Implementing internet-delivered cognitive behavioural therapy for depression and anxiety in routine care: an exploratory study of implementation.

Thesis presented to the

School of Psychology, University of Dublin, Trinity College Dublin,

for the degree of Doctor of Philosophy (PhD)

By

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Supervised by:

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**Thesis Declaration**

**DECLARATION, ONLINE ACCESS and the GENERAL DATA PROTECTION REGULATION**

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Daniel Duffy          Date: 30.12.2021

## Summary Abstract

Internet-delivered cognitive behaviour therapy interventions (iCBT) for depression and anxiety have proven their clinical utility through a number of controlled trials, but few studies have been conducted in routine care settings. Trials in routine care tend to produce inferior outcomes to efficacy trials, and overcoming this difference is hindered by the fact that methods of translating research findings to practice for iCBT are relatively unreported on. Implementation science methodologies have been proposed to bridge this evidence-to-practice gap and, in this regard, the current thesis utilized an evidence and practice based approach to identify factors and strategies relevant to the successful implementation of iCBT in routine care across 3 studies.

Study 1 consisted of a mixed methods systematic review to examine the iCBT literature around depression and anxiety for adults for relevant implementation insights, where identified studies were qualitatively synthesised across 2 domains of inquiry; implementation insights derived from iCBT research and considerations for the successful implementation of iCBT in care settings. Study 2 conducted a qualitative investigation into the experiences of service providers and patients from a primary care mental health service in England, and commercial iCBT representatives in regards to the implementation of iCBT across 2 domains of interest; experience of iCBT implementation and implementation context. Studies 1 and 2 utilised the descriptive-interpretive approach to analyse the qualitative data. Study 3 consisted of a 2-round Delphi study, where a panel with experience in implementing iCBT in routine care settings and researching it as part of academia were invited to rank 31 implementation strategies generated from a synthesis of findings from study 1 and study 2.

Study 1 identified 40 eligible papers and subsequently established a number of factors relevant to iCBT implementation from the literature, including the facilitative and hindering impacts of both clinician and patient attitudes towards iCBT, the importance of managing staff associated with administering iCBT (e.g managing resources, leadership), managing the delivery of the iCBT service (e.g. training clinicians, risk management, referral pathways) and accounting for context (e.g. costings and impact of governmental legislation). Study 2 recruited 19 participants

across the three stakeholder groups. Service providers (*n*=6) emphasised the importance of

leadership in driving iCBT implementation, systematic training initiatives to build iCBT-related

competencies, collecting feedback to improve iCBT practice and creating work structures to aid

facilitate iCBT use. Commercial iCBT representatives (*n*=6) reported on the work they do to

support service providers (e.g. training, facilitating needs, building iCBT treatment pathways) and

identifying the correct people within services to support iCBT implementation. Patients (*n*=7)

reported an overall positive experience of the receiving iCBT, but highlighted the need for more

guidance in how to effectively structure and tailor their iCBT usage. Contextual barriers broadly

related to factors that limit iCBT implementation, such as negative therapist attitudes,

technological issues and the rigid requirements of health systems, and facilitators included

COVID-19 increasing clinician exposure to iCBT, persevering with iCBT use over time and health

system support for iCBT and related digital interventions.

Study 3 recruited 9 individuals to participate in ranking the list of strategies resulting from

the synthesis of findings from studies 1 and 2. 24/31 strategies achieved consensus at conclusion

of round 2. In several instances, participants provided qualitative rationales to support their

ranking and re-ranking of items across rounds, but this data was not consistent. Of note, items

with the highest level of consensus related to technological governance of iCBT, having leaders

that set clear service goals for intervention usage, designing iCBT-appropriate care pathways and

defining patient eligibility to receive these interventions. 4 items transitioned consensus

categories across rounds 1 and 2, which may be attributed to error-rates in responses ('oscillatory

movements'). Each study included in the thesis contains a relevant discussion section, where the

findings are explored in regards to both the wider iCBT and implementation science literature

bases. The final chapter contains an overall discussion on the meaning and relevance of the work,

as well as its applied utility to iCBT implementations conducted by a commercial iCBT

organisation. In conclusion, the curated list of strategies offered by the current thesis provides a

novel contribution to the field by identifying strategies that have relevance to the conduct of iCBT

research and its real world implementation.

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I am extremely grateful to all the participants in the qualitative and Delphi studies, who contributed their time and experience towards this thesis. Specifically for those in the qualitative study, thank you for sharing all that you did. I strongly believe that with each interview I conducted, the more I learned and felt my skills grow as a researcher. I feel that I have benefitted immensely due to this, and wish to thank you all for this opportunity and your contributions.

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**List of Abbreviations**

| Abbreviation | Term |
| --- | --- |
| CBT | Cognitive Behavioural Therapy |
| iCBT | Internet-Delivered Cognitive Behavioural Therapy |
| IS | Implementation Science |
| IAPT | Improving Access to Psychological Therapies |
| NHS | National Health Service |
| UK | United Kingdom |
| PWP | Psychological Wellbeing Practitioner |
| NICE | National Institute for Health and Care Excellence |
| MHR | Mental Health Reform |
| TMF | Theory-Model-Framework |
| CFIR | Consolidated Framework for Implementation Research |
| EPIS | Exploration-Preparation-Implementation-Sustainment model of implementation |
| RE-AIM | Reach-Effectiveness-Adoption-Implementation-Maintenance framework |
| TDF | Theoretical Domains Framework |
| IAB | IAPT Assessment Brief |
| IT | Information Technology |
| EBP | Evidence-Based Practice |
| NPT | Normalization Process Theory |
| CS | Customer Success |
| D&I | Descriptive-Interpretive approach to qualitative research |
| ImpSPs | Implementation Support Practitioners |
| GDPR | General Data Protection Regulation |

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**Publications**

**Conference Presentations**

Duffy, D., Richards, D., Timulak, L. (2021, May 27-28). *Implementing internet-delivered cognitive behaviour therapy in mental healthcare services: an exploration of patient, intervention developer and service-based stakeholder experience* [conference presentation]. European Implementation Event 2021, The Hague, Netherlands. https://implementation.eu/european-implementation-event-2020/

- Shortlisted as one of top 3 presentations eligible for early career keynote.

**Forthcoming:**

*Book Chapters*

Richards, D., Enrique, A., Palacios, J., Duffy, D., … Tierney, K. (in press, 2022). SilverCloud Health: Online mental health and wellbeing platform. In Digital Therapeutics: Scientific, Statistical, Clinical, and Regulatory Aspects. CRC press.

- Sections of the literature review chapter have been repurposed for inclusion within this book chapter

*Articles for peer review (based on thesis)*

Duffy, D., Richards, D., Timulak, L., Palacios, J. (in preparation). Implementing internet delivered cognitive behaviour therapy for depression and anxiety in adults: A mixed-methods systematic review of the literature to discern factors relevant to its implementation

- Intended journal: Frontiers in Digital Health (Frontiers Media Group)

Duffy, D., Richards, D., Timulak, L. (in preparation). A qualitative study of service provider, commercial iCBT representative and patient stakeholder experience of implementing iCBT as part of routine care in mental health services.

- Intended journal: Implementation Research and Practice (Sage Publishing)

Duffy, D., Richards, D., Timulak, L. (in preparation). Implementation strategies associated with iCBT success: A Delphi Study

- Intended journal: Implementation Research and Practice (Sage Publishing)

**For all other publications, see ORCID:**

- https://orcid.org/0000-0001-9722-0437

**Thesis Overview**

## 1. Thesis Introduction

This thesis consists of a collection of work that has been conducted to establish a preliminary knowledge base of factors and strategies that are important for consideration in the implementation of internet-delivered cognitive behavioural therapy (iCBT) for depression and anxiety in routine care. iCBT interventions are a novel and convenient means of providing effective mental healthcare in an internet-delivered format, and are stated to overcome the barriers associated with traditional modalities of psychological treatments (Andersson, 2010; Andersson & Titov, 2014). iCBT has illustrated its effectiveness and efficacy across numerous trials (Andrews et al., 2018; Richards & Richardson, 2012; Romijn et al., 2019; Wells et al., 2018; Wright, McCray, Eells, Gopalraj, & Bishop, 2018) but its adoption as part of routine care provision has been limited (Lipschitz et al., 2019). This is illustrative of an "evidence-to-practice" gap (Balas & Boren, 2000; Grant et al., 2000; Lang et al., 2007), where evidence-based interventions (like iCBT) are underused, misused, or perceived by professionals to be inferior to current practice (Lang et al., 2007).

Implementation Science is the study of methodologies and approaches associated with understanding and increasing the uptake of novel, evidence-based practices within healthcare (Bauer & Kirchner, 2020; Eccles & Mittman, 2006). Within the field of iCBT, it has been cited that adopting methods from the field of IS can help facilitate the uptake of iCBT within routine care (Folker et al., 2018; Hadjistavropoulos, Nugent, Dirkse, & Pugh, 2017; Lipschitz, Hogan, Bauer, & Mohr, 2019). The current thesis follows this line of inquiry, where the implementation of iCBT for depression and anxiety was analysed through three studies; 1) a mixed methods systematic review of scientific iCBT literature to discern factors relevant to implementation, 2) a qualitative study of stakeholders

involved with its implementation in routine care and 3) subsequent implementation findings (in the form of strategies) from these previous studies were then validated through a Delphi study utilising experts with research and implementing experience of iCBT. This brief chapter will serve to contextualise the body of work, and provide an overview of the chapters to come.

**2. Researcher Background**

I began working with SilverCloud Health mid-2015 as a research assistant, where I believed that I would work through a 6-month contract and apply for a professional doctorate to become a clinical psychologist. However, I soon found myself highly interested in the field of iCBT; the company's programme of research enabled me to work with healthcare organisations across the UK and USA, further affording me the opportunity to see the benefit that iCBT can bring to services. Throughout this work, I repeatedly observed the various struggles that colleagues had to overcome to bring SilverCloud to point of patient benefit. After an inspirational experience at the 2017 meeting for the International Society for Research on Internet Interventions (ISRII), I became even more motivated to understand the barriers to the uptake of iCBT in routine psychological services and eventually, by reading the emerging research, came across implementation science. Through the Irish Research Council's employment-based postgraduate programme and with the support of SilverCloud and Trinity College, I applied for and received funding to actualise my research interests in the form of the current PhD.

For the duration of this work (2018-2021), I was a full employee of the SilverCloud Research Team. This afforded me a unique position, where I already had a knowledge of the science behind iCBT but was also working within a commercial, scientific entity that

implements the intervention in partnership with healthcare services. As an industry-

sponsored project, it is important to acknowledge this conflict of interest when reading

the results and any subsequent interpretations. Through a largely qualitative approach,

facilitated by the Descriptive & Interpretive method of Elliott & Timulak (2021), potential

biases that may have occurred were addressed through a number of auditing meetings

with the named employment mentor and supervisor, Dr. Derek Richards, and academic

supervisor, Dr. Ladislav Timulak. However, conducting industry-sponsored research is not

uncommon within the field of iCBT; companies such as HelloBetter in Germany (Hello

Better, 2021), MindSpot in Australia (MindSpot, 2021; Titov et al., 2015) and BigHealth in

the USA (BigHealth, 2021) frequently publish in peer-reviewed journals to support both

the effectiveness and efficacy of their product, and subsequently further the science of

iCBT. The Irish Research Council funding stream that supported this thesis is also

specifically aimed at fostering industry-academia collaboration. Where commercial

entities have historically contributed to the iCBT clinical effectiveness literature, the

current thesis will further extend this tradition by empirically exploring the

implementation of these interventions.

## 3. Project Background

Cognitive behavioural therapy (CBT) is considered the 'gold standard' of

psychological therapies; its robust research base has established its comparability and

superiority to other approaches, and also supports its mechanisms of change (David et al.,

2018; David & Cristea, 2018). CBT has been translated to an internet-delivered format

(iCBT), and the last 15 years has seen an increase in the amount and quality of available

research that demonstrates the clinical effectiveness of this treatment modality (Andrews

et al., 2018; Richards & Richardson, 2012; Romijn et al., 2019; Wright et al., 2019). The

motivation behind the development of iCBT was to scale-up and increase the availability

of evidence-based psychological interventions (Marks, Cavanagh, & Gega, 2007; Wright et

al., 2005), as numerous barriers exist when patients are faced with accessing traditional,

evidence-based mental healthcare, such as waiting lists, high costs, stigma and low health

literacy (Andrade et al., 2014). Exacerbating this is a mental healthcare treatment gap,

with studies stating that 9.8% of people with an anxiety disorder (Alonso et al., 2018) and

16.5% of people with major depressive disorder (Thornicroft et al., 2017) received

adequate treatment for their needs. ICBT has since been heralded with the potential to

bridge this treatment gap by overcoming the barriers associated with traditional therapy,

such as access and timeliness (Andersson, 2010; Andersson & Titov, 2014).

Indeed, the need for iCBT has been recognised in health systems such as United

Kingdom's National Health Service (NHS), where they are now in widespread use and

advocated by the National Institute for Health and Care Excellence (National Institute for

Health and Care Excellence, 2009), and several trials have documented the benefits of

iCBT in the NHS context.(Duffy et al., 2020; Marks et al., 2004; Proudfoot et al., 2004;

Richards et al., 2020) Despite this, there exists what has been described as an "evidence-

to-practice gap", where it has been identified that several barriers must be overcome

when translating any research finding to a novel context so it can achieve patient benefit

(Bauer et al., 2015; Colditz & Emmons, 2018). Compounding this is the statement that it

takes almost 17 years for 14% of all original medical and biomedical research to achieve

intended benefit (Balas & Boren, 2000). Similar estimates are unavailable specifically for

psychological research, but others have stated there to be a gap between psychological

research innovations and their use in mental healthcare (Powell et al., 2012). This practice

gap has also become contentious; there has been a shift of focus from laboratory-

controlled efficacy trials with limited real-world applicability to the more generalisable

effectiveness-type studies, which potentially have a greater impact on public health

(Alberts et al., 2014; Moses et al., 2015). However, once effectiveness trials end, so too

does the support from the research teams behind the interventions, where the sustained

longevity and uptake of the intervention ceases due to a lack of continued support for the

changes in operation that have been put in place (Bauer & Kirchner, 2020; Glasgow et al.,

2014). Further adding to these issues are studies funded by academia; where once the

funding period runs out, so too does the infrastructure providing the intervention,

limiting the long-term impact that the results of these trials produce (Glasgow, Phillips &

Sanchez, 2014).

There has been an emergence of research over the last several years that focusses

on tackling this evidence-to-practice gap within eHealth interventions (the umbrella term

for a group of technologically facilitated interventions, which includes iCBT) that have

utilised implementation science approaches (e.g.Graham et al., 2020; Hadjistavropoulos,

Nugent, Dirkse, & Pugh, 2017; Vis et al., 2018). Implementation science (IS) has been

termed as the scientific study of motholodogies to increase uptake of evidence-based

practices into routine care for purposes of improving quality of healthcare delivered

(Eccles & Mittman, 2006). Implementation science is integrative; it borrows and adapts

theories from multiple fields to understand the determinant mechanisms as to why (or

why not) a specific implementation effort succeeds (Nilsen, 2015). IS approaches provide

a frame that allows for implementation plans to be developed and relevant outcomes

measured (Smith & Polaha, 2017) and it has been posited that utilising these approaches

within future iCBT research could generate learnings relevant to its real-world application

(Lipschitz et al., 2019)

It is from this point that the current project departs. There has been a recognised

need to apply IS methodologies within digital psychiatry and eHealth (Glasgow et al.,

2014; Graham, Lattie, et al., 2020; Lipschitz et al., 2019). This is, however, not a "one size

fits all" approach due to variations in complexity among eHealth interventions, the

category in which iCBT resides. When defining complexity, the Cochrane group states that

it should be conceptualised across 3 domains; firstly, whether or not the intervention has

few or many components, secondly, how these components interact between one

another, patients and the context in which it is implemented and finally, how the wider

implementation context and intervention interact with one another (Thomas et al., 2019).

For example, a recent systematic review by Vis et al. (2018) examined the determinants

of ehealth implementation and incorporated a range of interventions, including therapy

over videoconferencing, a range of internet-delivered interventions with varying levels of

therapist guidance and mobile health interventions. When conceptualising each of these

interventions, it can be seen that they all vary in their complexity. For example, the level

of technological integration necessary to conduct therapy over videoconferencing may be

lower than that of iCBT where, due to the amount of data it produces, may require more

robust technological and security governance structures (Nurgalieva et al., 2020; Sampat

& Prabhakar, 2017). Throughout this thesis and its chapters, the phenomenon of

implementing iCBT is explored for the purposes of producing learnings that originate from

and are specific to the science and practice of iCBT.

**Figure 1.**

*Graphical overview of thesis*
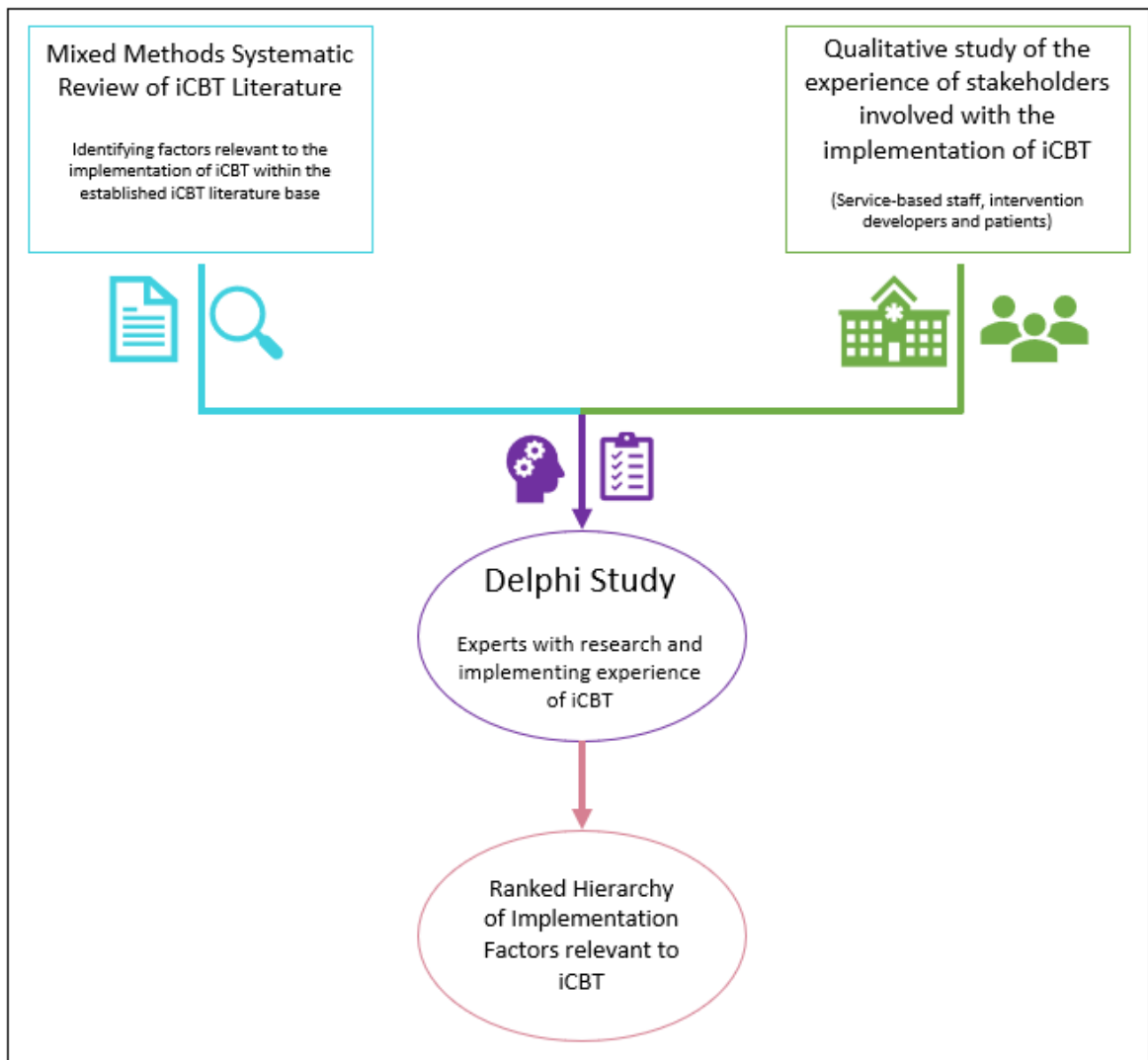


## 4. Thesis Aims

A summary of the structure of this thesis is presented in Figure 1. Given the varying complexity of interventions contained within the field of ehealth, the current thesis focussed specifically on the implementation of iCBT. To this extent, the main aim was to identify a list of strategies relevant to the implementation of iCBT that were representative of both the 'science' (e.g. currently available scientific iCBT literature) and 'practice' (e.g. experience of services implementing iCBT). Capturing current best practice around implementing iCBT within the scientific literature, as well as understanding the

lived practice of professionals involved with its implementation in services was seen as important for the following reasons:

1) The peer-reviewed literature surrounding iCBT continues to grow, includes a range of studies that detail how iCBT has been operationalised within clinical contexts and these research findings may have relevance for the implementation of iCBT. For example, methodology sections of studies on iCBT can contain information that is relevant to the implementation of iCBT (e.g. the setting of inclusion criteria, access pathways), results sections can produce findings that have implications for implementation (e.g. the impact of patient demographics on iCBT outcome) and discussion sections can offer a synthesis of information (e.g. suggestions for future research) that may be pertinent for future implementations. Similarly, several qualitative implementation studies of iCBT exist, and a synthesis of this research base would provide insight into the future implementation of iCBT.

2) iCBT is employed by healthcare services to address the clinical needs of their populations and there are key groups who work to implement these commercial products within services – service providers and commercial intervention developers (e.g. SilverCloud Health). Within these groups are further subgroups. For example, service providers can consist of frontline therapists, managers and those in senior leadership positions. Intervention developers are also not a homogenous group, and can consist of individuals working in sales, customer success, product and technical departments. Subsequently, patients are the ultimate receivers of all implementation processes. We therefore saw the importance of exploring the experience of these three stakeholder groups (service providers, commercial iCBT representatives, patients) to gain an accurate representation of the practice of implementing iCBT in real-world contexts. Of

note, despite how implicated commercial iCBT representatives are within the field

of iCBT and its implementation, their influence is rarely cited within the literature.

**5. Chapter Summaries**

*Chapter 1: Literature Review*

This chapter addressed two goals:

1. To introduce iCBT and illustrate a successful use case of it as a low-intensity

   intervention within the improving access to psychological therapies (IAPT)

   programme within England's National Health Service

2. To introduce the idea of the evidence-to-practice gap, illustrate several theories,

   models and frameworks within implementation science, and the current iCBT

   literature that has utilised implementation science approaches.

*Chapter 2: Mixed-Methods Systematic Review*

This chapter describes the mixed-methods systematic review that was conducted

to identify relevant implementation learnings within the current iCBT literature base. Two

domains of inquiry were developed as part of this review: 1) 'implementation insights

derived from iCBT research', relating to the relevance of novel research findings in results

sections (e.g. the superiority of guided CBT over unguided CBT) and synthesis of findings

in discussion sections to the implementation of iCBT (e.g. interpretations of researchers

regarding the utility of iCBT to novel populations). 2) 'Implementation process -

considerations for the successful implementation of iCBT in care settings', relating to the

strategies utilised within papers to operationalise research of iCBT (e.g. the setting up of

recruitment pathways, inclusion criteria, pragmatics around providing support). Data

extracted from identified studies was sorted under each domain, and subsequently

categorised to produce findings pertinent to the implementation of iCBT derived from the

literature.

### Chapter 3: Qualitative study of stakeholders

This chapter describes a qualitative study of three stakeholder groups; 1)

employees of an iCBT developer (Commercial iCBT Representatives; SilverCloud health),

including those who hold marketing, product, technical, customer success and sales-

based roles. 2) service providers from an IAPT service in England, including therapists,

managers and those in leadership positions, and 3) patients of this specific service that

completed a course of iCBT as part of their treatment for mild-moderate depression and

anxiety. Two domains of inquiry informed the development of the qualitative interview

schedule; experience of iCBT implementation (what stakeholders do or experience as part

of the implementation of iCBT, and what they believe to be important in this experience)

and Implementation Context (how contextual factors impact on stakeholder experience

of implementation).

### Chapter 4: Delphi study

To establish consensus and conduct a preliminary validation of the findings

resulting from the previous two chapters, a delphi study was carried out. Data from the

previous studies were synthesised to create a 31-item list of strategies relevant to the

implementation of iCBT for depression and anxiety, grouped under 5 domains; leadership

in healthcare service delivery, training stakeholders in iCBT, processes and procedures for

staff delivering iCBT in services, managing the delivery of the iCBT service and iCBT

intervention developers. Utilising a delphi methodology, individuals with experience of

both implementing and researching iCBT were recruited to rate each factor based on

their importance.

***Chapter 5: Discussion – Relevance and Applications***

Although each chapter contains its own discussion section, this chapter discusses

the relevance of the work as a whole in regards to the field of implementation science,

iCBT and its utility to the commercial iCBT organisation that sponsored this research

(SilverCloud Health). An overall strengths and limitation section is provided as part of this

section, and a reflexivity statement is also included within this chapter.

## Chapter 1 – Literature Review

## 1. Introduction – Depression and Anxiety Disorders

The global burden of disease study is a comprehensive, long-term epidemiological study that "*describes mortality and morbidity from major diseases, injuries and risk factors to health at global, national and regional levels*" (The Lancet, 2021). Consistently, depression and anxiety have been ranked among the top overall contributors in mental health conditions, and among the top overall health conditions in regards to their global burden on mortality and disability indicators within this study (Abbafati et al., 2020; Santomauro et al., 2021; Vigo et al., 2016; Whiteford et al., 2015). Exacerbating this is a mental healthcare treatment gap, with studies stating that only 9.8% of people with an anxiety disorder (Alonso et al., 2018) and 16.5% of people with major depressive disorder (Thornicroft et al., 2017) receive adequate treatment for their needs. These already low rates decline further when capturing data from lower-income countries (Alonso et al., 2018; Kohn et al., 2018)

Depression and anxiety disorders can effectively be treated with pharmacological and psychological therapies, or a combination of both (Bandelow et al., 2017; Cuijpers et al., 2011; Cuijpers, Sijbrandij, et al., 2013). However, in treating these disorders patients report a strong preference for psychological approaches over pharmacological treatments (McHugh et al., 2013). One such psychological approach that is widely used is Cognitive Behavioural Therapy, and has been termed as the "gold standard" in the treatment of these disorders (David, Cristea & Hoffman, 2018). In a 2018 meta-review, David & Cristea (2018) state that CBT is deserving of this title due to the large evidence base surrounding its general effectiveness and mechanisms of change, and no other approach showing superiority over it. Indeed, numerous meta analyses have established its effectiveness in

treating depression, anxiety and other mental health conditions(Cuijpers et al., 2016; Cuijpers, Berking, et al., 2013; Hofmann et al., 2012).

However, even with a preference for psychological treatment and the reported benefit of CBT, it is difficult for those with depression and anxiety disorders to access the psychological care they need due to a number of factors (Corscadden et al., 2018). For example, shortages in the number of trained therapists to provide psychological treatments is a well reported service issue (U.S. Department of Health, 2016). Geography is a global factor impacting patients' access to psychological care, with physical distance to services or lack of infrastructure (e.g. care centres) being cited as an issue (Cummings et al., 2013; Smith et al., 2008). Stigma associated with mental illness is a multifaceted construct that also plays a role in creating barriers to accessing care (Corrigan et al., 2014; Henderson et al., 2013) and its negative impacts on various demographics has been detailed across numerous trials (Clement et al., 2015). The cost of mental healthcare to patients has been cited as a barrier to accessing mental health care (Corscadden et al., 2018) as well as a lack of patient knowledge in how to generally access care through health systems (Henderson et al., 2013).

## 2. Internet-Delivered Cognitive Behavioural Therapy (iCBT)

Computerized CBT (cCBT) or internet-delivered CBT (iCBT) interventions are a novel means of providing effective mental healthcare in a convenient, internet-delivered format and is stated to overcome the barriers associated with traditional modalities of psychological treatments (Andersson, 2010; Andersson & Titov, 2014). Historically, technologically-facilitated CBT was split into peripheral and centrally-accessed interventions. Peripheral programmes were stand-alone products that were typically distributed through CD-ROM and required no internet connection to use, but this modality suffered from lack of updates to the programme content. Centrally-accessed

programmes required an internet connection to use, and the individual could then either

download a self-updating software or access a website to view therapeutic content

(Marks et al., 2007; Richards et al., 2017; Richards, Enrique, & Palacios, 2020). The

literature base principally refers to these centrally accessed interventions in research

trials, and this review will use the umbrella term "iCBT" to refer to these types of CBT

interventions from here onwards.

Regarding the therapeutic content of these interventions, Andrews & Williams

(2015) define it as being "CBT 101". They explain that a course of iCBT is usually

administered across a number of weekly lessons that are aimed at facilitating growth of

skills to cope with dysfunctional thoughts, feelings and behaviours. Like face-to-face

sessions, homework is also a feature of iCBT, which helps to consolidate learnings by

encouraging further application of skills learned. iCBT also features a support function in

the form of a psychological supporter that interacts with the user over their course of

treatment to encourage learnings and troubleshoot, but not to provide new therapeutic

content. Newby et al. (2021) illustrate four ways in which iCBT can be utilised as part of

routine practice; as a prequel or preparatory course for face-to-face treatment, as a

standalone intervention, in a blended model as an adjunct to face-to-face treatment or as

a relapse prevention tool. In their chapter within the 'Handbook of Brief Therapies',

Richards et al (2020) describe in further detail the pragmatic components of a typical iCBT

programme, where it principally consists of:

- Several modules that convey psychoeducational information relevant to a specific

    disorder. For example, introducing the user to CBT, illustrating the relationship

    between thoughts-feeling-behaviours, and providing relevant examples of

    fictitious personas applying the platform content

- Numerous tools and pieces multimedia content that teach and guide the user

  through the techniques relevant to CBT. For example, behavioural activations can

  be done through an activity scheduling tool, accompanied by questionnaires to

  evaluate the mood of the individual pre and post the scheduled activity

- An asynchronous therapist support function, where a therapist within a service

  can provide guidance and feedback on the activity of the user at a predetermined

  time period. An example of the type of support used across the literature base is

  illustrated in table 1.1

**Table 1.1**

*Examples of different types of supporters cited within the iCBT literature.*

| Type of Supporter | Support offered | Background/Training | Reference |
|---|---|---|---|
| Psychological Wellbeing Practitioner | Telephone, online message | Low-intensity CBT Therapist, intervention training | Richards et al., (2020) |
| Charity-based volunteer | Online message | Non-therapeutic, Intervention training (learning about CBT, using the iCBT programme, risk assessment, supervision procedure) | Richards et al., (2015) |
| Trained Technician | Telephone, non-therapeutic | Non-therapeutic, training in technical aspects of intervention | Gilbody et al., (2015) |
| Clinician | Telephone, e-mail, online discussion forum | Medical (psychiatry), intervention training | Titov et al., (2010) |

### 3. Evidence base for cCBT & iCBT

Efficacy and effectiveness trials for iCBT became more common from the early 2000's

(Richards, Enrique, Palacios, & Duffy, 2017), with efficacy and effectiveness studies

referring to the spectrum ranging from tightly controlled laboratory studies to real-world

clinical/healthcare settings(Andersson & Hedman, 2013). Of the earliest research trials of

iCBT, two of the most influential include an efficacy RCT of iCBT for depression in

Sweden(Andersson et al., 2005) and a cost-effectiveness analysis based on an RCT of the

Beating the Blues intervention within primary care in England (McCrone et al., 2004).

Both of these research trials highlighted the impact that iCBT can have on clinical

outcomes, as well as the potential cost effectiveness of administering it within health

systems.

Empirical support for iCBT in the treatment of Depression and Anxiety disorders is

now evident across a number of meta analyses. Specifically for depression, effect sizes

have shown superiority of iCBT over waiting list control groups, ranging from *d*=.41(12

studies; Andersson & Cuijpers, 2009), *d*=.56 (19 studies; Richards & Richardson, 2012), to

*g* = .502 (40 studies; Wright et al., 2019). Analysis of data at follow-up points also

revealed a maintenance of effect, with Richards & Richardson (2012) reporting large

follow-up effect sizes (*d* range = 1.13-1.29) that varied according to level of support

provided, and Wright et al. (2019) reporting an effect size of *g* = .386 for first follow-up

point within studies. Similarly, a meta analysis of studies that looked at the treatment of

depression using iCBT within primary care identified 8 studies. The overall effect sizes for

the 8 studies was small (*g* = .258) in contrast to control conditions, but this increased to

moderate levels when analysing only therapist supported studies (*g*=.372).

Similar findings have been reported for the treatment of anxiety disorders using

iCBT. Meta analyses looking at studies concerning the anxieties have focussed on

disorders such as panic disorder, social anxiety disorder, generalised anxiety disorder and

phobias, among others (Andrews et al., 2018; Olthuis et al., 2016; Richards, Richardson, et

al., 2015). The meta analysis of Andrews et al. (2018) included 64 studies, but half of

these (n= 32) were related to major depressive disorder. However, large effect sizes were

observed for Panic Disorder (12 trials, *g* = 1.31), SAD (11 trials, *g* = .92) and GAD (9 trials, *g*

= .70). The Cochrane review conducted by Olthuis et al. (2016) on iCBT for anxiety

disorders concluded similarly, illustrating the positive effects of therapist supported iCBT for anxiety disorders. In understanding further the impact of iCBT in naturalistic clinical settings, Romijn et al. (2019) conducted a meta analysis on anxiety disorders with the objective of comparing outcomes in samples that came from clinical/healthcare service recruitment or open/community recruitment trials. This analysis found that studies using open recruitment and with waitlist control groups had greater effect sizes that those recruiting from clinical populations, however this effect could partially be explained higher levels of adherence and engagement in open recruitment trials, as well as the tendency to exclude patients with more mental health presentations.

A key point that has emerged throughout the development of this field and in the numerous meta analyses is the role of the supporter in administering iCBT, and how supported iCBT consistently produces better outcomes in contrast to non-supported interventions (Andersson & Cuijpers, 2009; Andrews et al., 2018; Olthuis et al., 2016; Richards & Richardson, 2012; Wells et al., 2018; Wright et al., 2019). In contrast to studies of supported iCBT, these meta analyses illustrate that unsupported iCBT generally has poorer clinical outcomes and lower levels of engagement and adherence. However, it is important to acknowledge that, despite inferiority in outcomes achieved, authors within the literature have demonstrated the utility of unsupported iCBT. Across two Individual Participant Data (IPD) meta analyses, Karyotaki and colleagues (Karyotaki et al., 2017, 2018) demonstrate that unsupported iCBT was significantly more effective than control conditions(Karyotaki et al., 2017), and that symptom deterioration rates were equivalent to those observed in face-to-face contexts (Karyotaki et al., 2018; Rozental et al., 2014). Similar results for a specific unsupported iCBT intervention (MoodGym) were observed by Twomey and O'Reilly (2017). These studies highlight the utility of self-guided iCBT as a population-level intervention; Karyotaki et al. (2018;2017) illustrated that the number of

patients needed to be treated to receive a 50% reduction of depression symptoms was 8, which could bring numerous benefits to community mental health settings if the programme were provided in an open access modality.

As noted in the meta analyses for depression and anxiety, there appears to be a lack of research that is conducted within real-world settings. Further, of research that is conduced in real-world settings (e.g. primary care), lower outcomes are obtained in contrast to efficacy studies. When hypothesising about the differences in effect sizes observed in the above meta analyses between efficacy studies and less-controlled effectiveness studies, it may be that iCBT is experiencing a 'voltage drop' (Chambers et al., 2013). A voltage drop assumes that, as interventions progress along the efficacy-effectiveness continuum, they will experience a decrease in their intended outcomes attributed to divergences from treatment protocols that occur in naturalistic settings. However, certain health systems have experienced great success when adopting iCBT as part of their model of mental healthcare delivery. The following section will illustrate the example of England's National Health Service, and how it arrived at a point of using iCBT as part of routine healthcare for depression and anxiety disorders.

### 4. iCBT in Action – An illustration of England's National Health Service

The delivery of psychological interventions within primary care of England's National Health Service (NHS) was completely transformed through the Improving Access to Psychological Therapies (IAPT) programme, and iCBT now forms a core part of its delivery. IAPT was proposed by Lord Richard Layard (2006a, 2006b), whose arguments were illustrated in two key publications; a commentary published in the British Medical Journal (Layard, 2006a) and a report by the London School of economics (2006b). Within these publications, it was stated that approximately 15% of the population of England suffered from depression and anxiety disorders, and that there was no mechanism in

primary care (at the time) to effectively treat these disorders in accordance with guidelines by the National Institute for Health and Care Excellence (NICE)(The National Institute for Health and Care Excellence, 2004b, 2004a). Relatedly, there were not enough psychological professionals to facilitate care for the volume of people that were routinely presenting to their primary care providers with common mental health difficulties (e.g. mild-moderate presentations of depression and/or anxiety symptoms disorders).

Layard (2006a;2006b) therefore posited the need for a reconceptualization of primary care mental health services, where an overhaul of care would be more cost-effective than allowing the economic burden that these common mental health conditions cause to continue. For example, the cost of therapy for a common mental health condition was put at £750, which did not account for the taxation lost through illness leave from work and benefits needing to be paid to the individual through a public welfare system. In the case where the condition would instead be treated, the individual would generate £1,880 in terms of work that they otherwise may have missed as a consequence of their condition.  The arguments made within each of these publications were supported with evidence from treatment guidelines for depression and anxiety that were, at the time, recently published by the National Institute for Health and Care Excellence (NICE; NICE, 2004a, 2004b). For example, for the treatment of Generalised Anxiety Disorder in primary care, NICE recommended that benzodiazepines should not be used long term, and that the treatments with most enduring effects (in order of effect) were psychological therapy (CBT), pharmacological therapy and self-help/bibliotherapy based on CBT principles (NICE, 2004a). Layard's arguments provided key economic and patient-centred benefits for this shift in the model of care.

In his initial commentary published in the British Medical Journal (Layard, 2006a), he argued that cognitive behavioural therapy (CBT) should be made available through

extended primary care teams for the most common mental health disorders – depression and anxiety disorders. These arguments were evidence based, reflecting what was seen elsewhere in the literature; that psychological treatments were as effective as pharmacological treatments, that people preferred 'therapy' over taking medication and, as stated previously, that guidelines from the NICE supported the use of psychological treatments for these conditions. Within this publication, he outlined the development and structure of mental health teams that could work as part of primary care, where general practitioners could refer their presenting patients to recognised care centres within their local NHS Trust (care provider). This publication also advocated for the creation of a new type of psychological professional; one that is principally trained in administering cognitive behavioural therapy, but also supervised by fully-qualified clinical staff, such as Counselling or Clinical Psychologists.

In the report published by the London School of Economics (Layard, 2006b), the economic burden of mental disorders is further discussed. For example, 40% of all reported disability was due to mental illness at the time, with a further 10% citing mental illness as a secondary factor in their disability. Depression and anxiety were also explained to be associated with loss of economic activity due to absence from work and relevant governmental illness payments, therefore accounting for over £12 billion. These points, on top of the cost-effectiveness of talking therapies over pharmacological therapies across time and the conclusions from NICE stating that Cognitive Behavioural therapy can be as effective as medication, serve as the foundation for proposing the development of a new type of mental health service and the 7-year plan. The 7-year plan was the framework that Layard proposed for the training of 10,000 new psychological professionals, as well as the development of relevant services within the domain of primary care. Layard's team acknowledged that a radical transformation of the mental

healthcare system such as this would not be instant, and therefore relevant infrastructure and the other pragmatics of providing these new mental healthcare services would take time, money and effort.

The new type of psychological professional described by Layard (2006a; 2006b) would later go on to be actualised within the role of the Psychological Wellbeing Practitioner (PWP). These individuals are typically graduate psychologists that undertake further postgraduate, service-based training, and are then supervised within these new mental healthcare teams by more senior clinical psychologists. The training of these professionals is guided by the competencies outlined by Pilling and Roth (2007) in their UK Department of Health Report on the competences required for administered CBT and the Reach Out curriculum (Richards & Whyte, 2011). The Reach Out curriculum describes the fostering of competencies across six specific areas for PWPs; information gathering, information giving, shared decision-making, the delivery of low-intensity treatment interventions, supervision and values, culture, diversity, and policy (Richards & Whyte, 2011).

Low-intensity treatments were to form the core work of the PWP profession and principally consisted of CBT-based or informed interventions such as guided self-help (through books or informational materials), computerized CBT (cCBT; a precursor to ICBT) or brief face-to-face interventions (Roth & Pilling, 2007), all of which were recommended in treatment guidelines published by NICE for depression and anxiety at the time (Nice 2004a, Nice 2004b). According to Bennett-Levy, Richards & Farrand ( 2010), low-intensity treatments increase patient access rates and service flexibility, as well as impact on costs by reducing the amount of therapist time needed to conduct the intervention (e.g. therapy groups, or supporting patients through guided self-help interventions), being suitable for delivery by specifically trained paraprofessionals (e.g. PWPs) and more

acceptable to patients (e.g less intense content that can be done at a pace established by the patient).

cCBT programmes offered as part of the initial IAPT pilot sites included two commercially developed programmes – Beating the Blues, developed by Ultrasis LTD, and FearFighter, developed by CCBT LTD (The National Institute for Health and Care Excellence, 2006). Based on the success of 2 pilot sites within England, which included cCBT as part of their offering, the UK government announced official funding for Improving Access to Psychological Therapies services to come online across the NHS and delivery stepped care to the population (Clark et al., 2009). Stepped care service models operate on the premise of providing the most effective, but least capacity-intensive to patients when they engage with services, and have been cited within the literature as one of the potential solutions to increase access to evidence-based, well research treatments (Bower & Gilbody, 2005). The IAPT model is composed of 5 steps, where the majority of individuals coming through an IAPT service are immediately seen by PWPs at the step 2 level and provided with low-intensity treatments, like guided self-help (cCBT, bibliotherapy) or group therapy. Those patients who are unresponsive or experience exacerbation of symptoms at the step 2 level are then 'stepped up' to step 3, where they receive face-to-face cognitive behavioural therapy from a PWP with further specialized training (often referred to as a 'High-intensity PWP').

It can therefore be stated that England's NHS has a long-term history with offering cCBT initially, and subsequently iCBT, which is evident within the literature base. For example, beating the blues has illustrated its ability to achieve significant reductions on targeted symptomatology (Cavanagh et al., 2006; Proudfoot et al., 2004) and that patients found it acceptable to receive therapy through the computer(Cavanagh et al., 2009). FearFighter has achieved similar outcomes for anxiety (Marks et al., 2004; Marks et

al., 2003; Schneider, Mataix-Cols, Marks, & Bachofen, 2005), with one study highlighting that one fulltime therapist could potentially manage 355 patients a year through a variety of cCBT interventions (Marks et al., 2004). Indeed, the NHS recognised early on the access and cost benefits of implementing these legacy cCBT systems.

However, other authors in the first decade of the 2000's (Andersson et al., 2010; Andersson & Cuijpers, 2008; Christensen et al., 2007) were concerned about the transition of iCBT from lab-controlled efficacy studies to real-world effectiveness studies that recruited patients through routine care means. For example, what supports are in place to ensure continued use and scaling of cCBT within services (Christensen & Griffiths, 2007), how should training of therapists administering these interventions be conducted and adverse events be managed in routine care (Andersson, Carlbring & Cuijpers, 2010) and whether different computerised treatments (e.g. brand name variations of computerized treatment for depression) will produce different effects (Andersson & Cuijpers, 2008). However, IAPT included cCBT from the outset as a low-intensity intervention, and trained a new psychological workforce that included these interventions as part of their work in routine care (Clark et al., 2009, 2018) Where others in Europe and beyond were raising concerns about cCBT and iCBT, the NHS appeared to be creating infrastructure around it as an efficient way of providing therapy for mild-moderate cases of depression and anxiety.

More recent trials of iCBT in IAPT services have illustrated the potential of these interventions within healthcare. For example, the SilverCloud interventions have been evaluated as part of a pragmatic RCT design in an IAPT service (Richards et al., 2020) for mild-moderate presentations of depression and anxiety, similar to the design employed by Marks et al. (2003). Pragmatic trials are conducted to evaluate an intervention's effectiveness within routine clinical settings(Macpherson, 2004), and the RCT of Richards

et al. (2020) demonstrates the effectiveness of the SilverCloud intervention when

delivered within the structure of IAPT. For example, the trial procedures mirrored service-

as-usual by adhering to the same schedule of support, type of supporter implicated (PWP)

and risk management protocols used by the hosting IAPT service. A further naturalistic

cohort study of 21, 215 IAPT patients conducted by (Palacios et al., in press) illustrated

the comparative superiority of iCBT over two low-intensity interventions routinely used in

IAPT - group therapy and guided self-help, which further echoes the results of previous

studies in this context. However, a cited issue with pragmatic trials is that they do not

guarantee that effectiveness within one context is transferrable to another (Patsopoulos,

2011). In this regard, Duffy et al. (2020) carried out a feasibility trial to investigate the

utility of the SilverCloud interventions (the same iCBTs used by Richards et al., 2020) to

step 3 IAPT, which treats moderate-severe presentations of depression and anxiety.

Similarly, the trial adhered to service-structures already in place within the IAPT service

and achieved significant reductions in symptoms of depression and anxiety, indicating its

utility as a prequel to face-to-face therapy within stepped care.

Each of the papers referencing SilverCloud illustrate how the structures of IAPT

are facilitative to the use of iCBT; there is a dedicated population trained in the use of

low-intensity interventions (i.e. PWPs) , iCBT can be tailored to adhere to the risk

management procedures commonly used in IAPT and an efficient assessment process

allocates the correct presentations (e.g mild-moderate depression/anxiety) to the correct

interventions (e.g. iCBT). NICE guidelines also advocate for the use of iCBT and, in turn,

the design and content of the interventions are representative of the guidelines. Indeed,

researchers in Sweden have acknowledged the value of creating a role similar to that of

the PWP to deliver iCBT in primary care, due to the lack of capacity within the workforce

in Sweden to deliver 'another' intervention on top of an already high workload (Brantnell et al., 2020).

## 5. Effectiveness & Efficacy – Bridging the evidence gap between the laboratory and the 'real world'.

Given the wealth of meta-analytic evidence to support the use of iCBT, and its embrace within health systems like IAPT, we know that iCBT is an effective and valid option for treating depression and anxiety disorders. However, there is a lack of adoption outside of cases where specific individuals or healthcare providers have pushed for organisational change. Within the IAPT example, it is evident that the work of Layard and Clark (Layard, 2006a; Layard, 2006b; Clark et al., 2009) was influential to the uptake of iCBT; IAPT was highly intertwined with guidelines from NICE, which recommended the use of cCBT, and its use subsequently evolved from there. Similarly, other countries like Sweden and Australia have benefitted from the work of pioneering researchers within their specific countries (for examples, see Titov et al., 2018). However, these can be considered unique cases.

An example of the lack of uptake of iCBT within healthcare is Ireland. 2006 Guidelines for the treatment of symptoms of depression and anxiety at the primary care level mainly consist of pharmacological treatments, further stating that the "*provision of psychotherapeutic services at primary care level has typically occurred on an ad hoc basis*" (Irish College of GPs, 2006). Individuals who are receiving state health benefits can now benefit from a referral to a service that provides free counselling in primary care (CIPC; (Health Service Executive of Ireland, 2021) for mild-moderate mental health difficulties. However, guidelines for the treatment of mental health in primary care for non-benefit receiving individuals are sparse. Long waiting lists for psychological help are also widely

cited within the media for both children/adolescent and adult populations (Hillard, 2021; O'Sioradain, 2021). Indeed, a report published by Mental Health Reform Ireland (MHR; McDaid, 2013) echoes the points made by Layard (2006a;2006b) in regards to the treatment of common mental health conditions within primary care; patients with mental health difficulties are mainly offered pharmacological treatments, physicians are ill-equipped and undertrained to address mental health presentations, there is a lack of access to counselling and costs can deter patients from seeking help. MHR (2013, p. 8) advocates for a stepped-care approach similar to what was proposed for IAPT in the UK, where they state that *"the best use of both specialist and primary mental health services occurs when an individual can get the help they need at the lowest level of support appropriate for them"*. Further, MHR (Cullen, 2018) also advocates for the integration of eHealth into routine care, specifically stating iCBT as a promising candidate due to its research history and the protocolised nature of CBT being conducive to online delivery. Indeed, there have been pocketed efforts within Ireland to effectively use iCBT over the years; certain universities (e.g Trinity College Dublin;(Enrique et al., 2020; Richards et al., 2015), charities (Richards et al., 2015) and health services (Collins et al., 2018; Enrique, Duffy, et al., 2020) have all previously employed iCBT to the benefit of their patients. However, despite historically not using iCBT as part of service delivery, efforts have recently been made by the Irish health system to implement SilverCloud for mild-moderate presentations of depression and anxiety within the health system(SilverCloud health, 2021)

This lack of uptake or knowledge of iCBT within healthcare settings is also reflected in the wider literature. Meta analyses have highlighted the lack of robust evidence available for iCBT in naturalistic practice or effectiveness settings. For example, a meta analysis of iCBT for depression by Wells et al. (2018) highlighted only 8 studies

conducted in primary care. The 8 studies indicated an overall small effect for iCBT at post

treatment ($g$ = .258), which increased ($g$ = .372) when only studies of guided iCBT were

analysed. In comparison to a wider meta analysis of iCBT for depression conducted by

Wright et al. (2018), where overall posttreatment effect was moderate-large (*g (range)* =

.502 - .673) depending on level of support, the effect observed by Wells et al. (2018) is

markedly lower. Where this may be interpreted as the "voltage drop" that was previously

discussed, the lack of effectiveness research within the field of iCBT and reporting on

reasons as to why effects are lower in routine practice is a gap that is worthy of further

research.

The lack of robust effectiveness research within the field of iCBT is detrimental for

two reasons; 1) these studies provide insight into how iCBT operates in real world

settings, and 2) they are the first step in implementing and sustaining interventions within

service frameworks. Andersson & Hedman (2013) argue that, in general, research studies

of psychotherapies always have elements of effectiveness, where they include real

patients with diagnosed disorders and are still treated with trained therapists, similar to a

healthcare setting. Further, they go on to state that perhaps effectiveness trials are less

important for iCBT, where the main component of the therapy is delivered via the

intervention itself, as opposed to the therapist who is situated in a healthcare setting. It is

from this conflict between the established evidence base and the lack of uptake of iCBT

outside of circumstances of researcher perseverance (e.g. Sweden, Australia) that the

drive for this thesis originates.  There is a need to transfer the learnings from

effectiveness trials to real world practice, so that iCBT can be actualised to the point of

benefit in healthcare. However, methods of translating these findings are rarely cited

within the iCBT literature base.

In an article titled "closing the research-to-practice gap in digital psychiatry", a possible reason for the lack of uptake of digital interventions in routine care was explored (Lipschitz et al., 2019). The reason, the authors postulate, is a lack of knowledge in the field of iCBT around fostering the uptake of these interventions within routine care. They then suggest a possible solution: the adoption of implementation science (IS) methodologies to bridge this evidence-to-practice gap. Similar to iCBT, the development of IS is a relatively recent phenomenon, and has been defined as "*the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and hence, to improve the quality and effectiveness of health services and care*" (Eccles & Mittman, 2006). Central to this definition is the problem statement behind it: it takes almost 17 years for 14% of all original research to achieve intended benefit (Balas & Boren, 2000; Grant et al., 2000). As a newly emerging academic field, it is largely integrative; it borrows and adapts theories from multiple fields and uses these to interpret the determinant mechanisms as to why (or why not) a specific implementation succeeds (Nilsen, 2015). In line with this, IS theories provide a frame that allows for implementation plans to be developed and the relevant outcomes measured (Smith & Polaha, 2017) and it is these methodologies that Lipschitz and colleagues (2019) advocate for inclusion within future studies and real-world applications of internet-delivered interventions.

Both the definition of IS given by Eccles and Mittman (2006) and findings by Balas & Boren (2000) make reference to the evidence-to-practice gap. The evidence-to-practice gap is a multifaceted construct and can vary by field, but it is principally centred on the idea that there are several barriers associated with translating research findings to real-world application (Colditz & Emmons, 2018).  This gap is best represented using the leaky pipeline analogy developed by Green, Ottoson, García, & Hiatt (2009), which is illustrated

in figure 1.1. The funnel illustrates a typical research timeline, but further shows that

towards the end of the pipe, numerous details are either lost or unaccounted for, leading

to the the eventual 'evidence-to-practice gap'. Where novel interventions are only able to

address efficacy concerns and cannot meet the dynamic demands and requirements of

service contexts, it leads to a lack of uptake. Commenting further, Green and colleagues

state that evidence syntheses (e.g. systematic reviews, meta analyses) can further

increase the leakage from the pipe, or widen the evidence to practice gap by analysing

research that is highly controlled and unrepresentative of clinical contexts. This

subsequently leads to a lack of uptake in novel practices or interventions when clinical

guidelines, that are based on these knowledge syntheses, are developed

**Figure 1.1.**

*An illustration of the leaky pipe taken from Green et al. (2009).*
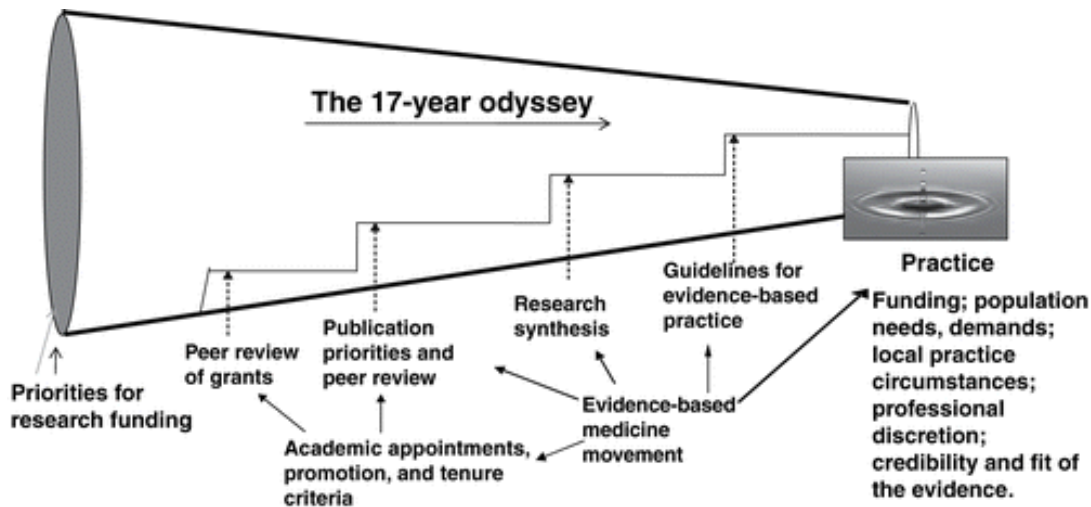


Green LW, et al. 2009.
Annu. Rev. Public Health. 30:151–74

### 6. Implementation Theories, Models & Frameorks.

Elaborating on the methodologies common within IS, Nilsen (2015) put forward a taxonomy that delineates them into theories, frameworks and models (TMF). According to this taxonomy, a theory in implementation research is defined as a set of principles that serve to structure observations and understandings of certain phenomena (e.g. normalisation process theory; May & Finch, 2009). Models are described similarly to theories, but have a narrower scope of explanation (e.g, follow process *x* to achieve implementation outcome *y*). Nilsen separates the two by describing theories as both explanatory and descriptive, with models only being descriptive. A framework consists of a number of descriptive categories (i.e. constructs or variables) that provide guidance when implementing, and they typically assume that the relationships between each of the categories contribute to variance within the implementation phenomenon (e.g. Consolidated Framework for Implementation Research by Damschroder et al., 2009).

Birken et al. (2017) conducted an analysis into the criteria for selecting theories and frameworks in implementation science. As part of their rationale for conducting the study, the authors cite a pervasive underuse, misuse and superficial use of implementation theory across fields. The numerous theories to choose from (Tabak, Khoong, Chambers, & Brownson, 2012), the ways in which their constructs are operationalised (Tabak, Chambers, & Brownson, 2012), levels of validity (Sniehotta et al., 2014) and language used (Tabak et al., 2012) are all cited as reasons for their poor use within the study. The authors recruited 223 participants who operated as both researchers, practitioners or both, and were largely based within academic institutions (73%) with mental health/social work training (71.43%), to participate in a questionnaire regarding implementation theory use. The findings of the questionnaire illustrate that a large number of criteria are applied to theories, models and frameworks when considering them for use. For example, the analytical level (whether the theory looks at individual, organizational, system or all levels), ogical consistency (e.g. the inclusion of easily understandably explanations of relationships between implementation constructs), description of change processes and empirical support were some of the most frequent responses (>50% of cases). They also identified reasons for which theories are used, which included to inform data collection, identify barriers and facilitators, guide implementation and specify outcomes. Of note, the authors provide a list of the most commonly used theories by this sample (see Figure 1.2 below). To explore implementation further, an illustration of the top 6 most commonly used theories, models and frameworks will be presented below, which account for the majority (58.74%) of the reported findings of Birken (2017).

**Figure 1.2.**
*Theories identified by Birken et al. (2017)*

**Table 5** Theories used

| Theory | Percent |
|---|---|
| Consolidated Framework for Implementation Research | 20.63 |
| Reach Effectiveness Adoption Implementation Maintenance | 13.90 |
| Diffusion of Innovation | 8.97 |
| Theoretical Domains Framework | 5.38 |
| Exploration, Preparation, Implementation, Sustainment | 4.93 |
| Proctor's Implementation Outcomes | 4.93 |
| Organizational Theory of Implementation of Innovations | 3.59 |
| Knowledge to Action | 3.14 |
| Implementation Drivers Framework | 3.14 |
| Active Implementation Framework | 2.69 |
| Theory of Planned Behaviour | 2.69 |
| Behaviour Change Wheel | 2.69 |
| Normalization Process Model | 2.69 |
| PARIHS | 1.79 |
| Social Cognitive Theory | 1.79 |
| Intervention Mapping | 1.79 |
| Interactive Systems Framework | 1.79 |
| Organizational Readiness Theory | 1.79 |
| Replicating Effective Programs | 1.35 |
| Social Ecological Framework | 1.35 |
| QUERI | 1.35 |
| PBIS | 1.35 |
| Social Learning Theory | 1.35 |
| Other | 4.04 |

The most common TMF cited in the study by Birken et al. (2017) was the

**Consolidated Framework for Implementation Research** of Damschroder et al. (2009).

The CFIR, being a meta-theoretical framework, was constructed by reviewing the

implementation literature to extract factors that are cited as influencing implementation

and combining these to create the consolidated framework. It consists of a

comprehensive list of 5 domains; intervention characteristics, outer setting, inner setting,

individual characteristics and implementation process. Under each of these domains are

several constructs that provide further areas for enquiry, for a total of 39 constructs.

Application of the CFIR can occur at any point throughout the implementation process. For example, it can be considered at pre-implementation to inform research questions or the relationship between a specific domain/construct and an outcome, it can be used during an implementation to understand barriers encountered and at post-implementation to apply theory to the phenomena encountered.

A key strength of the CFIR is that it is a comprehensive taxonomy with standardised terms and definitions, which is further complemented by a continuously updated website (CFIR Research Team, 2019) that disseminates information relevant to the theory. This strength relates to the work of Proctor, Powell, and McMillen (2013), who's critique of the field of IS was that it lacks coherence and consistency in its use of terminology. A systematic review of the CFIR was conducted by Kirk et al. (2015), who identified 26 papers that used the framework in a 'meaningful' way (CFIR use in reference to data collection, measurement, analysis or reporting). Findings from this review concluded that not all CFIR constructs were reported on within each study, it was not used to guide research question development, less than half of the articles identified did not link CFIR constructs to study outcome and study results were, generally, not used to inform intervention scale-up or sustainment. These findings relate to the rationale put forward by Birken et al. (2017) in conducting their study to understand how theory is used by implementation practitioners, where it is clear that for the CFIR, limitations around misuse, underuse and superficial use of the model are evident.

**Diffusion of Innovations**, originally proposed by Rogers, (2003), was built upon by Greenhalgh et al. (2004) using a meta-narrative approach. The authors define an innovation as a '*novel set of behaviours, routines and ways of working that are directed at improving health outcomes…and are implemented by planned and coordinated actions'* (Greenhalgh et al., 2004, p. 582) This approach focusses on building a '*storyline of*

*research in a particular scientific tradition'* (Greenhalgh et al., 2004, p.583). by analysing

the landmark papers, books, theories, models and frameworks that define a specific field

of study. Through this approach, the authors identified over 1000 relevant papers and 13

fields of research that contributed to the diffusion of innovations in healthcare, including

rural sociology, communication studies, marketing and economics, complexity studies

and evidence-based medicine and guideline implementation. Synthesising the results

from these fields and papers resulted in the development of a 9 construct, unified

conceptual model (see Table 1.2 below)

**Table 1.2.**

*Diffusion of Innovations conceptual model (Greenhalgh et al., 2004)*

| Concept | Description |
| --- | --- |
| Innovation | The qualities of a specific innovation associated with variance in adoption rates by intended users or systems |
| Adoption | The qualities of individual adopters associated with variance in adoption rates by intended users or systems |
| Assimilation | The overarching process of routinising the innovation within a system |
| Diffusion and Dissemination | The influences that facilitate the spreading of an innovation. These influences exist on a continuum of pure diffusion (unplanned, informal spread) and active dissemination (planned, formal spread) |
| Inner Context - Antecedents for innovation | Pre-existing system features that influence the probability of innovation assimilation |
| Inner Context - Readiness for innovation | The state of system readiness for the implementation of a specific innovation |
| Outer Context | The external factors that influence the adoption of an innovation |
| Implementation Process | The activities that occur once a system has made the decision to adopt an innovation |
| Linkage | The relationship (maintenance and building) between the adopting system and change agency |

When implementing the conceptual model, Greenhalgh et al. (Greenhalgh et al., 2004; Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2008) advocate against the use of a checklist approach; the concepts should be interpreted holistically across the implementation timeline so that relationships between them can be identified. The model is also not deterministic/predictive in nature; it is stated to be a lens to uncover barriers or issues in different contexts. A strength of Greenhalgh et al's (2004;2008) elaboration on Roger's Diffusion of Innovations (2003) model is its emphasis on the relationships between the constructs; the authors postulate that no implementation activity occurs in isolation, and each activity undertaken can have knock-on effects.

Indeed, two studies have utilised the conceptual model to this effect: a case study (McMullen et al., 2015) of the implementation of rapid HIV tests in the NHS and an application of the model to telecare (Sugarhood et al., 2013). In the study of McMullen et al. (2015), the authors highlighted the utility of retrospectively applying the model to clinic data to understand the differences and variation in outcomes across participating study sites. Sugarhood et al.'s (2013) study highlighted, through the model, the complex relationships between individuals working within a service, resource constraints, family dynamics and the difficulty of translating innovation to routine practice. Greenhalgh et al.'s (2004) work on diffusion of innovations underlines the complex nature of implementation, where each concept can interact with another, allowing for insights that highlight complex relationships around a given innovation healthcare contexts.

**Proctor's implementation outcomes** (Proctor et al., 2011) were developed based on a conceptual model for implementation published in 2009 (Proctor et al., 2009). The conceptual model is based on three other frameworks

1. The 'Stage Pipeline' Model of the National Cancer Institute, (2004): This is a 5 phase plan that ranges from hypothesis and methods development (phase 1 and 2), controlled intervention trials (phase 3), defined population studies (phase 4) and demonstration/implementation studies (phase 5).

2. Shortell's (2004) multi-level model of change for performance improvement: consisting of four levels, this model accounts for the differing organisational contexts that interact with one another, ranging from the top level (policy/political context), the middle two levels (organisation and teams) and the bottom level (individual). Each of these levels interact with each other and the novel innovations to facilitate or inhibit the implementation of them.

3. The 3rd framework consists of an amalgam of information based on models of
   healthcare service use. The authors state that while these models do not
   necessarily address the implementation phenomenon directly, they specify the
   need for strategy and efficiency around implementations to ensure the relevant
   outcomes are achieved.

Employing knowledge from the aforementioned models, Proctor et al. (2009)
propose a heuristic conceptual model that specifies three main domains of outcome and
impact: implementation, service and client outcomes. The heuristic model proposes that
implementation is a multi-level effort that includes the intervention testing process
within healthcare contexts. It espouses to incorporate a wide range constructs from other
relevant theories within the field, but does not directly specify how all of these combine
within it. True to it being termed as a *'heuristic'* model, Proctor et al. (2009) appear to
have created a model that emphasises the application of pragmatic strategies to issues as
they arise. The specific implementation outcomes that Birken et al. (2017) reference
come from a subsequent paper in 2011 (Proctor et al., 2011). Within this paper, they list
implementation outcomes relating to constructs of acceptability, adoption,
appropriateness, costs, feasibility, fidelity, penetration and sustainability. These outcomes
further build on the 2009 paper, and take inspiration from other theoretical models (RE-
AIM (Glasgow et al., 2006), Diffusion of Innovations (Rogers, 2003) and program change
models. A key strength of this model is the salience of the implementation outcomes;
they are explicitly defined, examples are provided and they offer a practical way to
measure an implementation. However, a concluding point from the authors is that more
research is needed to advance the measurement of these outcomes. Indeed, a recent
systematic review (Lewis et al., 2015) highlighted the poor state of measurement within
the field of implementation. For example, Lewis et al. (2015) illustrate that much of the

work outlined within Proctor's (2011) paper is yet to be achieved, where the majority of measures they identified relate to outcomes of acceptability and adoption (69 out of 104 measures), and only one measure achieved 'minimal' evidence standards according to the evidence standards around measurement reliability and validity set out in the review..

**Reach, Effectiveness, Adoption, Implementation, Maintenance** (RE-AIM; Glasgow, Vogt & Boles, 1999; Glasgow et al., 2006; Gaglio, Shoup, & Glasgow, 2013) is an evaluation framework that focusses on the effectiveness of programmes in health care research. It originally began as a method to determine issues related to the generalisability of results from research of public health interventions, but later developed into a methodology to assist in the planning of research or reporting of results (Gaglio, Shoup & Glasgow, 2013). The RE-AIM framework currently has a large literature base, but a paper by King, Glasgow, and Leeman-Castillo (2010) cites its conceptual nature and lack of clarity around data collection as major disadvantages. However, in response to this the website of the RE-AIM group now contains substantial information to guide researchers in its use (RE-AIM Group, 2019).The five constructs of the RE-AIM framework are elaborated on below and are taken from (Glasgow, Vogt & Boles, 1999)

- Reach: The number, proportion and representativeness/Efficacy of people who participate in an initiative (research, healthcare, activity). In regards to analysing proportion rate, this is the number of individuals who participate in the initiative divided by the number of eligible participants. Representativeness is identified by contrasting your participating sample to the wider population across a number of variables to determine levels of generalisability.

- Effectiveness/Efficacy: Reporting the good and bad, or intended and unintended effects of initiatives. This is typically measured using effect sizes.

- Adoption: This is termed as the number, proportion and representativeness of intervention agents and contexts that choose to participate in administering an initiative. Whereas reach typically refers to participants/patients/individuals, adoption refers to those who administer the initiative. A key element of this construct is understanding how the intervention varies across contexts and what influences their uptake with different groups of workers (e.g. teachers, nurses therapists) and areas (education, healthcare, organisational).

