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**Clinicians' attitudes towards, and use of, computerised Cognitive Behaviour Therapy:**

**A research portfolio**

A thesis presented for the degree of Doctorate in Clinical Psychology at the University of  
Edinburgh

by

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## **Lay summary**

Computerised cognitive behaviour therapy (cCBT) is a type of therapy that people can access using a computer with or without support from a therapist. It helps treat certain types of mental health problems. It is useful for patients because it means they can start treatment quickly instead of having to wait to access therapy. It also means that they can do it at a time and place that suits them, and do not have to spend time or money travelling to appointments. National organisations recommend this type of treatment because of the potential benefits, but many clinicians do not refer patients to this type of treatment or do not use it often.

The first chapter of this thesis aimed to summarise previous studies which looked at staff attitudes towards cCBT to find out what is already known about this topic. The results showed that staff were generally of the view that cCBT is acceptable and effective to an extent. It was unclear how common it was for staff to use cCBT because there were many differences between the studies.

The second chapter is an empirical research study. Researchers have come up with various theories to help to explain why health care professionals do not always use treatments that work and that save the NHS money. Normalisation Process Theory (NPT) is one of these theories and looks at how and why things become, or do not become, routine parts of everyday work. The empirical reach study used an online questionnaire based on this theory and found that clinicians' responses to the NPT questions predicted their responses to what they thought about cCBT and whether they referred patients to cCBT programmes.

Taken together, this thesis shows that clinicians have mixed attitudes towards cCBT and that NPT might be a useful theory in predicting attitudes and behaviours toward healthcare interventions.

## **Thesis abstract**

**Background:** Computerised Cognitive Behaviour Therapy (cCBT) is effective for a range of mental health difficulties but research indicates that the rate of uptake is low amongst clinicians. Most of the literature regarding cCBT tends to focus on evidence demonstrating its effectiveness or patient views of cCBT, but there is limited research looking at clinician or provider views. **Aims:** The systematic review and empirical research project aimed to examine staff attitudes towards cCBT. The empirical study also aimed to establish whether constructs of Normalisation Process Theory predicted clinicians' a) self-reported attitudes towards cCBT and b) self-reported referral behaviour regarding cCBT. **Methods:** A systematic review of four electronic databases was conducted. Nineteen studies were identified for inclusion in the review and subjected to data extraction, quality assessment and narrative synthesis. For the empirical study, an online survey was completed by 246 individuals who provide psychological input to people in the UK. Stepwise regression was used to examine predictors of attitudes and referral rates. **Results:** Findings from the systematic review indicated that clinicians were generally of the view that cCBT is acceptable and effective to an extent. No firm conclusions could be drawn regarding the rate of use of cCBT by clinicians due to the heterogeneity between studies. Similarly, the empirical study found that clinicians reported both negative and positive attitudes towards cCBT. Fewer than half of respondents had ever referred a patient to cCBT and the rates of referral were typically low. Constructs of NPT were important predictors of both attitudes and self-reported referral rates. **Conclusions:** The current findings indicate that clinicians exhibit mixed attitudes towards cCBT. The empirical study indicates that NPT may be a useful theory in predicting attitudes and behaviours toward healthcare interventions but additional research is required to establish whether this finding is replicable in areas beyond cCBT.

## **Chapter 1    Systematic review**

**Journal choice:** Behavioural and Cognitive Psychotherapy (see Appendix 1 for guidelines)

**Title:** Clinicians' attitudes towards cCBT: a systematic review

**Running head:** Systematic review of clinicians' attitudes towards cCBT

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## 1.1 Abstract

**Background:** Computerised Cognitive Behaviour Therapy (cCBT) is effective for a range of mental health difficulties but research indicates that the rate of uptake is low amongst clinicians. Most of the literature regarding cCBT tends to focus on evidence demonstrating its effectiveness or patient views of cCBT, but there is limited research looking at clinician or provider views. **Aim:** To examine staff attitudes towards cCBT. **Method:** An electronic database search was conducted using Embase, MEDLINE, PsycINFO and CINAHL. All databases were searched for studies published in English from inception to 21st January 2022. The quality of included studies was assessed using a checklist developed by Kmet and colleagues (2004). A narrative synthesis was used to synthesise the data supplemented by summary tables. **Results:** Of the 2278 unique records identified, 19 studies were eligible for inclusion in the review. There was considerable heterogeneity between studies in terms of sampling methods used, respondent characteristics, interventions, outcomes assessed and utilised outcome measures. Clinicians were generally of the view that cCBT is acceptable and effective to an extent. No firm conclusions could be drawn regarding the rate of use of cCBT by clinicians due to the heterogeneity between studies. Much of the existing literature focuses on attitudes towards cCBT and with few studies utilising interventions to change clinicians' attitudes or behaviour in this area. **Conclusions:** Overall, results indicated that clinicians held mixed attitudes towards cCBT depending on the aspect being assessed. Results are discussed in terms of the limitations of the available evidence and the review process, as well as the implications for research and practice.

**Key words:** computerised, cognitive behaviour therapy, attitudes, clinicians, systematic review



## **1.2 Introduction**

### ***1.2.1 Cognitive Behaviour Therapy***

Cognitive Behaviour Therapy (CBT) is an evidence-based psychological therapy recommended for the treatment of numerous health problems, including depression, various anxiety disorders, insomnia, psychosis, eating disorders and trauma (NHS Education for Scotland, 2014). Access to such therapies remains limited despite government initiatives aiming to improve access to psychological therapies (Scottish Government, 2017; The National Collaborating Centre for Mental Health, 2018). Barriers to accessing psychological therapies include a shortage of trained staff (British Medical Association, 2019; The Mental Health Taskforce, 2016), rurality (Scottish Government, 2017), stigma (Thornicroft et al., 2016) and participation difficulties (e.g., physical health and limited mobility) (Mohr et al., 2010). For those who do seek treatment, there may be long waiting times. In Scotland, 17% of individuals waited longer than 18 weeks to begin psychological therapy (Public Health Scotland, 2022).

### ***1.2.2 Computerised Cognitive Behaviour Therapy***

One potential adaptation which overcomes many of the barriers associated with traditional approaches such as face-to-face therapy is computerised CBT (cCBT). cCBT is a form of CBT that can be delivered offline (e.g., via a computer software or CD-ROM), online (e.g., website), or using a combination of online and offline approaches (e.g., an app) (Kuusmanen et al., 2018). It can be used as a stand-alone intervention or as a human-supported therapeutic intervention (Barak et al., 2009; IJzerman et al., 2019) and should focus on the interaction between cognitions, attitudes, beliefs, feelings and behaviour (National Institute for Health and Care Excellence, 2022).

The provision of cCBT is advantageous to the health care system. Evidence suggests that cCBT is less time-consuming for clinicians to provide and requires fewer resources than face-to-face CBT (Gratzer & Khalid-Khan, 2015), although some of these benefits may vary depending on the method of delivery (e.g., use as a stand-alone intervention or as a therapist-supported therapeutic intervention). The use of cCBT supports existing psychological therapy services and increases capacity to provide earlier access to treatment compared to waiting for traditional forms of psychological therapy (Public Health Scotland, 2022). cCBT also has benefits for the individual receiving it. It delivers CBT in a structured way that maintains model fidelity when compared to therapist-delivered CBT (Kenicer et al., 2012); model fidelity is associated with improved treatment outcomes (Cukrowicz et al., 2011; Hogue et al., 2008). From a practical perspective, the remote delivery of interventions allows individuals to receive treatment in a

time and place convenient to them (Kenicer et al., 2012), reduces time spent missing work and reduces travel times and waiting times (Lamb et al., 2019).

Computerised CBT-based interventions have been shown to be effective, cost-effective and have high rates of satisfaction and acceptability in patients experiencing a range of mental health difficulties (e.g., Andrews et al., 2018; Carlbring et al., 2018; Gerhards et al., 2010; Health Quality Ontario, 2019), although the cost-effectiveness may vary depending on the method of delivery (e.g., if used as a stand-alone intervention or as a human-supported therapeutic intervention). In the UK, cCBT is a recommended treatment option for both less severe and more severe depression in adults (National Institute for Health and Care Excellence, 2022). Moreover, cCBT supported by a trained practitioner to support engagement and review progress is recommended as the first option to be considered for people with less severe depression (National Institute for Health and Care Excellence, 2022). Scotland's most recent mental health strategy sought to promote a national rollout of cCBT by 2018 (Scottish Government, 2017).

Despite the evidence for its effectiveness and recommendations for its use, research indicates that cCBT may be underutilised by clinicians (Dunne, 2017; Whitfield & Williams, 2004) and it is unclear why this is the case. Most of the literature regarding cCBT tends to focus on evidence demonstrating its effectiveness (e.g., Andrews et al., 2018; Carlbring et al., 2018) or patient views of cCBT (Kaltenthaler et al., 2008), but there is limited research looking at clinician or provider views. A recent umbrella review regarding the acceptability of cCBT for adults reported that clinicians' views regarding the acceptability of cCBT were captured by just one study in one review (Treanor et al., 2021). Other research into alternative methods of delivering therapy has reported a slower uptake by therapists rather than clients, with uptake by clinicians being hindered due to expectations of inferior outcomes (Simpson et al., 2021). Thus, understanding the attitudes of clinicians may be fundamental in improving the implementation of cCBT in routine care.

A review on this topic was conducted as part of a doctoral thesis containing publications up until September 2017 (Persson, 2018). However, this review focused solely on the use of cCBT for depression and anxiety. It was also expected that further research would have been published since this timeframe given the recent focus on improving access to psychological therapies (The National Collaborating Centre for Mental Health, 2018) and the need to consider alternative methods of delivering therapies as a result of the difficulties posed by the Covid-19

pandemic (The British Psychological Society, 2021). The current review adds to the literature by looking at the use of cCBT without restricting it to the treatment of a specific mental or physical health diagnosis. The aim of this review was to identify and describe the literature regarding health care professionals' attitudes towards cCBT.

### **1.3 Method**

#### ***1.3.1 Eligibility criteria***

##### *Participants*

Studies reporting the views and attitudes of health care professionals were included in the review. Studies reporting the views of patients, family members or carers were not included in the review.

##### *Intervention*

Studies reporting findings regarding a specific cCBT programme or cCBT in general were included in the review. Studies reporting on internet or computer-based interventions more broadly were excluded from the review, as were those looking at computerised interventions which utilised a different therapeutic approach.

##### *Outcome*

Studies reporting on aspects of health professionals' attitudes towards cCBT were included; however, studies which gathered or utilised this information to inform the development of a particular cCBT programme were excluded from the review as these tended to focus on specific aspects of particular programmes rather than cCBT as a whole, and did not report on clinician attitudes towards the end product.

##### *Study designs*

A search of PROSPERO indicated that a review of the qualitative literature regarding clinicians' opinions of cCBT was underway (anticipated completion date of 25 September 2022) (Barnwell & Patton, 2021). This review therefore solely focused on quantitative studies regarding clinicians' attitudes. Where studies employed a mixed methods design, only data from the quantitative aspect of the study was extracted for this review. Conference abstracts not associated with any full-text publication, literature reviews, letters to the editor, opinion papers, study protocols and books were excluded from the review.

### ***1.3.2 Search strategy***

An electronic database search was conducted using Embase, MEDLINE, PsycINFO and CINAHL. All databases were searched for studies published in English from inception to 21st January 2022. The search strategy was developed using a combination of text word searching within the titles and abstracts (e.g., cCBT), and database-specific MeSH (Medical Subject Headings) and/or keywords (e.g., Internet-Based Intervention) (see Appendices 2-5).

### ***1.3.3 Study selection***

Study records were exported from the online databases into Covidence and duplicate records were removed. The titles and abstracts were screened and those deemed ineligible were excluded. The full-text reports of studies deemed to be potentially relevant were then obtained and reviewed to determine eligibility. A visual representation of the study selection process is depicted in Figure 1.1. All screening was conducted by the first author. The suitability of shortlisted studies was discussed within the research team with unanimous agreement between all members of the research team.

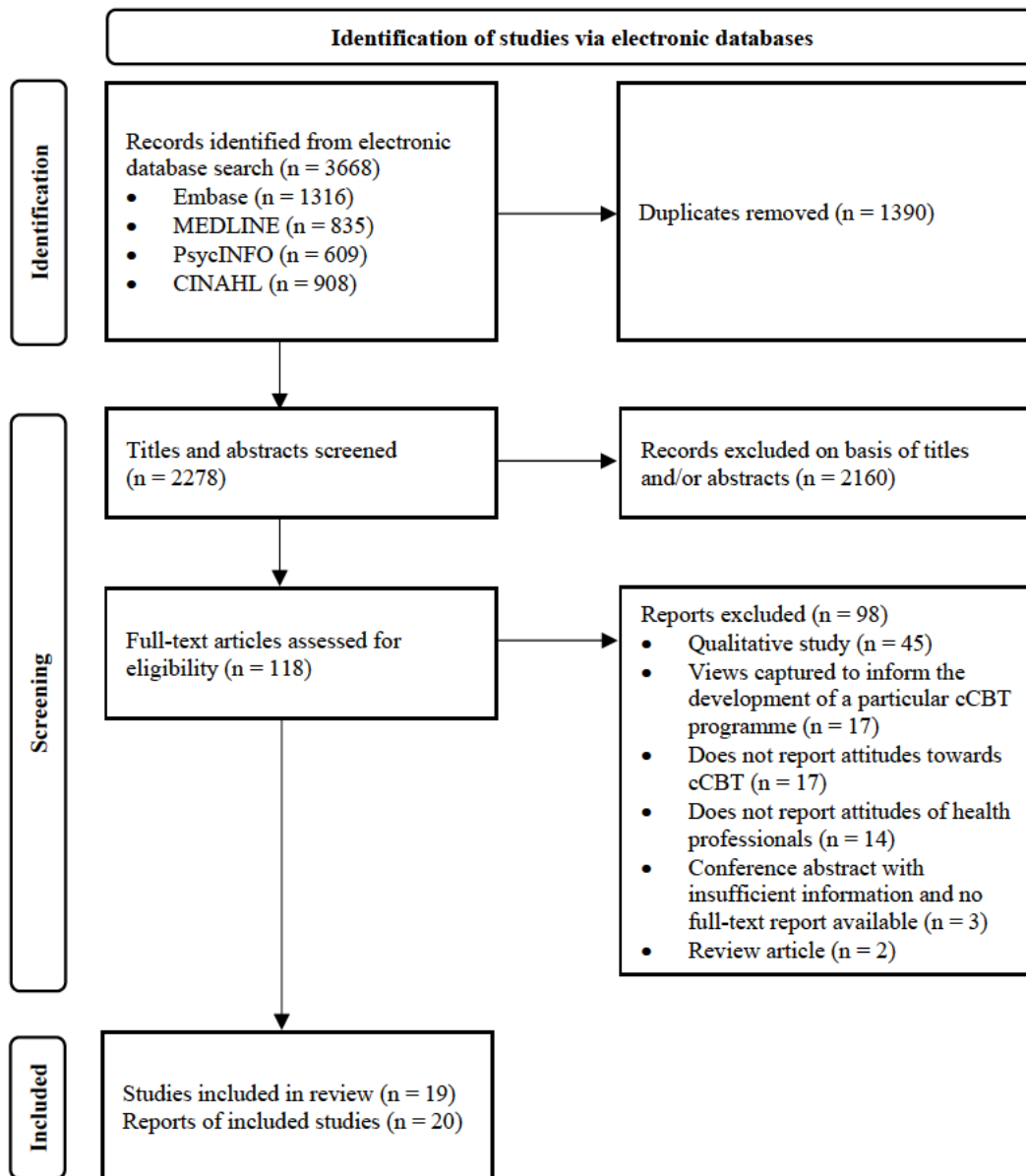


Figure 1.1: Flow diagram of study selection process

#### 1.3.4 Data extraction

A data extraction spreadsheet was designed in Excel for this review. Key study characteristics from each of the identified studies, along with the findings of relevance to this review, were extracted and summarized as per Tables 1.1, 1.3 and 1.4. Data were extracted by the first author.

