the risk of disengagement.⁴⁰

Use of technology or computers in one's daily work life was also identified as a potential barrier to iCBT engagement as a result of "technology fatigue" (as termed by Donkin et al.³⁵ [p.5]).^{35,48}

2. Process: The following elements comprise Accessibility, Convenience, Flexibility, Privacy, Anonymity, Personal Considerations, Engagement in Therapeutic Elements of iCBT, Work or Engagement Demands on Participants, and Temporality

2a. Process: Accessibility, Convenience, and Flexibility

Generally, studies identified user perceptions about the benefits of flexibility and accessibility in iCBT.^{15,20,34-41,43-46,48-53} Several studies referenced participants accessing iCBT from their home,^{15,36,39,48,51,53} which generally was seen as advantageous. Some participants in Clarke et al.'s study³⁴ linked program flexibility with structure and self-guidance; i.e., choice related to modules and monitoring. In reviewing user perspectives in CBT apps, Stawarz et al.⁴⁹ noted that users generally appreciated apps that supported mental health/well-being, and some made comparison to "therapy sessions at the tip of their fingers" (p.7). Exemplifying a positive perspective, a participant in Schneider et al.'s study⁴⁸ noted resonance with the computer stating, "[i]t gives you a sense that you're not really having a real mental health issue when using your PC online at home, as it's very relaxed etc, whereas visiting a health center would probably bring home the notion that you are actually having a real problem" (p.7).

Alberts et al.¹⁵ identified the convenience and accessibility of iCBT for rural dwellers (although it must be noted that this reflected a service provider perspective, which is not the focus of this review). Kuosmanen et al.⁴⁰ noted the accessibility and familiarity of computer use for young people, and Clarke et al.³⁴ identified the option of using a mobile device as advantageous, although some participants in that study identified limits of the smaller screen and poorer connectivity.

Despite positive elements of computer mediation, several studies reported accessibility or privacy challenges for some users.^{36,39,40,49,51,52} For instance, a minority of participants in Alberts et al.'s study¹⁵ sought or desired more program flexibility, and almost half of the participants in Urech et al.'s study⁵⁰ identified limited program or tool flexibility as a disadvantage.

2b. Process: Privacy and Anonymity

As both important yet also distinct elements, perceptions of privacy (i.e., keeping information to oneself) and anonymity (i.e., keeping one's identity in confidence) were perceived to be offered by iCBT and were valued by some participants across studies.^{15,20,34,39,46,48,49,51}

These elements were viewed by some to support opportunity, commitment, and depth of engagement.^{34,51} Alberts et al.¹⁵ and Kuosmanen et al.⁴⁰ identified an affinity for iCBT among individuals who were private or reserved. Walsh et al.⁵² further noted that for individuals with anxiety issues, the perceived privacy of therapy administered online was appealing if users did not want to, or could not, attend face-to-face therapy. They further stated that, "the disinhibiting effect of not being seen in person enabled participants to access and explore their thoughts in an open and unguarded manner" (p.26).⁵² Holst et al.³⁹

stated that most participants in their study desired iCBT engagement in private. In contrast, Schneider et al.⁴⁸ identified some who disliked what they called “the impersonal nature of the online approach” (p.7) versus those previously mentioned, who preferred an indirect approach due to factors such as shyness, fear of judgment, embarrassment, or not wanting to convey difficult circumstances or issues in person. It is important to recall that privacy and anonymity are constructs that were variably presented distinctively, but should not be conflated.

2c. Process: Personal Considerations

In various studies, considerations or characteristics of “the individual” were reported as salient. Walsh et al.⁵² stated that the working or learning style and personal characteristics of patients, in part, had a bearing on the suitability of Internet-based therapy. Patients reportedly presented a range of preferences related to writing or keyboarding or talking.^{37,40,51} For individuals who reportedly liked to read or re-read and reflect, an online approach to therapy was noted to offer resonance,^{36,51} or as stated by Månsson et al.,⁴⁴ an advantage of iCBT was the ability for patients to “return to previous assignments and reflect on their experience of change, which was perceived as motivating” (p.9). Lundgren et al.⁴³ noted that participants identified that the iCBT program that they reviewed required “work, learning and reflection from them, and working via the Internet allowed them to take the time needed” (p.940).

Personal attributes were also identified as bearing on the potential for people to engage, or not, with iCBT (e.g., discomfort with self-exposure,⁵² and difficulty using words for self-expression⁵¹). Richards et al.⁴⁵ identified “internal factors” (p.43) as a “hindering event,” (p.43) and Donkin et al.³⁵ reported that patient motivation to engage in programs reflected both intrinsic and extrinsic considerations. Bendelin et al.³³ highlighted person-based “change or action processes”; they identified three distinct categories of treatment participants: “readers,” “strivers,” and “doers.” “Readers” were described as participants who gain awareness via reading iCBT material as the “main theme in their accounts of how they worked with the treatment material” (p.4).³³ These individuals were described to be unable, or to not wish, to apply gained insights or learnings into daily practice.³³ In contrast, “strivers” were described as reading and engaging with material (e.g., homework completion), yet expressed ambivalence, sometimes skepticism, in terms of applying insights, which in turn was described to render them unable to benefit from treatment as fully as they otherwise might. “Doers” were described as applying and integrating insights from learning to practice. Bendelin et al.³³ described the value to some “doers” of “facing difficulties and confronting challenges in treatment” (p.5).

Elements that appeared relevant to participants’ ability to engage with iCBT, according to Bendelin et al.,³³ included personal or user motivation to engage in therapy in general. “Readers” were limited in their ability to engage with iCBT by a perceived lack of support from the intervention, with some identifying the intervention as an added burden and their lack of time as a barrier to treatment. “Readers” and “strivers” were reported to desire more contact with a supporter (e.g., therapist). “Strivers” were noted to identify support, but perceive a need for more conversation to gain understanding about their problem and overcome treatment barriers. Demands of therapists were viewed by some as too great, and rather than being motivated by treatment, they reportedly seemed driven by duty.

In contrast to “readers” and “strivers,” “doers” were described to view therapy as support, to value self-responsibility and working in treatment, and to appreciate “a security backup system in the treatment program” (p.7),³³ with some identifying improvement as the impetus

for decreasing or ending treatment. Bendelin et al.³³ identified varying individual attitudes toward treatment, and levels of affinity versus skepticism in engaging in Internet-based self-help. For “doers,” the usefulness of treatment was recognized, and Internet mediation was valued; several “doers” appreciated independence in treatment, with some suggesting that they did not need face-to-face contact with a therapist.

Like others, this review identified a variation of patient experiences of iCBT, ranging from individual disappointment due to a lack of treatment impact to a recognition of beneficial impact. Bendelin et al.³³ differentiated user views of impact, with “readers” described to experience a lack of treatment effect, which was linked to feeling “lonely, shameful and disappointed” (p.7). “Strivers” reportedly experienced insight and encouragement to revise their perception of depression and themselves, with the hope of more therapy, whereas “doers” reportedly experienced greater insight as well as skill development and practice. Positively addressing depression was reported to nurture personal belief in the ability of “doers” to navigate eventual relapse, and their acceptance of self and eventual times of again feeling depressed.³³

2d. Process: Engagement in Therapeutic Elements of iCBT

Participants in Beattie et al.’s study⁵¹ reported an iCBT program feature of communicating feelings via writing about them. The therapeutic process reportedly was supported by a sense of relational anonymity, with those who withdrew from therapy frequently finding it challenging to use “words to express themselves” (p.54).⁵¹ However, it was further noted that the majority of participants (particularly those who did not withdraw from therapy) perceived themselves as being able to express themselves online.⁵¹ Hadjistavropoulos et al.³⁷ noted that some participants identified difficulty opening up about concerns in writing to their therapist. Yet, Holst et al.³⁹ stated that “to write down thoughts by the computer was a good alternative to a personal relationship, although most informants lacked a regular human contact and lacked having a relationship to a therapist” (p.48), with participants across several studies variably desiring and appreciating interaction with a therapist (as discussed in detail in subsequent sections).

2e. Process: Work or Engagement Demands on Participants

Insufficient time or extensive work demands or tasks required of iCBT interventions were noted across studies.^{15,32,35,38,39,43-48,50,52} For example, Lundgren et al.⁴³ cited substantial reading and work (reported about three hours/week at the computer, with one participant estimating 10 hours working and practicing per module). In Månsson’s review,⁴⁴ several participants reported “the treatment duration as longer and more extensive than they had expected...” (p.9), and just over a third of participants in Kuosmanen et al.’s study⁴⁰ felt the modules were overly lengthy. In Alberts et al.’s study¹⁵ on iCBT for recent cancer survivors, breaking up lessons was recommended, given the reported volume of information and attention difficulties of participants.

Challenges in finding time to engage in iCBT and competing priorities were reported to sometimes impede participation.^{15,32,35,38,45,48,50,52,53} Walsh et al.⁵² noted in their sample of university students that “exam preparation and assignment deadlines were identified as significant barriers to program completion and contributed to user attrition” (p.23). In another sample of patients with multiple sclerosis, Hind et al.⁵³ reported that no participants had completed more than half of their homework assignments, with many having completed none. Barriers included health-related challenges such as fatigue and practical challenges, including employment, record keeping logistics, and poor memory reportedly associated with

multiple sclerosis.⁵³ Clarke et al.³⁴ reported that some participants felt “extra pressure” (p.9) when receiving program feedback about module progress.

While Holst et al.³⁹ stated, on the one hand, “iCBT was perceived as accessible and effective”(p.49) and “[participants] felt relaxed by not having scheduled appointments”(p.49), they also stated that, “(m)any patients felt stressed by the iCBT and that it required too much from them. They felt left alone, with a too heavy responsibility lying on them for the progress of the iCBT. It was easier to sneak out than to tackle the tasks. Maintaining the discipline was difficult” (p.49). Yet in contrast, Holst et al.³⁹ further stated, “[t]he self-responsibility felt stimulating, since it signified the ability to influence [their] own health. The iCBT felt meaningful and was seen as an easy way to get into [a] better mood” (p.49).

2f. Process: Temporality

Aspects of time or temporality associated with iCBT were reportedly a part of patients’ experiences.^{34,35,38,39,43-48,50,52} As an example, time delays associated with writing or keyboarding and waiting for responses via online or written communication from a therapist or supporter were viewed as variably helpful or non-helpful.^{47,51,52} Some participants needed more time for assignments or to assimilate knowledge.^{38,39,47}

While some participants reportedly navigated and appreciated time lags relative to fostering meaningful dialogue, others less familiar with computers reported this approach or time delay in terms such as, “restrictive and frustrating,”(p.55)⁵¹ with some feeling like communication was reduced, including challenges for those who were less able typists relative to speaking.⁵¹ Time delays were reported, for some, to result in decreased concentration, distraction, or worry about what they had articulated.⁵¹ Time delays also led some participants to withdraw from therapy due to frustration and a feeling of being left in limbo. For example, some participants who reportedly left treatment for this reason felt that they had just begun to address deeper concerns, “quite far into a session, because of the response time on both sides” (p.55).⁵¹ Of additional concern, some found waiting for a response from their therapist as “being ‘left in limbo’”(p.55),⁵¹ and therapy was experienced, “as more superficial, less ‘intense’ and less helpful as a result” (p.55).⁵¹ For some participants in various studies,^{37,41,51} face-to-face therapy was preferred or desired by some participants, and Urech et al.⁵⁰ identified the challenge for a limited number of program participants who reported being unable to contact the therapist between face-to-face sessions.

For those who viewed communication delays of asynchronous iCBT positively, the additional time required to formulate or type a response appeared to be viewed by some as offering opportunity for reflection, encouraging new ways of thinking, and otherwise appealing or helpful.^{44,48,51,52} Some participants acknowledged benefits of reflecting and formulating via written text, with Beattie et al.⁵¹ noting a benefit: “having no scope for verbal interruption by the therapist gave patients space to communicate without the disruption of further questions, as might be more likely face-to-face” (p.55).

Temporality was also noted in terms of gaining confidence with iCBT over time and program implementation,³⁴ with identified needs for continuity, more of an introduction to iCBT, checking in or support in moving forward, a closing meeting, and evaluation.³⁹ Engaging at one’s own pace^{35,37,39,43} was valued, including referring back to content.³⁵ While flexibility was valued by some relative to iCBT,^{15,35,39,40,43} others found the tight time schedule and lack of flexibility to be challenging.^{15,32,45,47,50}

3. Context: Personal, Systemic and Population-Based Considerations: The following elements comprise (a) Personal Context: Severity or Presentation of Condition, and (b) Systemic and Population-Based Context: Accessibility, Affordability, and Stigma

Several studies addressed a range of contextual issues, both personal and broader (systemic and population-based), that were thought to potentially have a bearing on patient experience, as subsequently outlined.

3a. Context: Personal (Severity or Presentation of Condition)

The personal and health context of the patient, i.e., condition severity and presentation, related to patient experience of iCBT. For instance, safety and monitoring issues were noted across studies, with several studies reflecting on the suitability of iCBT relative to patient presentation or condition.^{15,37,39,40} Beyond specific mental health issues, physical and experiential barriers, such as illness challenge, concentration difficulty, apathy, mood, lack of motivation, discomfort writing, fatigue, and pain, were described to impede program completion and impose treatment obstacles.^{15,33,35,37-39,48,53}

Several papers noted risk of iCBT for individuals based on the severity of their condition. Participants in Knowles et al.'s study,²⁰ for instance, identified heightened risk for patients engaging in iCBT during severe episodes and cautioned "that the programme could be experienced as reflecting back their illness at them and that failure to cope with the demands of the programme could worsen the condition of already vulnerable patients" (p.6). Knowles et al.²⁰ indicated "how difficult therapy can be, with...demands exacerbated in self-help therapies where they must be managed solely by the patient" (p.6).

Hadjistavropoulos et al.³⁷ found that some participants felt that substantial motivation was a requisite for treatment. In the context of an alternative education environment, Kuosmanen et al.⁴⁰ identified differences in program rating and relevance, based on depression severity. They stated, "[t]hose being at risk of depression (SMFQ [Short Moods and Feelings Questionnaire] score between 5 and 10) rated the program more positively on almost all the items of the implementation questionnaire compared to those with no symptoms and those with clinical levels of symptoms of depression. The majority (71.0%) of those who were at risk of depression agreed that the program was personally relevant, compared to 30.0% of those with no symptoms and 42.0% of those with clinical symptoms of depression. Furthermore, more participants in the 'at risk' category reported the program useful or worth doing (57.0% vs. 30.0% of those with no symptoms and 28.0% of those with clinical symptoms)" (p.180).⁴⁰

While program flexibility was valued across studies, Knowles et al.²⁰ reported that patients noted "that the flexibility of cCBT could be a barrier to using it given the low motivation experienced by many people with depression and suggested that follow-up or monitoring may have improved adherence" (p.7). Urech et al.⁵⁰ examined advantages and disadvantages of iCBT (specifically, blended CBT) relative to depression severity. They reported that different interventional aspects appeared to be of varying relevance, depending on level of severity such that patients with mild-to-moderate depression (scores of 5 to 14 on the Patient Health Questionnaire-9 [PHQ-9])^{54,55} valued the opportunity to engage with a therapist in addressing the program: "the possibility to monitor their improvement (e.g., mood or depression symptomatology) themselves, to reflect on their progress and to have the opportunity for further advice on the online tool as well as the perceived treatment efficacy regarding symptom improvement. No disadvantages were stated in this group of patients" (p.9).⁵⁰ Patients experiencing moderately severe-to-severe

depression (PHQ-9 scores of 15 to 27) valued opportunities for face-to-face engagement and feedback and monitoring from a therapist, as well as the online tool, as a support. Identified disadvantages included the lack of possibility for additional online engagement and the requirement of computer skill competency among users.⁵⁰

Holst et al.³⁹ reported that “[t]he majority of the patients perceived that iCBT can be effective if given to the right patient. They stressed that deeply depressed patients should not be assigned this kind of treatment since there is a need for enough strength to pursue the iCBT process... It was risky sending a person away with iCBT; they experienced a great risk that someone could crash in solitude, without healthcare taking notice” (p.49).³⁹ High anxiety, low mood, and low energy were reportedly thought to heighten risk for low or lower program engagement.^{15,35,38}

3b. Context: Systemic and Population-Based Considerations

Systemic and population-based context elements were identified relative to iCBT experience for patients. For instance, personal- or broader-level affordability challenges in patients accessing care was identified,^{41,49,52} to which an iCBT resource was posited to offer a less or non cost-prohibitive resource. Expectations of patients with regards to finding general practitioners to address depression were reported as low; hence, participants “were pleased to be offered a course of qualified therapy universally available online at no cost” (p.5) (based on the MoodGYM program offered in a Norwegian study).⁴¹ Yet Holst et al.³⁹ postulated that if a patient were to perceive that their condition was not being taken seriously by assigning them to iCBT, this risked decreased confidence in iCBT: “[s]ome felt offended by being offered iCBT and that it indicated that they were not a priority. The perception of not being taken seriously, as being one in a pile of depressed individuals offered a panacea, led to little confidence in iCBT” (p.49). Hadjistavropoulos et al.³⁷ reported that some participants preferred iCBT even if face-to-face treatment was available for reasons such as mental health treatment access challenges, time issues, rurality or remoteness, and stigma — all largely systemic and discursive issues. Walsh et al.⁵² and Alberts et al.¹⁵ similarly identified stigma associated with seeking mental health services, and Holst et al.³⁹ noted that some patients in iCBT experienced feelings of shame.

Differences in participant access to and experience of iCBT were noted relative to the social determinants of health. Kuosmanen et al.⁴⁰ found a proportional difference between males and females in terms of the appeal of a reviewed iCBT program, ease of understanding the language within the program, the lessons making sense to users, and personal relevance. However, it is important to note that this sample consisted of only 28 participants. Beattie et al.⁵¹ found “no strongly discernable patterns within the data regarding a relationship between participants’ socio-demographic backgrounds and their expectations and experiences of online CBT” (p.49). However, as addressed earlier, rural dwellers were recognized to potentially have more access to therapy via Internet access as a function of iCBT.¹⁵ Also, studies illustrated participants for whom online engagement was more challenging and who may have withdrawn or not perceived therapeutic benefit. In such instances, there is concern that low computer literacy, particularly without technical support, may amplify inequitable access to meaningful engagement in iCBT among some patient population cohorts.

- 4. Relationality:** The range of studies seemingly distinguished: (1) self-administered iCBT that substantially did not include therapist relationships, and (2) blended or guided (therapist-mediated) iCBT approaches in which interaction with a therapist or “supporter” (supervised by a therapist) generally offered guidance, support, and

monitoring, typically along with online modules. The following is a discussion of blended approaches and varying experiences.

4a. *Relationality: Blended Approaches*

Numerous studies noted therapist or supporter engagement.^{15,32,37-39,41,44,45,49-52} Studies that reviewed blended iCBT (or a preponderance of this approach within a given study) are briefly summarized in Table 2.

Studies offered a range of approaches and experiences associated with therapist support within iCBT, with value variably placed on patient engagement with a therapist or supporter.^{15,20,32,35-39,41,45,49-52} Participants ranged in terms of feeling connected and supported versus feeling unsupported, or in Urech et al.'s words,⁵⁰ which reflected a small minority of their sample, "left alone with the programme regarding issues such as usage or technical problems, but also regarding the therapists' lack of involvement in the process and lack of awareness of patients' activities in the programme" (p.6). On balance, it seems that participants generally appreciated and desired therapist support.^{15,20,32,37-39,41,44,45,49-53} Satisfaction with the extent and nature of contact varied and in some cases, some participants preferred or sought face-to-face (or more face-to-face) interaction.^{20,32,39,41,51}

Examples of Beneficial Experiences of Blended iCBT

For a proportion of participants in various studies, regular contact and a relational approach of a therapist or supporter generally appeared to be valued by participants,^{15,20,32,33,37-39,41,44,45,49-52} as was other iCBT content (e.g., assignments, applications, skills learned, homework, activities, and stories)^{15,38,49-52} Identified benefits included: increased knowledge about or focus on the online work,¹⁵ intervention efficiency,⁵⁰ and advancing content to understanding.⁴¹

Examples of Mixed Experiences of Blended Approaches

Hadjistavropoulos et al.³⁸ reported that in the domain of therapist-based engagement, almost half (46%) of the participants' comments were about the quality and "sense" of their relationship with the therapist, which reportedly were mixed. Some participants identified strengths relating to shared communication as well as "appreciating consultation, access, support and encouragement" (p.4). On the other hand, confusion regarding the therapist's role was noted by some participants in Hadjistavropoulos et al.'s study,³⁸ as was a desire for increased connection or personal engagement in emails, with recommendations for improvement such as more therapist "direction, depth and support"(p.4) (also noted by Hadjistavropoulos et al.³⁷ and Hovland et al.³²). For some participants within several reviewed studies, a meaningful online relationship reportedly did not emerge, with some participants remaining in therapy, but others reportedly withdrawing and not experiencing benefit.⁵¹ Examples of reported experiential challenges for participants in their engagement with the therapist were: stress,³⁹ therapist focus on technical or practical matters,³⁹ perception of control loss,³⁹ access not sufficient,^{39,51} access not consistent,³⁹ insufficient direction,¹⁵ difficulty writing comments to the therapist,³⁷ concern about content and/or feedback,⁴⁶ challenge with the length of contact with the therapist,⁵⁰ difficulty contacting, or engaging with, the therapist,⁵⁰ and a non user-friendly or complicated asynchronous approach.⁴⁶ Lillevoll et al.⁴¹ identified participants' need to freely engage and reveal personal issues, "without fear of judgment" (p.5). They further reported participant appreciation for "appropriate verbal communication" (p.5) and therapist professionalism.⁴¹

4b. Relationality: Contrasting Online Program and Therapist Support

Richards et al.⁴⁶ contrasted (1) therapist-delivered asynchronous email CBT (eCBT) that included engagement with a therapist and online intervention (Beating the Blues™ [text version]) with (2) computerized self-administered online intervention (cCBT) (Beating the Blues™) for depression symptoms among college students. Beyond quantitatively ranking the intervention (beyond the scope of this review), participants qualitatively were asked what they most and least liked about the respective online interventions. Both groups (eCBT and cCBT) indicated valuing personal control over their treatment. eCBT group participants reportedly indicated that the anonymity of that approach was “most liked.” cCBT was identified by users to be user-friendly and engaging, with eCBT reportedly viewed by users as less engaging and less user-friendly. cCBT users appreciated the array of CBT approaches offered.⁴⁶ Elements disliked about both approaches were participant perceptions of the intervention as complicated and impersonal, and requiring extensive work on the part of users. Users in the eCBT group least liked a perceived lack of definitive deadlines, whereas the cCBT group identified the most disliked items as periodic instances in which user needs were not matched by the treatment, as well as technical challenges and components of delivery identified as potentially “irritating” (p.198).⁴⁶ The cCBT group reportedly identified more “disliked items” than were reported by the eCBT group; yet, each approach had “liked” and “disliked” components.⁴⁶ Walsh et al.⁵² offered the following position, based on their review: “It seems that active CBT treatment components delivered alongside the support provided are key to the success of Internet-delivered interventions... And as already stated the supporter or human elements cannot be ignored as a key aspect in the successful delivery of Internet-delivered treatments” (p.23).

Discussion

Key Elements of Patients’ Perspectives and Experiences

This review reflects a wide range of studies that describe the experiences of iCBT users with conditions of MDD and/or anxiety. Examples of reported considerations include the importance of “fit” in iCBT for a patient’s mental health needs, as well as engagement and learning styles and other salient factors related to the individual and the therapeutic process. As mentioned earlier, Beattie et al.⁵¹ noted that patient perception of iCBT impact may be layered, including a perception of interventional benefits amid other coexisting considerations, such as changing life circumstances or antidepressant medication. Overall, there was general support for the availability of therapist engagement in complementing online programming for iCBT.

Considerations for user-friendly content and processes that are salient for, and engaging to, iCBT users were identified in the literature. Studies also endorse interventional relevance for a given user or patient, support and monitoring, and tailoring relative to patient need and situational nuance. The need for careful consideration of risk and interventional fit is noted, especially in cases of severe conditions, as iCBT may be ill-suited in these cases. Accordingly, these findings highlight the need for intervention that is commensurate with individual need.