- Implementation: This is defined as the level of fidelity adhered to by intervention agents when administering an initiative, including the consistency adhered to when administering the protocol of the initiative, and the required resources to do so.

- Maintenance: The level of routinisation of a given initiative at both the individual (patient or agents administering the initiative) and organisational level.

The **Exploration, Preparation, Implementation and Sustainment Framework** (EPIS; Aarons, Hurlburt, & Horwitz, 2011) , much like the others mentioned in this literature review, was developed to provide guidance on the implementation process by synthesising the existing information available in the literature. A graphical illustration of the model is presented below in figure 1.3:

**Figure 1.3.**
*The EPIS Framework*
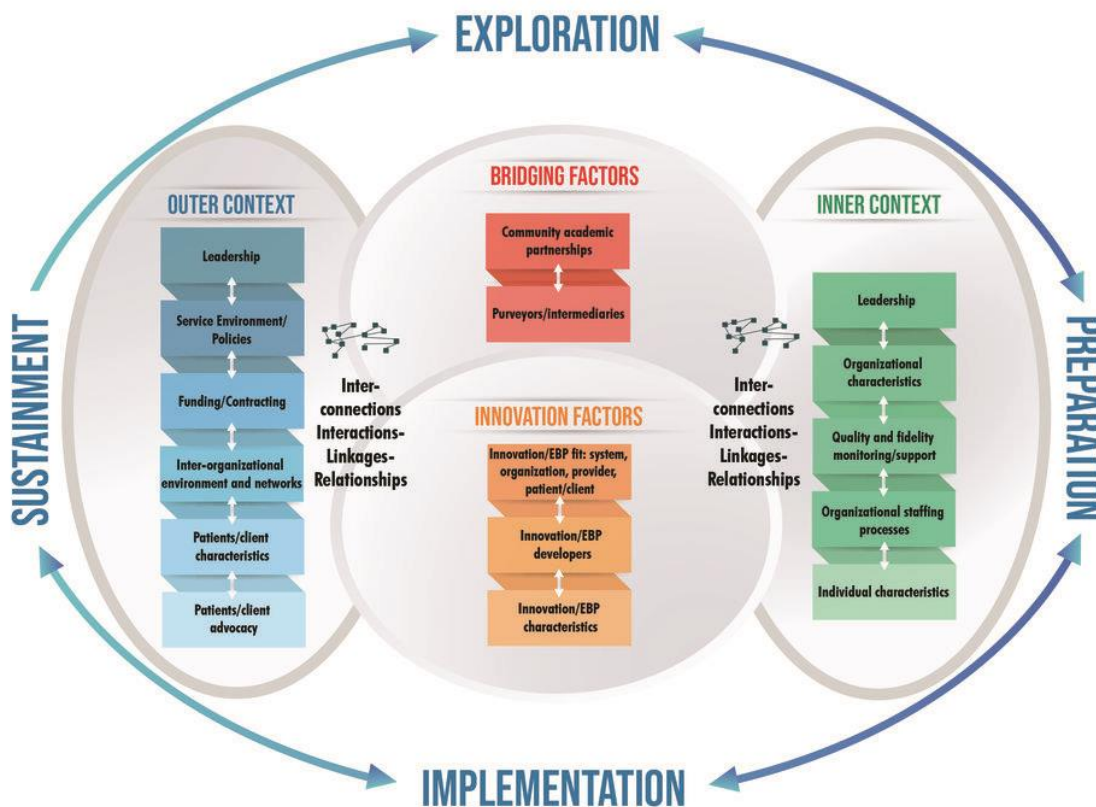


The framework specifies four phases that, collectively, describe the

implementation process, identify the inner and outer contextual structures that impact

on implementation, describe the characteristics of the innovation that fit with the current

context or need to be adapted and the interconnectedness between the outer and inner

contexts. The four components are elaborated on below, and are taken from the original

paper by Aaron, Hurlburt and Horwitz (2011).

1.  Implementation Process: The Framework (EPIS) is named after the four phases of

    implementation, which the authors claim occur in succession (similar to a process

    model (Nilsen et al., 2015). The exploration phase consists of a service

    acknowledging the healthcare-related needs of the populations they serve, and

    the emerging innovations that can be employed to address these. Once an

    innovation is identified, the service moves to the preparation phase where they

identify barriers, facilitating factors and any adaptations to the innovation that may need to be done before implementation. The implementation phase follows the initial integration of the innovation into service-as-usual with continuous assessment of the innovation and processes surrounding it. In the sustainment phase, the innovation is assimilated, under the conditions indicated by the inner and outer contexts, and creates tangible outcomes for the service.

2. Contextual Factors: Much like other frameworks and models illustrated in this review, the framework places emphasis on the inner and outer context, and how these can dictate how the innovation is implemented or how it should be adapted to meet the needs of the relevant contexts.

3. Qualities of the Innovation: similar to diffusion of innovations (Greenhalgh et al., 2004), the authors state that certain factors of an innovation can facilitate or hinder an implementation. The importance of adapting the innovation to fit the context in which it is being applied is also emphasised, but care should be taken to not erase any of the core components of the innovation during this process.

4. Interconnectedness and Relationships between inner and outer contexts: This phase states that the inner and outer context are deeply entangled (e.g. a mental health service and clinical certification bodies), which places certain conditions on the implementation of an innovation.

As illustrated by the descriptions and graphic above, the EPIS model promotes a holistic view of an implementation, and appears quite similar to works like diffusion of innovations by Greenhalgh et al. (2004) and CFIR (Damschroder et al., 2009). However, unique to this framework is that EPIS emphasises the four phases of implementation as unidirectional; a service passes each of the phases in sequence to implement an innovation. However, Greenhalgh et al. (2004) posits a bidirectional model; an

organisation can progress and reverse through each of the implementation phases in an

effort to adapt the innovation to the context, deal with relevant inner and outer

contextual influences and create buy-in from stakeholders. A recent systematic review by

Moullin, Dickson, Stadnick, Rabin, & Aarons, (2019) has shown that EPIS has been applied

to a multitude of contexts but, similar to the critiques of Birken et al. (2017), they

recommend that future applications focus on incorporating precise conceptualisation of

relevant factors, develop appropriate ways of measuring outcomes and increase the

number of ways in which EPIS is used (e.g. to design research questions).

The **Theoretical Domains Framework**, similar to the other theories in this

literature review, was developed to address the issues with implementing evidence-based

guidelines (Michie et al., 2005). However, this theory differentiates itself by focussing on

the psychological area of behaviour change (Michie et al., 2005; Cane, O'Connor, &

Michie, 2012). In their original work (Michie et al., 2005), the authors synthesised 33

unique theories of behaviour change and related these to 12 domains in their original

work. However, later developments saw the framework refined into 14 domains (Cane et

al., 2012). The authors postulate that there are 3 strengths associated with this refined

framework; 1) they have incorporated a comprehensive coverage on aspects that

influence behaviour, 2)these influences are illustrated clearly in reference to each domain

and construct, and 3) links are made between theories and techniques of behaviour

change to address implementation barriers. Further building on this theory and adding to

its utility is a paper by Atkins et al. (2017), who put forward a guide to implementing this

framework within research designs. To do this, they illustrate cases of successful use

across the literature base and then elaborate on a 7-stage process for conducting

research with this framework. The theoretical domains framework separates itself from

the majority of models and frameworks presented in this lit review, such that it provides a

strong theoretical lens, rooted in psychology, from which implementation activities can

be understood and interpreted (Cane, O'Connor & Michie, 2012). In other words, where

previous theories, models and frameworks (such as those illustrated above) are the result

of literature reviews or synthesis of several implementation frameworks, the theoretical

domains framework is a synthesis of many theories.  As per Nilsen's (2015) taxonomy,

theories within implementation science allow for the testing of relationships between

constructs and, despite the TDF being only a theoretical framework, it allows for potential

speculation on relationships between process and outcome.

## 7. iCBT and Implementation

Where implementation TMFs have been built and synthesised from a literature

base of healthcare and policy implementation (Nilsen et al., 2015), they have seen

relatively little application to the field of iCBT. However, over the years (mainly the last 5),

there has been a small increase in the number of authors publishing implementation-

related studies. Firstly, and in reference to the RE-AIM framework above, an early review

of internet-delivered interventions based on RE-AIM, and including studies of cCBT such

as Proudfoot et al. (2003), Proudfoot et al., (2004) and Marks et al. (2003) was conducted

by Bennett and Glasgow (2009). The authors remarked that the preliminary evidence

under the RE-AIM domains was encouraging. However, despite this, few trials provided

sufficient information under the areas of reach, sustainability and website utilisation,

arguably some of the most important for implementing iCBT. They also advocated for

further investigations into the high levels of attrition within these trials and how to

promote intervention engagement, an issue that is still explored within the field of iCBT

(Chien et al., 2020; Enrique et al., 2019).

A more recent study by Vis et al. (2018) used the RE-AIM framework to structure a

systematic review regarding the barriers and facilitators to implementing eMental Health

Interventions, of which iCBT was included in. This review highlighted 7 global categories and 37 determinants within the literature base, all of which fell under one or more R-AIM categories (E/effectiveness was deliberately omitted from the review due to the focus on implementation factors).Specifically, they found that the domains of reach and adoption were mostly studied within the e health literature base, with implementation and maintenance being the least studied. This conclusion reflects the paper of Lipschitz et al. (2019), who advocate for further research into the implementation aspects of e health interventions. In other words, the pragmatic relevance of the work of Vis et al. (2018) is that it provides implementers of eHealth interventions with a comprehensive list of determinants to consider when commencing an implementation initiative. Although a welcome advancement for the field of iCBT, a possible criticism of this work is that "eHealth" is a broad term for many types of technologies and interventions.

The article "what is eHealth?" by (Eysenbach, 2001) has been cited (as of October 2021) 3,253 times, and terms eHealth as "…*an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies*". When searching for articles related to eHealth and its implementation, it becomes clear that the variety of different technologies and interventions are important. For example, eHealth studies can range from examining the use of electronic health records (Kierkegaard, 2013), to mobile applications (Chan et al., 2014), to video-conference enabled interventions like online counselling (Richards & Viganó, 2013). This dilution of iCBT among the interventions of eHealth may potentially pose a problem; given the heterogeneity of interventions, works that illustrate the implementation of eHealth may not capture the nuances associated with iCBT and its relevant components.

Of relevance here is the term "complexity", where iCBT can be considered a complex intervention. The Medical Research Council (Skivington et al., 2021) recently updated their guidance on the definition of complex interventions, stating that intervention complexity is based on:

- The number of components and intervention has, and how the they interact

- The expertise and skills required by those delivering the intervention

- The number of groups or organisational levels targeted by the intervention

- The degree to which the intervention and its components can be altered or tailored to the given context or need

In comparing this definition to iCBT, we can begin to estimate the complexity of the intervention that is being implemented. When taking the example of supported iCBT, the core components of the intervention, from an implementation perspective, can be seen to consist of the intervention itself and the guidance provided by the supporter. Both of these components can be variable, for example, we have illustrated three different commercial iCBT programmes that have been implicated within the literature (Beating the Blues, FearFighter, SilverCloud) and the disorder the programme can have different content based on the disorder being targeted. Similarly, the support provided can differ (see table 1.1 above), and variations in the schedule of support provided, by whom and through what medium may have clinical implications (e.g. Hadjistavropoulos et al., 2021). Further, iCBT can be individually tailored to the patient, where some studies have reported that iCBT tailored to individual patient need achieves superior outcome to non-tailored iCBT (Johansson et al., 2012). Therapists may require specific skills or competencies to operate the intervention, such as the technical skills needed to operate the technology and online communication skills to provide the supported component of the intervention (Hilty et al., 2020; Mol et al., 2018). Regarding groups or organisational

levels targeted, iCBT may implicate numerous parts of a service; information governance departments within health systems for purposes of protecting the large amount of data resulting from iCBT (as illustrated by Chien et al., 2020), service management to monitor the service as it is delivered, and commissioners to make decisions as to whether contracts with commercial entities should be renewed (e.g. National Health Service UK, 2021). Further, some studies have illustrated the benefit that the integration of iCBT into electronic health records procedures can bring (Sharif-Sidi et al., 2021), highlighting the need to interact with information technology departments.

Complexity in operating iCBT services is further evident in the limited literature that illustrates its implementation. Hadjistavropoulos et al. (2017) conducted a process evaluation, informed by the CFIR (Damschroder, 2009), to identify barriers and facilitators associated with the implementation of iCBT in Saskatchewan, Canada. Participants consisted of managers and therapists working in clinics implementing iCBT. The procedure entailed the completion of an online survey, where participants were given a description of each of the CFIR domains and were then requested to provide feedback based on their perception of the domain within the service they worked. Intervention characteristics of iCBT and implementation process were found to be the most influential facilitators. In terms of intervention characteristics, relative advantage in terms of the efficiency of iCBT over other therapies, the design quality of the intervention and strength of evidence supporting iCBT were stated to be important. Facilitators within the implementation process were cited to consist of the engagement of diverse stakeholders (including other therapists and patients), as well as the facilitative nature of the Online Therapy Unit (termed as 'external facilitation unit'), the group that supported clinics in their implementation of iCBT. Barriers to identification consisted of the inner setting, low adaptability of iCBT (e.g. modifying length of treatment and schedule of support),

negative therapist beliefs about iCBT and the need to engage even further with stakeholders. Regarding the inner setting as a barrier, specific points related to a lack of resources being allocated to iCBT, lower relative priority of iCBT in compared to face-to-face therapy, more attention needing to be paid to goals around the use of iCBT and providing therapists with incentives for using it.

Van der Vaart et al., 2019 also utilised the CFIR to inform the development and subsequent analysis of data relating to a semi structured interview that was administered to therapists involved with administering iCBT for chronic pain and fatigue. A large number of individual barriers and facilitators were identified across the five domains of the CFIR; the intervention, patient and therapist characteristics, inner setting, outer setting and implementation process. In discussing their results, the authors state that organisational support is important in implementation to mitigate against barriers like time and economic costs, and that a core group of individuals within the service who are dedicated to the implementation effort are important in persuading other stakeholders to overcome these barriers. They further state that guiding patients with chronic conditions through iCBT may be demanding of therapists, so effective training is warranted to increase their self-efficacy and competency with the programme. Further, it was stated that therapists perceive iCBT as a means to provide therapy, as opposed to it being an 'eHealth initiative' that was aimed at lower service costs or extending the reach of therapists.

Folker et al., 2018 carried out a multiple comparative case study to present overview of how iCBT was implemented in five European services. The methodology consisted of an online survey, semi-structured interviews with management staff and focus groups with clinical staff utilising iCBT. Data from these activities was qualitatively subsequently analysed to identify differences and similarities across cases. Four main

themes were identified; integration in the mental health system, recruitment of patients,

working practices of therapists and long-term sustainability of the iCBT service. The first

theme largely related to the scepticism or negative attitudes of referral providers, general

practitioners, therapists and patients towards iCBT, and how these may negatively impact

on its delivery as a service. The second theme related to a lack of stable recruitment of

iCBT patients across the five services, with the introduction of procedures like self-referral

pathways, marketing and external communication campaigns to referral providers and

patients and to also improve on the ability of the service to match patients and iCBT

programmes appropriately. The third theme related to therapists needs around training

and competency development for iCBT, supervision and also around their ability to tailor

iCBT contents to specific presentations and to switch freely between iCBT and face-to-

face delivery depending on the presentation. The fourth theme highlights the difficulties

that service face when they originally started as a research project and subsequently

receive funding to transition to a fully-operational iCBT service, which is stated to require

dedication from managers and therapists implicated.

Banck & Bernhardsson (2020) carried out a qualitative study into therapist

experiences of implementing iCBT for insomnia in outpatient psychiatric healthcare,

guided by the Non-adoption, Abandonment, Scale-up, Spread and Sustainability (NASSS)

of health and care technologies framework of Greenhalgh et al., (2017). The NASSS

framework posits that implementation complexity (ranging from simple-complex-

complicated) across the following seven domains can contribute to implementation

success or failure: the condition, technology, value proposition, organisation, adopters,

wider system and adaptation over time. The authors found that the majority of barriers

arose from the adopters of the intervention (the therapists), and facilitators were centred

on the value proposition of iCBT and the wider system. Regarding the adopters, the

authors found that therapist attitudes improved over time through exposure to the intervention and training, where therapists originally had concerns about the quality of the intervention. Similar to Folker et al. (2018), the authors also reported difficulties in appropriately matching patients to programmes, and posited a reformulation of inclusion criteria may be necessary to overcome this. Within the wider context, strong support from managers and leaders was seen as beneficial as they prioritised the delivery of the intervention within the service. The strong evidence base for iCBT, as well as the outcomes achieved through its delivery strongly supported its value proposition within the service. Some technical issues were described by patients, but the authors postulate that these problems may be a manifestation of a lack of training around the use of the intervention.

Hermes et al., (2018) conducted a qualitative study that explored determinants of practice for healthcare providers when implementing internet-based self-care programmes for common mental health conditions. Through use of a semi-structured interview, the authors identified 10 determinants of practice across provider and patient levels. Provider determinants consisted of provider familiarity with the intervention, how the intervention created a change in traditional ways of working, and how competing demands and a lack of time was a barrier to the use of these interventions in primary care. Patient determinants consist of patient technology literacy, internet access, their interest/motivation, treatment expectations and perceived fit of the intervention to their needs. A global determinant across both levels consisted of both provider and patient need to provide an element of human support to patients while using these interventions. In regards to their analysis, the authors postulated that a "clinical intermediary", a professional different to the primary provider, can provide support to both care providers and patients in relation to each determinant identified. For example,

clinical intermediaries can consult and support with patients regarding internet-delivered treatments to ameliorate the time/resource issues identified and fulfil the need for human support.

Two papers provide illustrations of the successful workings of iCBT services in Australia, Canada and Europe (Titov et al., 2018, 2019). The first of these (Titov et al., 2019) illustrates ten lessons from service delivery of iCBT in Australia and Canada that are divided across four levels – consumers, therapists, operating iCBT services and health systems, funders and policy makers. For consumers, the authors illustrate that iCBT can increase access to care for a broad cross-section of the population, and that they deliver "more than" treatment services e.g. they also provide clinical assessments and signpost patients to other relevant services where iCBT is not appropriate or wanted. For therapists, they highlight that specific skills and competencies are needed to use iCBT with patients so that they are aware how iCBT works, the benefits it can bring and how to effectively manage a caseload of patients who only use iCBT. Further, the authors state that specialised clinical procedures are needed to manage the quality of the service (e.g. highly structured procedures around support and assessment), and that recruitment and retention of therapists should focus on therapists who are comfortable with these procedures. Regarding the operation of iCBT services, several points are raised. Firstly, robust risk and clinical procedures are necessary to manage those who present with complex needs. Second, the operation of iCBT services requires that individuals with expertise in telehealth, social media and online marketing are recruited, which differ to traditional services. Lastly, there is a need for individuals working within these services to develop commercial and management skills to navigate through wider issues of organisational and clinical governance as the service evolves in its offering. The last domain, working with health systems, funders and policy makers, is reflective of the fact

that iCBT services operate within complex systems, and that there is a need to link-up with other services and stakeholders within the health system to ensure visibility and obtain funding for the continuation of service. Further, the data obtained through the successful operation of the service can contribute to informing healthcare policy, where the authors illustrate that data from the Australian service has influenced funding decisions for mental healthcare services at a national level. Finally, the authors state that iCBT is not a "panacea", which is based on the idea that while iCBT has significant potential, it also has limits as to how it can be applied.

The second paper (Titov et al., 2018) illustrates the workings of 5 iCBT clinics across Europe, and the authors illustrate similarities across clinics in the discussion section. Of note, they illustrate 8 "key success" factors. Firstly, all of the services illustrated strong clinical, information technology and organisational governance frameworks, where it was noted that these were necessary to develop due to the fact that they all emerged from academic research projects. Second, all services developed strong link with funding bodies, local health services and universities to provide opportunities for increased funding, referral and research. Third, the services included consist of centralised units that provide iCBT support to other healthcare services within the care context. Fourth, services only use iCBTs that have been validated through clinical trials. Fifth, all services iterate on their procedures based on routinely gathered patient feedback. Sixth, all services routinely monitor treatment outcomes to audit and ensure quality of care. Seventh, all services accept self-referrals and provider referrals to increase their accessibility. Lastly, all clinics have well defined procedures for conducting assessments with patients and training their therapists to provide support for a large caseload of clients through iCBT.

## 8. Conclusions

This chapter provided an overview of iCBT and a successful use case within the IAPT market, the applicability of implementation science to iCBT and qualitative literature that explores the implementation of iCBT. These interventions have been cited as effective within the literature base, but differences are observed between studies conducted in efficacy and effectiveness contexts. Further, there is a lack of resources to illustrate the how iCBT can be best implemented and the knowledge that can be derived from the literature is derived from various care contexts. This creates unavoidable gaps when translating scientific findings to practice; iCBT implementations cannot be replicated and reported on if the information pertaining to the implementation is not presented or is omitted.

In synthesising this literature, several points become apparent. Firstly, iCBT is undoubtedly complex; numerous studies in different countries and settings have highlighted specific aspects (e.g. barriers, facilitators) and illustrated procedures associated with its use (Titov et al., 2018; Titov et al., 2019) that are important to consider, but this research stream is still fragmented. Second, it appears that a large amount of implementation knowledge related to iCBT is sourced from services that started as research projects and subsequently developed into clinical services. Interestingly, these papers are written by individuals whose perspective is similar to that of a commercial iCBT representative (e.g. those that work for commercial intervention developers) reviewing the implementation procedures around their own product within naturalistic settings. Third, none of the reviewed papers that utilised a specific implementation theory to guide their analysis (e.g. Hadjistavropoulos et al., 2017; van der Vaart et al., 2019; Banck & Bernhardsson, 2020) included a rationale for using one theory, model or framework over another. Fourth, where patients were implicated in the study

(e.g. Hermes et al., 2018; van der Vaart et al., 2019), they were not surveyed; therapists remarked on how they believed patients would perceive iCBT from their own subjective experience. Fifth, the contexts that are being studied significantly vary from outpatient psychiatric care, to specialised iCBT clinics, to veterans affairs services in the USA.

Lastly, the approach of each of the illustrated papers was to either describe a service (Titov et al., 2018; Titov et al., 2019) or to identify barriers and facilitators to successful implementation of iCBT (similar to the studies above). None of these studies has approached the phenomenon of implementing iCBT with a view to empirically investigating what stakeholders do as part of the implementation process; each has delineated positives and negatives, but none have focussed on a stakeholder account of their role in implementation and how they performed. Similarly, pragmatic trials of iCBT in IAPT (e.g. Richards et al., 2020; Marks et al., 2003) have not elaborated in great detail surrounding the implementation of iCBT. Therefore, it appears the "doing" of iCBT, and procedural factors related to its implementation are otherwise missing from the literature base.

Related to stakeholders roles in implementation are the activities, or 'strategies', they enact as part of implementing. Implementation strategies, as stated by (Proctor et al., 2013), have *"unparalleled importance… they constitute the 'how to' component of changing healthcare practice"*. Elaborating further, Powell et al. (2012) state that implementation strategies can be single or multifaceted. In an example given by the authors, informational sessions for training therapists in a new intervention are single, discrete strategies and informational sessions that are followed-up with an assessment, audit or feedback component are multifaceted. Where other fields, such as nursing and medicine, have a longer history with implementation science theory and strategies (Proctor, Powell & McMillen, 2013), it has been stated that the fields of mental health

and iCBT have, in general, lagged behind in its uptake of these methodologies (Landsverk et al., 2011; Lipschitz et al., 2019; Powell et al., 2014).

Enhancing our knowledge of what implementation strategies are used within iCBT implementation initiatives would contribute towards pragmatic research in iCBT; knowledge of how these interventions become ingrained in care settings and through what strategies this occurs can increase its dissemination elsewhere. For example, IAPT has a long history with using cCBT and iCBT packages, and research from this context only reports on a few successful cases. However, this research contributes little knowledge in regards to implementing iCBT – it only informs services that the intervention can achieve its intended outcome. At a guideline level, NICE does not provide instructions on how to best implement iCBT, but does provide light guidance and a flowchart document on the implementation of evidence-based practices (The National Institute for Health and Care Excellence, 2021b). Therefore, where theory use is important to advance the field of implementation science (e.g. CFIR, NASSS), there is a gap in regards to the strategies or factors that are reportedly used to implement iCBT programmes within healthcare services.

A further gap in the literature concerns the impact of commercial iCBT representatives on the implementation of iCBT. Legacy iCBT systems used within IAPT (e.g. Beating the Blues, FearFighter) and more modern programmes used globally (e.g. Mindspot, SilverCloud Health, Ginger.io) have all been developed by commercial entities. Understanding the impact that these entities can have on the implementation of iCBT is unreported on within the literature, and given the prevalence of commercial entities within the market it can be expected that they interact with their customers (services) to transition iCBT into clinical practice. Of note, iCBT interventions that are provided through health services are typically required to demonstrate their effectiveness either through

acquired data or publication. For example, NICE has published an evidence standards framework for digital health technologies (The National Institute for Health and Care Excellence, 2021a), where commercial entities submit their available publications or service data to be evaluated in regards to their effectiveness (e.g. symptom reduction) and economic (e.g. costs, financial risk) impacts. Similarly, NICE also assesses digital therapies for depression and anxiety through their IAPT assessment brief (IAB) programme (The National Institute for Health and Care Excellence, 2019). IABs include an assessment of effectiveness, cost and resource impact, technical standards, and intervention content. Where interventions are deemed appropriate across these domains, the interventions progress to a 2-year evaluation period at a site designated by the NHS.  However, distilling implementation knowledge from these standards is also difficult, and they do not clarify the role that commercial iCBT representatives may occupy in implementation. However, given that these assessments need to be initialised by commercial iCBT representatives, it highlights that they are, to some extent, involved with the implementation process; for example, technical integration processes illustrated within the IAB suggest that commercial iCBT companies work with services to get the technology up and running.

In summary, the efficacy of iCBT for depression and anxiety has been supported through numerous meta analyses and systematic reviews. Despite this, when iCBT transitions from efficacy to effectiveness settings, a "voltage drop" is observed. Implementation science is the study of methods associated with increasing the uptake of novel research findings in routine care settings, and posits that this voltage drop is a manifestation of the evidence-to-practice gap. Implementation science theories, models and frameworks allow for an analysis and speculation as to why evidence-based practice may or may not become embedded within routine practice. Implementation studies of

iCBT are few in number, are somewhat informed by implementation theories, models and frameworks, and qualitatively explore the implementation of iCBT in various contexts (e.g. out-patient psychiatric care, specialised clinic, veteran's health organisations). Resources to understand implementation strategies specific to iCBT are further limited and, although commercial iCBT representatives are largely implicated in the field of iCBT, their relevance is not widely explored. The extant literature base provides impetus to further explore the implementation of iCBT through the numerous gaps that exist when translating the available evidence to routine clinical settings.

## Chapter 2 – Mixed-Methods Systematic Review

## Implementing internet delivered cognitive behavioural therapy for depression and anxiety in adults: A mixed-methods systematic review of the literature to discern factors relevant to its implementation

**Contributions**

This study was led by Daniel Duffy, the thesis author. Dr. Derek Richards and Dr. Ladislav Timulak supervised the thesis author in the conduct of this study, and contributed to the study design and analysis of results. Dr. Jorge Palacios, Digital Health Scientist at SilverCloud Health, contributed to the analysis and naming of several categories within the study. This information is further elaborated on in the methodology section within the chapter. The aforementioned contributors will be included within the author list once the study is submitted for peer-review.

**Abstract**

A mixed methods systematic review, utilising a convergent synthesis design, was conducted to investigate the implementation of internet-delivered cognitive behavioural therapy (iCBT) for depression and anxiety in adults. Two domains of inquiry guided this effort, centring on 1) aspects that research articles postulate as important for the future implementation of iCBT and 2) aspects relevant to the day-to-day running of iCBT services. Forty (N=40) articles were identified as eligible for mixed-methods synthesis, as per the eligibility criteria. Data were analysed qualitatively using the descriptive-interpretive approach. The first domain highlighted the impact of therapist and patient attitudes when implementing iCBT, the superiority of guided iCBT over unguided, its non-inferiority to equivalent face-to-face treatments, and its utility outside of the original target of mild-moderate depression and/or anxiety. Three sub-domains were identified under domain two; 1) the management of iCBT in the workplace, detailing the importance of managing the iCBT service, related staff and their motivations around using it 2) the practice of iCBT in the workplace, describing the therapeutic aspects of iCBT provision such as the provision of support, the background of supporters and screening procedures, 3) contextual considerations, detailing the impact of governmental legislation on therapy conduced over the internet, the lack of an iCBT workforce as a limiting factor and the costings associated with iCBT provision. Broadly, the findings describe several aspects that should be taken to account when researchers or practitioners implement iCBT as part of their work. However, they should also be interpreted with caution; few of the included studies were conducted with the sole aim of evaluating the implementation of iCBT, highlighting the need for more implementation-specific research in this area.

## 1. Introduction

Internet-delivered cognitive behavioural therapy (iCBT) for depression and anxiety has been developed to help increase access to evidence-based therapies. There is empirical support for their use in treating depression and anxiety (Andrews et al., 2018; Olthuis et al., 2016; Romijn et al., 2019; Wright et al., 2019). End-users experience them positively (Jardine et al., 2020) and find them to be satisfactory and acceptable (Andrews et al., 2018; Cavanagh et al., 2009; Richards et al., 2016). However, disseminating iCBT at scale remains a challenge (Vis et al., 2018; Folker et al., 2018) and COVID-19 has brought their relevance to light now more so than ever (Andersson et al., 2020; Druss et al., 2021; Rodriguez-Villa et al., 2020). In a 2019 commentary, Lipschitz & Colleagues (2019) discussed the evidence to practice gap in digital mental health treatments. The authors postulate that the reason for this gap is a lack of knowledge in the field of iCBT around implementing these interventions within routine care. They suggest the adoption of implementation science (IS) methodologies to bridge this evidence-to-practice gap.

Implementation Science (IS) has been defined as "*the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and hence, to improve the quality and effectiveness of health services and care*" (Eccles & Mittman, 2006). Central to this definition is the problem statement behind it: it takes almost 17 years for healthcare research to achieve its intended benefit, which is termed as the "evidence to practice gap" (Balas & Boren, 2000; Grant et al., 2000). As a newly emerging academic field, IS is largely integrative; it borrows and adapts theories from multiple fields and uses these to understand the determinant mechanisms as to why (or why not) a specific implementation succeeds (Nilsen, 2015). IS theories provide a frame that allows for implementation plans to be developed and relevant outcomes measured (Smith & Polaha, 2017), and it has been posited that

utilising these methodologies within future studies of iCBT could generate learnings

relevant to its real-world application (Lipschitz et al., 2019; Banck & Bernhardsson, 2020;

van der Vaart et al., 2019).

The evidence-to-practice gap is principally centred on the idea that there are

several barriers associated with translating research findings to real-world application

(Colditz & Emmons, 2018).  Indeed, much of the focus of the field of iCBT over the last

several years has been on establishing its efficacy, as opposed to understanding the

factors and processes associated with successful implementation (e.g. Hadjistavropoulos

et al., 2017). The lack of published implementation information within iCBT is reflective of

a wider issue, where journal limitations can result in the omission of details that would be

relevant for the *other* intended audience that academics write for; health professionals in

routine care (Premachandra & Lewis, 2021; Rudd et al., 2020) . In the absence of a clear

and defined body of knowledge for implementing iCBT for depression and anxiety

Lipschitz & Colleagues (2019) state that "*as a community, we must work toward building*

*core knowledge about what facilitates uptake of digital mental health interventions*".

In a recent review focussing on determinants of implementation for E-health

interventions by Vis et al. (2018), 37 determinants associated with successful

implementation were identified. However, to be noted is that "E-Health interventions" in

this case contained a wide variety of digitally enabled interventions, including iCBT and

psychotherapy delivered via videoconferencing. When comparing iCBT and other E-Health

interventions, 'complexity' is a factor for consideration; that is, the degree to which an

intervention contains multiple components which require interaction from many

individuals, from various levels within an organisation to enact the intervention

effectively (Skivington et al., 2021).  iCBT's level of complexity is highlighted in service

illustration papers by Titov et al. (2018; 2019); for example, therapists skillset to operate

iCBT efficiently (technical knowledge, constructing written messages), revised services delivery pathways, adherence to regulatory frameworks and newly aligned clinical governance procedures, are some elements of how delivering iCBT may differ from more traditional or less complex services. Conversely, although administering psychological therapy through videoconferencing software may require some altering of specific therapeutic skills and technical upskilling (Richards & Vigano, 2013), relative complexity across other areas may be lower (e.g. referral pathways, wider system integration). Similarly, some authors have illustrated the need for both iCBT- ((Friesen et al., 2014; Terpstra et al., 2018)) and telehealth-specific competency frameworks (Hilty, Chan, Torous, Luo, & Boland, 2019), further illustrating the need for specialised skills to extend the traditional therapist skillset

To date, several other reviews have illustrated the relevance of IS theories, models, and frameworks (TMFs) to the wider field of e-health and internet interventions (Vis et al., 2018; Drozd et al., 2016), but less so for iCBT specifically. Attempts to mobilise this information to a point of having pragmatic, clinical relevance have been sparse (e.g. Hadjistavropolous et al., 2017). As a consequence, the availability of implementation findings relevant to iCBT remains low. The here presented study proposed to conduct a mixed-methods systematic review (MMSR) to account for literature that is relevant to, specifically references or can inform factors relevant to the implementation of iCBT, specifically for depression and anxiety disorders in adults.

In defining a MMSR, Pearson et al., (2015) state that mixed-methods principles are applied to the traditional systematic review process in order to provide insight or guidance on complex questions within healthcare to *'maximise findings'* for decision makers and other relevant stakeholders within healthcare. They have been cited using various terminology throughout the literature base; mixed methods review, mixed

methods synthesis and systematic mixed studies review (Hong et al., 2017). Therefore, review questions associated with these types of reviews transcend the effectiveness/efficacy inquiries that typical systematic reviews investigate. MMSRs typically focus on questions relating to the **f**easibility of enacting an intervention, the **a**ppropriateness of it to the context of care or population it is being applied to, its **m**eaning in regards to the experience of those who administer it (e.g. therapists) and end-users (e.g. patients), and its **e**ffectiveness in regards to outcomes achieved (F.A.M.E model; Pearson et al., 2015; Pearson, Wiechula, Court, & Lockwood, 2005).

In this regard, MMSRs synthesise effectiveness (quantitative findings) with experiential (qualitative findings) to produce knowledge that can be of utility to intended end users (e.g. doctors, clinicians, therapists policy makers) (Sandelowski et al., 2013; Stern et al., 2020). Two main designs are cited within the literature in regards to MMSRs – convergent and sequential synthesis designs (Hong et al., 2017; Stern et al., 2020). Convergent approaches to MMSR consist of *convergent integrated* designs that include simultaneous synthesis of both qualitative and quantitative data, by means of data transformation (e.g. qualitative results are "quantitised", quantitative results are "qualitised") or *convergent segregated* designs, where separate quantitative and qualitative syntheses are conducted and subsequently followed by a third synthesis that attempts to integrate both sets of findings (Hong et al., 2017; Stern et al., 2020). *Sequential MMSR approaches* are used less frequently than convergent approaches, and involve a phased design where the results of one synthesis is used to inform a second synthesis (e.g. enumerating the results of a qualitative synthesis through quantitative literature on a specific topic; Hong et al., 2017).

The MMSR approach, and specifically a convergent integrated approach, was therefore chosen due to its appropriateness over other review methods to the subject; a

traditional systematic review into the implementation of iCBT for depression and anxiety would therefore not be appropriate due to their being insufficient qualitative and/or quantitative findings to generate insights (Goldsmith et al., 2007). However, relevant information can be extracted across qualitative, quantitative, review and illustration-based papers. Mixed methods synthesis afforded a way to effectively capture this information and synthesise it qualitatively to produce relevant insights into the implementation of iCBT. Further, there are no restrictions imposed on the type of evidence included within the synthesis, which aligns with the anticipated variety of papers that would be identified (Stern et al., 2020). The disorder domains of depression and anxiety were chosen due to them being the most substantive areas of research for iCBT.

Qualitatively coding for this information through an MMSR departs from and complements the work of Vis et al. (2018) in the following  ways. Firstly, it will specifically focus on iCBT-based interventions, which can be considered relatively 'complex' (Skivington et al., 2021). Second, it will provide a rich description of the current 'practice behind the science' by focussing on reportage within method, results and discussion sections of papers. Third, it will contribute to the existent literature regarding specific implementation strategies that are associated with the use of iCBT (e.g Powell et al., 2015). Lastly, It will allow for the interpretation of research findings in a way that will hopefully be productive for future implementations specific to iCBT for treatment of depression and anxiety.

**1.1 Review Objectives**

The overarching objective of the review was centred on the pragmatic question of *"what can we learn from published peer-reviewed literature about the implementation of iCBT for depression and anxiety?".* This question was further broken down into two domains of interest, on which data extraction and subsequent data analysis was based:.

- The first objective and associated domain, *implementation process - considerations for the successful implementation of iCBT in care settings*, consisted of establishing the strategies that are used within the literature to facilitate the implementation of iCBT. According to IS literature, implementation strategies are methods utilised to facilitate the implementation of an intervention, where strategies can consist of training packages, management approaches, developing protocols for intervention use, etc (Proctor, Powell & McMillen., 2013; Powell et al., 2015).

- The second objective and domain was centred on *implementation insights derived from iCBT research*. This objective and domain centres on understanding the novel information that is often presented in published research, and how this information can have relevance and be mobilised for the benefit of iCBT implementation. For example, many novel insights are made throughout discussion sections of published studies that juxtapose research findings to real world implications

Therefore, the review sought to identify what implementation strategies, processes and factors have been employed in the iCBT literature and what insights they may deliver regarding successfully implementing iCBT in routine service delivery

## 2. Methodology

**2.1 Design**

A mixed methods systematic review, utilising a convergent synthesis design, was conducted to identify literature that was central to the review objective (MMSR; Hong, Pluye, Bujold, & Wassef, 2017; Pluye & Hong, 2014; Stern et al., 2020). The convergent synthesis approach to conducting a MMSR consists of 'qualitising' numerical or statistical findings; that is, quantitative findings are extracted and allocated textual descriptions to allow for integration and simultaneous synthesis with other qualitative data. The resulting qualitative data were then analysed using the descriptive-interpretive approach (Elliott & Timulak, 2021.). When settling on the rationale for utilising an MMSR, two main strengths were identified:

- Implementation information within the field of iCBT is rarely published for a variety of reasons e.g. demands of funders, journal limitations, lack of awareness. Relatedly, preliminary literature searches within the field of iCBT yielded no quantitative studies of implementation, or related constructs, as its primary outcome. Therefore, we could not conduct a traditional systematic review based on published findings. However, it was seen as possible to abstract learnings from qualitative, quantitative and relevant review papers that have relevance for implementation, which can allow us to capture information that details 'how' we implement iCBT.

- It was anticipated that "illustration papers" – peer reviewed papers that consist of service illustrations from iCBT clinics across the world – and narrative review-type papers would be identified throughout the search process. Papers in the first category provide valuable, real-world insights that may otherwise go undocumented, and papers in the second provide textual syntheses of research

findings. This presented a rationale for incorporating a wide variety of papers,

where qualitatively coding meaningful information from these types of papers

and integrating them into the wider analysis would further contribute to the

breadth of the results.

**2.2 Search Strategy**

The search strategy included the umbrella terms: "*internet(-)delivered cognitive*

*behaviour(al) therapy*", "*anxiety*", "*depression*" and "*implementation*". Terms were

searched using AND-OR operators. A full description of terms and derivatives is included

in the appendices (appendix 2A). Databases searched included PsycInfo, PsycArticles,

MEDLINE, CINAHL Complete and EMBASE. Search engine limitations required that the

search date began in 2007. The search was initially conducted in June 2020 (January 1st

2007 – June 1st 2020) and further repeated in September 2021 (June 1st 2020-August 31st

2021) to identify any new or relevant publications. Two separate PRISMA diagrams were

constructed to illustrate the search findings, and are illustrated in figures 2.1 and 2.2.

**2.3 Inclusion Criteria**

1. Study provides reports on outcomes that transcend traditional

   effectiveness/efficacy outcomes and relate broadly to the domains of interest;

   implementation process and insight (e.g. therapist/patient attitudes, factors

   influencing iCBT engagement, describing iCBT service or clinic set-up, described

   and tested varying models of iCBT support)

2. The following study types were included in the review:

   a. Empirical research, encompassing pre-post experimental (e.g. feasibility or

      randomized controlled trial), case-study, observational or qualitative

      designs in naturalistic, non-efficacy settings.

      b.  Review-type studies, including systematic, meta, umbrella, narrative and scoping reviews

      c.  Service-illustration articles that report on the effectiveness of iCBT clinics over time periods, or describe their operating model.

3.  Studies targeting adult patient populations, mental healthcare workers (e.g. clinicians, therapists, service managers), or prospective users of iCBT.

4.  The study must be conducted in reference to internet-delivered cognitive behavioural therapy (e.g. patients undertaking iCBT, clinicians/therapists or patients reporting on their views of iCBT)

5.  The study must be primarily conducted in reference to depression and anxiety disorders (e.g. patients undertaking iCBT for depression and anxiety, clinicians/therapists or patients reporting on their views of iCBT for depression and anxiety)

## 2.4 Exclusion Criteria

Exclusion criteria consisted of the following: 1) Non-peer reviewed research, 2) research not in English language, 3)protocols, 4) dissertations (due to the difficulty in identifying and accessing these at a wide scale), 5) book chapters, 6) conference presentations and abstracts, 7) research with participants < 18 years of age or 8) studies reporting only on clinical effectiveness data.

**Figure 2.1**

*PRISMA diagram for 1ˢᵗ systematic search conducted (January 1st 2007 – June 1st 2020)*
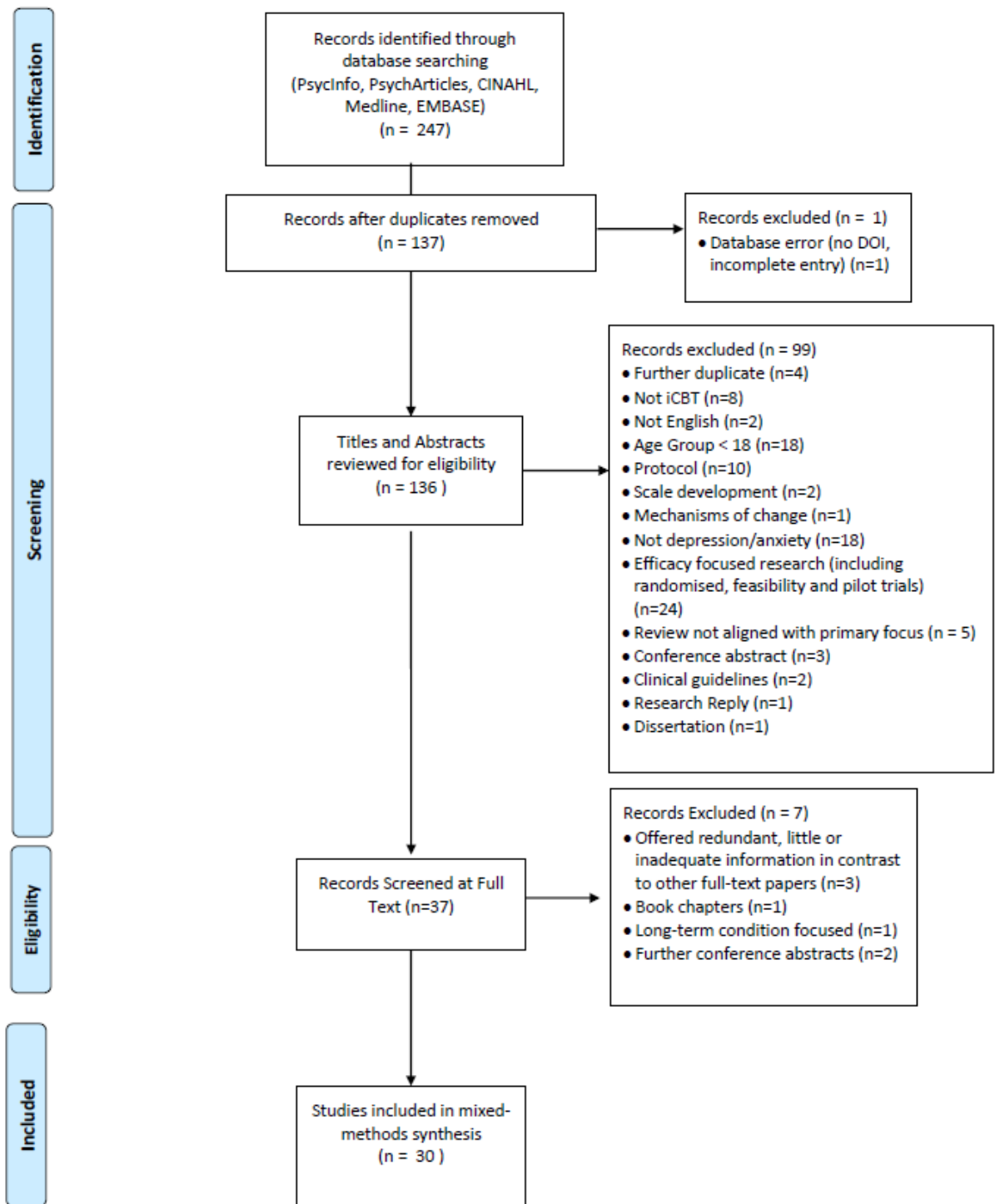
**Figure 2.2**

*PRISMA diagram for 2nd systematic search conducted (June 1st 2020-August 31st 2021)*
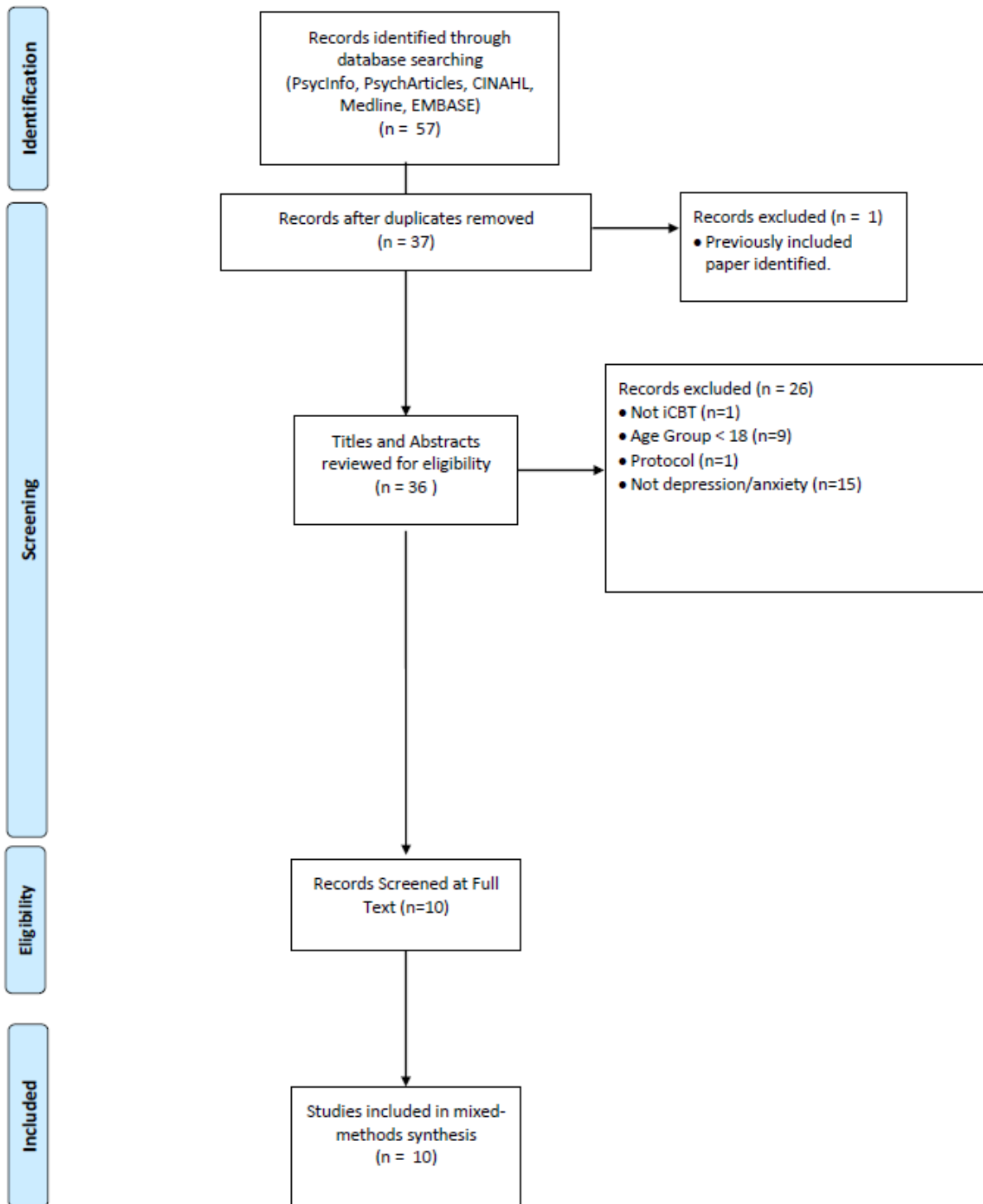
**2.5 Screening**

The screening process was conducted in 2 steps -  1) review at title and review abstract and 2) review at full-paper. It was chosen to review all identified records at title and abstract due to the nature of the current review and wide-range of study types that were anticipated to result from the search. For example, it was noted throughout the reviewing process that papers frequently cited the terms "implementation" or "feasibility" in the title, but failed to provide any relevant information under these constructs when abstracts were reviewed. Therefore, all papers were initially screened at title and abstract to establish eligibility for inclusion by DD. Where papers provided inadequate information in their abstracts (e.g. "*the results inform the feasibility of implementing iCBT within xyz context*") to apply the inclusion criteria, DR acted as second reviewer for these abstracts and consulted with DD to make a decision on inclusion or exclusion. Once step 1 was completed, all papers were reviewed by DD at full text to discern their relevance to the domains of interest. During this review, papers were rejected at full text for two reasons; 1) incorrect record specification from the databases (e.g. conference presentations being mislabelled) and 2) provided little (e.g. minor comments relating to the implementation of iCBT within "future research" sections) or no information under the domains of interest. Once all papers were screened and the final dataset established, data extraction commenced.

**2.6 Data Analysis**

***2.6.1 Meaning Unit Extraction.***

After papers were reviewed for eligibility and the final dataset established, DD re-reviewed each paper to become more familiar with the paper types included, methodology sections, data reported and the discussion of findings by authors. After this

second re-read, data extraction began by identifying qualitative meaning units within

methodology, results and discussion sections of papers under the domains of interest.

Elliott & Timulak (2021) define meaning units as the discrete data chunks (either

paragraphs or sentences) that contribute standalone meaning towards a particular

research question or objective. To facilitate the identification of meaning units under

both of the inductive domains, the following questions were developed and applied to

guide meaning unit extraction.

- Implementation Process - considerations for the successful implementation of

  iCBT in care settings: What strategies do papers report on that are related to the

  process of implementing iCBT (e.g. training clinicians/therapists, screening

  procedures, referral pathways, service operations)? Do papers report on the

  impact of these strategies on specific stakeholder groups (e.g. patients,

  clinicians/therapists)? Do papers acknowledge or cite factors within the context of

  the implementation (e.g. governmental policy, service infrastructure, funding)?

- Implementation Insights derived from iCBT research: What implications do

  authors of the included studies cite as important for the future of the

  implementation of iCBT? How do authors interpret their findings in discussion

  sections of papers, and can these interpretations have implication for how iCBT is

  implemented?

Throughout the MMSR process, certain quantitative findings were translated (or

'qualitised') to qualitative meaning units. A specific example of this refers to Karyotaki et

al. (2018) where quantitative findings (e.g. table 3 within paper, 'self-guided iCBT versus

controls in one-stage individual participant data meta analysis') were assigned qualitative

descriptions in order to be incorporated into the mixed methods synthesis. The

qualitative meaning units, including the "qualitised" quantitative findings, that were

identified under the domains of interest were flagged in each of the relevant papers and subsequently extracted to an excel file for purposes of analysis and assigned relevant identifiers (e.g. Paper 1, Implementation Process, Meaning unit 1).

Throughout the process of extracting meaning units, each meaning unit was assigned a brief textual summary labels. As the analysis proceeded and DD became more familiar with the data, these summary labels were re-used across the analysis, and also varied in their level of specificity. For example where a paper described the schedule of psychometric assessment during a screening procedure across an entire paragraph, the paragraph was extracted and assigned a description such as "screening procedure – measures assigned". This summary label was interpreted as "specific", where on initial extraction it appeared that all meaning units clustered clearly around a very specific activity or concept. An example of a broader summary label was "operational considerations", where meaning units were seen to broadly relate to factors within the healthcare organisation that were relevant to running iCBT as a service. However, the variation within meaning units assigned this summary label was high, and there was a clear need to further interrogate these pieces of data during the process of category generation.

### *2.6.2 Category Generation.*

Categorisation of meaning units began once meaning units were extracted, organised under both domains and assigned summary labels. This process was led by DD. Categories consist of meaning units with similar meanings, but it is important to note that a meaning unit can be assigned to more than one category. The previous example that described the assignment of the summary label "screening procedure – measures assigned" to an extracted meaning unit, illustrates this, where the specific meaning

described 1) the measures that were used to assess eligibility, and 2) a specific referral

pathway, which subsequently became categories through the analysis. In this way, the

summary labels that were developed formed the basis for an initial structure to be

imposed on the data that contributed to the process of category generation.

The process of naming categories and sub-categories was an on-going activity

throughout the interpretation of the results. For example, DD identified a number of sub-

categories that related to the supported component of iCBT and considerations for the

managing iCBT and its related staff in the workplace. To refine the names of these

categories, DD provided this category structure and meaning unit dataset to JP to review,

who was in agreement with the identified structure but disagreed with the names

assigned to categories and sub-categories. To arrive at a point of consensus for category

names, a discussion was had where the core component of each sub-category was

established (e.g. *"this sub-category describes x"*), and the revised category names were

generated based on the shared understanding of these core components. Similarly, once

the preliminary category structure was established and provisionally named, DD and DR

further refined category names with input from LT across supervision meetings.

As per the descriptive-interpretive approach, it was important that knowledge

generated throughout this review was continuously audited through group meetings with

DD, DR, JP & LT. As part of this process, meaning units were audited in the following

ways; Meaning units under each domain were interrogated individually to ensure they fit

the domain definitions. Similarly, once categories were established under domains, they

were also examined to determine their fit.  Any proposed amendments to the dataset

were discussed across the research group and any changes were documented.

2.7 **Researcher Background**

The author of the thesis, DD, led on the conceptualisation and conduct of this review as part of their doctoral work. DD has worked as a researcher within the field of online interventions for 6 years and within this time has worked on several research trials and content development for iCBT interventions. DR and JP are employees of the research team at SilverCloud Health and also hold affiliation with e-Mental Health Research group at Trinity College Dublin, with each having substantial research and commercial experience within the field of digital health. LT is a counselling psychologist with significant experience in researching online mental health interventions (i.e. CBT) through RCTs, satisfaction surveys and also qualitative studies of client experience with iCBT.

**2.8 Quality Assessment**

Due to the heterogeneity of study types included in this MMSR, quality assessment proved difficult. Firstly, this study aimed to perform a mixed methods synthesis of various study types (experimental, qualitative, service illustration), and a method to judge quality of these study types together was not identified. Secondly, the traditional hierarchy of evidence and quality (e.g. RCTs as most robust evidence) did not apply in this study. Therefore, establishing conclusions on the quality of included studies or rejecting studies on the basis of low quality did not fit the used methodology.

## 3. Results

**3.1 Overview**

Forty (N=40) eligible papers published between 2010-2021 were included in the mixed-methods synthesis. For purposes of illustrating the results of the analysis, each paper was

assigned a numerical identifier (e.g. 1, 2, 3, 4), and these identifiers are referenced below when summarising the results. Table 2.1 lists the references that were identified and included within the mixed-methods synthesis. Appendix 2B presents brief summaries of aims/hypotheses/objectives, methods, and results of each of the included papers.

Table 2.1
*References analysed as part of mixed methods systematic review*

| Paper Identifier | Reference |
|---|---|
| 1 | Karyotaki, E., Kemmeren, L., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., … & Cuijpers, P. (2018). Is self-guided internet-based cognitive behavioural therapy (iCBT) harmful? An individual participant data meta-analysis. Psychological medicine, 48(15), 2456-2466. |
| 2 | Gellatly, J., Chisnall, L., Seccombe, N., Ragan, K., Lidbetter, N., & Cavanagh, K. (2018). @ Home etherapy service for people with common mental health problems: an evaluation. Behavioural and cognitive psychotherapy, 46(1), 115-120. |
| 3 | Richards, D., Murphy, T., Viganó, N., Timulak, L., Doherty, G., Sharry, J., & Hayes, C. (2016). Acceptability, satisfaction and perceived efficacy of "Space from Depression" an internet-delivered treatment for depression. Internet Interventions, 5, 12-22. |
| 4 | Folker, A. P., Mathiasen, K., Lauridsen, S. M., Stenderup, E., Dozeman, E., & Folker, M. P. (2018). Implementing internet-delivered cognitive behavior therapy for common mental health disorders: A comparative case study of implementation challenges perceived by therapists and managers in five European internet services. Internet Interventions, 11, 60-70. |
| 5 | Woods, A. P., Stults, C. B., Terry, R. L., & Rego, S. A. (2017). Strengths and limitations of internet-based cognitive-behavioral treatments for anxiety disorders. Pragmatic Case Studies in Psychotherapy, 13(3), 271-283. |
| 6 | Peynenburg, V. A., Mehta, S., & Hadjistavropoulos, H. D. (2020). Postsecondary student perceptions and preferences for the treatment of depression and anxiety: Comparison of internet-delivered cognitive behaviour therapy to face-to-face cognitive behaviour therapy and medication. Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 52(3), 220. |

| Paper Identifier | Reference |
| --- | --- |
| 7 | Wells, M. J., Owen, J. J., McCray, L. W., Bishop, L. B., Eells, T. D., Brown, G. K., ... & Wright, J. H. (2018). Computer-assisted cognitive-behavior therapy for depression in primary care: systematic review and meta-analysis. *The primary care companion for CNS disorders*, *20*(2), 0-0. |
| 8 | Mathiasen, K., Riper, H., Andersen, T. E., & Roessler, K. K. (2018). Guided internet-based cognitive behavioral therapy for adult depression and anxiety in routine secondary care: observational study. Journal of medical Internet research, 20(11), e10927. |
| 9 | Nordgreen, T., Gjestad, R., Andersson, G., Carlbring, P., & Havik, O. E. (2018). The effectiveness of guided internet-based cognitive behavioral therapy for social anxiety disorder in a routine care setting. Internet interventions, 13, 24-29. |
| 10 | Wright, J. H., Owen, J. J., Richards, D., Eells, T. D., Richardson, T., Brown, G. K., ... & Thase, M. E. (2019). Computer-assisted cognitive-behavior therapy for depression: a systematic review and meta-analysis. The Journal of clinical psychiatry, 80(2), 0-0. |
| 11 | Whiteside, U., Richards, J., Bradley Steinfeld, G. S., Caka, S., Tachibana, C., Stuckey, S., & Ludman, E. (2014). Online cognitive behavioral therapy for depressed primary care patients: a pilot feasibility project. The Permanente Journal, 18(2), 21. |
| 12 | Titov, N., Dear, B., Nielssen, O., Staples, L., Hadjistavropoulos, H., Nugent, M., ... & Kaldo, V. (2018). ICBT in routine care: a descriptive analysis of successful clinics in five countries. Internet interventions, 13, 108-115. |
| 13 | Andersson, G., & Hedman, E. (2013). Effectiveness of guided internet-based cognitive behavior therapy in regular clinical settings. Verhaltenstherapie, 23(3), 140-148. |
| 14 | Titov, N., Hadjistavropoulos, H. D., Nielssen, O., Mohr, D. C., Andersson, G., & Dear, B. F. (2019). From research to practice: ten lessons in delivering digital mental health services. Journal of clinical medicine, 8(8), 1239. |
| 15 | Kenicer, D., McClay, C. A., & Williams, C. (2012). A national survey of health service infrastructure and policy impacts on access to computerised CBT in Scotland. BMC Medical Informatics and Decision Making, 12(1), 1-5. |
| 16 | Mol, M., Dozeman, E., Provoost, S., Van Schaik, A., Riper, H., & Smit, J. H. (2018). Behind the scenes of online therapeutic feedback in blended therapy for depression: mixed-methods observational study. Journal of medical Internet research, 20(5), e9890. |
| 17 | Wright, J. H., McCray, L. W., Eells, T. D., Gopalraj, R., & Bishop, L. B. (2018). Computer-assisted cognitive-behavior therapy in medical care settings. Current psychiatry reports, 20(10), 1-9. |

| Paper Identifier | Reference |
| --- | --- |
| 18 | Schröder, J., Berger, T., Meyer, B., Lutz, W., Späth, C., Michel, P., ... & Moritz, S. (2018). Impact and change of attitudes toward Internet interventions within a randomized controlled trial on individuals with depression symptoms. Depression and anxiety, 35(5), 421-430. |
| 19 | Gullickson, K. M., Hadjistavropoulos, H. D., Dear, B. F., & Titov, N. (2019). Negative effects associated with internet-delivered cognitive behaviour therapy: an analysis of client emails. Internet interventions, 18, 100278. |
| 20 | Grist, R., & Cavanagh, K. (2013). Computerised cognitive behavioural therapy for common mental health disorders, what works, for whom under what circumstances? A systematic review and meta-analysis. Journal of Contemporary Psychotherapy, 43(4), 243-251. |
| 21 | Arnberg, F. K., Linton, S. J., Hultcrantz, M., Heintz, E., & Jonsson, U. (2014). Internet-delivered psychological treatments for mood and anxiety disorders: a systematic review of their efficacy, safety, and cost-effectiveness. PloS one, 9(5), e98118. |
| 22 | El Alaoui, S., Hedman, E., Kaldo, V., Hesser, H., Kraepelien, M., Andersson, E., ... & Lindefors, N. (2015). Effectiveness of Internet-based cognitive–behavior therapy for social anxiety disorder in clinical psychiatry. Journal of consulting and clinical psychology, 83(5), 902. |
| 23 | Schröder, J., Berger, T., Westermann, S., Klein, J. P., & Moritz, S. (2016). Internet interventions for depression: new developments. Dialogues in clinical neuroscience, 18(2), 203. |
| 24 | Andersson, G., Titov, N., Dear, B. F., Rozental, A., & Carlbring, P. (2019). Internet-delivered psychological treatments: from innovation to implementation. World Psychiatry, 18(1), 20-28. |
| 25 | Andersson, G. (2010). The promise and pitfalls of the internet for cognitive behavioral therapy. *BMC medicine*, *8*(1), 1-5. |
| 26 | Wilhelmsen, M., Høifødt, R. S., Kolstrup, N., Eisemann, M., Chenhall, R., & Risør, M. B. (2014). Norwegian general practitioners' perspectives on implementation of a guided web-based cognitive behavioral therapy for depression: a qualitative study. Journal of medical Internet research, 16(9), e208. |
| 27 | Andrews, G., & Williams, A. D. (2015). Up-scaling clinician assisted internet cognitive behavioural therapy (iCBT) for depression: a model for dissemination into primary care. Clinical psychology review, 41, 40-48. |
| 28 | So, M., Yamaguchi, S., Hashimoto, S., Sado, M., Furukawa, T. A., & McCrone, P. (2013). Is computerised CBT really helpful for adult depression?-A meta-analytic re-evaluation of CCBT for adult depression in terms of clinical implementation and methodological validity. BMC psychiatry, 13(1), 1-14. |

| Paper Identifier | Reference |
| --- | --- |
| 29 | Hadjistavropoulos, H. D., Nugent, M. M., Dirkse, D., & Pugh, N. (2017). Implementation of internet-delivered cognitive behavior therapy within community mental health clinics: a process evaluation using the consolidated framework for implementation research. BMC psychiatry, 17(1), 1-15. |
| 30 | Cavanagh, K., Seccombe, N., & Lidbetter, N. (2011). The implementation of computerized cognitive behavioural therapies in a service user-led, third sector self help clinic. Behavioural and Cognitive Psychotherapy, 39(4), 427-442. |
| 31 | Brantnell, A., Woodford, J., Baraldi, E., van Achterberg, T., & von Essen, L. (2020). Views of Implementers and Nonimplementers of Internet-Administered Cognitive Behavioral Therapy for Depression and Anxiety: Survey of Primary Care Decision Makers in Sweden. *Journal of medical Internet research*, *22*(8), e18033. |
| 32 | Elvira, A. C., Ivars, M. S., Giráldez, C. M., & Shih, P. C. (2021). Internet-based cognitive behavioural therapy programme with and without videoconference guidance sessions: A randomized controlled trial to treat work-related symptoms of anxiety and depression. *Clinical psychology & psychotherapy*, *28*(5), 1230-1242. |
| 33 | Hadjistavropoulos, H. D., Peynenburg, V., Thiessen, D. L., Nugent, M., Karin, E., Staples, L., ... & Titov, N. (2021). Utilization, Patient Characteristics, and Longitudinal Improvements among Patients from a Provincially Funded Transdiagnostic Internet-delivered Cognitive Behavioural Therapy Program: Observational Study of Trends over 6 Years. The Canadian Journal of Psychiatry, 07067437211006873. |
| 34 | Leung, L. B., Dyer, K. E., Yano, E. M., Young, A. S., Rubenstein, L. V., & Hamilton, A. B. (2020). Collaborative care clinician perceptions of computerized cognitive behavioral therapy for depression in primary care. Translational behavioral medicine, 10(3), 565-572. |
| 35 | Lindegaard, T., Seaton, F., Halaj, A., Berg, M., Kashoush, F., Barchini, R., ... & Andersson, G. (2021). Internet-based cognitive behavioural therapy for depression and anxiety among Arabic-speaking individuals in Sweden: a pilot randomized controlled trial. Cognitive Behaviour Therapy, 50(1), 47-66. |
| 36 | Treanor, C. J., Kouvonen, A., Lallukka, T., & Donnelly, M. (2021). Acceptability of Computerized Cognitive Behavioral Therapy for Adults: Umbrella Review. JMIR mental health, 8(7), e23091. |
| 37 | McCall, H. C., Sison, A. P., Burnett, J. L., Beahm, J. D., & Hadjistavropoulos, H. D. (2020). Exploring perceptions of internet-delivered cognitive behaviour therapy among public safety personnel: informing dissemination efforts. International Journal of Environmental Research and Public Health, 17(17), 6026. |

| Paper Identifier | Reference |
|---|---|
| 38 | Pedersen, M. K., Mohammadi, R., Mathiasen, K., & Elmose, M. (2020). Internet-based cognitive behavioral therapy for anxiety in an outpatient specialized care setting: A qualitative study of the patients' experience of the therapy. Scandinavian Journal of Psychology, 61(6), 846-854. |
| 39 | Piera-Jiménez, J., Etzelmueller, A., Kolovos, S., Folkvord, F., & Lupiáñez-Villanueva, F. (2021). Guided Internet-Based Cognitive Behavioral Therapy for Depression: Implementation Cost-Effectiveness Study. Journal of medical Internet research, 23(5), e27410. |
| 40 | Robichaud, M., Talbot, F., Titov, N., Dear, B. F., Hadjistavropoulos, H. D., Hadjistavropoulos, T., & Jbilou, J. (2020). Facilitating access to iCBT: a randomized controlled trial assessing a translated version of an empirically validated program using a minimally monitored delivery model. Behavioural and cognitive psychotherapy, 48(2), 185-202. |

**3.2 Domain & Category Structure**

Across the two domains, (implementation insights derived from iCBT research and implementation process) a number of sub-domains, categories and sub-categories were identified, and these are illustrated in tables 2.2 and 2.3.