#### 1.3.5 Data synthesis

A meta-analysis was deemed to be inappropriate due to heterogeneity within the included studies. A narrative synthesis was therefore used to synthesise the data supplemented by summary tables. The synthesis was organised based on the themes that arose from the published reports.

### **1.3.6 Quality assessment**

According to the Centre for Reviews and Dissemination (2009), the quality assessment of quantitative studies is likely to look at the appropriateness of study design to the research objective, risk of bias, choice of outcome measure, statistical issues, generalisability and other issues related to study quality. The two main approaches to assessing study quality include the use of checklists of quality items and use of scales which provide an overall numerical quality score for each study (Centre for Reviews and Dissemination, 2009).

Studies identified through the search strategy employed various designs, e.g., cross-sectional survey designs and before and after study designs. Therefore, a tool relevant to various forms of quantitative study designs was required. Based on these considerations, a quality assessment tool developed Kmet and colleagues (2004) was selected. The tool comprises a checklist containing 14 items (Appendix 6). Items are rated on a three-point rating scale from 0-2, representing 'No', 'Partial' and 'Yes', respectively (Appendix 7). A 'Not applicable' option is also available. A summary score is then calculated by adding up the scores for each item and dividing this by the total possible score for the study. The maximum potential summary score for a study is 1. This approach allows the reader to easily compare specific aspects of quality between studies, as well as providing an overall score for ease of comparison between studies. This instrument has been found to have good to excellent inter-rater agreement scores in the original paper (i.e., 73% to 100%) (Kuosmanen et al., 2018). The quality of each study was assessed by the first author (NF) with four papers (21%) assessed by an independent reviewer. Cohen's weighted Kappa (Sim & Wright, 2005) was calculated to determine inter-rater reliability for this process. There was statistically significant agreement between the two reviewers,  $\kappa_w = .89$ , 95% CI [.80, .97],  $p < 0.001$ . The strength of agreement was classified as very good, according to (Landis & Koch, 1977), and excellent according to Fleiss and colleagues (2003) Fleiss and colleagues (2003).

## **1.4 Results**

### **1.4.1 Characteristics of included studies**

Overall, 19 studies spanning a 17-year period were eligible for inclusion in the review. Two of the studies were unpublished doctoral theses (Baror, 2009; Dunne, 2017). Studies varied considerably in terms of their characteristics, including country of origin and the health professional group surveyed (e.g., Clinical Psychologists, Social Workers, Directors of primary care organisations) (Table 1.1). The number of participants varied considerably across studies, ranging from six to 412 (Kuosmanen et al., 2018; Taiminen et al., 2019), and was not reported

in one study (Robertson et al., 2006). Ten studies gathered views regarding a particular cCBT programme while nine gathered views regarding cCBT more generally. The method of delivery of cCBT also varied across studies, ranging from studies in which the cCBT programme was delivered in session in the presence of both the patient and therapist, to those in which cCBT could be delivered without any guidance. Five studies assessed attitudes regarding the use of cCBT with children and/or young people. Most studies investigated cCBT for the use of anxiety and/or depression or did not specify a particular difficulty. The amount of data relevant to the aims of the review varied across studies.

#### ***1.4.2 Quality of included studies***

As highlighted in the previous section, the aims of included studies varied considerably between studies, with assessment of staff attitudes being the primary focus of some studies while being a minor focus in others. The quality assessment performed in this review assessed the quality of each study in relation to the aims of this review rather than the aims of the individual studies themselves.

The results of the quality assessment are provided in Table 1.2. Summary scores could range from 0-1, with 1 representing the highest quality. Summary scores for included studies ranged from 0.35 to 0.95 (median = 0.77), demonstrating the variability in study quality. Most studies had detailed and appropriate analytic methods, an appropriate study design and sufficiently detailed objectives, whilst only a minority sufficiently described respondent characteristics.

*Table 1.1. Study and sample characteristics of included studies*

<b>Author (year)</b>	<b>Country</b>	<b>cCBT programme</b>	<b>Model of delivery</b>	<b>Presenting problem(s)</b>	<b>Staff group</b>	<b>Response (n) %</b>
Aazh & Danesh (2021)	Not reported	cCBT for Tinnitus	Can be offered by audiologists as a complementary intervention to their services for tinnitus patients or as a standalone treatment if no other intervention is needed.	Tinnitus	Audiologists, Otolaryngologists, mental health professionals and other health care professionals	(41/-) -
Baror (2010)	USA	Cool Teens Program (CD Rom)	Therapist contact via phone calls every 2 weeks.	Adolescents with Generalised Anxiety Disorder	Psychologists (Clinical, Counselling, Other)	(43/-) -
Brantnell et al. (2020)	Sweden	Generic	Unspecified	Not reported	Directors of primary care organisations	(404/1130) 35.75
Brezinka (2014)	Switzerland	Treasure Hunt	Not a self-help game and should be played under guidance of a therapist.	Children with mental health problems	Psychiatrists and Psychologists (from Switzerland, Germany, Belgium, Netherlands and Egypt)	(124/555) 22.3 (42/124) 33.9
Craske et al. (2009)	USA	CALM Tools for Living	Guides both the clinician and patient simultaneously in session.	Anxiety	Clinicians with some patient-care experience and some exposure to primary-care settings, but without expertise in anxiety management or CBT	(13/13) 100
Donovan et al. (2015)	Australia	Generic	Computerised programmes where the content of the intervention is embedded within the programme itself and contact with a therapist is either minimal (usually in the form of email or telephone contact) or non-existent.	Not reported	Mental health workers, including Psychologists, Counsellors, Social Workers and more.	(124/-) -
Dunne (2017)	USA	Generic	Self -help computer program in which CBT is delivered over a computer.	Anxiety and depression	Psychology clinicians (trainee and qualified)	(31/-) -
Hadjistavropoulos et al. (2012)	Canada	www.onlinetherapy user.ca	Accompanied by brief weekly therapist support, usually by email but by phone if needed.	Anxiety and depression	Clinical Psychology graduate students	(20/20) 100
Hadjistavropoulos et al , 2017	Canada	Generic	Accompanied by brief weekly therapist support, usually by email but by phone if needed.	Anxiety and depression	Therapists and managers in community mental health clinics Psychologists, Social Workers, Nurses, Administrators, Counsellors	(33/35) 94.3
Ijzerman et al. (2019)	Netherlands	Generic	Guided cCBT	Not reported	Psychologists in medical settings	(107/-) -
Kuhn et al. (2016)	USA	CBT-I Coach	Meant to be used with face-to-face treatment for sleep difficulties. It can be used on its own with ease but is not	Insomnia	Veterans Affairs CBT-I trained clinicians (Psychologists, Social Workers, Other)	Pre: (138/366) 37.7 Post: (176/613) 28.7



			intended to replace therapy for those who need it.			
Kuosmanen et al. (2018)	Ireland	SPARX-R	Delivered as part of an alternative education curriculum with participants accessing the program as a group in a computer lab, each participant working on their individual computer.	Anger, stress and feeling low in 15–20-year-olds	Moderating staff	(6/9) 66.7
MacGregor (2008)	Scotland	FearFighter	Support was available by telephone during office hours; in addition, one of the project team contacted the patients by telephone about once every two weeks.	Panic and phobic anxiety	Referrers (General Practitioners and Community Psychiatric Nurses)	(15/26) 57.7
Miller et al. (2017)	USA	CBT-I Coach	CBT-I Coach is meant to be used with face-to-face treatment for sleep difficulties. It can be used on its own with ease, but is not intended to replace therapy for those who need it.	Insomnia	Psychologists, Social workers, Nurses, Psychiatrists	(108/451) 23.9
Robertson et al. (2006)	Australia	RecoveryRoad	Case managers monitored patients' adherence to RecoveryRoad and contacted those who had been nonadherent for approximately 1 week. Contact initiated via email and followed up with a telephone call. If the emails remained unanswered. Clinician access to progress monitoring outcomes and e-consultation system, which they could use to respond to patients' enquiries.	Depression	Clinicians in public and private mental health sectors	(-/-) -
Sogomonjan et al. (2019)	Estonia	iFightDepression	With support from a trained GP or mental health professional	Depression	Family Doctors, Psychologists, Psychiatrists	(20/55) 36.4
Stallard et al. (2010)	UK	Generic for children and adolescents	Can be conducted with or without supervision.	Not reported	Opportunistic sample attending a British Association of Behavioural and Cognitive Psychotherapy conference. Clinical Psychologists, Researchers, Social Workers, Nursing staff, other professionals, Counsellors/Therapists, Psychiatrists	(43/-) -
Taiminen et al. (2019)	Finland	Generic	Unspecified	Not reported	Unspecialised or specialised Physicians in either General Medicine or Psychiatry	(412/2565) 16.1
Vigerland et al. (2014)	Sweden	Generic for children and adolescents	Unspecified, although based on Stallard et al. (2010).	Not reported	Psychologists, Social Workers, MDs, Nurses, Mental Health Workers and Other	(156/161) 96.9

Table 1.2. Quality assessment of included studies using Kmet and colleagues' (2004) checklist

Criteria	Aazh & Danesh (2021)	Baror (2010)	Brantnell et al. (2020)	Brezinka (2014)	Craske et al. 2009	Donovan et al. (2015)	Dunne (2017)	Hadjistavropoulos et al. (2012)	Hadjistavropoulos et al. (2017)	Ijzerman et al. (2019)	Kuhn et al. (2016)	Kuosmanen et al. (2018)	MacGregor (2008)	Miller et al. (2017)	Robertson et al. (2006)	Sogomonjan et al. (2019)	Stallard et al. (2010)	Taiminen et al. (2019)	Vigerland et al. (2014)
1. Question/objective sufficiently described?	2	2	2	1	1	2	2	2	2	2	2	2	1	2	1	1	1	2	1
2. Study design evident and appropriate?	2	2	2	1	1	2	2	2	2	2	2	2	1	2	1	1	2	1	2
3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	1	1	2	2	1	1	1	2	2	2	2	1	1	2	1	2	1	1	2
4. Subject characteristics sufficiently described?	1	1	1	1	1	2	1	0	1	2	1	0	1	2	0	1	1	2	2
5. If interventional and random allocation was possible, was it described?	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
6. If interventional and blinding of investigators was possible, was it reported?	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-
7. If interventional and blinding of subjects was possible, was it reported?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?	2	2	2	1	1	2	2	1	2	2	2	2	1	2	0	2	1	1	2
9. Sample size appropriate?	2	1	2	2	2	2	1	2	2	2	2	1	1	1	0	1	2	1	2
10. Analytic methods described/justified and appropriate?	2	2	2	1	2	2	2	2	2	2	2	1	1	2	1	1	2	2	2
11. Some estimate of variance is reported for the main results?	2	1	1	2	2	2	2	2	2	2	2	1	1	2	0	-	2	2	1
12. Controlled for confounding?	1	1	1	-	-	2	2	0	0	1	1	-	-	1	-	-	-	2	1
13. Results reported in sufficient detail?	2	1	1	1	2	1	1	1	2	2	2	1	1	2	1	2	2	1	2
14. Conclusions supported by the results?	0	1	2	1	0	2	1	0	2	2	2	1	1	2	2	1	2	2	2
Summary score	.77	.68	.82	.65	.65	.85	.77	.64	.86	.95	.91	.60	.50	.91	.35	.67	.80	.77	.86

Note: 2 = yes, 1 = partial, 0 = no, - = not applicable.

### ***1.4.3 Perceived usefulness or effectiveness of cCBT***

Most studies asked respondents about the perceived usefulness or effectiveness of cCBT (Table 1.3). Many reported the proportion of respondents who perceived it to be useful or effective, with some reporting the extent to which respondents found it to be useful or effective. Of studies reporting proportions, these ranged from 47.5% to 100% of respondents believing that cCBT could be effective treatment approach.

Two studies reported the extent to which respondents found cCBT to be effective. Dunne (2017) found that clinicians felt that cCBT was a somewhat successful treatment modality and would expect to see an average improvement in client symptoms, whilst Kuhn and colleagues (2016) found that respondents believed that cCBT was moderately or very likely useful in all areas reported (Table 1.4), including symptom reduction.

While most studies used different outcome measures, two used some of the same scales (Stallard et al., 2010; Vigerland et al., 2014) and reported similar findings regarding the perceived effectiveness of cCBT for children and adolescents. Both studies found that beliefs regarding efficacy were less positive when participants were asked about their views of cCBT compared to face-to-face CBT. In addition, Vigerland and colleagues (2014) reported on factors which might affect different ratings regarding cCBT.