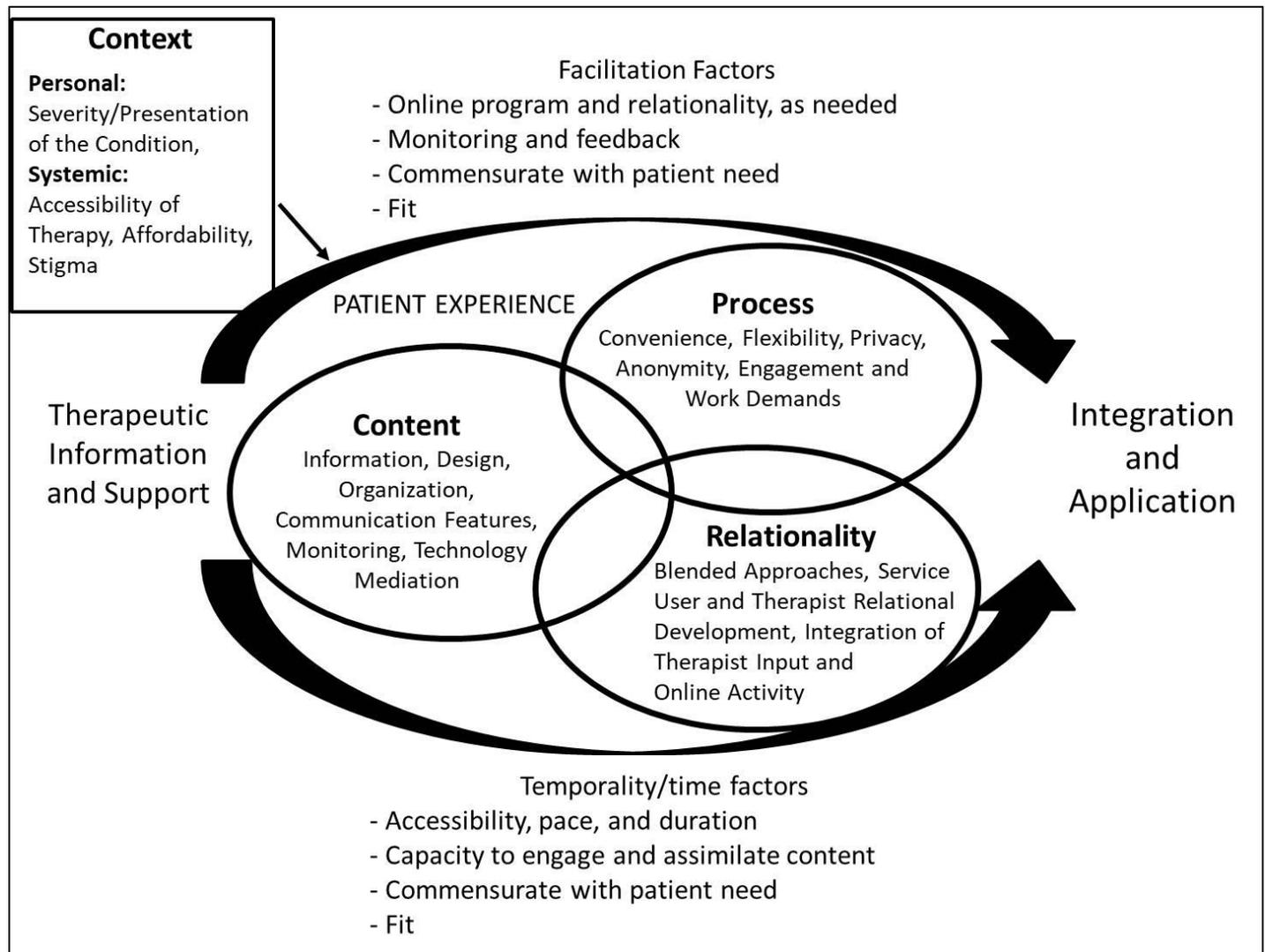
The presentation of content, process, and relationality were noted to be central to patients’ experience of iCBT, with a range of strengths or opportunities and challenges or barriers for users. While recognizing the merit of treatment efficiencies for greater interventional access, a “one-size-fits-all” modular or programmatic orientation of iCBT generally was discouraged,

given variability across patient experience, need, circumstance, and preference. Therapist support generally was valued, as opposed to user independence and “self-responsibility” in therapy; however, some appreciated the flexibility and self-efficacy afforded through self-mediation in iCBT.³³ The balance here seems to sway toward blended and tailored approaches.^{15,38,41,47} Bendelin et al.³³ postulated the potential for varying support as warranted by the specific case, perhaps with options for additional layers of support as needed or desired by the patient.

In the discussion of their findings, Rozental et al.⁴⁷ posited steps forward, such as, “identifying negative effects that can be prevented by modifying the delivery of interventions via the Internet, such as adding a degree of flexibility to the treatment program, enhancing communication with a therapist, and prolonging the duration of treatment” (p.230). Such definitive suggestions for enhancing patient experience lie beyond the scope of this report, and invite continued research and development in the field. Considering elements of experience, as they reflect iCBT specifically or CBT more generally, need to be considered.

This review reflected varied and contrasting findings. Generally, reported experiences reflected a wide range of perspectives, both positive and negative (e.g., flexibility as a strength, yet limiting interventional experience). Within what emerged as a wide experiential spectrum (as presented in reviewed studies), core elements generally seemed to locate iCBT as a resource offering patients therapeutic information and support in the aim of integration and application for therapeutic gain and patient well-being. As illustrated in Figure 1, this process of advancing information and support to integration and application appeared to be linked with intervention-related elements of facilitation (e.g., online program and relationality, as needed; monitoring and feedback) and temporality or time factors (e.g., accessibility, pace and duration; capacity to engage and assimilate content, again with this being commensurate to patient need). Seeking person-centred “fit” of intervention relative to these elements warrants tailored service-level planning and implementation, which invites consideration of elements associated with interventional content, process, relationality, and context.

Figure 1: Elements of Patient Experience in iCBT



Given the variation of experiences, preferences, and challenges of iCBT (and CBT) for participants, as summarized in this review of the literature, continued strategies that support optimal person-centred care and careful assessment of patient need are desired.

While not a predominant aim of this review nor a preeminent focus within the reviewed papers, it is important to locate this literature within its systemic context of insufficient societal resources relative to population-based mental health needs. Continued critical reflection on the need for services in an adequately funded mental health care system, within which iCBT is embedded, invites sufficient resources to address the range of patient needs and proactivity in improving experiences and outcomes for service users.

Considering the critical risks to safety (e.g., suicidality) in this field, Hadjistavropoulos et al.³⁷ offer instructive and ethical reflection by asserting that “as with face-to-face therapy, patients receiving iCBT services can become at risk of suicide even if risk at the time of screening

was assessed as low” (p.306). According to the authors, evidence-based assessment, monitoring, and support — indeed proactivity in care — are recommended in optimizing patient safety and well-being.³⁷ This recommendation by the authors amplifies important ethical, practical, and experiential considerations in the advancement of well-being, risk reduction, and patient experiences and outcomes.

Limitations

As with all reviews, this review is not without limitations. First, how diagnostic details (e.g., condition severity) were reported varied widely across studies. The heterogeneity in diagnostic details (documented or not) likely expanded the range of condition severity incorporated into this review beyond mild or moderate MDD and anxiety.

Second, a range of terms and definitions across studies may have distorted understanding and interpretation. As an example, various terms were used, sometimes with a lack of clarity or precision, to describe iCBT (e.g., “computerized,” “Internet-mediated,” “blended,” or “email” CBT). As a point of clarity in this example, we sought to exclude all studies that did not integrate Internet mediation in CBT delivery.

Third, we only included qualitative studies or components of studies that focused on patient or user experience. In most reviewed studies, other methods (and data collection processes) were undertaken within the overall study design. This range of methodologic approaches and datasets within a single study or paper may have introduced ambiguity in findings presentation or interpretation. Our focus only on the qualitative and first-person experiential data within broader studies may have limited a more fulsome understanding of the overall results of a given study. Relatedly, our focus on patient or user experiences precluded an examination of the experiences of family members who in many cases may care for and support their loved ones with a mental health condition. Such perspectives could provide insight into the development of iCBT programs and supportive services; however, were outside the scope of this review.

Fourth, reviewed studies included patients, in limited instances, who were as young as 13 years of age (as previously noted and explained); however, the conclusions generally refer to individuals 16 years of age and older. This limitation identifies some inconsistency in the descriptions and focus within papers and thus, in this review. This challenge identifies potential distinctions to be drawn in future research or HTAs based on age (e.g., adolescents and young adults versus older adults) with respect to iCBT.

Fifth, conducting meaningful quality appraisal was challenging. While the strengths and challenges associated with each study have been briefly outlined in this review, the reality that most included studies contained mixed methods rather than purely qualitative designs may reflect a general lack of detailed methodological (qualitative inquiry) documentation. This, in part, could be due to tighter word restrictions dictated by the journals relative to describing multiple methods. Nonetheless, limited descriptive detail generally surrounding the qualitative aspects of these studies made it difficult to assure a meaningful quality appraisal.

Finally, reviewed articles generally lacked sample or contextual details related to the social determinants of health. Further exploration of patient experience across such population factors and social strata seems critically important. Moreover, it must be noted that patient experiences reported in studies generally reflected samples of individuals who had participated in an iCBT intervention (within the reviewed studies). Accordingly, there is a lack

of detail related to those who may have been systematically excluded from participation (e.g., those without computer access, those who lack linguistic proficiency in the language of the intervention, those with cognitive issues that precluded engagement in a CBT intervention). Further consideration of the range of individuals within this population is warranted.

Conclusions

This review offers a synthesis and interpretation of the literature depicting patients' experiences of iCBT for depression and anxiety. Though the literature generally supports the use of iCBT for these indications, assuming a one-size-fits-all model would neglect the importance of tailoring emphasized within participant experiences. Participants' considerations on what counted as supportive processes, appropriate content, or even adequate levels of therapist engagement varied throughout and seem difficult to align within a single intervention or approach to iCBT. As such, policy choices regarding the use of iCBT for depression and anxiety may be more useful if they afford a malleable approach rather than one that is prescriptive and universal.

Implementation Issues

Study Design

A survey and a literature review were conducted to address the following research questions:

- What Internet-delivered cognitive behavioural therapy programs have been established to treat patients with major depressive disorder or anxiety disorders?
- What are the enablers (facilitators) and barriers to the implementation and uptake of Internet-delivered cognitive behavioural therapy?
- What strategies (including quality improvement frameworks) have been used to facilitate the implementation of Internet-delivered cognitive behavioural therapy?

Methods

Data Collection

Data Sources

The report draws on information from a survey (i.e., the CADTH Environmental Scan report titled *Internet-Delivered Cognitive Behavioural Therapy for Major Depressive Disorder and Anxiety Disorders*)²³ and a literature review of published information.

Survey Methods

The Environmental Scan report contains an analysis of results of a survey of Canadian stakeholders. CADTH's Implementation Support and Knowledge Mobilization Officers identified potential participants for the survey with the goal to obtain a sample that was representative of the range of health care professionals who are involved in the delivery of iCBT across Canadian provinces and territories. Targeted participants included family physicians, psychologists, psychiatrists, nurses, social workers, other mental health professionals, information management professionals, online platform developers, and

administrators of health care facilities across Canada. Individual consultations were not conducted.

In the survey, both closed- and open-ended questions were used to elicit quantitative information, as well as qualitative perspectives of stakeholders on implementation of iCBT in Canada. A draft of the survey was pilot tested by three mental health professionals. Edits were made according to feedback regarding the format and content of the questions before distributing a link to the survey to potential respondents by email. The survey was administered using the Hosted in Canada Surveys online platform.

Literature Search Methods

In parallel with the survey, a literature review of published information on enablers and barriers to implementation of iCBT for adults with MDD or anxiety disorders was conducted. A targeted literature search was performed by an information specialist using a peer-reviewed search strategy. Information related to implementation enablers and barriers was identified by searching the following bibliographic databases: MEDLINE (1946–) with in-process records and daily updates via Ovid; PsycINFO (1806–) via Ovid; The Cochrane Library (2018, Issue 2) via Wiley; Cumulative Index to Nursing and Allied Health Literature (CINAHL) (1981–) via EBSCO; and PubMed. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were iCBT and depressive or anxiety disorders.

A methodological filter was applied to limit retrieval to studies relevant to evaluations of previously implemented programs and general implementation issues. No date limit was applied. The search was limited to English-language publications.

The initial searches were completed in April 2018. Regular alerts were established to update the searches until the publication of the final report. Regular search updates were performed on databases that did not provide alert services. Studies identified in the alerts that met the selection criteria of the review were incorporated into the review if they were identified prior to the completion of the stakeholder feedback period of the final report and offered new analytical insight.

Grey literature (literature that is not commercially published) was identified by searching sources included in the *Grey Matters* checklist (<https://www.cadth.ca/grey-matters>), which includes the websites of HTA agencies, clinical guideline repositories, SR repositories, and professional associations. Google was used to search for additional Web-based materials. These searches were supplemented by reviewing the bibliographies of key papers.

Study Selection Criteria

Primary studies, reviews, and reports that provided descriptions of existing programs explored the range of strategies used to establish those programs, and that identified enablers or barriers to implementing any Internet-based intervention encompassing iCBT for adult patients (aged 16 years or older) outside the hospital setting and in any country were eligible for inclusion. While the review focused on patients with MDD and anxiety, information relevant to patients with any mental health condition was considered when it was apparent that the factors affecting implementation of iCBT were generalizable to patients with another mental health condition. Reports on patients' or providers' preferences and experiences regarding factors that were relevant to implementation were included.

Reports were excluded if their focus was not on the enablers and barriers to implementing iCBT or if they focused on patients younger than 16 years of age. Reports on non-traditional CBT (e.g., mindfulness CBT), CBT that is delivered via bibliotherapy, or CBT that is described as computerized (e.g., CD-ROM) when it was clear that there was no Internet component were excluded. Case reports of individual patient experiences, abstracts, and conference papers were also excluded.

Study Selection Method

Two reviewers independently screened titles and abstracts from the results of the literature searches. Reports selected by either of the reviewers were retrieved for full-text screening. Both reviewers then independently conducted full-text screening for inclusion and exclusion. Differences were resolved through discussion. The list of reports labelled for inclusion was posted online for 10 business days for review by external stakeholders. Stakeholders were asked to submit feedback and additional publications for consideration.

Data Extraction

One reviewer extracted information from the results of the survey. Another reviewer independently extracted descriptive article characteristics (such as first author's name, year of publication, and setting) and findings relevant to the implementation of iCBT for psychological conditions with a focus on MDD and anxiety disorders from the included articles.

Data Analysis

Descriptive Analysis

The reviewers used the Context and Implementation of Complex Interventions (CICI) framework from the INTEGRATE-HTA guidance to develop the summary of the data on facilitators and barriers.⁵⁶ The CICI framework provides a structure for conceptualizing, assessing, and documenting the relevant interacting domains of context and implementation of a health technology.⁵⁶ The domains of context that were used for the data analysis were setting, geographical, epidemiological, socio-cultural, socio-economic, legal, and political issues. The domains of implementation were provider, organization and structure, funding, and policy.⁵⁶ A new domain, intervention, was introduced to document aspects or design features of the technology that affected implementation.⁵⁷ In cases where data fit in more than one of these domains, appropriate categorization (applying more than one domain) was followed. Two researchers reviewed the coding assignments from the survey that were made by the primary researcher.

Data Triangulation

Through a triangulation process, concepts that emerged from the survey were compared with those that emerged from the literature. Agreements and contradictions between the survey and the literature were documented.

Perspective

When analyzing data, the items coded and summaries written are those most relevant to the research questions at the health services delivery level. The strategies for enhancing implementation refer to the operational requirements that should be in place or could be used to help facilitate the effective implementation and sustainability of iCBT programs.

Results

Survey Respondents

Following the removal of duplicates and one response from outside of Canada, a total of 24 survey responses were received. Eight out of 24 were partially complete.²³ Seven responses were submitted from Ontario, four from Nova Scotia, three from Manitoba, two each from British Columbia, Newfoundland and Labrador, Quebec, and Saskatchewan, and one each from Alberta, New Brunswick, and Prince Edward Island.²³ Only feedback from respondents who gave consent to use their survey information for the purpose of this report are included in the review.²³

Literature Sources

The primary literature search produced 1,809 articles. Five subsequent alert searches yielded 105 articles. This report incorporates information from 29 articles, including nine reviews and 20 primary studies. Sixteen of the primary studies derived qualitative and quantitative data from interviews,^{15,20} focus groups sessions,⁵⁸ or surveys^{18,19,59-66} of patients, and interviews^{15,57} or surveys^{17,64,67} of health care practitioners or researchers. One study used conversation analysis to evaluate the transcripts from online therapeutic sessions,⁶⁸ while another derived information from reports that were written by consultant-trainers.⁶⁹ Nine studies extracted quantitative data directly from software programs.^{19,59,60,62,63,65,66,68,70} Table 4, Table 5, and Table 6 in Appendix 7 report the details of the studies.

Study Characteristics

Year of Publication and Country of Origin

Two of the reviews were published in 2017,^{71,72} one was published in 2016,⁷³ one in 2015,⁷⁴ one in 2014,⁷⁵ two in 2009,^{76,77} and two in 2007.^{78,79} The authors were based in Australia,^{73,74,79} the UK,⁷⁷ and the US.^{71,72,75,76,78}

Two of the 20 primary studies were published in 2018,^{15,19} three each were published in 2017^{17,18,69} and in 2016,^{57,58,70} four in 2015,^{20,61,62,68} three each in 2014⁶³⁻⁶⁵ and in 2013,^{60,66,80} and one each in 2012⁶⁷ and in 2008.⁵⁹ The studies were published by authors in Australia,^{57-59,61,63,69,80} Canada,^{15,17,70} Ireland,⁶⁶ Sweden,⁶² the UK,^{20,64,68} and the US.^{18,65} One study was published by authors in Germany, Switzerland, and UK,¹⁹ one was published by authors in Germany and Switzerland,⁶⁰ and another was published by authors in South Africa, the UK, and the US.⁶⁷

Three of these primary studies^{15,17,70} and one review⁷⁹ had overlapping sets of authors, as did two other primary studies.^{59,63}

Populations

The reviews included studies that enrolled people with GAD only,⁷¹ depression only,^{72,74,75} or depression and anxiety.^{73,76-79} Eight of the primary studies enrolled people with depression only,^{19,20,61,63,64,66-68} three enrolled people with SAD,^{18,60,62} and six enrolled people with depression and anxiety.^{15,17,59,65,70,80} The last three primary studies enrolled people (including practitioners) exclusively from the Aboriginal and Torres Strait Island populations in Australia.^{57,58,69} These studies did not focus on specific mental health conditions and they had overlapping sets of authors. In one of the studies, the authors assessed the impact of

training and follow-up consultations on health practitioners' interest, confidence, and use of electronic mental health (eMH) resources.⁶⁹

Outcome Measures

One of the primary challenges of assessing implementation issues that are related to iCBT is the lack of standardization in the terms used to describe its various elements. Implementation encompasses the introduction of therapy as well as the active use or continuation of therapy. Examples of terms that are used to discuss issues relevant to introducing therapy are “uptake,” “adoption,” “engagement,” “usability,” “accessibility,” “feasibility,” and “reach.”⁸¹ The active use of therapy is discussed using terms such as “sustainability,” “adherence,” “retention,” “maintenance,” and “attrition,” “dropout,” “nonusage,” or “premature termination.”⁸²

The facilitators and barriers that influence implementation were identified either qualitatively through literature reviews, interviews, and focus groups or quantitatively through surveys and regression analyses using features embedded in iCBT software programs. Researchers used a host of labels and metrics for the independent factors and the dependent elements of implementation. For example, the measures of active use (adherence) to iCBT programs included the number of iCBT program modules that were activated,^{62,63} the number of modules^{19,59,65,66,68} or interim assessments¹⁸ that were completed, the odds of completing more than one module,⁵⁹ the number of participants who completed 80% or all of the modules^{60,64,70-72} or post-treatment assessments,⁶⁰ and the total time spent logged in to the programs.⁷⁰ Researchers in one study calculated a composite value from total time spent logged in to the program, modules completed, and percentage of self-help material completed.⁶⁰ Researchers and practitioners used a variety of measures to evaluate the independent factors. Most often, they used psychometric scales to determine the baseline level of severity of symptoms. The Goldberg Depression and Anxiety scale, the Worry Thoughts Scale, the Social Phobia Inventory and the PHQ-9, the Beck Depression Inventory, Kessler Psychological Distress Scale, Mini International Neuropsychiatric Interview, the GAD-7, the Work and Social Adjustment Scale. Anxiety was assessed with the Social Phobia and the Social Interaction Anxiety Scales. This report focuses on identifying the various factors that might influence the implementation of iCBT rather than comprehensively quantifying their effects.

Sample of iCBT Programs

Survey respondents identified 15 iCBT programs that were available across Canada. Eleven of the identified programs were available throughout the country, while four programs appeared to be offered only within specific provinces.²³ The programs that were common across Canada were: BEACON, Big White Wall, BREATHE, eGuru, Health EnSuite, Kelty's Key, Morneau Shepell's iCBT program, Strongest Families, Thinkladder, Tranquility Online, and WellTrack. Finding Wellness was offered in Manitoba, Therapist Assistance Online was available in Newfoundland and Labrador, Scarborough Hospital's iCBT program in Ontario, and the Wellbeing Course by the Online Therapy Unit in Saskatchewan.²³ It should be noted that while all 15 of the programs identified by respondents are Internet-delivered and based on the principles of CBT, the characteristics of the individual programs vary greatly.²³ For example, the Wellbeing Course provides participants with therapist assistance through a secure message system in addition to the iCBT material. Tranquility Online offers multiple options for participants to work through their CBT material, including one-on-one coaching, webcast group sessions, and a self-help approach.²³

The published studies covered a range of iCBT programs that were hosted on open-access free websites or websites that required paid subscription. Alongside iCBT, some studies included cCBT programs that offer CBT at stand-alone computers using CD-ROMs or other static storage devices. cCBT programs were accessed within a health care setting or at a distant location using video, audio, and/or text media. Where results for iCBT were presented separately from results pertaining only to cCBT, only information specific to iCBT was analyzed. The iCBT programs were Beating the Blues,⁶⁵ Deprexis,¹⁹ Joyable,¹⁸ MindBalance,^{64,66} MoodGYM,^{59,63} the Wellbeing Course (in Canada),^{17,70} the Wellbeing Course modified for cancer patients (also in Canada),¹⁵ and This Way Up.⁸⁰ One study included both Beating the Blues and MoodGYM.²⁰ The Australian Integrated Mental Health Initiative (AIMhi) Stay Strong^{57,58,69} and the BeyondBlue programs.⁵⁷ Puszka et al.⁵⁷ included other mental health programs that were not named. The remaining primary studies^{60-62,67,68} and the reviews did not describe the iCBT programs that they covered. A brief description of every included program follows. This list is not exhaustive; it represents the programs that were mentioned in the included studies.

Beating the Blues is an entirely automated, Web-based iCBT program for depression and anxiety that consists of 50-minute weekly sessions offered over eight weeks.^{20,65} It involves identifying and challenging automatic thoughts, core beliefs, and attributions, behavioural activation, exposure, problem solving, and sleep management.⁶⁵ Sessions are customized based on assignments completed in preceding modules.⁶⁵ The program may be accessed online.⁸³ Deprexis is a 10-module Internet-delivered program that contains material that is broadly consistent with face-to-face CBT (e.g., cognitive restructuring, behavioural activation, acceptance and mindfulness, and problem-solving).¹⁹ Joyable is an iCBT program specific for people with social anxiety.¹⁸ Like Deprexis, Joyable contains core components of face-to-face CBT, including psycho-education, cognitive restructuring, and graduated exposure to feared situations.¹⁸ Joyable requires monthly subscription and users can complete the program at their own pace. Coaches who are not mental health professionals provide support via phone, text, and email.

MindBalance is a therapist-supported iCBT program for depression and low mood.^{64,66} The program contains seven interactive modules using principles of face-to-face CBT with the addition of mindfulness.⁶⁶ The initial modules are psycho-educational, while the remaining focus is on behavioural and cognitive aspects.⁶⁴ MoodGYM⁸⁴ consists of a set of five CBT modules, a personal workbook that records and updates each user's responses, an interactive game, animations, quizzes, and a feedback evaluation form.^{20,59,63} The Wellbeing Course is a transdiagnostic program (i.e., encompasses multiple mental health conditions) with five modules.⁷⁰

In the Canadian context, implementation of iCBT was facilitated by a specialized Online Therapy Unit at a tertiary academic institution. The unit created a website along with policies and procedures for delivering iCBT, trained therapists on how to provide iCBT, and audited and provided clinical feedback to therapists. Patients received support from online therapists when community therapists were unavailable.¹⁷

The Wellbeing After Cancer program is a transdiagnostic intervention that includes five online lessons completed over eight weeks. Two out of four enhanced learning examples were modified to reflect the experiences of cancer survivors. Each lesson includes summaries, homework assignments, and regular automatic emails. The program also includes case-enhanced learning examples, which are educational stories that identify a problem and solution that an example (i.e., a case) resolves for the learner. Additional

resources are available and include materials about assertiveness, communication, problem-solving skills, sleep hygiene skills, and fear of cancer recurrence. Regular contact (via telephone or secure email) with the study therapist was provided to each participant weekly until completion of all five lessons.¹⁵

This Way Up is a fully automated, unassisted program offered across six modules. The CBT components include psycho-education, behavioural activation, cognitive restructuring, problem solving, graded exposure, relapse prevention, and assertiveness skills.⁸⁰ The AIMhi Stay Strong Plan is a culturally-responsive, strength-based brief intervention integrating motivational interviewing and low-intensity CBT techniques.⁵⁸ It caters to health workers who deliver care to Indigenous peoples.⁶⁹ It addresses family, strengths, worries, and goal-setting. The AIMhi Stay Strong program incorporates content that is specific to Aboriginal and Torres Strait Islanders.⁵⁸ Participation does not require continuous Internet connectivity.⁵⁸ The program is supported by a therapist.⁵⁸ The BeyondBlue program “creates mentally healthy environments and supports people across Australia.”⁸⁵ This list of iCBT programs does not represent the programs that are available to the Canadian public.

Context of Use and Guidance

Respondents to the survey indicated that iCBT was most commonly available through self-referral for people who expressed interest in being treated with the modality. iCBT was also offered as a complement to standard care, as a stand-alone treatment, through clinician referral, or as a preventive strategy offered to the general population.²³

In the literature, participants accessed iCBT programs through self-referral, referral by practitioners, or clinical trial enrolment. iCBT was offered as an unguided program^{20,65,80} or with guidance from health practitioners or administrative staff.^{15,17-19,57,58,61-64,66,68,70} In one study, researchers offered motivational email support to participants with moderate depression and provided no guidance to others.¹⁹ In another, participants provided one another with support anonymously or as part of a virtual discussion forum.⁶⁰ Two studies did not indicate whether iCBT was guided.^{59,67} Santucci et al.⁶⁵ offered iCBT as a stand-alone program to some participants and as an adjunct therapy for other participants. The primary therapies were individual psychotherapy, medication, and self-help.⁶⁵

Facilitators and Barriers to Adherence and Uptake

Implementation of iCBT refers to its uptake and continued use within a health care system. Implementation of any therapy is facilitated or constrained by a set of conditions that are unique to the organizations or practitioners that provide health care, the people being treated, the setting in which the therapy is delivered, and the technology itself, among other factors. For example, concerns about patient confidentiality and liability due to characteristics that are unique to the medium through which iCBT is delivered may also influence implementation.⁸⁶ Contemplation of the factors that affect the implementation of iCBT is critical to the successful development of recommendations on its optimal use for adults with MDD or anxiety disorders.