**Table 2.2**
*Categories and sub-categories identified under the domain "implementation insights derived from iCBT research" and illustration of the number of contributing papers (out of 40).*

| Category<br>    Sub-Category | *n* papers<br>(out of 40) |
|---|---|
| Clinician attitudes towards iCBT | |
|     Negative attitudes towards iCBT can impact on referral rates and patient outcome | 10 |
|     Positive attitudes towards iCBT can increase acceptability and help to grow iCBT in service | 3 |
| Patient attitudes towards iCBT | |
|     Positive attitudes towards iCBT content, support, privacy and convenience of iCBT can foster engagement | 10 |
|     Attitudes as moderators of clinical outcome, perceived helpfulness and adherence. | 3 |
|     Negative attitudes relate to preference for face-to-face therapy and issues with utility of iCBT to patient needs | 5 |
| The delivery of internet-delivered therapies can be helped by technological and clinical augmentation | 7 |
| Specific patient characteristics need to be considered when implementing iCBT | |
|     Age is negatively associated with adherence and clinical outcomes in guided iCBT, and not associated with symptom deterioration in unguided iCBT | 4 |
|     The relationship between gender and adherence is unclear in iCBT overall, but gender is not associated with symptom deterioration in unguided iCBT | 2 |
|     Patient technological literacy is tentatively positively associated with adherence and clinical outcome in iCBT | 2 |

| Category | *n* papers |
| Sub-Category | (out of 40) |
| --- | --- |
| Medication and alcohol use is not associated with iCBT adherence | 1 |
| Minority group membership is negatively associated with adherence to iCBT | 1 |
| The relationship between adherence and marital status, employment status and education level is mixed overall, but are not associated with symptom deterioration in unguided iCBT | 3 |
| Having a lower income is positively associated with dropout | 1 |
| Comorbidity of disorders can moderate treatment outcome | 1 |
| Making sudden clinical gains is associated with greater improvements at post treatment | 1 |
| Severity of depression can positively impact on clinical outcomes and adherence | 2 |
| Symptoms of depression can negatively impact on iCBT adherence | 2 |
| Chronic mental health problems are negatively associated with iCBT adherence | 1 |
| Guided iCBT as superior to unguided iCBT in regards to symptom outcomes and adherence. | 11 |
| iCBT is as effective as face-to-face delivery of the same protocol, yet preference is often for face-to-face treatment | 13 |
| iCBT appears to be effective beyond the original target of mild-to-moderate depression and anxiety | 11 |
| Conducting future research that has relevance for iCBT implementation is important | |
| More implementation research is needed to understand the uptake of iCBT within routine care | 9 |
| More research is needed on adverse events to understand the negative effects of iCBT | 2 |
| More research is needed to understand the relationship between adherence and iCBT | 4 |

**Table 2.3**

*Sub-domains, categories and sub-categories identified under the domain "Implementation process - considerations for the successful implementation of iCBT in care settings" and illustration of the number of contributing papers (out of 40).*

| Sub-Domain | Category / Sub-Category | n papers (out of 40) |
|---|---|---|
| Management of iCBT in the workplace | Successful training of supporters is important for the provision of iCBT | 9 |
| | Training stakeholders within the health system is important in creating awareness of iCBT | 2 |
| | Effective management of risk and adverse event management in iCBT is important for its delivery | 10 |
| | iCBT should be delivered through secure, interoperable systems that facilitate clinician and client access | 11 |
| | Operational considerations for managing iCBT and related staff are important | |
| |     Effective management and leadership support facilitates implementation | 7 |
| |     Management of workplace resources is required to create time for iCBT to be used by staff | 4 |
| |     Staff motivation to utilise iCBT needs to be fostered | 4 |
| |     Utilization of routine monitoring of iCBT to convey intervention effectiveness and enhance its delivery | 5 |
| |     Effective Marketing and service promotion enhances the uptake of iCBT | 6 |
| |     Staff recruitment and retention in iCBT is a challenge that needs to be mitigated against | 2 |
| |     Scaling of iCBT within services is challenging and requires multiple considerations (e.g. infrastructure, funding, proper testing, governance) | 7 |
| The practice of iCBT in the workplace | Appropriate referral pathways and management of waiting times are important for the delivery of iCBT | 19 |
| | Screening and inclusion criteria for accessing iCBT need to be thoroughly defined | 23 |

| Sub-Domain | Category / Sub-Category | n papers (out of 40) |
|---|---|---|
| | Considerations of the level of support for patient is crucial in the provision of iCBT | |
| | Positive impact of support on patients | 12 |
| | The quality of support impacts the success of iCBT provision | 15 |
| | Appropriate considerations should be given to the mediums and modalities of support to fit service and user needs | 18 |
| | The time demand associated with the provision of support needs to fit service and user needs | 20 |
| | The optimal personal and professional background of the supporter needs to be considered in the provision of iCBT | 18 |
| Contextual considerations | Funding and healthcare policy often supports iCBT as a modality of therapy conducted over the internet | 11 |
| | Lack of workforce availability for iCBT as a limiting factor in the provision of iCBT | 4 |
| | Considering the costings associated with iCBT for patients and providers before implementing | 12 |

### 3.3 Domain 1: Implementation insights derived from iCBT research

This domain includes categories identified as important for future implementations of iCBT in either research or routine practice settings. Each category contributes to implementation success, or further learning to inform it.

*Category 1: Clinician attitudes towards iCBT*

**Negative attitudes towards iCBT can impact on referral rates and patient outcome**. Clinician attitudes towards iCBT are mixed (13). Negative attitudes in particular can hinder the successful dissemination of iCBT to clients (25). These attitudes consist of scepticism about the effectiveness (27) and quality (4) of iCBT, technological limitations of iCBT (23), the inability to generate a therapeutic alliance through this medium (4), preference for face-to-face therapy or contact (5, 34, 36), the perceived lower priority of

the intervention in the workplace (29) and its highly standardised nature being

incompatible with other psychological interventions (25, 29). Negative attitudes have also

been observed in referring professionals (4), and it has been cited that there is a need to

engage with these negative attitudes to create buy-in (29, 34). Negative attitudes can

arise from a lack of exposure to the intervention or training (26) and can potentially be

transferred on to patients, resulting in poorer outcomes (29).

**Positive attitudes towards iCBT can increase acceptability and help to grow iCBT in service.** Positive attitudes from professionals acknowledge the benefits of iCBT in terms

of time efficiency, cost-effectiveness, the evidence base, programme design quality,

increasing access and bridging the gap in treatment for those on waiting lists for face-to-

face therapy (29). Positive attitudes are also evident in clinician's recommendations to

increase iCBT access to a wider variety of presentations, to change their model of delivery

to further incorporate iCBT as a treatment and identify the barriers and facilitators

associated with this activity (29). Professionals with more experience of and exposure to

implementing iCBT regard iCBT more positively in terms of proficiency its applicability to

service provision than their non-implementing counterparts (31). One study reported that

healthcare professionals with little exposure to iCBT are generally positive and accepting

towards iCBT, but also have biases around suitability and large knowledge gaps (34).

*Category 2: Patient attitudes towards iCBT*

**Positive attitudes towards iCBT content, support, privacy and convenience of iCBT can foster engagement.** Patients report positive attitudes towards iCBT; they are

satisfied with the treatment they receive (3, 36, 32, 33, 38, 40), regard the intervention

content (3, 29, 36) and therapist support they receive positively (3), report strong

motivations to seek out iCBT (8) and acknowledge its advantage in terms of convenience, cost, privacy and its self-directed nature (27, 36, 37, 38).

**Attitudes as moderators of clinical outcome, perceived helpfulness and adherence.** Patient attitudes have been identified as a moderator of treatment effect, with more positive initial attitudes predicting higher levels of symptom change, improvement in attitudes during treatment leading to better outcomes and deterioration in attitudes leading to worse outcomes (18). Similarly, a positive association between adherence to iCBT and positive perceptions of programme helpfulness was observed in one review (36). Perceiving iCBT negatively (e.g. unhelpful) or incompatible with personal circumstances was positively associated with lower adherence to iCBT and rates of dropout (36).One qualitative study posited an association between high expectations towards iCBT and intervention completion (38).

**Negative attitudes relate to a preference for face-to-face therapy and issues with utility of iCBT to patient needs.** Negative attitudes can be a barrier to treatment success (26). There is a reported preference for face-to-face therapies over iCBT (25, 37, 36, 38). Scepticism has been expressed towards the effectiveness and credibility of iCBT (38, 37), with participants in one study questioning their ability, in regards to motivations and accountability, to progress through iCBT (37). Relatedly, patients that received a course of iCBT treatments have reported that they felt the programme did not meet their needs (38). One study stated that offering iCBT as a waiting list treatment to patients can create "*unfavourable comparisons*" between iCBT and face-to-face therapy, which can cause iCBT to be perceived negatively by patients (38).

*Category 3: The delivery of internet-delivered therapies can be helped by technological and clinical augmentation*

iCBT has been augmented using novel design elements or treatment strategies to understand their utility and benefit; integrating sensors (24), gamification elements (24), transdiagnostic elements (25, 24, 27), as an add-on or adjunct to existing care pathways (34, 11, 23), incorporating "persuasive technology" components (24), in a blended model (23; 24; 16) or as a first-line intervention to promote interest in further mental health care (34)

*Category 4:Specific patient characteristics need to be considered when implementing iCBT*

**Age is negatively associated with adherence and clinical outcomes in guided iCBT, and not associated with symptom deterioration in unguided iCBT.** iCBT. The relationship between age and adherence in iCBT has been reported as mixed/unclear in one review (36) and as negative in a small RCT (40). Negative relationships have been observed between age and clinical outcome (20). In unguided iCBT, age was found to be not associated with symptom deterioration (1).

**The relationship between gender and adherence is unclear in iCBT overall, but gender is not associated with symptom deterioration in unguided iCBT.** Mixed results are reported for gender in one review, with support for the female gender presented as both positively and unrelated to iCBT adherence (36). Gender was found to be associated with symptom deterioration in unguided iCBT (1).

**Patient technological literacy is tentatively positively associated with adherence and clinical outcome in iCBT.** Perceived technological literacy, in terms of positive attitudes towards iCBT, was posited to impact on adherence to (39, 36) and clinical

outcomes (39) achieved by iCBT, . However, the same studies also reported issues regarding the unstructured way in which this variable was measured (39) and conflicting evidence is present across the literature base regarding the impact of tech literacy on iCBT outcome (36).

**Medication and alcohol use is not associated with iCBT adherence.** One review reported that patient reported medication and alcohol use not associated with iCBT adherence (36).

**Minority group membership is negatively associated with adherence to iCBT**. One study posited that minority group membership (e.g. immigrants) can be accompanied by several factors (e.g. unstable living conditions, need for specific therapeutic content) that can be negatively associated with adherence (35).

**The relationship between adherence and marital status, employment status and education level is mixed overall, but are not associated with symptom deterioration in unguided iCBT**. Both positive and negative associations have been observed for marital status, employment status (36, 40), education level (36) and adherence. In unguided iCBT, participant's education level, relationship and employment status have been found to be not associated with symptom deterioration (1).

**Having a lower income is positively associated with dropout.** Lower income levels and having a martial status of single was found to be positively associated with dropout from iCBT (40).

**Comorbidity of disorders can moderate treatment outcome**; for example, primary depression & secondary anxiety can result in lower effect of iCBT treatment (8).

**Making sudden clinical gains is associated with greater improvements at post treatment *(24).***

**Severity of depression can positively impact on clinical outcomes and adherence.** Higher pre-treatment severity translates to greater effect sizes in contrast to those with lower symptoms (10). Varying reports were found in one review for the impact of depression severity on adherence, with both those severe symptoms and fewer, less severe symptoms being positively associated with adherence (36)

**Symptoms of depression can negatively impact on iCBT adherence**. Depressive symptomatology (e.g. lack of motivation) was found to be negatively associated with iCBT adherence (12, 28).

**Chronic mental health problems are negatively associated with iCBT adherence**. Years of living with chronic mental health problems was also posited to be negatively associated with adherence to iCBT (40).

*Category 5: Guided iCBT as superior to unguided iCBT in regards to symptom outcomes and adherence.*

Guided iCBT shows superiority of clinical outcomes over unguided iCBT (27, 7, 17, 23, 24, 25). However, an IPD meta analysis (1) postulates that the small effects achieved by unguided iCBT are superior to control groups (or no intervention), and can be best utilised when implemented at scale, such as at the public health level. The therapist element of guided iCBT is posited to improve adherence to iCBT (34, 36), with guided programmes showing higher rates of adherence than unguided (36). iCBT that is provided through a "minimally monitored" approach has been found to produce higher adherence rates in comparison unguided modalities (40). It is also stated that guided iCBT support fulfils an expressed need to navigate through and explain therapeutic content when patients encounter difficulties (38).

***Category 6: iCBT is as effective as Face-to-Face delivery of the same protocol, yet preference is often for face-to-face treatment.***

iCBT has been shown to produce equivalent outcomes to face-to-face delivery (27, 13, 16, 23, 24) that uses a similar treatment protocol, and patients also demonstrate similar levels of adherence (27, 24). Other advantages of iCBT over face-to-face therapy include its positive impact on time efficiency and access rates (29, 24) and its ability to deliver a standardized treatment with fidelity to the CBT model (11, 14). However, patients still demonstrate preference for face-to-face treatment over iCBT (25, 29, 6, 37). In some instances, preferences for iCBT over face-to-face treatment can be influenced by introducing a time-delay when accessing treatment (6). One review stated that preference for face-to-face treatment over iCBT was a reason for dropping out of treatment (36)

***Category 7: iCBT appears to be effective beyond the original target of mild to moderate depression and anxiety***

iCBT is not typically offered for severe presentations of depression and anxiety (26), but real-world data illustrates that a large proportion of patients seen by iCBT clinics have chronic symptoms in the moderate-severe range (14). Patients with high symptom severity at baseline have been found to make large clinical gains (27, 8, 10, 23), show comparable adherence rates to less severe patients (27) and, in some cases, produce larger gains than their non-severe counterparts (27). Participants from studies requiring more active treatment-seeking behaviours to participate in tend to recruit individuals with higher levels severe symptoms of depression, illustrating the willingness and motivation of this cohort to engage with treatment (23, 27). The effect of higher pre-treatment severity on adherence/completion is unclear, with one study positing that

higher pre-treatment severity may be associated with lower iCBT completion rates (33).

Similarly, those in the subclinical ranges also benefit from iCBT (23, 32). Those with

suicidal ideation are also found to benefit from iCBT (27, 13, 23), with one study reporting

no known suicides in a naturalistic sample of 7,500 patients (27). Although stated to be

less grounded in clinical data, two studies highlighted the applicability of iCBT to

conditions where depression is secondary to the presenting problem (e.g. addiction,

trauma, schizophrenia, bipolar; 27, 29)

***Category 8: Conducting future research that has relevance for iCBT implementation is***
***important***

**More implementation research is needed to understand the uptake of iCBT**

**within routine care.** Several papers state that there is a lack of research that details the

process of implementing iCBT in naturalistic settings, and thus more research is

warranted to understand and improve its uptake within routine care (27, 28, 7, 23, 24, 25,

18, 34, 33).

**More research is needed on adverse events in iCBT to understand the negative**

**effects of iCBT.** Two studies (23, 19) state that more attention and systematic

documentation is needed regarding the adverse events associated with iCBT. It is stated

that the information around this is poorly reported on within studies (23, 19) and that

understanding adverse events in more detail would allow for the relevant clinician or

therapist to be more responsive to clients undertaking iCBT (19).

**More research is needed to understand the relationship between adherence and**

**iCBT outcome**. The relationship between treatment compliance, or adherence, and

outcome also requires further exploration (8, 23, 36). Two studies (8, 36) suggested that

the definition of "dropout" be revised, where varying dosages of iCBT have been found to

produce positive clinical change when less than the intended programme is completed. A

further study stated that, given the already high rates of dropout observed in iCBT

research, that high rates of dropout should also be expected for practical

implementations (28)

## 3.4 Domain 2: Considerations for the successful implementation of iCBT in routine care settings

### 3.4.1 Sub-domain 1 – Management of iCBT in the workplace

This sub-domain consists of factors that are important for managing the day-to-day, pragmatic operations of iCBT, with categories pertaining to the training of staff, risk management, marketing and service promotion, IT infrastructure, working with other services and managing the staff who work in the provision of iCBT.

**Category 1 - Successful training of supporters is important for the provision of iCBT.** Effective training of supporters in iCBT entails technical training in the use of the programme (16, 14), developing competencies around online written communication (14, 4) and practicing providing support to fictional patients (16). One study emphasised the importance of therapists acquiring computer skills, where it was stated that they are a facilitator to implementing related eHealth initiatives (31). Training should be comprehensive in that it ensures clinicians and therapists are comfortable with supporting patients (26) and that they can develop the writing skills necessary to provide effective, written reviews rather than through trial and error during their interactions with patients (4).Time allocated to training varied from a 4-hour session (16), to a one day workshop (29), to a 3-day course (26), to one year of continuing education (9). Training supports, including a manual (26, 34), giving clinicians access to training resources (29, 34)

and providing them with feedback on their written reviews (16) were considered helpful.

One study stated that there are limited opportunities for support training in iCBT (22)

**Category 2. Training stakeholders within the health system is important in creating awareness of iCBT.** The training and educating of other relevant stakeholders, including non-clinical staff, referral providers and patients about the benefits of iCBT was also stated to be an important factor (29, 14). Training and educating other stakeholders creates awareness of the intervention and its effectiveness in treating targeted disorders (29). By demonstrating the positive outcomes of iCBT through these efforts, it increases engagement of stakeholders and establishes the intervention as a valid option for mental health treatment (14).

**Category 3 – Effective management of risk and adverse events in iCBT is important for its delivery.** Successfully implemented iCBT has to be supported by clinical procedures for risk that monitor patients while using the intervention (e.g. completing symptom measures, platform interaction), alert clinicians to risk (e.g. automated messages), and allow clinicians to act on any risk that is identified (e.g. clinician phone calls to identified cases) (27, 30, 5, 8, 12, 22, 23, 14, 33, 39).

**Category 4 - iCBT should be delivered through secure, interoperable systems that facilitate clinician and client access.** iCBT interventions should be hosted on secure servers (27, 29, 35), should be optimised to run on a variety of mediums (tablets, desktops, phones) (27), be integrated with larger patient databases (30, 4, 11) and also operate security standards that adhere to relevant governing bodies (12, 24). Low bandwidth in terms of service internet connections (34, 15), enabling service computers to access iCBT and its related websites, a lack of integration of iCBT applications with healthcare records (34) and providing patients access to technology to use iCBT have

been cited as limiting factors for iCBT (15). One review cited that technology issues

contribute to patient dropout from treatment (36)

**Category 5 – Operational considerations for managing iCBT and related staff are important.** This category is split into several sub-categories, all of which detail the impact of several factors on the clinic or workplaces that choose to implement iCBT.

***Effective management and leadership support facilitates implementation***: Management and leadership is important to guide iCBT (29) and includes activities such as developing guidelines and service procedures (22, 24, 12, 29) for iCBT, change management  (14), planning for implementation and engaging stakeholders within the healthcare context (29, 34). A study of primary care implementers of iCBT in Sweden highlighted that leaders of these initiatives had a background in nursing (250/404 participants) (31), with these individuals being cited as important to the implementation of iCBT in primary care (34)

***Management of workplace resources is required to create time for iCBT to be used by staff***: Time shortages, in terms of clinicians administering the programme (29, 26) or reviewing programme content (26), were cited to negatively impact on implementation. Similarly, GPs and clinicians found it difficult to administer iCBT due to existing high-workloads and a lack of time allocated to it (26, 29). iCBT clinic managers also stated they were concerned about balancing iCBT and face-to-face work workload (4). One study stated that it may be necessary to have a dedicated workforce to support iCBT delivery, as using CBT therapists was expensive and potentially burdensome due to adding an extra component to an existing role (31).

***Staff motivation to utilise iCBT needs to be fostered:*** Staff motivation around using iCBT was stated to be 'essential' (26), and iCBT champions who are motivated to harness digital are believed to facilitate the implementation of iCBT (29). It has also been

recognised that it is quite difficult to motivate and change the way clinicians practice (29, 27). One study stated that how staff are required to "be limber" (i.e. show initiative) in primary care mental health initiatives in the USA, and would therefore be motivated to use iCBT as a tool in their work to achieve the best possible patient outcome(34).

***Utilization of routine monitoring of iCBT to convey intervention effectiveness and enhance its delivery***: Services in Australia and Canada report that they regularly conduct audits of service effectiveness (27, 33, 40). One study stated that staff are audited and provided with feedback to ensure compliance with an iCBT treatment manual (33). Staff express interest in evaluating the effectiveness of iCBT in their service (34), with one study stating that staff have expressed interest in receiving more comprehensive updates from this monitoring of iCBT to understand its impact on the services they deliver (29).

***Effective marketing and service promotion enhances the uptake of iCBT****:* Marketing campaigns were seen as necessary to spread the word of iCBT initiatives(4, 29), with advertisement campaigns (e.g. online and printed media) used frequently to success to source participants for trials and routine care (21, 18, 33, 35). It was also noted that these marketing campaigns can take a large amount of effort and resource to enact (29).

***Staff recruitment and retention in iCBT is a challenge that needs to be mitigated against****:* Retention of therapists in iCBT-related positions was cited as an issue across 2 papers (4, 14), where some believe that iCBT limits professional freedom due to its highly structured working requirements (4, 14) and that working conditions are not attractive enough (4).

***Scaling of iCBT within services is challenging and requires multiple considerations (e.g. infrastructure, funding, proper testing, governance):*** The process of scaling iCBT in services is influenced by a number of factors. For example the physical infrastructure (e.g. IT, internet connections) must be in place (15), sources of funding

need to be procured (4), decision-makers must be engaged regarding the feasibility of the

intervention in-service(4), there needs to be evaluation frameworks for existing and new

iCBT programmes (14, 22), and governance frameworks (e.g. clinical, IT, organisational)

must be implemented that adhere to the wider legislative context (12). Exploring new

service pathways that are developed when considering iCBT services (e.g. consultations

with patients seeking help, and having methods for referring elsewhere) may allow for

existing iCBT services to scale their offering (33). One study, based on a minimally

monitored delivery model for iCBT, stated that iCBT services should start with a small

offering (e.g. minimally monitored iCBT), and then acquire human and financial resources

over time to build out their service (40).

### 3.4.2 Sub-domain 2: The practice of iCBT in the workplace

**Category 1: Appropriate referral pathways and management of waiting times

are important for the delivery of iCBT.** Successfully implementing iCBT may involve the

development of self-referral pathways(30, 4, 12, 14, 20, 22), referral from a healthcare

provider (27, 30, 9, 12, 14, 20, 18, 23, 31, 33, 35, 39), or access pathways through

marketing materials, advertisements and newspaper articles (21, 18). Other pathways to

iCBT included being contacted by email (32), contacting patients on waiting lists for face-

to-face services (38), or applying through a secure website (40). Waiting periods between

referral and treatment initiation vary considerably from 2 days to 6 weeks (22, 2). Self-

referral pathways were stated to be advantageous as they produced more motivated

patients (4), and one instance was cited where participants were given access to iCBT

without consulting a therapist first (33). However, the same study (4) also cited issues

around unsuitable patients self-referring themselves to the service, resulting in extra time

and resources spent on managing these cases (4).

**Category 2: Screening and inclusion criteria for accessing iCBT need to be thoroughly defined.** Successfully implemented programmes required patients to complete an online (12, 20, 22, 14, 29, 32, 33, 35, 37), in-person (12, 30, 13) or phone screening assessment (24, 33, 35). As part of screening, patients were asked to provide a range of demographic information e.g. age, geographical location for accessing services, mental health symptoms as per validated questionnaires, commitment to iCBT, treatment history and level of risk, internet access, language proficiency (30, 29, 32, 33, 35, 37, 38, 39, 40), or were required to complete specific diagnostic interviews or assessments (8, 13, 22, 38). One paper suggested a readiness for treatment intervention or assessment be incorporated into screening procedures to facilitate this process(5).

A variety of inclusion/exclusion criteria for accessing iCBT are reported; no severe depression (26, 22, 32, 40), no severe anxiety (32), no chronic/recurrent depression (11), No dementia (11) no past history of psychotic symptoms (29, 33), >18years (8, 12, 32, 33, 35, 39, 40), between the ages of 18-65 (18), diagnosis of disorder as per psychiatric interview, or other source, or exceeding cut-off on another established measure (8, 9, 11, 12, 16, 18, 22, 33), No comorbid substance abuse (8, 12, 18, 9, 33, 35) or use of benzodiazepines (9), no suicide risk (8, 12, 22, 9, 33, 35, 38, 39, 40), No bipolar, psychosis or OCD (8, 12, 18, 9, 35, 38, 40), adequate understanding of programme language (8, 16, 18, 9, 35, 40), no developmental disorders or other cognitive disabilities (38), no comorbidities or nonpsychiatric diseases that could cause depressive symptoms (39), no concurrent treatment (11, 33, 35, 39, 40), no change in medication prior to 1 month of commencing treatment (40) no e-mail address or technological means to access treatment (16, 9, 39, 40), patients with low motivation (22, 33) and being outside of the geographical location of the clinic (22, 33, 35, 39).

**Category 3: Considerations of the level of support for patient is crucial in the provision of iCBT.** The provision of support in iCBT was broken down into 4 sub-categories relating to the impact of support on patients, how support is enacted through the iCBT platform, the mediums and modalities of how it is delivered and how it is structured across the various papers.

*Positive impact of support on patients*: Supported iCBT delivered by a therapist or other relevant individual achieves positive clinical outcomes for patients (10, 23, 24, 25, 2), shows superiority (10, 23, 24) of outcome and lower dropout rates (23, 36) that reportedly vary based on type of support (36, 33) over unguided interventions (10, 23, 24), and is regarded positively by the patients receiving it (3, 38). Therapeutic alliance is implicated as a mechanism behind the positive effects of supported interventions and is rated highly by patients (13) but its effects are still unclear in iCBT (13, 5), as it has been found to both be associated with positive outcomes (5) or to have no effect (13). One study stated that, in a minimally monitored treatment model (i.e. minimal therapist support), participants would have appreciated more support from a therapist throughout their use of iCBT in this modality (40).

*The quality of support impacts the success of iCBT provision*: The purpose of support in iCBT is to "recognize and reinforce the participants' work with the self-help material" (23) and promote engagement with the intervention (34, 40). The supporter in iCBT is posited to assume the role of a motivator, where the iCBT platform delivers the core treatment elements (27, 23), and involves therapists monitoring patient progress (29, 30, 12, 22, 38) and responding to their iCBT-related needs (29, 36, 38). When offering the patient iCBT as a treatment option, It is recommended to do so convincingly by delivering the proposition with confidence, communicating its effectiveness, explaining how to best utilise the programme at the start (e.g. by logging in frequently, using

tools/content) (26, 30, 24, 12, 11) and guiding the user through the initial set-up (30, 8).

Through written support, certain behaviours like encouraging and affirming patients by

expressing interest in their thoughts, feelings and behaviours that have been shared have

been observed (16, 24). Supporters seldomly make self-disclosures or emphasise patient

responsibility in the treatment process(16). Leniency towards patient accountability (e.g.

homework completion) can be associated with poorer patient outcome (24). Regarding

the pragmatics of message writing, one study cites that misspellings occur frequently,

emojis/emoticons were seldom used and that less detailed, shorter messages were

associated with fewer online sessions completed (16). One study described a minimally

monitored model of iCBT delivery, where therapists facilitate brief telephone calls at the

start and end of treatment to promote engagement and participants otherwise utilise the

intervention in a self-guided modality (40).

*Appropriate considerations should be given to the mediums and modalities of*

*support to fit service and user needs:* iCBT support can be delivered in a number of ways

(23); in-person (26, 21), over e-mail (27, 33), by telephone (2, 12, 21, 33, 38, 40), through

the iCBT platform (8, 12, 16, 21, 35, 32), through video conferencing software (32),

automated emails (40) or by text message (12). Support can occur in real-time (25), on an

"on-demand" basis (22) or asynchronously (25, 13, 33, 35) depending on the medium

used. Specifically for asynchronous support, it has been posited to allow for more

therapist contemplation before a support message is sent (25, 13). One study cited that

adding additional video conference sessions to an already existing support protocol did

not achieve superior clinical outcomes (32).

*The time demand associated with the provision of support needs to fit service*

*and user needs:* Time spent in delivering support varies (23), ranging from 10 – 100

minutes per session (2, 12, 7, 23, 21, 24, 26, 27, 30, 33, 38, 40) and up to 8 hours per

individual per course of treatment (27). Support can be delivered weekly (21, 30, 11, 12 , 23, 24, 33, 34, 35), or constantly through on-going therapist monitoring (32). End of treatment for some programmes was based on a specific time period or number of support sessions received; for example, iCBT was cited across papers to be delivered over a varying course of 7-20 weeks (7, 21, 33, 22, 12, 32). Some programmes involve 6-12 support telephone calls depending on the programme patients receiving (2), or that the supporter contacts the patient at least once a week for eight weeks (11). In one instance, intervention completion was operationalised as engaging in a minimum of 3 modules within the programme (39). Regarding the provision of written e-mail support, one study stated that moderately depressed individuals received 10.5 e-mails (18). Some programmes incorporate homework assignments to inform clinicians when conducting support sessions (22, 12). Three programmes implemented "step-wise" access to modules, where new content could not be accessed without completing a supported session (22), was unlocked 7-days post completion of the previous module (38) or released gradually over an 8 week time period (33).

**Category 4 - The optimal personal and professional background of the supporter needs to be considered in the provision of iCBT.** Successful implementation of iCBT included supporters have included volunteer peer-supporters with lived experience of the mental health condition (30), trained volunteers (15) psychologically trained experts (unspecified qualifications; 27), clinical psychologists (30, 4, 11, 12, 16, 31, 32, 33, 35), Psychiatrists (4), registered or provisionally registered mental health professionals (14, 30), graduate students of psychology (14, 35), trained healthcare professionals (15), psychologists-in-training (16, 31), psychotherapists (31), social workers (31, 33), mental health nurses (16), nurses (33), therapists with training on addictions (33) trained technicians (21, 23, 25) and general practitioners (26). There is evidence that untrained

technicians (23, 25) or novice clinicians (24) achieve equal outcomes to trained clinicians ,

and that support from a technician is more effective than a waitlist control group (21).

One study indicated that outcomes are high both when iCBT is delivered by those who

specialise in it or those who do not (33). Clinical psychologists and psychiatrists also

indicated that other professionals (e.g. psychiatric nurses or specialised social workers)

could effectively administer iCBT if trained and supervised appropriately (4). One study

reported on the years of experience of supporters and number of iCBT treatments

administered to their patients but did not link these variables to outcome (16).

### 3.4.3 Sub-domain 3: Contextual Considerations

**Category 1 - Funding and healthcare policy often supports iCBT as a modality of
therapy conducted over the internet** Governmental and healthcare regulations typically

have an impact on the implementation of iCBT. iCBT implementation can be facilitated by

the fact that CBT is widely recognised as a viable mental health intervention in most

countries, therefore iCBT is accepted as an alternative delivery model of this recognised

treatment (12). An example of this is in Canada, where iCBT has been recognised by the

Canadian government through the provision of specific funding streams for iCBT services

and research (29, 33, 34). Other countries have implemented healthcare policy around

improving access to psychological therapies that incentivises services use of iCBT to

achieve their access targets (4, 15) One review suggested that a framework for certifying

internet interventions, issued by national regulatory bodies to interventions that meet

evidence thresholds, be developed (23). Further to governmental legislation, some

countries have limitations placed on therapeutic contact taking place over the internet

(13, 15), require iCBT clinics to adhere to existing frameworks for the delivery of therapy

(14, 12, 24) or already have policies around the delivery of therapy over the internet (24, 31).

**Category 2 - Lack of workforce availability for iCBT as a limiting factor in the provision of iCBT.** The lack of workforce availability was cited as an issue within the outer context (e.g. external to the service), where increasing access to mental healthcare in the general population can create more demand than services are able to provide for (27, 5). One study in Sweden observed only 1-2 therapists participating in iCBT initiatives among implementing organisations, and further commented that due to face-to-face resource being expensive and scarce, a dedicated workforce (similar to what was created in England's 'improving access to psychological therapies' programme) could resolve this issue in terms of resource and cost (31). Another study stated that the presence of trained iCBT professionals in certain health sectors (e.g. veteran care in the USA) is rare (34).

**Category 3 – Considering the costings associated with iCBT for patients and providers before implementing.** iCBT was cited to be provided to patients through five cost models; free-of-charge (26), through publicly funded healthcare systems (29, 4, 8, 12, 13, 14 22), subsidised by healthcare providers (27, 12), at a cost to patients when they are not within certain catchment areas or countries (27) or as part of insurance plans (13). The establishment of re-imbursement systems for iCBT was cited as an important factor for costings in the future (4, 13). Relatedly, it was stated that iCBT incurs costs to healthcare organisations both through the provision of therapists to use iCBT and the procurement of commercial iCBT platforms (31). One paper hypothesised that as iCBT cost-effectiveness becomes more salient, providers (public or private) will advocate for it as a 1st line intervention in order to efficiently gatekeep therapeutic resources (27). iCBT has been found to not incur extra costs to public healthcare systems (29), or be cost-

effective (depending on the 'willingness to pay' standards of the healthcare body) (39).

One study posited that, due to traditional therapist resource being expensive to utilise for

iCBT, a dedicated workforce should be developed to create a less-expensive alternative

(31).

## 4. Discussion

This mixed methods systematic review sought to identify what implementation

processes have been employed in the iCBT literature and what insights the studies of iCBT

offer in terms of the successful implementation of iCBT. Our enquiry highlights the

knowledge we have gained from the available literature on experimental

implementations of iCBT and also from the work of real-world services implementing iCBT

as part of a mental health service delivery. Some of our key findings regarding the process

for implementing iCBT include the practice of iCBT with special reference to determining

client eligibility and effectively supporting patients in iCBT. The management of iCBT in

the workplace, especially staff and operational considerations also surfaced as important

processes to consider when implementing. Other related findings include the importance

of staff training, the management of treatment pathways, security and factors for

consideration within the wider context that impact on the implementation of iCBT. In

terms of implementation insights, the review has highlighted that clinician and patient

attitudes towards iCBT can influence its ability to achieve intended outcomes, the need to

continually tailor iCBT for patient benefit, and that further research can help to develop

our understanding for implementing iCBT successfully.

As would be expected, the practice of iCBT was highlighted as important to the

implementation process for iCBT within a mental health service. For instance, what

constitutes eligibility for an iCBT intervention manifested in 2 categories: 1) Screening and

inclusion criteria for accessing iCBT need to be thoroughly defined, and 2) Consideration

of the usefulness of iCBT beyond the original target of mild to moderate depression and

anxiety. Historically, eligibility for iCBT has been characterised by low symptom presence

(mild to moderate) and no significant risk issues.  This approach was sensible while

establishing iCBTs safety and effectiveness as an intervention, subsequently resulting in

well-validated evidence-base supporting iCBT for treating depression and anxiety.

Consequently, the preponderance on historical eligibility seems to be an artifact in need

of revision. This is especially important in light of the growing body of literature to

support iCBTs applicability to more severe presentations of mental health difficulties

(Bower et al., 2013; Duffy et al., 2020; Meyer et al., 2015; Richards et al., 2018). Further

to this point, real world data from iCBT clinics highlights that a substantial proportion of

patients accessing these services have presentations within the moderate-severe range

(Titov et al., 2019).

A related insight to the previous point is the category regarding the "the impact of

patient characteristics on iCBT outcome", which demonstrates the need for services to

consider the populations they serve (e.g. general severity levels, client demographics) and

tailor their model of iCBT provision to ensure meaningful impact is achieved. Still, despite

the available evidence, clinical guidelines lag in their support for iCBT in extended service

delivery pathways (e.g. NICE, 2009 – Clinical Guideline 90 for depression treatment in

adults). This situation poses some difficulty for certain services or health systems to

innovate around their use of digital (e.g. the improving access to psychological therapies

programme in England, which offers treatment based on NICE Guidelines). Specifically in

the English context, the original guideline for the use of iCBT was rolled out in 2004 (NICE,

2004a, 2004b) and was updated in 2009. Since then, technologies and research have

developed, and more recent experimentation in service delivery using iCBT beyond what

is recommended in the current guidelines could be supplemented with a gold standard RCT to support the expansion of current treatment guidelines.

The findings associated with the sub-domain 'The management of iCBT in the workplace' brings forward several categories and sub-categories that need to be considered for the daily operation of iCBT services, which are essential to its accurate implementation. Our results highlight the importance of operational aspects; these include aspects which are not unique to the delivery of iCBT but are, in fact, representative of findings from the wider field of implementation science. The following examples illustrate how our results align with key constructs from implementation science.

Firstly the importance of how effective management and leadership support facilitates the implementation of iCBT was identified through the review. As a facilitator, leadership is widely cited throughout the implementation literature (Aarons et al., 2015; Aarons & Sommerfeld, 2012; Vis et al., 2018). Transformational leadership approaches, that is leadership styles associated with motivating and compelling employees to participate in a shared vision (Judge & Bono, 2000), have been found to be associated with increased levels of innovation climate, further defined as an organizational climate that is conducive to the adoption of novel, evidence-based practices (Aarons & Sommerfeld, 2012). Given the novelty of digital therapies and wide-reaching implications of the findings identified through this review, the relevance of leadership, and indeed transformational leadership, to iCBT is evident; implementing iCBT requires leaders to navigate interactions across multiple levels of a service and motivate staff to ensure the vision of iCBT is fulfilled. However, the current studies identified do not illustrate in depth the effects of leadership, nor was it their primary or secondary focus. Despite this, it is still important that this finding was communicated through this small pool of studies.

Wider implementation research and the current results highlight that leadership is relevant to routine practice of iCBT, and therefore more research is needed to inform this gap in knowledge.

Following on from this, it appears that strategies targeting the day-to-day work of individuals who are in direct contact with a novel practice (e.g. iCBT delivery) can contribute value towards its successful implementation in routine care. For example, training staff in iCBT and increasing their motivation to use it were both cited as important. As an in-service activity, training clinicians and therapists in the use of evidence-based practice has a substantial literature base (e.g. Beidas & Kendall, 2010a; Frank, Becker-Haimes, & Kendall, 2020). However, our findings highlight variance in the training delivered to therapists charged with delivering iCBT, ranging from hours to up to a year of continued education, and the components of the training were also not described at length across papers. The wider literature on training stands in contrast to what we identified; training programmes for evidence-based practice (EBP) tend to produce better outcomes (e.g. competency, EBP use, positive attitudes) when multi-component approaches are used (e.g. workshop, follow-up and audit of skills acquired) (Frank et al., 2020). To date, no systematic evaluation of iCBT training programmes has been conducted, and it has also been cited by one of the included studies that training programmes for these interventions are rare (El Alaoui et al., 2015). Similarly, we identified that staff motivation to use iCBT needs to be fostered. This motivation can also be developed through training initiatives, where implementers can illustrate the benefits that iCBT brings to routine clinical practice (e.g. improves patient symptoms and access to care, is usable and not time-consuming), and this activity may potentially influence motivation around intervention use (May & Finch, 2009; Sivakumar et al., 2021).

Further, routine monitoring of the intervention and its outcomes was also cited as important for the continued development of iCBT within service. This activity can allow for supporters in iCBT to reflect on their own practice for the purposes of improving service provision, with one paper stating that clinicians who administer iCBT desire comprehensive updates regarding iCBT to understand its impact on wider service outcomes (Hadjistavropoulos, Nugent, Dirkse, & Pugh, 2017). This activity is reminiscent of the construct 'reflexive monitoring' from normalization process theory (May & Finch, 2009), where individual and group reflections on processes around a specific EBP can lead to revisions in practice that are adapted to best-suit the needs and structures of the service context.. The results regarding the operational aspects of iCBT, despite not being widely reported across the literature, indicate that factors associated with EBP success in the implementation literature are being considered when iCBT is implemented, which is a promising finding. More widespread reporting of this information could be beneficial to practicing professionals when making choices around using iCBT with their patients.

Two categories identified in our analysis - clinician and patient attitudes towards iCBT – represent the potential impact of attitudes on iCBT implementation. It is reported that patients tend to be positive about iCBT and the support they receive as part of the intervention (Andrews & Williams, 2015; Nordgreen et al., 2018; Peynenburg et al., 2019; Richards et al., 2016). However, clinician attitudes are generally leaning towards the negative, where they believe that there are technological and therapeutic limitations associated with delivering iCBT to patients (Andersson, 2010; Andrews & Williams, 2015; Folker et al., 2018; Hadjistavropoulos et al., 2017; Schröder et al., 2016). These negative attitudes can then potentially be transferred to patients through the treatment process, resulting in worse clinical outcomes (Hadjistavropoulos et al., 2017). From service illustrations, we can infer that clinicians receive significant exposure to iCBT when it is

implemented (Andrews & Williams, 2015; Titov et al., 2018, 2019), and its effectiveness is grounded in the literature. Then why, despite this high level of exposure to iCBT and an abundance of evidence supporting it, do clinicians remain negative towards iCBT? Relatedly, the sub-category "staff motivation to utilise iCBT" illustrates the experience of implementers in motivating staff to use iCBT and change the way they provide treatments. This mixture of negative attitudes and low motivation, resulting in poor clinical outcomes can result in the abandonment of the implementation effort due to a lack of acceptance or misunderstandings around the perceived value of the treatment (Greenhalgh et al., 2017; Rooshenas et al., 2016). Further qualitative study of clinician attitudes towards iCBT and their reservations towards its use would provide valuable insight into the rationales that professionals put forward for not engaging or abandoning these interventions.

A better understanding of negative clinician attitudes can be attained if iCBT were to be interpreted as a novel, evidence based practice (EBP). A literature search around clinicians attitudes towards EBP provides some insights, including that clinicians rate "other" sources of information (e.g. colleague opinion, previous experience) as more impactful than published evidence on their decisions for treatment (Stewart et al., 2018; Stewart & Chambless, 2007; Von Ranson & Robinson, 2006). Fostering attitudes conducive to the uptake of EBP has been associated with transformational leadership styles (Aarons & Sommerfeld, 2012) and systematic training initiatives that highlight how the EBP is integrated with the wider service system (Beidas & Kendall, 2010), both of which were evident within the current review. However, where there is a disconnect between clinicians and service management, or staff do not understand the 'relative advantage' (from diffusion of innovations; Greenhalgh et al., 2004) of iCBT over existing practice due to it not being made clear through training, it can subsequently create

barriers to EBP uptake (Gadolin & Andersson, 2017; Greenhalgh et al., 2004). This disconnect is well documented in IS theories such as Readiness for Change (Weiner., 2009) and Implementation Climate (Klein & Sorra, 1996; Weiner et al., 2011), both of which also emphasise the role of attitudes in EBP use and implementation.

In their 2013 paper that was included in this review, Andersson & Hedman (2013) state that *"A preliminary conclusion is that the therapist is important in ICBT, but that the firm structure of the treatment leaves less room for between- therapist effects and that it is probably the case that less training is needed than in regular CBT"*. The categories relating to both the provision of support and background of supporters are relevant to this statement. As illustrated in this review, iCBTs vary widely in their structure, support timeframes and those who provide the support, but the take-home is that patients receive the interventions well in terms of satisfaction and clinical outcomes achieved. This malleability of iCBT, where it can assume many forms yet achieve the intended results, underlines the scalability of the intervention. A narrative review of factors associated with scaling public health interventions described that, once an intervention has proven its effectiveness in both small and large scale trials, management and practice factors such as having systems for monitoring intervention performance, funding and interacting with stakeholders within the wider healthcare system become important for the scaling process (Milat et al., 2015). Similar results were obtained in this review under the sub-category "factors associated with scaling of iCBT", supporting the proposition that emphasis should now be placed on understanding the implementation of these interventions, as opposed to further testing their efficacy in controlled settings.

**Limitations**

Three main limitations were identified as part of this mixed methods systematic review. Firstly, we used a targeted search strategy to produce a dataset which the authors acknowledge is incomplete due to lack of proper use of terminology within the field to reference implementation. We therefore acknowledge that the current review is not definitive on the implementation of iCBT, and only reports on relevant factors within the papers identified. For example, several excluded studies referenced the terms "feasibility" or "implementation" within their title, but further review highlighted that no information relevant to these terms was reported within the studies as part of the results or discussion. Already in research studies there is a movement to standardise the reporting digitally delivered psychological treatments (e.g. use of CONSORT for e-health; (Eysenbach et al., 2011), and perhaps this should be succeeded by an attempt to standardise how we report implementation learnings too. Where the majority of papers included in this review had no specific section on implications for implementation, many insights were derived from the analysis. This would allow for future reviews to be more thorough in both their findings and conclusions; the field is currently not indexed correctly for this type of review to be carried out efficiently.

The second limitation consisted of the 'blind spots' associated with the development of the analytic framework that may have resulted from the background of the researchers. The authors mainly come from a background in psychology, and none would consider themselves to be implementation specialists. The third and final limitation of the study relates to the limitations present in the original papers included in this review. The heterogenous nature of the papers included prevented a formal quality appraisal from being conducted, thus no papers were excluded based on methodological

flaws. Few papers had a primary objective of exploring a facet of implementation of iCBT for depression and anxiety, which is important to note when interpreting the results.

**Future Work**

Our review  highlights the necessity of a multitude of processes to support iCBT use, which in itself is the embodiment of the "knowledge to practice" gap that is so often spoken about in the literature. Other review types (e.g. realist, scoping or narrative reviews) conducted by different research groups may uncover nuances that were otherwise unidentified by the current review. Future work that is published within the field of iCBT would  benefit from the use of a standardised lexicon of terms that are appropriately used. For example, research that reports on implementation should meaningfully do so, as a failure in this regard can result in a muddying of search terms for future reviews or stakeholders seeking to find implementation guidance.

**Conclusion**

The current mixed methods systematic review has identified several categories and strategies for consideration when attempting to implement iCBT within routine care or as part of effectiveness trial designs. Broadly, these categories emphasise the importance of managing staff associated with administering iCBT, implementing and developing professionals to provide the supported component of iCBT, accounting for context and deriving implementation insights from novel research contributions. Future research into iCBT in real-world settings should endeavour to supply appropriate supplemental information that details the efforts associated with implementing the intervention within care pathways. In tandem, efforts could be made to standardise practices which can support transferability of learning and scalability.

**Chapter 3: Qualitative Study**

**A qualitative study of service provider, commercial iCBT representative and patient stakeholder experience of implementing iCBT as part of routine care in mental health services**

## Contributions

This study was led by Daniel Duffy, the thesis author. Dr. Derek Richards and Dr. Ladislav Timulak supervised the thesis author in the conduct of this study, and contributed to the design of the semi-structured interview, analysis and interpretation of results. The aforementioned contributors will be included within the author list once the study is submitted for peer-review.

**Abstract**

This study consisted of a qualitative exploration of stakeholder experience regarding the implementation of internet-delivered cognitive behavioural therapy (iCBT) as part of routine service provision within the United Kingdom's Improving Access to Psychological Therapies programme. Stakeholder groups included service providers (*n*=6), commercial iCBT representatives (*n*=6) and patients who received a course of iCBT as part of treatment at the service (*n*=7). Participants took part in a semi-structured interview over the telephone, and subsequent data were analysed using the descriptive-interpretive approach. Service providers highlighted the importance of effective leadership and management, training initiatives, the provision of feedback to commercial iCBT representatives and creating work structures around iCBT to facilitate therapists in their use of it. Commercial iCBT representatives similarly reported the importance of training clinicians in iCBT use, identifying the appropriate individuals at all levels of the service to drive iCBT implementation, and the importance of being responsive to any problems or needs that arise from the service. Patients reported an overall positive experience of receiving iCBT, but highlighted a need for more information from their therapist and the intervention to better structure their usage. Contextual factors, in terms of barriers and facilitators, were also highlighted by service providers commercial iCBT representatives, with more prominent findings indicating that negative therapist attitudes can limit iCBT implementation, COVID-19 has enhanced therapist exposure to iCBT, and that perseverance in using iCBT over time is facilitative of implementation. The findings contribute to a growing field of literature that seeks to understand the experience of relevant stakeholders who are involved with and contribute to iCBT implementation, including commercial iCBT representatives who, to our knowledge, have not been included as part of published research to date.

## 1. Introduction

The field of iCBT is currently growing at an exponential rate, but the availability of evidence that reports on relevant stakeholder experience of implementation and associated factors is lagging behind. Accordingly, and as stated previously, our understanding of 'iCBT in the wild' is limited, and this problem is compounded by a dynamic healthcare context that is constantly evolving. Some qualitative explorations of the use of iCBT within services exist (Banck & Bernhardsson, 2020; Hadjistavropoulous et al., 2017; Folker et al., 2018), but no studies have yet to simultaneously take account of three stakeholder groups that feature heavily within the lived reality of iCBT; commercial iCBT representatives, service providers who routinely use it as part of their practice and patients receiving iCBT. Of note, the impact of commercial iCBT representatives on the implementation of iCBT is often neglected or unmentioned. However, it is understood that services perceive positively the support they receive from "external facilitation units" (Hadjistravropolous et al., 2017), that provide support to services implementing iCBT and may fulfil a role similar in function to commercial iCBT representatives who work for iCBT companies.

Regarding commercial iCBT representatives, numerous companies have come into existence that have grown around a currently booming digital healthcare market (Torrence, 2021). These entities have vested commercial interest in ensuring that their products deliver on promised clinical outcomes, and generally work quite closely with healthcare services to foster successful implementations. Ignoring the impact of these entities, the teams behind them and their role in them implementation process is no longer possible; companies like SilverCloud Health, MindDistrict and Ginger.io are now common names in the field of iCBT and bring a wealth of expertise when it comes to implementing. Similarly, we know that patients experience iCBT positively (Richards et al.,

2016; Jardine et al., 2020; Andrews et al., 2018), but the patient experience in regards to the procedures they encounter during their treatment experience of iCBT is unexplored. Patients are the ultimate 'receivers' of iCBT, who reap the benefit or pay the cost of an implementation effort, and capturing the experience of multiple stakeholders involved with implementation initiatives is important for the field going forward

As part of the formative first steps of this thesis in furthering our knowledge of the implementation of iCBT, the current study qualitatively explored the experiences of relevant stakeholders who are pertinent to its implementation. As previously stated, iCBT is a complex intervention (Skivington, 2021); that is, numerous individuals come from inside and outside an organisation to facilitate implementation, with the goal of creating a positive experience for therapists administering it and patients receiving it. To illustrate this, the current study departs from existing research by including commercial iCBT representatives, service providers and patients in order to examine more holistically the phenomenon of implementing iCBT in a mental healthcare service. In developing the research design, it was important to capture what different key stakeholders have do in regards to implementing, their perceptions of this, the context in which it occurred and the factors of most importance to them. We therefore settled on an inductive approach, where two domains of interest were developed based on the experience we aimed to explore: experience of iCBT implementation and implementation context.

## 2. Methodology

### 2.1 Qualitative Approach and Research Paradigm

The current research utilises a  descriptive-interpretive approach (Elliott &

Timulak, 2021) to analyse stakeholders' experience of implementing iCBT in mental

healthcare services.

### 2.2 Researcher Characteristics and Reflexivity

The first author, DD, has worked as a researcher within the field of online

interventions for a period of 6 years, mainly involved with research trials within England's

National Health Service, training clinicians and therapists in the use of the platform and

content development for several iCBT programmes. DR is Chief Science Officer at

SilverCloud Health and has worked in the internet intervention space for over 15 years. LT

is course director for the Doctorate in Counselling Psychology and co-lead investigator,

alongside DR, of the E-Mental Health Research Group at Trinity College Dublin, they both

have extensive research and career experience in the field of internet interventions and

provision of psychological therapies.

### 2.3 Research Context

Between June-October 2020 19 participants were recruited. During this time,

lockdowns were in place across the UK and Ireland because of the COVID-19 pandemic.

As a consequence, service provider participants were transitioning to telehealth-

facilitated therapy (e.g. over the phone, videoconferencing or internet interventions).

Participants in this study that were a part of the 'service provider' group were recruited

from an Improving Access to Psychological Therapies (IAPT) mental healthcare service

within the UK, that is based on a stepped care service model. This service model operates

on the premise of providing the most effective, but least resource-intensive intervention

to patients and have cited within the literature as one of the potential solutions to

increase access to evidence-based treatments (Bower & Gilbody, 2005; Richards et al., 2012) The service in question has been utilising iCBT as part of their routine care offering for mild-moderate presentations of depression and anxiety disorders for over 6 years and has an-ongoing relationship with the developers of the SilverCloud iCBT programmes. Those forming a part of the commercial group of participants were all employees of SilverCloud Health; a limited company specialising in the development and researching of iCBT programmes that operates across the USA, United Kingdom and Europe. Patient participants in the study had experienced a course of iCBT as part of their treatment at the aforementioned IAPT service.

## 2.4 Ethical Issues

The study included participants that resided in the United Kingdom or worked directly with the UK customer market. Therefore, two ethical applications were drafted. The first was submitted to the School of Psychology, Trinity College Dublin, to illustrate participant procedures for members of the commercial iCBT representative group that were employed by the industry partner of this thesis, SilverCloud Health. The second application was submitted to the Health Research Authority of the United Kingdom (IRAS ID: 270142), and covered procedures regarding patient and service provider participants. Relevant approval letters for both ethics committees are available in the appendices (Appendix 3A-3D). All participants were provided with information sheets that detailed study procedures, participant's rights in relation to the data they were being asked to contribute and how it would be processed. Participants were then required to sign an informed consent form before commencing in research activities to indicate that they understood what their participation involved, and that they agreed to partake. Participants in the patient group and those who worked as a Psychological Wellbeing Practitioner (PWP) within the service provider group were provided with £10 Amazon

vouchers for volunteering their time towards the study. The procedures within the study that included patients (e.g. proposed method of contact, interview schedule) were submitted to a patient-public involvement group in England for feedback. A copy of this feedback, as well as the relevant responses provided by the research team that were submitted as part of the HRA-approval process is included in appendix 3E. Oversight for the trial (in regards to service provider and patient participants) was conducted by the research and development department at Berkshire Healthcare NHS Foundation Trust, England, who met with the thesis author bi-weekly for the purposes of monitoring recruitment and evaluating trial progress.

**2.6 Participants**

***2.6.1 Sampling strategy & Recruitment.***

Service providers were invited to participate in the study through managers within the service, who identified those active in their internal implementation processes and provided them with the informed consent materials. Intervention developers were recruited similarly; DD and DR circulated e-mails to individuals occupying roles in development, product and commercial teams associated with the implementation of the SilverCloud Intervention. Patient participants were invited to participate in the study by their therapist at their final treatment session prior to iCBT completion, and were required to have completed a minimum of 4 iCBT treatment sessions prior to being discharged. In total, 6 service providers, 6 commercial iCBT representatives and 7 patients were recruited. Participants in the patient and service provider stakeholder groups were provided with a £10 online shopping voucher to reimburse them for their time contributed to the study. The following sections contain a description of the participants within each of these groups. Table 3.1 provides an overview of those within the

commercial iCBT representative and service provider groups, and table 3.2 provides an

overview of patient participants.

**Table 3.1**
*Characteristics of participants in the commercial iCBT representative and service provider groups.*

| Study ID | Age | Gender | Group | Role | Years in role | Interview Length (mins) |
|---|---|---|---|---|---|---|
| 1 | 38 | m | Commercial iCBT Representative | Sales | 2 | 56.22 |
| 2 | 35 | m | Commercial iCBT Representative | Customer Success | 2 | 57.31 |
| 3 | 42 | f | Commercial iCBT Representative | Product | 10 | 62.51 |
| 4 | 42 | f | Commercial iCBT Representative | Marketing | 6 | 61.4 |
| 5 | 40 | m | Commercial iCBT Representative | IT Developer | 11 | 62.18 |
| 6 | 48 | m | Commercial iCBT Representative | Product | 2* | 66.08 |
| 7 | 32 | f | Service Provider | PWP/Digital Lead | 3 | 52.11 |
| 8 | 28 | f | Service Provider | PWP/Digital Lead | 2.5 | 60.18 |
| 9 | 31 | f | Service Provider | PWP/Service Lead | 2** | 48.52 |
| 10 | 38 | f | Service Provider | Manager - Innovation Pathway Lead | 3*** | 70.01 |
| 11 | 36 | f | Service Provider | Manager - Administrative & Data Reporting | 1 | 34.47 |
| 12 | 60 | f | Service Provider | Director of Service | 8 | 75.41 |

*Participant stated they had substantial experience of working within NHS services as management staff before commencing this role

**Participant had worked within the service for 6 years as a therapist and team lead before commencing this role

***Participant had had worked within the service for 9 years as a therapist and low-intensity pathway manager before commencing this role

**Table 3.2**

*Characteristics of participants in the patient group*

| ID | Age | Gender | Referral Origin | Support Received | Status | Interview Length (mins) |
|----|-----|--------|-----------------|------------------|--------|-------------------------|
| 13 | 25 | f | GP advised patient to self-refer | Telephone and online summaries | Discharged | 26.56 |
| 14 | 43 | f | GP advised patient to self-refer | Telephone and online summaries | Waiting list for further therapy | 38.01 |
| 15 | 40 | f | GP referral | Telephone only | Completing treatment | 11.56 |
| 16 | 25 | m | Self-referral | Telephone only | Discharged | 36.45 |
| 17 | 49 | m | GP referral | Telephone and online summaries | Discharged | 42.09 |
| 18 | 28 | f | Self-referral | Telephone and online summaries | Waiting list for further therapy | 26.22 |
| 19 | 64 | f | GP referral | Telephone and online summaries | Discharged | 30.13 |

### *2.6.2 Service providers*

This group of participants consisted of clinical, administrative and leadership personnel working within an NHS IAPT service, and actively involved with the ongoing implementation of the intervention in service pathways. Specifically, participants in this group occupied roles such as Psychological Wellbeing Practitioner (PWP) (n=3), innovation-pathway lead (n=1), administrative manager (n=1) and service director (n=1). Participants in this group were required to have first-hand experience of working with the intervention, as well as participating in implementation initiatives such as training, product improvement and personnel management.

Psychological wellbeing practitioners are a workforce of psychological professionals that are employed by the NHS in the United Kingdom; they are typically graduate psychologists with specific qualifications in the delivery of low-intensity

psychological therapies, including iCBT. 2 participants with this role also occupied the role of digital champion, individuals who are highly involved with digital therapeutic initiatives within service. The last PWP participant in this cohort consisted of a PWP service lead, who had oversight of other PWPs and facilitated them in their day-to-work within a specific service locality. The participant occupying the role of innovation pathway lead is responsible for monitoring, evaluating and improving therapeutic operations associated with the low intensity interventions, including iCBT that is offered by the service. The administrative manager at the service manages and monitors patient data at the service in regards to outcomes and access rates, and also manages a team of administrative staff who liaise with patients as part of their treatment at the service. The last participant was in a leadership position, where they had ultimate responsibility for the delivery and direction of all step-2 interventions, and was the individual who made the initial decision to engage with the commercial iCBT representatives working for the intervention developer, and use iCBT as part of the service model.

### 2.6.3 Commercial iCBT Representatives.

This group consisted of those who were involved with the implementation of the intervention within healthcare services from an industry standpoint as employees of SilverCloud Health, the intervention developer. In naming this cohort of participants, DD, LT and DR had several discussions about the appropriate term to use. It was acknowledged that there were a lack of examples within the iCBT literature base to draw on. Therefore, 'commercial iCBT representative' was decided as the most appropriate term for the current purposes, due to the heterogeneity of individuals included within this group. However, it is also acknowledged that other terms (e.g. 'employee of intervention developer') may have been similarly appropriate.

Participants in this group were required to be client facing, such that they worked in some capacity with customers to implement iCBT through their employment as part of product, technological or commercial teams. Specifically, participants in this group occupied job roles such as customer success (n=1), sales (n=1), marketing (n=1), product (n=2) and software (n=1) development. Those in sales and marketing would typically be the first point of contact with a mental healthcare service looking to implement the SilverCloud intervention, would subsequently work to generate a value proposition for the intervention, flag any changes that may need to be made to the iCBT programme to facilitate the customer and then manage the contracts process. Participants in customer success work with the respective services to develop and scale the digital intervention within care pathways by exploring how the intervention can be used, working with responsible service providers to implement it and convey feedback to product/technical teams to improve the iCBT product. Those in product and development roles work with services to ensure that clinical content is appropriate, the product is meeting customer needs in regards to the populations served by service providers. and that all the technical infrastructure is in place and integrated with the service so that the intervention can work effectively.

### 2.6.4 Patients

Eligible patient participants (n=7) consisted of those who had completed a minimum of 4 sessions of iCBT as part of their step 2, low-intensity treatment at IAPT. Patients accessing treatment through IAPT services normally come through a pathway of healthcare provider referral (e.g. General Practitioner) or self-referral. Self-referral consists of the patient completing a brief screening procedure online and then being contacted by the service for further triage. Therefore, as part of their treatment in IAPT, patients had experience of seeking and accessing treatment, liaising with the service to

schedule review sessions with their therapist, experiencing asynchronous therapy over the internet and being discharged from treatment.

## 2.5 Data Collection

### 2.5.1 Demographics

All participants were requested to provide information on their age and gender. Those in the mental healthcare service workers and commercial iCBT representatives groups were also requested to provide their role title and years spent in role.

### 2.5.2 Semi-structured Interview – Overview

A semi-structured interview focussing on two domains of investigation was developed for the commercial iCBT representatives, service providers and patients. Specifically, these domains were *experience of iCBT implementation* and *implementation context*. To this extent, a literature review of relevant theories, models and frameworks (TMFs; e.g., Birken et al., 2018) in the field of implementation science was conducted. However, it was then decided that, instead of using one specific TMF to guide the interview schedule, the interview would take a broader, inductive approach to stakeholder experience. As part of *experience of iCBT implementation*, the research team separated this domain into two sub-domains that were 1) Implementation process, that explored participant's experience of what they *do* (e.g. implementation strategies; (Powell et al., 2015; Proctor et al., 2013) and 2) Decisive elements for successful implementation, which related to the factors that are *most important* to each of the relevant stakeholders in regards to implementation. The domain *implementation context* was concerned with the factors in the immediate or wider context that may potentially impact on iCBT, its usage and implementation. The following sections describe each of the domains of investigation within the questionnaire in more detail, and the variations in

how questions were asked to participants depending on which stakeholder group they belonged to. The qualitative interview schedules for each of the participant groups are available in the appendices (appendix 3F-3H).

**2.5.2.1 Experience of iCBT Implementation.** The first sub-domain under *experience of iCBT implementation* consisted of '*implementation process*', which explored what participants *do* or encounter as part of their experience with implementation. To explore this further, a list of activities that were relevant to each of the participant groups was drawn up by DD and subsequently reviewed by DR and LT. Examples of these activities are presented in table 3.3 below. Participants were then asked to explore their experience of each of these activities in regards to what worked well, what did not work well and what could be improved upon. Participants were also requested to reflect and provide details on any other activities they may have encountered throughout their experience with iCBT, therefore not limiting insight into the activities highlighted in the interview schedule. Questions associated with this domain therefore assumed the structure of "*As part of your work as [insert role]/your experience receiving a course of iCBT, you may have been involved in or experienced [xyz activity], can you tell me about your experience of this?*". The development of this domain was informed by the idea that an implementation effort is actualised through many different actors (Braithwaite et al., 2018; Cairney et al., 2013; May et al., 2016) coming together at varying levels inside and outside of an organisation to develop, implement, enact and monitor the results of various implementation strategies(Powell et al., 2015; Proctor et al., 2013).

The second sub-domain under experience of iCBT implementation consisted of '*decisive elements for successful implementation'.* For this domain, the researchers endeavoured to explore the factors associated with the implementation process that were of most importance to each of the groups of stakeholders. For participants in the

service provider and commercial iCBT representative group, the question involved asking

participants what they believed *was important* in their experience of implementing iCBT,

and patients were asked what they believe was central to their satisfaction (or

dissatisfaction) with receiving iCBT as part of their treatment. In establishing this domain

of analysis, it was acknowledged that stakeholders across groups would have their own

respective wants and needs throughout the implementation process, where meeting

these is important in engaging the individual. Similar ideas have been highlighted in a

systematic review of studies using Normalization Process Theory, where the coherence

(sense-making activities) of an innovation is important for stakeholders to be able to

participate in activities around the innovation (May et al., 2018). In this regard, catering

to the needs of various stakeholders (e.g. clinical effectiveness for clinicians/therapists,

monetary consequences for management, therapist interaction for patients) is important

to provide insights into implementation. This question endeavoured to elicit findings

relevant to what convinced or contributed to stakeholders engagement in the

implementation process (commercial iCBT representatives and service providers) or,

specifically for patients, created a sense of satisfaction in relation to the treatment

pathway they experienced.

**Table 3.3**

*List of activities associated with sub-domain "implementation process"*

| Service-based providers* | Intervention developers* | Patients |
|---|---|---|
| Training | Training services in the use of the intervention | Being referred or self-referring for psychological services |
| Creating and actioning service procedures around the digital intervention | Identifying and working with digital champions at sites | Being assessed by a PWP for service eligibility |
| Assessing suitability for iCBT | Providing technical support | Receiving online or telephone support from your PWP |
| Facilitating the work and learning of others around the intervention | Identifying potential new customers | Contacting the service when you had issues or queries |
| Monitoring and evaluating the progress and outcomes of the intervention | Working with other teams within the company | Being discharged from service |

*selected activities, for a comprehensive list please appendix 3F-3H*

**2.5.2.2 Implementation Context.** When developing a question around context, it was noted that this construct varies in how it is presented across the literature base. Terms such as "context", "environmental factors", "setting", "inner setting", "outer setting" are all used as synonyms for one another within the implementation science literature, and all tend to vary in their scope and defined (Damschroder et al., 2009; Harvey & Kitson, 2015; May et al., 2016; Michie et al., 2011). A scoping review of determinant implementation frameworks that describe context(Nilsen & Bernhardsson, 2019) concluded similarly; across 17 frameworks, a high degree of variation in regards to terminology used, how context was operationalised and what facets of it were accounted for was observed throughout the IS literature. Considering these findings, it was decided to attempt to simplify the term context. A question was therefore constructed utilising the definition put forward by Pfadenhauer et al. (2015) in their concept analysis of the term 'context'. The text of the question varied for patients, but centred on exploring

whether or not the participant believed contextual factors impacted on their experience of iCBT. If participants struggled, a number of simple prompts were generated that took inspiration from context-related terms cited within the IS literature (e.g CFIR, TDF, i-PARIHS).