*Table 1.3 Findings from included studies regarding attitudes towards cCBT*

<b>Author (year)</b>	<b>Attitudes towards cCBT</b>
Baror (2010)	Belief that an adolescent with anxiety would benefit from completing the Cool Teens CD Rom - Likely or Very likely: 56.1% - Not at all likely or Somewhat likely: 43.9%
Brezinka (2014)	Reported Treasure Hunt to be a useful instrument for child psychotherapy: 95.2%  In which way they perceived Treasure Hunt as helpful for the particular child in treatment (n=42): - The explanation of important CBT concepts: 87.6% - Use of the game as reinforcement: 56.4% - Enhancement of child motivation: 50% - To structure therapy sessions: 31.2% - Strengthen the therapeutic relationship: 28%
Craske et al. (2009)	Likert scale (1-7). M (SD) - How well did the computer program work during your meetings? 6.23 (0.73) - How easy was it for you to use the computer program? 6.15 (0.69) - How easy was the language used in the program for your patients to understand? 5.39 (0.77) - What was your patients' overall opinion of the computer program? 5.69 (1.25) - What was your overall opinion of the computer program? 6.08 (0.95)
Donovan et al. (2015)	How effective they believed cCBT was in treating various disorders? - A lot: 5.6% - Quite a lot: 41.9% - A little: 34.7% - Very little: 8.9% - Not at all: 8.9%  Higher knowledge of cCBT was found to be associated with fewer perceived disadvantages of cCBT and a greater number of circumstances under which cCBT was perceived to be advantageous. No differences between psychologists and non-psychologists or between those whose primary therapeutic approach was CBT and those whose primary therapeutic approach was not CBT, were found.  Those who viewed the cCBT presentation demonstrated a significantly greater increase in knowledge of cCBT, a greater increase in the perceived advantages of cCBT, and a greater reduction in the perceived disadvantages of cCBT when compared to the control group.
Dunne (2017)	Likert scale (1-9) representing 'not at all', 'somewhat', and 'very': M (SD) - How logical they think cCBT as a treatment modality seems: 6.90 (1.62) - Expectations of how much they think their client's symptoms would be reduced after cCBT: 5.93 (1.91) - How confident participants would be in recommending cCBT to their client: 5.50 (2.40) - Participants' expectations of how much a patient would improve after cCBT: 4.73 (2.24)
Hadjistavropoulos et al. (2012)	Pre-workshop M (SD); post-workshop M (SD) - Knowledge of cCBT research (1–10): 4.00 (2.05); 8.35 (0.93) - Knowledge of cCBT practice (1–14): 6.30 (2.47); 11.25 (1.41) - Attitude towards utility of cCBT (1–10): 7.29 (1.27); 7.99 (1.36) - Attitude towards professional practice of cCBT (1–10): 6.45 (1.28); 7.20 (1.35) - Confidence in delivery of cCBT (1–10): 7.08 (1.12); 7.91 (1.49) Statistically significant changes were observed in all areas.
Hadjistavropoulos et al. (2017)	Likert scale (1-5) ranging from "strongly disagree" to "strongly agree": M (SD) - Residents should have access to cCBT: 4.61 (0.50) - Health regions should be committed to ensuring access to cCBT: 4.12 (1.05) - Health regions should identify barriers and facilitators associated with cCBT: 4.12 (1.05) - Health regions should continuously monitor and evaluate cCBT: 4.06 (1.25) - It was worth their time to be involved in cCBT: 4.39 (0.79)  Agreement that cCBT implementation was facilitated by the following Consolidated Framework for Implementation Research constructs: M (SD) - Intervention characteristics: 4.5 (0.65) - Outer setting characteristics: 3.79 (0.55) - Inner setting characteristics: 3.32 (1.29) - Individual characteristics: 3.97 (0.67) - Implementation process: 4.07 (0.55)
Ijzerman et al. (2019)	Type of problems for which respondents considered cCBT as an appropriate treatment: - Anxiety and/or mood-related problems: 75.7% - Problems dealing with chronic physical complaints and limitations: 72.9% - Sleep problems: 67.3% - Fatigue problems: 65.4%

Author (year)	Attitudes towards cCBT
Kuhn et al. (2016)	<p>Likert scale (0-4) ranging from “not at all likely” to “extremely likely”. How likely do you believe it is that the CBT-I Coach can do the following? Mean (SD)</p> <ul style="list-style-type: none"> <li>- Increase patients’ use of CBT-I skills after finishing treatment: 2.94 (0.86)</li> <li>- Increase patients’ knowledge of stimulus control recommendations: 2.76 (0.96)</li> <li>- Increase maintenance of insomnia symptom reduction: 2.69 (0.89)</li> <li>- Increase homework adherence: 2.68 (0.87)</li> <li>- Increase patients’ confidence that CBT-I will improve their sleep: 2.52 (0.96)</li> <li>- Increase CBT-I treatment completion rates: 2.44 (0.90)</li> <li>- Increase amount of insomnia symptom reduction: 2.33 (1.03)</li> <li>- Increase speed of insomnia symptom reduction: 2.31 (1.04)</li> <li>- Increase patients’ capacity to challenge dysfunctional thoughts about sleep: 2.30 (1.02)</li> <li>- Improve therapists’ adherence to the CBT-I protocol: 2.19 (1.08)</li> </ul> <p>Likert scale (1-7) ranging from “strongly disagree” to “strongly agree”: M (SD)</p> <ul style="list-style-type: none"> <li>- Relative advantage: 5.15 (0.79)</li> <li>- Compatibility: 5.48 (0.89)</li> <li>- Complexity: 5.12 (1.01)</li> </ul>
Kuosmanen et al. (2018)	<p>SPARX-R received an overall mean rating of 5 out of 10 (SD = 3.63) from staff. There was considerable variability in the scores, ranging from 1 to 10, with half of the staff giving the program a score of four or below and the other half rating the program at seven or above.</p>
MacGregor (2008)	<ul style="list-style-type: none"> <li>- Considered that FearFighter was suitable for use in rural areas in Scotland: 100%</li> <li>- Considered that the clients had improved at least “to some extent”: 75%</li> </ul>
Miller et al. (2017)	<p>Likert scale (1-7) ranging from “strongly disagree” to “strongly agree”: M (SD)</p> <ul style="list-style-type: none"> <li>- Relative Advantage: 4.80 (0.84)</li> <li>- Compatibility: 5.08 (0.87)</li> <li>- Complexity: 3.01 (1.09)</li> <li>- Trialability: 5.44 (1.37)</li> <li>- Observability: 4.21 (1.23)</li> <li>- Endorsement: 5.14 (1.56)</li> </ul>
Robertson et al. (2006)	<ul style="list-style-type: none"> <li>- Satisfied with the system: 100%</li> <li>- Helped their relationship with their patients: 83%</li> <li>- Helped their patients to better manage their condition: 100%</li> </ul>
Sogomonjan et al. (2019)	<ul style="list-style-type: none"> <li>- Patients need cCBT: 75%</li> <li>- cCBT should be available for everyone to access: 85%</li> <li>- Emphasized the importance of follow-up patients’ records: 80%</li> <li>- cCBT is a sufficiently secure environment for purposes of special categories of personal data according to the standards for the transfer of personal data: 20%</li> <li>- Emphasized that the healthcare service provider should be held responsible for treatment outcomes and possible complications: 70%</li> </ul>
Stallard et al. (2010)	<p>Respondents rated cCBT as able to help “quite a lot” or “a lot” as:</p> <ul style="list-style-type: none"> <li>- A prevention programme: 59%</li> <li>- An intervention for mild/moderate problems: 56%</li> <li>- An intervention to treat more severe disorders: 27%</li> </ul> <p>Effectiveness of cCBT compared to face-to-face CBT</p> <ul style="list-style-type: none"> <li>- Equally effective: 17%</li> <li>- cCBT as “much better” or “better”: 0%</li> <li>- Outcomes of cCBT “worse” or “much worse”: 59%</li> <li>- Unsure: 24%</li> </ul> <p>Concerns about using cCBT with children and adolescents</p> <ul style="list-style-type: none"> <li>- Had concerns: 32%</li> <li>- No concerns: 20%</li> <li>- Unsure: 49%</li> </ul> <p>Delivery of cCBT</p> <ul style="list-style-type: none"> <li>- Should be freely available online: 37%</li> <li>- Unsure if should be freely available online: 49%</li> <li>- Should be offered without any professional support: 8%</li> <li>- Support should be provided by a Tier 2 worker: 44%</li> <li>- Support should be provided by a Tier 3 worker: 25%</li> <li>- Support should be provided by a teacher: 8%</li> </ul> <p>The greatest concerns related to the potential absence of a therapeutic relationship and the lack of therapist contact, followed by programmes not being tailored to individual needs. The greatest perceived benefits or advantages of using cCBT with children and adolescents were that cCBT could be used at home, would reduce stigma, and could provide earlier access to treatment.</p>

Author (year)	Attitudes towards cCBT
Taiminen et al. (2019)	<p>71.1% believed that the prescription of cCBTs for patients was beneficial, 23.1% were unsure, 5.8% did not see any benefit.</p> <p>Seven-point Likert scale: M (SD)</p> <ul style="list-style-type: none"> <li>- Attitudes towards cCBTs: 5.4 (1.4)</li> <li>- Efficiency beliefs of cCBTs as treatment option: 5.0 (1.3)</li> <li>- Knowledge of cCBTs: 2.8 (1.4)</li> <li>- Relevance of cCBTs in mental healthcare provision: 5.3 (1.5)</li> <li>- Relevance of cCBTs in own profession: 4.0 (1.7)</li> </ul> <p>Age and general acceptance of CBT were the most significant individual-level separators of perceptions, while the sector in which the physician works was seen as the main structural-level separator.</p>
Vigerland et al. (2014)	<p>Clinicians reporting that cCBT could be helpful “a lot” or “quite a lot” as:</p> <ul style="list-style-type: none"> <li>- A prevention program (72%)</li> <li>- An intervention for mild to moderate problems (74%)</li> <li>- An intervention for severe problems (25%)</li> </ul> <p>Clinicians who identified themselves as working mainly with CBT were more positive towards the helpfulness of cCBT for mild to moderate, and severe problems, and prevention, when compared to clinicians working with psychodynamic or family therapy. There was no significant effect of rurality.</p> <p>Effectiveness of cCBT compared to face-to-face CBT</p> <ul style="list-style-type: none"> <li>- cCBT would yield lower results compared to face-to-face CBT: 42%</li> <li>- Comparable results: 33%</li> <li>- cCBT would show better results than face-to-face CBT: 0%</li> </ul> <p>Clinicians working mainly with CBT were significantly more likely to report that cCBT would be comparable to face-to-face CBT. An increase in rurality was associated with a decrease in the perceived effectiveness of cCBT compared to face-to-face CBT.</p> <ul style="list-style-type: none"> <li>- Some concerns about cCBT: 27%</li> <li>- Might have concerns: 30%</li> <li>- No concerns: 40%</li> </ul> <p>The following were indicated as causing a great deal of problems by more than 40% of participants:</p> <ul style="list-style-type: none"> <li>- “Risk of dropping out”</li> <li>- “Not completing all sessions”</li> <li>- “Lack of therapist contact”</li> <li>- “No therapeutic alliance”</li> <li>- “A standardized treatment program would not be tailored to suit the individual”</li> </ul> <p>More than 50% believed that:</p> <ul style="list-style-type: none"> <li>- Computer competency would not be a problem at all</li> <li>- An unsuccessful cCBT would ruin the possibility of other successful treatments.</li> </ul> <p>There were no significant effects of theoretical orientation on ratings of concern, except for questions regarding lack of therapist contact and therapeutic alliance, and that it might sabotage other treatments if cCBT would not be successful. CBT-clinicians were less likely to rate this as a large concern. There was no significant effect of rurality.</p> <p>74% believed that there were advantages with cCBT, 23% were unsure about advantages and only 1% saw no advantages at all. There was a significant effect of theoretical orientation on about half of the ratings of potential advantages, with CBT-clinicians being more likely to endorse items as being advantages.</p>

CBT: Cognitive Behavioural Therapy; cCBT: computerised Cognitive Behavioural Therapy; CBT-I: Cognitive Behavioural Therapy for Insomnia.

#### **1.4.4 Acceptability of cCBT to clinicians**

Many studies included some sort of measure of acceptability of cCBT to clinicians. These ranged from ratings regarding specific aspects of cCBT (e.g., how logical it was as a treatment modality; Dunne, 2017) to quite broad overall ratings regarding cCBT. Respondents in one study appeared to be quite divided; an overall mean rating of 5 out of 10 was reported but with half of respondents rating the programme lowly and the other half rating it highly (Kuusmanen et al., 2018). However, in most studies, respondents reported favourable opinions regarding the acceptability of cCBT (Table 1.3).

Kuhn and colleagues (2016) reported the findings of a pre-launch survey in which respondents believed that cCBT would have a relative advantage compared to existing practices, would be compatible with their own needs and values, and would be easy to use. However, a survey conducted 2 years later found that while the ratings regarding relative advantage and compatibility were still favourable, they were lower than the ratings reported in the pre-launch, and respondents now slightly disagreed that it was easy to use (Miller et al., 2017). Thus, it seems that respondents' attitudes towards cCBT deteriorated slightly upon exposure to a particular cCBT programme in this study. It was noted that the article did not acknowledge the reduction in ratings between the pre-launch survey and the 2-year follow-up survey but indicated that perceptions in the earlier questionnaire were based on a written description of the programme before it was available for use (Miller et al., 2017).

#### ***1.4.5 Concerns regarding the use of cCBT***

Two studies enquired specifically about potential concerns relating to the use of cCBT (Stallard et al., 2010; Vigerland et al., 2014). Similar proportions of respondents had concerns about using cCBT with children and young people and there were also commonalities in terms of the main concerns reported, thereby increasing the reliability of these findings. The similarity in findings is interesting considering that the studies were conducted in different countries, with Vigerland and colleagues (2014) utilising a larger and less biased sampling frame.

#### ***1.4.6 Effects of interventions***

Two studies examined the effects of interventions on participants' knowledge and attitudes towards cCBT. Both studies reported increases in knowledge along with more positive attitudes towards cCBT (Donovan et al., 2015; Hadjistavropoulos et al., 2012). Thus, interventions appear to be effective in terms of changing beliefs or changing the extent of beliefs about cCBT.

#### ***1.4.7 Use of cCBT***

##### ***Self-reported use or provision of cCBT***

Seven studies reported on actual use or provision of cCBT. The proportion of respondents who had used cCBT varied considerably between studies, ranging from just 12.9% (Dunne, 2017) to 79% (Stallard et al., 2010) (Table 1.4). There was variation in terms of whether studies asked about use of a specific cCBT programme or cCBT in general, or whether they asked about ever use, current use or use within a particular timeframe. These factors could all contribute to the differences in the rates of reported use between studies.

The survey by (Stallard et al., 2010) found that most respondents used cCBT at least some of the time. Respondents comprised an opportunistic sample of people attending a British Association for Behavioural and Cognitive Psychotherapies (BABCP) conference and the focus of the survey was cCBT. Consequently, those who had minimal involvement with cCBT might have been less likely to complete the survey. Of the three other studies reporting use of cCBT by almost half of participants or more, two looked at use of a cCBT application for insomnia in Veteran's Affairs clinicians who had previously completed Cognitive Behavioural Therapy for Insomnia (CBT-I) training as part of a national rollout by the organisation (Kuhn et al., 2016; Miller et al., 2017) and one surveyed clinicians who had participated in two large-scale studies pertaining to cCBT (Sogomonjan et al., 2019). Thus, the higher rates of reported use in these studies are perhaps unsurprising.

The study by (IJzerman et al., 2019) also looked at access to cCBT and reported that less than a fifth had access to cCBT. Similarly, a survey of primary care organisations in Sweden found that just a fifth offered cCBT (Brantnell et al., 2020). It is therefore possible that access, or lack thereof, to cCBT may also contribute to the low rates of use found in some studies.

Just two studies looked at factors associated with actual use of cCBT (Brantnell et al., 2020; Miller et al., 2017). Both studies used different measures and so the reliability of these findings is unknown.