The facilitators and barriers identified in the survey and the published literature are presented here and organized using domains from the CICI framework. For each domain, the results from studies that focused on Aboriginal and Torres Strait Island populations are presented separately. The survey responses reflect the opinions of 24 individuals who responded to the survey request and are likely neither representative nor generalizable to all iCBT stakeholders in Canada. The information was often derived from single published

studies that were identified through the search strategy. Due to the broad nature of the search, the identified studies may not represent the comprehensive body of evidence related to any specific identified facilitator or barrier. Furthermore, a quality assessment of the cited studies was not conducted. As such, the results are hypothesis generating at best and not intended to provide definitive conclusions or guidance around implementation strategies. This section does not attempt to quantify the links between the factors and implementation. While some of the information suggests that certain factors may be facilitators, barriers, or have no impact on implementation, their effects may be context-specific.

Setting

The setting domain is relevant to the immediate physical and organizational environment where an intervention is delivered.^{23,56} Issues of setting can refer to region, country (e.g., urban and rural), or type of facility.^{23,56} Early research on iCBT was centred on specialized clinics where participants were evaluated under defined research conditions.⁷⁰ Nonspecialized community clinics may offer an opportunity to expand the reach of the intervention; therefore, their impact on uptake and adherence is of interest.⁷⁰ Results from one study identified through the search suggest that iCBT may be offered to people with depression or anxiety in nonspecialized clinics without any statistically significant loss to adherence rates, as compared with specialized clinics.⁷⁰

Geography

The domain of geography refers to the broader physical environment, landscapes, and resources available at a given location. Issues of geography can refer to infrastructure (e.g., transportation), access to health care, and geographical isolation.⁵⁶ Twenty-one survey respondents indicated that people living in rural locations were treated at their facility while 13 worked with people living in remote locations.²³ The geographic diversity of Canada often poses a challenge for facilitating universal and equitable access to high-quality health care.²³ The overarching perception among survey respondents was that iCBT led to increased access and program reach to people in need of care.²³

There was mixed evidence on the relationship between geographic location and iCBT implementation in the published literature. While some researchers found that rural residence was a barrier to iCBT uptake by participants, others found that geographical location had no influence on uptake.^{59,71,73} One study noted that participants living in European countries had a higher likelihood of completing two or more modules than those living in Oceania, whereas participants living in the US or Canada were less likely to complete the same number of modules.⁵⁹ No reason was provided for the difference in completion rates.

Epidemiological

Epidemiological factors that were of interest to researchers were age,^{18,19,59,63,64,67,72} sex,^{19,59,62,64,72,73} marital status,^{62,73} ethnicity,⁶⁴ baseline severity of symptoms,^{18,19,58-60,63-66} personal or family history of symptoms,^{59,73} comorbidities,^{62,72} and time spent being treated.⁵⁹ Across multiple studies, some of these factors had positive, negative, and/or equivocal impact on adherence, with no clear pattern emerging for any specific factor. The variation in effect may have been due to variation in symptoms, differences in the iCBT programs being studied, different factors differentially impacting adherence for different people, or something else.

In two studies that specifically examined the use of iCBT among Aboriginal and Torres Strait Island populations, lower baseline severity of symptoms was found to be favourable for iCBT adherence.^{57,58}

Socio-Cultural

The socio-cultural domain consists of explicit and implicit behaviour patterns that are products of the conditions in which people are born and in which they live.⁵⁶ A population's values, which include perceptions or beliefs about therapy, determine whether a socio-cultural factor might become a facilitator or barrier to the use of iCBT.⁷³

Based on the survey responses, patient preference for iCBT and perceptions of increased privacy relative to traditional face-to-face therapy, perceived patient satisfaction with care, a greater role in self-management, the option for choice of language of instruction, and patient curiosity were considered facilitators.²³ The survey respondents also identified a number of barriers pertaining to socio-cultural factors. These were generally mirror opposites of the facilitators. As such they included a lack of knowledge about iCBT, preference for face-to-face CBT or other treatment options, negative perceptions about effectiveness, the language of instruction, and a lack of privacy when accessing programs in public spaces.²³

From the literature, socio-cultural factors that had an impact on uptake and adherence of iCBT included stigma of seeking help for mental health conditions,^{73,74} perception of anonymity or concerns about privacy,^{61,73,78} self-awareness of mental illness,⁵⁸ motivation to change,⁵⁸ a positive attitude toward technology,⁵⁷ awareness or understanding of iCBT programs,^{17,73} perceived treatment credibility or expectation (i.e., confidence, or lack thereof, in the effectiveness) of iCBT,^{19,20,60,62,67,68} and treatment satisfaction.⁶⁵

For the Aboriginal and Torres Strait Island populations, self-awareness of mental illness,⁵⁸ motivation to change,⁵⁸ and positive attitudes toward technology⁵⁷ were considered facilitators. The use of English as the language of instructions and low levels of literacy were important barriers.^{57,58} English was not the main language of communication for some participants and practitioners, making it challenging for them to use software programs that were written in English.^{57,58} Furthermore, geographical marginalization itself compounded other barriers as people in these populations may be removed from participating in their own health care.⁵⁷

Socio-Economic

The socio-economic domain reflects a community's access to social and economic resources.⁵⁶ The evidence on the impact that access to, or familiarity with, the Internet and education had on iCBT implementation was mixed. Some authors suggested that a high level of education could be indicative of increased Internet acumen and psychological awareness, which could improve the odds of adherence.^{59,63,72,77} However, one study demonstrated that access to a computer had no impact on the uptake of iCBT,⁷¹ another study reported a negative correlation between Internet familiarity and iCBT uptake,¹⁹ and others reported a positive correlation between higher education levels and iCBT uptake.^{59,63,72,77}

A number of barriers to the implementation of iCBT were identified through the survey.²³ These were difficulty using the program due to limited literacy or computer skills by either the participant or the practitioner, a lack of available computer devices or adequate connection to the Internet, and computer-related anxiety or lack of familiarity with technology.²³

For the Aboriginal and Torres Strait Island populations, in one study, access to the Internet was a key facilitator of implementation of iCBT.⁵⁷

Legal

The legal domain is concerned with the rules and regulations that have been established to protect a population's rights and societal interests.⁵⁶ Seven respondents indicated that there were some legal or professional liability issues that may act as a barrier to the implementation of iCBT.²³ One respondent recognized that their institution was constrained to primarily serve participants within their home province due to legal restrictions to offering cross-province service.²³ No additional information on the legal issues affecting the implementation of iCBT was identified in the survey responses or the literature.

Political

The survey and the literature did not yield any implementation issues that were relevant to the political domain.²³

Provider

This provider domain focuses on the characteristics of the individuals adopting and delivering the intervention. It includes their personal attributes, knowledge, skills, emotions, motivations, intentions, and goals.⁵⁶

Current knowledge or experience with iCBT, the desire to improve clinical skills, the potential for future job opportunities, increased efficiency in clinical practice, a preference for iCBT over other forms of therapy, potential financial benefits, and the ability to better monitor participants' symptoms were identified as potential facilitators.²³ The literature similarly identified online training, incentives for providing iCBT (such as the reduction of people treated face-to-face), a positive attitude toward iCBT, and access to practitioners who are champions of iCBT as facilitators.¹⁷ Conversely, a lack of education and training on CBT, iCBT, or delivering services at a distance, a preference for face-to-face treatment, a higher severity and complexity of the participant's diagnosis, and potential financial losses were identified as barriers to the implementation of iCBT.²³ In the literature, discomfort and lack of motivation, and negative perceptions toward iCBT were identified as additional barriers.^{15,64,67,74,75,77} Some practitioners were reportedly unmotivated to use iCBT because there was inadequate promotion of the therapy¹⁵ and they feared competition from iCBT.⁷⁵ For those who used iCBT, it was common to find practitioners were preferentially selecting some participants for iCBT over others.⁷⁷ For example, results from a survey of authors of studies involving the use of cCBT for depression suggest that some practitioners believed that people 65 years of age and older had difficulty interacting with computers and that cCBT programs were geared toward younger people.⁶⁷ These practitioners were reluctant (or unmotivated) to prescribe iCBT to older people.⁶⁷ Similarly, some practitioners were reluctant to refer patients with high severity of symptoms to iCBT because they perceived that they could not monitor changes in suicide risk as effectively with iCBT as they could face-to-face.⁶⁴

For Aboriginal and Torres Strait Island populations, providers were supportive of eMH programs if they had positive attitudes toward eMH,⁶⁹ were aware of programs, were experienced in using eMH,⁵⁷ and were proficient in information technology.⁵⁷ Lack of confidence in eMH, demanding workloads, and gaps in technical capability were identified as barriers to implementation.⁶⁹ Details were not provided on how these factors inhibited implementation.

Organization and Structure

This domain comprises the organizational policies, guidelines, and practices, as well as culture and climate, that reside within an organization and on different levels such as the organization as a whole, units, and teams through which an intervention is delivered.⁶⁶ Therefore, constructs such as team dynamics, leadership, supervision, and guidance are also included.²³

The survey results highlighted several key organizational benefits that were perceived as relevant to the implementation of iCBT.²³ The perceived facilitators included a more efficient use of resources, improvements in both participant and practitioner experiences, easier tracking of outcomes relating to the effectiveness of the program, and financial benefit to the organization. One respondent also indicated that strong leadership within an organization was important for the successful development of iCBT programs.²³

In the literature, therapist or administrative support was identified as an important facilitator of uptake and adherence,^{18,19,62,72,78} as were the source of referral,⁵⁹ attitudes of managers¹⁷ promotion and presentation of iCBT as an alternate model of therapy,^{15,17} and convenience to participants.⁶¹ In one study, for example, for patients with mild-to-moderate depression, clinical support via email was predictive of the number of sessions completed.¹⁹ Similarly, dropout rates were found to be significantly lower in one study that included patients with depression who had either therapist support or administrative support relative to patients who received treatment through stand-alone iCBT programs,⁷² and in another that included patients with panic disorder and social phobias who were supported by clinicians compared with those who had access to computer-guided self-exposure or self-relaxation only.⁷⁸ An observational study of registered users of an open-access iCBT program offered in the US for SAD found that those that dropped out of the program earlier were less likely to have had contact with a coach.¹⁸ Predictably, patients who were referred by a mental health professional were more likely to adhere to an iCBT program offered on an open-access platform.⁵⁹ To the contrary, in a Swedish study, there was a higher level of attrition among patients who spent more time with a therapist per module.⁶² These patients needed more support and guidance to get through the various modules.⁶² From a survey of therapists and managers with 19 to 29 months of experience with iCBT, having supportive management and presenting iCBT as an alternate model of therapy rather than as the only model helped with implementation.¹⁷ As with patients with depression or anxiety, promotion and knowledge of iCBT among practitioners was also a facilitator.^{15,17}

Barriers to implementation included organizational culture and a lack of resources, including participant's or practitioner's time, funding, Internet devices (e.g., computer, smartphone), personnel, and Internet connectivity,²³ financial costs,^{74,75,77,79} lack of quality assurance processes to identify evidence-based programs,⁷⁴ absence of established pathways to deliver service,⁷⁴ lack of access for certain segments of the population,⁷⁴ absence of clinical support,²⁰ and lack of follow-up.²⁰

For Aboriginal and Torres Strait Island populations, identified organization-related facilitators were practitioner support,⁵⁸ supportive managers,⁶⁹ champions of iCBT who had digital literacy,⁶⁹ introducing iCBT through a pilot process,⁵⁷ and integration into clinical care pathways such as emergency care.^{57,58} Supportive managers and champions of iCBT were reported to have provided required resources such as tablets, and encouraged employees to engage in eMH.⁶⁹ As discussed further under the Policy domain, some institutions had policies that prevented managers from purchasing these devices.⁶⁹ Incompatibility between iCBT and existing workplace culture,⁶⁹ the technical challenges and costs of integrating eMH

into existing infrastructure,^{57,79} and high staff turnover rates^{57,69} were listed as barriers to implementation.

Intervention

The intervention domain was added to document aspects or design features of the intervention that affected implementation but did not fit into other domains within the CICI framework.²³ The facilitators included the convenience iCBT can provide to people in need of care, their ability to fit iCBT into their schedule, and the perceived clinical effectiveness of iCBT. Increased patient access, and the ability to reach people that would otherwise be unreachable with face-to-face therapies from the perspective of the clinician and the organization were also positive aspects.²³ iCBT may have some features that make it inherently more likely than face-to-face therapy to be adopted by some people. For example, some patients with major depression and anxiety may share information about personal problems more easily with a computer than with a person.⁷⁸ iCBT may also offer easier access for people with physical disabilities and those living in remote areas.^{15,78} The design of the iCBT software program,^{17,73} the availability of text-based or printed information,^{73,74,76} organization of the content,¹⁵ the strength of the evidence supporting the program,¹⁷ lower cost (relative to some forms of alternate therapy),^{17,61} and collaboration during the development process,¹⁷ may also facilitate uptake and adherence. Additional benefits of iCBT include accessibility at any time of the day, reduction in the number of face-to-face visits, the opportunity to have an option for support from a practitioner, and the focus on well-being, rather than symptoms.¹⁵

On the other hand, therapists' inability to facilitate therapeutic alliance through computers;⁷⁵ the cost of computers or network services that are required to access treatment;^{65,77} ethical and legal concerns regarding the delivery of treatment to patients who are located remotely, across state, or provincial lines from practitioners;^{75,76} lack of integration with existing systems and maintenance of the iCBT program;⁷⁹ perceived gaps in the evidence on clinical effectiveness and cost-effectiveness of iCBT;⁷⁹ and presentation of content²⁰ might keep some providers and institutions from choosing iCBT over face-to-face therapy. In addition, patients often require treatment for multiple conditions whereas many iCBT programs are developed and tested for single conditions.⁶⁴ The MindBalance program, for example, targets depression and does not provide sufficient flexibility for practitioners to incorporate material that addresses anxiety.⁶⁴

For Aboriginal and Torres Strait Island populations, the language of delivery,^{57,58} recognition of regional cultural variation,⁵⁸ and robust evidence of effectiveness were raised as important implementation factors that were intervention-driven.⁵⁷ Details were not provided on the pathways through which these factors affected implementation.

Funding

The domain of funding relates to short-term or longer-term funding mechanisms by governmental, non-governmental, private sector, and philanthropic organizations used to implement an intervention.⁵⁶

Funding and reimbursement policies could either facilitate or hinder the implementation of iCBT.²³ In Canada, health care is primarily funded through federal, provincial, and territorial governments.¹⁷ Funding from provincial governments, research grants, and guaranteed longer-term funding could aid in the implementation of iCBT if these third-party funders have a special interest in technology-based solutions.²³ However, some funders who favour traditional care (i.e., existing standard of care) may inhibit the implementation of iCBT.²³ As

well, when research funds that are used to finance early iCBT are no longer available,⁷⁰ some individuals may need private insurance or may need to make payments out-of-pocket.¹⁷

Survey respondents additionally identified other financial benefits, including transportation cost savings and not missing work as potential incentives of iCBT uptake.²³

None of the included studies evaluated iCBT as part of an Employees' Assistance Program.

Policy

The policy domain comprises policy measures and processes of government, public, private, or other organizations directly concerning or indirectly influencing the implementation of an intervention.⁵⁶

Respondents indicated that policies driven by government interest and those driven by public interest, respectively, may help facilitate or hinder the implementation of iCBT programs.²³ The funding policies in Canada specifically mentioned by respondents as potentially facilitating iCBT included the Medical Care Plan in Newfoundland and Labrador, the Ontario Health Insurance Plan, funding through Local Health Integration Networks or Veterans Affairs Canada, or other government funding or reimbursement policies.²³ Most of the comments submitted by respondents regarding policies that might act as barriers, highlighted the challenges associated with securing funding for research purposes or for individuals seeking help due to policies that struggle to keep pace in the digital age.²³ No additional information or the names of specific policies that could potentially act as a barrier to the implementation of iCBT were retrieved with the survey.²³ According to the literature, some government-funded health care programs in Australia prohibit the use of tablets and do not empower their administrators to provide employees with the additional resources that they require to adopt eMH.⁶⁹ While there were mixed opinions regarding whether existing policies would apply to data security, unsupportive policies, such as those that restricted the use of mobile devices, were considered potential threats to eMH.^{57,69}

Strategies to Facilitate the Implementation of iCBT

Twelve survey respondents indicated that there were specific implementation plans or strategies in place to facilitate the availability and uptake of iCBT programs following their development.²³ Of these respondents, five highlighted the importance of engaging and collaborating with all stakeholders involved in the delivery of iCBT, including patients, providers, clinicians and other practitioners, insurance companies, regional health authorities, and provincial governments. Some stakeholders may help with the promotion and dissemination of information pertaining to iCBT and others may help to ensure that practitioners receive the training required to provide iCBT. Four respondents stressed that specific effort must be made to incorporate iCBT into current practice, which can require a change in culture for some health care organizations.²³ Two respondents stressed the importance of using a stepped care approach when initially integrating iCBT into clinical practice.²³ For them, the benefits would emerge from allowing participants and practitioners to experiment with multiple methods of delivering CBT to determine which works best for their specific circumstances.²³

Thirteen survey respondents suggested that they utilized some form of a quality improvement framework to monitor the success and performance of iCBT programs in their facility or jurisdiction.²³ No additional information on the results of these quality improvement frameworks or how they may have been used to modify iCBT programs was collected.²³

To address the lack of awareness of iCBT among Aboriginal peoples and Torres Strait Islanders, Povey et al.⁵⁸ recommend increasing advertising and promotion in schools and health centres by health professionals. To enhance uptake, developers of iCBT programs should engage the community.⁵⁸ Health care facilities may integrate iCBT programs into care pathways by offering them as a short-term, alternate option or in conjunction with face-to-face therapy. Regarding content gaps, topics that should be considered include colonization, intergenerational trauma, identity, methamphetamines, cyberbullying, and the influence of peers.⁵⁸ To address the technical challenges, community members suggested the addition of clear navigation buttons, metrics page, and visual representations of progress. To increase a practitioner's ability to monitor participants' risk of suicide, hospitals considered offering iCBT as an adjunct to face-to-face therapy, or through client initiation via a website. These approaches could address resource constraints for those who want or need face-to-face sessions and make self-help available to those who do not want to be seen face-to-face.⁶⁴

Developing iCBT programs that are transdiagnostic may facilitate iCBT implementation. With the development of transdiagnostic iCBT programs, like the Wellbeing Course,¹⁷ programs that target a single condition may become obsolete.

Discussion

Key Implementation Issues

Across the studies, there was variation in geographic location, service setting, study design and objective, study population, type of iCBT program, and type of health care system. The programs alone varied in content, software platform, user-interface, and feedback mechanisms. In addition, some programs were designed to address a single mental health condition while others were transdiagnostic. Some programs were self-administered while others required varying amounts of regular interaction with (or support from) a practitioner or administrator. As such, the information presented in this report cannot be generalized outside the contexts in which the various studies were conducted; although inferences may be made about promoting some of the facilitators within the Canadian context.

Expectation of the effectiveness of iCBT played an important role in determining whether practitioners would encourage participants to enrol in an iCBT program. While some practitioners were reluctant to refer patients with high severity of symptoms,⁶⁴ others favoured iCBT for this subpopulation.⁵⁹ Therapist or administrative support was identified as an important facilitator of uptake and adherence of iCBT; yet, in circumstances where patients may have high severity of symptoms that require elevated support, attrition may be observed.⁶² Practitioners also benefited from having supportive managers who promoted iCBT.^{15,17} Other than recognizing that their institutions were legally constrained to provide iCBT primarily to people within their home provinces, survey respondents did not provide information regarding legal issues affecting the implementation of iCBT.

Survey respondents highlighted the importance of engaging and collaborating with all stakeholders involved in the delivery of iCBT, including participants, providers, clinicians and other practitioners, insurance companies, regional health authorities, and provincial governments, to help with the promotion and dissemination of information pertaining to iCBT and to ensure practitioners receive the training required to provide iCBT.²³ In addition, introducing iCBT into current practice, specifically through a stepped care approach, was also highlighted.²³ The literature provided more details on strategies used to facilitate the

implementation of iCBT. To address the lack of awareness of iCBT, advertising and promotion in schools and health centres by health professionals was recommended. Specific methods for integrating iCBT programs into care pathways include offering iCBT as a short-term, alternate therapy or in conjunction with face-to-face therapy.

Aboriginal and Torres Strait Island Populations

The Aboriginal and Torres Strait Island peoples had similar concerns about implementation as other populations with the addition of issues that were anchored in marginalization. Studies found that eMH programs may not be accommodating of cultural variations and differences in language used across the region, seriously inhibiting the uptake of iCBT.^{57,58} Policies that prevented practitioners from purchasing mobile devices or transferring information through these devices, incompatibility of iCBT with workplace culture, and high staff turnover were also barriers that were highlighted in these populations.^{57,69} Self-awareness of mental illness,⁵⁸ motivation to change,⁵⁸ a positive attitude toward technology,⁵⁷ and access to the Internet⁵⁷ were key facilitators of implementation.

Applicability of Findings to the Canadian Context

Although this report included information from survey respondents who were located in each province, none of the respondents were located in the territories. The survey responses reflect the opinions of 24 individuals who may not be representative or generalizable to all iCBT stakeholders in Canada. Three of the included primary studies were conducted in Canada.^{15,17,70}

Limitations

The information presented in this literature review was derived from 24 survey responses from individuals working in organizations in all Canadian provinces and a literature review. No survey responses were received from the Canadian territories. The list of 15 existing or developing iCBT programs identified by the survey respondents should not be considered exhaustive of those offered in Canada, nor to which Canadians may have self-referred access, as data collection methods were not designed to develop an exhaustive list and it is likely that several active programs were not identified. Additionally, this list does not include any programs that were developed to specifically treat adolescent or pediatric populations (i.e., participants under the age of 16).²³

The literature review, though comprehensive, may not be considered systematic as a quality assessment of the studies was not performed. Furthermore, data extraction was conducted by a single reviewer. There was considerable heterogeneity in study characteristics, making it challenging to compare findings. Of the iCBT programs that were covered in the literature, only one was used in Canada.

There were some noticeable gaps in the information on the facilitators and barriers of iCBT implementation. There was insufficient information to present findings for participants with depression separately from those with anxiety. None of the studies that focused on single disorders described screening out other mental health disorders; therefore, the effects of comorbidities could not be isolated from other factors.

Directions for Future Research

Further work that evaluates the implementation issues that potentially arise when iCBT is utilized for other indications, such as post-traumatic stress disorder, addiction disorders, insomnia, chronic pain, or other mental health conditions, may provide additional insight into the complexities of the intervention.²³ Alternative approaches to information gathering that emphasize capturing the experiences of providers or patients of iCBT could help further understanding in this area. As well, broader engagement and enhanced communication and collaboration among relevant stakeholders involved in the delivery of iCBT may provide guidance for future research.²³

Conclusions

This review provides a snapshot of the factors that influence implementation of iCBT programs and other forms of eMH delivery that are currently being offered or in development in Canada and internationally. However, the variation in the programs that were available and the contexts under which they were administered preclude drawing general conclusions about the effect that certain factors have on the implementation of iCBT.

The survey elicited a number of patient-related, practitioner-related, organization-related, and policy-related factors acting as facilitators or barriers to the implementation of iCBT.²³ The respondents highlighted that while some provincial or research funding has enabled the use of iCBT for some individuals in Canada, others are unable to access funding for iCBT due to a lack of coverage under Medicare and by most private insurers.²³ Although some iCBT programs are offered free of charge on open-access websites, not all of them are available to Canadians. The establishment of new policies or avenues of funding to increase access to iCBT is seen as one way to remove some of the barriers to implementation as funding is a major determinant of where and for whom iCBT is available.²³

The literature review provided information that was complementary to the survey responses, even though only one of the 15 programs identified in the survey was covered in the studies. Whether a factor turned out to be a facilitator or a barrier was sometimes context-dependent. Aboriginal and Torres Strait Island peoples in Australia identified unique drivers of implementation, such as recognition of variation in cultures and language across regions.⁵⁸

Strategies that could aid implementation across disparate contexts include integrating iCBT into existing clinical pathways, introducing iCBT on a limited basis,²³ engaging the community in the development of iCBT programs,⁵⁸ engaging the help of practitioners who are champions of iCBT,¹⁷ including content to fit the needs of specific populations, and establishing policies that support the procurement of tools that are needed for iCBT.⁶⁹

Although the findings of this review may not be representative of factors that influence implementation of iCBT for all Canadians, this review has identified some issues for policy-makers to consider when contemplating the public provision of iCBT for adults with MDD and anxiety disorders in the various provinces and territories across Canada.

Ethical Issues

Inquiry

The purpose of this analysis was to identify and reflect upon key ethical issues that should be contemplated when considering the public provision of iCBT for adults with MDD or anxiety disorders in Canada. Although other sections of this report implicitly touch upon broad ethical concerns, the aim of this analysis is to make such issues explicit and to identify others that may be relevant to any decisions in this regard.

The questions that guided the inquiry were:

- What are the major ethical issues raised by the provision, development, and use of Internet-delivered cognitive behavioural therapy for major depressive disorder or anxiety disorders?
- How might these major ethical issues or concerns be addressed?

Bioethical analysis requires a two-step approach to identify potential issues. The first is a review of the ethics, clinical, and public health literatures to identify existing ethical analyses of the technology. The second is a novel ethical analysis based on gaps identified in the ethics literature and the results of concurrent reviews. This often requires selective searches to provide the basis in theoretical ethics, in applied ethical analyses of similar technologies, and in evidence for the ethical analysis of emerging issues specific to iCBT for MDD and anxiety disorders. Using this approach, we identified and assessed the relative importance and strength of identified concerns and proposed solutions, identified and assessed ethics issues that were not yet identified in the iCBT literature, and delineated ethical desiderata for possible solutions to the issues where such solutions were not yet proposed.

Insofar as this process involved ethical concerns in applied ethics, within the analysis we reflected on the specific details of community and patients' perspectives, clinical utility, economic analysis, and implementation considerations. As such, the ethical review involved an iterative process whereby the analysis was responsive to results emerging from clinical, implementation, patients' perspectives, and economic reviews.