## 2.6 Data Analysis

The qualitative data were analysed using the descriptive-interpretive qualitative method of Elliott & Timulak (2021). At a base level, the descriptive-interpretive approach involves breaking the data into 'meaning units', which are parts of qualitative data that convey meaning to a reader even when taken out of context. These meaning units are then assigned to the domains of investigation and within those domains they are clustered together according to their similarities, and are subsequently categorised to produce insights and the ultimate findings. As part of this analysis, new domains of investigation or sub-domains can occur that may differ from or extend the original domains of investigation. Specifically, the analysis adhered to the following steps

1. The qualitative interview recordings and transcripts were reviewed numerous times to become familiar with the dataset and what participants reported.

2. Interview transcripts were then analysed, where the data were broken down into discrete meaning units, which are manageable chunks of the data that convey meaning on their own irrespective of context.

   A. Meaning units were then assigned relevant participant codes in the form of participant number – domain – Meaning Unit Number. For example, the code "1_EIMP_4" referred to participant 1, the domain "experience of iCBT implementation" (EIMP) and the fourth meaning unit in their data. This

allowed for meaning units and their occurrences to be tracked and

documented efficiently.

B. When meaning units were extracted, they were assigned summary labels

that briefly summarised each of the meaning units. As data extraction

progressed, some of these summary labels re-occurred due to their

prevalence within the data set. For example, where a meaning unit

described an aspect of how therapists are trained to use iCBT, the

following summary label was applied "Training – describes schedule of

training within service".

3. Once the final data set of the meaning units was established by DD they were

extracted from their original transcripts to a spreadsheet (via Microsoft excel) to

allow for accurate indexing and analysis. Data were then organised according to

the pre-existing domains of investigation; Experiences of iCBT Implementation and

Implementation Context. This allowed for a preliminary structure to be

established within the dataset, but domains were not finalised until the

categorisation process was completed.

4. The MUs within the domains of investigation were then reviewed and clustered

according to similarities, aided by the pre-existing summary labels, which began

the process of categorisation. The process of categorisation within the descriptive-

interpretive method is subjective and interactive; the categorisation of the data

corresponds to and is impacted by both the meaning units illustrated by

participants and the background interpretive framework of the researchers

conducting the analysis. This process also highlighted the presence of relevant

sub-domains.

5. Category names were reformed to ensure they best represented the data, which

   further allowed for the meaning units within each category to be interrogated for

   fit. Any amendments proposed to categories throughout this process were

   discussed across the research group and, where appropriate, were actioned.

6. The final domain structure was established once categorisation was completed.

7. Auditing: Throughout the analysis of transcripts, DD, DR and LT met weekly to

   audit the ongoing process. Where there was a lack of clarity around certain

   meaning units, domains allocation or the generation of categories (e.g. splitting of

   a single meaning unit into multiple meaning units), DD would present this and

   seek consensus.

## 3. Results

**3.1 Overview**

Qualitative data are presented across the 3 participant groups below. Four

analysis domains, and several sub-domains under these larger domains, were established

throughout the data analysis. The first domain, experience of iCBT implementation,

yielded three separate domains of analyses for each of the participant groups. This

consisted of 'commercial iCBT representative implementation strategies' (domain 1) for

commercial iCBT representatives (n = 6), 'service provider implementation strategies'

(domain 2) for service providers (n = 6) and 'patient experience of an iCBT treatment

pathway' (domain 3) for patients in the service (n=7). Of note for patients in this domain,

several sub-domains were identified under the larger domain; patient experience of the

iCBT platform, the administration of treatment by the service, their clinical supporter and

of the service referral process. Contextual considerations for the implementation of iCBT

(domain 4) was highlighted as a significant domain by commercial iCBT representatives

and service providers, and two sub-domains were identified under this; 'contextual

barriers' and 'contextual facilitators'. Data associated with the sub-domains under this

domain are presented in combined format, with data from both commercial iCBT

representatives and service providers presented (n=12). Tables 3.4-3.7 illustrate the

domain and category structures associated with the aforementioned domains.

Appendices 3I – 3P provide further breakdown regarding which participants contributed

towards specific categories within each of the domains, and illustrates selected quotes

appropriate to each of the identified categories.

For commercial iCBT representatives and service providers, it was found that

when asked to identify "decisive elements" within the process of implementation, they

reiterated or explored further previous statements they had made. For patients, it was

found, even with the provision of prompts, that they were unable to comment thoroughly

on the impact of context on their use of iCBT. Given these findings, the domains of

"decisive elements" for commercial iCBT representatives and  service providers, and

"context" for patients are not reported on.

**Table 3.4**

*Illustration of categories associated with Domain 1 – Commercial iCBT Representative Implementation Strategies, based on data from the Commercial iCBT Representative Group (N=6)*

| Category | N |
|---|---|
| The training of supporters and coaches in the use of iCBT | 4 |
| Educating potential referrers in iCBT | 1 |
| The development of online resources, including webinars and online training courses | 2 |
| Conducting product pilots with services to demonstrate use cases for new iCBT programmes | 3 |
| Building the required team structure to ensure successful implementation and scaling of iCBT. | 4 |
| Identifying "the right people" within services at all levels (directorial, managerial, frontline worker)to implement, sustain and develop iCBT in mental health services | 5 |
| Working with the service provider to integrate iCBT within care pathways | 4 |
| Being responsive to service provider needs to provide guidance and troubleshoot issues | 6 |
| Working with more services negatively impacts on the availability of resources to support multiple, concurrent implementations of iCBT | 3 |

**Table 3.5**

*Illustration of categories and sub-categories associated with Domain 2 – Service Provider Implementation Strategies, based on data from the Service Provider Group (N=6)*

| Category | Sub-category | N |
|---|---|---|
| Implementing and enacting effective leadership systems to support the use of the intervention and assist therapists in its utilisation | The importance of having management with capacity to drive change and accommodate the delivery of digital as part of service provision | 6 |
| | Visibility and clarity of goals related to iCBT, and their role in overall service provision | 3 |
| | The role of digital champions in pioneering iCBT within the service to allow it reach its full potential | 6 |
| In-service training initiatives to educate therapists in the use and benefits of iCBT. | Training initiatives for new starters (trainees and recently hired therapists) in the use of iCBT within the service are necessary to build therapist competency | 5 |
| | On-going training to highlight new programmes or procedures related to iCBT is important | 6 |
| | Disseminating clinical outcomes of iCBT to demonstrate effectiveness and encourage use among therapists | 5 |
| Conveying feedback to intervention developers is important in improving the iCBT offering and maintaining a good commercial relationship | Gathering feedback on gaps in iCBT service provision improves its use among therapists within services | 4 |
| | Gathering feedback on iCBT programmes and their content is important in addressing the needs of clients | 3 |
| | Positive perceptions of service providers on their relationship with the iCBT company creates feelings of 'working in partnership' | 4 |
| Creating iCBT appropriate work structures facilitates therapists in its delivery | Routinely auditing iCBT data is important in improving how the service administers iCBT | 3 |
| | Creating tools and reference documents supports therapists in their use of the intervention | 5 |
| | Clinical supervision is valued in supporting iCBT provision and helps to address issues of clinical risk | 2 |
| | Line management is important in establishing and monitoring individual staff goals around iCBT use that are reflective of wider service goals | 5 |
| | Designing and revising existing pathways for iCBT use facilitates its performance in terms of clinical outcomes and access | 4 |

**Table 3.6**

*Illustration of sub-domains and categories associated with Domain 3 – Patient experience of an iCBT treatment pathway, based on data from the patient group (N=7)*

| Sub-Domain | Category | N |
|---|---|---|
| Patient experience of the iCBT platform | Patients state the flexibility and accessibility of the platform as positive aspects of iCBT | 6 |
| | The integrated reminder function on the platform is helpful and useful in structuring patient iCBT usage | 3 |
| | Patients appreciate being able to download and print content for instances with no internet connection | 2 |
| | Patients appreciated how the platform enabled them to take and use the content they needed, while filtering out content that was less relevant | 4 |
| | Patients reported the platform to be an aesthetically pleasing experience | 2 |
| | Patients expressed a need for more guidance within the intervention regarding how to effectively use it | 4 |
| | Issues with platform functionality, including tool layouts, presentation of questionnaires, length of mindfulness exercises and security features (i.e. requiring repeated logins) | 4 |
| | Patients appreciated that the programme contained appropriate content and tools to address the problems the person is going through | 5 |
| | Patients who had received previous therapy (e.g. face-to-face CBT) reported that iCBT and its content was not redundant | 3 |
| Patient experiences of the administration of treatment by the service | Positive assessment experience; therapists collaborated with patients to decide on iCBT and normalised their treatment-seeking. | 6 |
| | Feeling supported by therapist to prepare for discharge from iCBT. | 5 |
| | Clear and defined procedures for cancelling or rescheduling treatment appointments | 3 |
| | Multiple reminders (text message and e-mail) sent by the service helped to maintain engagement in treatment | 2 |
| Patient experiences of their clinical supporter | Patients found typed summaries of telephone calls using the online support function helpful in structuring their future use of the programme | 5 |

| Sub-Domain | Category | N |
|---|---|---|
| | Patients reported that the initial awkwardness of telephone supported was alleviated by the therapist's skill | 1 |
| | Patients appreciated when therapists tailored content recommendations based on their presenting problems | 3 |
| | Patients stress the importance of telephone therapist support in increasing adherence and normalising presenting problems | 2 |
| | Patients reported that more guidance is needed from the service regarding how to use the programme and its tools | 4 |
| Patient experience of the service referral process | Patients reported positive experiences of the online, self-referral process | 3 |
| | Patients reported speaking with GPs regarding mental healthcare as an easy and positive experience | 3 |
| | Patients report a preference for online referral over healthcare provider referral when they have previous negative experiences with treatment seeking | 1 |

**Table 3.7**

*Illustration of sub-domains and categories associated with Domain 4 – Contextual Considerations for the Implementation of iCBT, based on data from the service provider and commercial iCBT representative group (N=12)*

| Sub-domain | Category | n |
|---|---|---|
| Contextual Barriers | Technological issues, including issues with its interoperability with other technologies and risk alerts not triggering, can be a barrier. | 5 |
| | The rigid requirements of care pathways may limit the application of iCBT, similarly in-service bureaucracy when trying to further iCBT | 3 |
| | Services need to train new hires in iCBT due to therapist training programmes not covering it in sufficient detail, creating false expectations of the role and work. | 3 |
| | Negative therapist attitudes towards ICBT can limit opportunities for implementation (8/12) | 8 |
| | Costings & Pricing Models as a barrier to implementation | 3 |
| | Market variability may negatively impact on the resources needed to implement iCBT | 4 |
| Contextual Facilitators | COVID-19; changing the way service is delivered due to cessation of face-to-face services, resulting in greater exposure of therapists to iCBT | 10 |
| | Support for the use of digital technologies within the wider health system is facilitative of iCBT adoption and implementation (6/12). | 6 |
| | Organisational culture within mental health services can facilitate iCBT implementation | 4 |
| | Periods of staff shortages may create increased reliance on iCBT usage | 2 |
| | The passage of time and perseverance in using iCBT facilitates implementation by allowing for services to understand and improve their iCBT offering | 8 |

**3.2 Domain 1: Commercial iCBT Representative Implementation Strategies**

*Category 1: The training of supporters and coaches in the use of iCBT (4/6).*

Therapists who provide support through the iCBT platform are trained by commercial iCBT representatives working for the intervention developer to build competency and proficiency in the use of the intervention. Supporters are trained by commercial iCBT representatives when the programme is first purchased, when new programmes are incorporated into the service offering or new features are released. Training conveys how the programme works and its benefit to clinical services, helps support clinicians and therapists in making decisions around client suitability for iCBT, teaches supporters the basics of online therapeutic communication and also how to develop scripts to inform prospective patients about iCBT. Practical sessions (*"click-throughs"*) are also conducted to teach supporters how to navigate the online platform and set their clients up with iCBT accounts. The length of training can span from a 2-hour session to an entire day.

*Category 2: Educating potential referrers in iCBT (1/6).*

One participant stated that training is also conducted with *"…anyone from referring clinicians or GP's that are not directly involved in supporting SilverCloud but would refer patients into services that do"* for purposes of referral generation (pts 4).

*Category 3: The development of online resources, including webinars and online training courses (2/6).*

This category detailed the importance of developing an online repository of helpful media (termed 'supporter help centre' by commercial participants) that describes the background and evidence base for iCBT, fosters the growth of competencies (both therapeutic and technology) relevant to its operation and demonstrates several client

case examples that supporters can use as reference cases when supporting their clients. Further, references to this resource should be common throughout other training initiatives and materials.

### Category 4: Conducting product pilots with services to demonstrate use cases for new iCBT programmes (3/6).

Conducting product pilots of new iCBT programmes was stated to be important in generating supporting data and evidence for use cases of iCBT and any new relevant programmes that are developed. Intervention developers conduct a number of product piloting initiatives with interested customers to develop use cases for new iCBT programmes. As part of these pilots, programme specific educational materials (training presentations, guides) are developed and provided to supporters by commercial iCBT representatives, clinical outcome data is collected to judge the effectiveness of the programme and pathways are worked on to fit the intervention into the current care offering. Once the pilot has concluded, case studies are written up that report on the use case and outcomes achieved by iCBT within the specific implementation setting.

### Category 5: Building the required team structure to ensure successful implementation and scaling of iCBT (4/6).

Building and organising the correct team structure to carry out implementation activities is important in allowing commercial iCBT representatives to create effective products and support services that buy these products. Regarding this, one participant stated *"This has always been about a dialogue across disciplines and with having the right people at the table. I'm not saying we always do that perfectly, but it is definitely a way that we have evolved into something that really delivers real-world results"* (pts 3). Developing a multi-disciplinary organisation, consisting of marketing, sales, design,

clinical, research and commercial departments, has allowed for the creative problem solving of commercial and implementation problems that commercial iCBT representatives encounter through a range of different experiences . The iCBT company employing these participants established a 'service design' team to support the commercial teams, consisting of workers with both design and technical backgrounds who provide guidance to customers and other employees within the company of the intervention developer throughout the implementation process regarding care pathway set-up. Developing processes for communication and co-ordination across sales, business development and customer success departments is an ongoing priority to ensure that each department is able to maximise their functions; for example, the sales team requires a brief from the customer success team when customers renew their contracts for the iCBT intervention, as it will help them understand whether it is appropriate to scale the service or create a rationale to provide further implementation support.

*Category 6: Identifying "the right people" within services at all levels (directorial, managerial, frontline worker) to implement, sustain and develop iCBT in mental health services (5/6).*

Participants emphasised the importance of making connections with the *"right people"* within services in order to effectively implement and scale iCBT with customers. The "right people" can be those with the power to make or influence decisions (e.g. service managers, leaders, directors), or are responsible for the direct administration of the intervention, as *"they're the ones who can make a difference"* (pts 2). Two participants emphasised that digital champions, described as advocates for iCBT, are important at all levels (e.g from clinical lead to therapist) as not only do they drive the use of the intervention within day-to-day service workings, but can also become peer leaders

who *"…can bring along the rest of their teammates with them"* (pts 3)*.* On first interaction with new customers, sales people map out their interactions with service providers to identify the right people appropriately and secure their buy-in to the implementation process. In cases where people not in the correct positions are engaged as part of implementation, issues can occur where the needs of the target population are unknown leading to a lack of clarity around the implementation and stakeholders become unclear of the value of iCBT. Further, iCBT initiatives perceived as top-down by therapists can cause frustration with the implementation, where procedures implemented may not fit well with routine care practices. Conversely, bottom-up approaches were stated to promote intervention by utilising word-of-mouth via peer-influencers within the organisation.

***Category 7: Working with the service provider to integrate iCBT within care pathways (4/6).***

Intervention developers cite that goal of the implementation process is to help customers *"deliver high-quality care at a lower cost to as many people as possible, and it is something that we are very well-positioned to do"* (pts 3). As part of this work, commercial iCBT representatives facilitate services in the development of their pathways to care. In some cases, it is working with services to fit iCBT within their existing pathways by examining the pathway from end-to-end to understand pain points associated with the referring professional, where and how patients first become aware of the availability of the intervention and how best to support the clinicians and therapists who are working within these pathways to use iCBT with clients.

***Category 8: Being responsive to service provider needs to provide guidance and troubleshoot issues (6/6).***

All 6 participants reported that understanding the customer use case is highly important for both commercial viability and creating value for customers. One participant stated that this is done through a process of *"talk[ing] to customers in the language of the jobs they need doing" (pts 3),* where the commercial iCBT representative illustrates the applicability of iCBT to existing problem areas within a service. Understanding customer needs is done through a process of inquiry, where relevant stakeholders within the service will be asked questions about their goals for SilverCloud which can often vary from customer to customer, and providing guidance on intervention use where necessary. Two participants acknowledged that the process of understanding customer needs can be complicated, where customers are unable identify efficiently *"what is a proper problem and what isn't a proper problem"* (pts 6). It was also stated that commercial iCBT representatives also approach this task with many years of experience, which allows them to be able to make a number of recommendations to customers when they face barriers to implementation.

***Category 9: Working with more services negatively impacts on the availability of resources to support multiple, concurrent implementations of iCBT (3/6).***

Three commercial participants cited that managing the time, human resource and effort needed across concurrent implementation efforts as a barrier to effectively implementing iCBT with services. Where the commercial iCBT company has experienced success in growing their customer base, this has created numerous stakeholder groups with varying demands, which subsequently depletes the amount of available human resource. Subsequently, this can make customers feel like they are not receiving enough

attention as they try to implement iCBT. Due to this lack of resource, participants stated

that they are unable to examine certain customer aspects (e.g. iCBT license usage, need

for training materials, general service reviews) that would typically facilitate growth in the

service provider's use of iCBT. There is also a lack of internal clarity around what is

expected of those working with service providers to directly implement iCBT, with the

work currently being done described as *"implusive" (*pts 2).

### 3.3 Domain 2: Service Provider Implementation Strategies

*Category 1:  Implementing and enacting effective leadership systems to support the use of the intervention and assist therapists in its utilisation*

**The importance of having management with capacity to drive change and accommodate the delivery of digital as part of service provision (6/6)***.* All participants

emphasised the importance of having an effective management structure that created a

culture of passion for the delivery of digital therapies. One participant stated that *"I think*

*SilverCloud wouldn't have been successful if we hadn't had people at the top of the*

*service-- the directors, the senior leadership team, who also really invested in CCBT as*

*well"* (pts 7). Having senior managers that acted as implementation drivers was a strong

facilitating factor, where it was stated that they translate the success achieved through

iCBT in routine care into meaning for the rest of the service, maintain a culture of passion

around the use of digital to ensure it *"cascades"* (pts 12) through the service structure.

They liaise with other departments to ensure the continuation of digital initiatives and

also co-ordinate with team leaders to ensure their therapists are safely supporting clients

and are utilising their clinical time effectively. Participants acknowledged that

management utilising the digital champion structure was key in creating a motivated

workforce, as it allowed for better visibility on day-to-day barriers and facilitators for

digital usage within the service. This further relates to senior management acknowledging that drivers at different levels of the hierarchy have varying experiences, all of which are important to consider. Having a senior implementation driver within the organisation who is *"strategic…and forward thinking"* (pts 10) in regards to digital ensures the continuation of the implementation effort. Participants believed that without this involved level of leadership, the implementation may not have been as successful. Due to the high-performing nature of the service participants work in, management are often approached to provide guidance on how to best implement iCBT by other services.

**Visibility and clarity of goals related to iCBT, and their role in overall service provision (3/6).** Goals associated with the use of iCBT within the service were developed by leadership to meet mandated increases in access targets issued by the health authority. When instituting goals, it was stated to be important for leadership contextualise them for staff in regards to their meaning, relevance and methods used to achieve them to increase buy-in. The relevance of goals was framed by one participant in regards to *"traditional services",* where a need to set goals that would illustrate clearly the utility of iCBT in comparison to traditional therapies (e.g. face-to-face) was recognised. Goals for iCBT are mainly set around *"make[ing] sure we [the service] increase the use of this [iCBT] programme"* (pts 9), and senior management work across therapeutic departments (e.g. low-intensity therapy, high-intensity therapy) to ensure that learnings from one use-case are scaled and piloted to other therapy areas.

**The role of digital champions in pioneering iCBT within the service to allow it reach its full potential (6/6)**. All participants emphasised the high importance of the digital champion role within services. Digital champions are staff members within service teams that are passionate about iCBT and digital ways of working. Digital champions previously consisted of staff members who had experience with digital initiatives, but

management now open this position to anyone who is passionate about digital

innovation in service delivery. Notably, this group also has members working in

administrative capacities who would support other staff to answer the questions of

clients contacting the service and problem solve their issues. The relevance of digital

champions became apparent when service leadership realised they were not using iCBT

to its full potential and subsequently acknowledged the value of a peer-lead, bottom-up

approach to driving staff motivation around intervention usage and generating new ideas

for iCBT use. Digital champions are the first staff members to trial new digital initiatives

within their teams (e.g. new iCBT programmes), train other staff members in these new

initiatives, lead on research projects, collect feedback within their teams and problem

solve barriers to digital uptake using a data informed approach.

*Category 2: In-service training initiatives for iCBT*

 *Training initiatives for new starters (trainees and recently hired therapists) in the
use of iCBT within the service are necessary to build therapist competency (5/6).*

Comprehensive training programmes for new starters (including trainees and recently

hired therapists) within the service were described as necessary due to therapists within

the health system not being trained in iCBT or digital interventions. High levels of staff

turnover also contributed to a need for training initiatives for new starters. All new hires

within the service are required to go through a process of going through the different

iCBT programmes, observing a therapist use iCBT for a number of sessions, being

observed in their use of it and roleplaying as a client. Therapists also observe others and

are observed during the assessment/triage process to ensure appropriate treatments

(e.g. iCBT, bibliotherapy) are assigned to patients. For therapists that are more

experienced or fully qualified on joining the service, training focusses on the skills needed

to operate the iCBT platform. New hires go through a process of learning specific

therapeutic techniques (e.g. behavioural activation) in university, then do skills-based

sessions when in service that illustrate how to actualise this technique through iCBT.

Trainee therapists have a reduced iCBT caseload that gradually increases when they

become qualified, and only work on the core programmes (depression, generalised

anxiety, sleep) at the start. New hires are also directed to the online help centre that's

available on the iCBT programme due to the large amount of content available on it, but

it is also stated that finding time to do this is often a barrier for new hires. Relatedly, it

was stated that the support provided through training for new hires was necessary as

prescribing solely the online help centre training can create disorientation due to novelty

of the intervention.

**On-going training to highlight new programmes or procedures related to iCBT is**

**important (6/6).** Senior managers, therapists and administrative staff participate in on-

going training initiatives to understand the current iCBT offering within the service. On-

going training initiatives are conducted in order to increase proficiency and comfort with

the programme and increase staff buy-in. Training mornings are held monthly by digital

champions, where new iCBT features are explored and any recurring issues regarding the

platform are addressed. Examples of issues requiring training mornings included

generating an improved invite script that therapists could use when describing iCBT to

clients and improving online written reviews in the provision of iCBT. Digital champions

were cited to be important for training staff, as they *"do that kind of deep-dive,*

*understanding it, and then share that learning"*. Staff are also prompted on any new iCBT

developments that may have been discussed during these training mornings through via

email.  Some staff receive targeted training when it is observed by management that their

caseload is not composed of 50% of patients using iCBT, with a goal *"to support them, to*

*understand the barriers to why they're not using it and to support them to overcome some*

*of those barriers".*

**Disseminating clinical outcomes of iCBT to demonstrate effectiveness and encourage use among therapists (5/6).** 5 participants commented on how disseminating iCBT outcome data creates buy-in from therapists. Outcome data on the performance of iCBT in terms of the recovery rates of patients across different programmes is sent to all staff monthly. At a general level, disseminating outcomes from iCBT within the service was stated to increase buy-in from staff to use it as the data *"speaks for itself"* (pts 9). Outcome reports are provided to both new employees and those who are critical of iCBT within the service to as it helps overcome biases and shows the treatment is evidence based and can achieve valid clinical outcomes. Two participants stated that it is important for therapists to know that the treatments they are providing to patients are evidence based. A participant in a leadership position stated that the dissemination of these outcomes has resulted in a "*breakthrough*" (pts 12), where therapists can see how well iCBT is performing with patients, resulting in its increased uptake. One participant stated that it was part of their role to centralise and disseminate clinical outcomes to staff.

***Category 3: Conveying feedback to intervention developers is important in improving the iCBT offering and maintaining a good commercial relationship.***

**Gathering feedback on gaps in iCBT-related service provision improves its use among therapists within services (4/6)**. Feedback on iCBT service provision is stated to largely come from the therapists who are using iCBT as part of routine therapy. It normally occurs when a new iCBT initiative is actioned (e.g. creating online-only triage tools or new electronic health record functionalities) and causes issues with therapists' use of the programme. Feedback on service provision can also relate to barriers

experienced by therapists and is not limited to iCBT; for example, a therapist may realise that current approaches for the treatment of generalised anxiety disorder are lacking within service, and that there may be an opportunity to include new information as part of the relevant iCBT programme.

**Gathering feedback on iCBT programmes and their content is important in addressing the needs of clients (3/6).** Feedback on the iCBT programme results from therapists reviewing the programmes in depth and then providing suggestions to commercial iCBT representatives on how a programme for a particular clinical presentation should be structured (e.g. including certain therapeutic content for a specific presentation). Issues with the content and platform functionality can also be reported by patients (e.g. "I've used this tool and it's made me feel worse", and this is subsequently conveyed to commercial iCBT representatives where appropriate. One participant stated that feedback is always reviewed before it is sent back to the intervention developer, as service providers *"don't want to keep on sending stuff over without really thinking it through first"* (pts 7)

**Positive perceptions of service providers on their relationship with the iCBT company creates feelings of 'working in partnership' (4/6)**. Regarding feedback on the iCBT platform, service staff have an appreciation for the commercial relationship between the service and the commercial intervention developer. Clinicians feel they work in partnership with the intervention developer company, and that their feedback and concerns are responded to quickly and subsequently implemented. The service also worked with the commercial iCBT representatives to create collateral around the use of the intervention, such as training manuals, based on feedback regarding how best to train therapists in the use of iCBT. This perception of 'working in partnership' was stated to be mutually beneficial, where both the service and commercial iCBT representatives derived

benefits from this feedback. For example, where the service collaborates with commercial

iCBT representatives, resulting in therapists highly proficient in the use of iCBT, the

commercial iCBT representatives obtain methods for effectively training new supporters

at different services.

***Category 4: Creating iCBT-appropriate work structures facilitates therapists in its***

***delivery.***

**Routinely auditing iCBT data is important in improving how the service**

**administers iCBT (3/6)**. The service management team informs the work they do around

iCBT and any changes made to its provision through analysis of the routine outcome data

they collect. For example, if it is observed that there has been a decrease in outcome

variables such as client session attendance, recovery rates, percentage of patients on

therapist caseloads using iCBT, engagement or clinical outcomes, the management team

will explore actions to rectify this. The management teams meet monthly to discuss this

data with the digital champions, and It was stated that acting quickly and efficiently to

identify the causes of these decreases is important.

**Creating tools and reference documents supports therapists in their use of the**

**intervention (5/6).** Five participants cited materials that were created to support staff in

their use of iCBT and are helpful in its routine use across the service. It was reported that

administrative staff appreciated the development of text guides (hosted on shared access

folders) that they could access whenever they encountered questions for clients or had

issues. For clinical staff, a variety of tools and reference documents were created and

widely used to support their iCBT-related work; general service guidelines were updated

to include information on how iCBT integrated into the service, templates for online

reviews were drafted that therapists could tailor to their clients needs, outline documents

that summarised the main aspects of each iCBT programme were developed that

therapists could use to refresh their knowledge  and videos that summarised parts of the

iCBT training were also recorded.

**Clinical supervision is valued in supporting iCBT provision and helps to address**

**issues of clinical risk (2/6***)***.** Clinical supervision for therapists administering iCBT is used to

support and guide the reviews that they administer, improve therapist understanding of

the programme, evaluate client progress and discuss issues around client risk. Like any

other intervention within the service, supervisors can make recommendations to

therapists to switch clients to different interventions based on their needs (e.g. from

bibliotherapy to iCBT, or vice versa). Similarly, supervisors can recommend that clients are

transitioned from online iCBT reviews to telephone iCBT reviews if there are questions

regarding the clinical presentations.

**Line management is important in establishing and monitoring individual staff**

**goals around iCBT use that are reflective of wider service goals (5/6) .** Line management

within the service for iCBT is important in identifying and understanding barriers to iCBT

usage, subsequently actioning on these, and evaluating therapists in regards to the

minimum 50% digital caseload requirement imposed on their caseloads. The 50% digital

caseload requirement is an operational goal that is actualised through personal

development plans, which outline the division of work that a therapist should impose on

their workload. Where therapists experience issues with using iCBT, the issue is addressed

quickly through routine line management. Barriers identified during the appraisal of one

therapist can create benefit for the wider team if appropriately addressed. Two

participants stated that line management appraisal can be beneficial for therapist

caseloads where the time saving nature of online iCBT reviews can result in less stress for

therapists around their workloads. However, it was also stated that this 50% requirement

was not always enforced, and its enforcement depended on the specific line manager

involved.

**Designing and revising existing pathways for iCBT use facilitates its performance in terms of clinical outcomes and access (4/6).** The importance of pathways when implementing iCBT was summarised succinctly by one participant: "*it's about having a really good understanding of what are the factors for recovery because if you've got a really good product and you put it into a lousy pathway, it can't deliver, which then gives it a bad reputation.*" (pts 12). Implementing iCBT into pathways requires thinking about how it fits, where it fits and how it integrates both with electronic health records and the role specification of therapists within the service. This process can also result in novel or innovative uses of the intervention within pathways for certain presentations (e.g. testing the use of iCBT as a prequel to face-to-face therapy) or increasing access (e.g. direct-to-iCBT pathways which allow patients access to iCBT without the need for formal triage). Pathways are constantly monitored for their effectiveness and their ability to address existing service needs, both in terms of client outcomes and demands from electronic health record systems.

### 3.5 Patient data overview

Patient data generated through the interview process was positioned under one domain – patient experience of receiving iCBT as part of treatment in mental healthcare services. This domain was further broken down into 5 subdomains relating to patient experience of the iCBT platform, of the administration of treatment by the service, of their clinical supporter, of the service referral process and of the online treatment content. The results presented below illustrate the sub-domains and categories, with category names included in bold.

### 3.6 Domain 3: patient experience of an iCBT treatment pathway

*Sub-domain 1: Patient experience of the iCBT platform*

Six out of seven patients remarked positively on the ***flexibility and accessibility of the platform***, where they appreciated being able to "*pick it up in the moments where [they] had time*" (pts 14) and could fit the intervention and its requirements into their own life circumstances. 3/7 participants stated that they found the ***integrated reminder function on the platform useful in structuring their iCBT usage***, where they could set up regular notifications to remind them of their next review session or to log-in and engage with content. 2/7 patients appreciated being able to ***download and print some of the platform content for instances when they knew they would not have an internet connection,*** as this further allowed them to schedule more time working through the content. 4/7 Participants also reported that they appreciated how ***the platform enabled them to take and use the content they needed, while filtering out content that was less relevant*** when they were proceeding through their treatment journey. It was also reported by 2/7 participants that exploring the platform was an ***aesthetically pleasing experience***, where the organisation and presentation of content was stated to be facilitative to engagement. 4/7 participants expressed a need for ***more guidance within the intervention regarding how to effectively use it*** , for example more info around tool usage, the availability of unlockable modules, setting up reminders and how best to structure usage patterns (e.g. "*a little and often*" approach (pts 17)). ***Issues with the platform functionality*** were also cited by 4/7 participants, specifically bugs/glitches regarding the questionnaires, tool functionality, multimedia playback, security features requiring participants to constantly re-enter log-in details and certain content (e.g. mindfulness exercises) appearing gated behind later modules.

When referencing the iCBT programme and its content, 5/7 ***patients appreciated that the programme contained appropriate content and tools to address the problems the person is going through***, where they stated they found the tools useful and beneficial in addressing their symptoms. Specifically, they stated that the psychoeducational content was helpful in understanding triggers and causes for their difficulties, was easy to relate to due to the clinical vignettes presented and also helped them to engage with their feelings. One participant stated that they revisited the content and tools when they were having bad days in order to put it to use. 3/7 ***patients who had received previous therapy (e.g. face-to-face CBT) reported that, in this instance, iCBT and its content was not redundant***, further stating that iCBT offered content that was *"completely new"* (pts 14). In comparison with previous therapy, iCBT allowed for patients to easily navigate through CBT-related tools without the need for workbooks or paper and provided a more positive and helpful experience in comparison to previous therapies.

***Sub-domain 2: Patient experiences of the administration of treatment by the service.***

Six out of seven patients stated that they had a ***positive assessment experience*** upon entering the service, where therapists were perceived as empathetic and understanding and conveyed the applicability of iCBT to the individual's problem clearly. 5/7 Patients reported ***feeling well supported by their therapist to prepare for discharge from iCBT***; patients were offered more supported iCBT sessions if they were not ready to be discharged, had their sessions tapered down in advance of discharge, were offered continued use of the intervention in an unsupported format and were offered further treatment (e.g. face-to-face therapy) if required. 3/7 participants stated that there ***clear and defined procedures for cancelling or rescheduling treatment appointments,*** where they could contact the service by phone or e-mail to cancel in situations of poor health or

personal circumstance. 2/7 patients stated that they received ***multiple reminders from the service through email and text message*** to, as well as in the text of their online iCBT reviews to attend their scheduled appointments, which proved helpful in remembering.

***Sub-domain 3 – Patient Experiences of their clinical supporter***

Where patients received telephone calls to conduct their review sessions, 5/7 reported that their therapist would provide ***typed summaries of the telephone call using the online support function*** through the iCBT platform. Patients cited this as helpful as it reminded them of what content it was suggested they look at next and created reference material that patients could review at a later date. One patient stated that ***the initial awkwardness of telephone support was alleviated by the therapist's skill***, where the participant felt the therapist had competence in delivering iCBT and this subsequently made them feel more comfortable. 3/7 stated that they appreciated when ***Clinicians tailored content recommendations based on the problems presented by patients***; patients would present their problems, and then therapists would signpost them to the appropriate content on the iCBT platform and explain why they believed it was relevant. 2/7 ***patients stressed the importance of telephone therapist support in increasing adherence and normalising their presenting problems***, where they stated that they would not have had a similar experience if they had online reviews only. 4/7 patients stated that ***more guidance was needed from the therapist and service regarding how to use the programme and its tools.*** For example, clients were not aware that they would have continued access to their iCBT programme in an unsupported mode once therapist contacted ceased, that there were both desktop and app-based ways to access the iCBT platform (37) and of how to best use the online tools and to structure their regular use of iCBT.

*Sub-domain 4: Patient Experience of the Service Referral Process*

Three out of seven **patients reported positive experiences of the online, self-referral process**, where it was stated to be easy to access and navigate, with one participant stating that, in comparison to when they contacted the service by phone, they received a faster response from the service through online referral process. Similarly, 3/7 **patients described a positive, easy experience of speaking with their general practitioner (GP) about obtaining a referral or being directed to self-refer online**. Although GP referral was described as a positive, reassuring experience by one participant, it had also taken them a while to build up confidence to discuss their mental health with them. Another participant stated that they were thankful that their GP referred them for mental healthcare, as the participant believed the GP was not professionally bound to do so. Two participants stated that they chose to access their GP for a referral as they had a lack of knowledge about how to access mental healthcare services, so they defaulted to their GP. 1/7 participants reported a **preference for online referral over a referral from a healthcare provider due to a previous negative experience** when attempting to access psychological care.

**3.4 Domain 4: Contextual considerations for the implementation of iCBT (findings combined from service provider and commercial iCBT representative groups)**

*Sub-domain 1– Contextual Barriers*

**Category 1: Technological issues, including issues with its interoperability with other technologies and risk alerts not triggering, can be a barrier (5/12).** Technology issues were cited as a barrier to iCBT implementation by both commercial iCBT representatives and service providers. This includes issues with the iCBT programme not adhering to service risk protocols, or not appropriately triggering client risk alerts for

therapists. The interoperability of iCBT with electronic health records can become a blocker if there is not a steady flow of data. For example, therapists may have to manually enter psychometric measures completed on the iCBT platform into electronic health records, meaning a duplication of effort.

**Category 2: The rigid requirements of care pathways may limit the application of iCBT, similarly in-service bureaucracy when trying to further iCBT (3/12).** Pathway rigidity (e.g. what can and cannot be used for a certain cohort of patients) can cause issues when services try to implement iCBT. When mandates are issued at a national level within a health system that require services to change how they treat certain presentations (e.g. comorbid physical and mental health difficulties), services can lag behind in their adoption, subsequently causing confusion around the applicability of iCBT to these presentations. When iCBT is commissioned at a wider health system or national level, this can create issues where the commissioners are several layers removed from the implementers, which can cause resistance and confusion. A senior member of service staff stated that navigating through layers of bureaucracy and processes within the NHS can cause significant delays, and requires significant effort to get through.

**Category 3: Services need to train new hires in iCBT due therapist training programmes not covering it in sufficient detail, creating false expectations of the role and work (3/12).** Three participants stated that comprehensive training for new hires within the service in the use of iCBT is necessary due to this topic not being sufficiently covered within training courses in England. For example, one participant stated that *"…the training courses for working digitally, the PWP and the high intensity [courses] aren't really fit for purpose, they don't cover it… the services say digital, digital, digital and the training course only has one afternoon on it"* (pts 12). This can result in newly

qualified therapists having false expectations of working primarily in a face-to-face

modality, when in reality the service employs iCBT to a high degree.

**Category 4: Negative therapist attitudes towards ICBT can limit opportunities for**

**implementation (8/12).** Negative therapist attitudes towards iCBT were reported by both

commercial and service-based participants. Intervention developers stated that therapists

can perceive the implementation of iCBT as a threat to their role, where they believe they

may be replaced or lose their job, and that these attitudes are generally come from of a

lack of previous exposure to or knowledge of these types of interventions. As a result of

this lack of previous exposure, therapists are often negative towards iCBT at the start and

are unable to identify the value that iCBT can bring to the service. Relatedly, Intervention

developers and service-based participants stated that biases regarding how mental

healthcare should be delivered face-to-face can create negativity and resistance to iCBT,

where referral providers do not think iCBT provides value for money and therapists

believe that mental healthcare should be delivered face-to-face, over the phone or should

be restricted to certain demographics.

**Category 5: Costings & Pricing Models as a barrier to implementation (3/12).**

Two commercial iCBT representatives and 1 service-based stakeholder commented on

the impact of funding on the provision of iCBT in services. One participant stated that any

cost increases associated with changes to the pricing model of iCBT can create issues

around the perceived value of the intervention to customers. Relatedly, when the

intervention developer company increases the price of the iCBT offering, services place an

expectation on the commercial iCBT representatives to help them get increased value out

of the intervention, subsequently negatively impacting on contract renewals if these

expectations are not met. One service provider stated that costings associated with the

integration of iCBT with other software in the health system (e.g. electronic health records) can create extra costs, and can be perceived as a money sink when the integrations causes bugs or glitches.

**Category 6: Market variability may negatively impact on the resources needed to implement iCBT (4/12).** Four commercial iCBT representatives stated that market variability is a contextual factor that can hinder the implementation of iCBT. Participants stated that the more heterogeneity present within a healthcare market (e.g. private healthcare systems), the greater the demand it places on commercial iCBT representatives when implementing as there are few transferable components across these contexts. Conversely, markets with higher levels of homogeneity (e.g. publicly funded health systems) demand fewer resources when implementing across different services. Another example of market variability is the differences across countries between government issued mandates in public systems, versus the service reality. One participant gave the example of the NHS issuing a mandate for the treatment of long-term conditions within the IAPT model in 2016, but there being no understanding within the IAPT sector of how to operationalise this demand through iCBT at the time. Another example given relates to COVID-19, where services that had care-pathways that were overly reliant on face-to-face therapy struggled with the current demand for digital therapy.

### Sub-domain 2 – Contextual Facilitators

**Category 1: COVID-19; changing the way service is delivered due to cessation of face-to-face services, resulting in greater exposure of therapists to iCBT (10/12).** The COVID-19 pandemic was cited by commercial iCBT representatives and service-based workers to have positively impacted on therapist uptake of iCBT. From a commercial iCBT

representative perspective, COVID-19 has increased use of iCBT due to services ceasing all

face-to-face activities with clients. One participant described this dramatic change as a

complete *"paradigm shift"* (pts 3), where the iCBT intervention has become a normal part

of the working from home life of therapists. Services that were previously hesitant about

using iCBT have re-engaged with commercial iCBT representatives to accelerate their

adoption of iCBT to ensure they can continue providing care for the populations they

serve. Relatedly, COVID-19 has created opportunities for services treating populations

that would not typically have received iCBT (e.g. severe depression/anxiety, borderline

personality disorder, employees, children and young people) to experiment with

extending their service offering in the absence of face-to-face therapy. One participant in

this group further stated that there is a need for the intervention developer company to

understand whether this forced adoption due to the cessation of face-to-face therapy will

be *"sticky after we go back to normal"* (pts 6), and how these insights can be applied

post-COVID.

For service providers, participants reported a higher number of patients choosing

iCBT due to the cessation of face-to-face services (e.g. group therapies, brief CBT). This

has facilitated increased exposure to iCBT for therapists who would not have used it in

the past. Relatedly, therapists report that patients who would have preferred a face-to-

face option are now more agreeable to receiving iCBT. It is also reported that these newly

exposed therapists value the large amount of content available through the iCBT

intervention, including the extra COVID-19 based psychoeducational content that was

made available throughout the pandemic. Due to the high degree to which iCBT was

integrated within the service prior to the pandemic, it was stated that the disruption

caused to the service was minimal in comparison to other services. One participant stated

that the service was *"just ready to run with it"* (pts 12), as structures were already in place for therapists to work from home using iCBT.

**Category 2: Support for the use of digital technologies within the wider health system is facilitative of iCBT adoption and implementation (6/12).** Healthcare systems that recognise the potential of digital technologies, like the IAPT stepped care model of service provision in the current study, were cited as a contextual facilitator for the implementation of iCBT by 4 commercial iCBT representatives and 2 service-based stakeholders. IAPT has been stated as being largely supportive of digital interventions by mandating it through their service design frameworks (e.g. incorporating iCBT as an option for the treatment of mild-moderate depression and anxiety). The IAPT model was cited to provide scaffolding for digital interventions, as iCBT was equated to brief counselling (another therapeutic offering within the IAPT), which allowed for therapists to draw parallels in understanding, and IAPT services all had a similar structure that allowed for a scalable *"plug and play"* (pts 3) model for implementing iCBT. Due to the availability of digital products within IAPT service settings, one participant stated that this has created a group of therapists who are now habitualised to the implementation of digital products.

**Category 3: Organisational culture within mental health services can facilitate iCBT implementation (4/12)**. Four participants within the service-based stakeholder group stated that organisational culture is highly facilitative of the implementation of iCBT. Participants described human resource elements conducive to a culture that is facilitative of iCBT, including having supportive managers and employing people who are effective at managing change and innovating. Two participants stated that the perseverance of leadership in creating a culture that maintains *"passion and dedication"*

(pts 10) through problem solving and risk taking around iCBT to bring it to the point of patient benefit was highly important. The development of this culture has been centred around the goals of the healthcare service in achieving low waiting time for iCBT clients, increasing client access levels and maintaining a high recovery rate. One participant cited that in creating and maintaining this culture, service management shares the evidence base and service data for iCBT among therapists and utilises digital champions to motivate other staff.

**Category 4: Periods of staff shortages may create increased reliance on iCBT usage (2/12).** Periods of staff shortages was cited as a contextual facilitator for increasing the uptake of iCBT among staff within services by two service-based participants. For example, it was stated that when there were staff shortages combined with high waiting times, therapists tended to use iCBT more as it was less time consuming and allowed for more patients to be seen over other therapies. One participant stated that issues around staff shortages was a key motivator for service leadership to engage with the iCBT intervention developer in 2010, as it was recognised that iCBT could allow staff to see more clients. It was further stated that when services are underfunded and understaffed, they transition fully to an iCBT service in order to cope with client demand effectively.

**Category 5: The passage of time and perseverance in using iCBT facilitates implementation by allowing for services to understand and improve their iCBT offering (8/12).** Four commercial iCBT representatives and four service-based stakeholders reported on how persevering with the use of iCBT over time can improve outcomes achieved through it. Firstly, persevering over time involves services actively putting effort into the implementation of iCBT, where they iterate on care pathways to facilitate iCBT fit, integrate it with their electronic health record system and refine procedures related to

the administration of iCBT (e.g. training, DNA procedures, iCBT reviews, introducing

digital champions). One service-based participant estimated that it took 3-4 years for the

service to realise the potential of iCBT fully. Actively administering iCBT over time is

stated to increase proficiency, where therapists can discern the relevant differences

across each iCBT programme, and are able to conduct online reviews in a time-efficient

manner. All of these initiatives are then consequently cited to increase therapist buy-in

over time due to exposure and involvement in implementation activities. A member of

the commercial iCBT representative group stated that it is their role to guide services in

exploring their use of iCBT over time, and likened the process to a therapeutic interaction:

*"when someone says, "I'm really worried about something" you can't take that away,*

*they're going to really worry about it. But the reality of something happening tends to*

*disappear once they get further down the process or they get used to what they're doing"*

*(pts 6).*


## 4. Discussion

The current study qualitatively examined the experience of two stakeholder

groups that are implicated within the implementation of iCBT within services –

commercial iCBT representatives who are employees of an iCBT intervention developer

and service-providers -  and those that are consumers of its results; the patients receiving

treatment. Specific domains of investigation were initially generated as part of this

bottom-up approach; the authors sought to explore the experience of those involved with

and impacted by the implementation of iCBT, and also query the impact of contextual

factors on implementation. The findings presented highlight the numerous strategies that

are employed to drive the implementation forward, areas for consideration when

implementing and the role of contextual factors, as both barriers and facilitators. Findings

from the patient data illustrate their experience of the treatment journey, and was generally perceived as positive. However a need was expressed for more guidance regarding intervention usage. The findings identified across the three groups are certainly linked; the implementation effort is co-ordinated by commercial iCBT representatives and service providers, with patients ultimately experiencing the results of this effort. In discussing the results, we will link categories identified in each stakeholder group together in order to provide an interpretation of the meaning, relevance and how these findings relate to the wider literature base

## 4.1 Leadership

The importance of having effective service-based leadership to drive the implementation effort was highlighted by both commercial iCBT representatives and service-based participants. Commercial iCBT representatives stated that engaging "the right people" at varying levels of the organisational hierarchy to drive the implementation was important from their point of view, and service providers emphasised the importance of leadership over several categories. Due to the far-reaching nature of leadership observed across categories and groups, we saw it appropriate to conceptualise leadership within our study as the ability of individuals within services to create and enact effective systems that support the use of the intervention and assist therapists in its utilisation.

Leadership has been implicated as facilitator for implementation within both the implementation science (IS) and iCBT literature bases. Within implementation science, leadership is a widely cited determinant that is posited to impact on implementation success (Nilsen & Bernhardsson, 2019; Damscrhoder et al., 2009, Greenhalgh et al., 2004), with Damschroder et al. (2009) defining it as the level of "commitment, involvement and accountability of leaders and managers with the implementation". iCBT and

implementation science literature have illustrated the mechanisms implicated in this description; effective leaders allocate staff resource to support the implementation effort, obtain buy-in from other leaders within the health system, use evidence-based practice to inform implementation decisions, foster cultures that are conducive to change and learning and develop work structures (e.g. processes, procedures) for staff using the innovation (Aarons et al., 2018; Harvey et al., 2011; Weiner, 2009).

However, it remains that the operationalisation of leadership as a construct and understanding of its mechanisms that impact on outcome are still poorly understood, and there may be conceptual differences between the terms "leadership", that is the ability to motivate, give feedback and support work, and "management", which is the efforts conducted to actualise the vision of leadership (Reichenpfader et al., 2015; Uvhagen et al., 2018). Further considering this uncoupling of leadership and management, we observed in the current findings a large category that was associated with facilitating therapists in doing their work as part of iCBT ("Creating appropriate work structures for therapists in the delivery of digital"). Indeed, management has famously been defined as "*the organ charged with making resources productive*" (Drucker, 2012); in the current instance, this can be seen to consist of providing therapists with the tools to make conducted reviews easier, actioning their feedback, helping them contribute towards service goals and making sure the processes they work in (pathways) are set-up well. However, a systematic review by Reichenpfader, Carlfjord & Nilsen (2015) on leadership as an implementation determinant within wider healthcare literature further concluded that, of the 17 trials identified, none allowed for a relationship to be drawn between leadership and implementation-relevant study outcome. The findings of the current study provide support for the coupling of management and leadership together; digital champions and management work through various defined structures to actualise the

wider goals of the service related to iCBT, illustrating how the two constructs are interlinked in the current study. In the current example, it is difficult to envision one without the other. However, more mixed-methods research is undoubtedly required to understand the impact of leadership on relevant iCBT implementation outcomes.

Further contributing to limitations associated with conceptualising leadership, accounts of the effects of negative or "bad" leadership on the implementation of innovations in healthcare are few. For example, in the development of the Implementation Leadership Scale, Aarons, Ehrhart & Farahnak (2014) posited a four factor model of leadership, consisting of proactive, knowledgeable, supportive and perseverant leadership, further providing insight the qualities required of leaders when implementing. However, scoring low across these domains does not imply "bad" or ineffective leadership, as the motivation behind its development was to identify where leadership could improve to produce implementation success. Ineffective leadership (or sometimes called 'abusive supervision') has been cited to constitute excessive controlling behaviours, breaking of established rules, abusing power or position for personal gain and engaging in behaviours that harm or undermine the psychological wellbeing of employees (Higgs, 2009; Mackey et al., 2015). Impacts of this style of leadership include negative attitudes towards the leader and organisation, employee deviance and lower levels of job satisfaction, job performance and commitment (Mackey, Frieder, Brees & Martinko, 2015; Schyns & Schilling, 2013). No negative experiences related to leadership were reported by service-based participants in the current study, nor have they been reported within iCBT implementation literature. For the current study, this could be a by-product of the service being well-versed in using iCBT as part of their delivery model, where reports of "bad" leadership, or reports of "what not to do" for leadership when implementing iCBT may be more salient in services where the implementation has either

failed, or is just beginning. Relatedly, the retrospective nature of this study, where participants were requested to provide an account of a historic experience, may have resulted in participants omitting points related to ineffective leadership. Of course, there are wider reports of corrupt or bad leaders within wider media (e.g. The Enron Scandal; Vinten, 2002), but a gap in the literature, and the current study by association, currently exists regarding the effects of "bad" or ineffective leadership on iCBT implementation.

Digital champions, staff members who are given responsibility to promote the use of digital within the service, were implicated in several of the identified categories. This group of individuals can be most likened to opinion leaders, who are self-selected or nominated individuals within certain groups that act as role models for a specific behaviour or activity (e.g. promoting iCBT use), are perceived positively by the group they originate from (e.g. bottom-up approaches) and are capable of exerting influence on the targeted behaviour (e.g. increasing iCBT use among other therapists) (Locock et al., 2001; Valente & Davis, 2016; Valente & Pumpuang, 2007). Digital champions were recognised by both commercial iCBT representatives and service providers as core to the implementation of iCBT as they motivate other staff, train others to use the intervention, work with staff who have problems and have deep knowledge of the intervention. In an analysis of the role of opinion leaders in healthcare change initiatives, it was cited that conflicts between opinion and expert leaders can cause difficulties when implementing (Locock, Dopson, Chambers & Gabbay, 2001). However, in the current sample, digital champions acted as both opinion *and* expert leaders; initially, the service limited the role to digitally experienced staff but eventually opened it to everyone, where they acknowledged that all that was needed was an interest in digital working.

The consequences of not involving opinion leaders in implementation initiatives is evident in the work of Ham, Kipping, & McLeod (2003), who found that top-down

management orders that demand a change in work structures can result in resistance and rejection from the stakeholders responsible for work during a period of healthcare reform in England. Wider implementation science theory also recognises the influence of opinion leaders. For example, Greenhalgh et al's (2004) work on diffusion of innovations acknowledges the positive impact of harnessing opinion leaders when considering the implementation of an innovation, and subsequent studies investigating their influence in fields outside of healthcare have all cited their effectiveness (Cadarette et al., 2017; Cho et al., 2012; Dedehayir et al., 2019). Given the importance placed on digital champions in this example, utilising the influence that these individuals can generate in regards to the use of newly implemented interventions would be worthwhile considering given the benefits highlighted in the current study in contrast to a solely top-down, management driven initiative.

**4.2 Training**

Training initiatives described consisted of 1) the training of supporters in the use of iCBT and the development of online training materials by commercial iCBT representatives and 2), training initiatives for new starters and on-going training for new programmes and procedures by service staff. The training protocol delivered at this unique service contains elements cited in several other trials. For example, training has been done to develop proficiency and comfort with iCBT (e.g.Wilhelmsen et al., 2014, Folker et al., 2018) and to allow for the development of specific competencies, like technical proficiency and writing progress reviews (Mol et al., 2018; Titov et al., 2019; Folker et al., 2018). Therapists were also are provided with extra training resources (e.g. online help centre), similar to what is reported by Hadjistavropoulos et al (2017). Lastly, therapists were given access to numerous training opportunities in general, contrary to

what was reported by Alaoui et al. (2015). In summary of our findings, the service and its structures assumed the role of trainer for iCBT within the health system.

Where iCBT can be considered an evidence based intervention (EBI), training therapists in EBIs is done to develop knowledge, technical skills and therapeutic competencies associated needed for intervention use and improve therapist attitudes and adherence to the EBI, but does not always achieve this intended result (Beidas & Kendall, 2010; Frank et al., 2020; Herschell et al., 2010; Rakovshik & McManus, 2010). Historically, training in the use of EBIs has largely consisted of a workshop and subsequent reading of a relevant intervention manual, which has been shown to be ineffective in regards to competency and skill acquisition (Beidas & Kendall, 2010; Herschell, Kolko, Baumann & Davis, 2010). A recent systematic review of 76 studies examining the impact of different training approaches on therapist-relevant training outcomes highlighted the superiority of intensive training, consisting of over 20 contact hours with an two or more follow-up components, over all other approaches (Frank, Becker-Haimes & Kendall, 2020). As a caveat to this finding, Frank, Becker-Haimes & Kendall (2020) state that where intensive training is most successful, it can be highly time and cost intensive and thus should be employed tentatively until further research delineates the core components of what makes multi-component initiatives successful. Interestingly, and in response to this caveat, no participant in the service-based stakeholder group remarked negatively on iCBT training in terms of time or cost. This may be a product of the relatively positive view that this services has towards iCBT, and different experiences could be identified in services new to iCBT or having difficulties with its implementation. However, it remains that in a high-performing service, intensive training appears to become part of routine operations as opposed to a one-off, exceptional initiative.

When interpreting these findings, it can also be posited that the context where this training occurs (IAPT Services, England) may have acted as a facilitator. The therapist workforce implicated in this sample consist of Psychological Wellbeing Practitioners (PWPs); psychology graduates that receive specialised postgraduate training in a range of low-intensity interventions (Richards & Whyte, 2011). The structure of the iCBT programme in use, SilverCloud, was originally built to reflect the work of PWPs, in that the main therapeutic component is delivered by the iCBT platform (similar to group therapy and bibliotherapy). However, iCBT has been delivered by a wide variety of professionals, including trained volunteers, registered mental health professionals, general practitioners and mental health nurses (e.g. Richards et al., 2020; Richards et al., 2015; Gilbody et al., 2015; Titov et al., 2010), and it has been recognised that therapist-specific variables (e.g. clinical experience, attitudes towards iCBT) can impact on training requirements (Beidas & Kendall, 2010). Given the success of iCBT when administered by supporters of different backgrounds, certain authors have postulated that specific competencies are required by supporters administering iCBT (e.g Friesen, Hadjistavropoulous & Pugh, 2014; Terpstra et al., 2018) and, more widely, telehealth (Hilty et al., 2020; Hilty et al., 2019, 2021). Where the existing competencies of therapists in the current study may have been facilitative of the uptake of iCBT, future implementation work should acknowledge that the training needs of professionals can vary across groups (e.g. charity volunteers vs. psychotherapists), settings (community vs. secondary care) and conditions (e.g. common mental disorders vs. long-term condition management).

**4.3 Context**

Two sub-domains related to context were identifed – contextual facilitators and contextual barriers. Regarding barriers, negative therapist attitudes towards iCBT reportedly arose through a combination of a lack of previous exposure to iCBT and expectancies as to how mental healthcare should be delivered (e.g. face-to-face). This finding is not novel, where previous papers report negative therapist attitudes relating to the effectiveness (Andrews et al., 2014), quality and restrictive nature of iCBT impacting on the ability to generate a therapeutic alliance (Folker et al., 2018). It has also been reported elsewhere that negative attitudes towards iCBT can come from a previous lack of exposure to these interventions (Wilhelmsen et al., 2014). Reflecting further on the systematic review of Frank, Becker-Haimes & Kendall (2020), they also concluded that the traditional training of therapists in novel interventions (e.g. through the provision of a therapy manual and workshop) is unlikely to lead to a change in attitudes. Although the authors concluded that more research is needed to understand how "intensive" training such as this impacts on attitudes, it is understood that training was conducted in the current service to increase buy-in, perhaps with an understanding that this would subsequently improve attitudes. A study that applied the Non-adoption, abandonment and challenges to scale-up, spread and sustainability of healthcare technologies of Greenhalgh et al. (2017) to gain insight into the implementation of an iCBT programme for insomnia (iCBT-i) found that therapist attitudes improved across the observed implementation period (Banck & Bernhardsson, 2020). Indeed, it may be the cases that increased exposure and familiarity with iCBT over the time may allow therapists to overcome prejudices and biases. For example, where our findings illustrate that the current service continuously disseminates examples of positive iCBT performance, this may encourage therapists to engage in a reappraisal of previously held thoughts about

the limited effectiveness of iCBT. Given the systematic nature of the service towards

implementing iCBT in the current example, it can be seen that any negative attitudes are

addressed through leadership and training structures, which further emphasises the

importance of the two aforementioned findings and illustrates how they combine to

change attitudes around iCBT.

The IAPT & NHS model of service provision was cited as both a barrier and

facilitator when implementing iCBT, which warrants consideration from other health

systems that choose to implement iCBT or other digital psychotherapeutic interventions.

Facilitating factors associated with the IAPT model consisted of the support within the

health system for the use of digital interventions, the creation of workforces that are

habitualised to digital implementations and the mandating of increased access targets,

subsequently creating a need for digital products like iCBT. Indeed, there are a number of

structures that support and advocate for eHealth initiatives within England. Firstly, the

majority of NHS-operated services are based on guidelines developed by the National

Institute for Health and Care Excellence (NICE), and the guidelines developed for the

treatment of common mental health disorders advocate for the use of iCBT. Relatedly,

NICE has developed a set of standards that digital health technologies can be compared

against for services and commissioning groups to be able to identify what levels of

evidence these interventions need to achieve (The National Institute for Health and Care

Excellence, 2019, 2021a). Secondly, a collaboration between NHS England and England's

department of health and social care resulted in NHSX, a national body responsible for

setting the strategy for digital transformation within the country (National Health Service,

2021.). Outside of England, iCBT initiatives in Australia have also benefitted from the

introduction of policies and legislation that have advocated for its use (e.g. E-Mental

Health Strategy for Australia), resulting in the set-up of dedicated, government-funded

iCBT services (Mindspot; see Titov et al., 2019). Towards a more generalizable insight based on these results, it can be stated that, where service models or governmental agencies recognise the benefits of iCBT and eHealth initiatives, it strongly facilitates the use of these interventions.

Pathway rigidity, unclear health system mandates and a lack of iCBT training within standardised courses (despite forming a part of IAPT service offering) within the NHS were cited as barriers to implementation. Regarding pathway rigidity, iCBT is currently only advocated for use in mild-moderate presentations of depression (NICE, 2009) within the NHS, but evidence is beginning to emerge for their use in more severe populations both within (e.g. Duffy et al., 2020) and outside the NHS (e.g. Bower et al., 2015; Richards et al., 2018). Given the reliance on NICE guidelines within the NHS, these can potentially limit services in experimenting with iCBT use cases that deviate from what is supported, which subsequently can hinder guideline amendment or improvement due to lack of innovation around use cases (Duffy et al., 2020). Despite the presence and use of digital interventions such as iCBT across the NHS (e.g. SilverCloud used by 70% of IAPT services; SilverCloud Health, 2021), training courses for psychological wellbeing practitioners were stated to not incorporate this type of training within their curriculum. The current findings indicate that intensive training programmes can work well in services that effectively utilise iCBT, but wider implementation research has stated that mobilising the resources necessary for these programmes can constitute a barrier (Kadu & Stolee, 2015; Ross et al., 2016; Sadeghi-Bazargani et al., 2014). Given this, it may be inappropriate to place full responsibility on services to fully train therapists in the use of digital interventions like iCBT. If therapists were given a foundation for iCBT and related interventions as part of their professional training, this would reduce burden on services

so that only package-specific info (e.g. variations across commercial iCBTs) needs to be communicated to new hires or trainees.

Both service providers and commercial iCBT representatives highlighted the facilitative nature of time, where it was cited that service and staff procedures around iCBT can evolve for the better when sufficient effort is sustained throughout the time period. Process models of implementation, which define a set of steps (or processes) that need to be undertaken to arrive at implementation success), have a similarly implied temporal element (Nilsen, 2015). One of these models, the Exploration, Preparation, Implementation and Sustainment framework (EPIS; Aarons, Hurlburt & Horwitz, 2011), states that throughout an implementation effort, services proceed through each of these 4 phases in a linear fashion, and the current findings are illustrative of this. For example, therapists stated that the invite script used to introduce patients was refined over time to improve it. However, before arriving at this point it can be implied that the service acknowledged the need for an invite script through an exploration phase, developed it in a preparation phase, evaluated it in the implementation phase, and it was further refined through the sustainment phase to increase its efficiency. Relatedly, the Dynamic Sustainability Framework (Chambers, Glasgow & Stange, 2013) postulates that innovations are not optimised when initially implemented, and improvements in innovation delivery occur due to attempts to 'fit' it to the needs of a given setting over time. Within the paper illustrating this framework, the authors state "*we reject the notion that an intervention can be optimized prior to implementation… we suggest that the most compelling evidence on the maximal benefit of any intervention can only be realized through ongoing development, evaluation and refinement in diverse populations and systems*" (Chambers, Glasgow & Stange, 2013). Therefore, where services decide to implement iCBT, it must be acknowledged that time and effort is required to actualise it

to its full potential, and that immediate positive outcomes should not be expected due to lack of optimisation.

**4.4 Intervention Developers and commercial iCBT representatives**

The current study highlighted the role of commercial iCBT intervention developers and their employees in implementing iCBT within healthcare systems. Although these reports consist of employees of only one such intervention developer, SilverCloud Health, it provides insight into the experience of a group that is relatively undocumented within the literature base. The findings highlight that commercial iCBT representatives contribute their efforts towards building the required team structure to best support their customers in regards to training, problem-solving and disseminating best-practice use cases of iCBT. In this regard, commercial iCBT representatives can be most likened to Implementation Support Practitioners (ImpSPs; Albers, Metz, & Burke, 2020; Albers, Metz, Burke, et al., 2020; Metz et al., 2020). In defining the role of ImpSPs, Albers, Metz & Burke (2020) state that they are individuals who "*work closely with the leadership and staff needed to effectively deliver direct clinical, therapeutic or educational services… and support them in implementing evidence-informed practices, policies and programs, and in sustaining and scaling evidence for population impact*". Metz et al. (2020) state that the competencies of ImpSPs fall under 3 domains; co-creation and engagement (e.g. engaging the relevant stakeholders in the implementation process to design appropriate pathways for iCBT), ongoing improvement (e.g. imbuing values around learning, feedback and evaluation as part of service delivery) and sustaining change (e.g. creating relationships, teams, leaders and champions that ensure the sustainability of iCBT). In an example specific to iCBT literature, Hadjistavropoulous et al. (2017) stated that the presence of an 'external facilitation unit' akin to ImpSPs, that managed an iCBT website, educated

therapists, provided technical assistance and sourced funding for iCBT, was perceived by

therapists as a facilitator of implementation. Given the presence of commercial

intervention developers within the healthcare field, it may be important to further build

upon the competencies of ImpSPs (as illustrated by Metz et al., 2020) when training new

employees within the intervention developer company.

Although the aforementioned point may constitute a favourable view of

commercial iCBT representatives within the implementation process, it is still important

to acknowledge that the intervention developer is a commercial entity, where the success

of its product fulfils a dual need; patients experience health benefits and the commercial

entity gains profit (Lehoux, Miller, & Daudelin, 2016; Lehoux, Miller, Daudelin, & Denis,

2017). When it comes to the intersection between healthcare and the commercial world,

Goldacre's (2014) book titled "Bad Pharma – how drug companies mislead doctors and

harm patients" presents some of the issues that professionals associate with commercial

healthcare companies. For example, Goldacre illustrates how, through mechanisms such

as publication bias, selective reporting, poorly designed trials and practices harmful to

patients, commercial healthcare companies manipulate health systems into using their

products. Compounding this bad reputation within eHealth and iCBT is the scale of data

that is collected when patients use these interventions, where data breaches of the

health data that iCBT collects could result in significant harm to users (Nurgalieva et al.,

2020; Sampat & Prabhakar, 2017) . Indeed, certain implementation frameworks (e.g.

Greenhalgh et al., (2017)) illustrate that involving commercial entities can, within an

implementation, introduce complexities such as interoperability issues, customer lock-ins,

appropriate management of healthcare data and safety-efficacy concerns. The current

findings limit the statements that can be made about the negatives of commercial entities

within healthcare markets. However, given the ever-growing eHealth market, services

should rely on evidence standards available in their countries (e.g. IAPT Assessment Briefs or NICE standards) to make judgements on which commercial intervention developers to engage with.

## 4.5 Patient experience

The current findings propose that patients, overall, had a positive experience of iCBT as delivered by the service, which is representative of the wider iCBT literature regarding patients experience of receiving iCBT (Andrews & Williams, 2015; Mathiasen et al., 2019; Richards et al., 2016). Therefore, it may be appropriate to posit that an effective implementation results in positive experiences for patients. Participants cited that they appreciated the therapist support they received throughout treatment, and that it was key in maintaining their adherence, which is reflective of the literature base for iCBT. For example, it is well established that unsupported/unguided iCBT programmes achieve lower clinical outcomes than supported programmes (Wright et al., 2019; Schroder., 2016; Andersson, 2019). However, the difference between online (e.g. internet-facilitated asynchronous, text-based communication) and telephone supported iCBT is less established. Lindner et al. (2014) found significant decreases in symptoms in patients after a course of iCBT, but no difference was found between the telephone and e-mail supported groups. In a comparison between groups consisting of telephone support versus online support, Pihlaja et al. (2020) found higher levels of adherence and greater reductions in depressive symptomatology in patients in the telephone support group. Although not definitive, these two studies draw parallels to the role of the work of the PWP in IAPT, where the intervention (e.g. iCBT, bibliotherapy) conveys the main therapeutic principles and the supporter may contribute towards increasing adherence through processes of supportive accountability when a telephone session is scheduled

(Mohr et al., 2011). Further, where our findings illustrate that patients have a positive experience of telephone supported iCBT, an enquiry involving patients who received online-only reviews may have uncovered different findings or other aspects that are important for consideration in iCBT implementation.