Table 1.4 Findings from included studies regarding cCBT use, likelihood of cCBT use and associated factors

Author (year)	Type of cCBT	Actual use of cCBT	Likelihood of using cCBT	Factors associated with use, likelihood of use or future use intention regarding cCBT
Aazh & Danesh (2021)	Specific	-	<p>How likely are you to use this cCBT for Tinnitus program as a complementary intervention to the services you provide for tinnitus patients? - Extremely likely or Likely: 87%</p> <p>How likely are you to use this cCBT for Tinnitus program as a standalone intervention for your tinnitus patients? - Extremely likely or Likely: 56.4%</p>	The difference in participants' responses between these questions was statistically significant. There was no significant relationship between the participants' responses and their profession.
Baror (2010)	Specific	-	<p>Likelihood of using the Cool Teens CD Rom if also seeing individual for face-to-face therapy: - Likely or very likely: 58.1% - Not at all likely or somewhat likely: 41.9%</p> <p>Likelihood of using the Cool Teens CD Rom with no face-to-face contact and biweekly phone contact only? - Likely or very likely: 4.7% - Not at all likely or somewhat likely: 95.3%</p> <p>Likelihood of using the Cool Teens CD Rom when difficult for an individual to attend weekly sessions: - Likely or very likely: 56.1% - Not at all likely or somewhat likely: 43.9%</p>	No significant difference between "early" and "seasoned" career psychologists.
Brantnell et al. (2020)	Generic	20.5% of participating organisations used cCBT.	-	<p>Implementors were more likely than non-implementers to believe that:</p> <p><i>Therapist-related items</i></p> <ul style="list-style-type: none"> <li>- Therapists treating adults with depression and/or anxiety are positive towards cCBT programs</li> <li>- Therapists treating adults with depression and/or anxiety have knowledge of the cCBT programs</li> <li>- Therapists treating adults with depression and/or anxiety have confidence in the guidelines recommending cCBT programs</li> </ul> <p><i>Programme-related items</i></p> <ul style="list-style-type: none"> <li>- cCBT programs for adults with depression and/or anxiety offer alternative learning formats.</li> <li>- cCBT programs for adults with depression and/or anxiety are not plagued with big technical problems</li> </ul> <p><i>Organization-related items</i></p> <ul style="list-style-type: none"> <li>- Our organization has resources to offer cCBT programs to adults with depression and/or anxiety</li> <li>- Contracts with service providers allow introduction of cCBT for adults with depression and/or anxiety</li> </ul>

Author (year)	Type of cCBT	Actual use of cCBT	Likelihood of using cCBT	Factors associated with use, likelihood of use or future use intention regarding cCBT
Brantnell et al. (2020) continued...				- The concept of online treatment to adults with depression and/or anxiety is well established at their organization - The patient referral process allows introduction of cCBT for adults with depression and/or anxiety.  No difference in agreement regarding user-related or society-related items.
Donovan et al. (2015)	Generic	-	Would participants use a cCBT programme with their clients if it were available? - Definitely yes: 13.7% - Most likely: 32.3% - Possibly: 42.7% - Definitely not: 4.8% - Unsure: 6.5%	Compared to those low in intention to use cCBT, those who reported high intention to use cCBT programmes were found to perceive more advantages of cCBT, fewer disadvantages of cCBT, more circumstances under which cCBT was considered advantageous, reported higher belief in the efficacy of computers in therapy, endorsed greater comfort with using computers in therapy, and had greater knowledge of cCBT.
Dunne (2017)	Generic	Have you ever recommended cCBT to any of your clients who have symptoms of anxiety and depression? - Yes: 12.9%	How likely to recommend cCBT to clients with anxiety or depression? Likert scale (1-9) representing 'not at all', 'somewhat', and 'very': M (SD) - 4.73 (2.58)	-
Ijzerman et al. (2019)	Generic	- Access to cCBT: 16.8% - Currently use cCBT: 15.9%	- Expected to use cCBT within the next year: 21.5%	The constructs "performance expectancy", "effort expectancy", and "facilitating conditions" together had a significant positive effect on behavioural intention regarding use of cCBT, whereas "social influence" did not.
Kuhn et al. (2016)	Specific	- Used the appt with a patient in the past year: 59.9%	Likert scale (1-7) ranging from "strongly disagree" to "strongly agree": Mean (SD) - Future Use Intention: 6.22 (0.82)	Smartphone ownership and perceptions of relative advantage, compatibility, and complexity of the app were all significant predictors of future use intention. Age, number of CBT-I patients treated per week, and using or having previously used apps in care did not significantly predict future use intention.
Kuosmanen et al. (2018)	Specific	-	-	Those who gave SPARX-R a higher rating, also reported that they would probably or definitely deliver SPARX-R again in their Centre and agreed that they would recommend the program to a young person. Those who gave SPARX-R a score below four, did not consider delivering SPARX-R in its current form again in their Centre, and disagreed that they would recommend the program to a young person.
Miller et al. (2017)	Specific	Have used or are currently using CBT-I Coach with a patient: 48.1%	-	Those who reported using CBT-I Coach had more favourable perceptions across all constructs, except relative advantage, compared to nonusers. Users perceived it as less complex and more compatible with their practice than nonusers. CBT-I Coach users did not significantly differ in age from those who had not used the app.
Sogomonjan et al. (2019)	Specific	- Have suggested cCBT for patients: 65% - Have suggested less than 10 patients per month: 50%	-	-
Stallard et al. (2010)	Generic	- Using cCBT 80–100% of the time: 37% - Using cCBT 20–80% of the time: 42% - Used it none of the time: 22%	Would use cCBT, if available, with children and adolescents: - Would definitely use: 29% - Would possibly use: 50% - Would definitely not use: 0% - Unsure: 9.5%	-

Author (year)	Type of cCBT	Actual use of cCBT	Likelihood of using cCBT	Factors associated with use, likelihood of use or future use intention regarding cCBT
Taiminen et al. (2019)	Generic	-	Seven-point Likert scale: M (SD) Intention to prescribe cCBT to patients: 3.4 (1.8)	Agreement with principles of CBT, field of specialisation (those working in occupational health, general medicine and psychiatry had higher intentions compared to those in other fields), and age (no consistent pattern- those in oldest age range 61-70 were least likely while those in 41-50 age range were most likely) were found to be significant separators of intention. Average distance that patients had to travel to see their physician, working in public or private sector and sex were not found to be significant separators of intention.
Vigerland et al. (2014)	Generic	-	50% of the clinicians reported that they would use cCBT themselves and an additional 30% that they could consider it. A majority answered that they would refer a patient to a colleague or special unit for cCBT (65% and 57% respectively). Less than 10% reported that they would not be willing to use cCBT in any of these ways.	There was a significant difference in the proportion willing to use cCBT themselves between the different treatment orientations, with CBT-oriented clinicians being more likely to report willingness to use. There was no significant effect of rurality

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### *Likely or future use of cCBT*

Nine studies reported respondents' likely use or future use intention of cCBT (Table 1.4). While most of the studies reported their findings in percentages, some reported future use intention in terms of means and standard deviations, making comparison between the studies more difficult.

Two studies reported on the likelihood of using cCBT in different ways. Respondents indicated that they would be more likely to use cCBT as a complementary treatment rather than a standalone treatment (Aazh & Danesh, 2021), and alongside face-to-face therapy rather than supplementation with telephone sessions (Baror, 2009). These findings indicate that the reported likelihood of using cCBT can vary substantially depending on the way in which cCBT is provided, with a preference emerging for using cCBT as an adjunct treatment rather than being the main, or only, form of treatment provided.

Eight studies reported the factors associated with likelihood of future use or future use intention of cCBT. There was substantial variation in terms of the factors reported to be associated with likely or future use (Table 1.4) and therefore the reliability of these findings is unknown. This was typically due to the variation in factors measured and analysed in studies rather than conflicting results being reported by studies. A CBT-orientation (Vigerland et al., 2014) and agreement with the principles of CBT (Taiminen et al., 2019) were associated with increased willingness to use cCBT or future use intention whereas the number of CBT clients treated per week was not (Kuhn et al., 2016). With regard to cCBT-related variables, the following were associated with future use intention: greater knowledge of cCBT, more perceived advantages and fewer perceived disadvantages of cCBT, and more circumstances under which cCBT was considered advantageous (Donovan et al., 2015); perceptions of relative advantage, compatibility and complexity of the programme (Kuhn et al., 2016); and constructs pertaining to performance expectancy, effort expectancy and facilitating conditions (IJzerman et al., 2019). In terms of technology-related variables, a higher belief in the efficacy of computers in therapy, greater comfort using computers in therapy (Donovan et al., 2015) and smartphone ownership (Kuhn et al., 2016) were associated with increased future use intention, whereas use or previous use of apps in care was not (Kuhn et al., 2016). Sex, sector, profession, early vs. seasoned career status, rurality and social influences were not found to be associated with future use intention (Aazh & Danesh, 2021; Baror, 2009; Taiminen et al., 2019; Vigerland et al., 2014) with conflicting findings reported regarding age (see Kuhn et al., 2016; Taiminen et al., 2019).

## **1.5 Discussion**

### ***1.5.1 General findings***

Overall, clinicians seemed to believe that cCBT could be somewhat effective but there was a tendency for beliefs regarding efficacy to be less positive when participants were asked about their views of cCBT compared to face-to-face CBT (e.g., Stallard et al., 2010; Vigerland et al., 2014). These findings also echo those of earlier research in which participants believed that computerised self-help would be less effective than individual face-to-face therapy (Whitfield & Williams, 2004). However, there is evidence demonstrating that guided cCBT and face-to-face CBT can produce equivalent effects (Carlbring et al., 2018) and therefore these findings may indicate a lack of awareness of the evidence base.

Clinicians generally found cCBT to be acceptable. This finding also corresponds to those reported in reviews of patient acceptance of cCBT (Kaltenthaler et al., 2008; Rost et al., 2017). Therefore, both clinicians and patients appear to perceive cCBT to be an acceptable treatment approach, although it should be noted that individualised approaches to cCBT may be required to increase uptake and adherence by patients (Treanor et al., 2021).

Use of cCBT was reported by a minority of studies and varied considerably between studies. Studies varied in terms of whether they were asking about use of a specific cCBT programme or cCBT in general, as well as whether they asked about ever use, current use or use within a particular timeframe. There were also differences in terms of the samples being surveyed which may have contributed to differences between studies. Thus, it is difficult to come to any firm conclusions regarding the rate of use of cCBT by clinicians. Research into alternative methods of delivering therapy has, however, reported a slower uptake by therapists rather than clients (Simpson et al., 2021).

### ***1.5.2 Limitations of the evidence***

Most of the research is descriptive in nature with a considerable focus on attitudes and future use intention. It has been long known that there are inconsistencies between attitudes and behaviour (Ajzen & Fishbein, 2005), and intentions and behaviour (Armitage & Conner, 2001). The practical utility of the research is therefore limited. A potential reason for this may have been due to the small sample sizes reported in many studies, as this would have limited the options for analysis. It is also possible that studies had not collected sufficient data in terms of respondent characteristics to perform such analyses, given that most studies reported minimal data regarding participants.

There was considerable heterogeneity in various aspects of the studies (groups of professionals, specific program, mode of delivery of cCBT, specific diagnosis, specific group of patients), making direct comparisons between studies difficult. Similarly, there was variation in the outcome measures used despite the existence of validated measures such as the Computer-Assisted Therapy Attitudes Scale (Becker & Jensen-Doss, 2013) and the Attitudes towards Psychological Online Interventions Questionnaire (Schröder et al., 2017). A limitation of most studies looking at the factors associated with use, likelihood of use or future use intention regarding cCBT was that they did not report on participants' attitudes or use of CBT itself. It would be reasonable to expect that such factors might influence clinicians' attitudes towards, and use of, cCBT. Indeed, studies which did include related variables found an association between these (Taiminen et al., 2019; Vigerland et al., 2014). There was also a tendency for studies to omit organisational or system-level factors which makes their relevance to health care systems such as the NHS limited.

The quality assessment revealed substantial variability in study quality. Most studies had detailed and appropriate analytic methods, an appropriate study design and sufficiently detailed objectives, whilst only a minority sufficiently described respondent characteristics. This was surprising given the number of studies which looked at factors associated with attitudes towards, or future use intention of, cCBT, and may indicate that potentially relevant individual-level factors, or factors relating to respondents' roles, were not adequately measured by studies.

There was limited research identified in terms of physical health problems, with just one study looking at cCBT for tinnitus (Aazh & Danesh, 2021). This is somewhat surprising given that there is evidence supporting the effectiveness of cCBT for distress associated with chronic health conditions (for a review, see Mehta et al., 2019) as well as recommendations for the use of cCBT for tinnitus in the UK (National Institute for Health and Care Excellence, 2020), and reveals a gap in the current literature.

### ***1.5.3 Limitations of the review process***

The review took an inclusive approach in terms of eligibility criteria; however, the inclusive nature of the review led to difficulties drawing direct comparisons between studies due to considerable heterogeneity between studies in terms of survey respondents, interventions (e.g., a named cCBT programme or cCBT in general), the mode of delivery (e.g., standalone approaches, guided approaches or unspecified modes of delivery), outcomes and outcome

measures used. Similarly, the inclusion of studies from any country may also limit the applicability of the findings to specific health care systems, such as the NHS.

Systematic reviews often exclude grey literature and unpublished research. Whilst a full search of grey literature was beyond the scope of this review, the search retrieved two relevant doctoral theses (Baror, 2009; Dunne, 2017). Their inclusion in the review represents a relative strength and helps to minimize the potential effects of publication bias (Blackhall & Ker, 2007).

Another potential limitation of the review process was the use of summary scores for the purpose of quality assessment. The Centre for Reviews and Dissemination (2009) recommends against the use of summary scores. While this review does include summary scores, a checklist containing full details of the quality assessment was also presented to allow the reader to consider the various aspects of each study individually and to ease comparison between the studies on each aspect as per recommendations (Centre for Reviews and Dissemination, 2009). Inter-rater reliability checks were also conducted on a subsample of the papers by two independent raters to evaluate agreement between authors during the quality assessment process. A further limitation of the review process was that the screening was conducted by the first author. Previous research has demonstrated that screening by one reviewer may result in some relevant studies being missed (Waffenschmidt et al., 2019).

#### ***1.5.4 Implications for research and practice***

At present, a considerable proportion of the research is descriptive in nature, with some studies looking at factors associated with use of cCBT and fewer identifying factors which predict the use of cCBT by clinicians. Further research looking at predictors of the use of cCBT is warranted, as are intervention studies aimed at increasing the use of cCBT by clinicians where appropriate (National Institute for Health and Care Excellence, 2022), as such studies would produce findings more applicable to implementation within a specific health care setting or system. A review of the qualitative evidence regarding clinicians' opinions of cCBT is currently underway (Barnwell & Patton, 2021) and this may shed further light on the factors which prevent or reduce the likelihood of use of cCBT by clinicians and help to inform intervention studies.

Very few studies focused on primary care settings. Given that primary care services are often the first port of call for people experiencing mental health difficulties in the UK, it would be expected that individuals suitable for cCBT may be identified by these services without the

need for more specialist input. Consequently, research involving these professionals may result in different findings in terms of attitudes, use and factors associated with use.

Findings from studies included in this review suggested that clinicians tended to view cCBT as being less effective than face-to-face CBT despite evidence indicating that guided cCBT and face-to-face CBT can produce similar effects (Carlbring et al., 2018). Therefore, dissemination regarding the effectiveness of cCBT may be warranted to ensure that clinicians are aware of the evidence base as the uptake of alternative methods of delivering therapy by clinicians can be hindered by expectations of inferior outcomes (Simpson et al., 2021).