In particular, this report presents a review of literature that provides normative analyses of ethical issues arising in the use of iCBT, whether for the treatment of MDD, anxiety disorders, or for the use of iCBT more generally, or of literature that presents empirical research directly addressing an ethical issue arising in the use of iCBT. This report also provides a novel ethical analysis based on the themes and gaps identified in this literature, in addition to the results of concurrent CADTH reviews. In addition to identifying and assessing the relative importance and strength of the identified concerns and proposed solutions, this report identifies and assesses ethical issues that have not yet been identified in the iCBT literature, and delineates ethical considerations and requirements for possible solutions to the issues where such solutions have not yet been proposed.

Methods

Data Collection

Data for the main portion of this review were derived as stated in the previous section.

Literature Search Methods

The literature search was performed by an information specialist using a peer-reviewed search strategy.

Ethics-related information was identified by searching the following bibliographic databases: MEDLINE ALL (1946–) via Ovid; PsycINFO (1806–) via Ovid; The Cochrane Library (2018, Issue 2) via Wiley; Cumulative Index to Nursing and Allied Health Literature (1981–) via EBSCO; and PubMed. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were Internet-based cognitive therapy and depressive or anxiety disorders.

A methodological filter was applied to limit retrieval to studies relevant to ethical issues. No date limit was applied. The search was limited to English-language publications.

The initial searches were completed in April 2018. Regular alerts were established to update the searches until the publication of the final report. Regular search updates were performed on databases that did not provide alert services. Studies identified in the alerts that met the selection criteria of the review were incorporated into the review if they were identified prior to the completion of the stakeholder feedback period of the final report and offered new analytical insight.

Grey literature (literature that is not commercially published) was identified by searching sources included in the *Grey Matters* checklist (<https://www.cadth.ca/grey-matters>), which includes the websites of HTA agencies, clinical guideline repositories, SR repositories, and professional associations. Google was used to search for additional Web-based materials. These searches were supplemented by reviewing the bibliographies of key papers.

Study Selection Method

The selection of relevant literature was conducted in two stages. In the first stage, the title and abstracts of citations were screened for relevance by a single reviewer. Articles were categorized as “retrieve” or “do not retrieve,” according to the following criteria:

- provides normative analysis of an ethical issue arising in the use of iCBT, whether for the treatment of the two conditions of interest or more generally
- presents empirical research directly addressing an ethical issue arising in the use of iCBT.

The goal in a review of bioethics literature is to canvass what arises as an ethical issue from a broad range of relevant perspectives. As such, the quality of normative analysis did not figure in the article selection criteria: any identification of an issue by the public, patients, health care providers, researchers, or policy-makers is of interest, whether presented through rigorous ethical argumentation or not. For example, academic ethicists may focus on certain issues because these relate to theoretical trends in their discipline, whereas an opinion piece by a clinical or policy leader, or a patient experience, may bring to the fore ethical questions that are neglected by academic ethicists but are highly pertinent to the assessment of the technology in the relevant context.

In the second stage, the full-text reports were reviewed by a single reviewer with ethics expertise. Reports meeting the abovementioned criteria were included in the analysis, and reports that did not meet these criteria were excluded from the analysis.

Analysis

The ethical issues identified, values described, and solutions proposed in the literature were at this stage evaluated using the methods of ethical (applied philosophical) analysis, which includes applying standards of logical consistency and rigour in argumentation, particularly where specific implications are identified and specific solutions advocated; evaluating their responsiveness to important values of health care and health care policy in the field in which the technology is proposed for implementation; evaluating their adequacy to the context for which the technology is being considered; and evaluating the representation of perspectives from diverse relevant communities, particularly marginalized and vulnerable populations. The ethical issues identified, values described, and solutions proposed in the literature were analyzed in relation to key ethical values or principles (e.g., respect for autonomy, beneficence, nonmaleficence, and justice). In addition, where appropriate, the analysis drew most directly on two classic perspectives that are well-established in the health ethics literature, namely the utilitarian/consequentialist approach and the deontological/duty-based approach. The former focuses more directly on the overall consequences of a particular course of action and deals with questions of individual rights and duties, and considerations of social justice, only indirectly. Conversely, the deontological/duty-based approach gives priority to considerations of individual rights and concomitant duties while treating overall utility (i.e., the greatest good for the greatest number) as of only secondary importance. While these two theoretical approaches are often treated as opposed, there is a well-established tradition within contemporary health care ethics that treats them as complementary. Depending on the nature of the issue and the context in which it arose, other normative ethical considerations and perspectives were invoked in the analysis.

Results

Literature Sources

In total, 1,655 citations were identified through the initial search. The removal of duplicate results left 1,298 citations. An additional 156 citations were identified from regular alert updates, which resulted in a total of 1,454 citations identified. An analysis of titles and abstracts of identified citations led to the inclusion of 67 reports for full-text analysis. After full-text analysis was completed, 35 reports were excluded, leaving 32 for inclusion. An additional 25 reports meeting the inclusion criteria were identified during selective and manual searches of bibliographic entries, which resulted in a total of 57 reports being included in the review.

Substantive Results

The central themes identified in the literature are presented here according to the key ethical principles or values that they primarily invoke or implicate, in addition to the primary ethical issue or domain in which that principle or value applies. The themes are trust and the therapeutic alliance, privacy and confidentiality in the context of Internet-delivered therapies, beneficence and the uncertainty of new treatment modalities, nonmaleficence and limitations to client safety, justice and enhanced access, respect for autonomy and informed consent, and professional and legal issues.

Trust and the Therapeutic Alliance

- If iCBT renders it difficult for therapists to act in accordance with ethical principles of mental health practice (e.g., to protect privacy or confidentiality), then the integrity of the therapeutic alliance may be threatened.
- Conversely, if it is fundamentally difficult to establish or sustain a therapeutic alliance in iCBT, then it may be difficult for therapists to fulfill their ethical obligations or act in accordance with ethical principles of mental health care (e.g., to effectively fulfill their obligations of nonmaleficence by monitoring and managing clients' distress).
- The ethical concerns and issues identified throughout the literature may therefore have important implications for the strength and quality of the therapeutic alliance.
- The ethical value of trust is central to the therapeutic alliance, and may play a more significant role in mediating the ethical quality of Internet-delivered therapies given non-traditional therapist–client interactions in this modality.

It is widely appreciated that the **therapeutic alliance** between clients and their health care providers is of critical importance to mental health care.^{87,88} Indeed, evidence suggests that the therapeutic alliance is significantly associated with health outcomes across different treatments.^{89,90} Hence, it is important to note that, while perhaps not necessarily empirically substantiated, some concerns have been raised regarding the presence and quality of the therapeutic alliance in the context of iCBT.^{87,91-95} Such concerns have been raised because iCBT, or, more generally, Internet-delivered therapies, are variably seen as limited, remote, and often asynchronous,^{87,92} as potentially unable to provide individuality and respect to clients,⁹² and as mechanical, impersonal, generic, isolating, or dehumanizing.^{91,96-99} As a result, some argue that it is unclear whether such therapies are capable of conveying features like empathy, emotional responsiveness, and other interpersonal collaborative features of human-delivered therapy that are crucial for establishing and maintaining a therapeutic alliance.^{75,91}

Further potentially jeopardizing the therapeutic alliance are the boundary issues possibly raised by iCBT and other Internet-delivered therapies. With an Internet mode of delivery comes the possibility of being able to instantly message one's therapist, which may result in clients feeling closer to the therapist than in traditional, face-to-face settings, which may in turn foster dependence.¹⁰⁰⁻¹⁰⁶ iCBT applications (and in particular, applications that passively collect data) may also have the capacity to unexpectedly reveal information about inappropriate and perhaps even illegal client behaviour, which may impair the therapeutic alliance between the client and therapist (and which may have implications for confidentiality and liability — See Privacy and Confidentiality in the Context of Internet-Delivered Therapies and Professional and Legal Issues sections).¹⁰⁷

Of course, the presence and quality of the therapeutic alliance in iCBT may be affected by many factors, not least of which is the degree of involvement and supportive contact of the therapist: does "Internet-delivered" mean that the Internet is used as a tool by a therapist to support therapeutic objectives, or does it mean that the Internet is used with minimal or no therapeutic contact?^{96,108,109} Hypothetically, increased therapist contact, even through the implementation of video communication to retain communicative features, could affect the quality of the therapeutic alliance.⁹²

Concerns regarding the quality of the therapeutic alliance should be viewed as being *ethical* in nature for the following two reasons. First, if it were the case that iCBT renders it difficult

for therapists to act in accordance with ethical principles of mental health practice (e.g., principles of beneficence, nonmaleficence), then the integrity of the therapeutic alliance may be threatened. For example, if therapists are unable or less able to effectively fulfill their ethical obligations of privacy or confidentiality when using iCBT, then clients may be less inclined to engage in therapy openly and honestly, which may in turn threaten the therapeutic alliance. Second, and conversely, if it were the case that it is difficult to establish or sustain a therapeutic alliance using iCBT, then it may be difficult for therapists to discharge their ethical obligations or act in accordance with ethical principles of mental health care. For example, if therapists are less capable or incapable of establishing or sustaining a therapeutic alliance given limited interpersonal contact with their clients (relative to traditional face-to-face CBT), and clients are as a result less inclined to share and engage with the therapist during the course of their therapy, then the therapist may be unable to effectively fulfill their ethical obligations of nonmaleficence by adequately monitoring and managing clients' distress. Each of the ethical concerns and issues identified in the remainder of this report (e.g., conflicts of interest, privacy and confidentiality, and limitations to client safety) might have important implications for the quality and extent of the therapeutic alliance in iCBT.

Ultimately, though, the extent to which Internet-delivered therapies like iCBT are capable of embodying critical features of the therapeutic alliance is an empirical question that has generated considerable debate.^{87,91,92,96,99,108,110-112} With the previous concerns noted, some studies have found that it is indeed possible to establish a therapeutic alliance in this context; for instance, one study found that some clients rank the therapeutic alliance higher in Internet-delivered therapy as compared with traditional face-to-face therapy.¹¹³ Other studies nuance these findings. For instance, one study found that, while there is variation among programs in whether features of the therapeutic alliance are present, iCBT programs are capable of emulating those features designed to *establish* a therapeutic alliance, but there may ultimately be fewer features associated with *developing and maintaining* the alliance.⁹¹ Moreover, some have questioned the extent to which the therapeutic alliance is even as important in iCBT as it is in traditional CBT given the shift of responsibilities from therapists to clients.^{87,92,99} The degree to which different forms of iCBT are capable of, and effective at, establishing and maintaining a therapeutic alliance is beyond the scope of this review (see Clinical Evidence report).²² From an ethical standpoint, a crucial question hitherto neglected in this literature is not whether a therapeutic alliance is present or capable of being present in the context of iCBT, but rather whether a therapeutic alliance *ought* to be present in this therapeutic context.

Fully answering this question is itself beyond the scope of this review, but suffice it to say that there is a lack of literature identifying or meaningfully analyzing the significance and role of what is widely considered to be of central ethical value to the therapeutic alliance: **trust**.¹¹⁴⁻¹¹⁷ Trust is a relational value that is complex and has many dimensions, but for these purposes it may be defined as “an attitude that we have toward people whom we hope will be trustworthy,” where a “trustworthy person” is someone who is competent and committed to do what he or she is trusted to do.¹¹⁸ Indeed, therapists' demonstration of “facilitative attitudes” of a therapeutic alliance, like empathy, positive regard, and unconditional regard, has been shown to be associated with clients' trust in their therapists.¹¹⁷ A lack of trust, or distrust, in mental health services can act as a barrier to care,¹¹⁶ and as previously mentioned, may render it difficult or impossible for therapists to fulfill their ethical obligations to their clients. For example, confidentiality assumes a relationship based on trust.¹¹⁹ As such, a trusting relationship between therapist and client may be critical to the therapeutic process not only because of its ostensible association with

therapeutic outcomes, but perhaps also because it establishes and renders it possible to fulfill the ethical responsibilities that each party has in relation to one another. As a result, features or concerns that challenge or erode the therapeutic alliance, and therefore trust, in iCBT might be viewed as ethical challenges for iCBT, particularly given the presence of non-traditional therapist–client interactions in this context.¹¹⁶ Conversely, the degree to which trust and trustworthiness can be promoted and established in the context of iCBT should be viewed as an important, yet hitherto under-examined, ethical question.

Privacy and Confidentiality in the Context of Internet-Delivered Therapies

- Unintended data breaches, the intentional transfer or sale of data to third parties, data becoming subject to privacy laws in other jurisdictions, and the absence of regulatory protections are ubiquitous concerns for privacy and confidentiality in Internet-delivered therapies.
- Transparency of practices and informing clients about the limits to data security and confidentiality are therefore critical.

Privacy and confidentiality are critical ethical values in mental health practice, and both are widely viewed as being potentially more challenging to establish and maintain in the context of Internet-delivered therapies largely due to concerns over data security and the transfer of data to third parties.^{107,120} Privacy and confidentiality can be distinguished insofar as privacy generally applies to the person, whereas confidentiality generally applies to the person's data.

Given the online mode of delivery in iCBT, multiple risks to data security exist, which raises ethical concerns regarding the quality and extent of privacy and confidentiality for this mode of therapy.^{93,94,101,107,121-127} Depending on the data security protocols in place for any given iCBT application, risks regarding unauthorized access to client data exist at multiple levels: at the therapist's end, at the client's end, and during the electronic transmission of information.^{107,121,122,128} To combat unauthorized access to client data, many suggest that providers of iCBT use a secure user environment that encrypts therapist-client communications at both ends, password-protected log-ins (with the possibility of pseudonyms to protect users' identities should a data security breach occur), and secure mechanisms for the storage of data.^{94,115,121,122,128,129}

Even where robust data security protocols exist to address the aforementioned sites of data insecurity, iCBT applications may remain vulnerable to what are referred to as “dependency insecurities.” Dependency insecurities exist because most software depends on a range of external components and applications in order for them to function (e.g., operating systems, Web browsers), which themselves may be vulnerable to data breaches. Such vulnerabilities may render iCBT applications vulnerable to unauthorized access even when the latter's internal security is robust. As such, iCBT applications are recommended to be developed by those with sufficient knowledge and expertise to manage data security issues that may arise with applications' external components.¹²¹ Moreover, even when robust data security protocols are installed at the launch of an iCBT application, they may need to be routinely updated given that security risks will change over time.¹²¹

Ultimately, data security in the context of iCBT is of critical *ethical* importance given the ethical obligation that therapists have to keep confidential any information generated within the therapeutic relationship. **Confidentiality** requires that precautions be taken to respect and safeguard information generated within the therapeutic relationship, and that therapists

refrain from disclosing certain information to those outside the therapeutic relationship without the client's expressed authorization or unless required by law.¹³⁰

Perhaps more than any other ethical issue, concerns regarding the quality and extent of confidentiality in the context of iCBT abound.^{75,92-95,98,100,102,104-108,114,115,120,122-124,126-129,131-138}

First, such concerns are ubiquitous in this context given the aforementioned data security concerns; breaches in data security may translate into breaches in confidentiality. As such, given the inability to issue guarantees against data breaches, providers of iCBT cannot entirely guarantee confidentiality to their clients.¹¹⁵ Though, such guarantees are likely not possible even in traditional face-to-face therapeutic contexts.

Ultimately, given that risks of data breaches will invariably exist no matter the sophistication of data security protocols and safeguards, a critical risk mitigation measure in this context would involve collecting only that data that is necessary and appropriate to achieve therapeutic objectives.^{121,122} Potential harms to clients might also be mitigated by summarizing themes generated from therapy sessions and destroying raw data.⁹²

Breaches in confidentiality may also occur in cases unrelated to data breaches, including when client information is intentionally shared with, or sold to, third parties,^{107,134} in addition to when client information is disclosed to other parties given therapists' legal obligations. Importantly, data intentionally shared or sold may include that which is actively collected (i.e., through the course of therapy) and that which is passively collected (e.g., location data and social network data collected by the application),^{107,116} which may each have many intended uses, including research, quality improvement, and marketing.¹²¹ Indeed, CBT delivered via the Internet presents many opportunities to passively collect data that may reveal a great deal of personal and behavioural information, which may be commercially lucrative if sold to third parties. Unless adequately protected and controlled, data brokers may end up indefinitely owning client data and using it for a number of purposes not authorized by the client.¹⁰⁷ To some, this emphasizes the need for informed, user-controlled data collection.¹¹⁶ At the very least, it signals the need for iCBT applications and providers to be explicit and transparent regarding the expected collection, use, and disclosure of client information (see Respect for Autonomy and Informed Consent section).¹⁰⁷

Providers of iCBT have the ethical responsibility to safeguard clients from unauthorized disclosures of information generated in the course of the therapeutic relationship.¹¹⁵ With that said, providers are legally permitted or required to disclose certain information should it arise in the course of therapy, and some information may be subjected to legal subpoena.^{104,107,126,127} As such, providers of iCBT ought to take reasonable steps to anticipate the circumstances where information generated during the use of an app might require disclosure, and ensure that clients are informed of these limits to confidentiality (see limitations to disclosure stemming from limitations on client monitoring in the Nonmaleficence and Limitations to Client Safety section).

The **privacy** of clients using iCBT may be compromised when the confidentiality of their data is breached, and as such many have raised privacy concerns in response to Internet-delivered therapies.^{75,92-94,98,99,102,107,116,120,122,125,132,137} While some wellness applications may escape the scope of privacy legislation, like the Personal Health Information Protection Act, given that much of the information generated via iCBT applications will count as personal health information, much of the information generated from such applications will fall squarely within the scope of such legislation.^{92,107} In addition, iCBT administered to clients outside of Canada will be subject to foreign privacy laws (see Professional and Legal Issues section).⁹² As such, iCBT applications and providers must ensure that the collection, use,

and disclosure of personal health information complies with existing privacy legislation in both the therapist's and client's jurisdictions. And, while iCBT applications themselves may come with privacy policies that discuss the measures in place to protect clients' privacy and the limitations of such measures, the presence of such policies may not necessarily mean that measures to protect privacy are in place, or that privacy concerns have been taken seriously and addressed.^{107,139}

Interestingly, despite the many concerns over privacy and confidentiality raised by Internet-delivered therapies, the degree of privacy and confidentiality afforded by such therapies might actually be perceived as an advantage over traditional face-to-face therapies (see also Implementation Issues and Patient Perspectives and Experiences sections). Indeed, given the opportunity to participate in therapy without the knowledge of family and friends, in addition to the opportunity to discuss sensitive topics that might otherwise be difficult in face-to-face settings, Internet-delivered therapies may supply a degree of privacy not on offer with face-to-face therapies.^{94,129,133,140} Given this possible perception and expectation of privacy and confidentiality, there is arguably an added imperative to ensure that iCBT applications have adequate measures in place to protect the privacy and confidentiality of clients.

Clearly, many limits to privacy and confidentiality are likely to exist in the context of iCBT. As a result, such limits and their attendant risks must be discussed with clients (in the informed consent process and as circumstances change) (see Respect for Autonomy and Informed Consent section). Providers of iCBT ought to be transparent with clients regarding who their data will be shared with, what type of information will be shared, how that information will be shared, and the expected use of their data.^{94,121,126,129,138,141} Providers who use or recommend an app for iCBT but fail to inform clients of known limitations to privacy or confidentiality could plausibly be held liable based on the failure to obtain proper informed consent (see Professional and Legal Issues section).¹⁰⁷ Unfortunately, codes of ethics may be ill-equipped to adequately guide iCBT providers in these areas. For instance, as Lawlor-Savage and Prentice argue, the Canadian Code of Ethics for Psychologists has been updated in recent years and addresses ethical issues regarding confidentiality and privacy, but largely fails to "adequately address the increasingly complex relationship between electronic media and psychological practice" (pg. 231).⁹²

Finally, an idea related to privacy and confidentiality that is of increased relevance in the context of iCBT is that of **anonymity**.^{92,99,105,123,142} Where clients can participate in such therapies anonymously (or where their participation is perceived as sufficiently anonymous or privacy-enhancing), feelings of discomfort, embarrassment, and stigma may be reduced, which may promote treatment-seeking and provide clients with increased disinhibition, enabling clients to disclose and discuss their deeply personal behaviours, issues, and thoughts (see Justice and Enhanced Access section).^{99,123,142} Though, anonymity in Internet-delivered therapies may be a double-edged sword; in group-based therapies, for instance, perceived anonymity may decrease social pressure or guilt, which may otherwise discourage clients from compromising confidentiality in these settings.⁹² In addition, anonymous participation in any psychotherapy may be problematic for establishing the therapeutic alliance (see Trust and the Therapeutic Alliance section), and may present challenges for therapists to fulfill other ethical obligations (e.g., duties to report and warn — See Nonmaleficence and Limitations to Client Safety section).^{105,123,142}

In summary, compromises to privacy and confidentiality may occur in different ways in the context of iCBT as compared with traditional face-to-face therapy,¹²⁰ and the prospects of

such compromises may threaten the uptake of iCBT.^{108,133} Given that assurances of privacy and confidentiality are key ethical features of the therapeutic alliance and of ethical mental health practice more generally,^{93,143} mechanisms to prevent breaches of privacy and confidentiality are crucial, as is informing clients of any limitations to realizing these values.

Beneficence and the Uncertainty of New Treatment Modalities

- In order to act in accordance with the ethical principle of beneficence, therapists must weigh the benefits and risks associated with iCBT for each individual client. This may be exceedingly difficult given concerns raised by some therapists over the lack of rigorous testing and perceived limited evidence base for the effectiveness of iCBT, in addition to limited regulatory oversight, safeguards, guidelines, and consistency for the development and implementation of iCBT applications.
- Conflicts of interest might motivate app developers or therapists to act in a manner that does not align with the best interests of clients. Limited regulatory oversight and safeguards may render it more likely that iCBT developers or therapists fail to disclose or properly manage conflicts of interest.

A core principle of bioethics is **beneficence**, which requires that health care providers act in the best interests of their patients or clients.¹⁴⁴ Given the promise shown for the treatment of depression and anxiety disorders (see also Clinical Evidence report),²² iCBT may constitute a viable alternative that may benefit clients with these disorders. In addition, compared with traditional face-to-face CBT, iCBT may have features that allow more individualized therapy. First, while consistency and standardization are often considered as key advantages of iCBT relative to traditional face-to-face CBT, some suggest that iCBT can be highly personalized based on demographic information, personal goals, and other types of data that clients provide.¹³³ As a result, the ability to individualize treatment could render it more possible to act in the best interests of one's client given the ability to be responsive to their unique needs. In addition, it may be that iCBT is a preferable mode of delivery for clients,^{125,145} or that this modality is more appropriate or suitable for some clients who are dealing with body image concerns, social anxiety, or phobias, or if they are unable to attend a face-to-face session due to mobility issues (see Respect for Autonomy and Informed Consent section).^{96,108} Finally, iCBT may increase opportunities for social interaction and serve as a source of connectedness that would not otherwise exist or be possible to access, which may be in the best interests of some clients.⁹⁶

Acting in the best interests of one's client is linked to the issue of justice, as subsequently discussed. For clients experiencing barriers to traditional face-to-face CBT, the provision of CBT via the Internet may redress inequities of access, which will be in those clients' best interests should the online medium be appropriate for their particular therapeutic circumstances. Though, the extent to which iCBT is in fact justice-enhancing, and therefore beneficence-enhancing for some clients, is not a foregone conclusion (see Justice and Enhanced Access section).

It may also be easier for iCBT providers to fulfill their ethical obligations of beneficence if iCBT applications can more readily and routinely be updated to reflect the best evidence for therapy,¹²⁹ or if iCBT renders it easier to systematically collect client data and adapt treatment plans accordingly.¹³¹ And, on a population level, if such therapies are better capable of producing datasets of digital biomarkers, the potential may exist to promote the

interests of all clients by being better able to predict outcomes and further our understanding of mental health conditions.¹¹⁶

Given this, several themes in this literature speak to the challenges that may exist for iCBT providers to adequately fulfill their duty of beneficence (that is, to act in the best interests of their clients), including concerns over limited rigorous testing and limited or equivocal evidence base for the effectiveness of iCBT, and limited regulatory oversight, safeguards, guidelines, and consistency for the development and implementation of iCBT applications (see HTA report).²² In other words, in order to act in accordance with the principle of beneficence, iCBT providers must be able to weigh the benefits and risks associated with iCBT for each of their clients.⁹² While the evidence-based and regulatory environment associated with iCBT is rapidly changing, as evidenced in the recent assessment of clinical effectiveness,²² if providers are ever unsure or unclear as to whether iCBT (or a particular iCBT application) has firm empirical support regarding its effectiveness, or more generally whether iCBT will on balance benefit their clients (in absolute terms or relative to traditional face-to-face CBT), then treating clients with iCBT may run against their duties of beneficence.^{101,107,141} Indeed, some degree of uncertainty in this context should be expected given the sheer number of applications on the market, which may each vary in terms of effectiveness, quality, safety,^{100,101,141} not to mention their capacity to address the many ethical concerns raised in this review (e.g., privacy and confidentiality).

It is reasonable to believe that such concerns and uncertainty could be sufficiently addressed through the provision of professional guidelines and/or regulatory oversight regarding the development of iCBT applications and the practice of iCBT insofar as these mechanisms may provide monitoring and quality and safety standards enforcement, or because they might simply promote consistency across platforms.¹¹⁶ Ultimately, the installation of such regulatory oversights or guidelines may render it more possible for iCBT providers to deploy and use iCBT to benefit their clients, and thus, fulfill their ethical obligations of beneficence. However, many argue that, at present, the expansion of Internet-delivered therapies has outpaced regulatory bodies' capacity to provide guidance or oversight for their provision.^{102,103,108,114,128} Though, no matter the safeguards and regulatory mechanisms in place, iCBT providers themselves must also be adequately trained and competent to practice in this unique modality if they are to be able to act in their clients' best interests.⁹⁶

Finally, while not framed as such in the literature, **conflicts of interest** might motivate developers or iCBT providers to act in a manner that does not always align with the best interests of clients. Simply, where new technologies exist, there also exists the potential for those who have a financial stake in those technologies to profit from their use.^{96,100} Such financial interests may in turn impair a providers' objectivity, competence, or ability to effectively perform their role.¹²⁶ Potential also exists for those with financial interests in iCBT to attempt to influence guideline development or research in this area.¹³⁴ And while such conflicts will not always run counter to clients' best interests, clients ought to be fully informed of any potentially or perceived competing interests of their therapist (and for similar reasons, of application developers or funders).⁹⁴ Ultimately, limited regulatory oversight and safeguards in this area may render it more likely that iCBT developers or therapists fail to disclose or manage conflicts of interest. As such, to prevent, mitigate, and manage conflicts of interest, efforts ought to be made to promote the transparent disclosure of the individuals or organizations involved in the development and funding of iCBT applications.¹⁴¹ Such transparency is critical for fostering trust between clients and iCBT providers (and their platforms) (see Trust and the Therapeutic Alliance section).