Similarly, patients recounted a positive, collaborative experience of the assessment process before subsequently being allocated to iCBT. Attitudes come into account here, where they have previously been implicated as a moderator of iCBT outcome, with positive attitudes (e.g. resulting from a positive assessment experience) at the start of treatment predicting increased symptom reduction (Schröder et al., 2018) and negative attitudes conversely being perceived by healthcare professionals as a barrier treatment success (Wilhelmsen et al., 2014). Relating this to the glitches and issues with tool functionality experienced by participants, Schmidt, Forand & Strunk (2019) state that glitches within an iCBT programme can result in abandonment of treatment, but that the supported element of iCBT may help in mitigating against these issues by allowing patients to talk through their tech issues over the phone.

A study conducted in a similar IAPT care context by Jardine et al. (2020) identified that client expectations of iCBT are high in regards to experiencing a reduction in symptoms. These results are complimentary to those observed in the current study, where clients stated that their therapist helped them to understand that iCBT is the right choice for them as a treatment, therefore illustrating that the therapist has a role in shaping patient expectancies for treatment. All of these findings reflect and reinforce previous literature surrounding the supporter implicated in iCBT; where the intervention communicates the active treatment ingredients, the supporter creates positive attitudes towards iCBT through a positive assessment and allocation experience, adherence through processes of supportive accountability and retention through facilitating

discussion around issues encountered. However, from an implementation perspective, our findings suggest that incorporating telephone support with patients enhances their experience and facilitates their engagement. Even if it is not feasible, in terms of resources, to routinely conduct telephone support throughout treatment it may be important to include some aspect of synchronous therapist-patient contact (either through telephone or other means) to create patient benefit, as is illustrated in this example.

Although this work is qualitative and no cause-effect links can be implied, it can be tentatively posited that the positive experience conveyed by patients may be a consequence of the comprehensive nature of the implementation that took place within their service. For example, the invite script for informing patients about iCBT that is used during assessment for services was worked on by therapists during a training morning. Subsequently, patients reported a positive experience of assessment and stated that they understood the applicability of iCBT to their presenting difficulties. Similarly, patients stated that their supporter was able to tailor the treatment to the issues they brought to each setting, illustrating the level of knowledge and proficiency that supporters have in relation to the platform. Finally, patients feeling well supported toward the end of treatment may be a reflection of a well defined pathway for iCBT, where therapists tapered the number of sessions if clients were doing well or offered additional iCBT sessions and treatments if the client so required. Although the focus of implementation science is primarily on improving the use of innovations within services (Bauer & Kirchner, 2020), the current findings provide support for the idea that a well-implemented iCBT initiative can create an overall positive experience for patients using it.

**4.6 Strengths & Limitations**

This study reports on the experience of participants within a service that has successfully implemented and scaled iCBT to form a core part of its model of service provision. Therefore, this research contributes to a small, but growing field of literature that seeks to understand the experience of relevant stakeholders who participate in the implementation of iCBT (similar to Folker et al., 2018; Hadjistavropoulous et al., 2017). A further, related strength of the research is its inclusion of a diverse group of stakeholders, including commercial iCBT representatives working for an iCBT intervention developer company and patients. Firstly, for patients the current data illustrates that where implementation of iCBT is kept systematic and throughout the service, structures can be put in place that facilitates a positive treatment experience.

Specifically for commercial iCBT representatives, to our knowledge this group has yet to be cited within the literature for iCBT as a contributor to its implementation. The closest example of a group occupying a role similar to that of the commercial iCBT representatives in the current study is that of Hadjistavropoulous et al. (2017), who illustrate that an 'External Facilitation Unit', a publicly funded group that was perceived positively due to it assisting clinic staff with the management of iCBT. Therefore, the current study is one of the first to illustrate the role that this group of stakeholders has in the implementation of iCBT. Given the positive perceptions of service providers towards the commercial iCBT representative group included within this study, it is posited that the findings conveyed will be of benefit to academics, therapists and other commercial entities who are implementing iCBT or similar interventions.

A limitation of this study is that is that participants within the service-based stakeholder group come from a single, high-performing service within the UK's NHS. Further, the service has had much success when using iCBT, as is illustrated through the

findings. Therefore, the findings generated are limited to the perspective of this group. Although it can be stated that they reported on issues they had at the start of their use-case and mentioned refining strategies over time, different insights could be identified by interviewing participants from services that are beginning to implement iCBT, or have done so and failed. Also for patients, those that participated in the study all reported positive perceptions of their treatment and experience with the service and also only consisted of those who had 4+ sessions of supported iCBT. Those who completed fewer sessions or were marked as a treatment dropout may report differing experiences. Similarly, this study captures the experience of only one commercial iCBT company in a market that consists of multiple. Future research should focus on replicating a similar inquiry with different stakeholder groups within similar population (e.g. other IAPT services, patient groups, commercial iCBT representatives).

A further limitation of the current study relates to the background of the thesis author and supervisors in regards to data collection and interpretation. As outlined in the section 'researcher characteristics and reflexivity', the lead researcher (thesis author, DD) has a background in researching iCBT, developing content for iCBT programmes and assisting in its implementation within services. Relatedly, the thesis supervisors are involved with similar activities and also have extensive backgrounds in the delivery of psychological therapies. Given the nature of qualitative of research, it would be remiss to not acknowledge the potential biases that these experiences can introduce when conducting a study such as this.

When auditing the data resulting from the commercial iCBT representative group, it was acknowledged that some statements made by participants appeared jargon-like, or similar to language that may be used within marketing materials. In this regard, it can be postulated that participants in this group provided an account of their experience as a

professional working to implement iCBT within services, as opposed to their personal

views of iCBT implementation. Therefore the findings of this group should be interpreted

in this capacity. Lastly, although the findings appear transferable their nature begs

caution in terms of generalizability as they may be more pertinent for similarly high

performing and successful services. Replication of this study in different contexts (e.g.

lower performing or services who were unsuccessful with implementation) or populations

(e.g. different intervention developer companies, different patient populations) would

contribute towards providing a more nuanced picture of implementation.

**Chapter 4 – Delphi Study**

**Implementation strategies associated with iCBT success: A Delphi Study**

**Contributions**

This study was led by Daniel Duffy, the thesis author. Dr. Derek Richards and Dr. Ladislav

Timulak supervised the thesis author in the conduct of this study, and contributed to the

design of the Delphi questionnaire, analysis and interpretation of results. The

aforementioned contributors will be included within the author list once the study is

submitted for peer-review. Dr. Angel Enrique, Dr. Jorge Palacios and Ms. Caroline Earley,

senior researchers working with SilverCloud Health, provided feedback on the first

iteration of the Delphi questionnaire in regards to the content, language used to describe

items and rating scales used to rank them.

**Abstract**

A synthesis of findings from the previous two chapters was conducted, resulting in a 31-item list of strategies relevant to the implementation of iCBT in routine care under 5 domains. Given the variety and complexity of these findings, as well as the qualitative nature through which they were generated, a 2-round Delphi study was conducted to establish the perceived consensus of importance on each of the identified strategies. Consensus was based on the opinion of experts (*N*=9) with substantial experience of implementing iCBT in routine care and researching it as part of academia, and was defined through cut-off and percentage response rate metrics; >70% of the sample ranking an item as 'important' or higher was equated to 'consensus of importance'. Relatedly, means, standard deviations, medians and range were calculated for all item. 7/31 strategies did not achieve consensus at the end of round two, and expert participants provided qualitative rationales to support their rankings across rounds. The highest ranked strategies related to the information governance standards for iCBT, designing and revising care pathways for iCBT and having a committed management team that set clear goals and create an organisational culture conducive to iCBT usage. To our knowledge, this is the first study within the field of iCBT to conduct such a research endeavour and therefore represents a novel contribution. The list of ranked strategies can be used pragmatically as a guide for future implementations of iCBT as part of research designs or routine practice, and further provides the basis for developing a number of testable hypotheses based on the strategies for further evaluation.

## 1. Introduction

### 1.1 Overview

The previous two chapters highlighted a number of findings relevant to the implementation of iCBT as part of routine healthcare service delivery, and also implicated 3 groups (commercial iCBT representatives, service providers and patients) as part of this process. The results highlight the complexity of iCBT, where these findings appear worthy of consideration when trying to ensure its successful implementation. However, there still remains ambiguity around what is and is not important for the implementation of iCBT, which is a result of the qualitative approach taken within the works; the purpose of both studies was to explore, identify and describe aspects relevant to iCBT implementation, as opposed to quantitatively analysing their impact.

The current study utilised the Delphi methodology to seek expert panel consensus on a number of strategies posited to be associated with the successful implementation of iCBT that were articulated on the basis of findings from studies 1 (mixed methods systematic review) and 2 (qualitative interview). We sought to establish a ranking of these strategies based on the findings from the previous 2 studies from experts in the field who intersect between researching iCBT and implementing it in clinical practice. This approach utilising a delphi methodology is consistent with ideas put forward elsewhere (Jorm, 2015; Fink, Kosecoff, Chassin, & Brook, 1984; Powell, 2003) where Delphi studies are appropriate for seeking consensus or clarity when the research topic is fragmented or incomplete.

### 1.2 Delphi Studies – Method Overview

The Delphi methodology was proposed in the 1950's by the Research and Development (RAND) corporation in the United States of America for the purposes of forecasting the effects of technology on combat and warfare(Dalkey, 1967). As a method

for establishing group consensus, Delphi studies recruit experts with recognised

knowledge on a given topic or knowledge base to establish consensus on a list of

statements over a number of rounds (Jorm, 2015). It is expected that, as rounds progress,

there will be a convergence towards consensus (or agreement) on specific items, and

those items that do not reach agreement may be restructured based on participant

feedback or abandoned (Fish & Busby, 1996).

Consensus within Delphi studies is typically the outcome of interest, and is

conceptualised as a ranking of agreement on a specific scale (Diamond et al., 2014), which

is subsequently refined over several rounds (Dalkey, 1967). However, the literature base

for Delphi studies has been criticised for the lack of systematic approaches for defining

consensus, where several methods such as percentage agreement, measures of central

tendency within a specific range (e.g. mean, median), rank order and stability across

rounds have all been used (Diamond et al., 2014). No one method for consensus has been

established as superior to another (Diamond et a., 2014) . Relatedly, criteria for

establishing consensus may be related to the subject area, where matters of 'life and

death' (e.g. switching off life-enabling machinery in intensive care units) may require

100% consensus among experts, but other areas may not (Keeney et al., 2006). For

example, Prochaska and Norcross have conducted several Delphi studies into the future

of psychotherapy across several decades (Norcross et al., 1992, 2002, 2013; Prochaska &

Norcross, 1982). For each of these studies, they have stated "*The achievement of this goal*

*[consensus] was illustrated by consistent decreases in standard deviations from the first to*

*second round*". In contrast, the work of Powell et al. (2015) used the Delphi methodology

to establish consensus on a number of implementation strategies and utilised percentage

approval (as per voting guidelines in the United States Senate) for this purpose, stating

*"Three fifths (60%) is required to end debate for most issues… We opted for the convention used to end debate (60%)"*.

The individuals who contribute their judgements or rankings within Delphi studies to inform consensus are referred to as experts; being those with substantial expertise in the area or issue being studied (Powell, 2003; Veugelers et al., 2020). The composition of expert panels within Delphi research has been posited to impact on the results obtained (Campbell et al., 1999). For example, heterogenous expert panels may produce richer datasets that are more rounded in their conclusions (Murphy et al., 1998).  However, different groups within certain fields (e.g. field of primary care, groups surveyed including general practitioners and clinic managers) may result in a higher variance in responses collected (Campbell et al., 1999). However, Powell (2003) states that it is most sensible to recruit a panel based on their work within a specific area, and their credibility with the audience the research is being written for.

## 2. Methodology

### 2.1 Design

A 2-round Delphi design was used to establish consensus on the perceived importance of a list of generated strategies and important considerations for a successful implementation of iCBT, grouped under 5 general domains. These strategies were identified through the work conducted in the previous chapters, and development of the list is further described below. Round 1 introduced the items to participants, established preliminary ranking and provided participants the opportunity to qualitatively rationalise their responses or request the inclusion of additional factor. Round 2 consisted of re-circulating the factor list with both the participants' and group ranking incorporated,

requesting participants to re-rank their initial choices where applicable and further included space to rationalise responses.

The current study departs from a typical delphi design through its exploratory nature and objectives that were addressed. Firstly, we did not seek to eliminate any strategy throughout the study rounds, but rather understand the perceived importance of the strategies by individuals with specific subject matter expertise and whether or not participant rankings would converge across rounds. Second, we sought to understand whether a hierarchy of importance could be identified across the specific strategies under each of the 5 global domains. Relatedly, although consensus was not used to eliminate strategies across rounds, the study sought to identify preliminary consensus of importance among the strategies identified. Finally, we sought to gather brief qualitative feedback on participants ranking of each of the strategies at both timepoints, and understand rationales for change (or lack thereof) in round 2.

## 2.2 Participants and Recruitment

*Inclusion Criteria.*

The current study sought to gather a group of participants with expertise in both researching iCBT within academic or naturalistic contexts, and implementing it as part of routine service provision. Within Delphi research, the selection of participants with appropriate expertise in the proposed area of study is posited to be the most important component of the process, where the profile of participants has a direct impact on the results achieved (Campbell et al., 1999; Hsu & Sandford, 2007; Murphy et al., 1998). In selecting experts for inclusion in Delphi research, Keeney et al. (2006) suggest that it be done based on "common sense and practical logistics"; prospective participants should be

subject to inclusion and exclusion criteria that are representative of funding and time constraints.

Therefore, three inclusion criteria were developed. 1) Participants were required to have substantial experience in regards to researching iCBT through academia, 2) implementing iCBT as part of their work within routine services, and 3) were required to do this work within a European Country, Australia, New Zealand or Canada. We quantified "academic" experience in terms of publishing profile; prospective participants identified were required to have substantial involvement (e.g. development or conceptualisation of trial design, responsibility for study procedures) in the research trials they author. "Implementing" experience was qualified in two ways; 1) participants publicly available online profiles were screened to identify their affiliation with any services that actively practice iCBT with clients (through commercial, academic or public health services), 2) where applicable, participants publishing profiles were reviewed to identify their roles in trials that involved the administration of iCBT in naturalistic service contexts. Finally, participants were required to conduct this work within Europe, Australia, New Zealand or Canada due to health system design reasons, where these countries generally provide mental healthcare through publicly funded systems.

### *Participant identification & Procedure.*

Purposive sampling was employed in accordance with the above identified inclusion criteria. Two authors, DD and DR, identified a list of prospective participants. Within this initially generated list, several were removed due to geographic location and one participant was further removed due to the inability to find contact information for them. DD then conducted a search of the remaining prospective participants' public profiles (google scholar, research gate and professional affiliations) to determine their eligibility for inclusion, and conferred with DR and LT on the participants to be contacted.

Once the final list was established, DR and DD contacted 19 individuals via e-mail to inform them of the study, in terms of content and time commitment, and to request their availability to participate. Those interested were then sent information sheets and consent forms, and a timeline of events for the study (i.e. start of round 1, end of round 1, start of round 2, end of round 2).

Twelve participants responded to the first e-mail; 11 consented to participate in the study and 1 participant formally declined. Surveys were administered in the form of an excel file over e-mail, and each round had a cut-off date of two weeks for the return of responses. At the end of the Round 1 questionnaire, participants were asked to provide information about the number of years they have spent both implementing and researching iCBT in healthcare settings. The round 2 questionnaire incorporated overall group and round 1 factor rankings for each participant, where participants could reflect on their round 1 ranking in comparison to that of the wider group and change it (where applicable). The ranking presented for the group was presented in truncated format so that items reported back to participants consisted of whole numbers, which was rationalised as being appropriate due to participants being unable to rank summary statements and strategies using non-integers.

Nine participants returned the round 1 questionnaire, and the same participants also completed the round 2 questionnaire.

## 2.3 Questionnaire construction

Two previous works informed the construction of the list of implementation strategies; a mixed methods systematic review of iCBT literature to discern relevant strategies and research findings that have relevance for the implementation of iCBT (chapter 2) and qualitative study of stakeholder experience (commercial iCBT

representative, service providers and patient) of the implementation of iCBT (chapter 3).

In synthesising the results of these works, the findings from both studies were gathered

into one excel file to review their meanings and descriptions. Similar findings across the

two studies were grouped, and where possible were substituted with a summary

statement that, in all cases, was representative of the original categories and embodied a

specific implementation strategy. For example, the MMSR and qualitative study both had

findings related to leadership, so a summary statement was generated that reflected the

original categories. The intended overarching question in relation to these summary

statements was constructed as "How important are the following factors when

implementing internet-delivered cognitive behaviour therapy (iCBT) in healthcare

settings?". Therefore, summary statements were generally prefaced in the following way:

"*How important is…[summary statement]*".

    This review and reformulation of categories as summary statements was

conducted by DD and DR, with further revision of the list by LT, resulting in 32 summary

statements. The remaining statements were re-analysed for relevance, and were then

grouped under 6 domains associated with implementation; leadership in healthcare

service delivery, training stakeholders in iCBT, processes and procedures for staff

delivering iCBT in services, managing the delivery of the iCBT service, attitudes and iCBT

intervention developers. A likert rating scale ranging from 1 (minimally important) to 7

(extremely important) was then chosen to allow participants to express their views

towards each of the items. There is support for the use of both ranking and rating scales

(e.g.Turoff & Linstone, 2002) within Delphi literature, and there also exists some

ambiguity regarding the impact of different rating scales on study outcome outcome (e.g.

Meyer et al., 2019; Lange et al., 2020).After each summary statement, participants were

given space to indicate any rationale they had for a specific ranking, and were also invited

to provide info at the end of the questionnaire regarding any items they believed were missing/should be added.

This list was further refined through feedback obtained from 3 members of the SilverCloud research team, all who had substantial implementation and research experience of iCBT. This was done to ensure the clarity and meaning of each summary statement, and to also evaluate whether the proposed rating scale was appropriate and acceptable. This resulted in the tailoring of language around several summary statements, and the dissolution of one domain – Attitudes – that contained two strategies relating to patient and therapist attitudes. The strategy relating patient attitudes was merged with another relating to determining patient suitability for iCBT, and the strategy regarding therapist attitudes was reformulated to be included under the determinant of "training stakeholders in iCBT". The proposed rating scale was also received positively, where it was preferred to rate items individually within the domains, as opposed to comparatively on a hierarchy. Further, it lessened the "cognitive load" of the survey, which already required respondents to provide 31 responses to statements. For example, it was reported that it was easier to rank the 31 items separately than it was to rank each of them in relation to one another in order of importance from 1 to 31. A copy of this final list is included as part of appendix 4a.

**2.4 Ethical Issues**

Ethical approval for this study was provided by the School of Psychology ethical committee at Trinity College, Dublin (SPREC112018-01). Participants were provided with a 100 euro online shopping voucher to reimburse them for the time they contributed to the study, and were made aware of this payment through the terms included in the

information sheet. No significant ethical issues were identified in regards to the data collected or procedures conducted as part of the study.

## 2.5 Data Analysis

To interpret changes across rounds, the following methodology was adapted from Holey, Feeley, Dixon & Whittaker (2007):

1. Percentage response rates were calculated for strategies in each round, which informed 'consensus on high importance' of each strategy. Consensus on high importance was conceptualised as 70% (6/9) of the sample reporting a response greater than or equal to 5 (Important or above) on any of the strategies. This definition of consensus (% agreement based on a cut-off criteria) has precedence within the literature (Diamond et al., 2014). Importantly, achieving consensus on an item was not linked to the number of study rounds, nor was it a criteria for omitting a factor from round 2. Given that participants may change their ratings on items that did not reach consensus between the first and second rounds, the current study sought to understand any rationales provided by participants, as well as create a ranked hierarchy of items that were ranked and re-ranked throughout the delphi process.

2. Mean, standard deviation, median and range of scores was calculated for each item for each round.

3. Weighted kappa was calculated using means of item responses to understand within-subjects agreement at the group level across round 1 and 2 of the study. Although there are many purported ways to measure inter-rater agreement across Delphi samples, weighted kappa was chosen due to it taking into consideration the ordinal nature of the data (Holey et al., 2007; Lange et al.,

2020). To do this, truncated mean scores (integers) were calculated for each item, and were used as the "mean agreement"for the group for each round. Weighted Kappa was conducted using linear weights, where it is assumed that distance between each of the scale points was equal (e.g distance between points 1-2 is weighted the same as that of 2-3).

4. Due to the structure of this study adhering to principles of "*n* raters rating *m* variables" on data that are ordinal, Kendall's coefficient of concordance (Kendall's W) was used to establish agreement among participants in rounds 1 and 2.

5. Qualitative rationale data from participants with 'dissenting' views (e.g. those that ranked the importance of the item < 5 on the scale) was summarised and presented for items that did not achieve consensus at the end of round 2.

6. For the addition of extra items, it was established that if a particular trend was reported by participants, it would be considered for inclusion. Each item would be evaluated by the research team for distinction and clarity against other items within the dataset before inclusion.

### 3. Results

**3.1 Quanitative Results - Overview**

Table 4.1 presents a summary of the years of implementation and research experience in iCBT that participants reported. Table 4.2 presents an overview ofthe consensus status of items, highlights which items transitioned consensus status across rounds and the means, standard deviations, medians and ranges of all items across both rounds. Within this table, items have been sorted descendingly according to their mean scores. Notably, and as observed in table 4.1, all items except item 9 observed a narrowing of standard deviations and, where participants re-rated an item, all converged

towards the illustrated mean. In round 1 and 2, 24 items achieved consensus, but some

transitioned status between rounds; items 9 and 31 achieved consensus in round 1 but

lost this status at the end of round 2, items 21 and 24 did not achieve consensus in round

1 but acquired it in round 2. 3 domains – leadership in healthcare service delivery,

processes and procedures for staff delivering iCBT and iCBT intervention developers – all

incorporated one strategy that did not reach consensus. The two domains that contained

the highest number of strategies – Managing the delivery of the iCBT service and Training

Stakeholders in iCBT – included two strategies that did not reach consensus. Appendix 4B

contains a collection of 31 tables that provide an individual item breakdown of participant

responses.

The stability of raters' responses across rounds 1 and 2 was high (weighted kappa

= .93, $p$ < .000), indicating few changes in responses between rounds and, where change

were obsered, these changes were generally within 1 point of a scale. Kendall's W at

round 1 (W = .26) and round 2 (w = .44) indicated a low, but increasing trend towards

convergence of responses across rounds. Supplementary table collection  presents

individual tables for each of the 31 items and also includes the breakdown of participant

responses across the ranking scale for each item in both rounds, as well as their

corresponding means, standard deviations, medians, and consensus status.

**Table 4.1**
*iCBT research and implementation experience reported by participants*

|  | Implementation Experience (years) | Research Experience (years) |
|---|---|---|
| Mean | 6.78 | 8.44 |
| SD | 5.45 | 5.34 |
| Median | 5 | 8 |
| Range | 2 - 20 | 4 - 20 |

**Table 4.2**

*Consensus status and descriptive statistics generated by participants (N = 9) for strategies across rounds 1 and 2.*

| Domain | Item No. | Item Text | Consensus Yes/No | Round 1 Descriptives | | | Round 2 Descriptives | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *M (SD)* | Range | Median | *M (SD)* | Range | Median |
| Leadership in healthcare service delivery | 2 | Having a management team that set clear and visible goals (e.g access targets)  for iCBT delivery within a service. | Yes | 5.89 (1.05) | 4 - 7 | 6 | 6.11 (.93) | 4 - 7 | 6 |
| | 1 | Having a management team committed to delivering iCBT within a service. | Yes | 5.89 (1.05) | 4 - 7 | 6 | 6 (1) | 4 - 7 | 6 |
| | 4 | Having a management team that develop an organisational culture that is supportive of the use and growth of iCBT | Yes | 6 (.5) | 5 - 7 | 6 | 6 (.5) | 5 - 7 | 6 |
| | 3 | Having a management team that creates opportunities for staff members to be peer leaders to support the delivery of iCBT | No* | 4.89 (1.76) | 3 - 7 | 5 | 4.89 (1.53) | 3 - 7 | 5 |
| Training stakeholders in iCBT | 5 | Initial staff training in the use of the iCBT platform and online communication by intervention developers | Yes | 5.33 (1.87) | 2 - 7 | 6 | 5.56 (1.59) | 3 - 7 | 6 |
| | 10 | Developing the core competencies (e.g. online communication) of the supporter role in iCBT by staff/peer leaders and intervention developers | Yes | 5.33 (.71) | 4 - 6 | 5 | 5.33 (.71) | 4 - 6 | 5 |

| Domain | Item No. | Item Text | Consensus Yes/No | Round 1 Descriptives | | | Round 2 Descriptives | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *M (SD)* | Range | Median | *M (SD)* | Range | Median |
| | 6 | Training clinical staff in patient monitoring and management in iCBT by staff/peer leaders | Yes | 5.22 (1.09) | 3 - 7 | 5 | 5.11 (.93) | 3 - 6 | 5 |
| | 8 | The creation of training programmes for new staff (including trainees and recently hired clinicians) in the use of iCBT by staff/peer leaders | Yes | 5.11 (1.05) | 3 - 6 | 5 | 5 (1) | 3 - 6 | 5 |
| | 7 | Ongoing staff training for iCBT service delivery by staff/peer leaders | Yes | 4.67 (1) | 3 - 6 | 5 | 4.56 (.88) | 3 - 5 | 5 |
| | 9 | The creation of complimentary online training resources (e.g. webinars and courses) by intervention developers | No** | 4.33 (1.41) | 2 - 6 | 5 | 4.22 (1.48) | 1 - 6 | 5 |
| | 11 | Training to address any historical, negative biases/attitudes from clinicians | No* | 4 (1.66) | 1 - 6 | 5 | 4.22 (1.48) | 1 - 6 | 5 |
| Processes and procedures for staff delivering iCBT | 15 | To manage service resources (staff, time) to support the delivery of iCBT | Yes | 5.56 (1.13) | 4 - 7 | 5 | 6 (.87) | 5 - 7 | 6 |
| | 12 | To gather and deliver feedback to intervention developers to improve the iCBT platform | Yes | 5.56 (.88) | 4 - 7 | 6 | 5.67 (.87) | 4 - 7 | 6 |
| | 13 | To extend clinical supervision to incorporate iCBT caseloads | Yes | 5 (.87) | 4 - 6 | 5 | 5 (.87) | 4 - 6 | 5 |

| Domain | Item No. | Item Text | Consensus Yes/No | Round 1 Descriptives | | | Round 2 Descriptives | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *M (SD)* | Range | Median | *M (SD)* | Range | Median |
| | 16 | To have regular communication to all staff on the performance of iCBT (e.g. clinical outcomes, no. of clients served) in service to support its delivery | Yes | 4.89 (1.27) | 2 - 6 | 5 | 4.78 (1.20) | 2 - 6 | 5 |
| | 14 | For line managers to set individual staff goals for iCBT delivery | No* | 3.44 (1.51) | 2 - 7 | 3 | 3.22 (.97) | 2 - 5 | 3 |
| Managing the delivery of the iCBT service | 22 | Establishing the information technology governance standards (e.g. interoperability, security) required for delivering iCBT | Yes | 6.56 (.73) | 5 - 7 | 7 | 6.89 (.33) | 6 - 7 | 7 |
| | 17 | Designing and revising care pathways to integrate iCBT within services | Yes | 6 (1.22) | 4 - 7 | 7 | 6.11 (.93) | 5 - 7 | 6 |
| | 20 | Identifying who is most suitable to receive an iCBT intervention (e.g. patient attitudes, demographics, clinical presentations) | Yes | 5.67 (.70) | 5 - 7 | 6 | 6 (.5) | 5 - 7 | 6 |
| | 21 | identifying who is suitable for a guided or an unguided intervention | Yes*** | 4.67 (1.58) | 2 - 7 | 5 | 4.89 (1.54) | 2 - 7 | 5 |

| Domain | Item No. | Item Text | Consensus Yes/No | Round 1 Descriptives | | | Round 2 Descriptives | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | M (SD) | Range | Median | M (SD) | Range | Median |
| | 24 | Healthcare managers being aware of how their iCBT service delivery aligns with government policy for mental healthcare provision | Yes*** | 4.56 (1.67) | 2 - 7 | 5 | 4.89 (1.36) | 3 - 7 | 5 |
| | 19 | Promoting iCBT to patients and other healthcare providers for referrals | Yes | 5 (.87) | 3 - 6 | 5 | 4.89 (.78) | 3 -6 | 5 |
| | 25 | Healthcare services understanding that the smooth running and implementation of iCBT takes time | No* | 4.67 (1.58) | 2 - 7 | 5 | 4.67 (1) | 3 - 6 | 5 |
| | 23 | Recognising the flexibility and scalability of iCBT for service provision (particularly in the context of situations like the COVID-19 pandemic) | Yes | 4.56 (1.74) | 1 - 7 | 5 | 4.56 (1.74) | 1 - 7 | 5 |
| | 18 | Utilising iCBT to enhance or modify treatment existing modalities (e.g. as a therapy enhancer or homework between sessions) | No* | 4.44 (1.51) | 3 - 7 | 5 | 4.33 (1.41) | 3 -7 | 5 |
| iCBT intervention developers | 26 | Have the correct team (e.g. sales, customer support, product, development) in place to support the implementation of iCBT in services | Yes | 5.56 (1.24) | 3- 7 | 6 | 6 (.71) | 5 - 7 | 6 |

| Domain | Item No. | Item Text | Consensus Yes/No | Round 1 Descriptives | | | Round 2 Descriptives | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | M (SD) | Range | Median | M (SD) | Range | Median |
| | 27 | Work with the "right people" (e.g. managers, frontline staff) across the healthcare service to successfully implement iCBT | Yes | 5.89 (1.24) | 3 - 7 | 6 | 5.89 (1.17) | 4 - 7 | 6 |
| | 30 | Manage their resources (staff, time) to implement iCBT concurrently at multiple services | Yes | 5.78 (.67) | 5 - 7 | 6 | 5.78 (.67) | 5 - 7 | 6 |
| | 29 | Demonstrate cost effectiveness when implementing iCBT in services | Yes | 5.56 (1.01) | 4 - 7 | 5 | 5.44 (.88) | 4 - 7 | 5 |
| | 28 | Disseminate best practices from successful iCBT implementations (e.g., building pathways for secondary care or severe mental illness based on success elsewhere) | Yes | 5 (1.41) | 2 - 6 | 6 | 5.11 (1.36) | 2 - 6 | 6 |
| | 31 | Communicate to service personnel new programme and platform features updates | No** | 4.33 (1.58) | 2- 6 | 5 | 4.22 (1.30) | 2 - 6 | 5 |

* item did not achieve consensus across rounds

** item transitioned from consensus to non-consensus across rounds

*** item transitioned from non-consensus to consensus across rounds.

**3.2 Qualitative Results – Addition of extra items.**

Four out of nine participants provided details as to extra items they would like to see added to the list of strategies. Briefly, the feedback related to the addition of an extra group of stakeholders within the organisation with specific responsibility for implementation, more consideration for the impact of governmental policy on iCBT implementation, more consideration for technical revisions done to iCBT, and more tailoring of the statements to specific stakeholder groups. On further discussion and analysis within the research group, it was decided to omit these items due to them being too similar to what was already proposed within this list. For example, the addition of an extra group of stakeholders was at odds with the domain "intervention developers", and not enough information was provided to develop specific items/strategies around this group. Another example related to the impact of governmental policy on iCBT was seen to be highly related to item 24, which also related to how iCBT provision aligns with governmental policy. Therefore, no items were added to the strategy list between rounds.

**3.3 Qualitative rationale summaries**

A number of participants with dissenting views provided rationales as to why they ranked an item that did not reach consensus in a certain way within round 1, and why they re-ranked or did not change their ranking within round 2. These qualitative rationales are presented below, grouped under each of the domains.

*Leadership in Healthcare service delivery*

**Item 3 - Having a management team that creates opportunities for staff members to be peer leaders to support the delivery of iCBT.** One participant with dissenting views provided a rationale for their ranking of < 5, and stated that this strategy is dependent on

others, where staff can become frsutrated if this is done and the service is not committed in other areas. For round 2, three participants with dissenting views that did not change their rankings across rounds provided rationales for this. Participants stated that they believed this item to be not as relevant as others within the strategy list, that the importance of this strategy can be dependant on the specific implementation context, and that they could see the value it could bring for clinicians and therapists individually, but not the wider service (9).

### *Training stakeholders in iCBT*

**Item 11 - Training to address any historical, negative biases/attitudes from clinicians.** Three participants with dissenting views provided rationales for their ranking in round 1. Two stated that iCBT implementation initiatives should primarily involve only those who are open or positive to ICBT use, with one participant similarly stating that it can be difficult to change attitudes through training or managerial instruction. One participant commented that this training should not be conceptualised as separate from the main training, and should form a part of overall training. In round 2, one participant who did not change their ranking in the dissenting range re-iterated that attitudes should be addressed through initial trainings and then monitored by service leaders (1). One participant increased their ranking towards the group mean, but still remained in the dissenting group, stating that they increased their ranking due to them acknowledging that negative attitudes can be a barrier to implementation.

**Item 9 - The creation of complimentary online training resources (e.g. webinars and courses) by intervention developers.** One participant provided rationale for their dissenting ranking of item 9, stating that the importance of this factor is contingent on buy-

in of the healthare service to use iCBT, where services that are not bought-in to using iCBT will not find this useful. For round 2, one participant provided rationale for decreasing their ranking, subsequently transitioning to the dissenting category stated that they were unsure whether these training resources should be developed by the intervention developers, or an internal group within the service.

### Processes and procedures for staff delivering iCBT

**Item 14 - For line managers to set individual staff goals for iCBT delivery.** Two participants provided rationales for their dissenting ranking of item 14. Participants stated that any goals set regarding the provision of iCBT and who gets it as part of treatment should always be dependant on patient presentation (1). One participant stated that, although goals are important, clinicians should have intrinsic motivations to use iCBT instead of it being used to solely satisfy service goals (9). For round 2, one participant provided a rationale for not changing their dissenting ranking, where they stated that therapists tend not to be enthusiastic about the setting of individual goals for iCBT usage (1).

### Managing the delivery of the iCBT service

**Item 18 - Utilising iCBT to enhance or modify exsisting treatment modalities (e.g. as a therapy enhancer or homework between sessions).** Three participants provided rationales for their dissenting ranking of item 18. These participants stated that patients prefer paper and pencil format for homework during therapy, that using iCBT in this way may not be possible for some services, or that using iCBT in these ways should be clearly defined within the service before it is implemented (9). For round 2, 2 participants provided rationales for not changing their ranking in round 2. For those ranking < 5, it was stated that iCBT should only be scaled to other areas of a service if there is a valid treatment need (3)

and that it should be prioritised as a standalone intervention for mild-moderate cases, with

secondary use as a therapy enhancer (5). One participant who ranked the item 5 or above

and did not change their ranking stated that using iCBT to enhance or modify existing

treatments is a good way to introduce therapists to its use (6).

**Item 25 - Healthcare services understanding that the smooth running and**

**implementation of iCBT takes time.** One participant provided a rationale fortheir dissenting

ranking of item 25, stating that it is important to mitigate false expectations in regards to

the timeframe of intervention uptake, but that there should be more description of a

process to do this (9). For round 2, one participant who did not change their dissenting

ranking stated that they believed this item to be less relevant than other strategies (6).

*iCBT Intervention Developers*

**Item 31 - Communicate to service personnel new programme and platform**

**features updates**. This item lost consensus status at the end of round 2. One participant

provided rationale for providing a dissenting ranking at round 1, stating that services who

struggle with the basics of iCBT will have little use for new programmes or features (9). For

round 2, one participant lowered their ranking, transitioning to the dissenting grouping

category. Despite this decrease, the participant still stated the item to be important as the

strategy implied creates awareness of iCBT within the service.

## 4. Discussion

### 4.1 Overview

At the current time of writing, this is the only study within the field of iCBT that has

sought to establish consensus on an empirically generated list of strategies relevant to the

implementation of iCBT within healthcare settings. The strategies that participants rated

were the result of a synthesis of two previous works; a mixed methods systematic review of

that sought to extract information relevant to the implementation of iCBT in published iCBT

literature, and a qualitative study of stakeholders involved with the implementation of iCBT.

Of the 31 strategies surveyed, 24 items achieved consensus at round 2 that represent 5

domains for consideration when implementing iCBT. Exploring this further, we will discuss

some of the highest ranked strategies, as well as those that did not achieve consensus or

transitioned consensus categories.

**4.2 Technology governance**

Technology governance (item 22) achieved the highest mean score of all strategies,

and can be posited to underly the entire iCBT initiative. In a 2015 conference paper Richards

et al. stated that iCBTs should be developed on "robust, engaging, secure and responsive

technologies", and the relevance of this statement has been highlighed in the current

results and wider literature base. Firstly, the importance of safeguarding user data is

becoming increasingly apparent, where Sampat and Prabhakar (2017) detail the large

amount of data that results from interacting with ehealth applications, e.g. lifestyle

patterns, location, reported symptoms and usage data, as well as "scraped" data resulting

from integration with other applications (e.g. calendar, user file library, camera,

microphone). This data can then be shared with any number of organisations, including

care-related (healthcare provider, insurance companies) and third party (e.g. advertisers)

organisations. In response to an increase in eHealth investment and wider global events

(e.g. Cambridge Analytica controversy (Confessore, 2018)), legislation like the General Data

Protection Regulation (GDPR; GDPR.eu, 2021.; Voigt & dem Bussche, 2017) of the European

Union was developed to provide increased protections and rights to data generated by

residents of Europe.

From a research perspective, GDPR enhances safeguards of participant data through the robust ethical requirements of governing institutions (e.g. Trinity College Dublin in ireland (Trinity College Dublin, 2021), Health Research Authority in England (Health Research Authority, 2021a, 2021b). For example, researchers are required to submit robust ethical portfolios for review, as well as data protection impact assessments that detail the data to be collected, associated risks, and subsequent mitigations that need to be put in place before participant recruitment. However, risks to patient data arise in unregulated settings or ad-hoc implementations; a systematic review by Huckvale et al. (2015) identified that 70/79 of ehealth applications contained at least one data protection vulnerability,and other work has identified that procedures around data protection are not always salient to users of these apps (Huckvale et al., 2019). The exploiting of data vulnerabilities in ehealth applications not only causes harm to patients, but can also more generally damage the reputation of these interventions within the healthcare industry (Parker et al., 2017). The high rating of this factor within our study indicates that participants are, to some extent, cognisant of these risks within ehealth and acknowledge the benefits of effective technological governance of iCBT within services.

It is also important to acknowledge that technology governance does not only apply to data protection regulation generated by iCBT within services. A recent study by Sharif-Sidi et al. (2021) illustrates how iCBTs do not operate in a technological vacuum, but in fact are implemented within systems that require its integration with other e-health technologies, like electronic health records. In this example, the authors described the ease at which iCBT could be utilised within daily practice; a software intermediary (xealth) allowed the automation of referrals to iCBT and for clinicians and therapists to be able to review patient psychometric scores through the EHR, instead of having to constantly navigate to an outside

system. However, arriving to this point is not without effort, where Graham, Lattie et al. (2020) state that any new technological processes that are integrated into an EHR workflow are required to be tested before fully implemented across a healthcare organisation. Indeed, other studies have identified that seamless integration of eHealth initiatives into a clinical workflow can increase clinician and therapist acceptance of these interventions and increase referrals, whereas barriers can arise when not integrated efficiently (Graham et al., 2020; Tossaint-Schoenmakers et al., 2021). The consensus achieved for this item within the current review positions itself within that of the previous literature, where technological governance standards provide the foundation for operationalising iCBT within routine care and allowing it to function like other routine interventions employed by a service. Going forward, it may be important to consider this strategy as the "starting point" for future implementations of iCBT.

## 4.3 Service goals vs. Individual goals

Two items present contrasting view points; item 2 (the importance of having a management team that sets goals for the use of iCBT within the service) which reached consensus and item 14 (the importance of line managers setting individual staff goals for iCBT delivery), which did not achieve consensus of importance and also received the lowest mean score. These items can be linked, where Item 2 relates to wider service goals, and item 14 represents the translation of these wider goals to specific targets for therapists working within services. Although we have few qualitative rationales to understand this low ranking of item 14 in more detail, one participant stated that therapists are often resistant to the setting of individual goals regarding their clients. Conversely, findings from the qualitative study conducted in an IAPT service in England within this thesis imply that the

setting of individual goals is highly important to the success of the service. For example, it was described how there was a 50% iCBT caseload requirement for each therapist (the individual goal set by managers), which could further be considered as the individual reflection of the wider 25% access goal mandated by the National Health Service for IAPT services (Independent Mental Health Taskforce, 2016). Perhaps, this is where the rationale for low ranking occurs; IAPT has been critiqued as a commercialisation of healthcare (Binnie, 2015; Rizq, 2011, 2012a, 2012b). For example, it has been stated that the patient centricism that underlies psychological therapies has been replaced with misconstrued "Key performance indicators" (or goals) around access targets or intervention usage, where services can structure triage/assessment sessions in a way that tricks reporting systems into believing that clients are in treatment, when in reality they are not (Binnie, 2015). Further, Rizq (2012a; 2011) states that the para-professional workforce utilised in IAPT is not sufficiently trained to identify the sometimes complex cases that present, resulting in patients being wrongfully assigned a treatment or denied services.

These misgivings may be representatitve of modern healthcare's drive towards 'efficiency', that is the push to utilise healthcare resources in the most cost-effective way (Palmer & Torgerson, 1999). For example, a qualitative study of emergency departments in England identified that healthcare professionals experienced target-driven healthcare as a means to control their time and use of their expertise, as well as placing limits on their ability to enact patient-centredness, empathy and compassion in their role (Kerasidou & Kingori, 2019). Stepped care models for mental health can also be seen as a manifestation of target-driven healthcare, where they seek to match clients with the least intrusive and most effective interventions when they first enter services, ensuring that specialised resource is time-gated based on completion of the lower-level intervention (Bennett-Levy,

Richards & Farrand, 2010). Reflecting further on the language utilised by service-based

stakeholders in the qualitative study (e.g. professional development plan, line management,

access targets) shows a resemblance to language used as part of business and project

management; e.g. Personal Development Plans, Key Performance Indicators. It may

therefore be appropriate to posit that mandating individuals goals for the use of iCBT as part

of a target-driven healthcare model is incompatible with core beliefs of psychologists, where

they are trained to provide patient-centric interventions based on client need, as opposed

to forcing a large volume of their caseload towards iCBT because management requires it.

This finding is important, and highlights the complexity and intersectionality of

implementation research with other fields; there are clear opportunities for future studies

to examine goal setting and translation in this context, which in itself is an entire body of

research that has shown relevance in the current results. At a practical level, the finding

illustrate that due consideration should be given to how acceptable iCBT and relevant

targets are to therapists who's working routine is impacted by its implementation.

**4.4 High Consensus Items**

Three further items achieved high levels of consensus; having a management team

committed to delivering iCBT within a service, identifying who is most suitable to receive an

iCBT intervention (e.g. patient attitudes, demographics, clinical presentations) and designing

and revising care pathways to integrate iCBT within services. Taken together, these items

can be summarised as having a driven team in place to ensure that the correct patients are

able to easily access iCBT. The high ranking of these items are representative of the current

literature base for both implementation science and iCBT. For example, leadership

investment is a commonly cited factor across implementation theories, models and

frameworks (e.g Aarons & Sommerfeld, 2012; Damschroder et al., 2009) and has also been

cited as a facilitator to implementation within studies of iCBT and eHealth (Hadjistavropoulos et al., 2017; Banck & Bernhardsson, 2020; Vis et al., 2018). Identifying what works best for whom in regards to attitudes (Schröder et al., 2018), demographics (e.g. Treanor, Kouvonen, Lallukka, & Donnelly, 2021) and clinical presentations (Bower et al., 2013) is constantly evaluated throughout the literature.. Regarding care pathways, the importance placed on this factor may relate to how, up until recently, iCBT was not considered by stakeholders to be a standalone treatment for mental health conditions (e.g Meisel, Drury, & Perera-Delcourt, 2018; Topooco et al., 2017). A key aspect of care pathways is that they contain *"an explicit statement of the goals and key elements of care based on evidence, best practice, and patients' expectations and their characteristics"* (Vanhaecht et al., 2010). Where iCBT is included within a care pathway, it becomes a valid treatment for a specific mental health disorder that has proven its clinical effectiveness. For example, England's National Health Service is currently undergoing a process to certify various commercial iCBTs, where digital therapies are seen as a core component of the NHS psychotherapeutic offering (Independent Mental Health Taskforce, 2016). High ranking of these items by participants illustrates that participants are aware of the issues surrounding the implementation of iCBT and recognise the strategies that are relevant to its successful use.

**4.5 Strengths & Limitations.**

Regarding study limitations, items included in this study were not added, amended or eliminated based on participant feedback. This was purposefully not done, where it was perceived by the study team that feedback provided was not detailed enough to add or amend items, and several items transitioned (e.g. oscillatory movements) consensus status

across rounds. The quality of round 2 responses may have increased if the researchers were to provide narrative summaries associated with the ranking of each item, as per Veugler et al. (2020), as part of the second round questionnaire. However, this brings with it further difficulty, where an increase in the cognitive load of the questionnaire (e.g. more information to consider) may negatively impact on the engagement of participant(Belton et al., 2021). Further, other studies have included more interactive ranking methodologies (e.g. Powell et al., 2015 – live online ranking sessions), which may have been of benefit to the current study in regards to allowing participants to present alternatives to any of the 31 strategies included. Future work should consider incorporating methods that allow for the collection of more robust, qualitative feedback regarding items to be added or amended based on participants views, and the lack of this in the current study is a recognised limitation.

Four total items transitioned between consensus or non-consensus across rounds 1 and 2, and this may be attributed to "oscillatory movements" (Holey et al., 2007; Scheibe et al., 2002). Oscillatory movements are based on the principle that, where stability of responses are high, participant re-rankings across rounds are likely to be minor and shift towards the mean in small magnitudes, as opposed to observing large shifts in random directions. This was observed for the current study, and may have had a direct implication on the results. In all but one case (item 24; see supplimentary table collection in appendix x), reported changes in ratings consisted of a one point movement on the scale, and this is further supported by our high weighted kappa coefficient. This finding constitutes constitutes a limitation within the current study; we were unable to observe whether or not items would have further transitioned consensus of importance status or further stabilised due to the study incorporating only 2 rounds. This creates difficulties when interpreting the

results of these four items, as small fluctuations in scores have placed them into either consensus or non-consensus. Therefore, further research or replication within similar samples may be required to establish whether the oscillatory movement observed is a function of having too few rounds, a lack of sample size to determine the true importance rating or middling perceptions of importance regarding these four strategies.

A limitation of the current study may include the sample size. A recent systematic review (de Loë et al., 2016) of 63 delphi studies published between 1971-2014 highlighted a variety of sample sizes; from < 10 participants to 1000+. Given the heterogeneity of acceptable sample sizes within delphi research, it is difficult to determine whether or not the sample size included was appropriate. However, further given the niche role of having academic research and routine implementation experience of iCBT, it may be the case that there is only a small population in existence to draw on for this study. Future studies may benefit from conducting multiple concurrent delphi studies with different stakeholder groups to mitigate against small sample sizes; for example, conducting three separate studies with commercial iCBT representatives who are employees of intervention developers, iCBT service providers and a group similar to the one utilised in the current Delphi study may allow for a more robust observation into what is and what is not important for the implementation of iCBT

As both a strength and limitation, the rationales provided by respondents in the study highlight the contextual nature of the identified implementation strategies. Several participants highlighted that the use and success of any specific factor is dependant on the context, for example online training initiatives were described as 'futile' in a service that is not bought into using iCBT, so other strategies should supersede this. Similarly, another participant stated that training to address negative attitudes should not occur if they do not

exist within the context. Indeed, implementation science advocates for strategies to be employed based on the specific context, which can moderate the intended effect of the strategy (Powell et al., 2019) . Certain implementation frameworks that conceptualise implementation as occuring on a phased base (e.g the Exploration, Preparation, Implementation & Sustainment framework; Aarons, Hurlburt & Horwitz, 2011) take this idea further and illustrate the relevance of an "exploration phase", where an assessment of the setting for implementation is proposed to account for any relevant variables (e.g. negative therapist attitudes towards iCBT) that may need to be considered when developing an implementation plan. Considering that the relevance of strategies may change based on context, it can be posited that importance of our identified factors may change if we were to survey participants from different healthcare models, creating a need for implementers to be cognisant of contextual nuances that may be present. This is where the limitation aspect arises in regards to context and background;. the participants included in this study were purposively sampled so that they came from countries with publicly funded health systems. If the same study were replicated with individuals coming from backgrounds in private healthcare systems, rankings may vary in their order and hierarchy. Although a minor limitation, it is believed that the experience conveyed through the rankings of the current strategies may be somewhat generalisable, and that further refinement could occur through future research in different healthcare settings

A final strength of this study is that it has presented a curated list of implementation strategies that are directly relevant to iCBT. Future iterations of this list of strategies should take into account the results obtained from participants, and how these findings can potentially be utilised to shorten the list. For example, a number of items did not achieve consensus in either round 1 or 2 (Items 3, 11, 14 and 18), which may warrant a revision or

removal of said items. Further, other items were associated with what was identified as oscillatory movement, which may require further replication in similar samples to discern whether or not this was a statistical artefact. However, the current findings present ample opportunity to be researched further in settings that are implementing iCBT.

**4.6 Conclusion**

The current work contributed to the validation, through delphi, of a list of propositions about considerations for implementation of an iCBT intervention in routine (publically financed) care. The propositions that can be used to guide an implementation of an iCBT intervention in a public health service context provision were initially drawn on the basis of the findings of a systematic mixed methods review of the literature on implementation and and a qualitative study of various stakeholders' experience of implementing and using iCBT. To our knowledge, this is the first study of its kind to conduct such an endeavour within the field of iCBT.

**Chapter 5 - General Discussion**

**1. Overview**

From early efficacy iCBT research by Selmi et al. (1990), to meta analyses establishing the utility of it to depression anxiety (Andrews et al., 2018; Richards & Richardson, 2012; Romijn et al., 2019; Wright et al., 2019), to current work in iCBT that pushes its boundaries as a science (Liem et al., 2021; Mehta et al., 2019; Watkins & Newbold, 2020; Zhou et al., 2021), it appears that iCBT has arrived at a point where real-world insights are necessary to increase its uptake within routine care. iCBT may therefore be in the era of the "phase-iv trial"; clinical trials that place emphasis on and collect data about how validated interventions work in real-world contexts (Hill, 2012). It is often the case that papers on iCBT conclude their findings with the caveat of "more implementation research is needed" (e.g. Duffy et al., 2020; Kenter et al., 2015; Mehta et al., 2019), but it is not another randomised trial to test the efficacy of an intervention that we need, but implementation science approaches so that findings generated within the field can overcome the bench-to-bedside odyssey (Drolet & Lorenzi, 2011; Hampton, 2017; van der Laan & Boenink, 2015). Further, limited studies have investigated the phenomenon of implementing iCBT, a uniquely complex intervention that sits under the umbrella of eHealth.

The current body of work has resulted in a curated list of research-informed, best practice strategies that are posited to be associated with the successful implementation of iCBT. This list has been validated through a Delphi study that included participants with substantial research and implementing experience of iCBT, suggesting the strategies have real-world validity and applicability. The identified findings both A) further and extend existing knowledge within the fields of iCBT and implementation science, and B) also have implications for the practice of iCBT. Across the following paragraphs, we will discuss these

implications. Further, where the work of this thesis was conducted through an employment-based programme, an illustration of how the work is currently being used as part of the commercial work of SilverCloud Health will be illustrated. Finally, the ultimate strengths and limitations of the work will be presented.

**2. Furthering implementation strategy research within iCBT**

Where the field of implementation science consolidated itself around the development of the "implementation science" journal in 2006 (Eccles & Mittman, 2006), implementation strategies have since remained a core area of focus within the field. In 2015, Powell et al. published their work from the Expert Recommendations for Implementing Change (ERIC) project, containing a list of 73 discrete implementation strategie. The authors rationalised the necessity of their work through previous inconsistencies within the field; terminology used in reference to implementation strategies was inconsistent and strategies were not described enough in detail to allow for replication in research or practice, both of which compound to limit the applicability of implementation research to healthcare, the field it is primarily concerned with. The precursor to Powell et al. (2015) was Powell et al. (2012), where 68 strategies were identified through a narrative synthesis of 205 published research papers. Acknowledging that the findings generated could be biased by the views of the 8-person research team, Powell et al. (2015) utilised a Delphi design to validate these strategies with 71 individuals with backgrounds in implementation and health research. The findings of this work have since been cited over 1,400 times (as per google scholar), which has undoubtedly shaped the field of implementation science in its short history.

Given the varying complexity of interventions used within the field of eHealth amd considering the rising prominence of iCBT as a method of scaling and disseminating CBT, the

current thesis can therefore be interpreted as a small-scale replication and extension of the

work of Powell et al. (2012; 2015). The current body of work proposes subject-specific

knowledge built on a foundation of science (the academic literature), practice (the

qualitative study) and expert validation (the Delphi study). Firstly, we identified the current

standard of what is reported as part of implementation within the field of iCBT through a

mixed methods systematic review. Through this study, we identified a number of

implementation insights that bare relevance for the future implementation of iCBT, such as

the impact of attitudes (from patients and clinicians/therapists), certain patient

characteristics (e.g. depression symptom severity, demographics like age, gender etc) on

iCBT usage and outcome, the superiority of guided treatments over unguided treatments,

and how research that is deemed as necessary for the future of the science of iCBT by

researchers also has implementation implications (e.g. more documentation around adverse

events, investigating mechanisms of iCBT adherence). We also identified a number of

findings within the literature that are relevant to the operation of iCBT as part of routine

service (e.g. how staff motivation, effective leadership support and the management of

workplace resources are important to consider when implementing iCBT), the importance of

training relevant supporters to be proficient in iCBT use and how well defined procedures

around the provision of iCBT important (e.g. screening criteria, defining all aspects of the

supported patient journey through iCBT).

Second, we further incorporated knowledge from key stakeholders within the field

to understand how iCBT was implemented in a high performing service. For example,

service providers that were interviewed highlighted the importance of effective leadership

in driving the iCBT implementation effort towards success, the systematic use of both

training for new hires in iCBT use and ongoing training for new iCBT developments, the

creation of appropriate work structures to facilitate therapists in their iCBT use (e.g. creating tools and templates, supporting them in their work through supervision and line management). Commercial iCBT representatives highlighted the importance of training service providers in the use of the intervention, being responsive to customer needs in order to effectively guide them through the implementation process, and how the "right people" need to be identified at all levels of the service hierarchy to promote iCBT implementation success. Patients reported positive experiences of their treatment journey, stating that the referral process, experience of their therapist supporter and the iCBT platform were beneficial to the difficulties they presented to the service with.

Lastly, acknowledging that our findings were undoubtedly structured by the experience of the research team, we sought to validate our work through a Delphi design that incorporated a panel with substantial knowledge of researching and implementing iCBT. Synthesising the findings from the previous two studies, we identified 31 strategies that were grouped under 5 domains; Leadership in iCBT delivery, training stakeholders in iCBT, processes and procedures for staff delivering iCBT, managing the delivery of the iCBT service and iCBT intervention developers. The results of the Delphi highlighted the importance of strategies relating to technological governance, having management teams committed to iCBT delivery and setting wider service goals around its use, effectively managing staff resource to delivery ICBT and integrating the intervention correctly into service pathways. Conversely, items relating to the setting of individual staff goals, utilising iCBT to enhance existing treatment modalities, training to address negative attitudes and understanding the importance of time in facilitating the implementation of iCBT were some of the items that did not meet our established consensus standards for importance, but still warrant further exploration in future studies.

In considering further the current body of work and how it relates to wider implementation literature, other authors have built upon the work of Powell et al. (2012; 2015) specifically for the field of Digital Health. For example, Graham et al. (2020) provide a list of eHealth relevant examples as to how the ERIC strategies can be applied to activities such as selecting the appropriate intervention, conducting needs assessments, operationalising clinician and therapist support and navigating the data protection issues. In their conclusion, it is acknowledged that utilising the ERIC compilation of 73 strategies can be daunting, with the resources needed to consider these strategies being a potential deterrent to their use. Therefore, they state that "*it can be critical for settings to learn how to prioritize which strategies to select*" (Graham et al., 2020). Here, we see the relevance of commercial iCBT representatives, whose work can be likened to that of an Implementation Support Practitioner (Albers, Metz, & Burke, 2020; Metz et al., 2020), to the implementation of iCBT within services. This group of individuals can navigate and identify leadership structures to drive iCBT, train stakeholders in intervention usage, assist with technology barriers and problem solve other issues for their customers, as we identified in our qualitative study. The relevance of this finding is that Implementation Support Practitioners, in the form of commercial iCBT representatives that work within the iCBT field, can ameliorate some of the resource needs that Graham et al. (2020) state may otherwise deter services from engaging with iCBT. Further, the vested interests of intervention developers (and by association, commercial iCBT representatives) as commercial entities in regards to profit generation ensures a dedication of resources towards the implementation effort, as it can result in increased profit through growth and scaling of customer accounts (Lehoux, Miller, & Daudelin, 2016; Lehoux et al., 2017)

**3. Supporting implementation theory use**

The current list of identified strategies can facilitate the use of specific theoretical models in guiding or evaluating the implementation of iCBT. Firstly, no specific implementation theory, model or framework (TMF; as per the taxonomy of Nilsen (2015)) has been advocated for use within the field of iCBT. Some tools exist to assist researchers in selecting specific TMFs for use within their research designs or real-world practice; for example, the theory comparison and selection tool (T-CaST; Birken et al., 2018) allows one or more TMFs to be compared across domains of usability, testability, applicability to context and acceptability. However, this tool implies that the researcher or practitioner undertaking the evaluation is familiar with implementation and one or more TMFs – it does not provide a list of TMFs that are best suited to a specific intervention or service type. In this regard for iCBT, the findings of this thesis may prove 'friendlier' in facilitating use and introduction to implementation theory among iCBT researchers or practitioners. For example, evaluating the specific strategies cited in the current study through an inductive approach within a given setting or context (e.g. the role of leadership in implementing iCBT in x context), and subsequently relating these findings to wider implementation literature to produce insights may be more accessible to iCBT researchers who are not specialists in implementation science as an entry point to the field. This would allow for more broader learnings and insights (e.g. relating findings to many TMFs), as opposed to settling on one specific, singular TMF. An approach such as this, where researchers explore the outcomes they achieved through evaluating these strategies for iCBT implementation to broader implementation TMFs advances the field of iCBT by allowing for a) the publishing and dissemination of more iCBT specific implementation research, b) the identification of TMFs

that have more relevance to the experience of implementing iCBT, and c) the development

of an implementation-focussed research stream within the current status-quo of the field of

iCBT that compliments the findings that arise from efficacy and effectiveness-type trials.

To give a specific example of how the strategies identified can support

implementation TMF use within the field of iCBT, one can consider Normalization Process

Theory (NPT; May & Finch, 2009). NPT seeks to understand how innovations become

embedded (or 'normalized') within routine practice and posits four constructs, of which we

will select one for illustration purposes: coherence. This construct centres around the work

that is done in services to legitimise a new intervention or innovation, such that it is

differentiated from other practices, has established working procedures around it and

individuals can clearly attribute value to it. To measure stakeholder perception of this

construct, one can use the "NoMAD" questionnaire associated with NPT (see figure 5.1

below; Finch et al., 2018; Rapley et al., 2018). When being used to guide an implementation,

actioning on the scores obtained from the NoMAD entails employing numerous strategies,

of which the current study provides several iCBT specific strategies for consideration.

Further, the research that contributed to the development of the strategy list can be

examined to gain knowledge of the granularity around each factor. For example, further

training of relevant stakeholders may be proposed to ameliorate low scores on this measure

("strongly disagree"), and users of the strategy list can return to the formative papers that

provide examples of how training has been operationalised within the iCBT literature and in

an applied example of a high-performing psychological service. Therefore, the findings of

the current work are applicable to any iCBT implementation endeavour (practice or research

based) that is guided by a specific implementation theory, where these theories often do

not provide lists of discrete strategies through which their constructs manifest. This would

not only contribute towards the development of the wider theory use in implementation

science, but also towards judging the effectiveness of any individual factor cited within the

list and it relationship to relevant theoretical constructs.

**Figure 5.1.**
*Overview of items related to the construct of 'Coherence' within the NoMAD questionnaire*

| Section C1 | | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| 1. | I can see how [the intervention] differs from usual ways of working | ◯ | ◯ | ◯ | ◯ | ◯ |
| 2. | Staff in this organisation have a shared understanding of the purpose of [the intervention] | ◯ | ◯ | ◯ | ◯ | ◯ |
| 3. | I understand how [the intervention] affects the nature of my own work | ◯ | ◯ | ◯ | ◯ | ◯ |
| 4. | I can see the potential value of [the intervention] for my work | ◯ | ◯ | ◯ | ◯ | ◯ |

**4. Future implementation research within iCBT**

Outside of the applicability of the current findings to implementation theory, this

work creates a call-to-action for future studies to test the effectiveness of specific

implementation strategies within routine clinical settings on relevant variables (Powell et al.,

2019; Kirchner et al., 2020). For example, the current work identified that the constant

involvement of leadership and management is an important driver within the

implementation of iCBT, and several strategies related to this were perceived as high

importance throughout the Delphi study. Similar to the current study, a body of qualitative

iCBT literature exists that has surveyed leaders (e.g. Van der Vaart et al., 2019; Folker et al.,

2018) or implicated their support as being important (Banck & Bernhardsson, 2020;

Hadjistavropoulous et al., 2017). However, no quantitative studies, to date, have examined

the relationship between leadership on relevant healthcare or iCBT implementation

outcomes.

An example of how our identified implementation strategies for implementing iCBT in routine care can be evaluated consists of the study conducted by Graham, Greene, et al. (2020). This study consisted of a nested evaluation that was conducted within a larger randomised control trial in a primary care setting, where patient recruitment numbers were analysed across three different recruitment pathways (direct to consumer through emails/social media etc, provider referral and miscellaneous referral pathways). In this instance, the researchers identified that the referral provider pathway had lower recruitment rates than the others due to barriers associated with a lack of integration between the electronic health record and the iCBT platform, which they were able to action on and address. Indeed, these results are important in regards to iCBT implementation insights (e.g. there needs to be integration between iCBT programme and EHR), but more importantly the trial illustrates that implementation findings relevant to real-world iCBT service provision can be generated through small evaluations nested within larger trials. Approaches such as this are applicable to iCBT RCTs that are conducted in routine care settings, where the routine data collection that occurs (e.g. recruitment rates through different pathways) can create insights that improve the iCBT service offering. Further, it also goes towards mitigating against *research waste* (Chalmers & Glasziou, 2009; Glasziou & Chalmers, 2018), where insights such as this can be identified through nested evaluations or minor additions to a larger RCT protocol in an effectiveness/real-world setting, subsequently optimising the yields from a particular study.

In light of the results of Graham, Greene et al. (2020), the results of this thesis further illustrate that there is ample opportunity for researching any one of the strategies that participants were requested to rank. For example, where participants did not rank the importance of online training resources as high, a future implementation study could test

the impact of using online training versus no online training as part of implementation-as-usual at two healthcare sites on therapist competency in iCBT. Relatedly, given that we identified 31 discrete strategies and that the qualitative study illustrated how multiple strategies are used simultaneously to drive the implementation effort, this speaks to a recognised need within then field of implementation science to test multi- versus single-strategy approaches (Powell et al., 2019). This type of research could yield further insight into what strategies or constructs are responsible for driving change on specific implementation outcomes, and whether it is the case that strategies are inter-dependent; e.g., training prospective supporters in the use of iCBT is only successful when there are appropriate goals set around the use of iCBT within the service. Therefore, from a large qualitative endeavour resulting in 31 strategies, each of these now presents a testable hypothesis that can be quantitatively explored through experimental designs that test iCBT effectiveness in routine care.

## 5. Replicability, reproducibility and stakeholder education

This work contributes to furthering the science of iCBT from a reproducibility and replicability standpoint. When iCBT transitions from efficacy to effectiveness settings, meta analyses have observed a decrease in observed effects. For example, Wright et al. (2019) cite an overall moderate effect ($g = .502$) of iCBT versus controls at post treatment in their meta analysis of iCBT for depression, but Wells et al. (2018) illustrate an overall small effect ($g = .258$) for studies conducted specifically in primary care in comparison. The term "voltage drop" was cited within the first chapter to describe this phenomenon, which is typically posited to be the result of protocol deviations in routine care. However, when considering the 8 papers included in the meta analysis of Wells et al. (2018) from an implementation perspective, it would be impossible or difficult for another research group

to effectively replicate the methodology or procedures conducted in these studies. Indeed, the design type could be deployed elsewhere (e.g. feasibility, randomised control trial), but the "why" of choosing procedures associated with the design, the "how" of implementing them, and an understanding of other facilitating/hindering factors within the given service context is missing. Given the findings from this thesis and knowledge present within the field of implementation science, it is more than appropriate to suggest that exploring the "why" and the "how" are key in mitigating against this voltage drop. Although it is important to take into account that the purpose of the trials included in the study of Wells et al. (2019) was not to evaluate their implementation, making this information available through research is nonetheless important in creating impact for the real-world practice of psychological service provision.

This lack of reporting may be further compounded by the fact that randomised trials of iCBT, including effectiveness trials in primary care settings (e.g. Newby et al., 2013; Nordgren et al., 2014; Richards et al., 2020), have traditionally been CONSORT for eHealth compliant (Eysenbach et al., 2011). This has ensured that trials are rigorous and robust, and that we can be confident that iCBT does produce clinical benefits for patients. However, this has also resulted in little space for the reporting of factors relevant to the aforementioned phase-iv trials, as it is not required by nor is it the focus of CONSORT. A lack of implementation research within the field of iCBT limits the impact of any relevant research finding, where this type of information contributes to understanding of what is and is not useful when applying novel research insights to clinical contexts (Lewis & Wai, 2021). Further, when factors associated with the implementation of iCBT are reported on poorly, incorrectly, or even omitted, it can create issues around a perceived lack of effectiveness,

when in fact the outcomes achieved may be a direct result of choices made during the implementation (e.g. in the case of Gilbody et al., 2015).

To generate more implementation research to support the growing efficacy and effectiveness iCBT literature base, it may be plausible to suggest the development of implementation trial reporting guidelines for eHealth, similar to CONSORT, which would ensure the appropriate reporting of implementation findings. This would be beneficial for three main reasons; 1) it would increase the replicability and reproducibility of both effectiveness and implementation research through the standardised reporting of "how" an intervention was implemented within a clinical context, 2) may increase overall interest in implementation due to the availability of guidelines to structure reports and 3) would further understanding about which aspects of implementation are most important or efficient within a specific context through robust reporting and trialling. For example, the current body of work may comprise a first step in the testing of implementation strategies for iCBT under these guidelines, where it offers a list of empirical strategies that researchers can apply or use to guide the implementation of their effectiveness research designs. The ultimate outcome of this effort would be the education of the wider iCBT community about which strategies are most resource efficient and effective at achieving the intended patient outcome in a given context, subsequently improving patient care.

Making implementation information more widely available throughout the scientific literature may also impact on the uptake of evidence-based practice with the ultimate intended users of these research findings – healthcare services, therapists and clinicians. In exploring this issue of providing stakeholders with the information they need to increase novel intervention uptake, Premachandra & Lewis (2021) explored the question of "Do we report the information that is necessary to give psychology away?" through a scoping

review. The authors identified 56 papers, subsequently coding them under the domains of the Reach-Effectiveness-Adoption-Implementation-Maintenance model of Glasgow et al. (1999). Under the 5 RE-AIM constructs, the authors identified 36 evaluative questions. Using this analytic framework they identified that the paper with the highest category coverage only covered 23 of the 36 categories. Further, the domains of "implementation " and "maintenance" were the most poorly reported on out of the five, where the majority of implementation information reported on dosage of the intervention, and maintenance information was only reported on in 1 paper.