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## **Chapter 2    Empirical project**

**Journal choice:** Behavioural and Cognitive Psychotherapy (see Appendix 1 for guidelines)

**Title:** Clinicians' attitudes toward computerised Cognitive Behaviour Therapy

**Running head:** Clinicians' attitudes towards cCBT

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## 2.1 Abstract

**Background:** Computerised Cognitive Behaviour Therapy (cCBT) is effective for a range of mental health difficulties but the rate of uptake is low amongst clinicians. Normalisation Process Theory (NPT) is a contemporary social theory concerned with how and why things become, or do not become, routine components of everyday work, and may help explain why the use of cCBT by clinicians is low. **Aims:** The study aimed to establish whether the constructs of NPT predicted clinicians' a) self-reported attitudes towards cCBT and b) self-reported referral behaviour regarding cCBT. **Method:** An online survey was completed by 246 individuals who provide psychological input to people in the UK. Stepwise regression was used to examine predictors of attitudes and referral rates. **Results:** Clinicians demonstrated ambivalent attitudes towards cCBT, containing both negative and positive aspects. Fewer than half of respondents (42.3%) had ever referred a patient to cCBT and the rates of referral were typically low. Constructs of NPT were important predictors of both attitudes and self-reported referral rates. **Conclusions:** NPT may be a useful theory in predicting attitudes and behaviours toward healthcare interventions but additional research is required to establish whether this finding is replicable in areas beyond cCBT.

**Key words:** computerised, cognitive behaviour therapy, attitudes, clinicians, survey, normalisation process theory

## **2.2 Introduction**

Cognitive behaviour therapy (CBT) is an evidence-based treatment recommended for the treatment of numerous mental health difficulties (NHS Education for Scotland, 2014; The National Collaborating Centre for Mental Health, 2018). Recent UK government initiatives have attempted to improve access to treatment for mental health problems (Scottish Government, 2017; The National Collaborating Centre for Mental Health, 2018) but delays in accessing treatment remain (Public Health Scotland, 2022), and there may also be barriers to accessing psychological treatments due to rurality, stigma and problems with physical health or mobility (Dunne, 2017; Mohr et al., 2010; Scottish Government, 2017; Thornicroft et al., 2016). One modality which can overcome some of these treatment barriers is computerised CBT. This is a form of CBT that is delivered via computer programmes, mobile phone applications or the internet. It can be used on its own, with human guidance, or as an adjunct to face-to-face therapy (Barak et al., 2009). At present, it is a form of self-help recommended for the treatment of depression in the UK and should be supported by a trained practitioner who encourages completion and reviews progress and outcomes (National Institute for Health and Care Excellence, 2022).

Despite evidence demonstrating the effectiveness and cost-effectiveness of cCBT (Gerhards et al., 2010), and the recommendations for its use, the use of cCBT programmes in Scotland is low (Persson et al., 2016), echoing earlier UK-wide findings (Whitfield & Williams, 2004). This problem is not unique to cCBT. It is well documented that gaps exist in the process of translating research findings into routine practice (de Brún et al., 2016) and theoretical approaches are recommended to overcome these translational gaps (Eccles et al., 2009). A multitude of theories have been developed to understand factors affecting the implementation of evidence-based practices within health care systems. A review of implementation and dissemination models identified twelve such theories (Tabak et al., 2012). A full review of these theories is beyond the scope of this paper, which focused on Normalisation Process Theory (NPT).

### ***2.2.1 Normalisation Process Theory***

NPT is a contemporary social theory concerned with how and why things become, or do not become, routine components of everyday work (May & Finch, 2009). It was originally developed to explain the observed difficulty of implementing, integrating and embedding new or modified technologies, or ways of working, in health care settings (May et al., 2009). One of the unique features of NPT compared with other implementation theories is that it was

developed from multiple qualitative studies exploring the implementation of complex interventions in different health care settings and focuses on aspects of individual and collective behaviour shown to be important in empirical studies of implementation processes (May et al., 2018).

NPT proposes that the embedding of new practices requires participants involved in the process to work across four construct domains of coherence (“the process of sense-making and understanding that individuals and organisations have to go through in order to promote or inhibit the routine embedding of a practice to its users”), cognitive participation (“the process that individuals and organisations have to go through in order to enrol individuals to engage with the new practice”), collective action (“the work that individuals and organisations have to do to enact the new practice”) and reflexive monitoring (“the informal and formal appraisal of a new practice once it is in use, in order to assess its advantages and disadvantages and which develops users’ comprehension of the effects of a practice”) (Finch et al., 2012).

NPT has been used as the primary approach to collection, analysis or reporting of the implementation of healthcare practices in 108 distinct studies (May et al., 2018) and has been utilised in 31 studies to explore the implementation of interventions within primary care settings in the UK (Huddleston et al., 2020). Most of these studies have used primarily qualitative methods with the number of studies using quantitative or mixed methods approaches being low. Johnson and colleagues (2017) found that staff responses to a measure of ‘normalisation’ related well to objective measures of guideline compliance, suggesting that clinicians’ responses to an instrument based on NPT would be likely to predict their behaviour. Thus, the current study used a quantitative approach to test whether NPT constructs would predict clinicians’ attitudes and self-reported use of cCBT. This study is, to our knowledge, the first to establish whether NPT predicts clinicians’ attitudes and self-reported referral to cCBT and adds to the limited number of studies applying NPT using quantitative methods.

### ***2.2.2 Factors associated with clinicians’ attitudes and behaviour regarding cCBT***

Few studies have investigated factors that may be associated with clinicians’ attitudes towards cCBT or their use of cCBT. There has been mixed evidence regarding age. Taiminen and colleagues (2019) reported an association between age and perceptions of cCBT, and between age and future use intent, although there was no consistent pattern. However, other studies have found that age does not predict future use intention (Kuhn et al., 2016) and no difference in age was found between users and non-users of a cCBT application (Miller et al., 2017). One study

looked at years of experience working in mental health and found that this was positively associated with attitudes towards cCBT (Persson et al., 2016).

With regard to therapeutic orientation, Vigerland and colleagues (2014) found that CBT-oriented clinicians were more likely to report a willingness to use cCBT and demonstrated more favourable attitudes towards cCBT. Agreement with CBT principles has also been found to be associated with future use intention and attitudes toward cCBT (Taiminen et al., 2019). Similarly, research regarding attitudes towards internet interventions and computer-assisted therapies (rather than cCBT specifically) found that those with a psychodynamic orientation had a more negative attitude towards these (Becker & Jensen-Doss, 2013; Schröder et al., 2017).

Donovan and colleagues (2015) found that a higher belief in the efficacy of computers in therapy and greater comfort in using computers in therapy was associated with a higher intention to use cCBT. Similarly, greater computer fluency and greater general openness towards new treatments have been found to predict positive attitudes towards computer-assisted therapies (Becker & Jensen-Doss, 2013).

Although these studies have added to our understanding of cCBT and computer or internet-based interventions more broadly, previous research has lacked a theoretical basis. Furthermore, the applicability of these studies to organisations, and the NHS more specifically, is restricted due to the lack of consideration of the impact of the organisational and system-level factors that might influence clinicians' attitudes towards, and use of, cCBT. Therefore, the existing literature warrants elaboration using a theory which considers implementation at multiple levels rather than just the individual level.

NPT has been used successfully in other areas of research concerned with the implementation of new ways of working; therefore, it appeared likely that it would be useful in terms of identifying constructs which predict clinicians' attitudes and self-reported behaviours towards cCBT. The current study aimed to apply NPT, a theory about how and why things become, or do not become, routine parts of everyday work considering factors affecting implementation at multiple levels.

The study aimed to establish whether the constructs of NPT predicted clinicians' a) self-reported attitudes towards cCBT and b) self-reported behaviour regarding cCBT.

## **2.3 Methods**

### **2.3.1 Study design**

This was a cross-sectional online survey.

### **2.3.2 Participants**

Participants were individuals who provide psychological input to people in the UK. Participants were recruited using several non-random sampling methods outlined below.

#### *NHS Scotland*

Heads of Psychological Services from adult mental health, learning disabilities, older people, forensic services, and child and adolescent mental health services were sent an email from a Clinical Director in Older Adults Mental Health Services (Appendix 8). The email asked that they circulate the email below to all relevant staff members within their service, and so the number of individuals who received the email and survey link is unknown.

#### *Public register*

The CBT Register UK ([www.cbtregisteruk.com](http://www.cbtregisteruk.com)) is an online public register of accredited British Association for Behavioural and Cognitive Psychotherapies and Association for Rational Emotive Behaviour Therapy members. Approximately 185 therapists from this register were contacted by the researcher by email (Appendix 9). It was decided not to continue with this recruitment method as it was resource intensive.

#### *Social media*

A link to the survey was posted to two WhatsApp groups for Trainee Clinical Psychologists (University of Edinburgh-based and UK-wide) and the survey advert (Appendix 10) was posted on four UK-based Facebook groups for Clinical Associate Psychologists, Trainee Clinical Psychologists, Clinical Psychologists, and Clinical Psychologists working with Older People.

### **2.3.3 Questionnaire development**

The survey was developed using Qualtrics Survey Software. The questionnaire included questions regarding demographic and clinical variables, and questions from, or adapted from, existing measures, as detailed in the sections that follow.

#### *Demographic and clinical information*

Demographic variables were assessed through a short questionnaire assessing factors identified in previous research as influencing clinicians' attitudes to cCBT. These included age, sex, and

theoretical orientation. Information was also gathered regarding clinical characteristics such as participants' current profession, area of speciality, sector and the size of their current caseload.

#### *Assessing current practice*

Participants were asked if they had access to cCBT, if they had ever referred a patient to cCBT and in which circumstances (e.g., as an alternative to therapist contact, to supplement individual therapy). They were also asked to provide an estimate of the number of patients they had referred to cCBT in the previous one and twelve months.

#### *Computer-Assisted Therapy Attitudes Scale (CATAS; Becker & Jensen-Doss, 2013)*

The CATAS is an 8-item measure of attitudes towards computer-assisted therapy which assesses the domains of efficacy (5 items) and comfort (3 items) with using computers in therapy. Responses are rated on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). Negatively worded items were reverse scored for scale computations with higher scores indicating more positive attitudes. The authors reported a Cronbach's alpha coefficient of 0.84 for the efficacy subscale, indicating good internal consistency. Inter-item correlations were used to assess internal consistency for the comfort domain given that it contains just three items; these were greater than 0.29, which is above the recommended 0.20 for scale inclusion, suggesting adequate reliability (Kline, 1986). These questions were adapted so that they referred to computerised CBT rather than computers.

#### *Attitudes towards Psychological Online Interventions in Healthcare Professionals (APOI-HP; Schröder et al., 2017)*

The APOI-HP is a 16-item measure of clinicians' attitudes towards online psychological interventions which assesses the following domains: scepticism and perception of risks; confidence in effectiveness; technologisation threat; and anonymity benefits. Responses are rated on a 5-point Likert scale ranging from 1 ("Totally disagree") to 5 ("Totally agree"). The measure has good internal consistency ( $\alpha = 0.83$ ) (Schröder et al., 2015). Questions on this measure were adapted so that they referred to cCBT programmes rather than psychological online interventions.

#### *Evidence-Based Practice Attitudes Scale-Openness Subscale (EBPAS Openness; Aarons, 2004)*

The Openness subscale of the EBPAS comprises 4-items assessing the extent to which the provider is open to trying new interventions. Responses are rated on a 5-point scale ranging from 1 ("Not at all") to 5 ("To a very great extent"), with higher scores reflecting greater levels

of openness. It has previously been shown to have acceptable to good levels of reliability, with Cronbach's alpha coefficient ranging from 0.78 to 0.88 (Aarons, 2004; Becker & Jensen-Doss, 2013).

#### *Normalisation Measure Development (NoMAD) tool (Finch et al. 2015)*

The NoMAD tool is a theory-based questionnaire underpinned by NPT. It measures implementation processes from the perspective of professionals involved in the work of implementing complex interventions. Responses to the 20 items representing the four NPT constructs are indicated using a 5-point Likert scale ranging from "strongly agree" to "strongly disagree". Three options assessing relevance were also included as per the original NoMAD tool (i.e., "Not relevant to my role", "Not relevant at this stage" and "Not relevant to the intervention").

The NoMAD tool has good face validity, construct validity and internal consistency for assessing staff perceptions of factors relevant to embedding interventions that change their work practices (Finch et al., 2018). Previous research has demonstrated acceptable to good psychometric properties, with Cronbach's alpha coefficient ranging from 0.71 to 0.89 for coherence, 0.68 to 0.86 for cognitive participation, 0.72 to 0.78 for collective action, and 0.65 to 0.79 for reflexive monitoring (Finch et al., 2018; Gillespie et al., 2018; Hazell et al., 2017). The reliability of the overall normalisation scale comprising 20 items across all four constructs was good ( $\alpha = 0.89$ ) (Finch et al., 2018). As no one construct was consistently found to have questionable internal consistency across studies, all four NPT constructs were included in the current research.

#### *Computer Fluency Scale (CFS; Becker & Jensen-Doss, 2013)*

The CFS is a 7-item measure which assesses self-perceived computer skills and comfort using computers. Responses are rated on a 5-point scale ranging from "strongly disagree" to "strongly agree", with higher scores reflecting greater self-reported comfort and ability with computers. The CFS has good internal consistency ( $\alpha = 0.82$ ; Becker & Jensen-Doss, 2013). Negatively worded items were reverse scored for scale computations with higher scores indicating self-perceived computer skill and comfort using computers.

### **2.3.4 Piloting**

The full questionnaire was piloted with 13 mental health professionals known to members of the research team. A range of professional roles were represented (i.e., Clinical Psychologist, Counselling Psychologist, Trainee Clinical Psychologist, Assistant Psychologist, Clinical



Associate in Applied Psychology, Psychological Therapist, Youth Counsellor). Pilot participants came from the NHS, third sector and private sector and worked in various specialities (i.e., Adult Mental Health, Child and Adolescent Mental Health, Primary Care Psychological Therapy services, Integrated Drug and Alcohol Psychology Service and Forensic Mental Health). The survey was piloted to determine how long it took to complete, to check for clarity, and to identify any problems with the questionnaire. Minor changes were made to some questions and response options to improve clarity.

### **2.3.5 Procedure**

The survey (Appendix 11) was available online for completion between 10<sup>th</sup> May 2022 and 27<sup>th</sup> June 2022. Individuals who clicked on the survey link were taken to the first page of the survey, which provided potential participants with an online Participant Information Sheet (Appendix 12). Details of the inclusion and exclusion criteria were provided. Participants were required to endorse several items to provide consent before progressing to the survey items. Upon submitting their responses, participants were signposted to potential sources of support. Participants were provided with details of a website which would contain a summary of the study findings once the study was complete. This eliminated the need to collect any potentially identifiable information from potential participants, such as an email address, for those who wanted to be informed of the study findings.

### **2.3.6 Sample size**

The minimum sample size required was calculated using G\*Power 3.1 (Faul et al., 2007). The calculation for the first research question included 10 predictor variables (NoMAD subscales (i.e., coherence, cognitive participation, collective action, reflexive monitoring subscales), age, theoretical orientation (CBT or other), agreement with principles of CBT, EBPAS Openness score, CFS score), an alpha level of 0.05 and statistical power of 0.8 (to reduce the likelihood of a Type II error). Persson et al. (2016) evaluated the relationship between constructs of a similar nature and reported a large effect size. A medium effect size (0.15; Cohen, 1977) was selected for inclusion in the calculation for the current study to remain conservative and further reduce the likelihood of a Type II error. The calculation output indicated that a minimum sample size of 118 would be required for the study to be adequately powered.