Ultimately, despite the promise of iCBT, it may be challenging for therapists to reconcile their duty of beneficence with iCBT until these concerns are allayed; i.e., whether it can be demonstrated and in which cases iCBT is in the best interests of their individual clients. Importantly, if therapists pursue iCBT for their clients despite these concerns, or lack of training or competence to deliver iCBT, this may challenge or violate their obligations to do no harm (see Nonmaleficence and Limitations to Client Safety section).

Nonmaleficence and Limitations to Client Safety

- The capacity of therapists to adequately screen, identify, and manage client distress and risk (to themselves or others) may be attenuated in the context of iCBT due to distance, anonymity, or asynchronous monitoring, which may render it difficult for therapists to fulfill their duties of nonmaleficence.
- Blended models of iCBT involving face-to-face, telephone, or video engagement with the therapist, in addition to strictly defined management protocols, may mitigate these limitations and enable therapists to fulfill their ethical obligations.

One of the therapist's primary ethical obligations is to do no harm.¹⁴⁶ As such, any potential benefits of iCBT must be carefully balanced and weighed against any possible risks.¹²⁸ Due to the possibility of significant geographical distance between therapist and client, in addition to possible time delays resulting from the often asynchronous nature of the therapy delivered in iCBT, it may be challenging for iCBT providers to fulfil this ethical obligation of **nonmaleficence**, which means that **limitations to client safety** may be present in the iCBT context.⁹³

Many suggest that it may be more challenging to perceive, monitor, and adequately respond to safety issues in the context of iCBT (though, there is lack of evidence regarding the actual safety of iCBT, as outlined in the HTA report).²² First, it may be more challenging to perceive safety issues that may otherwise be identified in traditional face-to-face therapies given the possible absence of non-verbal clues, clothing and hygiene indicators, or other aspects of a client's appearance that may signal the type and severity of pathology.^{98,100,103,124} Second, different mechanisms may exist for iCBT applications with respect to how client information is monitored and provided to the therapist (if such applications are therapist-supported), if it is monitored and reviewed at all, potentially rendering it difficult to automatically or synchronously monitor safety signals should they arise.¹⁰⁷ Finally, an Internet mode of delivery may render it more difficult or impossible to ethically act in response to safety signals, such as evidence of client risk to themselves or others, even when there is a legal obligation to do so.^{75,92,93,95,99,103,105,106,122,123,131,136} Thus, if a therapist recommends iCBT, or a particular iCBT application, and an adverse outcome occurs in the course of therapy in this modality, one might be inclined to argue that the applicable standard of care was not met (see Professional and Legal Issues section).¹⁰⁷ All the same, given that iCBT may include more frequent interactions than traditional face-to-face CBT, it is possible that iCBT could in fact have the potential to be more effective in identifying and monitoring risks of client self-harm or harm to others.

Some suggest that a possible solution to providers' potential inability to monitor, review, and act upon safety signals is to ensure that clients are made fully aware of these inherent limitations to client safety.^{97,107} Yet, from an ethical standpoint, a crucial question hitherto largely neglected in this literature is not how liabilities might be avoided where adequate monitoring of client distress or risk of harm is not feasible, but rather whether therapies

ought to be offered when by their very nature they might prevent or preclude such duties of nonmaleficence from being reasonably fulfilled. In other words, it is ethically necessary to inform clients of a therapist's potential inability to ethically act on certain information divulged in the course of therapy. However, simply informing clients of this should not necessarily be seen as altogether avoiding the ethical issue at hand; namely, that those seeking psychotherapy may be at risk of harm to themselves or others, and that it may not be possible or feasible for Internet-delivered therapies to be sufficiently responsive to these risks of harm. One must therefore ask whether this is an acceptable state of affairs given the unique nature of the mode of therapy (provided that mechanisms are in place to *inform* clients of the limitations inherent to this mode of therapy, including the attendant risks), or whether an ethical obligation exists in this context to actually ensure that mechanisms are in place to anticipate and *mitigate* such risks.

Arguably, *in addition to* duly informing clients of therapists' limitations to act on certain information divulged in the course of therapy, acting in accordance with the principle of nonmaleficence may reasonably be seen as requiring sufficiently robust screening to identify clients for whom Internet-delivered therapy may be inappropriate given these risks (i.e., preventing "unscreened access"),^{102,122,132} and strictly defined management protocols that address therapist responses to such risks should they arise (see also Patient Perspectives and Experiences section).¹⁰² In other words, nonmaleficence in this context arguably requires that vigilant risk assessment and risk monitoring be a part of iCBT.^{92,124,129,133,141} The digital mode of delivery may in fact facilitate these assessment and monitoring activities; for example, clients' digital footprints may reveal important information about client behaviour.¹¹⁶ Such obligations may also extend to the responsibility to follow up with clients who stop participating in iCBT with no prior notice, which may be particularly important given rates of loss to follow-up associated with iCBT¹¹¹ (see also the Clinical Evidence report).²² Importantly, it may be less possible, or altogether impossible, to fulfil these obligations if the identity and contact information of the client is unknown, which may suggest that clients' identities and contact information should be known (or at least be accessible) to the iCBT provider.^{115,120} Multiple mechanisms exist that could conceivably support adequate risk assessment and monitoring, including having discussions with the client regarding the plans for addressing potential crises that occur during or between sessions,¹²⁸ establishing in-person supports in the client's geographic location, perhaps through a network of crisis counsellors^{102,136} or a telephone hotline that is responsive to urgent client issues.⁹⁹

Justice and Enhanced Access

- The provision of CBT via the Internet has the capacity to significantly enhance access, not least by eliminating or reducing barriers associated with geography, cost, availability, cultural or linguistic appropriateness, and stigma.
- Despite these justice-enhancing qualities, concerns of inequities exist regarding the extent to which iCBT applications will be responsive to gender, culture, and language given standardized modes of delivery.
- As with any new technology, varying degrees of education, age, socio-economic status, and computer literacy will contribute to a digital divide between those able and unable to benefit from iCBT, which may create or exacerbate inequities.

The provision of mental health care in Canada requires significant investments of time and resources, which may unfortunately limit the availability of services.¹⁴⁷ The introduction of alternative modes of therapy, like iCBT, may therefore generally lead to **enhanced access** by expanding service capacity and by reducing waiting lists for mental health care.^{91,111,123,141} And, given its unique mode of delivery, iCBT may provide access to those who might otherwise not be able to access psychotherapy.^{37,92,94,111,116,131,145,148} Indeed, iCBT has the potential to increase access to critical mental health services given that it is not restricted to location or time,^{91,92,94,99,111,122,133,136,141,145} because it may reduce barriers related to immobility, lack of transportation, pain symptoms, and personal, family, or work obligations,^{94,108,111,123,147} and because it may reduce treatment-seeking barriers due to stigma,^{91,92,102,108,116,135,141,149} which may be particularly salient and significant for populations who are already marginalized or vulnerable.^{108,149} In addition, because symptoms inherent to some psychological disorders, such as avoidance symptoms experienced by those with anxiety disorders, may prevent individuals from seeking traditional face-to-face CBT, iCBT may offer a preferable and potentially more appropriate therapeutic alternative.¹¹¹ For these reasons, iCBT should be viewed as enhancing **justice**, as it makes substantial, positive steps toward the reduction of disparities of access to mental health services (see also Implementation Issues section).

iCBT may not be a panacea capable of effectively remediating disparities in access to traditional face-to-face CBT; yet, relative to the perceived justice-enhancing features of iCBT, considerations that may attenuate or otherwise restrict access to iCBT are given scarce attention in this context. As such, while iCBT may tend to generally reduce common barriers to psychotherapy, if due attention is not paid to the barriers that may remain in this context for some populations, new inequities may be created and existing inequities may be exacerbated.^{116,123,148}

In particular, given its Internet mode of delivery, the digital divide is implicated in this context.^{96,132} For instance, Internet-delivered services may tend to target, and be viewed as more acceptable, to younger populations who may be more familiar and comfortable with such technologies.¹¹⁶ In addition, it may be required that those participating in iCBT be familiar with using a computer, be competent typists, and have literacy and digital literacy skills.⁹³ Ultimately, these factors point to the social determinants of access to Internet-delivered mental health services, and illustrate how economic and social inequalities may preclude certain populations from accessing, and ultimately benefiting from, iCBT.^{92,94,100,116,123} In particular, individuals with lower income, lower educational attainment, who lack digital literacy, or who cannot afford a computer or reliable Internet access may not meaningfully benefit from the “increased access” ostensibly on offer by iCBT (see also Implementation Issues section).

Attending to the social determinants of access to Internet-delivered mental health services is multifaceted and complex. With that said, one of the principal mechanisms that may limit the availability and access to mental health services is the cost to the client. While in many cases, iCBT may be being cost-effective and a lower-cost alternative to traditional face-to-face therapy^{91,96,138} this does not necessarily preclude iCBT from remaining inaccessible to those of lower socio-economic status when such populations are unable to afford it.¹⁴⁷ Indeed, funding and reimbursement policies may affect the successful implementation of iCBT (see also Implementation Issues section). Yet, iCBT is generally not included in public health insurance schemes, and may also not be covered under private insurance, depending on the company.^{37,92} For this reason, as Hadjistavropoulos and colleagues argue, successfully scaling up iCBT to increase its accessibility would require that iCBT become

part of the permanent basket of health care services funded and provided to provincial residents.³⁷ Indeed, on their analysis, iCBT has the added benefit of having the capacity to reduce at least some provincial health care expenditures, and so this may count as a reason in favour of providing public coverage for such therapies. As an alternative, Hadjistavropoulos and colleagues also raise the possibility of establishing a national collaborative unit to increase access to iCBT and provide a mechanism for cost sharing among provinces. Such a national collaborative unit may also align with the perceived need for the national coordination of licensing for those practicing across jurisdictions (see Professional and Legal Issues section). Yet, apart from raising the question as to whether iCBT should be included in the basket of publicly insured services, virtually none of the literature identified examined the ethical advantages or disadvantages of doing so.

That iCBT provides a relatively standardized therapeutic approach may be assessed as a justice-enhancing feature insofar as such standardization could hypothetically remove the biases or variation that may exist among and across therapists, which may in turn be capable of producing inequities in client outcomes, how clients are treated, and so forth. In effect, standardization may work to ensure that all clients receive the same standard of care, and thereby militate against inequities that might manifest from variable therapy quality across providers or geographies. Yet, one must also consider the potential threats to justice that such standardization might raise. First, standardization may simply systematize biases rather than remove them. Ethical guidelines for application development will therefore be crucial in remedying this possible outcome.¹⁴¹ Second, standardization may render iCBT applications unable to be meaningfully sensitive and responsive to important client characteristics, such as language, culture, religious beliefs, sex, and gender,^{93,99,100,105,106,124,132,141,150} which may be particularly important in the diverse Canadian context and given that iCBT may expand the traditional geographical scope of practice. And while some suggest that one could attempt to resolve this issue by asking new clients to provide such information to their therapists upon intake,⁹⁹ it remains to be seen the degree to which iCBT applications are capable of being meaningfully responsive to such information. As such, standardization, which may be more applicable in iCBT than it is in traditional face-to-face CBT, may conflict with the individualization viewed as conducive to a healthy and productive therapeutic alliance (and which may also conflict with respecting client autonomy — See Respect for Autonomy and Informed Consent section).¹³⁴

In summary, despite its Internet mode of delivery, iCBT is not *necessarily* more accessible, convenient, or appropriate than traditional face-to-face CBT simply due to the fact that it may reduce common barriers to access.¹²³ In addition, in order to not entirely work against the justice-enhancing features of iCBT, which could occur if it were predominantly available to middle- to upper-class, well-educated, young to middle-aged individuals,⁹² careful attention ought to be paid to introducing mechanisms, such as public coverage, that will meaningfully enable underserved, marginalized, and vulnerable individuals and populations to access its benefits.

Respect for Autonomy and Informed Consent

- There is a paucity of research explaining how consent is obtained in iCBT and whether the client is sufficiently informed of its potential benefits and risks (e.g., limitations of confidentiality).
- Internet-delivered therapies may render it easier for clients to misrepresent their age, their identity, and so forth, which presents challenges for the informed consent process.

A central principle in bioethics is that, insofar as is possible, one should respect and promote client **autonomy**.¹⁴⁴ Respect for client autonomy may mean many things, but at its core it requires that “persons ought to have independence, that is, be free from coercion and other similar interferences.”¹⁵¹ Client autonomy in the context of iCBT is implicated in a number of ways. First, rather straightforwardly, iCBT may be the preferred mode of delivery of CBT for some clients,^{125,145} and so the very fact that iCBT exists as an alternative to traditional face-to-face CBT can be counted as autonomy-enhancing, provided of course that iCBT is at least as available and accessible as is traditional face-to-face CBT (see Justice and Enhanced Access section). Indeed, iCBT can be considered unique insofar as it is rather flexible in terms of where, when, and how therapy is accessed,⁹¹ which may enhance clients’ self-determination and control when seeking therapy. Second, if iCBT shifts much of the responsibility for treatment from the therapist to the client, as is commonly touted with iCBT, then clients may have increased autonomy in determining and controlling their treatment (e.g., how and when to do the treatment, at what pace and intensity to pursue the treatment, and so forth) (see also Implementation Issues section).¹⁴⁵

With that said, client autonomy is threatened when clients are unaware of the details of a given treatment, including the expected benefits and risks and the likelihood that the benefits and risks will occur. As such, challenges in obtaining **informed consent** in the context of iCBT may threaten the ability of clients to make autonomous choices about their care. Despite the fact that there is a dearth of research that explains how informed consent is obtained and whether such consent is truly informed in the context of iCBT,⁹² several challenges for informed consent have been raised by a number of scholars in the literature.^{75,92,94,98,99,102-104,106,114,115,120,123,125-128,148}

The central challenge raised in the literature is the inability of iCBT providers to determine and verify the age and identities of clients. In addition to the practical challenges of verifying age and identity,^{94,98,99,102,104,106,114,115,120,126,128} concerns about that clients may willfully misrepresent their age or identity in this context.^{92,103,123} The inability to verify the identity of clients is important for a number of reasons, not least of which is because this may render it impossible to intervene in cases of emergency or in situations where a duty to warn or report arises (see Nonmaleficence and Limitations to Client Safety section).¹¹⁴ An additional related concern not explicitly raised in the literature is the possibility for clients to commit insurance fraud by misrepresenting their identity in order to receive covered (either publicly or privately) mental health services. At the same time, concerns have also been raised regarding the ability of clients and regulators to determine and verify the identity and certifications of iCBT providers (see Professional and Legal Issues section).^{99,127} Indeed, a 2003 study found that, of 136 Web-counselling websites, only 38% had some means for detecting imposter clients or counsellors, and that even the steps that existed to do so were minimal.¹⁵²

Verifying the identity of clients and iCBT providers is a critical step in both the informed consent process and in the delivery of therapeutic services. Yet, rather straightforward mechanisms may be installed to facilitate these verification processes, including the presentation of photo identification or a birth certificate, requiring an initial in-person or video meeting, or using the verification services of third-party organizations.⁹⁴ What is perhaps more ethically troubling is the related challenge of determining a client’s **decisional capacity** to consent to services.¹²³ Adequately evaluating a client’s capacity to consent may in some instances require the assessment of verbal and non-verbal cues,¹²³ and ensuring that informed consent processes meet the linguistic, cultural, and literary needs of the clients

and provide opportunities for clients to ask questions or raise concerns,^{92,148} all of which may be limited in the context of iCBT.

Professional and Legal Issues

- Therapists should only practice within the realm of their expertise. Given its relative novelty, limited training programs, and lack of consistency and regulatory oversight, concerns exist regarding therapists' competence in using iCBT. Use of iCBT in this context may therefore not accord with duties of beneficence and nonmaleficence.
- Clients may use iCBT when residing or travelling outside the jurisdiction(s) within which their therapists are licensed to practice, which raises professional and legal concerns. Internet-delivered therapies may also render it easier to deceive clients about professional qualifications or licensure. Licensure issues may be redressed through the provision of interjurisdictional or national licensing or credentialing for therapists providing Internet-delivered therapies.
- It is unclear who is accountable or liable if iCBT services provide inaccurate data that causes a therapist to mismanage a client's treatment.

iCBT should be delivered by trained and qualified mental health practitioners,⁹² and these practitioners should practice only within the realm of their expertise.⁹⁶ Yet, given its relative novelty, limited training programs, and lack of consistency and regulatory oversight, concerns exist regarding practitioners' competence in using iCBT, that qualified or unqualified providers may outsource their work to other unqualified colleagues,¹⁰¹ or that the mode of delivery renders it easier for untrained or unqualified individuals to provide such services or otherwise promote themselves as being competent to do so.¹⁰⁵

While risks related to unqualified or unlicensed providers exist across all treatment modalities, Internet-delivered therapies may render it easier to deceive clients in this regard. Indeed, previous studies have found that many providers of Internet-delivered therapy may be unlicensed. In one case, fewer than 10% of e-therapy providers were found to be licensed psychologists.¹⁰¹ While not a panacea, one mechanism to better ensure that iCBT providers are trained and qualified to provide such therapy is for them to make their training, qualifications, or credentials transparent and available in any iCBT application.⁹²

The competence of therapists in providing iCBT is critical not only for positive therapeutic outcomes but also to fulfill their ethical obligations in practice.¹²⁶ For example, lack of competence in monitoring client distress or installing data security safeguards in this modality may render it more likely that a therapist will be unable to discharge their ethical obligation of nonmaleficence. Yet, therapist competence in providing iCBT is a major concern in the literature.^{75,92,97,101,102,104-106,120,126,128,132,136,148} These concerns arise because the skills cultivated through training for traditional face-to-face interactions are viewed as not automatically transferable to the digital environment,¹⁰⁰ and because of the great deal of variability in iCBT applications, which signals the importance of iCBT providers understanding the functions and limits of different applications.¹⁰² Furthermore, because iCBT applications may reach diverse populations, iCBT providers ought to be competent to provide services to clients with different ethnic, racial, cultural, linguistic, geographic, socio-economic, and sexual orientation/gender backgrounds, which may be particularly important in the Canadian context.^{92,96,100,102} Ongoing training opportunities to educate future practitioners in competent and ethical iCBT use are particularly important in this area given how such technologies are constantly evolving.⁹⁶ Unfortunately, research has found that a majority of online therapists

report not having formal training in online therapy during their education.¹²³ As such, some suggest that it would be reasonable for iCBT providers to demonstrate, perhaps to a licensing board, their abilities to competently practice CBT in a digital medium.¹²⁴

Several professional and legal issues may arise with any Internet-delivered therapy given the potential for services to be delivered to clients residing, or who may travel, outside of the jurisdiction(s) within which their therapists are licensed to practice.^{75,102,103,108} iCBT providers are expected to be aware of and comply with all relevant laws and regulations from both their jurisdiction and their clients' jurisdictions.^{99,102,115} In such cases of interjurisdictional practice, legal issues may arise with regard to licensure, i.e., whether providers have legal authority to practice in a client's jurisdiction (see also Implementation Issues section).^{75,100,104,106,123,124,131,135} Issues of licensure may be addressed at a systems level by installing a transferable, national licensing system.¹⁰³

In addition to issues of licensure that may arise when practicing across jurisdictions, which raise liability issues, several other issues may exist with regard to accountability and liability.^{98,99,103} For instance, different jurisdictions will have variable legal requirements for permitted and mandatory disclosure (e.g., of child abuse and self-harm).^{98,104,123,133} In addition, it is unclear where liability will or should lie if an iCBT provider mismanages a client's condition due to an application providing inaccurate data, or due to a mistake made by a client when using the application.¹⁰⁷ What is clear, however, is that failing to consider and address such issues of liability may leave the provider uncovered in the event of an interjurisdictional malpractice lawsuit.¹²⁵ With respect to accountability, providing clients using iCBT with the opportunity to raise and have their grievances redressed, and be made aware of the regulatory agencies and/or professional associations that oversee such grievances may be considered.¹⁰⁴ Yet, the limitations that would be imposed by distance, differing jurisdictions, or the financial resources required to raise and pursue grievances may render these opportunities impractical.^{104,128}

Discussion and Conclusions

In drawing conclusions, the limitations of the literature reviewed in this report also need to be addressed. First, there is a paucity of literature that directly and explicitly engages in the normative analysis of ethical issues that can be expected to arise in the context of Internet-delivered CBT, let alone iCBT for MDD and anxiety disorders, in particular. As such, a broader literature engaging with the ethics of Internet-delivered therapies, "Web-counselling," "eMH," "mHealth," "email therapy," and "telemedicine" were identified through selective and manual searches of bibliographic entries and were reviewed and analyzed. Interestingly, no substantial differences were found in the ethical considerations or issues identified or reviewed across these literatures. There is little doubt that common ethical issues may attach to all non-traditional modes of therapy (e.g., confidentiality in the context of Internet-delivered therapies). Yet, what is left unexamined are the potentially unique ethical considerations and issues that may arise in the development and delivery of CBT via the Internet, and, in particular, those considerations and issues that arise in the treatment of MDD and anxiety disorders by iCBT. As such, while the majority of the ethical considerations and issues raised throughout this review are likely sufficiently applicable and generalizable for multiple therapies delivered by non-traditional means and for multiple conditions, and while efforts were made to consider and situate the themes identified in this review within the context of iCBT for MDD and anxiety disorders, it can be expected that other, novel ethical considerations and issues will emerge in the specific case of iCBT for MDD and anxiety disorders.

Second, as is typical in ethics literature reviews, the vast majority of the literature identified in this review merely enumerates ethical issues associated with iCBT or, more generally, Internet-delivered therapies, and thus fails to actually examine or provide substantive normative analyses of these issues. Thus, many of the ethical issues one would expect to appear in a list of ethical issues associated with anything Internet-delivered or psychotherapy-related unsurprisingly emerged (e.g., “confidentiality,” “privacy,” “informed consent”), but they did so with limited insight into the degree to which their manifestation might be unique (practically or ethically) in the context of iCBT.

Third, while ethical issues and considerations emerging from the perspectives of clients, app developers, organizations, funders, and health regulators were variably raised in this literature, the ethical issues and considerations identified predominantly reflected those that emerge in relation to iCBT providers and the delivery of iCBT. As such, much of this literature is framed in relation to the ethical obligations of providers (e.g., to protect confidentiality, obtain informed consent). While efforts were made to illuminate the ways in which many of the ethical issues and considerations discussed in this report may impact or be viewed by different stakeholders, future research exploring the ethical dimensions of iCBT emerging from other stakeholders’ perspectives will be important.

Finally, and as a result of the findings expressed in the prior two remarks, many of the ethical concerns raised in this review in large part reflect practical, technical, or logistical challenges (e.g., compromises to confidentiality due to the spectre of data insecurity; jurisdictional licensing) that may be addressed with relatively straightforward measures and due attention (e.g., data security protocols and informing clients of limits to confidentiality; creative licensing arrangements across jurisdictions). This is not to say that such ethical issues and their solutions are of little or no importance. Rather, the motivation for this remark is to indicate that, on this assessment, the more intractable ethical concerns raised by iCBT have received limited attention. On this assessment, these ethical issues include: (1) the consideration and proper balancing of the justice-enhancing and justice-diminishing features of iCBT (i.e., the literature points out the justice-enhancing features of iCBT without giving due attention to the disparities that it might create or perpetuate); (2) the capacity of iCBT providers to fulfill their obligations of nonmaleficence in the face of potentially inherent limitations to client safety (i.e., the literature to some degree characterizes this issue as one that may be dismissed rather easily with a sufficiently robust disclaimer prior to engaging with iCBT); and (3) the prospect of a trusting alliance to be established in the context of iCBT such that iCBT providers are capable of effectively fulfilling their ethical obligations (i.e., the literature largely fails to characterize or analyze the therapeutic alliance as a linchpin of ethical practice). Considered together, while there is no doubt that iCBT has the capacity to enhance access to urgently needed mental health services, the justice-enhancing features of iCBT may perhaps only be viewed as virtues where the prospect of increased access extends to those less privileged, and where the therapeutic environment does entirely eliminate an alliance between practitioner and client where ethical practice is possible.