Our mixed methods systematic review highlighted similar findings for iCBT; few papers contributed to all identified categories, there was an over-representation of certain categories (e.g. screening and inclusion criteria for accessing iCBT, the provision of support in iCBT), and few papers referenced findings relevant to staff and operational considerations for its implementation. In light of the current thesis and that of Premachandra & Lewis (2021), we can conclude that we do not report the information that is necessary to give iCBT away to the intended users of our research findings. Extending the conclusion of the previous paragraph, reporting on the generated implementation strategies within future research may increase the reach and impact of our findings to professional audiences who are charged with translating research to practice. This thesis works towards this aim by providing a list of implementation strategies that can be utilised when contemplating implementation in routine care, and further clarity on more granular strategies can be obtained by referring to the two composite studies that informed this list. It is important that iCBT, as a field, recognises the value of disseminating implementation information for the benefit of real-world practice.

**6. Implementation and commercial entities**

It is worth noting that, in the delphi study chapter, we discussed some of the complexities associated with the implementation of iCBT being advocated for by commercial entities, and this cannot be understated. During the COVID-19 period, billions of dollars were cited to have been invested in the eHealth industry (Cohen et al., 2020; Micca et al., 2021), with the recency of this implying an increase in the number of entities that will be operating within this space over the coming years. Numerous commercial iCBT companies already exist across the world (e.g. SilverCloud Health, Ginger-Headspace, Minddistrict) and, where more arise, this can create a number of competing interests as companies seek to gain market share in this space (Greenhalgh et al., 2017). There can be heterogeneity and variances in systematicity across companies and how they implement, resulting in ad-hoc procedures that can create differences in infrastructure across services. For example, as part of "locking-in" customers, commercial iCBT companies may develop technical solutions that appear attractive to services during the implementation process (Kane, 2011; Pine, 2015) but may limit their ability to work with other eHealth companies should the original company cease trading or substantially increase their pricing.

In their illustration of how venture capitalists influence medical innovations, Lehoux et al. (2016) warn that the goal of venture capitalists is "*not so much to foster the creation of innovation, but to extract economic value from innovative firms and technologies*". Therefore, it may not be in the interests of commercial iCBT companies to facilitate the implementation of their interventions, where their goal is to produce something "sellable", in contrast to helping services achieve the intended value of the intervention (Lehoux, Miller, Daudelin, & Urbach, 2016). If existing problems within the field of iCBT (e.g. implementation) are seen as secondary, then the explosion of this market due to

investment may only exacerbate these issues, to the eventual detriment of healthcare services. Where intervention developers and commercial iCBT representatives can bring benefit to services through innovative applications of their technologies and are illustrated positively within the current findings, it is important that services make implementation demands of those they work with so implementation becomes a part of how these companies convey their value.

**7. COVID-19 and iCBT**

The qualitative study conducted as part of this thesis took place during the high period of COVID-19 (March-August 2020). In this regard, an unanticipated finding, when reflecting on what the study originally set out to explore, relates to how COVID-19 has caused an increase in the use of iCBT due to a cessation of face-to-face services, and therapists who would not have used iCBT previously have now been exposed to it. Indeed, it has already been highlighted how the pandemic has negatively affected global mental health (Holmes et al., 2020; Torales et al., 2020). Torales et al. (2020) illustrate the varying mental health needs of stakeholder groups within society that deal with the new realities enforced by the COVID-19 pandemic. For example, they state that periods of isolation due to infection can cause and exacerbate mental health distress, healthcare professionals are suffering from mental ill health due to what the situation is demanding of them and individuals within the community are dealing with psychological distress due to a barrage of rapidly changing information and uncertainty. eHealth and digital interventions have been recognised as key in the treatment of the inevitable increase in mental health difficulties in these stakeholder groups due to COVID-19 (Druss et al., 2021; Taylor et al., 2020; Torous & Wykes, 2020; Wind et al., 2020). Building on this, a survey by Kinoshita et al. (Kinoshita et

al., 2020) showed that a number of countries have deregulated their legislation around telehealth use, which has facilitated (by necessity) its uptake in health systems and has also opened up insurance reimbursement opportunities.

Given the emphasis on the utility of iCBT and eHealth within the COVID-19 period and its deregulation, it is worth warning prospective services that the implementation of such interventions is complicated. Theories, models and frameworks within the field would posit that implementing iCBT requires a change in how people work (May & Finch, 2009), for it to be useable by the staff using it (Greenhalgh et al., 2017) and to give due consideration to the impact of inner (e.g. attitudes, opinion leaders, work structures) and outer (funding sources, perspectives of referring professionals/organisations) contextual factors that impact on its use (Aarons et al., 2011; Damschroder et al., 2009; Nilsen & Bernhardsson, 2019). This rapid uptake of iCBT and related eHealth interventions due to COVID may therefore have the opposite of the intended effect; the improper implementation, or lack of allocating resources to these interventions may result in healthcare providers having a negative experience, and subsequently abandoning iCBT and eHealth initiatives (Greenhalgh et al., 2017; Chambers, Glasgow & Stange, 2013). This concern was echoed by a commercial iCBT representative in the qualitative study, where they stated that the intervention developer was highly interested in understanding what will make iCBT "*sticky*" post COVID-19. The results of the current thesis will most likely not be a guiding light for iCBT in this period of uncertainty within healthcare, but it can provide an accessible list of strategies for consideration when implementing iCBT. If it is even the case that it allows for stakeholders within a service to acknowledge and consider the complexity of the problem they face, then that is undoubtedly better than a negative experience resulting from a poor implementation.

**8. Applied Example – Mobilising research findings within SilverCloud Health.**

This PhD project was undertaken as part of the Irish Research Council's Employment-Based Postgraduate Programme. As per the terms of this scholarship, the thesis author retained full employment with the employment partner, SilverCloud health, for the duration of the project. Throughout the course of this project, several progress presentations were given internally to relevant departments (e.g. customer success, product development) to inform issues around the implementation of the SilverCloud suite of products. For financial year 2022, a workstream titled "Activations and Engagement" was identified and set as a company-wide goal for each employee to work towards. With this workstream, the company acknowledged that factors within and outside the SilverCloud platform can impact on patient and service provider uptake of iCBT. The strategy list produced as part of this project was therefore recognised as a tool that could be used to analyse and improve existing processes within the team when implementing, and also as a way to identify variables to be collected when the implementation team (customer success; CS) works with customers.

To begin this work, a cross-departmental collaboration between the research and product teams was started, and consisted of 8 individuals (3 researchers, 5 product designers). The strategy list was reviewed by this group, with an aim to reformulate each strategy into one or more variables (implementation-related outcomes) that could be accounted for within the customer success management platform. The vision for this collaboration was that, as CS conducts their implementations of iCBT, they could begin to integrate these new variables into their workflow and use them to structure discussions during monthly customer calls. Similarly, other areas of the company had already been doing work towards creating a benchmarking system for clinical outcomes that customers

could use to set goals around the levels of symptom reduction to expect with their patients.

The implementation strategy list was seen as complimentary to this ongoing work, where

the team hypothesised that if these new variables were acted upon (e.g. making sure

training was ongoing, customers set goals around the benchmarked outcomes), it would

create value for both customers and the company. Table 5.1 on the next page illustrates an

example of how some of the strategies from the Delphi study were reformulated into

variables for CS managers to collect data on.

**Table 5.1**

*Translation of strategies to variables and outcomes for use by the implementation team at SilverCloud Health.*

| Strategy | Reformulated Variable (strategy) | CSM Measurement (outcome) |
|---|---|---|
| Having a management team committed to delivering iCBT within a service. | 1) Member of management team has been identified to be responsible for the implementation initiative<br><br>2) CS Manager perception of management team commitment<br><br>3) responsible person name, position and contact details | 1) Categorical: Yes/No/In Progress<br><br>2) Categorical: high, middle, low<br><br>3) Text |
| Having a management team that set clear and visible goals (e.g access targets)  for iCBT delivery within a service. | 1) Goals/KPIs been set for iCBT delivery at the site<br><br>2) Qualifier: Link to customer goals on CSM system | 1) Categorical: Yes/No/In Progress<br><br>2) Text (link) |
| Designing and revising care pathways to integrate iCBT within services | 1) Current care pathways have been revised or new pathways designed to integrate iCBT within services<br><br>2) Target population is identified (inclusion/exclusion criteria)<br><br>3) Onboarding barriers have been brainstormed with relevant stakeholders at the site<br><br>4) Qualifier: Link to sharepoint documents detailing service design | 1) Categorical: Yes/No/In Progress<br><br>2) Categorical: Yes/No/In Progress<br><br>3) Categorical: Yes/No/In Progress<br><br>4) Text (link) |
| Initial staff training in the use of the iCBT platform and online communication by intervention developers | 1) Post-training survey has been conducted<br><br>2) Qualifier: Link to sharepoint dataset for post-training survey (data on clinician competence and confidence) | 1) Categorical: Yes/No/In Progress<br><br>2) Text (link) |

When reformulating the strategies, specific categorical, scale or text-based implementation outcomes associated with each strategy were proposed. Once the initial reformulation was conducted, CS managers in England and America were asked to recount their experience of new customers according to the implementation outcomes identified. Both CS managers stated that this endeavour was bringing structure to an informal process; it was acknowledged that CS collects this information in an ad-hoc or non-standardised way, and this approach would allow for the documenting of implementation outcomes. Further, once this procedure was adopted, it was stated that it would be possible to integrate the resulting data with large, de-identified datasets owned by the company to discern whether any of the identified variables produced an impact on patient engagement with iCBT or clinical outcomes (e.g. depression or anxiety). It was also recognised that, initially, this may create an increased volume of workload for CS managers working with customers. However, over time and with further analysis, it was anticipated that the list of variables to be gathered could be shortened and refined. This work is currently on-going within SilverCloud Health, and it is anticipated that routine collection of this information will be commenced in the first quarter of 2022.

Of relevance to the above paragraphs is that the studies that formed a part of this thesis will be published (the MMSR, qualitative and Delphi studies). Where the above paragraphs illustrated the contribution that this thesis brought to SilverCloud Health, a single commercial entity working within the domain of iCBT, the findings of this work also have relevance to other companies that work in the digital health market. In other sections of this thesis, we have stated that iCBT is a complex intervention due to how its components interact with numerous structures and stakeholders within the health system, and other digital mental health interventions may have similar levels of complexity. Where the

findings of this thesis may not be wholly transferable to other commercial interventions,

they may go towards building capacity and awareness within these entities in regards to the

significant amount of work needed to translate their evidence-based interventions into

routine care (Chambers et al., 2020)

## 9. Conclusion - Strengths & Limitations

Where the strengths and limitations of each individual study have been discussed

within their respective chapters, these paragraphs will consider the strengths and

limitations of the work overall. Firstly, the current project contributes to a gap within the

field of iCBT. The field of iCBT has an abundance of studies that support the effectiveness of

these interventions, but there exists a gap in regards to the few studies that investigate the

implementation of iCBT. Where each of the empirical chapters in this study represents an

opportunity to publish in peer-reviewed journals, this thesis further contributes to a niche of

growing importance.

The qualitative approach taken by this thesis provides a baseline level of knowledge

about the implementation of iCBT for depression and anxiety is the overall strength of this

work. Within implementation research, qualitative research captures how stakeholders

within healthcare settings work, think and behave with regards to healthcare innovation

(Hamilton & Finley, 2019). Similar to the current work, qualitative approaches have been

utilised to inform seminal works within the field of implementation science, including the

CFIR (Damschroder et al., 2009), Theoretical Domains Framework (Michie et al., 2005) and

Diffusion of Innovations (Greenhalgh et al., 2004). These cited works were initially built on

qualitative syntheses of empirical and theoretical research or interview/focus-group

research involving relevant stakeholders, resulting in an initial science proposition that have

seen the subsequent TMFs validated and refined over the years.

However, it is important that the findings from this thesis do not *remain* qualitative. Implementation research of iCBT is sparse, and papers that investigate implementation do so through a qualitative (e.g. Folker et al., 2018; Hadjistavropoulous et al., 2017; Banck & Bernhardsson, 2020; Van der Vaart et al., 2019) or illustrative lens (e.g. Titov et al., 2018; Titov et al., 2019). Research in iCBT that takes a quantitative or mixed-methods approach to evaluating the impact of specific strategies or factors on implementation outcomes, or utilises theory to structure quantitative trial design or analysis is lacking. For example, studies such as Graham et al. (2020), where the authors used a mixed-methods approach to evaluate 3 different eHealth referral pathways, provides the field with relevant trial design (e.g. what pathways produce the most participants) and practice (e.g. technology issues with electronic referral) insights. As stated previously, the factor list identified as part of this work provides a potential list of 31 testable hypotheses, and mixed-method evaluations of these will allow for robust conclusions to be made on their effectiveness (or lack thereof).

Related to the previous limitation, a further limitation of the current work consists of the lack of re-translation of the findings to clinical settings. Where the current factor-list was the result of a synthesis of empirical and practice-based information that was validated by experts, we did not test or employ the list as part of a quantitative design. This can also be seen to relate to the points made in the qualitative study discussion section regarding the cited importance of leadership in implementation science, yet its mechanisms of action are poorly understood from a quantitative perspective. Similarly, it may be the case that where the strategies we identified have been implicated to be important, this importance may diminish pending the outcomes from further evaluations. This limitation places further emphasis on the need for future quantitative evaluations of these strategies to support or refute the knowledge this work has generated.

A final limitation relates to the representativeness of the overall work. As a first step towards identifying relevant strategies associated with the implementation of iCBT in routine care, it is important to acknowledge that health systems across the world vary in their structures and norms. Bauer and Kirchner (2020) state that implementation research actively engages with the context of interest to either optimise it (e.g. addressing aspects of organisational culture that inhibit novel intervention uptake) or adapt the intervention to better suit it (e.g. changing how components of an intervention are administered). Given that the current work was generated based on research and real-world experience from western, publicly funded health systems, its applicability to other types of health systems may need to be investigated further. For example, privately funded health systems (e.g. the USA) may report different experiences of implementation (e.g. issues or more detailed experiences regarding reimbursement or costings), and may also have ranked the identified strategies differently based on this experience. Relatedly, focussing specifically on the experience of low-middle income countries in regards to the implementation of iCBT may have unearthed a completely different set of strategies that are relevant to its implementation in this context. Therefore, as with all implementation efforts, there is a need to replicate this body of work in multiple varying contexts to understand how the generated strategies may manifest, and identify any context-specific strategies that may be missing. Until this work is achieved, the findings must be interpreted with the caveat that certain strategies may need to be tailored based on the nuances inherent in different health system contexts.

**10. Reflexivity Statement**

This thesis has afforded me the opportunity to immerse myself in a large amount of qualitative data, relevant to the implementation of iCBT, across three studies. Where the mixed methods systematic review was conducted simultaneously with the qualitative study, I observed just how complicated the implementation of iCBT was in practice, versus the fragmented way in which it is reported within the literature. Whenever I would see new trials of iCBT published in effectiveness settings, I would continuously question whether or not similar effects would be observed through internally-driven service evaluations. In other words, what would happen when the group of researchers evaluating the intervention departed from the setting, and routine staff were left to fend for themselves? I believe that this critical eye was fostered through the conduct of both the MMSR and qualitative study, and made me recognise just how void the scientific literature was of information that could be used to translate research findings to practice. This culminated in my biggest learning: iCBT is a complex intervention that can be deployed in multiple ways, and we know little to nothing about the procedures that occur around it "in the wild". Given the complexity of iCBT, the field needs a concerted effort to further the understanding of its implementation. However, this thesis contributes to a base level of knowledge that I believe will be useful for the conduct of future trials, and also for studies examining their subsequent implementation within services.

The approach to analysing the qualitative data from the MMSR and qualitative study, the descriptive-interpretive method(Elliott & Timulak, 2021), was appropriate for the design of this thesis. Firstly, as a method of analysis it provides a clear-cut way to set out on a qualitative endeavour, define domains of interest and subsequently sort and categorise your data. From an ontological perspective, it allowed me to "own" my position as a

researcher working for a commercial entity within this project, where the D&I approach

acknowledges the inevitability of the background of the researcher influencing the data in

one way or another. For example, when conducting the qualitative interviews with both the

service providers and commercial iCBT representative stakeholder groups, there may have

been strands of inquiry that I was able to follow due to my relation to the subject area.

Similarly, my unique position as a commercial researcher afforded me access to the

populations I wanted to study, and allowed me to build on an existing commercial

relationship with the high-performing service implicated in the qualitative study.

Beyond the D&I approach, I did struggle with the largely qualitative nature of this

thesis. When first approaching the analysis, I naively thought that reading and listening to

the interviews would be the most time consuming effort. However, the subsequent

identification of meaning units under each domain, categorising of these and re-reviewing

each meaning unit to ensure category fit and relevance felt never-ending. The burden of this

"mental load" in regards to naming the categories and findings that I identified was slightly

ameliorated in the MMSR, where a member of the research team at SilverCloud assisted in

this effort. However, the analysis of the qualitative study was the most difficult endeavour

that I faced throughout this project. There was a constant struggle between maintaining a

level of granularity through the identification of sub-categories, and acknowledging when

the granularity was less relevant in conveying the overall message of larger categories. In

this instance, I believe my position as a commercial researcher was potentially detrimental; I

saw relevance in every single meaning unit and was unable to "see the wood from the

trees"*[1]. DR, the second supervisor in this project and enterprise mentor, was key in providing guidance during this phase through numerous auditing sessions to tease out meaning and relevance from the data. Further, being able to present my findings to colleagues on the research team and engage with them for feedback was also valuable, where it allowed me to take a step back and talk about my findings at a global level as they emerged.

A thought that has stayed with me throughout this entire thesis was "is this enough? Should I have done more?". Although this question is undoubtedly a source of anxiety for many PhD students, I believe that the work proposed throughout this thesis is original and of relevance to iCBT, in terms of its science and practice, and to the field of implementation science. Indeed, given more resources and a hyper-extended time schedule, I could have interviewed more services at different points of their implementation or reached out to other commercial iCBT representatives within the commercial field. When I reflect on this, I acknowledge that my findings are in no way definitive or wholly representative of the field. They do, however, provide opportunity for further research.

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[1] *Collins dictionary defines this saying as being too involved in something so you are unable to recognise the importance of the thing as a whole.

**Bibliography**

Aarons, G. A., Moullin, J. C., & Ehrhart, M. G. (2018). The role of organizational processes in dissemination and implementation research. In R. C. Brownson, G. Colditz, & E. K. Proctor (Eds.), *Dissemination and implementation research in health: translating science to practice* (2nd Editio, pp. 121–142). Oxford University Press.

Aarons, Gregory A., Ehrhart, M. G., & Farahnak, L. R. (2014). The implementation leadership scale (ILS): Development of a brief measure of unit level implementation leadership. *Implementation Science*, *9*(1), 1–10. https://doi.org/10.1186/1748-5908-9-45/TABLES/3

Aarons, Gregory A., Ehrhart, M. G., Farahnak, L. R., & Hurlburt, M. S. (2015). Leadership and organizational change for implementation (LOCI): A randomized mixed method pilot study of a leadership and organization development intervention for evidence-based practice implementation. *Implementation Science*, *10*(1), 1–12. https://doi.org/10.1186/s13012-014-0192-y

Aarons, Gregory A., Hurlburt, M., & Horwitz, S. M. C. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Administration and Policy in Mental Health and Mental Health Services Research*, *38*(1), 4–23. https://doi.org/10.1007/s10488-010-0327-7

Aarons, Gregory A., & Sommerfeld, D. H. (2012). Leadership, Innovation Climate, and Attitudes toward Evidence-Based Practice during a Statewide Implementation. *Journal of the American Academy of Child and Adolescent Psychiatry*, *51*(4), 423–431. https://doi.org/10.1016/J.JAAC.2012.01.018

Abbafati, C., Abbas, K. M., Abbasi-Kangevari, M., Abd-Allah, F., Abdelalim, A., Abdollahi, M., Abdollahpour, I., Abegaz, K. H., Abolhassani, H., Aboyans, V., Abreu, L. G., Abrigo, M. R. M., Abualhasan, A., Abu-Raddad, L. J., Abushouk, A. I., Adabi, M., Adekanmbi, V., Adeoye, A. M., Adetokunboh, O. O., … Wiangkham, T. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease

Study 2019. *The Lancet*, *396*(10258), 1204–1222. https://doi.org/10.1016/S0140-

6736(20)30925-9/ATTACHMENT/96EE692B-E8A2-4D2B-AB04-5A9B1490A107/MMC2E.PDF

Alaoui, S. El, Ljótsson, B., Hedman, E., Kaldo, V., Andersson, E., Rück, C., Andersson, G., & Lindefors,

N. (2015). Predictors of symptomatic change and adherence in internet-based cognitive

behaviour therapy for social anxiety disorder in routine psychiatric care. *PLoS ONE*, *10*(4), 1–18.

https://doi.org/10.1371/journal.pone.0124258

Albers, B., Metz, A., & Burke, K. (2020). Implementation support practitioners- A proposal for

consolidating a diverse evidence base. *BMC Health Services Research*, *20*(1), 1–10.

https://doi.org/10.1186/S12913-020-05145-1/TABLES/1

Albers, B., Metz, A., Burke, K., Bührmann, L., Bartley, L., Driessen, P., & Varsi, C. (2020).

Implementation Support Skills: Findings From a Systematic Integrative Review. *Research on

Social Work Practice*. https://doi.org/10.1177/1049731520967419

Alberts, B., Kirschner, M. W., Tilghman, S., & Varmus, H. (2014). Rescuing US biomedical research

from its systemic flaws. *Proceedings of the National Academy of Sciences of the United States

of America*, *111*(16), 5773–5777. https://doi.org/10.1073/pnas.1404402111

Alonso, J., Liu, Z., Evans-Lacko, S., Sadikova, E., Sampson, N., Chatterji, S., Abdulmalik, J., Aguilar-

Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Bruffaerts, R., Cardoso, G., Cia, A., Florescu, S., de

Girolamo, G., Gureje, O., Haro, J. M., He, Y., de Jonge, P., … Thornicroft, G. (2018). Treatment

gap for anxiety disorders is global: Results of the World Mental Health Surveys in 21 countries.

*Depression and Anxiety*. https://doi.org/10.1002/da.22711

Andersson, G. (2010). The promise and pitfalls of the internet for cognitive behavioral therapy. In

*BMC Medicine* (Vol. 8, Issue 1, p. 82). BioMed Central. https://doi.org/10.1186/1741-7015-8-82

Andersson, G., Berg, M., Riper, H., Huppert, J. D., & Titov, N. (2020). The possible role of internet-

delivered psychological interventions in relation to the covid-19 pandemic. *Clinical Psychology

in Europe*, *2*(3), 0–3. https://doi.org/10.32872/cpe.v2i3.3941

Andersson, G., Bergström, J., Holländare, F., Carlbring, P., Kaldo, V., & Ekselius, L. (2005). Internet-

based self-help for depression: Randomised controlled trial. *British Journal of Psychiatry*, *187*(NOV.), 456–461. https://doi.org/10.1192/bjp.187.5.456

Andersson, G., Carlbring, P., & Cuijpers, P. (2010). Internet interventions: Moving from efficacy to effectiveness. *E-Journal of Applied Psychology*, *5*(2). https://doi.org/10.7790/ejap.v5i2.169

Andersson, G., & Cuijpers, P. (2008). Pros and cons of online cognitive–behavioural therapy. *The British Journal of Psychiatry*, *193*(4), 270–271. https://doi.org/10.1192/BJP.BP.108.054080

Andersson, G., & Cuijpers, P. (2009). Internet-based and other computerized psychological treatments for adult depression: A meta-analysis. *Cognitive Behaviour Therapy*, *38*(4), 196–205. https://doi.org/10.1080/16506070903318960

Andersson, G., & Hedman, E. (2013). Effectiveness of guided internet-based cognitive behavior therapy in regular clinical settings. *Verhaltenstherapie*, *23*(3), 140–148. https://doi.org/10.1159/000354779

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

Andrade, L. H., Alonso, J., Mneimneh, Z., Wells, J. E., Al-Hamzawi, A., Borges, G., Bromet, E., Bruffaerts, R., De Girolamo, G., De Graaf, R., Florescu, S., Gureje, O., Hinkov, H. R., Hu, C., Huang, Y., Hwang, I., Jin, R., Karam, E. G., Kovess-Masfety, V., … Kessler, R. C. (2014). Barriers to mental health treatment: Results from the WHO World Mental Health surveys. *Psychological Medicine*, *44*(6), 1303–1317. https://doi.org/10.1017/S0033291713001943

Andrews, G., Basu, A., Cuijpers, P., Craske, M. G., McEvoy, P., English, C. L., & Newby, J. M. (2018). Computer therapy for the anxiety and depression disorders is effective, acceptable and practical health care: An updated meta-analysis. In *Journal of Anxiety Disorders* (Vol. 55, pp. 70–78). Elsevier Ltd. https://doi.org/10.1016/j.janxdis.2018.01.001

Andrews, & Williams, A. D. (2015). Up-scaling clinician assisted internet cognitive behavioural therapy (iCBT) for depression: A model for dissemination into primary care. *Clinical Psychology*

*Review*, *41*, 40–48. https://doi.org/10.1016/j.cpr.2014.05.006

Atkins, L., Francis, J., Islam, R., O'Connor, D., Patey, A., Ivers, N., Foy, R., Duncan, E. M., Colquhoun, H., Grimshaw, J. M., Lawton, R., & Michie, S. (2017). A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science*, *12*(1), 77. https://doi.org/10.1186/s13012-017-0605-9

Balas, E. A., & Boren, S. A. (2000). Managing Clinical Knowledge for Health Care Improvement. *Yearbook of Medical Informatics*, *09*(01), 65–70. https://doi.org/10.1055/s-0038-1637943

Bandelow, B., Michaelis, S., & Wedekind, D. (2017). Treatment of anxiety disorders. *Dialogues in Clinical Neuroscience*, *19*(2), 93. https://doi.org/10.31887/DCNS.2017.19.2/BBANDELOW

Bauer, M. S., Damschroder, L., Hagedorn, H., Smith, J., & Kilbourne, A. M. (2015). An introduction to implementation science for the non-specialist. *BMC Psychology*, *3*(1), 1–12. https://doi.org/10.1186/S40359-015-0089-9

Bauer, M. S., & Kirchner, J. A. (2020). Implementation science: What is it and why should I care? *Psychiatry Research*, *283*, 112376. https://doi.org/10.1016/J.PSYCHRES.2019.04.025

Beidas, R. S., & Kendall, P. C. (2010). Training Therapists in Evidence-Based Practice: A Critical Review of Studies From a Systems-Contextual Perspective. *Clinical Psychology : A Publication of the Division of Clinical Psychology of the American Psychological Association*, *17*(1), 1. https://doi.org/10.1111/J.1468-2850.2009.01187.X

Belton, I., Wright, G., Sissons, A., Bolger, F., Crawford, M. M., Hamlin, I., Taylor Browne Lūka, C., & Vasilichi, A. (2021). Delphi with feedback of rationales: How large can a Delphi group be such that participants are not overloaded, de-motivated, or disengaged? *Technological Forecasting and Social Change*, *170*, 120897. https://doi.org/10.1016/J.TECHFORE.2021.120897

Bennett-Levy, J., Richards, D. A., & Farrand, P. (2010). Low intensity CBT interventions: a revolution in mental health care. *Oxford Guide to Low Intensity CBT Interventions*, 3–18. https://doi.org/10.1093/med:psych/9780199590117.003.0001

Bennett, G. G., & Glasgow, R. E. (2009). The Delivery of Public Health Interventions via the Internet:

Actualizing Their Potential. *Annual Review of Public Health*, *30*(1), 273–292.

https://doi.org/10.1146/annurev.publhealth.031308.100235

BigHealth. (2021). *BigHealth - "We believe evidence is a duty, not a chore."*

https://www.bighealth.com/research/

Binnie, J. (2015). Do you want therapy with that? A critical account of working within IAPT. *Mental*

*Health Review Journal*, *20*(2), 79–83. https://doi.org/10.1108/MHRJ-11-2014-0044/FULL/XML

Birken, S. A., Powell, B. J., Shea, C. M., Haines, E. R., Alexis Kirk, M., Leeman, J., Rohweder, C.,

Damschroder, L., & Presseau, J. (2017). Criteria for selecting implementation science theories

and frameworks: results from an international survey. *Implementation Science*, *12*(1), 124.

https://doi.org/10.1186/s13012-017-0656-y

Birken, S. A., Rohweder, C. L., Powell, B. J., Shea, C. M., Scott, J., Leeman, J., Grewe, M. E., Alexis Kirk,

M., Damschroder, L., Aldridge, W. A., Haines, E. R., Straus, S., & Presseau, J. (2018). T-CaST: an

implementation theory comparison and selection tool. *Implementation Science*, *13*(1), 143.

https://doi.org/10.1186/s13012-018-0836-4

Bower, P., & Gilbody, S. (2005). Stepped care in psychological therapies: access, effectiveness and

efficiency: Narrative literature review. *The British Journal of Psychiatry*, *186*(1), 11–17.

https://doi.org/10.1192/BJP.186.1.11

Bower, P., Kontopantelis, E., Sutton, A., Kendrick, T., Richards, D. A., Gilbody, S., Knowles, S.,

Cuijpers, P., Andersson, G., Christensen, H., Meyer, B., Huibers, M., Smit, F., Van Straten, A.,

Warmerdam, L., Barkham, M., Bilich, L., Lovell, K., & Liu, E. T. H. (2013). Influence of initial

severity of depression on effectiveness of low intensity interventions: meta-analysis of

individual patient data. *BMJ*, *346*(7899). https://doi.org/10.1136/BMJ.F540

Braithwaite, J., Churruca, K., Long, J. C., Ellis, L. A., & Herkes, J. (2018). When complexity science

meets implementation science: A theoretical and empirical analysis of systems change. *BMC*

*Medicine*, *16*(1), 1–14. https://doi.org/10.1186/s12916-018-1057-z

Brantnell, A., Woodford, J., Baraldi, E., van Achterberg, T., & von Essen, L. (2020). Views of

implementers and nonimplementers of internet-administered cognitive behavioral therapy for

depression and anxiety: Survey of primary care decision makers in Sweden. *Journal of Medical*

*Internet Research*, *22*(8). https://doi.org/10.2196/18033

Cadarette, S. M., Ban, J. K., Consiglio, G. P., Black, C. D., Dubins, D., Marin, A., & Tadrous, M. (2017).

Diffusion of Innovations model helps interpret the comparative uptake of two methodological

innovations: co-authorship network analysis and recommendations for the integration of novel

methods in practice. *Journal of Clinical Epidemiology*, *84*, 150–160.

https://doi.org/10.1016/J.JCLINEPI.2016.12.006

Cairney, P., Nilsen, P., Ståhl, C., & Roback, K. (2013). Never The Twain Shall Meet? - a Comparison of

Implementation Science and Policy Implementation Research. *Implementation Science*, *8*(63),

1–12.

Campbell, S. M., Hann, M., Roland, M. O., Quayle, J. A., & Shekelle, P. G. (1999). The effect of panel

membership and feedback on ratings in a two-round Delphi survey: results of a randomized

controlled trial. *Medical Care*, 964–968.

Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework for use

in behaviour change and implementation research. *Implementation Science*, *7*(1), 37.

https://doi.org/10.1186/1748-5908-7-37

Cavanagh, K., Shapiro, D. A., van Den Berg, S., Swain, S., Barkham, M., & Proudfoot, J. (2009). The

acceptability of computer-aided cognitive behavioural therapy: A pragmatic study. *Cognitive*

*Behaviour Therapy*, *38*(4), 235–246. https://doi.org/10.1080/16506070802561256

Cavanagh, K., Shapiro, D. A., Van Den Berg, S., Swain, S., Barkham, M., & Proudfoot, J. (2006). The

effectiveness of computerized cognitive behavioural therapy in routine care. *British Journal of*

*Clinical Psychology*, *45*(4), 499–514. https://doi.org/10.1348/014466505X84782

CFIR Research Team. (2019). *The Consolidated Framework for Implementation Research | Technical*

*Assistance for users of the CFIR framework*. https://cfirguide.org/

Chalmers, I., & Glasziou, P. (2009). Avoidable waste in the production and reporting of research

evidence. *The Lancet*, *374*(9683), 86–89. https://doi.org/10.1016/S0140-6736(09)60329-9

Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: Addressing the paradox of sustainment amid ongoing change. *Implementation Science*, *8*(1), 1–11. https://doi.org/10.1186/1748-5908-8-117/TABLES/3

Chambers, D. A., Pintello, D., & Juliano-Bult, D. (2020). Capacity-building and training opportunities for implementation science in mental health. *Psychiatry Research*, *283*, 112511. https://doi.org/10.1016/J.PSYCHRES.2019.112511

Chan, S. R., Torous, J., Hinton, L., & Yellowlees, P. (2014). Mobile Tele-Mental Health: Increasing Applications and a Move to Hybrid Models of Care. *Healthcare 2014, Vol. 2, Pages 220-233*, *2*(2), 220–233. https://doi.org/10.3390/HEALTHCARE2020220

Chien, I., Enrique, A., Palacios, J., Regan, T., Keegan, D., Carter, D., Tschiatschek, S., Nori, A., Thieme, A., Richards, D., Doherty, G., & Belgrave, D. (2020). A Machine Learning Approach to Understanding Patterns of Engagement With Internet-Delivered Mental Health Interventions. *JAMA Network Open*, *3*(7), e2010791–e2010791. https://doi.org/10.1001/JAMANETWORKOPEN.2020.10791

Cho, Y., wang, J., & Lee, D. (2012). Identification of effective opinion leaders in the diffusion of technological innovation: A social network approach. *Technological Forecasting and Social Change*, *79*(1), 97–106. https://doi.org/10.1016/J.TECHFORE.2011.06.003

Christensen, H., Griffiths, K., & others. (2007). Reaching standards for dissemination: a case study. *Studies in Health Technology and Informatics*, *129*(1), 459.

Clark, D. M., Canvin, L., Green, J., Layard, R., Pilling, S., & Janecka, M. (2018). Transparency about the outcomes of mental health services (IAPT approach): an analysis of public data. *The Lancet*, *391*(10121), 679–686. https://doi.org/10.1016/S0140-6736(17)32133-5

Clark, D. M., Layard, R., Smithies, R., Richards, D. A., Suckling, R., & Wright, B. (2009). Improving access to psychological therapy: Initial evaluation of two UK demonstration sites. *Behaviour Research and Therapy*, *47*(11), 910–920. https://doi.org/10.1016/j.brat.2009.07.010

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsch, N., Brown, J. S. L., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, *45*(1), 11–27. https://doi.org/10.1017/S0033291714000129

Cohen, D., Hung, A., Weinberg, E., & Dandi, Z. (2020, December 1). Healthtech in the fast lane: What is fueling investor excitement? *McKinsey & Company Reports*. https://www.mckinsey.com/industries/life-sciences/our-insights/healthtech-in-the-fast-lane-what-is-fueling-investor-excitement

Colditz, G., & Emmons, K. (2018). The Promise and Challenges of Dissemination and Implementation Research. In R. C. Brownson, G. Colditz, & E. Proctor (Eds.), *Dissemination and Implementation Research in Health - Translating Science to Practice* (2nd Editio, pp. 1–18). Oxford University Press.

Collins, S., Byrne, M., Hawe, J., & O'Reilly, G. (2018). Evaluation of a computerized cognitive behavioural therapy programme, MindWise (2.0), for adults with mild-to-moderate depression and anxiety. *British Journal of Clinical Psychology*, *57*(2), 255–269. https://doi.org/10.1111/BJC.12165

Confessore, N. (2018, April 4). Cambridge Analytica and Facebook: The Scandal and the Fallout So Far. *The New York Times*. https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html

Corrigan, P. W., Druss, B. G., & Perlick, D. A. (2014). The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest, Supplement*, *15*(2), 37–70. https://doi.org/10.1177/1529100614531398

Corscadden, L., Levesque, J. F., Lewis, V., Strumpf, E., Breton, M., & Russell, G. (2018). Factors associated with multiple barriers to access to primary care: An international analysis. *International Journal for Equity in Health*, *17*(1), 1–10. https://doi.org/10.1186/S12939-018-0740-1/FIGURES/5

Cuijpers, P., Andersson, G., Donker, T., & Van Straten, A. (2011). Psychological treatment of

depression: Results of a series of meta-analyses.

*Https://Doi.Org/10.3109/08039488.2011.596570*, *65*(6), 354–364.

https://doi.org/10.3109/08039488.2011.596570

Cuijpers, P., Berking, M., Andersson, G., Quigley, L., Kleiboer, A., & Dobson, K. S. (2013). A meta-

analysis of cognitive-behavioural therapy for adult depression, alone and in comparison with

other treatments. *Canadian Journal of Psychiatry*, *58*(7), 376–385.

https://doi.org/10.1177/070674371305800702

Cuijpers, P., Cristea, I. A., Karyotaki, E., Reijnders, M., & Huibers, M. J. H. (2016). How effective are

cognitive behavior therapies for major depression and anxiety disorders? A meta-analytic

update of the evidence. *World Psychiatry*, *15*(3), 245–258. https://doi.org/10.1002/WPS.20346

Cuijpers, P., Sijbrandij, M., Koole, S. L., Andersson, G., Beekman, A. T., & Reynolds, C. F. (2013). The

efficacy of psychotherapy and pharmacotherapy in treating depressive and anxiety disorders: a

meta-analysis of direct comparisons. *World Psychiatry*, *12*(2), 137–148.

https://doi.org/10.1002/WPS.20038

Cullen, K. (2018). *eMental Health State-of-the-art & Opportunities for Ireland*.

https://www.mentalhealthreform.ie/wp-content/uploads/2018/04/Mental-Health-in-Primary-

Care-in-Ireland1.pdf

Cummings, J. R., Wen, H., Ko, M., & Druss, B. G. (2013). Geography and the Medicaid Mental Health

Care Infrastructure: Implications for Health Care Reform. *JAMA Psychiatry*, *70*(10), 1084–1090.

https://doi.org/10.1001/JAMAPSYCHIATRY.2013.377

Dalkey, N. C. (1967). *Delphi*. Rand Corp. Santa Monica CA.

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009).

Fostering implementation of health services research findings into practice: a consolidated

framework for advancing implementation science. *Implementation Science*, *4*(1), 50.

https://doi.org/10.1186/1748-5908-4-50

David, D., & Cristea, I. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Journal of Evidence-Based Psychotherapies*, *18*(SEPT), 1–17. https://doi.org/10.3389/fpsyt.2018.00004

David, D., Cristea, I., & Hofmann, S. G. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Frontiers in Psychiatry*, *9*(JAN), 4. https://doi.org/10.3389/fpsyt.2018.00004

de Loë, R. C., Melnychuk, N., Murray, D., & Plummer, R. (2016). Advancing the State of Policy Delphi Practice: A Systematic Review Evaluating Methodological Evolution, Innovation, and Opportunities. *Technological Forecasting and Social Change*, *104*, 78–88. https://doi.org/10.1016/j.techfore.2015.12.009

De Meyer, D., Kottner, J., Beele, H., Schmitt, J., Lange, T., Van Hecke, A., Verhaeghe, S., & Beeckman, D. (2019). *Delphi procedure in core outcome set development: rating scale and consensus criteria determined outcome selection*. https://doi.org/10.1016/j.jclinepi.2019.03.011

Dedehayir, O., Ortt, R. J., Riverola, C., & Miralles, F. (2019). *Innovators and Early Adopters in the Diffusion of Innovations: A Literature Review*. 85–115. https://doi.org/10.1142/9781786347602_0004

Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology*, *67*(4), 401–409. https://doi.org/10.1016/j.jclinepi.2013.12.002

Drolet, B. C., & Lorenzi, N. M. (2011). Translational research: understanding the continuum from bench to bedside. *Translational Research*, *157*(1), 1–5. https://doi.org/10.1016/J.TRSL.2010.10.002

Drozd, F., Vaskinn, L., Bergsund, H. B., Haga, S. M., Slinning, K., & Bjørkli, C. A. (2016). The implementation of internet interventions for depression: A scoping review. *Journal of Medical Internet Research*, *18*(9), 1–18. https://doi.org/10.2196/jmir.5670

Drucker, P. (2012). *Management*. Routledge.

Druss, B. G., Cohen, A. N., Brister, T., Cotes, R. O., Hendry, P., Rolin, D., Torous, J., Ventura, J., &

Gorrindo, T. (2021). Supporting the Mental Health Workforce During and After COVID-19.

*Https://Doi.Org/10.1176/Appi.Ps.202000509*, *72*(10), 1222–1224.

https://doi.org/10.1176/APPI.PS.202000509

Duffy, D., Enrique, A., Connell, S., Connolly, C., Richards, D., Gega, L., & Borgeat, F. (2020). *Internet-*

*Delivered Cognitive Behavior Therapy as a Prequel to Face-To-Face Therapy for Depression and*

*Anxiety: A Naturalistic Observation*. https://doi.org/10.3389/fpsyt.2019.00902

Eccles, M. P., & Mittman, B. S. (2006). Welcome to Implementation Science. *Implementation Science*,

*1*(1), 1. https://doi.org/10.1186/1748-5908-1-1

El Alaoui, S., Hedman, E., Kaldo, V., Hesser, H., Kraepelien, M., Andersson, E., Rück, C., Andersson, G.,

Ljótsson, B., & Lindefors, N. (2015). Effectiveness of Internet-based cognitive–behavior therapy

for social anxiety disorder in clinical psychiatry. *Journal of Consulting and Clinical Psychology*,

*83*(5), 902–914.

https://elib.tcd.ie/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&A

N=2015-22651-001&site=ehost-live

Elliott, R., & Timulak, L. (2021). *Essentials of descriptive-interpretive qualitative research: A generic*

*approach*. American Psychological Association *.* https://doi.org/10.1037/0000224-000

Enrique, A., Duffy, D., Lawler, K., Richards, D., & Jones, S. (2020). An internet-delivered self-

management programme for bipolar disorder in mental health services in Ireland: Results and

learnings from a feasibility trial. *Clinical Psychology & Psychotherapy*, *27*(6), 925–939.

https://doi.org/10.1002/CPP.2480

Enrique, A., Mooney, O., Salamanca-Sanabria, A., Lee, C. T., Farrell, S., & Richards, D. (2020).

Assessing the Efficacy and Acceptability of a Web-Based Intervention for Resilience Among

College Students: Pilot Randomized Controlled Trial (Preprint). *JMIR Formative Research*.

https://doi.org/10.2196/20167

Enrique, A., Palacios, J. E., Ryan, H., & Richards, D. (2019). Exploring the Relationship Between Usage

and Outcomes of an Internet-Based Intervention for Individuals With Depressive Symptoms:

Secondary Analysis of Data From a Randomized Controlled Trial. *J Med Internet Res*

*2019;21(8):E12775 Https://Www.Jmir.Org/2019/8/E12775*, *21*(8), e12775.

https://doi.org/10.2196/12775

Eysenbach, G. (2001). What is e-health? *Journal of Medical Internet Research*, *3*(2), 1–5.

https://doi.org/10.2196/JMIR.3.2.E20

Eysenbach, G., Stoner, S., Drozd, F., Blankers, M., Crutzen, R., Tait, R., Mohr, D., Evans, D., Kok, R.,

Chumnanvej, S., Kooprasertying, P., Anthony, S., Kivuti, L. W., Hambly, K., Aarts, J. W. M., Prins,

J., de la Torre, I., Cook, R., Jung, B. C., … Bewick, B. (2011). CONSORT-EHEALTH: Improving and

Standardizing Evaluation Reports of Web-based and Mobile Health Interventions. *J Med*

*Internet Res 2011;13(4):E126 Https://Www.Jmir.Org/2011/4/E126*, *13*(4), e1923.

https://doi.org/10.2196/JMIR.1923

Finch, T. L., Girling, M., May, C. R., Mair, F. S., Murray, E., Treweek, S., McColl, E., Steen, I. N., Cook,

C., Vernazza, C. R., Mackintosh, N., Sharma, S., Barbery, G., Steele, J., & Rapley, T. (2018).

Improving the normalization of complex interventions: Part 2 - Validation of the NoMAD

instrument for assessing implementation work based on normalization process theory (NPT) 17

Psychology and Cognitive Sciences 1701 Psychology. *BMC Medical Research Methodology*,

*18*(1), 1–13. https://doi.org/10.1186/S12874-018-0591-X/TABLES/9

Fink, A., Kosecoff, J., Chassin, M., & Brook, R. H. (1984). Consensus methods: characteristics and

guidelines for use. *American Journal of Public Health*, *74*(9), 979–983.

Fish, L. S., & Busby, D. M. (1996). The delphi method. *Research Methods in Family Therapy*, 469–482.

Folker, A. P., Mathiasen, K., Lauridsen, S. M., Stenderup, E., Dozeman, E., & Folker, M. P. (2018).

Implementing internet-delivered cognitive behavior therapy for common mental health

disorders: A comparative case study of implementation challenges perceived by therapists and

managers in five European internet services. *Internet Interventions*, *11*, 60–70.

https://doi.org/10.1016/j.invent.2018.02.001

Frank, H. E., Becker-Haimes, E. M., & Kendall, P. C. (2020). Therapist training in evidence-based interventions for mental health: A systematic review of training approaches and outcomes. *Clinical Psychology: Science and Practice*, *27*(3), e12330. https://doi.org/10.1111/CPSP.12330

Friesen, L. N., Hadjistavropoulos, H. D., & Pugh, N. E. (2014). A qualitative examination of psychology graduate students' experiences with guided Internet-delivered cognitive behaviour therapy. *Internet Interventions*, *1*(2), 41–48. https://doi.org/10.1016/J.INVENT.2014.04.001

Gadolin, C., & Andersson, T. (2017). Healthcare quality improvement work: a professional employee perspective. *International Journal of Health Care Quality Assurance*, *30*(5), 410–423. https://doi.org/10.1108/IJHCQA-02-2016-0013/FULL/XML

Gaglio, B., Shoup, J. A., & Glasgow, R. E. (2013). The RE-AIM framework: a systematic review of use over time. *American Journal of Public Health*, *103*(6), e38-46. https://doi.org/10.2105/AJPH.2013.301299

GDPR.eu. (n.d.). *General Data Protection Regulation*. 2021. Retrieved November 5, 2021, from https://gdpr.eu/tag/gdpr/?cn-reloaded=1

Gilbody, S., Littlewood, E., Hewitt, C., Brierley, G., Tharmanathan, P., Araya, R., Barkham, M., Bower, P., Cooper, C., Gask, L., Kessler, D., Lester, H., Lovell, K., Parry, G., Richards, D. A., Andersen, P., Brabyn, S., Knowles, S., Shepherd, C., … White, D. (2015). Computerised cognitive behaviour therapy (cCBT) as treatment for depression in primary care (REEACT trial): Large scale pragmatic randomised controlled trial. *The BMJ*, *351*. https://doi.org/10.1136/bmj.h5627

Glasgow, R. E., Klesges, L. M., Dzewaltowski, D. A., Estabrooks, P. A., & Vogt, T. M. (2006). Evaluating the impact of health promotion programs: Using the RE-AIM framework to form summary measures for decision making involving complex issues. *Health Education Research*, *21*(5), 688–694. https://doi.org/10.1093/her/cyl081

Glasgow, R. E., Phillips, S. M., & Sanchez, M. A. (2014). Implementation science approaches for integrating eHealth research into practice and policy. *International Journal of Medical*

*Informatics*, *83*(7), e1–e11. https://doi.org/10.1016/j.ijmedinf.2013.07.002

Glasgow, R. E., Vogt, T. M., Boles, S. M., & Glasgow, E. (1999). *Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework* (Vol. 89, Issue 9). www.ori.

Glasziou, P., & Chalmers, I. (2018). Research waste is still a scandal- A n essay by Paul Glasziou and Iain Chalmers. *The BMJ*, *363*. https://doi.org/10.1136/bmj.k4645

Goldacre, B. (2014). *Bad pharma: how drug companies mislead doctors and harm patients*. Macmillan.

Goldsmith, M. R., Bankhead, C. R., & Austoker, J. (2007). Synthesising quantitative and qualitative research in evidence-based patient information. *Journal of Epidemiology and Community Health*, *61*(3), 262. https://doi.org/10.1136/JECH.2006.046110

Graham, A. K., Greene, C. J., Powell, T., Lieponis, P., Lunsford, A., Peralta, C. D., Orr, L. C., Kaiser, S. M., Alam, N., Berhane, H., Kalan, O., & Mohr, D. C. (2020). Lessons learned from service design of a trial of a digital mental health service: Informing implementation in primary care clinics. *Translational Behavioral Medicine*, *10*(3), 598–605. https://doi.org/10.1093/tbm/ibz140

Graham, A. K., Lattie, E. G., Powell, B. J., Lyon, A. R., Smith, J. D., Schueller, S. M., Stadnick, N. A., Brown, C. H., & Mohr, D. C. (2020). Implementation strategies for digital mental health interventions in health care settings. *American Psychologist*, *75*(8), 1080–1092. https://doi.org/10.1037/amp0000686

Grant, J., Cottrell, R., Fawcett, G., & Cluzeau, F. (2000). Evaluating "payback" on biomedical research from papers cited in clinical guidelines: applied bibliometric study. *BMJ*, *320*(7242), 1107–1111. https://doi.org/10.1136/BMJ.320.7242.1107

Green, L. W., Ottoson, J. M., García, C., & Hiatt, R. A. (2009). Diffusion Theory and Knowledge Dissemination, Utilization, and Integration in Public Health. *Annual Review of Public Health*, *30*(1), 151–174. https://doi.org/10.1146/annurev.publhealth.031308.100049

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2008). *Diffusion of innovations in health service organisations: a systematic literature review*. John Wiley & Sons.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Quarterly*, *82*(4), 581–629. https://doi.org/10.1111/j.0887-378X.2004.00325.x

Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Fahy, N., Procter, R., & Shaw, S. (2017). Beyond adoption: A new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies. *Journal of Medical Internet Research*, *19*(11). https://doi.org/10.2196/jmir.8775

Hadjistavropoulos, H. D., Nugent, M. M., Dirkse, D., & Pugh, N. (2017). Implementation of internet-delivered cognitive behavior therapy within community mental health clinics: A process evaluation using the consolidated framework for implementation research. *BMC Psychiatry*, *17*(1), 331. https://doi.org/10.1186/s12888-017-1496-7

Hadjistavropoulos, Heather D., Peynenburg, V., Thiessen, D. L., Nugent, M., Karin, E., Staples, L., Dear, B. F., & Titov, N. (2021). Utilization, Patient Characteristics, and Longitudinal Improvements among Patients from a Provincially Funded Transdiagnostic Internet-delivered Cognitive Behavioural Therapy Program: Observational Study of Trends over 6 Years: Utilisation, caractéristiqu. *Canadian Journal of Psychiatry*. https://doi.org/10.1177/07067437211006873

Ham, C., Kipping, R., & McLeod, H. (2003). Redesigning Work Processes in Health Care: Lessons from the National Health Service. *The Milbank Quarterly*, *81*(3), 415. https://doi.org/10.1111/1468-0009.T01-3-00062

Hamilton, A. B., & Finley, E. P. (2019). Qualitative methods in implementation research: An introduction. *Psychiatry Research*, *280*, 112516. https://doi.org/10.1016/J.PSYCHRES.2019.112516

Hampton, T. (2017). Bench to Bedside and Back Again May Be Key to Clinical Breakthroughs. *JAMA*, *318*(1), 16–17. https://doi.org/10.1001/JAMA.2017.7276

Harvey, G., Fitzgerald, L., Fielden, S., McBride, A., Waterman, H., Bamford, D., Kislov, R., & Boaden, R. (2011). The NIHR collaboration for leadership in applied health research and care (CLAHRC) for Greater Manchester: combining empirical, theoretical and experiential evidence to design and evaluate a large-scale implementation strategy. *Implementation Science*, *6*(1), 96.

Harvey, G., & Kitson, A. (2015). PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice. *Implementation Science*, *11*(1), 33. https://doi.org/10.1186/s13012-016-0398-2

Health Research Authority. (2021a). *Planning and Improving Research*. https://www.hra.nhs.uk/planning-and-improving-research/

Health Research Authority. (2021b). *Research Ethics Service*. Research Ethics Service and Research Ethics Committees. https://www.hra.nhs.uk/about-us/committees-and-services/res-and-recs/

Health Service Executive of Ireland. (2021). *Counseling in Primary Care (CIPC)*. https://www.hse.ie/eng/services/list/4/mental-health-services/counsellingpc/

United States Department of Health. (2016). National projections of supply and demand for selected behavioral health practitioners: 2013-2025. In *Rockville, Maryland. Retreived from: https://bhw. hrsa. gov/sites/default/files/bhw/healthworkforce-analysis/research/projections/behavioral-health2013-2025. pdf*.

Hello Better. (2021). *Hello Better - Research*. https://hellobetter.de/forschung/

Henderson, C., Evans-Lacko, S., & Thornicroft, G. (2013). Mental illness stigma, help seeking, and public health programs. *American Journal of Public Health*, *103*(5), 777–780. https://doi.org/10.2105/AJPH.2012.301056

Hermes, E., Burrone, L., Perez, E., Martino, S., & Rowe, M. (2018). Implementing Internet-Based Self-Care Programs in Primary Care: Qualitative Analysis of Determinants of Practice for Patients and Providers. *JMIR Ment Health 2018;5(2):E42 Https://Mental.Jmir.Org/2018/2/E42*, *5*(2), e9600. https://doi.org/10.2196/MENTAL.9600

Herschell, A. D., Kolko, D. J., Baumann, B. L., & Davis, A. C. (2010). The Role of Therapist Training in

the Implementation of Psychosocial Treatments: A Review and Critique with

Recommendations. *Clinical Psychology Review*, *30*(4), 448.

https://doi.org/10.1016/J.CPR.2010.02.005

Higgs, M. (2009). The Good, the Bad and the Ugly: Leadership and Narcissism., *9*(2), 165–178.

https://doi.org/10.1080/14697010902879111

Hill, T. P. (2012). Conducting Phase IV clinical studies: a moral imperative? *Ecancermedicalscience*,

*6*(1). https://doi.org/10.3332/ECANCER.2012.276

Hillard, M. (2021, August 4). Concerns raised over impact of year-long child psychology waiting lists.

*Irish Times*. https://www.irishtimes.com/news/health/concerns-raised-over-impact-of-year-

long-child-psychology-waiting-lists-1.4639123

Hilty, D., Chan, S., Torous, J., Luo, J., & Boland, R. (2020). A Framework for Competencies for the Use

of Mobile Technologies in Psychiatry and Medicine: Scoping Review. *JMIR Mhealth Uhealth

2020;8(2):E12229 Https://Mhealth.Jmir.Org/2020/2/E12229*, *8*(2), e12229.

https://doi.org/10.2196/12229

Hilty, D. M., Chan, S., Torous, J., Luo, J., & Boland, R. J. (2019). A Telehealth Framework for Mobile

Health, Smartphones, and Apps: Competencies, Training, and Faculty Development. *Journal of

Technology in Behavioral Science 2019 4:2*, *4*(2), 106–123. https://doi.org/10.1007/S41347-

019-00091-0

Hilty, D. M., Torous, J., Parish, M. B., Chan, S. R., Xiong, G., Scher, L., & Yellowlees, P. M. (2021). A

Literature Review Comparing Clinicians' Approaches and Skills to In-Person, Synchronous, and

Asynchronous Care: Moving Toward Competencies to Ensure Quality Care.

*Https://Home.Liebertpub.Com/Tmj*, *27*(4), 356–373. https://doi.org/10.1089/TMJ.2020.0054

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The Efficacy of Cognitive

Behavioral Therapy: A Review of Meta-analyses. *Cognitive Therapy and Research 2012 36:5*,

*36*(5), 427–440. https://doi.org/10.1007/S10608-012-9476-1

Holey, E. A., Feeley, J. L., Dixon, J., & Whittaker, V. J. (2007). An exploration of the use of simple

statistics to measure consensus and stability in Delphi studies. *BMC Medical Research Methodology*, *7*(1), 1–10. https://doi.org/10.1186/1471-2288-7-52/TABLES/12

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Cohen Silver, R., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., … Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, *7*(6), 547–560. https://doi.org/10.1016/S2215-0366(20)30168-1

Hong, Q. N., Pluye, P., Bujold, M., & Wassef, M. (2017). Convergent and sequential synthesis designs: implications for conducting and reporting systematic reviews of qualitative and quantitative evidence. *Systematic Reviews*, *6*(1), 61. https://doi.org/10.1186/S13643-017-0454-2/TABLES/6

Hsu, C.-C., & Sandford, B. A. (2007). The Delphi technique: making sense of consensus. *Practical Assessment, Research, and Evaluation*, *12*(1), 10.

Huckvale, K., Prieto, J. T., Tilney, M., Benghozi, P. J., & Car, J. (2015). Unaddressed privacy risks in accredited health and wellness apps: A cross-sectional systematic assessment. *BMC Medicine*, *13*(1), 1–13. https://doi.org/10.1186/S12916-015-0444-Y/TABLES/4

Huckvale, K., Torous, J., & Larsen, M. E. (2019). Assessment of the Data Sharing and Privacy Practices of Smartphone Apps for Depression and Smoking Cessation. *JAMA Network Open*, *2*(4), e192542–e192542. https://doi.org/10.1001/JAMANETWORKOPEN.2019.2542

Independent Mental Health Taskforce. (2016). *The Five Year Forward View for Mental Health*. https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf

Irish College of GPs. (2006). *Guidelines for the Management of Depression and Anxiety Disorders in Primary Care*. https://www.icgp.ie/speck/properties/asset/asset.cfm?type=Document&id=F7357072-19B9-E185-8305B57017FC7D0D&property=document&filename=GuidelinesontheManagementofDepressi

on.pdf&revision=tip&mimetype=application%2Fpdf&app=icgp&disposition=inline

Jardine, J., Earley, C., Richards, D., Timulak, L., Palacios, J. E., Duffy, D., Tierney, K., & Doherty, G.

(2020). *The Experience of Guided Online Therapy: A Longitudinal, Qualitative Analysis of Client*

*Feedback in a Naturalistic RCT*. https://doi.org/10.1145/3313831.3376254

Johansson, R., Sjöberg, E., Sjögren, M., Johnsson, E., Carlbring, P., Andersson, T., Rousseau, A., &

Andersson, G. (2012). Tailored vs. Standardized Internet-Based Cognitive Behavior Therapy for

Depression and Comorbid Symptoms: A Randomized Controlled Trial. *PLoS ONE*, *7*(5), e36905.

https://doi.org/10.1371/journal.pone.0036905

Jorm, A. F. (2015). Using the Delphi expert consensus method in mental health research. *Australian*

*and New Zealand Journal of Psychiatry*, *49*(10), 887–897.

https://doi.org/10.1177/0004867415600891

Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership.

*Journal of Applied Psychology*, *85*(5), 751.

Kadesjö Banck, J., & Bernhardsson, S. (2020). Experiences from implementation of internet-delivered

cognitive behaviour therapy for insomnia in psychiatric health care: A qualitative study

applying the NASSS framework. *BMC Health Services Research*, *20*(1), 1–14.

https://doi.org/10.1186/S12913-020-05596-6/TABLES/1

Kadu, M. K., & Stolee, P. (2015). Facilitators and barriers of implementing the chronic care model in

primary care: A systematic review. *BMC Family Practice*, *16*(1), 1–14.

https://doi.org/10.1186/S12875-014-0219-0/TABLES/4

Kane, J. (2011). Hospital IT challenges: is SOA the cure? *Swiss Medical Informatics*, *27*(73), 19–22.

Karyotaki, E., Kemmeren, L., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., Mira, A., Mackinnon,

A., Meyer, B., Botella, C., Littlewood, E., Andersson, G., Christensen, H., Klein, J. P., Schröder, J.,

Bretón-López, J., Scheider, J., Griffiths, K., Farrer, L., … Cuijpers, P. (2018). *Is self-guided*

*internet-based cognitive behavioural therapy (iCBT) harmful? An individual participant data*

*meta-analysis*. https://doi.org/10.1017/S0033291718000648

Karyotaki, E., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., Mira, A., MacKinnon, A., Meyer, B.,

    Botella, C., Littlewood, E., Andersson, G., Christensen, H., Klein, J. P., Schröder, J., Bretón-López,

    J., Scheider, J., Griffiths, K., Farrer, L., Huibers, M. J. H., … Cuijpers, P. (2017). Efficacy of self-

    guided internet-based cognitive behavioral therapy in the treatment of depressive symptoms a

    meta-analysis of individual participant data. *JAMA Psychiatry*, *74*(4), 351–359.

    https://doi.org/10.1001/jamapsychiatry.2017.0044

Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: ten lessons from using the

    Delphi technique in nursing research. *Journal of Advanced Nursing*, *53*(2), 205–212.

    https://doi.org/10.1111/J.1365-2648.2006.03716.X

Kenter, R. M. F., van de Ven, P. M., Cuijpers, P., Koole, G., Niamat, S., Gerrits, R. S., Willems, M., &

    van Straten, A. (2015). Costs and effects of Internet cognitive behavioral treatment blended

    with face-to-face treatment: Results from a naturalistic study. *Internet Interventions*, *2*(1), 77–

    83. https://doi.org/10.1016/j.invent.2015.01.001

Kerasidou, A., & Kingori, P. (2019). Austerity measures and the transforming role of A&E

    professionals in a weakening welfare system. *PLOS ONE*, *14*(2), e0212314.

    https://doi.org/10.1371/JOURNAL.PONE.0212314

Kierkegaard, P. (2013). eHealth in Denmark: A Case Study. *Journal of Medical Systems 2013 37:6*,

    *37*(6), 1–10. https://doi.org/10.1007/S10916-013-9991-Y

King, D. K., Glasgow, R. E., & Leeman-Castillo, B. (2010). Reaiming RE-AIM: using the model to plan,

    implement, and evaluate the effects of environmental change approaches to enhancing

    population health. *American Journal of Public Health*, *100*(11), 2076–2084.

    https://doi.org/10.2105/AJPH.2009.190959

Kinoshita, S., Cortright, K., Crawford, A., Mizuno, Y., Yoshida, K., Hilty, D., Guinart, D., Torous, J.,

    Correll, C. U., Castle, D. J., Rocha, D., Yang, Y., Xiang, Y. T., Kølbæk, P., Dines, D., Elshami, M.,

    Jain, P., Kallivayalil, R., Solmi, M., … Kishimoto, T. (2020). Changes in telepsychiatry regulations

    during the COVID-19 pandemic: 17 countries and regions' approaches to an evolving healthcare

landscape. *Psychological Medicine*, 1–8. https://doi.org/10.1017/S0033291720004584

Kirk, M. A., Kelley, C., Yankey, N., Birken, S. A., Abadie, B., & Damschroder, L. (2016). A systematic

review of the use of the Consolidated Framework for Implementation Research.

*Implementation Science*, *11*(1), 72. https://doi.org/10.1186/s13012-016-0437-z

Klein, K. J., & Sorra, J. S. (1996). The Challenge of Innovation Implementation.

*Https://Doi.Org/10.5465/Amr.1996.9704071863*, *21*(4), 1055–1080.

https://doi.org/10.5465/AMR.1996.9704071863

Kohn, R., Ali, A. A., Puac-Polanco, V., Figueroa, C., López-Soto, V., Morgan, K., Saldivia, S., & Vicente,

B. (2018). Mental health in the Americas: an overview of the treatment gap. *Revista

Panamericana de Salud Pública*, *42*, e165. https://doi.org/10.26633/RPSP.2018.165

Lancet, T. (2021). *About the Global Burden of Disease*. https://www.thelancet.com/gbd/about

Landsverk, J., Brown, C. H., Rolls Reutz, J., Palinkas, L., & Horwitz, S. M. C. (2011). Design Elements in

Implementation Research: A Structured Review of Child Welfare and Child Mental Health

Studies. *Administration and Policy in Mental Health*, *38*(1), 54. https://doi.org/10.1007/S10488-

010-0315-Y

Lang, E. S., Wyer, P. C., & Haynes, R. B. (2007). Knowledge Translation: Closing the Evidence-to-

Practice Gap. *Annals of Emergency Medicine*, *49*(3), 355–363.

https://doi.org/10.1016/j.annemergmed.2006.08.022

Lange, T., Kopkow, C., Lützner, J., Günther, K. P., Gravius, S., Scharf, H. P., Stöve, J., Wagner, R., &

Schmitt, J. (2020). Comparison of different rating scales for the use in Delphi studies: Different

scales lead to different consensus and show different test-retest reliability. *BMC Medical

Research Methodology*, *20*(1), 1–11. https://doi.org/10.1186/S12874-020-0912-8/FIGURES/3

Layard, R. (2006a). *The depression report: A new deal for depression and anxiety disorders*. (No. 15).

Centre for Economic Performance, LSE.

Layard, R. (2006b). The case for psychological treatment centres. In *British Medical Journal* (Vol. 332,

Issue 7548, pp. 1030–1032). British Medical Journal Publishing Group.

https://doi.org/10.1136/bmj.332.7548.1030

Lehoux, P., Miller, F. A., & Daudelin, G. (2016). How does venture capital operate in medical

innovation? *BMJ Innovations*, *2*(3), 111–117. https://doi.org/10.1136/BMJINNOV-2015-000079

Lehoux, P., Miller, F. A., Daudelin, G., & Urbach, D. R. (2016). How venture capitalists decide which

new medical technologies come to exist. *Science and Public Policy*, *43*(3), 375–385.

https://doi.org/10.1093/SCIPOL/SCV051

Lehoux, Pascale, Miller, F. A., Daudelin, G., & Denis, J. L. (2017). Providing Value to New Health

Technology: The Early Contribution of Entrepreneurs, Investors, and Regulatory Agencies.

*International Journal of Health Policy and Management*, *6*(9), 509.

https://doi.org/10.15171/IJHPM.2017.11

Lewis, C. C., Fischer, S., Weiner, B. J., Stanick, C., Kim, M., & Martinez, R. G. (2015). Outcomes for

implementation science: An enhanced systematic review of instruments using evidence-based

rating criteria. *Implementation Science*, *10*(1), 1–17. https://doi.org/10.1186/s13012-015-0342-

x

Lewis, N. A., & Wai, J. (2021). Communicating What We Know and What Isn't So: Science

Communication in Psychology: *Https://Doi.Org/10.1177/1745691620964062*, *16*(6), 1242–

1254. https://doi.org/10.1177/1745691620964062

Liem, A., Natari, R. B., Jimmy, & Hall, B. J. (2021). Digital Health Applications in Mental Health Care

for Immigrants and Refugees: A Rapid Review. *Https://Home.Liebertpub.Com/Tmj*, *27*(1), 3–16.

https://doi.org/10.1089/TMJ.2020.0012

Lindner, P., Olsson, E. L., Johnsson, A., Dahlin, M., Andersson, G., & Carlbring, P. (2014). The impact

of telephone versus e-mail therapist guidance on treatment outcomes, therapeutic alliance and

treatment engagement in Internet-delivered CBT for depression: A randomised pilot trial.