The above process was repeated with the inclusion of 13 predictor variables (NoMAD subscales (i.e., coherence, cognitive participation, collective action, reflexive monitoring), age, theoretical orientation (CBT or other), agreement with principles of CBT, EBPAS Openness

score, CFS score, APOI-HP score, CATAS subscale scores for comfort and efficacy) for the second research question. The calculation output indicated that a minimum sample size of 131 would be required for the study to be adequately powered.

### **2.3.7 Ethical considerations**

This study was conducted in line with British Psychological Society and Health and Care Professions Council ethical guidance for research with human participants. NHS Research and Development approval was obtained from NHS Grampian. Ethical approval was obtained from the University of Edinburgh School of Health in Social Science on 10<sup>th</sup> November 2021 (Appendix 13). No incentives were offered for participation in the study.

Completion of the questionnaire was unlikely to have a negative impact on participants given that the topic was not of a sensitive nature; however, questions about previous, current or new ways of working may have raised issues for some participants given ongoing requirements to adapt to new ways of working due to Covid-19. Thus, participants were signposted to potential sources of support upon completing or withdrawing from the questionnaire.

It was possible that participants may have felt obliged to participate in the research if received from Heads of Psychological services, or that they may have felt unable to express critical perceptions regarding cCBT if completing the questionnaire whilst at work. The use of an online survey in which participants remained anonymous meant that potential participants had the freedom to decide whether to participate in the research themselves.

It was anticipated that some potential participants would be colleagues of the research team. The names of the researchers were specified on the Participant Information Sheet so that potential participants were aware of who would have access to the data they provided. The Participant Information Sheet also advised participants that they did not have to participate in the research and that they could omit any questions they did not wish to answer. This meant that colleagues of the research team could make an informed decision regarding whether to participate and whether to skip any questions that they believed might make them identifiable. Given the nature of the research, there was no risk of harm associated with the research team being able to identify their colleagues.

### **2.3.8 Data analysis**

Analysis was conducted using IBM SPSS (Version 27). Descriptive statistics were used to describe respondent demographics, characteristics and current practice. Where respondents provided a range, rather than one single number, the midpoint was entered. Overall scale means

were calculated for the EPBAS Openness, APOI-HP and CFS measures, and mean subscale scores were calculated for the two CATAS subscales and four NPT constructs. Given the response options provided for the NPT constructs (i.e., responses on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree” and three further options: “Not relevant to my role”, “Not relevant at this stage” and “Not relevant to the intervention”), the ‘not relevant’ responses were coded as missing, resulting in missing data rates ranging from 6.9% to 54% across items. Missing data were then replaced with the mean item score (see Tabachnick & Fidell, 2013, p. 67).

Items were reverse coded where necessary so that higher scores reflected more positive attitudes toward the use of cCBT, technology or new interventions. To examine the direction of clinicians’ responses on each of these scales, one-sample t-tests or Wilcoxon Signed-Rank tests compared the mean or median scale scores to neutral ratings. Midpoints were used due to no normative data existing for these scales. Potential predictor variables were identified from previous research outlined earlier and from the proposed theoretical model (i.e., NPT). Stepwise multiple regression was used to establish which of these variables, if any, were predictive of attitudes towards cCBT.

A histogram revealed that the number of patients referred or signposted to cCBT in the past 12 months was highly positively skewed. A negative binomial regression was conducted to identify predictors of the number of patients referred or signposted to cCBT in the past 12 months. This approach was selected due to the dependent variable comprising count data where lower values had the highest frequency and due to the variance being substantially higher than the mean.

Independence of observations was assessed using the using the Durbin-Watson statistic. Linearity was assessed by plotting a scatterplot of the studentized residuals against the predicted values and by using partial regression plots between each independent variable and the dependent variable. Normally distributed errors were checked using a Normal Q-Q Plot of studentized residuals. Homoscedasticity of residuals was assessed by plotting the studentized residuals against the unstandardized predicted values. Multicollinearity was assessed using correlation coefficients and Tolerance/VIF values. Significant outliers were identified using casewise diagnostics and studentized deleted residuals. Leverage points, Cook’s distances and Mahalanobis distance were used to check for high leverage points, highly influential points,

and multivariate outliers, respectively. Any issues that arose regarding these diagnostics are highlighted in the relevant sections.

## **2.4 Results**

A total of 330 individuals agreed to participate in the survey. Forty did not answer any questions, seven stopped part-way through completing the questionnaire and withdrew their consent for their data to be used, five were excluded due to not working within the UK, and a further 32 were excluded due to stopping part-way through the survey without indicating whether their data could be used. The data for the remaining 246 respondents are described in this paper.

### ***2.4.1 Respondent demographics and characteristics***

Respondent demographics and characteristics are presented in Table 2.1. Respondents' age ranged from 24-69 years and was positively skewed, with a median of 34 years and an interquartile range of 11 years. The number of years that respondents reported working in mental health was positively skewed and ranged from 1-42 years (median = 11, IQR = 10).

### ***2.4.2 CBT***

Almost all respondents had experience of providing CBT (n = 244, 99.2%). Years of experience in providing CBT ranged from 0 to 30 years and was positively skewed (median = 6, IQR = 8). Just over half of the respondents (n = 130, 52.8%) considered CBT to be their main therapeutic orientation when working directly with patients. Most respondents agreed or strongly agreed with the principles of CBT (n = 161, 65.4%) and considered that CBT was an effective therapeutic approach (n = 169, 69.0%).

### ***2.4.3 cCBT***

Two-thirds of respondents indicated that they were aware of any cCBT programmes (n = 163, 66.8%). Just over half had never seen or viewed a cCBT programme (n = 126, 51.4%). Most had reported having read some outcome evidence on the effectiveness or efficacy of cCBT (n = 156, 63.4%). When asked if they were able to refer or signpost patients to cCBT in their current role, similar proportions answered yes and no (41.9% and 38.6%, respectively), while a fifth did not know (n = 48, 19.5%). Fewer than half of respondents had ever referred or signposted a patient to cCBT in any current or previous role (n = 104, 42.3%). Respondents who had ever referred or signposted a patient to cCBT were asked how often they had referred patients to cCBT for various reasons. The majority had never referred patients to cCBT to supplement family therapy (n = 95, 94.1%) or to supplement group therapy (n = 85, 85.9%).

Fewer than half had never referred patients to cCBT to supplement individual therapy (n = 45, 44.6%), for relapse prevention (n = 40, 39.6%), as an alternative to therapist contact (n = 34, 34%) and to those on a waiting list (n = 27, 26.7%).

Overall, the number of respondents referring or signposting patients to cCBT was low. Just 8.9% (n = 22) of respondents had referred or signposted a patient to cCBT in the previous month. The number of patients referred ranged from 0 to 20 (median = 0.00, IQR = 0.00). When only those who had referred a patient in the past month were included, the number of patients referred ranged from 1 to 20 (median = 2.00, IQR = 3.00). Over a fifth of respondents (n = 52, 21.1%) had referred or signposted a patient to cCBT in the previous year. The number of patients referred ranged from 0 to 200 (median = 0.00, IQR = 0.00). When only those who had referred a patient in the past year were included, the number of patients referred ranged from 1 to 200 (median = 4.00, IQR = 8.00).

Table 2.1. Respondent demographics and characteristics

	N	%
Are you...? (n=245)		
Female	218	89.0
Male	26	10.6
Agender	1	0.4
Where do you currently work? (n=246)		
England	139	56.5
Scotland	97	39.4
Wales	8	3.3
Northern Ireland	2	0.8
Which of the following best describes your current profession? (n=246)		
Clinical Psychologist	140	56.9
Trainee Clinical Psychologist	53	21.5
Clinical Associate in Applied Psychology	17	6.9
Accredited Therapist	7	2.8
IAPT/CBT Therapist	6	2.4
Assistant Psychologist	5	2.0
Counselling Psychologist	4	1.6
Trainee Clinical Associate in Applied Psychology	4	1.6
Other	4	1.6
Psychological Wellbeing Practitioner	4	1.6
Allied Health Professional	1	0.4
Forensic Psychologist	1	0.4
Which speciality do you currently work in? (n=245)		
Adult Mental Health	85	34.6
Child and Adolescent Mental Health	36	14.6
Older Adult	32	13.0
Health	23	9.3
Intellectual Disability	14	5.7
Forensic	13	5.3
Neuropsychology	13	5.3
Other	11	4.5
Perinatal	6	2.4
IAPT/Primary Care	6	2.4
Eating Disorders	5	2.0
Substance use	1	0.4
In which sector is your primary job? (n=246)		
NHS	225	91.5
Private sector	17	6.9
Third/charity sector	4	1.6
What severity of cases do you typically work with? (n=238)		
Mild	46	19.3
Moderate	81	34.0
Severe	71	29.8
Very severe	40	16.8
Do you currently work full-time or part-time? (n=246)		
Full-time ( $\geq 32$ hours per week)	147	59.8
Part-time ( $< 32$ hours per week)	99	40.2

CBT: Cognitive Behaviour Therapy; IAPT: Improving Access to Psychological Therapies.; NHS: National Health Service.

#### **2.4.4 CATAS subscales**

All items on the CATAS comfort subscale were reverse coded so that higher scores represented more positive attitudes towards cCBT. The mean CATAS comfort subscale scores were calculated and found to be negatively skewed, indicating favourable attitudes towards cCBT in terms of comfort. A Wilcoxon Signed Rank test indicated that the median comfort subscale score (median = 4) was significantly higher than a neutral value of 3,  $Z = 12.26$ ,  $p < .001$ , indicating that respondents had a positive attitude regarding comfort with using cCBT.

Three of the five items on the CATAS efficacy subscale were reverse coded so that higher scores represented more positive attitudes towards cCBT. The mean CATAS efficacy subscale scores were calculated and found to be positively skewed, suggesting unfavourable attitudes towards cCBT in terms of efficacy. A one-sample Wilcoxon Signed Rank test indicated that the median efficacy subscale score (median = 2.8) was significantly lower than a neutral value of 3,  $Z = -5.63$ ,  $p < .001$ , indicating that respondents had a negative attitude regarding the efficacy of cCBT. A related-samples Wilcoxon Signed Rank test indicated that comfort ratings were significantly higher than efficacy ratings,  $Z = -13.00$ ,  $p < .001$ .

#### **2.4.5 APOI-HP scale**

The mean APOI-HP scores were calculated and found to be positively skewed, indicating a slightly negative overall attitude towards cCBT. A one-sample Wilcoxon Signed Rank test indicated that the median APOI-HP score (median = 2.88) was significantly lower than a neutral value of 3,  $Z = -4.12$ ,  $p < .001$ , indicating that respondents had a slightly negative overall attitude regarding cCBT.

#### **2.4.6 EPBAS-Openness scale**

The mean EPBAS-Openness scores were calculated and found to be negatively skewed, indicating openness towards trying new types of therapies or inventions. A Wilcoxon Signed Rank test indicated that the median openness score (median = 3.75) was significantly higher a neutral value of 3,  $Z = 11.84$ ,  $p < .001$ , indicating that respondents were open to trying new therapies and interventions.

#### **2.4.7 CFS**

Two of the seven items on the CFS were reverse coded so that higher scores represented increased computer fluency. The mean CFS scores were calculated and found to be negatively skewed. A one-sample Wilcoxon Signed Rank test indicated that the median CFS score (median = 4.43) was significantly higher than a neutral value of 3,  $Z = 13.53$ ,  $p < .001$ ,

indicating that respondents' self-perceived computer skills and comfort using computers were high.

#### **2.4.8 NoMAD subscales**

##### *Coherence*

The mean coherence construct scores were calculated and found to be negatively skewed. A Wilcoxon Signed Rank test indicated that the median score (median = 3.38) was significantly higher than a neutral value of 3,  $Z = 10.40$ ,  $p < .001$ , indicating slight agreement with this construct.

##### *Cognitive participation*

The mean cognitive participation construct scores were calculated and found to be negatively skewed. A Wilcoxon Signed Rank test indicated that the median score (median = 3.48) was significantly higher than a neutral value of 3,  $Z = 8.47$ ,  $p < .001$ , indicating slight agreement with this construct.

##### *Collective action*

The mean collective action construct scores were calculated and found to be normally distributed. A one-sample  $t$ -test indicated that the mean score (mean = 2.96) did not differ significantly from a neutral value of 3,  $t(245) = -1.35$ ,  $p = .178$ , indicating a neutral response in relation to this construct.

##### *Reflexive monitoring*

The mean reflexive monitoring construct scores were calculated and found to be negatively skewed. A Wilcoxon Signed Rank test indicated that the median score (median = 3.40) was significantly higher than a neutral value of 3,  $Z = 10.15$ ,  $p < .001$ , indicating slight agreement with this construct.

#### **2.4.9 Regression analysis**

##### *Predictors of attitudes towards cCBT*

Stepwise regression was used to identify possible predictors of the CATAS comfort and efficacy subscales and the APOI-HP scale. Descriptive statistics and inter-item correlations for the potential regression variables are presented in Table 2.2. Just over half of respondents ( $n = 130$ , 52.8%) considered CBT to be their main therapeutic orientation.



Table 2.2. Means, standard deviations and intercorrelations for potential regression variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Referred or signposted in past 12 months	3.23	16.27													
2. Age	36.25	8.06	-.128*												
3. Years working in mental health care	11.99	6.85	-.117	.808**											
4. Agreement with principles of CBT	3.77	.90	.126*	.023	.027										
5. Main therapeutic orientation			.126*	-.017	-.049	.408**									
6 CATAS comfort	3.94	.73	.081	.142*	.112	.125	.044								
7. CATAS efficacy	2.28	.82	.095	.002	-.099	.402**	.368**	.277**							
8 APOI-HP	2.83	.56	.075	-.001	-.006	.365**	.296**	.219**	.656**						
9. EPBAS - Openness	3.78	.69	-.054	-.102	-.095	-.017	-.003	-.002	.078	.088					
10. CFS	4.36	.50	-.121	-.092	-.106	-.081	-.080	.090	.004	-.108	.141*				
11. NoMAD coherence	3.39	.48	.307**	-.071	-.060	.237**	.269**	.198**	.415**	.365**	-.034	-.037			
12. NoMAD cognitive participation	3.39	.64	.272**	-.076	-.072	.431**	.373**	.220**	.633**	.568**	.118	-.017	.485**		
13. NoMAD collective action	2.96	.51	.237**	.111	.064	.312**	.262**	.186**	.489**	.437**	.073	.020	.462**	.606**	
14. NoMAD reflexive monitoring	3.37	.48	.181**	.020	.007	.248**	.266**	.209**	.505**	.499**	.063	.014	.393**	.614**	.570**

CATAS: Computer-Assisted Therapy Attitudes Scale; APOI-HP: Attitudes towards Psychological Online Interventions in Healthcare Professionals scale; EPBAS-Openness: Evidence-Based Practice Attitudes Scale-Openness Subscale; CFS: Computer Fluency Scale; NoMAD: Normalisation MeASURE Development tool.