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Appendix 1: Literature Search Strategy — Patients’ Perspectives and Experiences

OVERVIEW

Interface:	Ovid
Databases:	Ovid MEDLINE ALL 1946 to present Ovid PsycINFO 1806 to present Note: Subject headings have been customized for each database. Duplicates between databases were removed in Ovid.
Date of Search:	2018 Apr 17
Alerts:	Bi-weekly search updates until project completion
Study Types:	Qualitative and patient perspectives filters
Limits:	No date limit English language

SYNTAX GUIDE

/	At the end of a phrase, searches the phrase as a subject heading
MeSH	Medical Subject Heading
exp	Explode a subject heading
*	Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings
?	
adj#	Adjacency within # number of words (in any order)
.ti	Title
.ab	Abstract
.kf	Author keyword heading word (MEDLINE)
.id	Keyword concepts (PsycINFO)
/freq=n	Frequency threshold of occurrence of a term

MULTI-DATABASE STRATEGY

Line #	Search Strategy
1	Cognitive Therapy/
2	Cognitive Behavior Therapy/
3	(((cognitive or behavio*) adj2 (therap* or psychotherap*)) or cognitive behavio* or cognition therap* or CBT*).ti,ab,kf,id.
4	or/1-3
5	Internet/
6	Therapy, Computer-Assisted/
7	Computer-Assisted Instruction/
8	Mobile Applications/
9	Remote Consultation/
10	Computer Assisted Therapy/
11	Computer Mediated Communication/
12	Computer Software/
13	Computer Applications/
14	Mobile Devices/

MULTI-DATABASE STRATEGY

Line #	Search Strategy
15	Electronic Communication/
16	Human Computer interaction/
17	Information Technology/
18	Electronic Learning/
19	Online Therapy/
20	(internet* or Beacon or app or apps or computer based or computerbased or (mobile adj2 application*) or smartphone* or smart phone* or mobile based or e mail* or email* or electronic mail* or "Information and communication technology" or "Information and communication technologies" or emedicine or e medicine or ehealth* or e health* or emental health* or e mental health* or etherap* or e therap* or epsychiatr* or e psychiatr* or epsychol* or e psychol* or online or media delivered or webbased or web based or web delivered or webdelivered).ti,ab,kf,id.
21	((technolog* or computer* or digital*) adj6 (therap* or psychotherap* or CBT or intervention* or treatment* or deliver* or technique* or training)).ti,ab,kf,id.
22	or/5-21
23	Depression/
24	Depressive Disorder/
25	Depressive Disorder, Major/
26	Depressive Disorder, Treatment-Resistant/
27	exp Anxiety/
28	exp Anxiety Disorders/
29	Mutism/
30	*Mental Health/
31	"Depression (emotion)"/
32	Major Depression/
33	Recurrent Depression/
34	Treatment Resistant Depression/
35	Anxiety/
36	exp Anxiety Disorders/
37	Generalized Anxiety Disorder/
38	Panic Disorder/
39	Panic Attack/
40	Social Anxiety/
41	exp Phobias/
42	Separation Anxiety Disorder/
43	*Mental Health Programs/
44	*Mental Health Services/
45	*Primary Mental Health Prevention/
46	*Well Being/
47	(depress* or MDD).ti,ab,kf,id.
48	(anxiet* or anxious* or panic* or phobi* or agoraphobi* or GAD or mute or mutism).ti,ab,kf,id.
49	mental health.ti.
50	or/23-49
51	(cCBT* or iCBT* or eCBT*).ti,ab,kf,id.
52	(MoodGym or Big White Wall or Beating the Blues or Fear Fighter or E compass or Ecompass or Deprexis or Moodkit or Living Life to the Full).ti,ab,kf,id.

MULTI-DATABASE STRATEGY

Line #	Search Strategy
53	(e-mental health or emental health).ti,ab,kf,id.
54	or/51-53
55	4 and 22 and 50
56	54 or 55
57	exp Empirical Research/
58	Interview/
59	Interviews as Topic/
60	Personal Narratives/
61	Focus Groups/
62	exp Narration/
63	Nursing Methodology Research/
64	Narrative Medicine/
65	Qualitative Research/
66	exp Empirical Methods/
67	exp Interviews/
68	Interviewing/
69	Grounded Theory/
70	Narratives/
71	Storytelling/
72	interview*.ti,ab,kf,id.
73	qualitative*.ti,ab,kf,jw,id.
74	(theme* or thematic).ti,ab,kf,id.
75	ethnological research.ti,ab,kf,id.
76	ethnograph*.ti,ab,kf,id.
77	ethnomedicine.ti,ab,kf,id.
78	ethnonursing.ti,ab,kf,id.
79	phenomenol*.ti,ab,kf,id.
80	(grounded adj (theor* or study or studies or research or analys?s)).ti,ab,kf,id.
81	(life stor* or women* stor*).ti,ab,kf,id.
82	(emic or etic or hermeneutic* or heuristic* or semiotic*).ti,ab,kf,id.
83	(data adj1 saturat*).ti,ab,kf,id.
84	participant observ*.ti,ab,kf,id.
85	(social construct* or postmodern* or post-structural* or post structural* or poststructural* or post modern* or post-modern* or feminis*).ti,ab,kf,id.
86	(action research or cooperative inquir* or co operative inquir* or co-operative inquir*).ti,ab,kf,id.
87	(humanistic or existential or experiential or paradigm*).ti,ab,kf,id.
88	(field adj (study or studies or research or work)).ti,ab,kf,id.
89	(human science or social science).ti,ab,kf,id.
90	biographical method.ti,ab,kf,id.
91	theoretical sampl*.ti,ab,kf,id.
92	((purpos* adj4 sampl*) or (focus adj group*)).ti,ab,kf,id.
93	(open-ended or narrative* or textual or texts or semi-structured).ti,ab,kf,id.
94	(life world* or life-world* or conversation analys?s or personal experience* or theoretical saturation).ti,ab,kf,id.

MULTI-DATABASE STRATEGY

Line #	Search Strategy
95	((lived or life) adj experience*).ti,ab,kf,id.
96	cluster sampl*.ti,ab,kf,id.
97	observational method*.ti,ab,kf,id.
98	content analysis.ti,ab,kf,id.
99	(constant adj (comparative or comparison)).ti,ab,kf,id.
100	((discourse* or discours*) adj3 analys?s).ti,ab,kf,id.
101	(heidegger* or colaizzi* or spiegelberg* or merleau* or husserl* or foucault* or ricoeur or glaser*).ti,ab,kf,id.
102	(van adj manen*).ti,ab,kf,id.
103	(van adj kaam*).ti,ab,kf,id.
104	(corbin* adj2 strauss*).ti,ab,kf,id.
105	or/57-104
106	exp Patient Acceptance of Health Care/
107	Caregivers/
108	exp Client Attitudes/
109	Health Care Seeking Behavior/
110	((patient or patients or proband* or individuals or survivor* or family or families or familial or kindred* or relative or relatives or care giver* or caregiver* or carer or carers or personal or spous* or partner or partners or couples or users or participant* or people or child* or teenager* or adolescent* or youth or girls or boys or adults or elderly or females or males or women* or men or men's or mother* or father* or parents or parent or parental or maternal or paternal) and (preference* or preferred or input or experience or experiences or value or values or perspective* or perception* or perceive or perceived or expectation* or choice* or choose* or choosing or "day-to-day" or lives or participat* or acceptance or acceptability or acceptable or accept or accepted or adheren* or adhere or nonadheren* or complian* or noncomplian* or willingness or convenience or convenient or challenges or concerns or limitations or quality of life or satisfaction or satisfied or dissatisfaction or dissatisfied or burden or attitude* or knowledge or belief* or opinion* or understanding or lessons or reaction* or motivation* or motivated or intention* or involvement or engag* or consult* or interact* or dialog* or conversation* or decision* or decide* or deciding or empower* or barrier* or facilitator* or survey* or questionnaire* or Likert)).ti.
111	((patient or patients or proband* or individuals or survivor* or family or families or familial or kindred* or relative or relatives or care giver* or caregiver* or carer or carers) adj2 (preference* or preferred or input or experience or experiences or value or values or perspective* or perception* or perceive or perceived or expectation* or choice* or choose* or choosing or "day-to-day" or lives or participat* or acceptance or acceptability or acceptable or accept or accepted or adheren* or adhere or nonadheren* or complian* or noncomplian* or willingness or convenience or convenient or challenges or concerns or limitations or quality of life or satisfaction or satisfied or dissatisfaction or dissatisfied or burden or attitude* or knowledge or belief* or opinion* or understanding or lessons or reaction* or motivation* or motivated or intention* or involvement or engag* or consult* or interact* or dialog* or conversation* or decision* or decide* or deciding or empower* or barrier* or facilitator* or survey* or questionnaire* or Likert)).ab,kf,id.
112	((patient or patients or proband* or individuals or survivor* or family or families or familial or kindred* or relative or relatives or care giver* or caregiver* or carer or carers) adj7 (preference* or preferred or input or experience or experiences or value or values or perspective* or perception* or perceive or perceived or expectation* or choice* or choose* or choosing or "day-to-day" or lives or participat* or acceptance or acceptability or acceptable or accept or accepted or adheren* or adhere or nonadheren* or complian* or noncomplian* or willingness or convenience or convenient or challenges or concern or limitations or quality of life or satisfaction or satisfied or dissatisfaction or dissatisfied or burden or attitude* or knowledge or belief* or opinion* or understanding or lessons or reaction* or motivation* or motivated or intention* or involvement or engag* or consult* or interact* or dialog* or conversation* or decision* or decide* or deciding or empower* or barrier* or facilitator* or survey* or questionnaire* or Likert)).ab. /freq=2
113	((personal or spous* or partner or partners or couples or users or participant* or people or child* or teenager* or adolescent* or youth or girls or boys or adults or elderly or females or males or women* or men or men's or mother* or father* or parents or parent or parental or maternal or paternal) adj2 (preference* or preferred or input or experience or experiences or value or values or perspective* or perception* or perceive or perceived or expectation* or choice* or

MULTI-DATABASE STRATEGY

Line #	Search Strategy
	choose* or choosing or "day-to-day" or lives or participat* or acceptance or acceptability or acceptable or accept or accepted or adheren* or adhere or nonadheren* or complian* or noncomplian* or willingness or convenience or convenient or challenges or concerns or limitations or quality of life or satisfaction or satisfied or dissatisfaction or dissatisfied or burden or attitude* or knowledge or belief* or opinion* or understanding or lessons or reaction* or motivation* or motivated or intention* or involvement or engag* or consult* or interact* or dialog* or conversation* or decision* or decide* or deciding or empower* or barrier* or facilitator* or survey* or questionnaire* or Likert)).ab. /freq=2
114	(patient adj (reported or centered* or centred* or focused)).ti,ab,kf,id.
115	(treatment* adj2 (satisf* or refus*)).ti,ab,kf,id.
116	or/106-115
117	56 and (105 or 116)
118	limit 117 to english language
119	remove duplicates from 118

OTHER DATABASES

Cochrane Library Issue 2, 2018	Same MeSH and keywords used as per MEDLINE search, excluding study types and Human restrictions. Syntax adjusted for Cochrane Library databases.
PubMed	A limited PubMed search was performed to capture records not found in MEDLINE. Same MeSH, keywords, limits, and study types used as per MEDLINE search, with appropriate syntax.
CINAHL (EBSCO interface)	Same keywords and study types used as per MEDLINE search. Syntax adjusted for EBSCO platform.

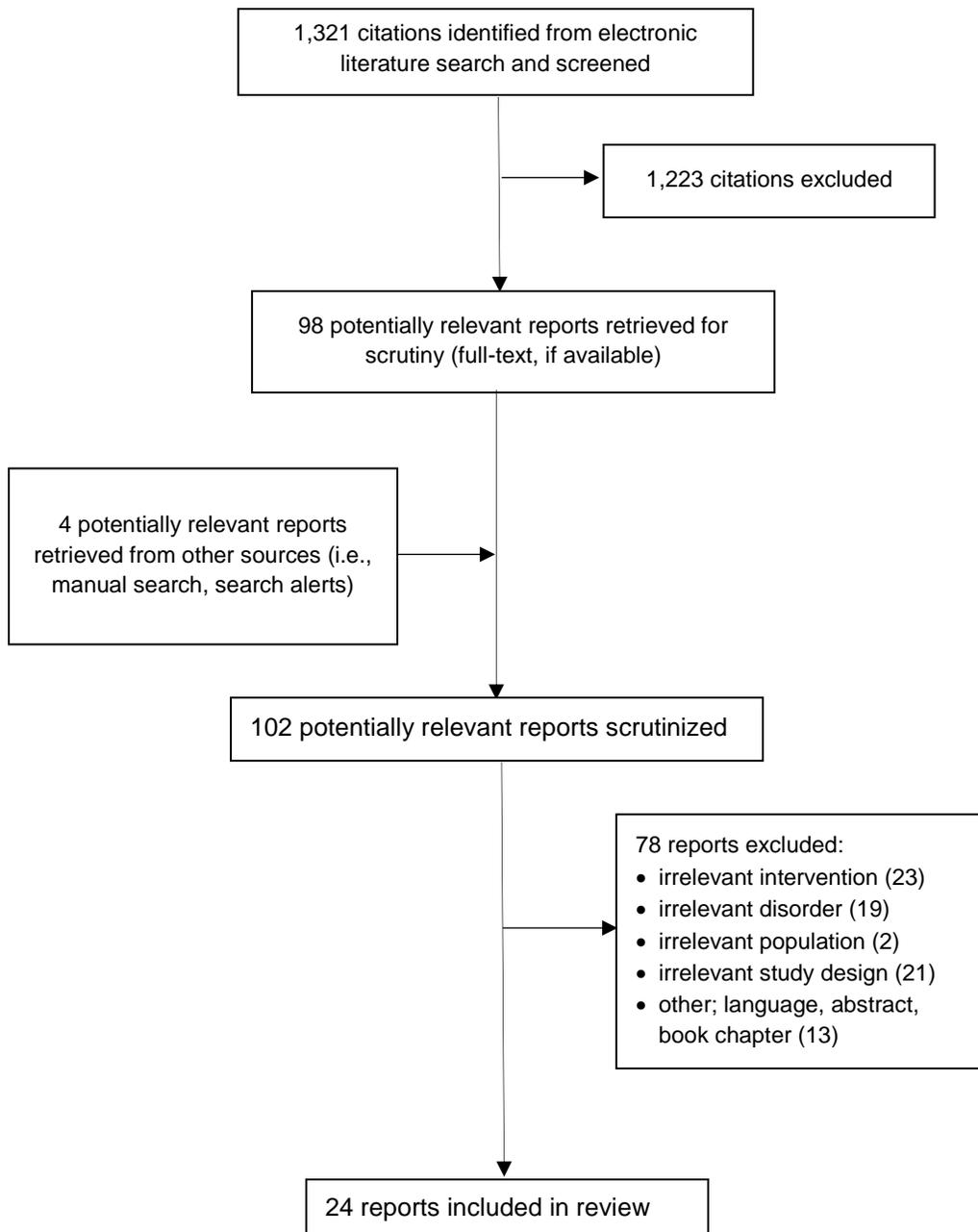
Grey Literature

Dates for Search:	April-May 2018
Keywords:	Internet-based cognitive therapy and depressive or anxiety disorders
Limits:	English language

Relevant websites from the following sections of the CADTH grey literature checklist *Grey Matters: a practical tool for searching health-related grey literature* (<https://www.cadth.ca/grey-matters>) were searched:

- health technology assessment agencies
- health economics
- clinical practice guidelines
- databases (free)
- Internet search
- open-access journals.

Appendix 2: Study Selection Flow Diagram — Patients’ Perspectives and Experiences



Appendix 3: List of Included Studies — Patients' Perspectives and Experiences

1. Bendelin N, Hesser H, Dahl J, Carlbring P, Nelson KZ, Andersson G. Experiences of guided Internet-based cognitive-behavioural treatment for depression: a qualitative study. *BMC Psychiatry*. 2011;11:107. <https://bmcp psychiatry.biomedcentral.com/track/pdf/10.1186/1471-244X-11-107>. Accessed 2018 Jul 5.
2. Alberts NM, Hadjistavropoulos HD, Titov N, Dear BF. Patient and provider perceptions of Internet-delivered cognitive behavior therapy for recent cancer survivors. *Support Care Cancer*. 2018;26(2):597-603.
3. Clarke J, Proudfoot J, Whitton A, et al. Therapeutic alliance with a fully automated mobile phone and web-based intervention: secondary analysis of a randomized controlled trial. *JMIR Ment Health*. 2016;3(1):e10. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4786687/>. Accessed 2018 Jul 5.
4. Donkin L, Glozier N. Motivators and motivations to persist with online psychological interventions: a qualitative study of treatment completers. *J Med Internet Res*. 2012;14(3):284-295. <http://www.jmir.org/2012/3/e91/>. Accessed 2018 Jul 5.
5. Gerhards SA, Abma TA, Arntz A, et al. Improving adherence and effectiveness of computerised cognitive behavioural therapy without support for depression: a qualitative study on patient experiences. *J Affect Disord*. 2011;129(1-3):117-125.
6. Hadjistavropoulos HD, Alberts NM, Nugent M, Marchildon G. Improving access to psychological services through therapist-assisted, Internet-delivered cognitive behaviour therapy. *Can Psychol*. 2014;55(4):303-311.
7. Hadjistavropoulos HD, Faller YN, Klatt A, Nugent MN, Dear BF, Titov N. Patient perspectives on strengths and challenges of therapist-assisted Internet-delivered cognitive behaviour therapy: using the patient voice to improve care. *Community Ment Health J*. 2018. <https://link.springer.com/content/pdf/10.1007%2Fs10597-018-0286-0.pdf>. Accessed 2018 Jul 5.
8. Holst A, Nejati S, Bjorkelund C, et al. Patients' experiences of a computerised self-help program for treating depression - a qualitative study of Internet mediated cognitive behavioural therapy in primary care. *Scand J Prim Health Care*. 2017;35(1):46-53.
9. Hovland A, Johansen H, Sjobo T, et al. A feasibility study on combining Internet-based cognitive behaviour therapy with physical exercise as treatment for panic disorder--treatment protocol and preliminary results. *Cogn Behav Ther*. 2015;44(4):275-287.
10. Knowles SE, Lovell K, Bower P, Gilbody S, Littlewood E, Lester H. Patient experience of computerised therapy for depression in primary care. *BMJ Open*. 2015;5(11):e008581. <https://bmjopen.bmj.com/content/bmjopen/5/11/e008581.full.pdf>. Accessed 2018 Jul 5.
11. Kuosmanen T, Fleming T, Barry M. The implementation of SPARX-R computerized mental health program in alternative education: exploring the factors contributing to engagement and dropout. *Child Youth Serv Rev*. 2018;84:176-184. <http://dx.doi.org/10.1016/j.childyouth.2017.11.032>. Accessed 2018 Jul 5.
12. Lillevoll KR, Wilhelmsen M, Kolstrup N, et al. Patients' experiences of helpfulness in guided internet-based treatment for depression: qualitative study of integrated therapeutic dimensions. *J Med Internet Res*. 2013;15(6):e126. <http://www.jmir.org/2013/6/e126/>. Accessed 2018 Jul 5.
13. Lucassen MF, Hatcher S, Fleming TM, Stasiak K, Shepherd MJ, Merry SN. A qualitative study of sexual minority young people's experiences of computerised therapy for depression. *Australas*. 2015;23(3):268-273.
14. Lundgren J, Andersson G, Dahlstrom O, Jaarsma T, Kohler AK, Johansson P. Internet-based cognitive behavior therapy for patients with heart failure and depressive symptoms: a proof of concept study. *Patient Educ Couns*. 2015;98(8):935-942.
15. Månsson KN, Skagius Ruiz E, Gervind E, Dahlin M, Andersson G. Development and initial evaluation of an Internet-based support system for face-to-face cognitive behavior therapy: a proof of concept study. *J Med Internet Res*. 2013;15(12):e280. <http://www.jmir.org/2013/12/e280/>. Accessed 2018 Jul 5.
16. Richards D, Dowling M, O'Brien E, Viganò N, Timulak L. Significant events in an Internet-delivered (Space from Depression) intervention for depression. *Couns Psychother Res*. 2018;18(1):35-48. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/capr.12142>. Accessed 2018 Jul 5.
17. Richards D, Timulak L. Satisfaction with therapist-delivered vs. self-administered online cognitive behavioural treatments for depression symptoms in college students. *Br J Guid Couns*. 2013;41(2):193-207.
18. Rozentel A, Boettcher J, Andersson G, Schmidt B, Carlbring P. Negative effects of Internet interventions: a qualitative content analysis of patients' experiences with treatments delivered online. *Cogn Behav Ther*. 2015;44(3):223-236.
19. Schneider J, Sarrami Foroushani P, Grime P, Thornicroft G. Acceptability of online self-help to people with depression: users' views of MoodGYM versus informational websites. *J Med Internet Res*. 2014;16(3):e90. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4004160/>. Accessed 2018 Jul 5.
20. Stawarz K, Preist C, Tallon D, Wiles N, Coyle D. User experience of cognitive behavioral therapy apps for depression: an analysis of app functionality and user reviews. *J Med Internet Res*. 2018;20(6):e10120. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6010839/>. Accessed 2018 Jul 5.
21. Urech A, Krieger T, Moseneder L, et al. A patient post hoc perspective on advantages and disadvantages of blended cognitive behaviour therapy for depression: a qualitative content analysis. *Psychother Res*. 2018:1-13.
22. Beattie A, Shaw A, Kaur S, Kessler D. Primary-care patients' expectations and experiences of online cognitive behavioural therapy for depression: a qualitative study. *Health Expect*. 2009;12(1):45-59. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1369-7625.2008.00531.x>. Accessed 2018 Jul 5.
23. Walsh A, Richards D. Experiences and engagement with the design features and strategies of an Internet-delivered treatment programme for generalised anxiety disorder: a service-based evaluation. *Br J Guid Couns*. 2017;45(1):16-31.
24. Hind D, O'Cathain A, Cooper CL, et al. The acceptability of computerised cognitive behavioural therapy for the treatment of depression in people with chronic physical disease: a qualitative study of people with multiple sclerosis. *Psychol Health*. 2010;25(6):699-712.

Appendix 4: Characteristics of Included Studies — Patients’ Perspectives and Experiences

Table 2: Characteristics of Included Studies

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
Alberts, 2018, US ¹⁵	To ascertain the experiences of post-treatment cancer survivors who participated in a transdiagnostic iCBT program for managing symptoms of anxiety and/or depression program	n = 13	Symptoms of anxiety and/or depression, and in partial or complete remission from cancer	45 to 76; 11 female, 2 male	Thematic content analysis, semi-structured interviews	<i>Wellbeing After Cancer</i> is a guided, transdiagnostic iCBT program for recent cancer survivors; original “Wellbeing Course” Therapist interaction: online, typed/email Five lessons over eight weeks that include lesson summaries, case-oriented learning examples, homework assignments, regular emails, and additional materials/resources provided to participants
Beattie, 2009, UK ⁵¹	To explore expectations and experiences of online CBT, focusing on the impact of this delivery mode on therapeutic experience	n = 24 (pre-intervention) and n = 20 (post-intervention)	Primary care patients with ICD-10 diagnosis of depression, new episode of depression and almost all had at least moderate severity (BDI)	20 to 69; 17 female, 7 male	Thematic approach based on constant comparative method; semi-structured interviews pre- and post-intervention	Up to 10 online, guided CBT sessions offered; intervention via website, “ PsychologyOnline.co.uk ” which offers “live’ therapy” (p.47) from psychologist Therapist interaction: online, typed
Bendelin, 2011, Sweden ³³	To ascertain participant experiences of iCBT in two forms: Internet self-help with minimal therapist input, and email therapy	n = 12	Diagnosed with depression, with one also diagnosed with simple phobia	20 to 62; mean age: 36.3 years (SD: 16.5 years); 6 female, 6 male	Thematic analysis and grounded theory; interviews based on “Client Change Interview”	Compared; (1) Internet-administered self-help: 114 pages of text; 7 modules over 8 weeks; (2) email CBT with no prepared text; time frame and modules not specified;

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						(3) control waitlist group Therapist interaction: online, typed
Clarke, 2016, Australia ³⁴	To examine treatment factors contributing to, "development, persistence, and quality of the therapeutic alliance in face-to-face psychotherapy for participants with mild-to-moderate depression, anxiety, and/or stress, using mobile phone and Web-based CBT intervention entitled, "myCompass"	n = 16	Mild-to-moderate depression, anxiety, and/or stress	Mean age of 40.1 years (SD: 8.4); 13 females, 3 males	Analytic approach not specified; open-ended interview questions theoretically-based on the Agnew Relationship Measure and Model of Common Factors	Self-guided public health CBT-based intervention entitled "myCompass"; self-monitoring of moods and behaviours (via mobile device), and interactive, psychotherapeutic modules and SMS text or email reminders for self-monitoring; phone/computer support to monitor change/assist with identifying triggers Delivered over eight weeks; number of modules unspecified
Donkin, 2012, Australia ³⁵	To address what influences persistence with online interventions	n = 12	Depression, minimum moderate level of depressive symptoms	> 45 years of age; sex NR	Grounded theory; semi-structured interviews	Intervention (CREDO) offering one module per week, with a reminder being sent to participants 3 to 4 days after each module is introduced; a scripted reminder telephone call from a research assistant offered if module incomplete Delivered over 12 weeks
Gerhards, 2011, The Netherlands ³⁶	To understand patient experiences of the online self-help cCBT program, "Colour Your Life" for depression, and explain low treatment adherence and effectiveness	n = 18 (range of engagement in cCBT); from two trials; range of adherence to cCBT (3 did not start, 7 started but did not finish, 8 completed)	Depression with at least mild-to-moderate depressive symptoms (>/-16 on BDI-II); depressive symptoms lasting three months or more	Mean age: 43.6 years; 9 female, 9 male	Content analysis in line with grounded theory; semi-structured interviews	Multimedia interactive eight weekly sessions, with additional booster session; includes illustrative video, homework, and an optional "mood diary"; self-help without professional assistance

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
Hadjistavropoulos, 2014, Canada ³⁷	To enhance patient access to iCBT, patient experience of iCBT is provided	n = 113 of 221; total sample (n = 221) offered treatment for generalized anxiety (n = 112), depression (n = 83), or panic (n = 26)	Generalized anxiety disorder, depression, and panic; of larger sample, 62% used some form of psychotropic medication	Mean age: 39.92 years (SD: 13, range: 18 to 69); ~70% female	Analytic approach not specified; review of written feedback	Three iCBT programs (for generalized anxiety, depression or panic); 12 multimedia iCBT modules each; patients assigned to a provider; patient invited to work on iCBT modules and correspond a minimum of once/week with provider; supported via SMS and online tracking of program use Therapist interaction: online text (internal message system), telephone
Hadjistavropoulos, 2018, Canada ³⁸	To understand what was liked and disliked about therapist-assisted Internet-delivered CBT (T-ICBT)	135/225 (60%) of patient base	Depression and/or anxiety; over half (n = 143) on medication for depression or anxiety	Mean age: 37.8 years (SD: 14.6); 158 (70%) female	Content analysis; open-ended questions	Online therapist-assisted Internet-delivered CBT entitled, Wellbeing Course; psycho-educational lessons; textual and visual slideshows, resource materials, vignettes, DIY summary guides; therapist reviews symptoms & responds to email and potentially offers phone contact Five psycho-educational lessons over eight weeks
Hind, 2010, UK ⁵³	To explore the acceptability of two cCBT packages (Beating the Blues and MoodGym) for depression among people with multiple sclerosis	n = 17	Range of multiple sclerosis-related disability, and at least mild levels of depressive symptoms	30 to 61 years; median age: 46 years; 4 male, 13 female	"Framework": qualitative data analysis method	Participants assigned to either MoodGym (five weekly sessions) or Beating the Blues™ (eight weekly sessions)
Holst, 2017, Sweden ³⁹	To explore the experiences of primary care patients receiving iCBT for	n = 13	Mild-to-moderate depression	Mean age: 41 years; range: 27 to 68 years; 7 women, 6	Systematic text condensation, semi-structured interviews	Self-help program with interactive elements, CD with exercises and workbook;