*Internet Interventions*, *1*(4), 182–187. https://doi.org/10.1016/J.INVENT.2014.09.001

Lipschitz, J., Hogan, T. P., Bauer, M. S., & Mohr, D. C. (2019). Closing the Research-To-Practice Gap in

Digital Psychiatry. *The Journal of Clinical Psychiatry*, *80*(3), 0–0.

https://doi.org/10.4088/JCP.18com12659

Locock, L., Dopson, S., Chambers, D., & Gabbay, J. (2001). Understanding the role of opinion leaders

in improving clinical effectiveness. *Social Science & Medicine*, *53*(6), 745–757.

https://doi.org/10.1016/S0277-9536(00)00387-7

Mackey, J. D., Frieder, R. E., Brees, J. R., & Martinko, M. J. (2015). Abusive Supervision: A Meta-

Analysis and Empirical Review: *Https://Doi.Org/10.1177/0149206315573997*, *43*(6), 1940–

1965. https://doi.org/10.1177/0149206315573997

Macpherson, H. (2004). Pragmatic clinical trials. *Complementary Therapies in Medicine*, *12*, 136–140.

https://doi.org/10.1016/j.ctim.2004.07.043

Marks, I M, Cavanagh, K., & Gega, L. (2007). Computer-aided psychotherapy: revolution or bubble?.

*The British Journal of Psychiatry : The Journal of Mental Science*, *191*, 471–473.

https://elib.tcd.ie/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&

AN=18055948&site=ehost-live

Marks, I. M., Kenwright, M., McDonough, M., Whittaker, M., & Mataix-Cols, D. (2004). Saving

clinicians' time by delegating routine aspects of therapy to a computer: a randomized

controlled trial in phobia/panic disorder. *Psychological Medicine*, *34*(1), 9–17.

https://doi.org/10.1017/S003329170300878X

Marks, I. M., Mataix-Cols, D., Kenwright, M., Cameron, R., Hirsch, S., & Gega, L. (2003). Pragmatic

evaluation of computer-aided self-help for anxiety and depression. *British Journal of Psychiatry*,

*183*(1), 57–65. https://doi.org/10.1192/bjp.183.1.57

Mathiasen, K., Riper, H., Andersen, T. E., & Roessler, K. K. (2018). Guided internet-based cognitive

behavioral therapy for adult depression and anxiety in routine secondary care: Observational

study. *Journal of Medical Internet Research*, *20*(11), e10927. https://doi.org/10.2196/10927

May, C., & Finch, T. (2009). Implementing, embedding, and integrating practices: An outline of

normalization process theory. *Sociology*, *43*(3), 535–554.

https://doi.org/10.1177/0038038509103208

May, C. R., Cummings, A., Girling, M., Bracher, M., Mair, F. S., May, C. M., Murray, E., Myall, M., Rapley, T., & Finch, T. (2018). Using Normalization Process Theory in feasibility studies and process evaluations of complex healthcare interventions: a systematic review. *Implementation Science*, *13*(1), 80. https://doi.org/10.1186/s13012-018-0758-1

May, C. R., Johnson, M., & Finch, T. (2016). Implementation, context and complexity. *Implementation Science*, *11*(1), 141. https://doi.org/10.1186/s13012-016-0506-3

McCrone, P., Knapp, M., Proudfoot, J., Ryden, C., Cavanagh, K., Shapiro, D. A., Ilson, S., Gray, J. A., Goldberg, D., Mann, A., Marks, I., Everitt, B., & Tylee, A. (2004). Cost-effectiveness of computerised cognitive-behavioural therapy for anxiety and depression in primary care: Randomised controlled trial. *British Journal of Psychiatry*, *185*(JULY), 55–62. https://doi.org/10.1192/bjp.185.1.55

McDaid, S. (2013). Mental Health In Primary Care in Ireland: A briefing paper. In *Mental Health Reform*. https://www.mentalhealthreform.ie/wp-content/uploads/2018/04/Mental-Health-in-Primary-Care-in-Ireland1.pdf

McHugh, R. K., Whitton, S. W., Peckham, A. D., Welge, J. A., & Otto, M. W. (2013). Patient Preference for Psychological vs Pharmacologic Treatment of Psychiatric Disorders: A Meta-Analytic Review. *The Journal of Clinical Psychiatry*, *74*(6), 0–0. https://doi.org/10.4088/JCP.12R07757

McMullen, H., Griffiths, C., Leber, W., & Greenhalgh, T. (2015). Explaining high and low performers in complex intervention trials: a new model based on diffusion of innovations theory. *Trials*, *16*(1), 242. https://doi.org/10.1186/s13063-015-0755-5

Mehta, S., Peynenburg, V. A., & Hadjistavropoulos, H. D. (2019). Internet-delivered cognitive behaviour therapy for chronic health conditions: a systematic review and meta-analysis. *Journal of Behavioral Medicine*, *42*(2), 169–187. https://doi.org/10.1007/S10865-018-9984-X/FIGURES/4

Meisel, S. F., Drury, H., & Perera-Delcourt, R. P. (2018). Therapists' attitudes to offering eCBT in an inner-city IAPT service: a survey study. *The Cognitive Behaviour Therapist*, *11*, 1–16.

https://doi.org/10.1017/S1754470X18000107

Metz, A., Louison, L., Burke, K., Albers, B., & Ward, C. (2020). *Implementation support practitioner profile: Guiding principles and core competencies for implementation practice*. https://nirn.fpg.unc.edu/resources/implementation-support-practitioner-profile

Meyer, B., Bierbrodt, J., Schröder, J., Berger, T., Beevers, C. G., Weiss, M., Jacob, G., Späth, C., Andersson, G., Lutz, W., Hautzinger, M., Löwe, B., Rose, M., Hohagen, F., Caspar, F., Greiner, W., Moritz, S., & Klein, J. P. (2015). Effects of an Internet intervention (Deprexis) on severe depression symptoms: Randomized controlled trial. *Internet Interventions*, *2*(1), 48–59. https://doi.org/10.1016/j.invent.2014.12.003

Micca, P., Chang, C., Gisby, S., & Shukla, M. (2021, February 26). Trends in health tech investments. *Deloitte Insights*. https://www2.deloitte.com/us/en/insights/industry/health-care/health-tech-private-equity-venture-capital.html

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: A consensus approach. *Quality and Safety in Health Care*, *14*(1), 26–33. https://doi.org/10.1136/qshc.2004.011155

Michie, van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 1–12. https://doi.org/10.1186/1748-5908-6-42/TABLES/3

Milat, A. J., Bauman, A., & Redman, S. (2015). Narrative review of models and success factors for scaling up public health interventions. *Implementation Science*, *10*(1), 1–11. https://doi.org/10.1186/S13012-015-0301-6/TABLES/3

MindSpot. (2021). *MindSpot - Our Research*. https://mindspot.org.au/our-research

Mohr, D. C., Cuijpers, P., & Lehman, K. (2011). Supportive Accountability: A Model for Providing Human Support to Enhance Adherence to eHealth Interventions. *J Med Internet Res 2011;13(1):E30 Https://Www.Jmir.Org/2011/1/E30*, *13*(1), e1602. https://doi.org/10.2196/JMIR.1602

Mol, M., Dozeman, E., Provoost, S., Van Schaik, A., Riper, H., & Smit, J. H. (2018). Behind the scenes

of online therapeutic feedback in blended therapy for depression: Mixed-methods

observational study. *Journal of Medical Internet Research*, *20*(5), 1–11.

https://doi.org/10.2196/jmir.9890

Moses, H., Matheson, D. H. M., Cairns-Smith, S., George, B. P., Palisch, C., & Dorsey, E. R. (2015). The

Anatomy of Medical Research: US and International Comparisons. *JAMA*, *313*(2), 174–189.

https://doi.org/10.1001/JAMA.2014.15939

Moullin, J. C., Dickson, K. S., Stadnick, N. A., Rabin, B., & Aarons, G. A. (2019). Systematic review of

the Exploration, Preparation, Implementation, Sustainment (EPIS) framework. *Implementation

Science*, *14*(1), 1. https://doi.org/10.1186/s13012-018-0842-6

Murphy, M. K., Black, N. A., Lamping, D. L., McKee, C. M., Sanderson, C. F., Askham, J., & Marteau, T.

(1998). Consensus development methods, and their use in clinical guideline development.

*Health Technology Assessment (Winchester, England)*, *2*(3), i--88.

National Cancer Institute. (2004). *Dialogue on dissemination: Facilitating dissemination research and

implementation of evidence-based cancer prevention, early detection, and treatment practices.*

Dialogue on Dissemination: Facilitating Dissemination Research and Implementation of

Evidence-Based Cancer Prevention, Early Detection, and Treatment Practices.

https://cancercontrol.cancer.gov/IS/pdfs/dod_summ_nov-dec.pdf

National Health Service. (2021). *NHS X - What we do*. https://www.nhsx.nhs.uk/about-us/what-we-

do/

National Institute for Health and Care Excellence. (2009). Depression in adults: recognition and

management management. Clinical guideline. *Clinical Guideline 90*, 34–35.

https://www.nice.org.uk/guidance/cg90

Newby, J. M., Mackenzie, A., Williams, A. D., Mcintyre, K., Watts, S., Wong, N., & Andrews, G. (2013).

Internet cognitive behavioural therapy for mixed anxiety and depression: a randomized

controlled trial and evidence of effectiveness in primary care. *Psychological Medicine*, *43*(12),

2635–2648. https://doi.org/10.1017/S0033291713000111

Newby, J., Mason, E., Kladnistki, N., Murphy, M., Millard, M., Haskelberg, H., Allen, A., & Mahoney, A. (2021). Integrating internet CBT into clinical practice: a practical guide for clinicians. *Clinical Psychologist*, *25*(2), 164–178. https://doi.org/10.1080/13284207.2020.1843968

Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, *10*(1), 1–13. https://doi.org/10.1186/s13012-015-0242-0

Nilsen, P., & Bernhardsson, S. (2019). Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Services Research*, *19*(1), 189. https://doi.org/10.1186/s12913-019-4015-3

Norcross, J. C., Alford, B. A., & DeMichele, J. T. (1992). The future of psychotherapy: Delphi data and concluding observations. *Psychotherapy: Theory, Research, Practice, Training*, *29*(1), 150.

Norcross, J. C., Hedges, M., & Prochaska, J. O. (2002). The Face of 2010: A Delphi Poll on the Future of Psychotherapy. *Professional Psychology: Research and Practice*, *33*(3), 316–322. https://doi.org/10.1037/0735-7028.33.3.316

Norcross, J. C., Pfund, R. A., & Prochaska, J. O. (2013). Psychotherapy in 2022: A delphi poll on its future. *Professional Psychology: Research and Practice*, *44*(5), 363–370. https://doi.org/10.1037/A0034633

Nordgreen, T., Gjestad, R., Andersson, G., Carlbring, P., & Havik, O. E. (2018). The effectiveness of guided internet-based cognitive behavioral therapy for social anxiety disorder in a routine care setting. *Internet Interventions*, *13*, 24–29. https://elib.tcd.ie/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=30206515&site=ehost-live

Nordgren, L. B., Hedman, E., Etienne, J., Bodin, J., Kadowaki, Å., Eriksson, S., Lindkvist, E., Andersson, G., & Carlbring, P. (2014). Effectiveness and cost-effectiveness of individually tailored Internet-delivered cognitive behavior therapy for anxiety disorders in a primary care population: A

randomized controlled trial. *Behaviour Research and Therapy*, *59*, 1–11.

https://doi.org/10.1016/J.BRAT.2014.05.007

Nurgalieva, L., O'Callaghan, D., & Doherty, G. (2020). Security and Privacy of mHealth Applications: A

Scoping Review. *IEEE Access*, *8*, 104247–104268.

https://doi.org/10.1109/ACCESS.2020.2999934

O'Sioradain, N. (2021, March 29). Mental Health Waiting Lists: "Everyone's mental health is under

strain at the moment." *RTE Radio 1*. https://www.rte.ie/radio/radio1/stories/1218075-mental-

health-services-on-today-with-claire-byrne/

Olthuis, J. V., Watt, M. C., Bailey, K., Hayden, J. A., & Stewart, S. H. (2016). Therapist-supported

Internet cognitive behavioural therapy for anxiety disorders in adults. *The Cochrane Database

of Systematic Reviews*, *3*(3), CD011565. https://doi.org/10.1002/14651858.CD011565.pub2

Palacios, J., Adegoke, A., Wogan, R., Duffy, D., Earley, C., Eilert, N., Enrique, A., Sollesse, S., Chapman,

J., & Richards, D. (n.d.). Comparison of Outcomes Across Low-Intensity Psychological

Interventions for Depression and Anxiety within a Stepped-Care Setting: A Naturalistic Cohort

Study Using Propensity Score Modelling. *British Journal of Psychology*.

Palmer, S., & Torgerson, D. J. (1999). Economics notes: Definitions of efficiency. *BMJ : British Medical

Journal*, *318*(7191), 1136. https://doi.org/10.1136/BMJ.318.7191.1136

Parker, L., Karliychuk, T., Gillies, D., Mintzes, B., Raven, M., & Grundy, Q. (2017). A health app

developer's guide to law and policy: A multi-sector policy analysis. *BMC Medical Informatics

and Decision Making*, *17*(1), 1–13. https://doi.org/10.1186/S12911-017-0535-0/TABLES/8

Patsopoulos, N. A. (2011). A pragmatic view on pragmatic trials. *Dialogues in Clinical Neuroscience*,

*13*(2), 217. https://doi.org/10.31887/DCNS.2011.13.2/NPATSOPOULOS

Pearson, A., White, H., Bath-Hextall, F., Salmond, S., Apostolo, J., & Kirkpatrick, P. (2015). A mixed-

methods approach to systematic reviews. *International Journal of Evidence-Based Healthcare*,

*13*(3), 121–131. https://doi.org/10.1097/XEB.0000000000000052

Pearson, A., Wiechula, R., Court, A., & Lockwood, C. (2005). The JBI model of evidence-based

healthcare. *International Journal of Evidence-Based Healthcare*, *3*(8), 207–215.

https://doi.org/10.1111/j.1479-6988.2005.00026.x

Peynenburg, V. A., Mehta, S., & Hadjistavropoulos, H. D. (2019). Postsecondary student perceptions

and preferences for the treatment of depression and anxiety: Comparison of internet-delivered

cognitive behaviour therapy to face-to-face cognitive behaviour therapy and medication.

*Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*.

https://elib.tcd.ie/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pdh&AN

=2019-73781-001&site=ehost-live

Pfadenhauer, L. M., Mozygemba, K., Gerhardus, A., Hofmann, B., Booth, A., Lysdahl, K. B., Tummers,

M., Burns, J., & Rehfuess, E. A. (2015). Context and implementation: A concept analysis towards

conceptual maturity. *Zeitschrift Für Evidenz, Fortbildung Und Qualität Im Gesundheitswesen*,

*109*(2), 103–114. https://doi.org/10.1016/j.zefq.2015.01.004

Pihlaja, S., Lahti, J., Lipsanen, J. O., Ritola, V., Gummerus, E. M., Stenberg, J. H., & Joffe, G. (2020).

Scheduled Telephone Support for Internet Cognitive Behavioral Therapy for Depression in

Patients at Risk for Dropout: Pragmatic Randomized Controlled Trial. *J Med Internet Res*

*2020;22(7):E15732 Https://Www.Jmir.Org/2020/7/E15732*, *22*(7), e15732.

https://doi.org/10.2196/15732

Pine, B. J. (2015). How B2B companies create economic value by designing experiences and

transformations for their customers. *Strategy and Leadership*, *43*(3), 2–6.

https://doi.org/10.1108/SL-03-2015-0018/FULL/XML

Pluye, P., & Hong, Q. N. (2014). Combining the Power of Stories and the Power of Numbers: Mixed

Methods Research and Mixed Studies Reviews. *Http://Dx.Doi.Org/10.1146/Annurev-*

*Publhealth-032013-182440*, *35*, 29–45. https://doi.org/10.1146/ANNUREV-PUBLHEALTH-

032013-182440

Powell, B. J., Fernandez, M. E., Williams, N. J., Aarons, G. A., Beidas, R. S., Lewis, C. C., Mchugh, S. M.,

Weiner, B. J., & Powell, B. J. (2019). Enhancing the Impact of Implementation Strategies in

Healthcare : A Research Agenda. *Frontiers in Public Health*, *7*(January), 1–9.

https://doi.org/10.3389/fpubh.2019.00003

Powell, B. J., McMillen, J. C., Proctor, E. K., Carpenter, C. R., Griffey, R. T., Bunger, A. C., Glass, J. E., &

York, J. L. (2012). A compilation of strategies for implementing clinical innovations in health and

mental health. *Medical Care Research and Review*, *69*(2), 123–157.

https://doi.org/10.1177/1077558711430690

Powell, B. J., Proctor, E. K., & Glass, J. E. (2014). A Systematic Review of Strategies for Implementing

Empirically Supported Mental Health Interventions. *Research on Social Work Practice*, *24*(2),

192. https://doi.org/10.1177/1049731513505778

Powell, B. J., Waltz, T. J., Chinman, M. J., Damschroder, L. J., Smith, J. L., Matthieu, M. M., Proctor, E.

K., & Kirchner, J. A. E. (2015). A refined compilation of implementation strategies: Results from

the Expert Recommendations for Implementing Change (ERIC) project. *Implementation Science*,

*10*(1), 1–14. https://doi.org/10.1186/s13012-015-0209-1

Powell, C. (2003). The Delphi technique: myths and realities. *Journal of Advanced Nursing*, *41*(4),

376–382.

http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L36478234

Premachandra, B., & Lewis, N. A. (2021). Do We Report the Information That Is Necessary to Give

Psychology Away? A Scoping Review of the Psychological Intervention Literature 2000-2018.

*Perspectives on Psychological Science : A Journal of the Association for Psychological Science*,

1745691620974774. https://doi.org/10.1177/1745691620974774

Prochaska, J. O., & Norcross, J. C. (1982). The future of psychotherapy: A Delphi poll. *Professional*

*Psychology*, *13*(5), 620.

Proctor, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009).

Implementation research in mental health services: an emerging science with conceptual,

methodological, and training challenges. *Administration and Policy in Mental Health*, *36*(1), 24–

34. https://doi.org/10.1007/s10488-008-0197-4

Proctor, E. K., Powell, B. J., & McMillen, J. C. (2013). Implementation strategies: recommendations

for specifying and reporting. *Implementation Science*, *8*(1), 139. https://doi.org/10.1186/1748-

5908-8-139

Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R., & Hensley, M.

(2011). Outcomes for implementation research: Conceptual distinctions, measurement

challenges, and research agenda. *Administration and Policy in Mental Health and Mental

Health Services Research*, *38*(2), 65–76. https://doi.org/10.1007/s10488-010-0319-7

Proudfoot, J., Goldberg, D., Mann, A., Everitt, B., Marks, I., & Gray, J. A. (2003). Computerized,

interactive, multimedia cognitive-behavioural program for anxiety and depression in general

practice. *Psychological Medicine*, *33*(2), 217–227.

https://doi.org/10.1017/S0033291702007225

Proudfoot, J., Ryden, C., Everitt, B., Shapiro, D. A., Goldberg, D., Mann, A., Tylee, A., Marks, I., &

Gray, J. A. (2004). Clinical efficacy of computerised cognitive-behavioural therapy for anxiety

and depression in primary care: Randomised controlled trial. *British Journal of Psychiatry*,

*185*(JULY), 46–54. https://doi.org/10.1192/bjp.185.1.46

Rakovshik, S. G., & McManus, F. (2010). Establishing evidence-based training in cognitive behavioral

therapy: A review of current empirical findings and theoretical guidance. *Clinical Psychology

Review*, *30*(5), 496–516. https://doi.org/10.1016/J.CPR.2010.03.004

Rapley, T., Girling, M., Mair, F. S., Murray, E., Treweek, S., McColl, E., Steen, I. N., May, C. R., & Finch,

T. L. (2018). Improving the normalization of complex interventions: Part 1 - Development of the

NoMAD instrument for assessing implementation work based on normalization process theory

(NPT) 17 Psychology and Cognitive Sciences 1701 Psychology. *BMC Medical Research

Methodology*, *18*(1), 1–17. https://doi.org/10.1186/S12874-018-0590-Y/TABLES/8

RE-AIM Group. (2019). *RE-AIM – Reach Effectiveness Adoption Implementation Maintenance*.

http://www.re-aim.org/

Reichenpfader, U., Carlfjord, S., & Nilsen, P. (2015). Leadership in evidence-based practice: a

systematic review. *Leadership in Health Services*, *28*(4), 298–316. https://doi.org/10.1108/LHS-08-2014-0061/FULL/XML

Richards, D. A., Bower, P., Pagel, C., Weaver, A., Utley, M., Cape, J., Pilling, S., Lovell, K., Gilbody, S., Leibowitz, J., Owens, L., Paxton, R., Hennessy, S., Simpson, A., Gallivan, S., Tomson, D., & Vasilakis, C. (2012). Delivering stepped care: An analysis of implementation in routine practice. *Implementation Science*, *7*(1), 1–11. https://doi.org/10.1186/1748-5908-7-3/FIGURES/4

Richards, D, Timulak, L., O'brien, E., Hayes, C., Vigano, N., Sharry, J., & Doherty, G. (2015). *A randomized controlled trial of an internet-delivered treatment: Its potential as a low-intensity community intervention for adults with symptoms of depression*. https://doi.org/10.1186/ISRCTN03704676

Richards, D, & Whyte, M. (2011). *Reach Out: National Programme Student Materials to Support the Delivery of Training for Psychological Wellbeing Practitioners Delivering Low Intensity Interventions* (3rd Ed). Rethink.

Richards, Duffy, D., Burke, J., Anderson, M., Connell, S., & Timulak, L. (2018). Supported Internet-Delivered Cognitive Behavior Treatment for Adults with Severe Depressive Symptoms: A Secondary Analysis. *JMIR Mental Health*, *5*(4), e10204. https://doi.org/10.2196/10204

Richards, Enrique, A., Eilert, N., Franklin, M., Palacios, J., Duffy, D., Earley, C., Chapman, J., Jell, G., Sollesse, S., & Timulak, L. (2020a). A pragmatic randomized waitlist-controlled effectiveness and cost-effectiveness trial of digital interventions for depression and anxiety. *Npj Digital Medicine 2020 3:1*, *3*(1), 1–10. https://doi.org/10.1038/s41746-020-0293-8

Richards, Enrique, A., & Palacios, J. (2020). Computer-Assisted Cognitive Behavioural Therapy. In S. Parry (Ed.), *The Handbook of Brief Therapies A practical guide*. https://us.sagepub.com/en-us/nam/the-handbook-of-brief-therapies/book259807#contents

Richards, Enrique, A., Palacios, J., & Duffy, D. (2017). Internet-Delivered Cognitive Behaviour Therapy. In Ömer Şenormancı & G. Şenormancı (Eds.), *Cognitive Behavioral Therapy and Clinical Applications*, (pp. 223-238). Netherlands:

InTech.https://doi.org/10.5772/INTECHOPEN.71412

Richards, Murphy, T., Viganó, N., Timulak, L., Doherty, G., Sharry, J., & Hayes, C. (2016).

Acceptability, satisfaction and perceived efficacy of "Space from Depression" an internet-

delivered treatment for depression. *Internet Interventions*, *5*, 12–22.

https://doi.org/10.1016/j.invent.2016.06.0077

Richards, O'Brien, E., Vigano, N., Mooney, J., Bonner, C., O'Callaghan, D., Sharry, J., & Doherty, G.

(2015). The new gold standard in online delivered behavioral health programs. *Iproceedings*,

*1*(1), e6.

Richards, & Richardson, T. (2012). Computer-based psychological treatments for depression: A

systematic review and meta-analysis. In *Clinical Psychology Review* (Vol. 32, Issue 4, pp. 329–

342). https://doi.org/10.1016/j.cpr.2012.02.004

Richards, Richardson, T., Timulak, L., & McElvaney, J. (2015). The efficacy of internet-delivered

treatment for generalized anxiety disorder: A systematic review and meta-analysis. In *Internet

Interventions* (Vol. 2, Issue 3, pp. 272–282). Elsevier.

https://doi.org/10.1016/j.invent.2015.07.003

Richards, & Viganó, N. (2013). Online counseling: a narrative and critical review of the literature.

*Journal of Clinical Psychology*, *69*(9), 994–1011. https://doi.org/10.1002/JCLP.21974

Rizq, R. (2011). IAPT, ANXIETY AND ENVY: A PSYCHOANALYTIC VIEW OF NHS PRIMARY CARE MENTAL

HEALTH SERVICES TODAY. *British Journal of Psychotherapy*, *27*(1), 37–55.

https://doi.org/10.1111/J.1752-0118.2010.01221.X

Rizq, R. (2012a). The perversion of care: Psychological therapies in a time of IAPT. *Psychodynamic

Practice*, *18*(1), 7–24. https://doi.org/10.1080/14753634.2012.640161

Rizq, R. (2012b). The Ghost in the Machine: IAPT and Organizational Melancholia. *British Journal of

Psychotherapy*, *28*(3), 319–335. https://doi.org/10.1111/J.1752-0118.2012.01281.X

Rodriguez-Villa, E., Naslund, J., Keshavan, M., Patel, V., & Torous, J. (2020). Making mental health

more accessible in light of COVID-19: Scalable digital health with digital navigators in low and

middle-income countries. *Asian Journal of Psychiatry*, *54*, 102433.

https://doi.org/10.1016/J.AJP.2020.102433

Rogers, E. M. (2003). Diffusion of Innovations, 5th edn. Simon & Shuster. *Inc., New York*.

Romijn, G., Batelaan, N., Kok, R., Koning, J., Van Balkom, A., Titov, N., & Riper, H. (2019). Internet-delivered cognitive behavioral therapy for anxiety disorders in open community versus clinical service recruitment: Meta-analysis. In *Journal of Medical Internet Research* (Vol. 21, Issue 4). Journal of Medical Internet Research. https://doi.org/10.2196/11706

Rooshenas, L., Elliott, D., Wade, J., Jepson, M., Paramasivan, S., Strong, S., Wilson, C., Beard, D., Blazeby, J. M., Birtle, A., Halliday, A., Rogers, C. A., Stein, R., & Donovan, J. L. (2016). Conveying Equipoise during Recruitment for Clinical Trials: Qualitative Synthesis of Clinicians' Practices across Six Randomised Controlled Trials. *PLOS Medicine*, *13*(10), e1002147. https://doi.org/10.1371/JOURNAL.PMED.1002147

Ross, J., Stevenson, F., Lau, R., & Murray, E. (2016). Factors that influence the implementation of e-health: A systematic review of systematic reviews (an update). *Implementation Science*, *11*(1), 1–12. https://doi.org/10.1186/S13012-016-0510-7/TABLES/3

Roth, A. D., & Pilling, S. (2007). The competences required to deliver effective cognitive and behavioural therapy for people with depression and with anxiety disorders. *Department of Health*, *January 2007*.

Rozental, A., Andersson, G., Boettcher, J., Ebert, D. D., Cuijpers, P., Knaevelsrud, C., Ljótsson, B., Kaldo, V., Titov, N., & Carlbring, P. (2014). Consensus statement on defining and measuring negative effects of Internet interventions. In *Internet Interventions* (Vol. 1, Issue 1, pp. 12–19). Elsevier. https://doi.org/10.1016/j.invent.2014.02.001

Rudd, B. N., Davis, M., & Beidas, R. S. (2020). Integrating implementation science in clinical research to maximize public health impact: a call for the reporting and alignment of implementation strategy use with implementation outcomes in clinical research. *Implementation Science*, *15*(1), 1–11. https://doi.org/10.1186/S13012-020-01060-5/TABLES/1

Sadeghi-Bazargani, H., Tabrizi, J. S., & Azami-Aghdash, S. (2014). Barriers to evidence-based medicine: a systematic review. *Journal of Evaluation in Clinical Practice*, *20*(6), 793–802. https://doi.org/10.1111/JEP.12222

Sampat, B., & Prabhakar, B. (2017). Privacy Risks and Security Threats in mHealth apps. *Journal of International Technology and Information Management*, *26*(4), 126–153.

Sandelowski, M., Leeman, J., Knafl, K., & Crandell, J. L. (2013). Text-in-Context: A Method for Extracting Findings in Mixed-Methods Mixed Research Synthesis Studies. *Journal of Advanced Nursing*, *69*(6), 1428. https://doi.org/10.1111/JAN.12000

Santomauro, D. F., Mantilla Herrera, A. M., Shadid, J., Zheng, P., Ashbaugh, C., Pigott, D. M., Abbafati, C., Adolph, C., Amlag, J. O., Aravkin, A. Y., Bang-Jensen, B. L., Bertolacci, G. J., Bloom, S. S., Castellano, R., Castro, E., Chakrabarti, S., Chattopadhyay, J., Cogen, R. M., Collins, J. K., … Ferrari, A. J. (2021). Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *The Lancet*, *398*(10312), 1700–1712. https://doi.org/10.1016/S0140-6736(21)02143-7/ATTACHMENT/927FDFEF-CCD4-4655-AACF-4E7D54DFECF5/MMC1.PDF

Scheibe, M., Skutsch, M., & Schofer, J. (2002). IV. C. Experiments in Delphi methodology. *The Delphi Method: Techniques and Applications*, 257–281.

Schmidt, I. D., Forand, N. R., & Strunk, D. R. (2019). Predictors of Dropout in Internet-Based Cognitive Behavioral Therapy for Depression. *Cognitive Therapy and Research*, *43*(3), 620. https://doi.org/10.1007/S10608-018-9979-5

Schneider, A. J., Mataix-Cols, D., Marks, I. M., & Bachofen, M. (2005). Internet-Guided Self-Help with or without Exposure Therapy for Phobic and Panic Disorders. *Psychotherapy and Psychosomatics*, *74*(3), 154–164. https://doi.org/10.1159/000084000

Schröder, J., Berger, T., Meyer, B., Lutz, W., Späth, C., Michel, P., Rose, M., Hautzinger, M., Hohagen, F., Klein, J. P., & Moritz, S. (2018). Impact and change of attitudes toward Internet interventions within a randomized controlled trial on individuals with depression symptoms. *Depression and*

*Anxiety*, *35*(5), 421–430. https://doi.org/10.1002/da.22727

Schröder, J., Berger, T., Westermann, S., Klein, J. P., & Moritz, S. (2016). Internet interventions for depression: new developments. *Dialogues in Clinical Neuroscience*, *18*(2), 203–212. https://elib.tcd.ie/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm& AN=27489460&site=ehost-live

Schyns, B., & Schilling, J. (2013). How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes. *The Leadership Quarterly*, *24*(1), 138–158. https://doi.org/10.1016/J.LEAQUA.2012.09.001

Sharif-Sidi, Z., Shen, C., Wong, W., Hanson, R., Miller, L., Fickel, K., Green, E., Burns, J., Dunn, C., Somai, M., & Crotty, B. H. (2021). Addressing depression and behavioral health needs through a digital program at scale. *Healthcare*, *9*(2), 100521. https://doi.org/10.1016/j.hjdsi.2021.100521

Shortell, S. M. (2004). Increasing Value: A Research Agenda for Addressing the Managerial and Organizational Challenges Facing Health Care Delivery in the United States. *Medical Care Research and Review*, *61*(3_suppl), 12S-30S. https://doi.org/10.1177/1077558704266768

SilverCloud health. (2021). *Transforming Access to Digital Mental Health Supports around Ireland*. https://www.silvercloudhealth.com/ie/hse-digital-mental-health

SilverCloud Health. (2021). *Improving mental healthcare outcomes and cost effectiveness with SilverCloud's digital mental health platform*. https://www.silvercloudhealth.com/uk/blog/improving-mental-healthcare-outcomes#:~:text=The SilverCloud digital mental health,the aforementioned barriers to care.

Sivakumar, A., Pan, R. Y., Choi, D., Wang, A. H., & Yu, C. H. (2021). "If we got a win-win, you can sell it to everybody": A qualitative study employing Normalization Process Theory to identify critical factors for eHealth implementation and scale-up in primary care. *Canadian Journal of Diabetes*. https://doi.org/10.1016/J.JCJD.2021.08.005

Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., Boyd, K. A., Craig, N., French, D. P., McIntosh, E., Petticrew, M., Rycroft-Malone, J., White, M., & Moore, L. (2021).

Framework for the development and evaluation of complex interventions: gap analysis,

workshop and consultation-informed update. *Health Technology Assessment*, *25*(57), 1–132.

https://doi.org/10.3310/HTA25570

Smith, J. D., & Polaha, J. (2017). Using implementation science to guide the integration of evidence-

based family interventions into primary care. *Families, Systems and Health*, *35*(2), 125–135.

https://doi.org/10.1037/fsh0000252

Smith, K. B., Humphreys, J. S., & Wilson, M. G. A. (2008). Addressing the health disadvantage of rural

populations: How does epidemiological evidence inform rural health policies and research?

*Australian Journal of Rural Health*, *16*(2), 56–66. https://doi.org/10.1111/J.1440-

1584.2008.00953.X

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned

behaviour. *Health Psychology Review*, *8*(1), 1–7.

https://doi.org/10.1080/17437199.2013.869710

Stern, C., Lizarondo, L., Carrier, J., Godfrey, C., Rieger, K., Salmond, S., Apostolo, J., Kirkpatrick, P., &

Loveday, H. (2020). Methodological guidance for the conduct of mixed methods systematic

reviews. *JBI Evidence Synthesis*, *18*(10), 2108–2118. https://doi.org/10.11124/JBISRIR-D-19-

00169

Stewart, R. E., & Chambless, D. L. (2007). Does psychotherapy research inform treatment decisions

in private practice? *Journal of Clinical Psychology*, *63*(3), 267–281.

https://doi.org/10.1002/JCLP.20347

Stewart, R. E., Chambless, D. L., & Stirman, S. W. (2018). Decision making and the use of evidence

based practice: Is the three-legged stool balanced? *Practice Innovations (Washington, D.C.)*,

*3*(1), 56. https://doi.org/10.1037/PRI0000063

Sugarhood, P., Wherton, J., Procter, R., Hinder, S., & Greenhalgh, T. (2013). *Technology as system

innovation: a key informant interview study of the application of the diffusion of innovation

model to telecare*. https://doi.org/10.3109/17483107.2013.823573

Tabak, R. E., Chambers, K. D., & Brownson, R. (2012). A narrative review and synthesis of frameworks

in dissemination and implementation research. *5th Annual NIH Conference on the Science of*

*Dissemination and Implementation: Research at the Crossroads. Bethesda*.

Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging Research and

Practice: Models for Dissemination and Implementation Research. *American Journal of*

*Preventive Medicine*, *43*(3), 337–350. https://doi.org/10.1016/J.AMEPRE.2012.05.024

Taylor, C. B., Fitzsimmons-Craft, E. E., & Graham, A. K. (2020). Digital technology can revolutionize

mental health services delivery: The COVID-19 crisis as a catalyst for change. *The International*

*Journal of Eating Disorders*, *53*(7), 1155–1157. https://doi.org/10.1002/EAT.23300

Terpstra, J. A., van der Vaart, R., Spillekom-van Koulil, S., van Dam, A., Rosmalen, J. G., Knoop, H., van

Middendorp, H., & Evers, A. W. (2018). *Becoming an eCoach: Training therapists in online*

*cognitive-behavioral therapy for chronic pain*. https://doi.org/10.1016/j.pec.2018.03.029

The National Institute for Health and Care Excellence. (2004a). *Anxiety: management of anxiety*

*(panic disorder,with or without agoraphobia,and generalised anxiety disorder) in adults in*

*primary, secondary and community care (CG22).*

The National Institute for Health and Care Excellence. (2004b). *Depression: management of*

*depression in primary and secondary care (CG23).*

The National Institute for Health and Care Excellence. (2006). *Technology Appraisal 97.*

*Computerised cognitive behaviour therapy for depression and anxiety.*

http://www.nice.org.uk/TA97

The National Institute for Health and Care Excellence. (2019). *Process and methods statement for the*

*production of NICE IAPT assessment briefings (IABs).*

https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-advice/IAPT/IAB-process-

and-methods-statement.pdf

The National Institute for Health and Care Excellence. (2021a). *Evidence standards framework for*

*digital health technologies [ECD7]*. https://www.nice.org.uk/corporate/ecd7

The National Institute for Health and Care Excellence. (2021b). *Principles for putting evidence-based*

*guidance into practice*. https://intopractice.nice.org.uk/principles-putting-evidence-based-

guidance-into-practice/index.html

Thomas, J., Petticrew, M., Noyes, J., Chandler, J., Rehfuess, E., Tugwell, P., & Welch, V. A. (2019).

Intervention complexity. *Cochrane Handbook for Systematic Reviews of Interventions*, 451–477.

https://doi.org/10.1002/9781119536604.CH17

Thornicroft, G., Chatterji, S., Evans-Lacko, S., Gruber, M., Sampson, N., Aguilar-Gaxiola, S., Al-

Hamzawi, A., Alonso, J., Andrade, L., Borges, G., Bruffaerts, R., Bunting, B., De Almeida, J. M. C.,

Florescu, S., De Girolamo, G., Gureje, O., Haro, J. M., He, Y., Hinkov, H., … Kessler, R. C. (2017).

Undertreatment of people with major depressive disorder in 21 countries. In *British Journal of*

*Psychiatry* (Vol. 210, Issue 2, pp. 119–124). https://doi.org/10.1192/bjp.bp.116.188078

Titov, N., Andrews, G., Johnston, L., Robinson, E., & Spence, J. (2010). Transdiagnostic Internet

treatment for anxiety disorders: A randomized controlled trial. *Behaviour Research and*

*Therapy*, *48*(9), 890–899. https://doi.org/10.1016/j.brat.2010.05.014

Titov, N., Dear, B. F., Staples, L. G., Bennett-Levy, J., Klein, B., Rapee, R. M., Shann, C., Richards, D.,

Andersson, G., Ritterband, L., Purtell, C., Bezuidenhout, G., Johnston, L., & Nielssen, O. B.

(2015). MindSpot Clinic: An Accessible, Efficient, and Effective Online Treatment Service for

Anxiety and Depression. *Psychiatric Services*, *66*(10), 1043–1050.

https://doi.org/10.1176/appi.ps.201400477

Titov, N., Dear, B., Nielssen, O., Staples, L., Hadjistavropoulos, H., Nugent, M., Adlam, K., Nordgreen,

T., Bruvik, K. H., Hovland, A., Repål, A., Mathiasen, K., Kraepelien, M., Blom, K., Svanborg, C.,

Lindefors, N., & Kaldo, V. (2018). ICBT in routine care: A descriptive analysis of successful clinics

in five countries. *Internet Interventions*, *13*, 108–115.

https://doi.org/10.1016/j.invent.2018.07.006

Titov, N., Hadjistavropoulos, H. D., Nielssen, O., Mohr, D. C., Andersson, G., & Dear, B. F. (2019).

From Research to Practice: Ten Lessons in Delivering Digital Mental Health Services. *Journal of*

*Clinical Medicine*, *8*(8), 1239. https://doi.org/10.3390/jcm8081239

Topooco, N., Riper, H., Araya, R., Berking, M., Brunn, M., Chevreul, K., Cieslak, R., Ebert, D. D.,

Etchmendy, E., Herrero, R., Kleiboer, A., Krieger, T., García-Palacios, A., Cerga-Pashoja, A.,

Smoktunowicz, E., Urech, A., Vis, C., & Andersson, G. (2017). Attitudes towards digital

treatment for depression: A European stakeholder survey. *Internet Interventions*, *8*, 1–9.

https://doi.org/10.1016/J.INVENT.2017.01.001

Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19

coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*,

*66*(4), 317–320. https://doi.org/10.1177/0020764020915212

Torous, J., & Wykes, T. (2020). Opportunities From the Coronavirus Disease 2019 Pandemic for

Transforming Psychiatric Care With Telehealth. *JAMA Psychiatry*, *77*(12), 1205–1206.

https://doi.org/10.1001/JAMAPSYCHIATRY.2020.1640

Torrence, R. (2021). *Digital Health Investment Boom Speeds Ahead With First Half Jump.* Prognosis,

Bloomberg. https://www.bloomberg.com/news/articles/2021-07-06/digital-health-investment-

boom-speeds-ahead-with-first-half-jump

Tossaint-Schoenmakers, R., Versluis, A., Chavannes, N., Talboom-Kamp, E., & Kasteleyn, M. (2021).

The Challenge of Integrating eHealth Into Health Care: Systematic Literature Review of the

Donabedian Model of Structure, Process, and Outcome. *J Med Internet Res 2021;23(5):E27180*

*Https://Www.Jmir.Org/2021/5/E27180*, *23*(5), e27180. https://doi.org/10.2196/27180

Treanor, C. J., Kouvonen, A., Lallukka, T., & Donnelly, M. (2021). Acceptability of computerized

cognitive behavioral therapy for adults: Umbrella review. *JMIR Mental Health*, *8*(7), P1–P19.

https://doi.org/10.2196/23091

Trinity College Dublin. (2021). *Policy on Good Research Practice.*

https://www.tcd.ie/about/policies/Good_Research_Practice_June2021.pdf

Turoff, M., & Linstone, H. (2002). *The Delphi Method: Techniques and Applications.* New Jersey

Institute of Technology.

Twomey, C., & O'Reilly, G. (2017). Effectiveness of a freely available computerised cognitive behavioural therapy programme (MoodGYM) for depression: Meta-analysis. *Australian and New Zealand Journal of Psychiatry*, *51*(3), 260–269. https://doi.org/10.1177/0004867416656258

UK, N. H. S. (2021). *Clinical Commissioning Groups (CCGs)*. https://www.england.nhs.uk/ccgs/

Uvhagen, H., Hasson, H., Hansson, J., & Von Knorring, M. (2018). Leading top-down implementation processes: A qualitative study on the role of managers. *BMC Health Services Research*, *18*(1), 1–9. https://doi.org/10.1186/S12913-018-3360-Y/FIGURES/2

Valente, T. W., & Davis, R. L. (2016). Accelerating the Diffusion of Innovations Using Opinion Leaders: *Http://Dx.Doi.Org/10.1177/000271629956600105*, *566*(1), 55–67. https://doi.org/10.1177/000271629956600105

Valente, T. W., & Pumpuang, P. (2007). Identifying opinion leaders to promote behavior change. *Health Education and Behavior*, *34*(6), 881–896. https://doi.org/10.1177/1090198106297855

van der Laan, A. L., & Boenink, M. (2015). Beyond Bench and Bedside: Disentangling the Concept of Translational Research. *Health Care Analysis*, *23*(1), 32–49. https://doi.org/10.1007/S10728-012-0236-X/TABLES/2

van der Vaart, R., Worm-Smeitink, M., Bos, Y., Wensing, M., Evers, A., & Knoop, H. (2019). Implementing guided ICBT for chronic pain and fatigue: A qualitative evaluation among therapists and managers. *Internet Interventions*, *18*, 100290. https://doi.org/10.1016/J.INVENT.2019.100290

Vanhaecht, K., Panella, M., Van Zelm, R., & Sermeus, W. (2010). An overview on the history and concept of care pathways as complex interventions. *International Journal of Care Pathways*, *14*(3), 117–123.

Veugelers, R., Gaakeer, M. I., Patka, P., & Huijsman, R. (2020). Improving design choices in Delphi studies in medicine: The case of an exemplary physician multi-round panel study with 100% response. *BMC Medical Research Methodology*, *20*(1), 1–15. https://doi.org/10.1186/S12874-

020-01029-4/FIGURES/7

Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the true global burden of mental illness. *The Lancet Psychiatry*, *3*(2), 171–178. https://doi.org/10.1016/S2215-0366(15)00505-2

Vinten, G. (2002). The corporate governance lessons of Enron. *Corporate Governance: The International Journal of Business in Society*, *2*(4), 4–9. https://doi.org/10.1108/14720700210447632/FULL/XML

Vis, C., Mol, M., Kleiboer, A., Bührmann, L., Finch, T., Smit, J., & Riper, H. (2018). Improving implementation of emental health for mood disorders in routine practice: Systematic review of barriers and facilitating factors. *Journal of Medical Internet Research*, *20*(3). https://doi.org/10.2196/mental.9769

Voigt, P., & dem Bussche, A. (2017). The eu general data protection regulation (gdpr). *A Practical Guide, 1st Ed., Cham: Springer International Publishing*, *10*, 3152676.

Von Ranson, K. M., & Robinson, K. E. (2006). Who is Providing what Type of Psychotherapy to Eating Disorder Clients? A Survey. *International Journal of Eating Disorders*, *39*(1), 27–34. https://doi.org/10.1002/EAT.20201

Watkins, E. R., & Newbold, A. (2020). Factorial designs help to understand how psychological therapy works. *Frontiers in Psychiatry*, *11*, 429. https://doi.org/10.3389/FPSYT.2020.00429/BIBTEX

Weiner, B. J. (2009). A theory of organizational readiness for change. *Implementation Science*, *4*(1), 1–9. https://doi.org/10.1186/1748-5908-4-67/FIGURES/1

Weiner, B. J., Belden, C. M., Bergmire, D. M., & Johnston, M. (2011). The meaning and measurement of implementation climate. *Implementation Science*, *6*(1), 1–12. https://doi.org/10.1186/1748-5908-6-78/FIGURES/1

Wells, M. J., Owen, J. J., McCray, L. W., Bishop, L. B., Eells, T. D., Brown, G. K., Richards, D., Thase, M. E., & Wright, J. H. (2018). Computer-assisted cognitive-behavior therapy for depression in primary care: Systematic review and meta-analysis. In *Primary Care Companion to the Journal*

of *Clinical Psychiatry* (Vol. 20, Issue 2). Physicians Postgraduate Press Inc.

https://doi.org/10.4088/PCC.17r02196

Whiteford, H. A., Ferrari, A. J., Degenhardt, L., Feigin, V., & Vos, T. (2015). The Global Burden of

Mental, Neurological and Substance Use Disorders: An Analysis from the Global Burden of

Disease Study 2010. *PLOS ONE*, *10*(2), e0116820.

https://doi.org/10.1371/journal.pone.0116820

Wilhelmsen, M., Høifødt, R. S., Kolstrup, N., Waterloo, K., Eisemann, M., Chenhall, R., & Risør, M. B.

(2014). Norwegian General Practitioners' Perspectives on Implementation of a Guided Web-

Based Cognitive Behavioral Therapy for Depression: A Qualitative Study. *Journal of Medical

Internet Research*, *16*(9), e208. https://doi.org/10.2196/jmir.3556

Wind, T. R., Rijkeboer, M., Andersson, G., & Riper, H. (2020). The COVID-19 pandemic: The 'black

swan' for mental health care and a turning point for e-health. *Internet Interventions*, *20*.

https://doi.org/10.1016/J.INVENT.2020.100317

Wright, J. H., McCray, L. W., Eells, T. D., Gopalraj, R., & Bishop, L. B. (2018). Computer-Assisted

Cognitive-Behavior Therapy in Medical Care Settings. *Current Psychiatry Reports*, *20*(10), 92.

https://doi.org/10.1007/s11920-018-0947-2

Wright, J. H., Owen, J. J., Richards, D., Eells, T. D., Richardson, T., Brown, G. K., Barrett, M., Rasku, M.

A., Polser, G., & Thase, M. E. (2019). Computer-Assisted Cognitive-Behavior Therapy for

Depression. *The Journal of Clinical Psychiatry*, *80*(2), 0–0.

https://doi.org/10.4088/JCP.18r12188

Wright, J. H., Wright, A. S., Albano, A. M., Basco, M. R., Goldsmith, L. J., Raffield, T., & Otto, M. W.

(2005). Computer-assisted cognitive therapy for depression: Maintaining efficacy while

reducing therapist time. *American Journal of Psychiatry*, *162*(6), 1158–1164.

https://doi.org/10.1176/APPI.AJP.162.6.1158/ASSET/IMAGES/LARGE/P218F2.JPEG

Zhou, X., Edirippulige, S., Bai, X., & Bambling, M. (2021). Are online mental health interventions for

youth effective? A systematic review. *Journal of Telemedicine and Telecare*, *27*(10), 638–666.

## Appendices

## Appendix 2A: Search terms used within mixed methods systematic review

| Term 1 | Term 2 | Term 3 |
|---|---|---|
| icbt | anx* | implement* |
| ccbt | depress* | |
| internet-delivered CBT | low mood | |
| internet-delivered cognitive behavioural therapy | GAD | |
| internet-delivered cognitive behaviour therapy | phobia | |
| internet-based cognitive behaviour therapy | SAD | |
| internet-based cognitive behavioural therapy | | |
| internet-administered cognitive behaviour therapy | | |
| internet-administered cognitive behavioural therapy | | |
| internet-suported cognitive behaviour therapy | | |
| internet-supported cognitive behavioural therapy | | |

**Appendix 2B – Description of included papers within mixed methods systematic review**

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 1 | Conduct an individual participant data meta-analysis to determine the prevalence of clinically significant deterioration in adults with depressive symptoms who received self-guided iCBT compared with control conditions | RCTs that reported results of self-guided iCBT compared with control conditions in adults with symptoms of depression | 13/16 eligible trials were included in the present IPD meta-analysis. 7.2% of participants showed clinically significant deterioration |
| 2 | To evaluate the implementation of a third sector remote CCBT @Home eTherapy service for people experiencing common mental health problems supported by individuals with lived experience. | Supported CCBT packages with telephone support were delivered over a 30-month period. Self-complete measures identifying levels of depression, anxiety and functioning were administered at each treatment appointment. | 2/3 of all participants attended an initial assessment and 53.4% of referrals assigned to CCBT completed treatment. Statistically significant improvements in anxiety, depression and functioning were found |
| 3 | Measuring acceptability, satisfaction, and efficacy of an iCBT program | self-reported online questionnares | Most respondents were satisfied with the programme (n = 191), felt supported (n = 203), reported positive gains and impact resulting from use of the programme, and perceived these to be likely to be lasting effects (n = 149 |
| 4 | Identify the main implementation challenges perceived by therapists and managers involved in the practical operation of iCBT services in routine care settings in five European countries. | multiple comparative case study using interviews with management, focus group interviews, and demonstration of online programs | 1) integration in the mental health care system; 2) recruitment of patients; 3) working practice of therapists; and 4) long-term sustainability of service |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 5 | Discusses the strengths and limitations of internet-based cognitive-behavioral treatments (ICBT) for anxiety disorders | Analysis evaluating ICBT and comparing the course of treatment for patients with contrasting clinical outcomes, the authors offer insights into the many benefits and challenges of ICBT | Electronically-delivered interventions offer advantages, including increased access to treatment, a potential bridge to in-person therapy, and opportunities for large-scale delivery. ICBT can be improved, such as increased attention to patient motivation at the onset of treatment and specific strategies to enhance exposures, which we view as a critical ingredient to the treatment of anxiety disorders |
| 6 | Investigate differences in icbt outcomes to more traditional in person therapy | Students completed online surveys | Less severe depression symptoms and female gender were predictors of higher ratings of ICBT acceptability. Students who had greater intentions to seek mental health services or were graduate students viewed ICBT as more credible than those who had lower intentions. |
| 7 | To examine evidence for the effectiveness of CCBT for depression in primary care and assess the impact of therapist supported CCBT vs self guided CCBT | searched for randomized studies of CCBT compared to control groups for treating depression in primary care settings. Meta analysis compared differences between post treatment mean scores in each condition as well as mean scores at follow up. | 8 studies met inclusion criteria. Effect size was g=0.258, indicating small but significant advantage for CCBT over control conditions. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 8 | Evaluate the clinical effectiveness of iCBT for depression and anxiety in routine secondary care. | retrospective cohort study | large and significant reductions in the symptom levels of depression (beta=-6.27, SE 0.83, P<.001, d=1.0) and anxiety (beta=-3.78, SE 0.43, P<.001, d=1.1). High baseline severity of the primary disorder was associated with high treatment gains |
| 9 | To evaluate the effect of iCBT on social anxiety disorder | Within group surveys and measures over a 3 year period | For social anxiety symptoms significant within-group effect sizes (post-treatment: d = 1.00–1.10; six-month follow-up: d = 1.03–1.55). Also significant effects on secondary depression symptoms (d = 0.67). Clinically significant improvement reported by 66.2% of the participants, and 16.6% a significant deterioration. |
| 10 | To evaluate the efficacy of computer-assisted forms of cognitive-behavior therapy for major depressive disorder and examine the role of clinician support and other factors that might affect outcomes. | 40 randomized controlled investigations of computer assisted cognitive behavior therapy for depression were included in meta-analysis. | overall mean effect sice for CCBT compated to control conditions was g=0.502, a moderately large effect. Completion rate and study setting also influenced outcomes. Self guided CCBT proved less effective then guided. |
| 11 | Feasibility study for iCBT on depressed patients | pilot feasibility trial | clinically significant decrease(46%) in depressive syptoms |
| 12 | To describe the setting, relationship to existing health services, procedures for referral, assessment, treatment, patients and outcomes of ICBT clinics in Sweden, Denmark, Norway, Canada and Australia. | A descriptive analysis of health clinics in 5 different countries | therapist-guided ICBT can be a valuable part of mental health services for anxiety and depression. Important components of successful ICBT services are rigorous governance to maintain a high standard of clinical care, and the measurement and reporting of outcomes. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 13 | To review the evidence from effectiveness studies and highlight challenges when implementing ICBT. | commentary paper discussing iCBT in normal clinical settings | It's possible to transfer ICBT to clinical practice with sustained effects and moderate to large effect sizes. |
| 14 | To provide takeaways learned from successful digital mental health services | commentary paper about lessons learned from establishing and delivering iCBT methods | DMHS should provide not only treatment but also information and assessment services, that DMHS require robust systems for training and supervising therapists, that specialist skills are required to operate DMHS, and that the outcome data from DMHS can inform future mental health policy |
| 15 | Investigate Scottish health service infrastructure and policies that promote or impede the implementation of cCBT in the NHS | national survey | Reported need for software for iCBT use, lack of computer available for patient use, and obstructive local policy |
| 16 | Evaluate therapist feedback (written reviews) sent during iCBT provision | content analysis to identify therapist behaviours | most frequently used therapist behaviours were informing, encouraging, and affirming. However, these were not related to patient outcomes. Although infrequently used, confronting was positively correlated with session completion ($\rho=.342$, $P=.02$). |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 17 | To review research on computer-assisted cognitive-behavior therapy (CCBT) performed in medical settings with the goals of assessing the effectiveness of this newer method of treatment delivery, evaluating the need for clinician support of therapeutic computer programs, and making suggestions for future research and clinical implementation. | systematic review of randomized controlled trials | CCBT can be an effective treatment for depression in primary care patients and health care anxiety. Also, it can be a useful component of treatment for somatic conditions including irritable bowel syndrome, diabetes, fibromyalgia, and chronic pain |
| 18 | To examine whether attitudes toward Internet interventions moderate the effects of a depression-focused Internet intervention, and how attitudes change over the course of treatment among those who do or do not benefit. | Subgroup analysis of the randomized controlled EVIDENT trial | Positive initial attitudes toward Internet interventions were associated with greater efficacy independent of usage time, whereas a negative attitude was associated with reduced efficacy |
| 19 | To review client's emails to gather insights about negative effects from iCBT | directed content analysis to examine emails for mentions of negative affects. Correlational analysis conducted between negative effects and 5 additional measures | over half of participants evaluated mentioned at least one negative experience from iCBT |
| 20 | To evaluate the effectiveness of computerised cognitive behavioural therapy (CCBT) as a low intensity intervention for common mental health disorders (CMHD), and investigates some potential moderators of these effects | A meta- analysis was conducted on 49 randomised controlled trials comparing CCBT to other therapies (n = 24) and waiting list controls (n = 25), across the range of CMHD | an overall mean effect size of $g = 0.77$ (95 % CI 0.59–0.95) in favour of the CCBT trial arms. CCBT was found to be significantly more effective than both waitlist and active control conditions. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 21 | To evaluate whether internet-delivered psychological treatments for mood and anxiety disorders are efficacious, noninferior to established treatments, safe, and cost-effective for children, adolescents and adults | 52 relevant RCTs were identified whereof 12 were excluded due to high risk of bias. Trials evaluated internet-delivered cognitive behavioral therapy (I-CBT) against a waiting list in adult volunteers | iCBT is a viable treatment option for adults with depression and some anxiety disorders who request this treatment modality |
| 22 | To evaluate the effectiveness of ICBT in the treatment of social anxiety disorder and to determine the significance of patient adherence and the clinic's years of experience in delivering ICBT | A longitudinal cohort study where were patients treated with ICBT at an outpatient psychiatric clinic. Primary outcome measure was the Liebowitz Social Anxiety Scale–Self-Rated | Reduction in rates of social anxiety after treatment. These improvements were sustained at the 6-month follow up. Positive association between clinic's experience with CBT and observed treatment outcome. |
| 23 | Re-investigate evidence into effectiveness of interventions for depressive symptoms | meta-analysis | There is a strong need for mental health care at a low threshold. ICBT can fill this roll, either guided or self-guided |
| 24 | To review the treatment approach and the evidence base, arguing that ICBT can be viewed as a vehicle for innovation | Review of studies testing ICBT and CBT practices. Studies on the possible harmful effects of ICBT are also reviewed. | ICBT and other forms of Internet interventions hold promise as a way to increase access to evidence based psychological treatment. They can also serve as vehicles for innovation, which may subsequently inform facetoface treatments. |
| 25 | Review of previous research regarding methods of implementing iCBT | commentary paper discussing the current research on iCBT delivery mwthods | Use of the internet for delivering CBT has been found to be effective in several randomized controlled trials and programs should consider the importance of proper patient diagnoses, evaluation of suitability and user friendliness of the internet system |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 26 | To explore aspects perceived by GPs to affect the implementation of guided ICBT in daily practice. Understanding their perspectives may contribute to improving the treatment of depression in the context of general practice. | A training package introducing a Norwegian translation of the ICBT program MoodGYM was developed and presented to GPs in Norway. Following training, GPs were asked to include guided ICBT in their regular care of patients with symptoms of depression by providing brief, face-to-face follow-up consultations between modules. We interviewed 11 GPs who had taken the course | ICBT motivated them to invest time and effort in improving treatment. The most important motivating aspects in MoodGYM were that a program based on cognitive behavioral therapy could add a structured agenda to their consultations and empower depressed patients. |
| 27 | To review the research evidence with reference to efficacy and effectiveness and presenting a model for dissem- ination and uptake of iCBT into practice | Review includes studies of participants who would meet criteria for major depressive disorder who were supported as they learnt and implemented changes in thoughts, emotions and behaviours by using cognitive behaviour principles | This form of treatment is effective and acceptable to both patients and clinicians. |
| 28 | Meta-analysis of CCBT studies for depression | Meta-analysis of 14 trials | For the sixteen comparisons (2807 participants) comparing CCBT and control conditions, the pooled SMD was −0.48 [95% IC −0.63 to −0.33], suggesting similar effect to the past reviews. Also, there was no significant clinical effect at long follow-up and no improvement of function found. Furthermore, a significantly higher drop-out rate was found for CCBT than for controls. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 29 | Conduct a parallel process evaluation designed to understand facilitators and barriers impacting the uptake and implementation of ICBT. | Process evaluation - therapists and managers completed online surveys | ICBT implementation was perceived prominently facilitated by intervention characteristics and implementation processes |
| 30 | To test the generalizability of this finding to the implementation of CCBT in a service user-led, third sector Self Help Clinic. | 510 referrals for the Beating the Blues program were received over a 16 month period in routine care. The PHQ-9 and GAD-7 Scales were administered pre-treatment and during each treatment session. The CORE-OM, Work and Social Adjustment Scale and Patient Experience Questionnaire were also administered pre-treatment and immediately on completing treatment | More than two-thirds of referrals were suitable for treatment and completed a baseline assessment; 84% of these started the Beating the Blues program. CCBT can be effectively implemented in a service user-led, third sector Self Help Clinic, increasing access to psychological therapies to meet local needs for tier two interventions for depression and anxiety |
| 31 | To identify and describe primary care organizations providing ICBT in Sweden and compare decision makers' views on barriers and facilitators to implementation of ICBT among ICBT implementers and non-implementers | An online survey based on a checklist for identifying barriers and facilitators to implementation was distributed to participants | 89.8% of the participating organizations provided CBT. 20.5% of organizations offered ICBT. Most professionals delivering ICBT were psychologists (80%) and social workers (37%). The majority (73%) of organizations had 1 to 2 persons delivering ICBT interventions. |
| 32 | To assess the implementation of a highly structured therapist-guided iCBT programme for people with work-related anxiety and depression, in terms of programme efficacy, participants' adherence and satisfaction | 12 videoconference sessions that took place across 17–20 weeks. | All participants endorsed lower depression (BDI-II $F(1) = 36.98$, $p < .001$; ATQ $F(1) = 24.22$, $p < .001$), and anxiety (STAI-State $F(1) = 76.62$, $p < .001$) after the programme. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 33 | To examine trends in utilization, patient characteristics, and longitudinal improvements for patients receiving transdiagnostic iCBT | Patients engaged in telephone screenings where demographics and mental health history was collected and completed measures at pre-treatment, post-treatment and at 3- to 4-month follow-up | Primary reason for referral to another service was high suicide risk/severe symptoms (47.1%). Examination of trends showed growing use of transdiagnostic iCBT over time (37% increase per year). There was remarkable stability in patient characteristics across years. Significant longitudinal improvements observed. |
| 34 | To examine PC-MHI mental health clinicians' perspectives on adapting collaborative care models to support cCBT for VA primary care patients. | Carried out structured interviews with PC-MHI nurse care managers, licensed social workers, psychologists, and psychiatrists in one VA health-care system | cCBT awareness and knowledge were not widespread, but participants were still highly accepting of enhancing PC-MHI models with cCBT for depression treatment |
| 35 | To examine the efficacy of an internet-delivered cognitive behavioural treatment (ICBT) in an Arabic-speaking immigrant population | Pilot study in which interventions consisted of nine modules targeting areas such as depression, anxiety and insomnia. Self-reported symptoms of depression on the PHQ-9 were used as primary outcome measure. Secondary outcome measures of anxiety, stress, insomnia, quality of life and post-traumatic stress were also used | depressive symptoms were significantly reduced compared to the wait-list control group with a between group effect at post-treatment of Cohen's d = 0.85 [0.29, 1.41]. |
| 36 | Produce a critical appraisal of published reviews about the acceptability of cCBT for adults | Umbrella review; synthesize quantitative findings relating to acceptability of and adherence to cCBT for common adult mental disorders | review indicated that "one size did not fit all" regarding the acceptability of cCBT and that individual tailoring of cCBT is required in order to increase population reach, uptake, and adherence and therefore, deliver treatment benefits and improve mental health. |

| Paper ID | Aims/Hypotheses/Objectives | Method Description | Results Summary |
|---|---|---|---|
| 37 | To evaluate perceptions around iCBT | Online surveys distributed to participants | No differences in perceptions of ICBT were identified between the conditions. Ratings of credibility, treatment expectancy, anticipated treatment adherence, and acceptability suggested that PSP had positive perceptions of ICBT |
| 38 | To evaluate patients who had undergone iCBT with minimal support while actively awaiting outpatient psychological treatment in the form of face-to-face CBT | Semi-structured interviews | iCBT treatment was unfavorably compared to the usual face-to-face treatment at the clinic. |
| 39 | To assess the cost-effectiveness of implementing a community internet-based cognitive behavioral therapy intervention for treating major depressive disorder. | Cost data collected from participants using the program. The health states, transition probabilities, and utilities were computed using Patient Health Questionnaire–9 scores. | intervention was more costly than usual care; the discounted (3%) and non discounted incremental cost-effectiveness ratios were €29,367 and €26,484 per quality-adjusted life-year, respectively (approximately US $35,299 and $31,833, respectively). |
| 40 | To evaluate the efficacy of an iCBT transdiagnostic program translated from English to French and offered in Canada using a minimally monitored delivery model for the treatment of anxiety and depression | RCT using GAD-7 and PHQ-9 as primary outcome measures | treatment group had significantly lower PHQ-9 and GAD-7 scores post-treatment than controls with small between-groups effect sizes (d = 0.34 and 0.37) |

**Appendix 3A – Notes on ethical approval**

A full list of ethical materials is available, on request, from the thesis author (Daniel Duffy, duffyd8@tcd.ie). Due to word count limitations, these documents have not been included within this thesis.

If you require this information, a zip file with the following documents will be sent to you:

- A copy of the Trinity College Dublin ethics application form

- A copy of the Health Research Authority ethics application form

- Participant information sheets and consent forms for the qualitative study (separate documents for commercial iCBT representatives, service providers and patients)

- Participant information sheets and consent forms for the delphi study

- Data protection threshold assessment and full data protection impact assessment undertaken by SilverCloud Health (the data controller) regarding the conduct of the qualitative and delphi studies.

- Any other information listed within the table illustrated within appendix 3c that you may require (e.g. responses to NHS ethics, contract with NHS recruitment site, patient e-mail invitation sent by therapists at the site to prospective patient participants).

Please do not hesitate to request the above documents, or any other supporting documentation that you have need of when reviewing this thesis.

**Appendix 3B – School of Psychology (TCD) ethics approval letter**

F.A.O. Daniel Duffy
**Approval ID: SPREC112018-01**

### School of Psychology Research Ethics Committee

10th January 2019

Dear Daniel,

The School of Psychology Research Ethics Committee has reviewed your application entitled "Implementation of internet-delivered psychological interventions" and I am pleased to inform you that it was approved.

Please note that you will be required to submit a completed **Project Annual Report Form** on each anniversary of this approval, until such time as the research is complete and the thesis is submitted. The form is available for download from the Ethics section of the School website.

Adverse events associated with the conduct of this research must be reported immediately to the Chair of the Ethics Committee.

Yours sincerely,

Richard Carson
Chair,
School of Psychology Research Ethics Committee

**Appendix 3C – NHS Research Ethics Approval Letter**

**NHS**
**Health Research Authority**

**London - Westminster Research Ethics Committee**
The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

> **Please note:** This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

05 August 2020

Ms Sarah Sollesse
Step 2 Innovation and Service Delivery Improvement lead (Berkshire/Surrey)
Talking Therapies, Berkshire Healthcare Foundation Trust
Fitzwilliam House
Skimped Hill Lane
Bracknell, Berkshire
RG12 1JX

Dear Ms Sollesse,

| Study title: | Implementing Digital Interventions in healthcare services: a qualitative exploration of stakeholder experience |
|---|---|
| REC reference: | 20/PR/0043 |
| Protocol number: | 1 |
| IRAS project ID: | 270142 |

Thank you for your letter of 28 July 2020, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair and Mrs Jennifer Johnson.

**Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

**Conditions of the favourable opinion**

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

It is a condition of the REC favourable opinion that **all clinical trials are registered** on a publicly accessible database. For this purpose, 'clinical trials' are defined as the first four project categories in IRAS project filter question 2. Registration is a legal requirement for clinical trials of investigational medicinal products (CTIMPs), except for phase I trials in healthy volunteers (these must still register as a condition of the REC favourable opinion).

Registration should take place as early as possible and within six weeks of recruiting the first research participant at the latest. Failure to register is a breach of these approval conditions, unless a deferral has been agreed by or on behalf of the Research Ethics Committee ( see here for more information on requesting a deferral: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/research-registration-rese arch-project-identifiers/

As set out in the UK Policy Framework, research sponsors are responsible for making information about research publicly available before it starts e.g. by registering the research project on a publicly accessible register. Further guidance on registration is available at: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/transparency-responsibilit ies/

You should notify the REC of the registration details.  We will audit these as part of the annual progress reporting process.

**It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).**

**After ethical review: Reporting requirements**

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study, including early termination of the study
- Final report

The latest guidance on these topics can be found at
https://www.hra.nhs.uk/approvals-amendments/managing-your-approval/.