\* indicates  $p < 0.05$  level (2-tailed). \*\* indicates  $p < 0.01$  level (2-tailed).

One case was identified as a significant outlier in the regression analyses predicting CATAS comfort and APOI-HP scores. Both analyses were run a second time with this outlier removed. The removal of this outlier did not result in changes in terms of the predictor variables retained in the models and so the models retaining the outlier are reported here. There was evidence of multicollinearity due to a high positive correlation between age and years working in mental health care,  $r(243) = .808, p < .001$ . The regression analyses were re-run with each of these variables separately and the models which accounted for the greatest proportion of the variation, i.e., those including age, are reported here. Thus, the following candidate variables were entered into the model for each, based on previous research and theoretically relevant items: age, main therapeutic orientation (i.e., CBT or other), extent of agreement with the principles of CBT, EPBAS-Openness score, CFS score, and NoMAD construct scores (i.e., coherence, cognitive participation, collective action, reflexive monitoring).

Cognitive participation and age accounted for 6.3% of the variance (a medium effect; Sink & Stroh, 2006) in CATAS comfort subscale score,  $F(2, 242) = 9.27, p < .001$  (Table 2.3). Cognitive participation, main therapeutic orientation, reflexive monitoring and agreement with the principles of CBT accounted for 44.8% of the variance (a large effect; Sink & Stroh, 2006) in the CATAS efficacy subscale score,  $F(4, 240) = 50.48, p < .001$  (Table 2.4). Cognitive participation, reflexive monitoring and agreement with the principles of CBT accounted for 37.2% of the variance (a large effect; Sink & Stroh, 2006) in APOI-HP,  $F(3, 241) = 49.17, p < .001$  (Table 2.5). Regression coefficients and standard errors can be found in Table 2.2.

*Table 2.3. Multiple regression results for CATAS comfort*

	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	$\beta$	<i>p</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	AIC
		Lower limit	Upper limit						
Model 1							.046	.042*	533.666
Constant	3.12	2.64	3.61	.24		< .001			
Cognitive participation	.24	.10	.38	.07	.21	.001			
Model 2							.071	.063**	526.868
Constant	2.56	1.92	3.20	.33		< .001			
Cognitive participation	.26	.12	.39	.07	.23	< .001			
Age	.01	.003	.03	.01	.16	.011			

*Note.* Model = “Stepwise” method in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval; *SE B* = standard error of the coefficient;  $\beta$  = standardized coefficient; *R*<sup>2</sup> = coefficient of determination; AIC: Akaike information criterion.

\**p* = .001. \*\**p* < .001.

Table 2.4. Multiple regression results for CATAS efficacy

	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	$\beta$	<i>p</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	AIC
		Lower limit	Upper limit						
Model 1									
Constant	-.08	-.51	.35	.22		.720	.406	.403*	479.220
Cognitive participation	.81	.69	.94	.06	.64	<.001			
Model 2									
Constant	.04	-.39	.47	.22		.868	.427	.422*	472.735
Cognitive participation	.74	.61	.87	.07	.58	<.001			
Main therapeutic orientation	.26	.09	.43	.09	.16	.003			
Model 3									
Constant	-.51	-1.07	.06	.29		.078	.446	.439*	466.133
Cognitive participation	.61	.45	.76	.08	.47	<.001			
Main therapeutic orientation	.24	.08	.41	.08	.15	.004			
Reflexive monitoring	.30	.09	.50	.10	.17	.005			
Model 4									
Constant	-.74	-1.34	-.14	.30		.015	.457	.448*	462.609
Cognitive participation	.55	.38	.71	.08	.43	<.001			
Main therapeutic orientation	.19	.01	.36	.09	.11	.036			
Reflexive monitoring	.31	.10	.51	.10	.18	.003			
Agreement with CBT principles	.11	.01	.21	.05	.12	.026			

Note. Model = “Stepwise” method in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval; *SE B* = standard error of the coefficient;  $\beta$  = standardized coefficient; *R*<sup>2</sup> = coefficient of determination; AIC: Akaike information criterion.

\* *p* < .001.

Table 2.5. Multiple regression results for APOI-HP

	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	$\beta$	<i>p</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	AIC
		Lower limit	Upper limit						
Model 1									
Constant	1.14	.83	1.45	.16		<.001	.326	.323*	322.215
Cognitive participation	.50	.41	.59	.05	.57	<.001			
Model 2									
Constant	.63	.23	1.04	.21		.002	.361	.356*	310.679
Cognitive participation	.37	.26	.48	.06	.42	<.001			
Reflexive monitoring	.28	.13	.43	.08	.24	<.001			
Model 3									
Constant	.47	.05	.89	.21		.030	.380	.372*	305.292
Cognitive participation	.31	.19	.43	.06	.36	<.001			
Reflexive monitoring	.28	.14	.43	.08	.24	<.001			
Agreement with CBT principles	.09	.02	.16	.03	.15	.008			

Note. Model = “Stepwise” method in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval; *SE B* = standard error of the coefficient;  $\beta$  = standardized coefficient; *R*<sup>2</sup> = coefficient of determination; AIC: Akaike information criterion.

\* *p* < .001.

*Predictors of the number of patients referred or signposted to cCBT in the past 12 months*

A negative binomial regression was conducted to identify predictors of the number of patients referred or signposted to cCBT within the past 12 months. There was evidence of multicollinearity due to a high positive correlation between age and years working in mental health care,  $r(243) = .808$ ,  $p < .001$ . The regression analysis was re-run with each of these variables separately and the model which accounted for the greatest proportion of the variation, i.e., that including number of years worked in mental health, is reported here. Thus, the following candidate variables were entered into the model, based on previous research and theoretically relevant items: years working in mental health care, main therapeutic orientation (i.e., CBT or other), extent of agreement with the principles of CBT, EPBAS-Openness score, CFS score, and NoMAD construct scores (i.e., coherence, cognitive participation, collective action, reflexive monitoring).

Together the predictors accounted for a significant amount of the variance in the outcome, likelihood ratio,  $\chi^2(12) = 412.4$ ,  $p < .001$ . Years working in mental health care, CATAS comfort, APOI-HP, computer fluency, coherence and cognitive participation were found to be significant predictors of the number of patients referred or signposted to cCBT in the past 12 months (see Table 2.6).

Table 2.6. Negative binomial regression results for the number of patients referred or signposted to cCBT in the past 12 months

	<i>B</i>	95% Confidence Interval for <i>B</i>		<i>SE B</i>	<i>p</i>	Likelihood Ratio, $\chi^2$	AIC
		Lower limit	Upper limit				
Model						.412.40*	751.480
Intercept	-3.22	-5.86	-.59	1.34	.016		
Years working in mental health	-.08	-.11	-.04	.02	< .001		
Main therapeutic orientation: not CBT	-.22	-.71	.26	.25	.360		
Main therapeutic orientation: CBT	0						
Agreement with principles of CBT	-.03	-.29	.23	.13	.823		
CATAS comfort	.75	.40	1.10	.18	< .001		
CATAS efficacy	.24	-.15	.63	.20	.227		
APOI-HP	-2.15	-2.80	-1.50	.33	< .001		
EPBAS - openness	.06	-.24	.37	.15	.688		
CFS	-.92	-1.30	-.54	.19	< .001		
NoMAD coherence	1.52	1.00	2.04	.27	< .001		
NoMAD cognitive participation	.99	.44	1.54	.28	< .001		
NoMAD collective action	-.02	-.52	.47	.25	.922		
NoMAD reflexive monitoring	.58	-.04	1.21	.32	.068		

Note. Model = Negative binomial probability distribution with log link function in SPSS Statistics; *B* = unstandardised regression coefficient; CI = confidence interval, *SE B* = standard error of the coefficient;  $\beta$  = standardized coefficient;  $R^2$  = coefficient of determination; AIC: Akaike information criterion; CATAS: Computer-Assisted Therapy Attitudes Scale; APOI-HP: Attitudes towards Psychological Online Interventions in Healthcare Professionals scale; EPBAS-Openness: Evidence-Based Practice Attitudes Scale-Openness Subscale; CFS: Computer Fluency Scale; NoMAD: Normalisation MeASURE Development tool.

\**p* < .001.

## 2.5 Discussion

The use of cCBT by clinicians in the current study was considerably higher than the use previously reported in the UK (Whitfield & Williams, 2004). This difference may simply be due to the passage of time. There has been an increased focus on the development and delivery of lower-intensity psychological interventions within primary care settings in recent years (The National Collaborating Centre for Mental Health, 2018; Whitfield & Williams, 2004), and the number of cCBT programmes has grown considerably in recent decades (Hofman et al., 2016), as has the evidence base demonstrating the effectiveness of cCBT (Andrews et al., 2018; Carlbring et al., 2018). Despite its effectiveness and recent government initiatives to increase access to cCBT (Scottish Government, 2017), the use of cCBT by clinicians providing psychological input to people with mental health problems in the UK remains low. Fewer than half of the respondents in the current study had ever referred or signposted a patient to cCBT

and, of those who had, referral rates in the past 12 months were generally quite low. Thus, further exploration of the causal factors underlying the utilisation of cCBT is warranted.

There were mixed findings regarding clinicians' attitudes towards cCBT, with clinicians reporting favourable attitudes in terms of their comfort with cCBT but slightly negative attitudes regarding efficacy. Previous research has also reported higher comfort than efficacy ratings (Persson et al., 2016). With regard to efficacy, this subscale included items about whether clients might be more likely to drop out of treatment and whether the use of cCBT would lead to better outcomes for clients. In the current study, considering CBT to be one's main therapeutic orientation and agreement with the principles of CBT were found to predict the CATAS efficacy ratings, which is perhaps unsurprising. A recent systematic review found that the mean dropout rate for those with depression was 31.5% (Rost et al., 2017) and so concerns around efficacy are warranted. Concerns regarding whether the use of cCBT would lead to better outcomes echoes previous findings whereby participants believed that computerised self-help would be less effective than individual face-to-face therapy (Whitfield & Williams, 2004) and so the slightly negative attitudes regarding efficacy in the current study are perhaps unsurprising. However, the research indicates that guided cCBT and face-to-face CBT can produce equivalent effects (Carlbring et al., 2018). Evidence regarding whether guided or unguided cCBT is currently mixed with no clear evidence regarding which, if any, is most effective (Rost et al., 2017). Recent research by Sethi and colleagues (2020) found that cCBT delivered in conjunction with face-to-face CBT was more effective when compared to standalone face-to-face or cCBT. Thus, negative attitudes regarding efficacy may be due to how participants may have conceptualised using cCBT. Dissemination regarding the various ways in which cCBT can be used and the effectiveness of the various approaches may help to improve clinicians' attitudes towards using cCBT.

A unique aspect of the study at the time of conduct was the theoretically informed approach and the inclusion of an instrument which measures the constructs of NPT. Constructs of NPT were found to be predictors of both attitudes and self-reported referral/signposting behaviour, with cognitive participation and reflexive monitoring being predictive of attitudes, and cognitive participation and coherence being predictive of self-reported behaviour. Coherence refers to the sense-making work that people do individually and collectively when they are faced with implementing a set of practices, i.e. do people see its value and worth, (Gillespie et al., 2018) and thus it is perhaps unsurprising that this construct was found to predict self-reported behaviour regarding referral or signposting to cCBT. Similarly, reflexive monitoring

refers to the assembly and appraisal of information about the effects of an intervention and it would seem logical that this construct might be associated with clinicians' attitudes towards interventions, particularly those around efficacy. The construct of cognitive participation refers to the relational work that people do to build and sustain a community of practice around an intervention and was found to be a significant predictor of attitudes and self-reported behaviour regarding cCBT in the current study. This finding is similar to that of a recently published study which found that cognitive participation was a significant predictor of *intention* to use a particular cCBT programme (Netter et al., 2022). However, quantitative studies utilising NPT are low at present (Huddleston et al., 2020; May et al., 2018) and to our knowledge, this is the first study to look at whether NPT constructs are predictive of attitudes and behaviours towards interventions. Therefore, further research utilising these constructs as potential predictors of attitudes and behaviours regarding healthcare interventions is merited.

The current study has several strengths. It provides an up-to-date overview of the use of cCBT by clinicians in the UK and extends the previous research on cCBT by looking at predictors of both attitudes and behaviours rather than simply reporting associations. The sample size was greater than that of many studies in this area (Dunne, 2017; MacGregor et al., 2009; Stallard et al., 2010; Vigerland et al., 2014) and the study was sufficiently powered to answer the research questions. The sample was also inclusive in that it spanned multiple professional roles and sectors, and was not limited to convenience samples as previous studies have been. The research was theoretically-informed and also adds to the limited number of quantitative studies utilising NPT. To our knowledge, this is the first study to look at whether NPT constructs are predictive of attitudes and behaviours towards a healthcare intervention. There were, however, some limitations. Some of the outcome measures used were adapted slightly from existing measures, and therefore may not retain the same psychometric properties as the original scales. Due to the recruitment methods used, it was not possible to determine the response rate. There is also a possibility of sampling bias as individuals who had no experience of using cCBT might have been less inclined to participate. Thus, the use of cCBT by clinicians may be even lower than reported here. To reduce the likelihood of this occurring, all recruitment material stated that people were eligible to participate regardless of whether or not they had ever referred a patient to cCBT. However, a stratified random sampling process would have been more representative and possibly less prone to volunteer bias. It is also important to note that other professions that were not captured by this study may also refer patients to cCBT (e.g., General Practitioners, NHS24 staff). Given that these services are often the first port of call for people

experiencing mental health difficulties in the UK, it may be that cases suitable for cCBT are identified by these services without the need for more specialist input. Consequently, research involving these professionals may identify the same or other predictors of attitudes or behaviours. No research was identified which looked at these groups of professionals and this reveals a gap in the literature.

Overall, the study found that clinicians demonstrated ambivalent attitudes towards cCBT, containing both negative and positive aspects. Fewer than half of respondents had ever referred a patient to cCBT and the rates of referral were typically low. Constructs of NPT were important predictors of both attitudes and self-reported referral rates. This indicates that NPT may be a useful theory in predicting attitudes and behaviours toward healthcare interventions, but additional research is required to establish whether this finding is replicable in areas beyond cCBT.



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## Appendix 1: Behavioural and Cognitive Psychotherapy: Instructions for authors

### Instructions for authors

#### EDITORIAL OFFICE

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#### Editorial Statement

*Behavioural and Cognitive Psychotherapy* is an international multidisciplinary journal for the publication of original research of an experimental, or clinical nature that contributes to the theory, practice and evaluation of cognitive and behavioural therapies. As such the scope of the journal is very broad, and articles relevant to most areas of human behaviour and human experience which would be of interest to members of the helping and teaching professions will be considered for publication.

As an applied science the concepts, methodology and techniques of behavioural psychotherapy continue to change. The journal seeks both to reflect and to influence those changes. While the emphasis is placed on empirical research, articles concerned with important theoretical and methodological issues as well as evaluative reviews of the behavioural literature are also published. In addition, given the emphasis of behaviour therapy on the experimental investigation of the single case, the journal from time to time publishes case studies using single case experimental designs.