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
	depression			men	or focus groups	minimal therapist input via email communication once weekly and three telephone contacts (more contact, as needed) Delivered over 12 weeks
Hovland, 2015, Norway ³²	To explore participant treatment experiences and satisfaction with guided self-help via iCBT with physical exercise as treatment for panic disorder	n = 4	Panic disorder; diagnostic criteria met for panic disorder with agoraphobia (average duration of illness = 11 years); one participant met diagnostic criteria for comorbid social anxiety disorder; one participant previously received recommended treatment for panic disorder (CBT); two participants used psychotropic medication (selective serotonin reuptake inhibitors)	Age range: 18 to 50 years; mean: 41.5 years (SD: 5.2); all female	Analytic approach not specified; qualitative interviews	Guided iCBT, and once weekly session of supervised physical exercises and twice weekly sessions of unsupervised physical exercise; four options: (1) manualized CBT for panic disorder in groups, (2) guided iCBT for panic disorder, (3) inclusion in study treatment, and (4) outpatient individual face-to-face treatment referral; iCBT Internet portal; exercise portal and exercise diary; same therapist offered exercise therapy <i>and</i> supervised iCBT; exercise and symptom monitoring (weekly) sent electronically to therapist, with weekly feedback to patient Nine modules delivered over 12 weeks (5 to 20 pages of text/pictures sequentially completed)
Knowles, 2015, UK ²⁰	To explore patient experience of cCBT, with a focus on engagement with the intervention, and examination of acceptability of computer-delivered	n = 36	Clinical level of depression	Mean age: 51 years, range: 29 to 69 years; 10 (28%) male	Constant comparative method; semi-structured interviews	REEACT trial in which two-thirds used MoodGYM, with others using Beating the Blues™ programs at various sites

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
	therapy, without therapist support					Timeframes unclear
Kuosmanen, 2018, Ireland ⁴⁰	To examine user satisfaction and acceptability of the SPARX-R program; to examine factors contributing to student disengagement and dropout (two of four identified objectives, as relevant to this review)	n = 12 students attending alternative education program	Program addresses symptoms of mild-to-moderate depression, and nurtures depression prevention and well-being; level of depression not indicated	Age: 15 to 20 years (overall project [note: subset ages not given]); of sub-sample cohort, 67% male	Semantic theoretical approach; thematic analysis; discussion group or interviews	SPARX-R (version 1.0) addresses symptoms of depression and seeks for address: emotion regulation, problem-solving and interpersonal skills; includes gaming, a narrative and interactional characters Seven game levels taking approximately 20 to 30 minutes to complete
Lillevoll, 2013, Norway ⁴¹	To explore the experiences of patients who participated in an iCBT intervention for depression, when therapist support provided; focusing on treatment dimensions considered helpful	n = 14	Depression; BDI scores: 10 to 28 (mean = 18.27); reported at post-treatment	22 to 61 years; 5 men, 9 women	Phenomeno-logical-hermeneutical approach, semi-structured interviews	Participants completed five MoodGYM modules (once weekly, in sequence), followed by face-to-face weekly consultations with therapist (15 to 30 minutes, minimum seven weeks, with full treatment course to include eight consultations); flexible treatment protocol permitted treatment delays, with no therapist session maximum limit Initial assessment followed by session with therapist to introduce the "self-help" program (brief information about, "theoretical basis and empirical support as well as the content of the program and expected work load" [p.3])
Lucassen, 2015, New Zealand ⁴²	To explore the experiences of lesbian, gay, bisexual, or	n = 25	Depression among sexual minority youth;	13 to 19 years, mean: 16.36	General inductive approach; semi-	Rainbow SPARX (Smart, Positive, Active, Realistic,

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
	sexual minority youth who used a form of SPARX (computerized therapy) for depression; specifically, likes and dislikes of the intervention, thoughts on perceived benefits, content, weekly challenges		20 had significant depressive symptoms (prior to intervention, Child Depression Rating Scale-Revised raw score $>/-30$)	years; 12 identified as male, 13 identified as female, 2 identified as transgender	structured interviews	X-factor thoughts) is a self-help program for youth with depression; delivered in game-like format Seven modules completed as levels by participants
Lundgren, 2015, Sweden ⁴³	Aim of reviewed part of study was to explore participant perceptions of iCBT program patients with heart failure and depressive symptoms	n = 7	Heart failure and depressive symptoms based on Patient Health Questionnaire-9 (PHQ-9) $-/ >5$; and Montgomery Asberg Depression Rating-Self Rating Scale (MADRS-S);	Mean age: 62 years; SD: 10; 3 males, 4 females	Not specified; conventional qualitative analysis, semi-structured interviews	Professional collaboration, including a person (patient) with cardiovascular disease; treatment program and feedback via Internet platform; program components include psycho-education, behaviour activation, and problem-solving Seven modules over nine weeks
Månsson, 2013, Sweden ⁴⁴	To examine user experiences and means by which, “the support system was used and perceived” (p. 2)	n = 15	Major depressive episode, social anxiety disorder, generalized anxiety disorder, agoraphobia, panic disorder, comorbidity (fulfilling two or more diagnostic criteria); mild-to-moderate anxiety or depression (or both)	Mean age: 43 years, range: 22 to 70 years, SD: 15; 10 females	Not specified; content analysis; interviews and focus groups	Blended individualized iCBT intervention and face-to-face therapy; support system with CBT components Delivered over eight to nine weeks; homework assignments and “library of interventions gathered from existing iCBT manuals” (p.1) (compiled from prior iCBT studies on anxiety/ depression and presented as part of face-to-face sessions [handouts])
Richards, 2013, Ireland ⁴⁶	To examine participant satisfaction with iCBT (therapist-delivered via email [eCBT] and self-	n = 25 (eCBT n = 10; cCBT n = 15)	University students with depressive symptoms (mild-to-moderate range [14 to 29] based	Age range in eCBT group: 19 to 59 (mean: 28, SD: 12.4); age range in cCBT	Descriptive and interpretive qualitative analysis, questionnaires	(1) Eight self-administered iCBT (cCBT) sessions using Beating the Blues™, which offers interactive modules,

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	administered) (cCBT) for depression		on BDI); Exclusion: minimal (< 14) or severe (> 29) symptoms	group: 21 to 50 (mean: 29, SD: 7.7); in eCBT group: 7 males and 3 females; in cCBT group: 7 females and 8 males		animations, voice-overs, and case studies (filmed); users identify problems and treatment goals; cognitive modules, and problem-directed behavioural components; (2) asynchronous email (eCBT) sessions with therapist using text version of Beating the Blues™ program (free-text response from counsellor)
Richards, 2018, Ireland ⁴⁵	To identify and analyze "most helpful and hindering events" ^{45(p.36)} of iCBT intervention and their perceived impacts, based on user perspectives, with an aim of eliciting therapeutic processes	n = 88	Depression; initial score of 14 to 28 on BDI (mild-to-moderate range)	Mean age: 37.93, range: 21 to 60, SD: 9.82; 66 female, 22 male	Descriptive interpretative qualitative analysis, questionnaires	Space for Depression offers cognitive behavioural elements; program delivery entails one module/week over seven weeks; modules entail quizzes, videos, information, activities, homework and summary; "supporters" (trained and supervised volunteers) monitor participant progress and offer feedback "Supporters" (trained and supervised volunteers) monitor participant progress and offer feedback; modality of supporter communication unclear

First Author, Publication Year, Country	Study Objectives	Sample Size (Only Qualitative and Patient/ User Component of Sample)	Condition/ Condition Severity	Participant Age in Years and Sex	Study Design and Analytic Approach	iCBT Approach
Rozental, 2015, Sweden ⁴⁷	To examine patients' experiences of Internet interventions; specifically with a focus on the "occurrence and characteristics of negative effects"; ^{47(p.225)} to understand patients' perceptions of negative effects	n = 558 (across trials) who indicated experiencing one or more adverse events potentially related to treatment	Various psychiatric disorders and procrastination	Mean age: 35.69 years, SD: 11.84	Qualitative content analysis; open-ended questions	Four studies: (1) participants with social anxiety disorder or panic disorder receiving iCBT (guided or unguided) supplemented by smartphone application; ¹⁵³ (2) participants with major depressive disorder receiving guided iCBT vs. physical activity; ¹⁵⁴ (3) participants with social anxiety disorder receiving guided iCBT with/without cognitive bias modification; ¹⁵⁵ and (4) participants with chronic and severe procrastination receiving guided vs. unguided iCBT ¹⁵⁶
Schneider, 2014, UK ⁴⁸	To explore users' views of cCBT; i.e., online self-help for depression in a workplace trial	n = 359/637 (56%) responded to structured questions six weeks later, and n = 231/637 (36%) responded to structured questions at 12 weeks	Depression in the workplace; likely depression on Patient Health Questionnaire-9; "scored 2 or more on 5 of the 9 items, including 2 or more on item 1 (little interest in doing things) or item 2 (feeling hopeless)"; ⁴⁸ complete confirmation that one item or more was a problem making it difficult to work, "take care of things at home, or get along with people" ⁴⁸	Intervention group: 136 male, 176 female; mean age for both males and females: 42.2 years (SD: 9.6) Control group: 160 male, 152 female; mean age for both males and females: 42.7 years (SD: 9.6)	Grounded theory; analysis of instrument-based open-ended questions	MoodGYM offers modularized CBT for depression and anxiety; participants proceed at own pace; MoodGYM and control group participants (accessing websites with reliable sources of mental health-based information) received six weekly telephone calls to screen for self-harm risk, address technical issues, collect service use data; participants' data inputted through a research portal Designed to be delivered over five weeks, but participants complete at own pace

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Stawarz, 2018, UK ⁴⁹	To understand users' attitudes about CBT apps for depression as well as which features are used and perceived to be most important	n = 31 apps that met criteria; i.e., reportedly "CBT apps for depression"	Review of CBT apps for depression (self-identify as implementing CBT for depression) and mental well-being apps (address mental health problems [e.g., depression, anxiety, stress, worry, mood, emotional well-being])	Not available	Thematic analysis and synthesis of user perspectives; iterative process emerged to elicit broader categories and themes	Varied CBT-based apps
Urech, 2018, Switzerland ⁵⁰	To examine patient perceptions, including perceived advantages and disadvantages, of blended iCBT for depression; to examine potential perceived differences in advantages and disadvantages relative to depression severity	n = 15	Depression (mild, moderate, and moderately severe/severe)	Mean age: 42.4 years; range: 20 to 67 years; 8 females, 9 males	Summarizing content analysis semi-structured interviews	Biweekly face-to-face cognitive behavioural psychotherapy (~50 minutes/session) as well as alternating week iCBT; i.e., an adapted version of Deprexis (11 modules completed over 18 weeks) Worksheets, audio recordings, summary sheets and automatic daily messages via SMS or email
Walsh, 2017, Ireland ⁵²	To examine users' experiences and engagement with strategies (personal, supportive, and social) of the Silvercloud "Space from Anxiety" program	n = 7	Generalized anxiety disorder	Mean age: 22.86 years (5 females, 2 males); university students who used this program, including those who both completed or did not complete the program	Thematic approach; semi-structured interviews	"Space from Anxiety" is a six-module (over six weeks) program for generalized anxiety disorder administered on a Web 2.0 platform; design features are noted as, "personalised accounts, interactive exercises, online support from therapist and community features" ^{52(p.18)} Support from a therapist online; modality of supporter communication unclear

BDI = Beck Depression Inventory; CBT = cognitive behavioural therapy; cCBT = computerized cognitive behavioural therapy; CREDO = Cardiovascular Risk e-couch Depression Outcome; DIY = do it yourself; eCBT = email cognitive behavioural therapy; iCBT = Internet-delivered cognitive behavioural therapy; NR = not reported; SD = standard deviation; SMS = short message service; vs. = versus.

Appendix 5: List of Excluded Studies — Patients’ Perspectives and Experiences

Irrelevant Intervention

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Irrelevant Disorder

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Irrelevant Population

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Irrelevant Study Design

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Appendix 6: Critical Appraisal of Included Studies — Patients’ Perspectives and Experiences

Table 3: Strengths and Limitations of Included Studies Assessed Using the Critical Appraisals Skills Programme Qualitative Checklist³⁰

Strengths	Limitations
Alberts, 2018¹⁵	
<ul style="list-style-type: none"> • Aims stated • Exploratory qualitative research design, thematic content analysis, and semi-structured interviews suitable for the aim of the study • Recruitment for the study through advertisement in “medical facilities, media outlets, and presentations to local cancer support groups” works well as a form of recruitment for this study • Two coders and reflective memoing • Received ethics approval from the “Human Research Ethics Committees” 	<ul style="list-style-type: none"> • While the descriptive findings are well presented, further analytical depth would explain how these descriptions come to matter in the context of the technology
Beattie, 2009⁵¹	
<ul style="list-style-type: none"> • Aims stated • Sample variation • Individuals who withdrew from therapy also interviewed • Steps of analysis described and findings are well presented • Multiple coders involved in analysis process • Ethics approval by the NHS ethics committee, the Royal Free Hospital and Medical School Research Ethics Committee (London) 	<ul style="list-style-type: none"> • Increased delineation of differences among purposive sample strata (e.g., socio-economic status, rurality) would add depth to the analysis
Bendelin, 2011³³	
<ul style="list-style-type: none"> • Aims stated • Purposive sample based on maximum variation related to treatment received and outcome/ improvement • Indication that those who declined participation in this phase of the study were systematically similar on depression (from other participants) • Steps of analysis described (including independent coders) and findings are well presented • Credibility checks noted • Ethics approval by the medical ethics committee in Linkoping, Sweden 	<ul style="list-style-type: none"> • Interviews conducted six months after treatment ended; potential memory distortion
Clarke, 2016³⁴	
<ul style="list-style-type: none"> • Aims stated • Purposive sampling, semi-structured interviews, and thematic analysis appropriate to address research aim • Steps of analysis, including multiple data reviewers, described and findings are well presented • Ethics approval from the Human Research Ethics 	<ul style="list-style-type: none"> • Purposive sampling is appropriate for this study, but there is no indication of how the purposive sample was established

Strengths	Limitations
Committee of the University of New South Wales	
Donkin, 2012³⁵	
<ul style="list-style-type: none"> • Aims stated • Use of qualitative methods (grounded theory) appropriate for unexplored area of research • Interview guide developed and modified iteratively during transcription of interviews and data analysis • Telephone and face-to-face semi-structured interviews done at interviewees' choice of time and location • Theoretical saturation attained by the ninth interview, three additional interviews conducted to ensure saturation • Data analysis included use of field notes and interview impressions • Outlined steps of data analysis, including codes considered by researcher (a priori) • Ethics approval from the University of Sydney Human Research Ethics Committee 	<ul style="list-style-type: none"> • Interviews conducted six to 12 months after end of trial; potential memory distortion • No individuals participated that did not complete intervention
Gerhards, 2011³⁶	
<ul style="list-style-type: none"> • Aims stated • Maximum variation sampling • Grounded theory approach specified • Pseudonyms used • Member checking and "code-checking" 	<ul style="list-style-type: none"> • Relative to specific focus of this review; i.e., patient experience, the study addressed adherence and effectiveness • Ethics approval not indicated in this paper, although trial details indicated to be reported elsewhere
Hadjistavropoulos, 2014³⁷	
<ul style="list-style-type: none"> • Aims stated • Potential participants are described to have learned about Online Therapy Unit from different sources: care providers, media, family or friends, online advertisements (from which study participation drawn) • Program and process for patients well described 	<ul style="list-style-type: none"> • Only 113/221 participants provided written feedback • Additional detail about qualitative approach and data analysis methods would add strength to the trustworthiness and credibility of the findings • Indication of a consent form, but no indication of ethics approval (although focus of paper is on program description)
Hadjistavropoulos, 2018³⁸	
<ul style="list-style-type: none"> • Aims stated • Participants names replaced with identification numbers to ensure privacy • Potential participants are described to have learned about course from diverse sources: care providers, mental health professionals, family or friends, advertisements (from which study participation drawn) • Reasoning provided behind the use of conventional content analysis, and outlined how it was used in the study • Use of two independent coders who met frequently and one expert coder to resolve discrepancies, confirm data, and compare data for overlooked themes • Reflective memoing in analysis • Claimed to meet the definition of an author as stated by the International Committee of Medical Journal Editors • Ethics approval by the University of Regina Ethics Board 	<ul style="list-style-type: none"> • 135/225 participants — solely program completers — who responded to open-ended questions

Strengths	Limitations
Holst, 2017³⁹	
<ul style="list-style-type: none"> • Aims stated • Qualitative study design using systematic text condensation (STC) method appropriate for addressing this aim. STC well described and reason for choosing method well laid out • Focus groups and semi-structured interviews useful for gathering data directed toward aims • Steps taken in the analysis well described • Multiple coder involvement • Provides more descriptive backing for conversations around experiences and perspectives with iCBT • Attempt to explain results in light of other studies addressing similar tasks • Ethics approval by the regional committee for medical research ethics of Gothenburg 	<ul style="list-style-type: none"> • Interviews and focus groups took place up to three years after the intervention. This could be problematic in terms of specific recall
Hind, 2010⁵³	
<ul style="list-style-type: none"> • Aims stated • Inclusion of participants who either completed or withdrew from iCBT • Well-described analysis, with multiple analysts • Involvement of a person with lived experience on research team 	<ul style="list-style-type: none"> • Ethics review and approval are not outlined; however, this study is reported as part of a larger study (ethics review details may have been reported elsewhere), and consent is referenced
Hovland, 2015⁵²	
<ul style="list-style-type: none"> • Aims stated • Interview questions described • Ethics approval by the Committee for Medical and Health Research Ethics and Norwegian Social Science Data Services 	<ul style="list-style-type: none"> • Small sample (n = 4); i.e., only 4 of 7 who had completed treatment • Qualitative approach clarity would add
Knowles, 2015²⁰	
<ul style="list-style-type: none"> • Aims stated • Semi-structured interviews completed in participants' home suitable for this study's design and purpose • Use of and process involved in constant comparative method well described • Multiple coders of transcripts • Attempt to take analysis beyond description • Ethics approval by Leeds East REC 	<ul style="list-style-type: none"> • Convenience sampling method used based on the larger REEACT trial; justification of this approach would add to the trustworthiness and credibility of the findings
Kuosmanen, 2018⁴⁰	
<ul style="list-style-type: none"> • Aims stated • Varied data collection methods (discussions, interviews, written feedback) to fit availability and choice of participants • Outlines steps of thematic analysis with a semantic theoretical approach • Analysis conducted by first author, themes refined and reviewed by another author • Similarities in qualitative findings and post-intervention questionnaires as an indication of data saturation 	<ul style="list-style-type: none"> • Brief interview duration (15 to 35 minutes) and qualitative data collected from three of six centres that completed the intervention

Strengths	Limitations
<ul style="list-style-type: none"> Ethics approval by the National University of Ireland, Galway Research Ethics Committee 	
Lillevoll, 2013⁴¹	
<ul style="list-style-type: none"> Aims stated Research paradigm (phenomenological-hermeneutical methodology) conveyed Clarity provided in roles of investigators Multiple coders involved in analysis process Interview setting based on participant preference Sample diversity Ethics approval by the Regional Ethical Committee, Tromso 	<ul style="list-style-type: none"> Justification for sampling approach not indicated; i.e., “recruitment was continuous until the desired total of 14 interviews was reached” (p.3)
Lucassen, 2015⁴²	
<ul style="list-style-type: none"> Aims stated Interview location described Researcher/interviewer reflexivity provided Research approach (general inductive approach) indicated Analysis approach described Two coders involved in analysis process Member checking indicated Ethics approval by the Multi Region Ethics Committee 	<ul style="list-style-type: none"> Brief interviews (8 to 36 minutes; mean of 18 minutes)
Lundgren, 2015⁴³	
<ul style="list-style-type: none"> Aims stated Analysis process described Ethics approval by regional ethical review in Linköping 	<ul style="list-style-type: none"> Further detail about qualitative approach would add to the credibility and trustworthiness of the findings
Månsson, 2013⁴⁴	
<ul style="list-style-type: none"> Aims stated Emergent themes discussed by two researchers Analysis approach described Overarching themes formulated via discussion among two researchers Ethics approval by local ethics committee 	<ul style="list-style-type: none"> Further detail about qualitative approach would add to the credibility and trustworthiness of the findings
Richards, 2013⁴⁶	
<ul style="list-style-type: none"> Aims stated Descriptive and interpretive analysis steps described Analysis done by first author and audited by second author who was unaware of the treatment modality group from which the data emerged 	<ul style="list-style-type: none"> Further detail about sample recruitment process would add to the credibility and trustworthiness of the findings Lower response rate on survey from participants (25/80); it appears that these participants also answered the open-ended questions, but further clarity on the proportion who completed open-ended questions would add to the credibility and trustworthiness of the findings Ethics approval not indicated in this paper, although reference to another paper was noted
Richards, 2018⁴⁵	
<ul style="list-style-type: none"> Aims stated Outline of descriptive-interpretive analysis and its application in the context of the study Multiple researchers involved in analysis, quality check, 	<ul style="list-style-type: none"> Inter-rater reliability agreement guidelines unclear Substantial amount of data came from questionnaires associated with early modules; further consideration of dropout/attrition would add to the credibility and trustworthiness of the findings

Strengths	Limitations
<ul style="list-style-type: none"> and audit on data analysis Ethics indicated from the university ethics committee 	
Rozenal, 2015⁴⁷	
<ul style="list-style-type: none"> Aims stated Purposeful sampling: examined patient experiences across different conditions and treatments from four clinical trials Content analysis was conducted inductively given that area of research is unexplored Iterative process of reading transcripts and comparing original data with extracted themes to maintain consistency Ethics approval received from the Regional Ethical Review Board in each location in which data were collected 	<ul style="list-style-type: none"> Data collection method of rating scale of negative events and one open-ended question in a survey potentially somewhat divergent from the primary aim of this review; i.e., patient experience more broadly
Schneider, 2014⁴⁸	
<ul style="list-style-type: none"> Aim stated Grounded theory approach indicated Ethics approval by the Australia National University ethics committee indicated 	<ul style="list-style-type: none"> Relative to focus of this review; i.e., patient experience, the study focuses on participants' view of "acceptability" Qualitative approach indicated as grounded theory, although additional methods detail would add to the credibility and trustworthiness of the findings 45% drop out at six weeks reported; study inferences thus likely to more strongly reflect the perspectives of individuals motivated toward course completion
Stawarz, 2018⁴⁹	
<ul style="list-style-type: none"> Aims stated Textual analysis of app reviews appropriate for exploring factors of user experiences and engagement; researchers justified this approach Authors included both sets of reviews if an app was available for Android and iOS devices; conducted thematic analysis on 1,287 reviews from 27 apps that mentioned at least one therapeutic feature First author coded reviews and discussed codes with others: iterative process of creating codes, categories, and themes Interpretations are close to the data and contradictory perspectives from users that used the same app are explored 	<ul style="list-style-type: none"> Limited to apps that are readily available for users, not apps in development Feedback only from users' app reviews may limit the scope of perspectives Ethics approval not indicated; however, may not be required given that reviews are available publicly
Urech, 2018⁵⁰	
<ul style="list-style-type: none"> Aims stated Content analysis described Recruitment strategy makes sense as this was an arm of a larger RCT taking place across Europe Semi-structured, open-ended interviews were appropriate for the research question and suit the methodology Data analysis seems reasonably rigorous and choices made throughout are indicated in the methods section Multiple coders involved in analysis process Ethics approval by the Ethics Committee of the Canton of Bern 	<ul style="list-style-type: none"> Excluded categories/themes for which there were "not enough codings." This could be detrimental to the analysis if looking for conflicting cases or points of disjuncture from the norm, although not necessarily the purpose of the study

Strengths	Limitations
Walsh, 2017⁵²	
<ul style="list-style-type: none"> • Aims stated • Semi-structured interview guide developed based on the literature and a pilot interview • Described steps of thematic approach used in data analysis • Inter-rater reliability analysis 	<ul style="list-style-type: none"> • Brief interview duration (15 to 35 minutes) • No indication of location of interviews • Ethics approval not indicated

iCBT = Internet-delivered cognitive behavioural therapy; NHS = National Health Service; RCT = randomized controlled trial.