**Ethical review of research sites**

NHS/HSC sites

The favourable opinion applies to all NHS/HSC sites listed in the application subject to confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or management permission (in Scotland) being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS/HSC sites

I am pleased to confirm that the favourable opinion applies to any non-NHS/HSC sites listed in the application, subject to site management permission being obtained prior to the start of the study at the site.

**Approved documents**

The final list of documents reviewed and approved by the Committee is as follows:

| Document | Version | Date |
|---|---|---|
| Covering letter on headed paper [Sponsor Letter] | 1 | 10 January 2020 |
| Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Insurance information] | NA | |
| Interview schedules or topic guides for participants [Patient interview schedule] | 1 | 28 April 2020 |
| Interview schedules or topic guides for participants [Healthcare service schedule] | 1 | 28 April 2020 |
| IRAS Application Form [IRAS_Form_29052020] | | 29 May 2020 |
| IRAS Checklist XML [Checklist_02062020] | | 02 June 2020 |
| Letters of invitation to participant [patient e-mail invitation] | 1 | 02 June 2020 |
| Other [PPI Feedback & Responses] | 1 | 28 April 2020 |
| Other [Responses to REC] | 1 | 28 July 2020 |
| Participant consent form [Consent Form] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_Patient] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_Healthcare] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_PWP] | 1.1 | 28 July 2020 |

| Research protocol or project proposal [SOP] | 1.1 | 28 July 2020 |
|---|---|---|
| Summary CV for Chief Investigator (CI) [Summary CV_DR] | N/A | |
| Summary, synopsis or diagram (flowchart) of protocol in non technical language [Synopsis] | 1 | 28 April 2020 |

**Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**User Feedback**

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

**HRA Learning**

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at:
https://www.hra.nhs.uk/planning-and-improving-research/learning/

| IRAS project ID: 270142 | Please quote this number on all correspondence |
|---|---|

With the Committee's best wishes for the success of this project.

Yours sincerely,

*P.P.* 

**Mr Robert Goldstein**
**Chair**

Email: westminster.rec@hra.nhs.uk

Enclosures:        "After ethical review – guidance for researchers"

Copy to:            Mr Daniel Duffy

**Appendix 3D – NHS Health Research Authority Approval Letter**

Ymchwil Iechyd
a Gofal Cymru
Health and Care
Research Wales

**NHS**
Health Research
Authority

Ms Sarah Sollesse
Step 2 Innovation and Service Delivery Improvement
lead (Berkshire/Surrey)
Talking Therapies, Berkshire Healthcare Foundation
Trust
Fitzwilliam House
Skimped Hill Lane
Bracknell, Berkshire
RG12 1JX

Email: approvals@hra.nhs.uk
HCRW.approvals@wales.nhs.uk

05 August 2020

Dear Ms Sollesse

**HRA and Health and Care
Research Wales (HCRW)
Approval Letter**

| | |
|---|---|
| **Study title:** | **Implementing Digital Interventions in healthcare services: a qualitative exploration of stakeholder experience** |
| **IRAS project ID:** | **270142** |
| **Protocol number:** | **1** |
| **REC reference:** | **20/PR/0043** |
| **Sponsor** | **SilverCloud Health** |

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

**How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?**
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

**How should I work with participating non-NHS organisations?**
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

**What are my notification responsibilities during the study?**

The standard conditions document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:
- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

**Who should I contact for further information?**
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **270142**. Please quote this on all correspondence.

Yours sincerely,
**Rachel Katzenellenbogen**
**Approvals Specialist**

Email: westminster.rec@hra.nhs.uk

Copy to:     Mr Daniel Duffy

**List of Documents**

The final document set assessed and approved by HRA and HCRW Approval is listed below.

| Document | Version | Date |
|---|---|---|
| Contract/Study Agreement template [Research agreement] | 1 | 28 April 2020 |
| Covering letter on headed paper [Sponsor Letter] | 1 | 10 January 2020 |
| Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Insurance information] | NA | |
| Interview schedules or topic guides for participants [Patient interview schedule] | 1 | 28 April 2020 |
| Interview schedules or topic guides for participants [Healthcare service schedule] | 1 | 28 April 2020 |
| IRAS Application Form [IRAS_Form_29052020] | | 29 May 2020 |
| IRAS Checklist XML [Checklist_02062020] | | 02 June 2020 |
| Letters of invitation to participant [patient e-mail invitation] | 1 | 02 June 2020 |
| Organisation Information Document [Organisation Information Document] | 1 | 02 June 2020 |
| Other [Responses to REC] | 1 | 28 July 2020 |
| Other [PPI Feedback & Responses] | 1 | 28 April 2020 |
| Participant consent form [Consent Form] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_Patient] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_Healthcare] | 1.1 | 28 July 2020 |
| Participant information sheet (PIS) [PIS_PWP] | 1.1 | 28 July 2020 |
| Research protocol or project proposal [SOP] | 1.1 | 28 July 2020 |
| Summary CV for Chief Investigator (CI) [Summary CV_DR] | N/A | |
| Summary, synopsis or diagram (flowchart) of protocol in non technical language [Synopsis] | 1 | 28 April 2020 |

| IRAS project ID | 270142 |
|---|---|

## Information to support study set up

The below provides all parties with information to support the arranging and confirming of capacity and capability with participating NHS organisations in England and Wales. This is intended to be an accurate reflection of the study at the time of issue of this letter.

| Types of participating NHS organisation | Expectations related to confirmation of capacity and capability | Agreement to be used | Funding arrangements | Oversight expectations | HR Good Practice Resource Pack expectations |
|---|---|---|---|---|---|
| This is a commercial study with a single participating NHS organisation. Part C of the IRAS form has not been completed, but the applicant has confirmed that Berkshire Healthcare NHS Foundation Trust is the organisation | Research activities should not commence at participating NHS organisations in England or Wales prior to their formal confirmation of capacity and capability to deliver the study. | Given there is no appropriate model agreement, the sponsor is using a bespoke agreement, which is based upon the model Clinical Investigation Agreement (mCIA). The HRA and HCRW make no judgement on the acceptability of the agreement, and waive the requirement to use an unmodified model agreement. Participating NHS organisations should now determine its acceptability and liaise with the sponsor to confirm the content of the agreement. Please note, this waiver does not constitute approval of the agreement, nor | No interactive Costing Tool (iCT) has been provided. This is due to the temporary suspension of the expectation that iCT is in place prior to IRAS submission, in place whilst NIHR prioritises its resources in line with its response to COVID-19. | A Principal Investigator is expected to be in place at the participating organisation. | No access arrangements are expected as all study activity at the participating NHS organisation will be undertaken by NHS staff who have a contractual relationship with the organisation. For research team members that do not have existing contractual relationships with the participating organisation, Letters of Access should be in place if the activities undertaken at the NHS site involve contact with patients (e.g. to take consent), on the basis of Research Passports (if University employed) or NHS to NHS confirmation of pre-engagement checks letters (if NHS employed). The pre-engagement checks should include standard DBS checks and Occupational Health Clearance. No specific pre- |
| taking part. | | does it require NHS organisations to use this agreement. | | | engagement checks are required to have taken place if the members of the research team are only accessing patients' data. |

## Other information to aid study set-up and delivery

| *This details any other information that may be helpful to sponsors and participating NHS organisations in England and Wales in study set-up.* |
|---|
| An application has been made for inclusion in the NIHR Clinical Research Network Portfolio. |

**Appendix 3E – Patient-public involvement group feedback and responses**

**PPI feedback for Implementation of Internet Delivered Interventions**
**Healthwatch meeting 21.11.2019**


1. **Clarity – are the questions and information presented worded coherently?**

- The questions are very clear and the group liked that there were only 4 so that you could go into detail for each one. The only question that needed further clarification was Question 3 about 'contextual factors' as the group thought this sounded too academic and was not sure exactly what it meant. The group felt it would be ok as Dan the researcher would be explaining the meaning but wondered if another word could be used.
-
- **RESPONSE:**
- Further 'scaffolding' has been added to the interview to mitigate against this confusion. Once contextual factors are given, a definition is given to participants based on the concept analysis of the term by Pfadenhauer et al. (2015)
- Pfadenhauer, L. M., Mozygemba, K., Gerhardus, A., Hofmann, B., Booth, A., Lysdahl, K. B., ... & Rehfuess, E. A. (2015). Context and implementation: a concept analysis towards conceptual maturity. Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen, 109(2), 103-114.

2. **Appropriateness – is the content of the PIS and questionnaire suitable for someone who has finished a course of online therapy in IAPT?**

- The group felt the PIS was a little bit too wordy and technical as it currently stands and thought it would help to simplify where possible.
- One member of the group thought the addition of pictures or at least logo/some colour would make the PIS more digestible.
- Good range of questions in the interview.
-
- **RESPONSE**
- The logo of SilverCloud and Berkshire Healthcare has been added to the information sheet
- Wording has been reduced in places. A revision has been done to the data security sections so that it uses more coherent and understandable language

3. **Acceptability – does the PPI participant think that the questionnaire sufficiently captures the meaningful points of a patient journey through an IAPT service?**

- Yes, but the group felt like you could also ask about the time in between their initial assessment and starting online treatment – e.g. about their waiting times to start treatment, as there might be additional useful information to capture here.


- **RESPONSE**
- If participants in the interview cite this as a factor pertinent to their experience, this will be probed and explored further

**4. General comments (any thoughts or remarks the PPI participant comes up with while reading through the materials)**

- Demographics – make sure you ask about ethnicity and the other protected characteristics. Also when asking about demographics the group felt it was important to say why you are asking about this – e.g. it's about equity rather than just being nosey!

- It would be helpful for participants to know roughly how long the interviews are going to take so they know how long to set aside.

- There was a strong dislike to the word 'satisfied' in Question 4. Also the prompt for Question 4 could say "What was central to this, any why?"

- The group thought it would be important to capture whether the client had felt listened to in treatment and if they had been treated with dignity.

- **RESPONSE:**

- Data collected and the rationale for collecting these are now described in the information sheet. Ethnicity will not specifically be collected, but if participants are to speak about their membership of an ethnic group and how it may have impacted on treatment experience, this will be explored further.

- Duration of interviews has been added to the information sheet.

- The prompt suggested by the PPI committee has been added to the interview sheet

- The word 'satisfied' has been left within the question wording. The purpose of this question is to explore the factors that were central to the patient's satisfaction/dissatisfaction with their treatment, and the research team believes it is important to explore this

- The research team believe that the feedback regarding asking whether clients had felt listened to in treatment or if they had been treated with dignity is important. Where this information arises throughout the interview, it will be addressed and followed-up appropriately. However, specifically asking a question about this is potentially leading, and could cause the interview to be directed in an unintended direction.

**Appendix 3F – Commercial iCBT Representative Interview Schedule**

**1)** Can you tell me about your role? How do you currently work or how you have worked in the implementation of the SilverCloud solution? How many years have you been in this role for?

**2)** Explain the following to the participant:
*"When implementing SilverCloud in healthcare services, different types of personnel from parts of an organisation become involved at different levels.*
*To explore this a little bit more, I'd like for you to go back and tell me about your experiences of implementing SilverCloud."*

**A:** Firstly, working as a member of the **customer success team**, I understand that you may have been involved in a number of different aspects of the implementation such as…
1. Working with the relevant teams to ensure the account is ready to go-live in terms of technical integration
2. Identifying and working with Intervention/Digital Champions at sites
3. Training
4. Facilitating growth within the account (e.g. identifying new user population)
5. Working closely with sales to facilitate account renewals and upsell

**A:** Firstly, working in a **product/development role**, I understand that you may have been involved in a number of different aspects of the implementation such as…
1. Working with customer success in regards to technical integration and facilitating growth within certain accounts
2. Alerting to customers any changes in the user interface or technical improvements within the platform.
3. Providing technical support
4. Working with customers to improve the platform

**A:** Firstly, working in a **sales/commercial role**, I understand that you may have been involved in a number of different aspects of the implementation such as…
1. Identifying potential new customers
2. The procurement of the intervention
3. Working with services to introduce SilverCloud
4. Working with the customer success team to manage the account, renewals and upsell

Have I gotten this right? Is there anything I may have missed about your involvement in the implementation of SilverCloud?

**B:** Can you tell me about your experience of each of these, starting with *area*?

**C:** Based on everything you've just told me, I would like to elicit your feedback
- What works well?

- What doesn't work well?
  - Follow up: What could be improved upon?
- If participant struggles, bring back the strategies to their experience
  - *"what have you done in the past that you think was effective or ineffective?*
  - *"What have others done that you thought was effective or ineffective?"*

**3)** Based on your experience and what we have talked about, do you believe that contextual factors impacted on the implementation of SilverCloud?

Prompts
- context (inner, outer, political, cultural factors, commercial, competitive)
- Provide examples, where necessary (e.g. the need to meet treatment targets around certain groups as outer/political context, leadership issues as internal context)
- Rephrase the question: "if they impacted or *can* impact on the implementation...
  - Bringing the question to a general level, then back to specifics can help focus the participant.

**4)** From your experience, what, in your view, are the aspects of the implementation process or influencing factors that matter most?

**Appendix 3G – Service provider interview schedule**

**1)** Can you tell me about your role? How do you currently work or how you have worked in the implementation of the SilverCloud solution? How many years have you been in this role for?

**2)** Explain the following to the participant:
*"When implementing SilverCloud in healthcare services, different types of personnel from parts of an organisation become involved at different levels.*
*To explore this a little bit more, I'd like for you to go back and tell me about your experiences of using SilverCloud at the start."*

**A:** Firstly, working in a **management/directorial role**, I understand that you may have been involved in a number of different aspects of the implementation such as…
6. The procurement of the intervention
7. Designing pathways and procedures around the intervention
8. Training
9. Monitoring and evaluating the progress and outcomes of the intervention

**A:** Firstly, working as a **Service Manager/Team Manager/ Digital Lead**, I understand that you may have been involved in a number of different aspects of the implementation such as…
10. Training
11. Creating and actioning service procedures around the digital intervention
12. Facilitating the work and learning of others around the intervention
13. Identifying problem areas around the implementation of the intervention and addressing these.

**A:** Firstly, working as a **PWP**, I understand that you may have been involved in a number of different aspects of the implementation such as…
1. Training (both SilverCloud and in-service)
2. Assessing suitability for an online intervention
3. Bringing patients on a digital therapy to supervision
4. Following up and managing patients on a digital intervention

Have I gotten this right? Is there anything I may have missed about your involvement in the implementation of SilverCloud?

**B:** Can you tell me about your experience of each of these, starting with *area*?

**C:** Based on everything you've just told me, I would like to elicit your feedback
- What works well in terms of implementing?
- What doesn't work well in terms of implementing?
    - Follow up: What could be improved upon?

- If participant struggles, bring back the strategies to their experience
  - *"what have you done in the past that you think was effective or ineffective?*
  - *"What have others done that you thought was effective or ineffective?"*

**3)** Based on your experience and what we have talked about, do you believe that contextual factors impacted on the implementation of SilverCloud?

Prompts
- context (inner, outer, political, cultural factors, commercial, competitive)
- Provide examples, where necessary (e.g. the need to meet treatment targets around certain groups as outer/political context, leadership issues as internal context)
- Rephrase the question: "if they impacted or *can* impact on the implementation...
  - Bringing the question to a general level, then back to specifics can help focus the participant.

**4)** From your experience, what, in your view, are the aspects of the implementation process or influencing factors that matter most?

**Appendix 3H – Patient interview schedule**

**1)** Demographics – gather participant information on age + gender.

**2)** Explain the following to the participant:

*"When SilverCloud is implemented in healthcare services, service users can be introduced to and interact with the online programme in a number of ways.*

*To explore this, I'd like to ask you some questions about your experiences of using SilverCloud"*

**A:** As a service user of an Improving Access to Psychological Therapies service, I understand that you may have encountered the following before, during and after using the SilverCloud Intervention…

1. Being referred by a GP or self-referring to an IAPT service for psychological services
2. Being assessed by a PWP for service eligibility
3. Using the online intervention throughout the treatment period
4. Receiving online or telephone support from your PWP
5. Contacting the service where you had any issues or queries, such as missing or rescheduling an appointment, pausing treatment due to a holiday, etc.
6. Being discharged from the service

Have I gotten this right? Is there anything I may have missed about your experience of attending IAPT Services?

**B:** Can you tell me about your experience of each of these, starting with *x* (areas listed above)?

**C:** Based on everything you've just told me, I would like to elicit your feedback about the service you were provided

- What has worked well in the service you were offered?
- What didn't work well in the service you were offered?
- What could work better in how the service was delivered to you?

**3)** Based on your experience and what we have talked about, do you believe that contextual factors impacted on your treatment experience of SilverCloud?

   Prompts

- context (inner, outer, political, cultural, factors, commercial, competitive)
- Provide examples, where necessary

**4)** Overall, were you satisfied with the treatment you received?

- What was central to this?

**Appendix 3i – Commercial iCBT representative individual contributions to domain "commercial iCBT representative implementation strategies"**

| Category | n | Participant No. | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| The training of supporters and coaches in the use of iCBT | 4 | | x | x | x | x | |
| Educating potential referrers in iCBT | 1 | | | | x | | |
| The development of online resources, including webinars and online training courses | 2 | | x | | x | | |
| Conducting product pilots with services to demonstrate use cases for new programmes | 3 | | | x | x | | x |
| Building the required team structure to ensure successful implementation and scaling of iCBT. | 4 | x | | x | | x | x |
| Identifying "the right people" within services at all levels (directorial, managerial, frontline worker)to implement, sustain and develop iCBT in mental health services | 5 | x | x | x | x | | x |
| Working with the service provider to integrate iCBT within care pathways | 4 | | x | x | x | x | |
| Being responsive to service provider needs to provide guidance and troubleshoot issues | 6 | x | x | x | x | x | x |
| Working with more services negatively impacts on the availability of resources to support multiple, concurrent implementations of iCBT | 3 | x | x | | | x | |

**Appendix 3J - Commercial iCBT representative quotes associated with domain "commercial iCBT representative implementation strategies"**

| Level 1 Category | N | Quotes |
|---|---|---|
| The training of supporters and coaches in the use of iCBT by the commercial iCBT representatives to be proficient in its administration | 4 | "We have a fairly standard training where we give people roughly about three hours. So, you get an hour where we give people an overview of what SilverCloud is and the programmes...Then an hour on the supporter role and how you can do that well. Then we'll do half an hour administrator demonstration showing people how to click around the buttons"  (2)<br><br>"Training clinicians is important —whenever they need it, they might need top-ups. Because if you have an untrained clinician on this there is going to be a fall down for the end-user" (3) |
| Educating potential referrers to iCBT | 1 | "So, currently, with regard to implementation, we're very much involved from educating the stakeholders, and that can be anyone from referring clinicians or GP's that are not directly involved in supporting SilverCloud but would refer patients into services that do" (4) |
| The development of online resources, including webinars and online training courses | 2 | "we want to drive people to use the online help centre...it's a self-piece learning, we put in all the good stuff about the history...the evidence base behind online CBT, why patients like it.... how it works.... Then online communication, how it benefits patients, then examples of how to do online communication. Then it goes actually into our programmes and what the modules are, what the activities are..."(4)<br><br>"we've started to do some open training webinars so that anyone who wants to access to top-up training like a refresher training, can just sign up to a webinar and dial in. And so far, we've been getting some pretty good attendances on that, so that is quite useful" (2) |

| Level 1 Category | N | Quotes |
|---|---|---|
| Conducting product pilots with services to demonstrate use cases for new programmes | 3 | "So, that is currently being piloted with a US and UK customer, we're about to review the data-- qualitatively, it seems like it went well, but we need to be sure that there is no negative impact on outcomes before we release it for others." (3)<br><br>"We then work with a service to try and put it [new programme] into the service so they can trial it, we then look at the outcome of the trial. We don't do a big pilot...we get to about 35 to 40 patients and that is when it should stop. And then, we take all that information, we work with the marketing team to identify what they want for the collateral. We then work with the sales team. Obviously, all of this is done cross-functional, I don't do this in isolation" (6) |
| Building the required team structure to ensure successful implementation and scaling of iCBT. | 4 | "...you have people who have the clinical experience and know what it is you're trying to achieve and have their ideas of how to achieve it. Then you have people on the technical and the design side that know how completely unrelated fields have solved problems and how they might apply in this context and how you can leverage the technology in the best way." (5)<br><br>"customer success have a weekly stand up call, within that call, they talk about new business that is on the horizon, anything in terms of switch-offs and churned customers. Then talking about implementations and handovers. So, they have a weekly update call with the entire team—it's a good half an hour of everybody across the business can see what's going on from an implementation point of view." (1) |

| Level 1 Category | N | Quotes |
|---|---|---|
| Identifying "the right people" within services at all levels (directorial, managerial, frontline worker)to implement, sustain and develop iCBT in mental health services | 5 | "typically, it would some kind of innovative leader that is in the area who has some kind of vision of what the future of mental health services are, kind of visionary leader-type people….You need someone who can see how it could make a difference" (2)<br><br>"We usually go back and say, well, it would be fantastic to have somebody from your clinical side, somebody who is going to use the system, somebody who has got an implementation hat on in terms of process mapping" (1) |
| Working with the service provider to integrate iCBT within care pathways | 4 | "...then &lt;name&gt; sits down and map out a pathway with &lt;customer&gt;. So, now, we're going to test a perinatal programme, how are we going to do that; how do you typically triage your perinatal clients? There is obviously risk issues there, how do they get flagged, or do they even need to flag something here, or is it the fact that you might know that they're a new parent or pregnant; how does that work? And then from there, then looking at how then to support PWPs in directing the right people onto the programme" (3)<br><br>"...[if] it's [iCBT]  not defined as a pathway... or the wider healthcare system are not educated on it or the people referring in have no idea about it...then you've just made the people that are using it aware of it— that it doesn't work... They don't have the time to use it, they don't have the knowledge, people aren't referring ...Whereas, if you put time into implementation, you've got a service lead or a manager that's like, okay, let's look at the pathway. And by the pathway, it's like, okay where do patients first become aware of this; are they self-referring in, is a physician referring them in? If they're self-referring in, we need to look at all that comms, how they become aware of it. If the physician is referring in, we need to make them aware of it (4) |

| Level 1 Category | N | Quotes |
|---|---|---|
| Being responsive to service provider needs to provide guidance and troubleshoot issues | 6 | "you need to acknowledge their worry, always say "t*his is a work in progress and say that we always learn from this, we're not going to give you this and run away, it will be a learning experience*". You've got to get them to invest in it and see it as they're actually building something with you. So, it's much less about me doing it to them, it's them doing it-- I'm doing it alongside them, I'm facilitating them along a pathway." (6)<br><br>"if we ultimately, can't help customers—Basically, they're going to have a gun against their head. Either they have a gun against their head, or we have to make them look good, so, how do we do that; how do we make them look good [regarding clinical outcomes] or how do we get some of that pressure removed from them [regarding current service issues]?  so, we have to listen to them to understand what they're being judged against and that is a really important piece. If we don't know that and if we don't understand that, we're shooting in the dark in some respects" (3) |
| Working with more services negatively impacts on the availability of resources to support multiple, concurrent implementations of iCBT | 3 | "If we're busy with multiple implementations then we don't do some of the other stuff, the softer stuff around services reviews, following up on usage, developing training resources, that kind of stuff." (2)<br><br>"Back when SilverCloud was working with <service>, we essentially had five customers. So, the team was able to dedicate a lot of time to this one big partnership. Even if we didn't understand the business value of it at the time, there weren't multiple other projects that needed attention like now." (5) |

**Appendix 3K – service provider individual contributions to domain "service provider implementation strategies"**

| Level 1 Category | Level 2 Category | n | Participant No. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |
| Implementing and enacting effective leadership systems to support the use of the intervention and assist therapists in its utilisation | The importance of having management with capacity to drive change and accommodate the delivery of digital as part of service provision | 6 | x | x | x | x | x | x |
| | Visibility and clarity of goals related to iCBT, and their role in overall service provision | 3 | | | x | x | | x |
| | The role of digital champions in pioneering iCBT within the service to allow it reach its full potential | 6 | x | x | x | x | x | x |
| In-service training initiatives to educate therapists in the use and benefits of iCBT. | Training initiatives for new starters (trainees and recently hired therapists) in the use of iCBT within the service are necessary to build therapist competency | 5 | x | x | x | x | | x |
| | On-going training to highlight new programmes or procedures related to iCBT is important | 6 | x | x | x | x | x | x |
| | Disseminating clinical outcomes of iCBT to demonstrate effectiveness and encourage use among therapists | 5 | x | | x | x | x | x |
| The provision of feedback to service management and intervention developers refines and improves the iCBT offering. | Gathering feedback on gaps in iCBT service provision improves its use among therapists within services | 4 | x | x | x | x | | |

| Level 1 Category | Level 2 Category | n | Participant No. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 7 | 8 | 9 | 10 | 11 | 12 |
| | Gathering feedback on iCBT programmes and their content is important in addressing the needs of clients | 3 | x | x | | | | x |
| | Positive perceptions of service providers on their relationship with the iCBT company creates feelings of 'working in partnership' | 4 | x | x | | x | | x |
| Creating iCBT appropriate work structures facilitates therapists in its delivery | Routinely auditing iCBT data is important in improving how the service administers iCBT | 3 | x | | x | x | | |
| | Creating tools and reference documents supports therapists in their use of the intervention | 5 | x | x | x | x | x | |
| | Clinical supervision is valued in supporting iCBT provision and helps to address issues of clinical risk | 2 | x | x | | | | |
| | Line management is important in establishing and monitoring individual staff goals around iCBT use that are reflective of wider service goals | 5 | x | x | x | x | | x |
| | Designing and revising existing pathways for iCBT use facilitates its performance in terms of clinical outcomes and access | 4 | | x | x | x | | x |

**Appendix 3L – service provider quotes associated with domain "commercial iCBT representative implementation strategies"**

| Category | Sub-category | n | Quote |
|---|---|---|---|
| Implementing and enacting effective leadership systems to support the use of the intervention and assist therapists in its utilisation | The importance of having management with capacity to drive change and accommodate the delivery of digital as part of service provision | 6 | "I think we're very lucky that kind of comes from the top because we've got the people here that are always kind of pushing us forward in that way to be better and to offer more choice for our clients" (7)<br><br>"We're advocates and I've obviously cascaded that advocacy so then people can see the benefits, more people have done it, we've worked at our trainees coming in, so, that everybody who is new, we've got a SilverCloud introduction, we've got a programme that is part of it." (12) |
| | Visibility and clarity of goals related to iCBT, and their role in overall service provision | 3 | "the five year forward view and the long-term plan, it was showing us where we needed to be… And looking at our workforce capacity, we knew that we needed to have goals around iCBT use." (10)<br><br>"So, I think what I'm coming round in full circle is, informing them of the goals and big picture so everybody is on board to pull together so that together, we can do it, we will find a way that is going to achieve the outcome we want so we're a successful service." (12) |

| Category | Sub-category | n | Quote |
|---|---|---|---|
| | The role of digital champions in pioneering iCBT within the service to allow it reach its full potential | 6 | "our digital champions have been a huge help, making sure you had someone leading that are passionate about SilverCloud and digital working is a big selling point in the teams if we had any changes or things like that." (11)<br><br>"So, the main thing that we tend to get involved with is SilverCloud, but we also did a lot around video appointments and things like that. They're very much rolled out in the whole service now but when we were first trialling video appointments it was the digital champions that were the first to offer them." (8) |
| In-service training initiatives to educate therapists in the use and benefits of iCBT. | Training initiatives for new starters (trainees and recently hired therapists) in the use of iCBT within the service are necessary to build therapist competency | 5 | "our trainees work on the core intervention so, they wouldn't step away from the kind of core depression, generalised anxiety, problem-solving kind of sleep. When they're more experienced that is when they can start working more on the social anxiety and the health anxiety. So, they will have had that built up confidence and experience" (9)<br><br>"first of all, they start off by observing SilverCloud being used by our current therapists. Then they would be observed to use it themselves, so, we wouldn't sign people off until they had been observed-- I think it's like five occasions and have had all the feedback that they need and until somebody is satisfied that this person is able to use SilverCloud" (10) |
| | On-going training to highlight new programmes or procedures related to iCBT is important | 6 | "...And then lots of top-up training, so, whether it's training for new programmes, I [digital champion] delivered some training on the sleep programme when that first came on." (7)<br><br>"when there was the big push on digital, we did a lot of training mornings, just internal, around selling SilverCloud, how to get people on to online" (8) |

| Category | Sub-category | n | Quote |
|---|---|---|---|
| | Disseminating clinical outcomes of iCBT to demonstrate effectiveness and encourage use among therapists | 5 | "...the good thing about being able to share that is that it speaks for itself, you can't hide behind the numbers and the data, it's absolutely evidencing that those who engage in SilverCloud treatment are more likely to have a better recovery outcome than somebody going through guided self-help process. So, as well as that, we're able to share patient feedback experience" (9)<br><br>"some of the performance stuff within the talking therapies team would be shared with the service and really drive that forward. So, looking at recovery rates, DNA rates, and comparing those and really showing the positive impact of having SilverCloud in the service is having on clients" (11) |
| The provision of feedback to service management and intervention developers refines and improves the iCBT offering. | Gathering feedback on gaps in iCBT-related service provision improves its use among therapists within services | 4 | "we're setting up a lot more direct ways into the service now that it's completely digital... A while back they were looking at potentially having a bit of an assessment but online, so I was involved in the focus group for that where I was basically interviewed as to what I do in a PWP assessment and what kind of things they would need to be asked and reviewed within that." (8)<br><br>"We can hear about the barriers to usage, and then we think is there anything that we need to do as a service to address that barrier? So, for example, they felt that the GAD material and the GAD programme weren't quite up to scratch and they had better materials, we can actually think about do we need to make a change to that programme to make it more appealing for staff, like introducing supplementary materials." (10) |

| Category | Sub-category | n | Quote |
|---|---|---|---|
| | Gathering feedback on iCBT programmes and their content is important in addressing the needs of clients | 3 | "I guess one of the main things that the digital champion team do is collect constant feedback from their team…so if you had a bit of feedback or an idea for a programme that was maybe missing a module that you thought would be really helpful for patients, you would contact the digital champons". (7) |
| | Positive perceptions of service providers on their relationship with the iCBT company creates a 'partnership' that benefits both organisations | 4 | "we have maintained a partnership with SilverCloud, making sure that we are supporting new programmes to be developed, trialling them, researching them together" (10) <br><br> "I haven't spoke about developing the relationship with SilverCloud. I think what's important is that... we're [the service] up to helping you, what can we do? That "up for it" thing is a bit like-- I think we might have the perfect kind of marriage in that we're up for it and you're [silvercloud] up for it and actually, there is an approachability. So, I think the approachability and the ongoing feedback and being open to feedback, I think there is something around that. Having good relationships together is part of the trust and the belief and the building that helps to create the passion. (12) |
| Creating iCBT appropriate work structures facilitates therapists in its delivery | Routinely auditing iCBT data is important in improving how the service administers iCBT | 3 | "We utilise the data to help the digital champions inform their local teams. So, if the team was maybe only at 30% of offering Step 2 SilverCloud, they would work quite closely with the team and consider a problem-solving path around our processes, like why is this happening, what could we do differently? And then we share this best practice from some of the teams that were managing to achieve the 50% outcome." (9) |

| Category | Sub-category | n | Quote |
|---|---|---|---|
| | Creating tools and reference documents supports therapists in their use of the intervention | 5 | "one of our digital champions would usually create a brief top outline of what the module or programme entails. So, then if the PWP is thinking, "oh, I don't know if you use this programme or that programme", they might quickly flick through and have a look at what modules are in each programme to help them make the decision on what is going to be better for the patient that they assess." (9)<br><br>"We also had some information on One Note that they could quickly refer to for How To Guidance and look that up so, then it was available" (11) |
| | Clinical supervision is valued in supporting iCBT provision and helps to address issues of clinical risk | 2 | "We would just take people to supervision, we would say what we were doing with them, how they're engaging with the programme, how they're doing in the reviews, their risk or how they're doing on the telephone and talk about whether we need to switch it up." (8)<br><br>"every new client that they have, they would take to that to discuss-- this is the intervention that I'm working on, this is how that person is engaging, whether or not they're on the right programme." (7) |

| Category | Sub-category | n | Quote |
|---|---|---|---|
| | Line management is important in establishing and monitoring individual staff goals around iCBT use that are reflective of wider service goals | 5 | "we also put it [50% iCBT caseload requirement] into everybody's PDPs (personal development plans), so, it's actually in people's appraisals now and part of the goals and we actually set a specific goal around digital use." (10)<br><br>"Even today, there are still going to be people who we work closely with the digital champs because they may be more at 30% offering Step 2 and our objective is 50%. So, the way we would manage that through line management is by doing some more one to one work with them, really making sure that they understand the rationale…So they can manage their caseload well, and also understand the service objectives." (9) |
| | Designing and revising existing pathways for iCBT use facilitates its performance in terms of clinical outcomes and access | 4 | "So, what we usually do is, again, experiment, look around the programme and think and pull out the themes, so, what interventions are applied in the programme and then therefore what problems is that most likely to benefit?" (9)<br><br>"it's about having a really good understanding of what are the factors for recovery because if you've got a really good product and you put it into a lousy pathway, it can't deliver, which then gives it a bad reputation." (12) |

**Appendix 3M - Patient individual contributions to domain "patient experience of an iCBT treatment pathway"**

| Sub-Domain | Category | N | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| Patient experience of the iCBT platform | Patients state the flexibility and accessibility of the platform as positive aspects of iCBT | 6 | x | x | x | x |  | x | x |
| | The integrated reminder function on the platform is helpful and useful in structuring patient iCBT usage | 3 | x |  |  | x | x |  |  |
| | Patients appreciate being able to download and print content for instances with no internet connection | 2 | x |  |  |  |  |  | x |
| | Patients appreciated how the platform enabled them to take and use the content they needed, while filtering out content that was less relevant | 4 |  | x |  | x | x |  | x |
| | Aesthetically Pleasing Experience | 2 |  |  |  |  | x |  | x |
| | Patients expressed a need for more guidance within the intervention regarding how to effectively use it | 4 | x | x |  |  | x | x |  |
| | Issues with platform functionality, including tool layouts, presentation of questionnaires, length of mindfulness exercises and security features (i.e. requiring repeated logins) | 4 |  |  |  | x | x | x | x |
| | Patients appreciated that the programme contained appropriate content and tools to address the problems the person is going through | 5 |  | x |  | x | x | x | x |
| | Patients who had received previous therapy (e.g. face-to-face CBT) reported that iCBT and its content was not redundant | 3 |  | x |  |  |  | x | x |

| Sub-Domain | Category | N | Participant number | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Patient experiences of the administration of treatment by the service | Positive assessment experience; therapists collaborated with patients to decide on iCBT and normalised their treatment-seeking. | 6 | x | x | | x | x | x | x |
| | Feeling supported by therapist to prepare for discharge from iCBT. | 5 | x | x | | x | x | x | |
| | Clear and defined procedures for cancelling or rescheduling treatment appointments | 3 | x | | | | | x | x |
| | Multiple reminders (text message and e-mail) sent by the service helped to maintain engagement in treatment | 2 | | x | | x | | | |
| Patient experiences of their clinical supporter | Patients found typed summaries of telephone calls using the online support function helpful in structuring their future use of the programme | 5 | x | x | | | x | x | x |
| | Patients reported that the initial awkwardness of telephone supported was alleviated by the therapist's skill | 1 | x | | | | | | |
| | Patients appreciated when therapists tailored content recommendations based on their presenting problems | 3 | | | x | | x | | x |
| | Patients stress the importance of telephone therapist support in increasing adherence and normalising presenting problems | 2 | | x | | | | x | |
| | Patients reported that more guidance is needed from the service regarding how to use the programme and its tools | 4 | x | x | | | x | x | |

| Sub-Domain | Category | N | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| Patient experience of the service referral process | Patients reported positive experiences of the online, self-referral process | 3 | x | x | | x | | | |
| | Patients reported speaking with GPs regarding mental healthcare as an easy and positive experience | 3 | x | x | | | | | x |
| | Patients report a preference for online referral over healthcare provider referral when they have previous negative experiences with treatment seeking | 1 | | | | x | | | |

(Participant number)

**Appendix 3N – Patient quotes associated with domain "patient experience of an iCBT treatment pathway"**

| Sub-Domain | Category | N | Quote |
|---|---|---|---|
| Patient experience of the iCBT platform | Patients state the flexibility and accessibility of the platform as positive aspects of iCBT | 6 | I have 2 small children and it can be incredibly hectic and well—hectic. So, actually, something that I could pick up in the moments where I did have time, was really good because nobody was checking when I was doing anything, it was just that I could make my way through it at my own pace. (14) |
| | The integrated reminder function on the platform is helpful and useful in structuring patient iCBT usage | 3 | Yes, there are some good bits to it, and I think the bit I hadn't realised, is that you could actually set up a notification to say, please log into; it's almost nagging you sometimes to do it. (17) |
| | Patients appreciate being able to download and print content for instances with no internet connection | 2 | My daughter is doing the home-schooling, and she has taken over my room with my computer, which is really irritating... So, I don't get much time to catch up with what I'm supposed to be doing. So what I did do was, I actually printed off a lot of the stuff from the online course, and I go through those regularly, and the notes that the therapist gave me. So, I actually have it all to hand, to read (19) |
| | Patients appreciated how the platform enabled them to take and use the content they needed, while filtering out content that was less relevant | 4 | certain modules won't work for me, I could never get into the slow breathing and all that stuff…. There were some bits, the visualisation parts of it, yes, that was more for me so, it's almost trying to help tailor the programme early on, I think. (17) |

| Sub-Domain | Category | N | Quote |
|---|---|---|---|
| | Aesthetically Pleasing Experience | 2 | presentation is very good, the mixture between the actual text and the drawings. Sometimes real people—talking; at the beginning, you get two people talking about the next unit and then you get people talking about their own experiences, that is very helpful (19) |
| | Patients expressed a need for more guidance within the intervention regarding how to effectively use it | 4 | when I started playing around with it a bit more, I would go, oh, there are settings, oh, there is this— so, it's almost like one of these things you don't actually—it's like one of these things when you're using these things is actually to have it upfront, rather than hidden away. (17) |
| | Issues with platform functionality, including tool layouts, presentation of questionnaires, length of mindfulness exercises and security features (i.e. requiring repeated logins) | 4 | when it gives you the questionnaires to follow, and you get to the last question...all of a sudden, it shoots to the bottom of the screen and it's saying, you haven't answered these questions and you have to scroll back up to find the questions you haven't answered. It does some odd behaviour sometimes. |
| | Patients appreciated that the programme contained appropriate content and tools to address the problems the person is going through | 5 | it was very much kind of like I was in a position where I was trying to distance myself from my feelings. It was forcing me to address it, which is better overall, I would say. (16) |

| Sub-Domain | Category | N | Quote |
|---|---|---|---|
| | Patients who had received previous therapy (e.g. face-to-face CBT) reported that iCBT and its content was not redundant | 3 | I would say it was repeating what I had heard before, but then the tools I could use were different to what I had been given before...things like worry trees, and having the relaxation videos on there...the content was quite similar to therapy I had before, but then, how to work on it, was different and definitely more advanced. (18) |
| Patient experiences of the administration of treatment by the service | Positive assessment experience; therapists collaborated with patients to decide on iCBT and normalised their treatment-seeking. | 6 | it was all very clear...it was set out to me exactly what was going to happen and that kind of structure—it gave me a bit of comfort that okay, I've got this step, and then this step...you know what is going to happen in the next couple of weeks, for example. (16) |
| | Feeling supported by therapist to prepare for discharge from iCBT. | 5 | Originally, we spoke about being discharged in my second to last session, so, with that, we increased the timescale...we went to having monthly chats and that allowed me to be able to confirm that I was definitely ready for that; it was able to sit there—when she called and she was able to say that she was still there, for when I needed her, that it wasn't a problem (13) |
| | Clear and defined procedures for cancelling or rescheduling treatment appointments | 3 | I remember it being quite easy...there is a general number that you can call, and then he got in touch with me to rearrange another meeting. And I know that there is a certain time limit that you can't—obviously, people don't want their sessions to be cancelled at the last minute. I don't think mine was last minute, but it could have been within 24 hours, so, it was quite good that I didn't suffer any penalties or anything because something cropped up. (19) |

| Sub-Domain | Category | N | Quote |
|---|---|---|---|
| | Multiple reminders (text message and e-mail) sent by the service helped to maintain engagement in treatment | 2 | I would say that I think they did a very good job of reminding me because I received an email and a text, both letting me know when my appointment was, and it was also available on the app. (16) |
| Patient experiences of their clinical supporter | Patients found typed summaries of telephone calls using the online support function helpful in structuring their future use of the programme | 5 | We would finish and then I would get a notification saying I've got a message, and then, yes, it would be a summary, and then next steps—what to do. (18) |
| | Patients reported that the initial awkwardness of telephone supported was alleviated by the therapist's skill | 1 | At the beginning, I absolutely hated it... I felt awkward but that was more a personal thing and having to get over that was one of the biggest hurdles. Actually, she made me feel very comfortable, she put the confidence in me that she knew what she was talking about. If I wanted to sit there and rant, she would let me. If I needed a bit more pointing in the right direction, she was there to be able to do that and I can't thank her enough, to be honest (13) |
| | Patients appreciated when therapists tailored content recommendations based on their presenting problems | 3 | you have regular meetings with the therapist, that is over the phone, and then you discuss any issues that you have, and he will help you; maybe sometimes setting you certain tasks that he thought would be good for me. (19) |

| Sub-Domain | Category | N | Quote |
|---|---|---|---|
| | Patients stress the importance of telephone therapist support in increasing adherence and normalising presenting problems | 2 | I do enjoy human interaction, even if it is just on the phone and I feel like if it if it was typed online, for me, that wouldn't—I would probably—not ignore it but I feel like I wouldn't connect to it as well. (18) |
| | Patients reported that more guidance is needed from the service regarding how to use the programme and its tools | 4 | I tell you what, I'm not sure if I was told, but I didn't realise that I would have access to SilverCloud post the 6 weeks...so I got a bit panicky and started trying to take photos of the whole thing. And then it was only when I got to my last session, [therapist] was like, "You've got access to it for a year." And I was like, "Oh, okay." So, I went through and deleted all of the hundreds of photos I had taken. (14) |
| Patient experience of the service referral process | Patients reported positive experiences of the online, self-referral process | 3 | I found the website easy to access and navigate through. I would say it was a positive experience overall with it. (16) |
| | Patients reported speaking with GPs regarding mental healthcare as an easy and positive experience | 3 | I found it was actually a good experience. I got referred from the GP to self-refer...I thought she was lovely when she did that, she was very reassuring. (13) |
| | Patients report a preference for online referral over healthcare provider referral when they have previous negative experiences with treatment seeking | 1 | I was very put off from—I've since gone back to a GP—I've changed GP and gone back, but at that time, it was very much, oh, I'd really rather not go through that GP procedure because of previous experiences. (16) |

**Appendix 3O – Commercial iCBT representative and service provider individual contributions to sub-domains associated with "contextual considerations for the implementation of iCBT"**

| Sub-domain | Category | N | Participant No. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Contextual Barriers | Technological issues, including issues with its interoperability with other technologies and risk alerts not triggering, can be a barrier | 5 | | x | | | x | | | | x | x | | x |
| | The rigid requirements of care pathways may limit the application of iCBT, similarly in-service bureaucracy when trying to further | 3 | | x | | x | | | | | | | | x |
| | Services need to train new hires in iCBT due therapist training programmes not covering it in sufficient detail, creating false expectations of the role and work | 3 | | | | | | | x | | | x | | x |
| | Negative therapist attitudes towards ICBT can limit opportunities for implementation | 8 | | | x | x | X | x | x | x | x | x | | |
| | Costings & Pricing Models as a barrier to implementation | 3 | x | x | | | | | | | | | | x |
| | Market variability may negatively impact on the resources needed to implement iCBT | 4 | x | x | x | | x | | | | | | | |

| Sub-domain | Category | N | Participant No. 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contextual Facilitators | COVID-19; changing the way service is delivered due to cessation of face-to-face services, resulting in greater exposure of clinicians to iCBT | 10 | x | x | x | x |  | x | x | x |  | x | x | x |
|  | Support for the use of digital technologies within the wider health system is facilitative of iCBT adoption and implementation (5/12). | 6 | x |  | x | x | x |  | x |  | x |  |  |  |
|  | Organisational culture within mental health services can facilitate iCBT implementation | 4 |  |  |  |  |  |  | x |  |  | x | x | x |
|  | Periods of staff shortages may create increased reliance on iCBT usage | 2 |  |  |  |  |  |  |  |  |  | x |  | x |
|  | The passage of time and perseverance in using iCBT facilitates implementation by allowing for services to understand and improve their iCBT offering | 8 |  |  | x | x | x | x | x | x | x | x |  |  |

**Appendix 3P – Commercial iCBT representative and service provider quotes associated with sub-domains of "contextual considerations for the implementation of iCBT"**

| Sub-domain | Category | N | Quote |
|---|---|---|---|
| Contextual Barriers | Technological issues associated with iCBT's interoperability with patient management systems can be a barrier | 5 | "the worst thing is if you get a service who are fairly reluctant anyway, then when they get started, some of the settings weren't quite right or maybe the risk alerts aren't triggering as they wanted or their link-up between their case management system and SilverCloud isn't quite working. And it will just destroy any confidence they might have just about built up and can really damage the start." (2)<br><br>"For PWP's what can be a struggle is duplicating the data and minimum data sets and so on from SilverCloud into Iaptus[patient management system]. It's very administrative and obviously, they would just prefer to spend most of their time doing the core work." (9) |
| | The rigid requirements of care pathways may limit the application of iCBT, similarly in-service bureaucracy when trying to further | 3 | "As one ends up going up to the governance side within the trust, it isn't always so easy to get sign-off because there is the technical compliance, there is the cost, there are the benefits, there are the competing priorities. And there is a lack, even in <place> dare I say, there is a lack of understanding that digital is comparable to face to face, one to one delivery, that our trust and lots of trusts are quite traditional" (12) |
| | Services need to train new hires in iCBT due therapist training programmes not covering it in sufficient detail, creating false expectations of the role and work | 3 | "…the training courses for working digitally, the PWP and the high intensity [courses] aren't really fit for purpose, they don't cover it… the services say digital, digital, digital and the training course only has one afternoon on it" (12) |

| Sub-domain | Category | N | Quote |
|---|---|---|---|
| | Negative therapist attitudes towards ICBT can limit opportunities for implementation | 8 | "in almost every training session, I've had one person that is like, "Well, I'm not using this, I'm doing things the way I've always done them, over the phone- blah, blah, blah." (4) |
| | | | "I think again when we first started, I think you had lots of biases about who is going to want SilverCloud, who is going to do well on it? And, again the stats suggest that actually maybe the people who are more sort 40, 50 do a little bit better than maybe the younger people. So, again, I think those assumptions that we make that only younger people are going to like it, actually turn out not to be that true." (7) |
| | Costings & Pricing Models as a barrier to implementation | 3 | "it could have gone two ways, it's a double-edged sword, either the customer reacts and says that's fantastic, we want to sign up for this new way of working or they turn around and say, sorry, we're going to take our business somewhere else because it's too expensive for us." (1) |
| | | | "certainly the price of contracts changes people's attitudes. Even if sometimes they can be paying less than other people but if they feel like they're paying more than they should do, their attitudes can change." (2) |
| | Market variability may negatively impact on the resources needed to implement iCBT | 4 | "The specific customer that we have in Germany is an insurance company. When you start to work with insurance companies and hospital systems in the UK and even in the US, again, they don't have that same mandate that says, "We must provide light, low-touch interventions to mild to moderate people for all of the population of this particular area" (5) |

| Sub-domain | Category | N | Quote |
|---|---|---|---|
| Contextual Facilitators | COVID-19; changing the way service is delivered due to cessation of face-to-face services, resulting in greater exposure of clinicians to iCBT | 10 | "...before Covid, we [iCBT company] were a nice to have, during Covid, we're a need to have. So, in the UK, people—I think I spoke already about this, the use in secondary care. People are using us with clients who have borderline personality disorders, this was never part of the plan. These people are getting a lot of benefit from this... but without Covid, that would never have happened because there would have been ethical questions about it." (3)<br><br>"We haven't actually looked at the data yet, but more sort of anecdotally, we were talking in our last digital meeting, that we had noticed ourselves that more people were choosing SilverCloud than previously because we're not able to offer the face to face that you would get with guided self-help at the moment." (8) |
| | Support for the use of digital technologies within the wider health system is facilitative of iCBT adoption and implementation (5/12). | 6 | "within IAPT before SilverCloud came, they were already used to having brief interventions and they would typically be doing those brief interventions over phone calls...and there was some experience of using digital products, although typically, they didn't have a coaching aspect to them so, they were more—give someone access to a digital product and then you don't have to interact with the person after that. So, there was a change in the SilverCloud model for them. They understood—and we had already come with reviews, we already had that idea of asynchronous reviews, that had been built from the ground up and there was a ready understanding of that was within the IAPT market." (5)<br><br>"So, from an NHS pressure level, obviously, implementing SilverCloud became a solution, so, it was more about, okay, this is really going to support and help, we need to get this up and running as quickly as possible to be able to meet these pressures and demands." (9) |

| Sub-domain | Category | N | Quote |
|---|---|---|---|
| | Organisational culture within mental health services can facilitate iCBT implementation | 4 | "In terms of implementation, I would say the most important aspect is a culture change and it is how you change the culture. I think that has been what we've worked towards and where we've got to is two very different things. So, incorporating the research, sharing the evidence base, having the training, having the solid SilverCloud induction, constantly reviewing and monitoring, putting the digital champions in place. So, all of the things that we've done have contributed towards the culture change where staff and patients are amenable and happy and satisfied with using SilverCloud". (10) |
| | Periods of staff shortages may create increased reliance on iCBT usage | 2 | "So, when we had staff shortages and we've got high wait times, then people will use SilverCloud more if their cases are higher…. it's less time-consuming." (10) |
| | The passage of time and perseverance in using iCBT facilitates implementation by allowing for services to understand and improve their iCBT offering | 8 | "I find that services always get better recovery rates interestingly in Year 2 of SilverCloud than Year 1, like, the better it's embedded in a service and people become used to it. They might refine how they do reviews; they might refine the frequency of reviews; they might refine the specific patients they use it with" (4)  "I suppose it took four years to get that far and it seems like there was a push from-- or it seems like there is a push from your leadership team to even to get it to that point. So, it's interesting to know that even with the pushes and stuff it still takes time." (10) |

## Appendix 4A – Delphi strategy list (screenshot)

**How important are the following factors when implementing internet-delivered cognitive behaviour therapy (iCBT) in healthcare settings?**

The following statements were constructed from the findings of a qualitative interview study with stakeholders who implement iCBT and a systematic review of iCBT literature.

We have grouped these statements across several domains.

Please read all 31 item statements carefully and endorse each on a scale from 1 (minimally important) to 7 (Extremely important) based on the degree of importance you attribute to the item statement for the successful implementation of iCBT in services. After each item ranking, there is space to comment on your rationale for your choice.

At the end, there will be a text box where you can insert item statements you believe may be missing and should be added, and two short questions regarding your experience of implementing and researching iCBT.

|  | 1 Minimally Important | 2 Slightly Important | 3 Mildly Important | 4 Moderately Important | 5 Important | 6 Very Important | 7 Extremely Important |
|---|---|---|---|---|---|---|---|

| LEADERSHIP IN HEALTHCARE SERVICE DELIVERY | RANKING (please click the cells below to view the list) | COMMENTS |
|---|---|---|
| Prefacing statement: How important is... | | |
| ITEM 1 — Having a management team committed to delivering iCBT within a service. | 1 - Minimally Important | |
| ITEM 2 — Having a management team that set clear and visible goals (e.g access targets) for iCBT delivery within service. | | |
| ITEM 3 — Having a management team that creates opportunities for staff members to be peer leaders to support the delivery of iCBT | | |
| ITEM 4 — Having a management team that develop an organisational culture that is supportive of the use and growth of iCBT | | |

Dropdown list options:
1 - Minimally Important
2 - Slightly Important
3 - Mildly Important
4 - Moderately Important
5 - Important
6 - Very Important
7 - Extremely Important

| TRAINING STAKEHOLDERS IN ICBT | RANKING (please click the cells below to view the list) | COMMENTS |
|---|---|---|
| Prefacing statement: How important is... | | |
| ITEM 5 — Initial staff training in the use of the iCBT platform and online communication by intervention developers | | |
| ITEM 6 — Training clinical staff in patient monitoring and management in iCBT by staff/peer leaders | | |
| ITEM 7 — Ongoing staff training for iCBT service delivery by staff/peer leaders | | |
| ITEM 8 — The creation of training programmes for new staff (including trainees and recently hired clinicians) in the use of iCBT by staff/peer leaders | | |
| ITEM 9 — The creation of complimentary online training resources (e.g. webinars and courses) by intervention developers | | |
| ITEM 10 — Developing the core competencies (e.g. online communication) of the supporter role in iCBT by staff/peer leaders and intervention developers | | |
| ITEM 11 — Training to address any historical, negative biases/attitudes from clinicians | | |

| | RANKING (please click the cells below to view the list) | COMMENTS |
|---|---|---|
| **PROCESSES & PROCEDURES FOR STAFF DELIVERING ICBT IN SERVICES** | | |
| *Prefacing statement: How important is it...* | | |
| ITEM 12 To gather and deliver feedback to intervention developers to improve the iCBT platform | | |
| ITEM 13 To extend clinical supervision to incorporate iCBT caseloads | | |
| ITEM 14 For line managers to set individual staff goals for iCBT delivery | | |
| ITEM 15 To manage service resources (staff, time) to support the delivery of iCBT | | |
| ITEM 16 To have regular communication to all staff on the performance of iCBT (e.g. clinical outcomes, no. of clients served) in service to support its delivery | | |
| | | |
| **MANAGING THE DELIVERY OF THE ICBT SERVICE** | RANKING (please click the cells below to view the list) | COMMENTS |
| *Prefacing statement: How important is...* | | |
| ITEM 17 Designing and revising care pathways to integrate iCBT within services | | |
| ITEM 18 Utilising iCBT to enhance or modify treatment existing modalities (e.g. as a therapy enhancer or homework between sessions) | | |
| ITEM 19 Promoting iCBT to patients and other healthcare providers for referrals | | |
| ITEM 20 Identifying who is most suitable to receive an iCBT intervention (e.g. patient attitudes, demographics, clinical presentations) | | |
| ITEM 21 identifying who is suitable for a guided or an unguided intervention | | |
| ITEM 22 Establishing the information technology governance standards (e.g. interoperability, security) required for delivering iCBT | | |
| ITEM 23 Recognising the flexibility and scalability of iCBT for service provision (particularly in the context of situations like the COVID-19 pandemic) | | |
| ITEM 24 Healthcare managers being aware of how their iCBT service delivery aligns with government policy for mental healthcare provision | | |
| ITEM 25 Healthcare services understanding that the smooth running and implementation of iCBT takes time | | |
| | | |
| **ICBT INTERVENTION DEVELOPERS** | RANKING (please click the cells below to view the list) | COMMENTS |
| *Prefacing statement: How important is it for intervention developers to...* | | |
| ITEM 26 Have the correct team (e.g. sales, customer support, product, development) in place to support the implementation of iCBT in services | | |
| ITEM 27 Work with the "right people" (e.g. managers, frontline staff) across the healthcare service to successfully implement iCBT | | |
| ITEM 28 Disseminate best practices from successful iCBT implementations (e.g., building pathways for secondary care or severe mental illness based on success elsewhere) | | |
| ITEM 29 Demonstrate cost effectiveness when implementing iCBT in services | | |
| ITEM 30 Manage their resources (staff, time) to implement iCBT concurrently at multiple services | | |
| ITEM 31 Communicate to service personnel new programme and platform features updates | | |
| | | |
| **ARE THERE ANY MISSING ITEMS THAT YOU BELIEVE SHOULD BE ADDED?** | | |
| *Please type your comments in the cell below* | | |

**Appendix 4B – Individual item tables (1-31) for strategies included in the Delphi study,**

**illustrating frequency of participant responses to each item and summary statistics.**

| Item 1: Having a management team committed to delivering iCBT within a service. | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 3 | 3 |
| | 6 - very important | 3 | 4 |
| | 5 - important | 2 | 1 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.89 (1.05) | 6 (1) |
| | Range | 4 - 7 | 4 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 2: Having a management team that set clear and visible goals (e.g access targets)  for iCBT delivery within a service. | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 3 | 3 |
| | 6 - very important | 3 | 5 |
| | 5 - important | 2 | 0 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.89 (1.05) | 6.11 (.93) |
| | Range | 4 - 7 | 4 – 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 3: Having a management team that creates opportunities for staff members to be peer leaders to support the delivery of iCBT | | | |
| --- | --- | --- | --- |
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 3 | 2 |
| | 6 - very important | 0 | 1 |
| | 5 - important | 2 | 2 |
| | 4 - moderately important | 1 | 2 |
| | 3 - mildly important | 3 | 2 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4.89 (1.76) | 4.89 (1.53) |
| | Range | 3 - 7 | 3 - 7 |
| | Median | 5 | 5 |
| | Consensus | No | No |

| Item 4: Having a management team that develop an organisational culture that is supportive of the use and growth of iCBT | | | |
| --- | --- | --- | --- |
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 7 | 7 |
| | 5 - important | 1 | 1 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 6 (.5) | 6 (.5) |
| | Range | 5 - 7 | 5 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 5: Initial staff training in the use of the iCBT platform and online communication by intervention developers | | | |
| --- | --- | --- | --- |
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 3 | 3 |
| | 6 - very important | 3 | 3 |
| | 5 - important | 0 | 1 |
| | 4 - moderately important | 1 | 0 |
| | 3 - mildly important | 1 | 2 |
| | 2 - slightly important | 1 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.33 (1.87) | 5.56 (1.59) |
| | Range | 2 - 7 | 3 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |
| Item 6: Training clinical staff in patient monitoring and management in iCBT | | | |

| by staff/peer leaders | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 0 |
| | 6 - very important | 2 | 3 |
| | 5 - important | 5 | 5 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.22 (1.09) | 5.11 (.93) |
| | Range | 3 - 7 | 3 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| Item 7: Ongoing staff training for iCBT service delivery by staff/peer leaders | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 1 | 0 |
| | 5 - important | 6 | 7 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 2 | 2 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4.67 (1) | 4.56 (.88) |
| | Range | 3 - 6 | 3 - 5 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| Item 8: The creation of training programmes for new staff (including trainees and recently hired clinicians) in the use of iCBT by staff/peer leaders | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 4 | 3 |
| | 5 - important | 3 | 4 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.11 (1.05) | 5 (1) |
| | Range | 3 - 6 | 3 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| | | | |
|---|---|---|---|
| Item 9: The creation of complimentary online training resources (e.g. | | | |

webinars and courses) by intervention developers

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 1 | 1 |
| | 5 - important | 5 | 4 |
| | 4 - moderately important | 1 | 2 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 2 | 2 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4.33 (1.41) | 4.22 (1.48) |
| | Range | 2 - 6 | 1 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | No |

Item 10: Developing the core competencies (e.g. online communication) of the supporter role in iCBT by staff/peer leaders and intervention developers

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 4 | 4 |
| | 5 - important | 4 | 4 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.33 (.71) | 5.33 (.71) |
| | Range | 4 - 6 | 4 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

Item 11: Training to address any historical, negative biases/attitudes from clinicians

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 1 | 1 |
| | 5 - important | 4 | 4 |
| | 4 - moderately important | 1 | 2 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 1 | 0 |
| | 1 - minimally important | 1 | 1 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4 (1.66) | 4.22 (1.48) |
| | Range | 1 - 6 | 1 - 6 |
| | Median | 5 | 5 |
| | Consensus | No | No |

Item 12: To gather and deliver feedback to intervention developers to

| improve the iCBT platform | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 4 | 5 |
| | 5 - important | 3 | 2 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.56 (.88) | 5.67 (.87) |
| | Range | 4 - 7 | 4 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 13: To extend clinical supervision to incorporate iCBT caseloads | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 3 | 3 |
| | 5 - important | 3 | 3 |
| | 4 - moderately important | 3 | 3 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5 (.87) | 5 (.87) |
| | Range | 4 - 6 | 4 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| Item 14: For line managers to set individual staff goals for iCBT delivery | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 0 |
| | 6 - very important | 0 | 0 |
| | 5 - important | 0 | 1 |
| | 4 - moderately important | 2 | 2 |
| | 3 - mildly important | 4 | 4 |
| | 2 - slightly important | 2 | 2 |
| | 1 - minimally important | | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 3.44 (1.51) | 3.22 (.97) |
| | Range | 2 - 7 | 2 - 5 |
| | Median | 3 | 3 |
| | Consensus | No | No |

| Item 15: To manage service resources (staff, time) to support the delivery of iCBT |
|---|

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 3 | 3 |
| | 6 - very important | 0 | 3 |
| | 5 - important | 5 | 3 |
| | 4 - moderately important | 1 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.56 (1.13) | 6 (.87) |
| | Range | 4 - 7 | 5 - 7 |
| | Median | 5 | 6 |
| | Consensus | Yes | Yes |

**Item 16: To have regular communication to all staff on the performance of iCBT (e.g. clinical outcomes, no. of clients served) in service to support its delivery**

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 3 | 2 |
| | 5 - important | 4 | 5 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 1 | 1 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4.89 (1.27) | 4.78 (1.20) |
| | Range | 2 - 6 | 2 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

**Item 17: Designing and revising care pathways to integrate iCBT within services**

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 5 | 4 |
| | 6 - very important | 0 | 2 |
| | 5 - important | 3 | 3 |
| | 4 - moderately important | 1 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 6 (1.22) | 6.11 (.93) |
| | Range | 4 - 7 | 05-Jul |
| | Median | 7 | 6 |
| | Consensus | Yes | Yes |

**Item 18: Utilising iCBT to enhance or modify treatment existing modalities (e.g. as a therapy enhancer or homework between sessions)**

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 1 | 0 |
| | 5 - important | 3 | 4 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 4 | 4 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 4.44 (1.51) | 4.33 (1.41) |
| | Range | 3 - 7 | 3 -7 |
| | Median | 5 | 5 |
| | Consensus | No | No |

| Item 19: Promoting iCBT to patients and other healthcare providers for referrals | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 2 | 1 |
| | 5 - important | 6 | 7 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5 (.87) | 4.89 (.78) |
| | Range | 3 - 6 | 3 -6 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| Item 20: Identifying who is most suitable to receive an iCBT intervention (e.g. patient attitudes, demographics, clinical presentations) | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 4 | 7 |
| | 5 - important | 4 | 1 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5.67 (.70) | 6 (.5) |
| | Range | 5 - 7 | 5 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 21: identifying who is suitable for a guided or an unguided intervention | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |

| | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 2 | 2 |
| | 5 - important | 2 | 4 |
| | 4 - moderately important | 2 | 0 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 1 | 1 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 4.67 (1.58) | 4.89 (1.54) |
| | Range | 2 - 7 | 2 - 7 |
| | Median | 5 | 5 |
| | Consensus | No | Yes |

| Item 22: Establishing the information technology governance standards (e.g. interoperability, security) required for delivering iCBT | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 6 | 8 |
| | 6 - very important | 2 | 1 |
| | 5 - important | 1 | 0 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 6.56 (.73) | 6.89 (.33) |
| | Range | 5 - 7 | 6 - 7 |
| | Median | 7 | 7 |
| | Consensus | Yes | Yes |

| Item 23: Recognising the flexibility and scalability of iCBT for service provision (particularly in the context of situations like the COVID-19 pandemic) | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 1 | 1 |
| | 5 - important | 4 | 4 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 1 | 1 |
| Descriptive Statistics | Mean (SD) | 4.56 (1.74) | 4.56 (1.74) |
| | Range | 1 - 7 | 1 - 7 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

| Item 24: Healthcare managers being aware of how their iCBT service delivery aligns with government policy for mental healthcare provision |
|---|

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 2 | 2 |
| | 5 - important | 2 | 3 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 2 | 2 |
| | 2 - slightly important | 1 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 4.56 (1.67) | 4.89 (1.36) |
| | Range | 2 - 7 | 3 - 7 |
| | Median | 5 | 5 |
| | Consensus | No | Yes |

| Item 25: Healthcare services understanding that the smooth running and implementation of iCBT takes time | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 1 | 0 |
| | 6 - very important | 2 | 2 |
| | 5 - important | 2 | 3 |
| | 4 - moderately important | 2 | 3 |
| | 3 - mildly important | 1 | 1 |
| | 2 - slightly important | 1 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 4.67 (1.58) | 4.67 (1) |
| | Range | 2 - 7 | 3 - 6 |
| | Median | 5 | 5 |
| | Consensus | No | No |

| Item 26: Have the correct team (e.g. sales, customer support, product, development) in place to support the implementation of iCBT in services | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 2 | 2 |
| | 6 - very important | 3 | 5 |
| | 5 - important | 3 | 2 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 1 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5.56 (1.24) | 6 (.71) |
| | Range | 3- 7 | 5 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 27: Work with the "right people" (e.g. managers, frontline staff) across the healthcare service to successfully implement iCBT |
|---|

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 4 | 3 |
| | 6 - very important | 3 | 4 |
| | 5 - important | 0 | 0 |
| | 4 - moderately important | 1 | 2 |
| | 3 - mildly important | 1 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5.89 (1.24) | 5.89 (1.17) |
| | Range | 3 - 7 | 4 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

Item 28: Disseminate best practices from successful iCBT implementations (e.g., building pathways for secondary care or severe mental illness based on success elsewhere)

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 5 | 5 |
| | 5 - important | 1 | 2 |
| | 4 - moderately important | 2 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 1 | 1 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5 (1.41) | 5.11 (1.36) |
| | Range | 2 - 6 | 2 - 6 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

Item 29: Demonstrate cost effectiveness when implementing iCBT in services

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 2 | 1 |
| | 6 - very important | 2 | 3 |
| | 5 - important | 4 | 4 |
| | 4 - moderately important | 1 | 1 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| Descriptive Statistics | Mean (SD) | 5.56 (1.01) | 5.44 (.88) |
| | Range | 4 - 7 | 4 - 7 |
| | Median | 5 | 5 |
| | Consensus | Yes | Yes |

Item 30: Manage their resources (staff, time) to implement iCBT concurrently at multiple services

| Rankings | | Round 1 | Round 2 |
|---|---|---|---|
| | 7 - extremely important | 1 | 1 |
| | 6 - very important | 5 | 5 |
| | 5 - important | 3 | 3 |
| | 4 - moderately important | 0 | 0 |
| | 3 - mildly important | 0 | 0 |
| | 2 - slightly important | 0 | 0 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 5.78 (.67) | 5.78 (.67) |
| | Range | 5 - 7 | 5 - 7 |
| | Median | 6 | 6 |
| | Consensus | Yes | Yes |

| Item 31: Communicate to service personnel new programme and platform features updates | | | |
|---|---|---|---|
| Rankings | | Round 1 | Round 2 |
| | 7 - extremely important | 0 | 0 |
| | 6 - very important | 2 | 1 |
| | 5 - important | 4 | 4 |
| | 4 - moderately important | 0 | 1 |
| | 3 - mildly important | 1 | 2 |
| | 2 - slightly important | 2 | 1 |
| | 1 - minimally important | 0 | 0 |
| | | | |
| Descriptive Statistics | Mean (SD) | 4.33 (1.58) | 4.22 (1.30) |
| | Range | 2- 6 | 2 - 6 |
| | Median | 5 | 5 |
| | Consensus | Yes | No |