Appendix 7: Characteristics of Included Studies — Implementation Issues

Table 4: Characteristics of Included Literature Reviews

Author(s), Publication Year, Country	Study Design, Objective	Population of Interest	Name and Description of Program	Implementation Factors
Weaver and Himle, 2017 ⁷¹ US	A literature review of studies published between 2000 and 2012 that assessed adaptations that researchers used to enhance CBT	Patients in rural or remote settings with generalized anxiety disorder; patients were recruited in Australia and the UK	cCBT with or without telephone support during office hours	<p>One study of 588 patients with GAD (mean age 39.5 years; 71.4% female) was relevant</p> <p>Patient factor:</p> <ul style="list-style-type: none"> • rural (n = 254) versus urban (n = 334) setting • access to computers. <p>Results of clinical effectiveness of cCBT and methodological rigour of studies were not included in this report</p>
Webb et al., 2017 ⁷² US	A literature review of the benefits and limitations of iCBT programs and moderators of treatment response	Patients with depression	iCBT programs	<p>Results from a meta-analysis of 2,705 participants enrolled in RCTs</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • age • sex • educational level • presence of comorbid anxiety symptoms <p>Organizational factors:</p> <ul style="list-style-type: none"> • therapist or administrative support (through weekly emails or calls) <p>Results on moderators of treatment response are not included in this report</p>
Meurk et al., 2016 ⁷³ Australia	<p>Review of studies published from 2005 to 2015</p> <p>(Four out of 30 studies exclusively involved children and adolescents)</p>	Patients with depressive affective or anxiety disorders	eMH programs	<p>Patient factors:</p> <ul style="list-style-type: none"> • residence (rural vs. urban) • sex • marital status • history of depression • level of education • availability of free time • anonymity/concerns for privacy: iCBT offers anonymity and has less stigma than face-to-face CBT • mental health literacy and awareness of eMH programs • preference for self-help • financial incentives • interacting with others with similar conditions • lack of interest

Author(s), Publication Year, Country	Study Design, Objective	Population of Interest	Name and Description of Program	Implementation Factors
				<ul style="list-style-type: none"> • lack of trust • view of eMH as impersonal • stigma • symptom severity <p>Intervention factors:</p> <ul style="list-style-type: none"> • availability of text-based information • ease of use
Batterham et al., 2015 ⁷⁴ Australia	A literature review to identify key translational activities that need to be implemented to optimize the use of eMH programs	Patients with depression	eMH services	<p>Patient factors:</p> <ul style="list-style-type: none"> • stigma of seeking help for depression • low mental health literacy and poor symptom recognition • lack of awareness of existing evidence-based eMH programs as an effective treatment source • skepticism regarding the performance of eMH services over traditional approaches • lack of established pathways to using eMH services in the community <p>Provider factors:</p> <ul style="list-style-type: none"> • lack of awareness of eMH services • lack of training • negative perceptions of eMH resulting in resistance to changes in practice • perception of iCBT impeding the patient–clinician therapeutic relationship • concerns around efficacy, confidentiality, and safety (indemnity) • lack of the financial incentives that are currently available for face-to-face services <p>Organizational factors:</p> <ul style="list-style-type: none"> • promoting the use of eMH programs through education and training • public portal for referrals • accreditation • translational research • financial costs • lack of quality assurance processes to identify evidence-based programs • gaps in the evidence on cost-effectiveness, impact on wait times, accessibility for certain segments of the population, and engaging users • lack of established pathways to

Author(s), Publication Year, Country	Study Design, Objective	Population of Interest	Name and Description of Program	Implementation Factors
				provision of eMH Intervention factors: <ul style="list-style-type: none"> • provides printed feedback
Eells et al., 2014 ⁷⁵ US	A review of potential advantages and disadvantages of iCBT	Patients with depression	Good Days Ahead, Beating the Blues, MoodGYM	Provider factors: <ul style="list-style-type: none"> • clinician assistance may not be reimbursable • fear of competition • use outside geographic limits of license Organizational factors: <ul style="list-style-type: none"> • programming costs Intervention factors: <ul style="list-style-type: none"> • computer programs are unable to develop genuine therapeutic relationships that are fundamental to predicting outcomes • developing interactive aspects to which a variety of patients will respond • ethical and legal concerns — responding to suicidality, limits of confidentiality, therapist competence in using emerging technologies, obtaining informed consent, and issues related to patient identification
Green et al., 2009 ⁷⁶ US	A review of the issues related to dissemination and barriers to adoption of cCBT by clinicians	Patients with depressive and anxiety disorders, eating disorders, substance use disorders	cCBT programs	Intervention factors: <ul style="list-style-type: none"> • availability of printed feedback Provider factors: <ul style="list-style-type: none"> • lack of knowledge and training on cCBT • concerns about confidentiality and taking on patients with whom they do not interact in person; may not be ethical
Waller and Gilbody, 2009 ⁷⁷ UK	A systematic review of quantitative and qualitative studies on acceptability, accessibility, and harms of computer-aided CBT for depression or anxiety	Patients with depression or anxiety	cCBT programs	Patient factors: <ul style="list-style-type: none"> • geographic location • level of education • time • preference for clinician involvement in therapy Provider factors: <ul style="list-style-type: none"> • preferences in referring patients • reluctance to use iCBT Intervention factors: <ul style="list-style-type: none"> • cost of hardware • cost to get access to the Internet

Author(s), Publication Year, Country	Study Design, Objective	Population of Interest	Name and Description of Program	Implementation Factors
				<ul style="list-style-type: none"> • unknown effectiveness of disability aids • demanding workload • patronizing features
Cucciare and Weingardt, 2007 ⁷⁸ US	A review and discussion of the advantages and disadvantages of information technology–assisted MH services	Patients with anxiety disorders, major depression, body dissatisfaction, and disordered eating, or exhibiting risky sexual behaviour	Technology-based mental health therapies	Patient factors: <ul style="list-style-type: none"> • time • anonymity • reach or access to therapy • change in contact with therapist
Titov, 2007 ⁷⁹ Australia	A review summarizing recent literature on the use of cCBT, and a discussion of issues relevant to implementation	Patients with depression and anxiety	cCBT	Organizational factors: <ul style="list-style-type: none"> • acceptability • integrating cCBT into stepped care • clinical effectiveness • cost-effectiveness relative to current treatments • direct and indirect costs Intervention factors: <ul style="list-style-type: none"> • modifications to existing systems • maintaining systems

CBT = cognitive behavioural therapy; cCBT = computerized cognitive behavioural therapy; eMH = electronic mental health; GAD = generalized anxiety disorder; iCBT = Internet-delivered cognitive behavioural therapy; MH = mental health; RCT = randomized controlled trial; vs. = versus.

Table 5: Characteristics of Included Primary Studies

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
Alberts et al., 2018 ¹⁵ Canada	A qualitative feasibility study (involving interviews) to assess perceptions of iCBT	n = 10 health care providers and 13 recent cancer survivors with anxiety and/or depression in partial or complete remission between 12 and 18 months following treatment	Well-being After Cancer iCBT course — a transdiagnostic intervention with five online lessons completed over eight weeks. Two out of four enhanced learning examples were modified to reflect the experiences of cancer survivors Weekly contact (via telephone or secure email) with a therapist was available to each participant	Intervention factors: <ul style="list-style-type: none"> • accessibility in rural areas • around-the-clock access • reduction of visits to the clinic • strategies and CBT approach • overall organization of the content • option to access support and feedback from a therapist • focus on well-being rather than anxiety and depression • complements other treatment • promotion and awareness • comfort with the Internet and level of

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
				<ul style="list-style-type: none"> motivation and energy access to a computer or the Internet
Fuhr et al., 2018 ¹⁹ Germany, Switzerland, UK	An RCT (EVIDENT trial) to evaluate the effects of patient characteristics on adherence (i.e., number of sessions completed) and treatment outcome using self-rating screening for mental disorders (PHQ-9 scale), attitudes toward online interventions (questionnaire), and the quality of life (short-form-12) health survey	<p>n = 509 patients aged 18 to 65 years old with mild-to-moderate depression (defined by a score of 1 to 5 on the PSQ-9 as part of the WSQ); with access to the Internet and fluent in German</p> <p>Mean age: 42.81 ± 11.04 years; 68.8% female</p>	<p>Intervention: Care as usual plus Deprexis — an online intervention that consists of cognitive restructuring, behavioural activation, acceptance and mindfulness, and problem-solving; mean age = 43.72 ± 10.94 years</p> <p>62.3% who had moderate depression received email support from therapists;</p> <p>Comparator: Care as usual</p>	<p>Completion rate = 95.2% (485/509)</p> <p>Patient factors:</p> <ul style="list-style-type: none"> age sex frequency of Internet use severity of symptoms current dysthymia confidence in effectiveness availability of clinician support via email Internet use baseline severity of symptoms <p>Results on treatment outcome are not included in this report</p>
Dryman et al., 2017 ¹⁸ US	An observational study to evaluate use, participation, predictors of attrition, and effectiveness of iCBT using software metrics and self-reported data SPIN scale	<p>n = 3,384 registered users of an online program for SAD between 2014 and 2016; aged ≥ 18 years old; referred through public sources and therapists; completed ≥ 1 module; 45.8% women</p> <p>Mean age: 29.8 ± 7.9 years</p>	<p>Joyable: a 12-week open-access, paid iCBT program for social anxiety; the program cost \$99 per month</p> <p>56.9% of patients were supported by a coach</p>	<p>Completion rate: 16% completed post-treatment assessment after ≥ 2 sessions</p> <p>Patient factors:</p> <ul style="list-style-type: none"> access to a telephone coach age (self-reported) baseline severity of symptoms <p>Results on effectiveness are not included in this report</p>
Hadjistavropoulos et al., 2017 ¹⁷ Canada	A qualitative study (using a survey) to identify barriers and facilitators that influence iCBT implementation	<p>23 therapists and 12 managers, 19 to 29 months after iCBT for depression and anxiety was implemented; ≥ 18 year-old residents of Saskatchewan; self-reporting symptoms of depression and or anxiety; with access to and familiarity with computers and the Internet; no past history of psychotic symptoms; available to participate in iCBT for eight</p>	<p>Wellbeing Course with support from therapists in the community or online</p>	<p>Completion rate: 94% (33/35)</p> <p>Patient factors:</p> <ul style="list-style-type: none"> promotion and knowledge of iCBT strong preference for face-to-face provider's negative attitude <p>Provider factors:</p> <ul style="list-style-type: none"> knowledge of iCBT through training

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
		<p>weeks at a community mental health clinic</p> <p>Mean age: NR</p>		<ul style="list-style-type: none"> • specialization in iCBT with reduction in patients treated face-to-face • incentives for providing iCBT • positive attitudes toward iCBT • champions of iCBT • incentive or motivation to offer iCBT • change in workload and work day • perception that iCBT is inferior or superior to face-to-face <p>Organizational factors:</p> <ul style="list-style-type: none"> • supportive management • presentation of iCBT as an alternate model of service delivery • lack of resources required for implementation • staff shortages • difficulty engaging the public, patients, therapists, referring physicians • inadequate attention to setting goals • inadequate reflection on failures and challenges • low prioritization if iCBT <p>Intervention factors:</p> <ul style="list-style-type: none"> • fills a gap in care • provides an alternative to face-to-face • design quality • strength of evidence supporting iCBT effectiveness • cost • developed externally • transdiagnostic feature • standardized program and not easily

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
				adaptable for patients who diverge from the norm regarding the need for support
Hadjistavropoulos et al., 2016 ⁷⁰ Canada	An uncontrolled open trial to examine the clinical effectiveness and usage (measured by the Web application) of iCBT; and to explore the generalizability of transdiagnostic iCBT	466 patients aged ≥ 18 years old; residents of Saskatchewan, with symptoms of depression or anxiety; able to access and are comfortable using computers and the Internet; reporting no history of diagnosed schizophrenia; available to participate in treatment for eight weeks Mean age: 39.0 ± 12.61 ; 73.8% female	Wellbeing Course: a transdiagnostic program deployed by either therapists in a specialized online clinic or therapists in one of eight nonspecialized community clinics	Completion rate = 78.2% (358/466) Organizational factors: • clinical setting: 1 specialized (n = 260) vs. 8 nonspecialized (n = 198) clinics Results on effectiveness were not included in this review
Choi et al., 2015 ⁶¹ Australia	Retrospective analysis of RCT data to compare help-seeking patterns using a modified version of the National Survey of Mental Health and Wellbeing 2007	109 randomized Chinese-speaking and English-speaking patients with mild-to-moderate major depressive disorder, i.e., PHQ-9 scores of 10 to 22 or Chinese bilingual PHQ-9 scores of 4 to 20; ≥ 18 years old; with regular access to a computer; minimal comorbidities Mean age: 39.53 ± 11.77 ; 80% female	Brighten Your Mood iCBT Program (Mandarin or Cantonese speakers, n = 54) Sadness iCBT Program (English speakers, n = 55) Both iCBT programs were offered with guidance	Completion rate = 100% Patient factors: • convenience (transportation) • convenience (time) • privacy and anonymity • costs
Ekberg et al., 2015 ⁶⁸ UK	A retrospective analysis of RCT data (transcripts of therapeutic sessions) to assess the impact that managing patient expectations has on adherence	147 primary care patients, aged 18 to 75 years old with depression (BDI score ≥ 14) treated at general practices in three cities Mean age: 36.2 ± 11.7 years; 73% female Exclusions: a history of alcohol or substance misuse, a bipolar or a psychotic disorder; in psychotherapy; unable to communicate in English	Intervention: an iCBT trial offered through PsychologyOnline (up to ten 55-minute sessions), supported by therapists Comparator: waiting list with usual care	Provider factors: • comprehensive management of patient expectations
El Alaoui et al., 2015 ⁶² Sweden	An observational study to identify predictors of symptomatic change and adherence (measured as the number of activated iCBT modules) in routine	764 adults with SAD treated at a public service psychiatric clinic Mean age: 32.51 ± 8.98 ; 46% women	A 10-module iCBT program for SAD, supported by 25 psychologists through online written conversations within a	Completion rate = 66% (502/764) Mean number of activated modules (out of 10) = 7.71 ± 3.36

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	psychiatric care; using a mixed-effects regression model		secure treatment platform	<p>Patient factors:</p> <ul style="list-style-type: none"> • treatment credibility • family history of SAD • family history of depression • time per module involving a therapist • attention-deficit/hyperactivity disorder-like symptoms • sex • level of education <p>Results on predictors of symptomatic change are not included in this report</p>
Knowles et al., 2015 ²⁰ UK	A qualitative study of data from a pragmatic RCT to assess acceptability (coded as positive, negative, or ambivalent from semi-structured interviews), engagement and adherence (i.e., number of times the program was used, measured digitally)	<p>36 patients with clinical depression (i.e., PHQ-9 scores ranging from 12 to 27)</p> <p>Mean age: 51 (range: 29 to 69) years; 72% female</p>	<p>MoodGYM (n = 23) or Beating the Blues (n = 13)</p> <p>45-minute modular sessions (six for MoodGYM and eight for Beating the Blues), with interactive exercises and weekly assignments</p> <p>Technical support and general encouragement were provided weekly but there was no structured psychological support</p>	<p>Completion rate = NR; 2 patients did not initiate either program</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • acceptability • absence of clinical support • lack of adaptive content • didactic presentation of content • lack of personalization • severity of symptoms • lack of follow-up • negative view of iCBT • failure to complete the program could worsen the condition of already vulnerable patients <p>Intervention factors:</p> <ul style="list-style-type: none"> • privacy, flexibility, and autonomy • technological challenges
Farrer et al., 2014 ⁶³ Australia	An exploratory analysis to examine predictors of adherence and symptomatic outcome; using regression analysis of data collected from self-administered questionnaires	<p>155 patients with depression (Kessler Psychological Distress Scale score ≥ 22); living in one of four major cities</p> <p>Mean age: 41.47 years; 81% female</p>	One week of depression psycho-education, followed by two to six weeks of MoodGYM. Patients were supported with a weekly 10-minute telephone call from a counsellor	<p>Completion rate (MoodGYM) = 16.9% (14/83); 28 patients did not complete any module</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • level of education

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
			<p>Intervention: MoodGYM with (n = 45) or without (n = 38) tracking conditions</p> <p>Comparator: tracking only (n = 37) and control (n = 35)</p>	<ul style="list-style-type: none"> • age • baseline severity of symptoms • baseline level of motivation <p>Those who completed fewer modules had a greater odds of dropout relative to the control group at six-month follow-up and at 12 month follow-up</p> <p>Results on symptomatic outcomes were not included in this report</p>
Morrison et al., 2014 ⁶⁴ UK	An exploratory qualitative study (using a survey) to understand the challenges of implementing iCBT in the primary-care setting; using questionnaires to gather BDI, PHQ-9, and WSAS self-reported data to assess feasibility; adherence was measured as the number of patients viewing content or using the program	<p>29 patients with depression or low mood, eligible for low-intensity CBT as determined by a patient's self-assessment form and evaluation by a practitioner</p> <p>Mean age: NR (range: 17 to 166); 62% female</p>	<p>MindBalance: combines elements of mindfulness with the principles of CBT</p> <p>Guided self-help using a paper-based manual and face-to-face or telephone appointments</p>	<p>Completion rate = 41% (12/29); 66% female</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • preference for face-to-face CBT (n = 7) • unwilling or unable to use computers (n = 5) • age • sex • baseline severity of symptoms • ethnicity
Santucci et al., 2014 ⁶⁵ US	A pilot implementation study to assess the impact of severity of symptoms (based on the BAI, BDI, and WSAS scores) and treatment satisfaction (based on the CSQ) on adherence (i.e., number of sessions completed); using regression analysis	<p>43 students with elevated symptoms of anxiety and/or depression (PHQ-9 score \geq 5); aged \geq 18 years</p> <p>Mean age 22.9 years (range, 18 to 32); 70% females</p>	<p>Self-guided eight-week Beating the Blues program, offered as either an adjunct to other services (n = 38) or as a stand-alone service (n = 5)</p> <p>Group 1 (n = 21): Received weekly email reminders from study staff</p> <p>Group 2 (n = 22): Did not receive reminders</p> <p>Patients received no external, clinical support</p>	<p>Completion rate = 12% (5/43)</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • level of anxiety • severity of depressive symptoms • treatment satisfaction (usefulness, relevance, and ease of use)
Boettcher et al., 2013 ⁶⁰	An observational study of data from a randomized trial; to understand the impact of patient	109 individuals from the general population with SAD (SPS > 22 and SIAS > 33)	A 10-week self-guided program; based on an established cognitive behavioural model	Completion rate : 63.4% (68/109)

Author(s), Publication Year, Country	Study Design Objective	Population of Interest	Name and Description of Program	Implementation Factors
Germany and Switzerland	expectations (measured by the six-item credibility expectancy questionnaire) on predicting social anxiety (based on SPS, SIAS, and LSAS scores) and adherence (i.e., completion of post-treatment assessment); using multiple regression models	Mean age: 36.2 (range: 18 to 72) years; 55% female Exclusion criteria: severe anxiety; suicidal ideation (BDI); other ongoing psychological treatment; and no/stable medication for depression or anxiety three months prior to enrolment	Patients shared information with others anonymously or as part of a virtual discussion forum	Patient factors: <ul style="list-style-type: none"> • expectancy • baseline symptom severity Results on symptom outcomes were not included in this report
Mewton et al., 2013 ⁸⁰ Australia	An observational study to understand the acceptability, effectiveness, and uptake of iCBT in older Australians; adherence was assessed by the completion of all available iCBT lessons	2,413 patients aged 18 to 83 years old seeking help in general practice; prescribed iCBT for major depression, GAD, panic disorder, or social phobia; patients were enrolled in five age groups Mean age: NR; 64.4% female	Six automated unassisted iCBT lessons involving psycho-education, behavioural activation, cognitive restructuring, problem-solving, graded-exposure, relapse prevention, and assertiveness skills; offered at The Way Up clinic	Completion rate = 52.3% (1,261/2,413) Age 18 to 29 years: 39.1% (267/681) Age 30 to 39 years: 48.7% (292/600) Age 40 to 49 years: 55.9% (286/512) Age 50 to 59 years: 65.5% (258/394) Age 60+ years: 70.2 (158/225) Patient factors: <ul style="list-style-type: none"> • young age (< 50 years): Completion rates for patients aged 18 to 49 years were statistically lower than the completion rate for patients aged ≥ 60 years
Sharry et al., 2013 ⁶⁶ Ireland	A before-and-after study to evaluate the effect of patient factors on adherence (measured by the number of sessions completed and time spent on the program)	80 university students; ≥ 18 years with self-reported BDI-II scores ≥ 14 (i.e., at least mild depression); without concurrent access to face-to-face therapy Mean age: 23.29 ± 4.84; 69% female	MindBalance: a seven-module iCBT program; with online support from a therapist	Completion rate = 62.5% Patient factors: <ul style="list-style-type: none"> • baseline level of severity
Crabb et al., 2012 ⁶⁷ South Africa, UK, US	A qualitative study (using a survey) to assess recruitment, retention, and outcomes	15 authors of 10 controlled and 4 uncontrolled studies on the use of cCBT for depression in adults ≥ 65 years old	cCBT (Web-based or CD-ROM)	Completion rate = 73.3% (11/15) Patient factors: <ul style="list-style-type: none"> • difficulty interacting with computers • impression that programs are geared toward younger patients

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Batterham et al., 2008 ⁵⁹ Australia	A qualitative study (using a survey, questionnaires, and measurements of module completion) to examine the effect of various demographic and MH variables on adherence	n = 59,453 community members seeking help for depression and/or anxiety; 81.2% were > 19 years old Excluded: self-identified psychiatrists, psychologist, or therapists, researchers, students accessing the site as part of a course	MoodGYM on a high-volume, free, open-access website	<ul style="list-style-type: none"> • age Completion rate (completed ≥ 1 module) = 32% (19,304/59,453) Patient factors: <ul style="list-style-type: none"> • age • sex • education • residence: Europe vs. Oceania vs. North America • being referred by a professional vs. finding the program by other means • initial severity of symptoms • initial levels of dysfunctional thinking • increase or stable severity of depression • time spent on the program • history of depression • geographic location (urban vs. rural)

BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; CBT = cognitive behavioural therapy; cCBT = computerized cognitive behavioural therapy; CSQ = Cognitive Style Questionnaire; GAD = generalized anxiety disorder; iCBT = Internet-delivered cognitive behavioural therapy; LSAS = Liebowitz social anxiety scale; MH = mental health; NR = not reported; PHQ = Patient Health Questionnaire; RCT = randomized controlled trial; SAD = social anxiety disorder; SIAS = social interaction anxiety score; SPIN = social phobia inventory; SPS = social phobia score; vs. = versus; WSAS = work social adjustment scale; WSQ = Web Screening Questionnaire.

Table 6: Characteristics of Included Primary Studies — Aboriginal and Torres Strait Island Peoples of Australia

Author(s), Publication Year, Country	Study Design, Objective, Participants	Population of Interest	Name and Description of iCBT Program	Implementation Factors
Bennett-Levy et al., 2017 ⁶⁹ Australia	A qualitative evaluation of the impact of eMH training plus follow-up consultation sessions on practitioners' interest, confidence, and use of eMH resources and the factors that impeded or facilitated their learning	26 Aboriginal and Torres Strait Islander health care practitioners (n = 21 Indigenous, n = 5 non-Indigenous); trained on providing Mean age: NR; 53.8% female	Stay Strong program — a mobile application modified for the Aboriginal population	Provider factors: <ul style="list-style-type: none"> • positive attitude toward technology • excessive workload • high turnover • negative perceptions about applicability of eMH • lack of confidence and skills Organizational factors: <ul style="list-style-type: none"> • enthusiastic managers

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				<p>who were supportive of staff offering eMH</p> <ul style="list-style-type: none"> • digital literate champions • policies prohibiting purchase and use of new technologies • lack of procedures/policies to manage iPad security and storage • dearth of basic procedures to guide the management of new technologies • gaps in technological capability <p>Intervention factors:</p> <ul style="list-style-type: none"> • incompatible with workplace culture
<p>Povey et al., 2016⁵⁸</p> <p>Australia</p>	<p>A qualitative study (using three three-hour long focus groups) to identify the factors that drive acceptability from the patient's perspective</p>	<p>9 Aboriginal and Torres Strait Islander community members in Darwin (Northern Territory); ≥ 18 years old, willing and capable of communicating in English, did not have a florid or severe level of mental illness, had basic knowledge of computers, and were not currently employed as health workers</p> <p>Mean age: 33 (range 18 to 60) years; 66% female</p>	<p>AIMhi Stay Strong mobile app — a therapist-guided intervention</p> <p>Information on an acceptance and commitment therapy app are not included in this report</p>	<p>Completion rate = 66% (6/9) who attended the third focus group session</p> <p>Patient factors:</p> <ul style="list-style-type: none"> • self-awareness of mental illness • motivation to change • lower severity of mental illness • helplessness • poor literacy • language differences • lack of awareness of the program • stigma <p>Organizational factors:</p> <ul style="list-style-type: none"> • clinician support • online videoconferencing, instant messaging • integration into clinical care pathways, such as emergency care <p>Intervention factors:</p> <ul style="list-style-type: none"> • ease of use • inclusion of relevant languages, culturally-relevant graphics, videos, and animation

Author(s), Publication Year, Country	Study Design, Objective, Participants	Population of Interest	Name and Description of iCBT Program	Implementation Factors
				<ul style="list-style-type: none"> • recognition of regional variation • questionable impact on historical factors such as colonialism • technology literacy • lack of language clarity • use of metaphors • cost of software • requirement to share identifiable personal information
<p>Puszka et al., 2016⁵⁷</p> <p>Australia</p>	<p>A qualitative study (using semi-structured interviews) to describe the skills, experience, and personal attributes of practitioners and clients who would potentially influence the use of eMH</p>	<p>21 Aboriginal and Torres Strait Islander managers, directors, chief executive officers, and 11 senior practitioners of MH, well-being, alcohol and other drugs, and other services working at government health services or other non-profit, predominantly publicly funded services</p> <p>Mean age: NR; % female NR</p>	<p>The AIMhi Stay Strong App and BeyondBlue programs; with Internet- or phone-based counselling services</p>	<p>Patient factors:</p> <ul style="list-style-type: none"> • attitudes toward technology • access to the Internet • health and socio-economic status • marginalization from society, grief, and trauma • disengagement from the health care system • language <p>Provider factors:</p> <ul style="list-style-type: none"> • awareness and current use of eMH • MH expertise • information technology proficiency <p>Organizational factors:</p> <ul style="list-style-type: none"> • introducing eMH initially in a pilot process • policies that mediate appropriate use of and access to mobile devices • policies that prevent access to eMH tools (e.g., restricted Internet use) and mobile devices • cost of updating existing systems to enable utilization of eMH • sustainability of training programs • high staff turnover across the sector

Author(s), Publication Year, Country	Study Design, Objective, Participants	Population of Interest	Name and Description of iCBT Program	Implementation Factors
				Intervention factors: <ul style="list-style-type: none"> • robust evidence of effectiveness • degree of integration within usual practice • challenges in integrating tools within existing information • complexity

eMH = electronic mental health; iCBT = Internet-delivered cognitive behavioural therapy; MH = mental health; NR = not reported.