For the majority of designs this should include a baseline period with repeated measures; in all instances the nature of the quantitative data and the intervention must be clearly specified. Other types of case report can be submitted for the Brief Clinical Reports section.

*Articles should concern original material that is neither published nor under consideration for publication elsewhere. This applies also to articles in languages other than English.*

#### Preparing Your Manuscript

**Articles must be under 5,000 words at the point of submission, excluding references, tables and figures.** Manuscripts describing more than one study may exceed no more than 6000 words but please make this clear in your cover letter.

**Brief Clinical Reports should be no more than 1800 words (see more information below).**

Please note that we currently do not usually accept studies carried out on student samples unless there is a clear indication of generalisability to clinical populations.

The journal strongly encourages blind review. Authors who want a blind review should indicate this at the point of submission of their article, omitting details of authorship and other identifying information from the main manuscript. Authors who do not omit this information will be assumed as submitting a non-blinded manuscript.

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Behavioural and Cognitive Psychotherapy believes in the importance of transparent and reproducible research. We therefore strongly encourage authors to make their evidence, data and other materials that underpin their findings openly available to readers which is outlined in our [Research Transparency Policy](#). Authors will be asked on submission to include in their cover letter to the Editor whether they have made their data publicly available and confirm the inclusion of the Data Availability Statement. If the authors are not making their data publicly available, we ask them to state the reason why in their cover letter.

## Article Types

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Reports of original research employing experimental or correlational methods and using within or between subject designs. Review or discussion articles that are based on empirical data and that have important new theoretical, conceptual or applied implications.

### **Empirically Grounded Clinical Interventions**

This section is intended for reviews of the present status of treatment approaches for specific psychological problems. It is intended that such articles will draw upon a combination of treatment trials, experimental evidence and other research, and be firmly founded in phenomenology. It should take account of, but also go beyond, treatment outcome data.

### **Brief Clinical Reports**

Material suitable for this section includes unusual case reports and accounts of potentially important techniques, phenomena or observations; for example, descriptions of previously unreported techniques, outlines of available treatment manuals, descriptions of innovative variations of existing procedures, details of self-help or training packages, and accounts of the application of existing techniques in novel settings. The BCR section is intended to extend the scope of the clinical section. **Submissions to this section should be no longer than 1800 words and should include no more than six references, one table or figure, and an extended report that contains fuller details. There are no restrictions on the size or format of the extended report as it will be published online only.** It may, for instance, be a treatment manual, a fully detailed case report, or a therapy transcript. If a submission is accepted for publication as a Brief Clinical Report, the author(s) must be prepared to send the fuller document to those requesting it, free of charge. The extended document will also be mounted on the journal's website as a PDF format (the document will not be copyedited).

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Protocols of proposed and ongoing trials in behavioural and cognitive therapies will be considered. Your study must be registered and have ethical approval, and proof of this will be required. The abstract should be structured under the following four headings; Background, Aims, Method, Discussion.

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Should consist of no more than 250 words and structured under the following five headings: Background, Aims, Method, Results, and Conclusions. Include up to six key words that describes the article.

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### **Ethical statements**

All papers should include a statement indicating that authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. If preferred, authors based outside of the UK may state research has conformed to the Declaration of Helsinki. Authors should also confirm if ethical approval was needed, by which organisation, and provide the relevant reference number. If no ethical approval was obtained, the authors should state what governance arrangements were in place (e.g. audit committee approval). We also expect authors to respect human participants' right to privacy, and to gain any necessary informed consent to publish before submitting to us and include a statement in their manuscript that consent has been obtained. Where case reports are detailed in a submission, the author must state that the person described has seen the submission in full and agreed to it going forward for publication.

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### Supplementary Information – Online only

Where unpublished material e.g. behaviour rating scales or therapy manuals are referred to in an article, copies should be submitted as an additional document (where copyright allows) to facilitate review. Supplementary files can be used to convey supporting or extra information to your study, however, the main manuscript should be able to 'stand-alone'. Supporting documents are reviewed but not copyedited on acceptance of the article. They can therefore be submitted in PDF format, and include figures and tables within the text. There is no word limit for supporting online information.

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The journal also encourages clarity in describing interventions sufficient to allow their replication through the use of the [Template for Intervention Description and Replication Checklist \(TIDieR\)](#).

Randomised Controlled Trial	CONSORT	<a href="http://www.consort-statement.org/">http://www.consort-statement.org/</a>
Systematic reviews and Meta-Analysis	PRISMA	<a href="http://www.prisma-statement.org/">http://www.prisma-statement.org/</a>
Study Protocols	SPIRIT	<a href="http://www.spirit-statement.org/">http://www.spirit-statement.org/</a>

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- At least half of the list should be international to yourself
- Please consider early career researchers as well as field leaders



- Please suggest both niche experts and those with wider knowledge of the subject

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## Appendix 2: Search strategy used for Embase

### Embase Classic+Embase 1947 to 2022 January 21

#	Searches	Results
1	(cCBT or computer* CBT or computer* cognit* behav* therap*) mp.	408
2	(iCBT or internet* CBT or internet* cognit* behav* therap*) mp.	1284
3	(online* CBT or online* cognit* behav* therap*).mp.	260
4	(web* CBT or web cognit* behav* therap*) mp.	14
5	(mobile* CBT or mobile* cognit* behav* therap*) mp.	9
6	1 or 2 or 3 or 4 or 5	1919
7	(e-health* or e-therap* or electronic*) mp.	452449
8	internet/ or computer/ or software/ or mobile application/ or web-based intervention/ or computer assisted therapy/	316629
9	7 or 8	747185
10	(CBT or cognit* behav* therap*).mp.	42589
11	cognitive behavioral therapy/	17781
12	10 or 11	42589
13	9 and 12	3819
14	6 or 13	4798
15	(beating the blues or moodgym or overcoming depression or fearfighter or silvercloud or ocfighter) mp.	162
16	14 or 15	4871
17	(staff* or employee* or worker* or physician* or doctor * or general practitioner* or clinician* or therapist* or psychologist* or psychotherapist* or health* profession* or health* practitioner* or health* provider* or health* personnel* or health* worker* or service provider* or nurs*) mp.	2721136
18	health care personnel/ or mental health care personnel/ or exp health personnel attitude/	388287
19	17 or 18	2808630
20	(acceptab* or attitud* or burden* or ethic* or coheren* or opportunity cost* or effective* or self-efficacy or self efficacy or opinion* or feasab* or utili* or perception* or perceiv* or perspective* or view*) mp.	7175644
21	16 and 19 and 20	1331
22	limit 21 to english language	1316

[mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]

### Appendix 3: Search strategy used for MEDLINE

Ovid MEDLINE(R) 1946 to January Week 2 2022

#	Searches	Results
1	(cCBT or computer* CBT or computer* cognit* behav* therap*) mp.	249
2	(iCBT or internet* CBT or internet* cognit* behav* therap*) mp.	695
3	(online* CBT or online* cognit* behav* therap*).mp.	144
4	(web* CBT or web cognit* behav* therap*) mp.	8
5	(mobile* CBT or mobile* cognit* behav* therap*) mp.	4
6	1 or 2 or 3 or 4 or 5	1063
7	(e-health* or e-therap* or electronic*) mp.	238364
8	Internet/ or Computers/ or Software/ or Mobile Applications/ or Internet-Based Intervention/ or Therapy, Computer-Assisted/	246328
9	7 or 8	467803
10	(CBT or cognit* behav* therap*).mp.	34567
11	Cognitive Behavioral Therapy/mt	14025
12	10 or 11	34567
13	9 and 12	3029
14	6 or 13	3395
15	(beating the blues or moodgym or overcoming depression or fearfighter or silvercloud or ocfighter) mp.	109
16	14 or 15	3434
17	(staff* or employee* or worker* or physician* or doctor * or general practitioner* or clinician* or therapist* or psychologist* or psychotherapist* or health* profession* or health* practitioner* or health* provider* or health* personnel* or health* worker* or service provider* or nurs*) mp.	1923586
18	exp Health Personnel/ or "Attitude of Health Personnel"/	636212
19	17 or 18	2040722
20	(acceptab* or attitud* or burden* or ethical* or coherence* or opportunity cost* or effective* or self-efficacy or self efficacy or opinion* or feasab* or utili* or perception* or perceiv* or perspective* or view*) mp.	4327212
21	16 and 19 and 20	855
22	limit 21 to english language	835

[mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]

## Appendix 4: Search strategy used for PsycINFO

APA PsycInfo 1806 to January Week 3 2022

#	Searches	Results
1	(cCBT or computer* CBT or computer* cognit* behav* therap*) mp.	302
2	(iCBT or internet* CBT or internet* cognit* behav* therap*) mp.	533
3	(online* CBT or online* cognit* behav* therap*).mp.	147
4	(web* CBT or web cognit* behav* therap*) mp.	10
5	(mobile* CBT or mobile* cognit* behav* therap*) mp.	3
6	1 or 2 or 3 or 4 or 5	951
7	(e-health* or e-therap* or electronic*) mp.	48257
8	Internet/ or Computers/ or Computer Software/ or Computer Applications/ or Mobile Applications/ or Digital Interventions/ or computer assisted therapy/	61921
9	7 or 8	104497
10	(CBT or cognit* behav* therap*).mp.	35193
11	Cognitive Behavior Therapy/	21944
12	10 or 11	35193
13	9 and 12	1478
14	6 or 13	2038
15	(beating the blues or moodgym or overcoming depression or fearfighter or silvercloud or ocfighter) mp.	160
16	14 or 15	2132
17	(staff* or employee* or worker* or physician* or doctor * or general practitioner* or clinician* or therapist* or psychologist* or psychotherapist* or health* profession* or health* practitioner* or health* provider* or health* personnel* or health* worker* or service provider* or nurs*) mp.	756834
18	exp mental health personnel/ or exp health personnel/ or Employee Attitudes/ or exp health personnel attitudes/ or Psychologist Attitudes/ or Counselor Attitudes/	207313
19	17 or 18	797510
20	(acceptab* or attitud* or burden* or ethical* or coherence* or opportunity cost* or effective* or self-efficacy or self efficacy or opinion* or feasab* or utili* or perception* or perceiv* or perspective* or view*) mp.	2127651
21	16 and 19 and 20	635
22	limit 21 to english language	609

[mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh word]

## Appendix 5: Search strategy used for CINAHL

#	Query	Limiters/Expanders	Results
S11	S10	Limiters - English Language; Research Article Expanders - Apply equivalent subjects	908
S10	S7 AND S8 AND S9	Expanders - Apply equivalent subjects	1,179
S9	acceptab* or attitud* or burden* or ethical* or coherence* or opportunity cost* or effective* or self-efficacy or self efficacy or opinion* or feasab* or utili* or perception* or perceiv* or perspective* or view*	Expanders - Apply equivalent subjects	1,688,720
S8	( staff* or employee* or worker* or physician* or doctor * or general practitioner* or clinician* or therapist* or psychologist* or psychotherapist* or health* profession* or health* practitioner* or health* provider* or health* personnel* or health* worker* or service provider* or nurs* ) OR ( (MH "Health Personnel+") OR (MH "Mental Health Personnel+") OR (MH "Attitude of Health Personnel+") ) )	Expanders - Apply equivalent subjects	1,956,972
S7	S5 OR S6	Expanders - Apply equivalent subjects	4,311
S6	"beating the blues" or moodgym or "overcoming depression" or fearfighter or silvercloud or ocfighter	Expanders - Apply equivalent subjects	113
S5	S1 OR S4	Expanders - Apply equivalent subjects	4,251
S4	S2 AND S3	Expanders - Apply equivalent subjects	2,443
S3	(MH "Cognitive Therapy+") OR (CBT or cognit* behav* therap*)	Expanders - Apply equivalent subjects	41,073
S2	( e-health* or e-therap* or electronic* ) OR ( (MH "Internet") OR (MH "Internet-Based Intervention") OR (MH "Software") OR (MH "Mobile Applications") OR (MH "Therapy, Computer Assisted") ) )	Expanders - Apply equivalent subjects	217,059
S1	( cCBT or computer* CBT or computer* cognit* behav* therap* ) OR ( iCBT or internet* CBT or internet* cognit* behav* therap* ) OR ( online* CBT or online* cognit* behav* therap* ) OR ( web* CBT or web cognit* behav* therap* ) OR ( mobile* CBT or mobile* cognit* behav* therap* )	Expanders - Apply equivalent subjects	3,137

## Appendix 6: Quality assessment checklist

	Criteria	YES (2)	PARTIAL (1)	NO (0)	N/A
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection <u>or</u> source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

## Appendix 7: Manual for quality Scoring of quantitative studies

### Definitions and Instructions for Quality Assessment Scoring

#### How to calculate the summary score

- Total sum = (number of “yes” \* 2) + (number of “partials” \* 1)
- Total possible sum = 28 – (number of “N/A” \* 2)
- Summary score: total sum / total possible sum

#### Quality assessment

##### 1. Question or objective sufficiently described?

**Yes:** Is easily identified in the introductory section (or first paragraph of methods section). Specifies (where applicable, depending on study design) *all* of the following: purpose, subjects/target population, and the *specific* intervention(s) /association(s)/descriptive parameter(s) under investigation. A study purpose that only becomes apparent after studying other parts of the paper is *not* considered sufficiently described.

**Partial:** Vaguely/incompletely reported (e.g. “describe the effect of” or “examine the role of” or “assess opinion on many issues” or “explore the general attitudes”...); or some information has to be gathered from parts of the paper other than the introduction/background/objective section.

**No:** Question or objective is not reported, or is incomprehensible.

**N/A:** Should not be checked for this question.

##### 2. Design evident and appropriate to answer study question?

(If the study question is not given, infer from the conclusions).

**Yes:** Design is easily identified and is appropriate to address the study question / objective.

**Partial:** Design and /or study question not clearly identified, but gross inappropriateness is not evident; or design is easily identified but only partially addresses the study question.

**No:** Design used does not answer study question (e.g., a comparison group is required to answer the study question, but none was used); or design cannot be identified.

**N/A:** Should not be checked for this question.



3. *Method of subject selection (and comparison group selection, if applicable) or source of information/input variables (e.g., for decision analysis) is described and appropriate.*

**Yes:** Described and appropriate. Selection strategy *designed* (i.e., consider sampling frame and strategy) to obtain an unbiased sample of the relevant target population or the entire target population of interest (e.g., consecutive patients for clinical trials, population-based random sample for case-control studies or surveys). Where applicable, inclusion/exclusion criteria are described and defined (e.g., “cancer” -- ICD code or equivalent should be provided). *Studies of volunteers:* methods and setting of recruitment reported. *Surveys:* sampling frame/strategy clearly described and appropriate.

**Partial:** Selection methods (and inclusion/exclusion criteria, where applicable) are not completely described, but no obvious inappropriateness. Or selection strategy is not ideal (i.e., likely introduced bias) but did not likely seriously distort the results (e.g., telephone survey sampled from listed phone numbers only; hospital based case-control study identified all cases admitted during the study period, but recruited controls admitted during the day/evening only). Any study describing participants only as “volunteers” or “healthy volunteers”. *Surveys:* target population mentioned but sampling strategy unclear.

**No:** No information provided. Or obviously inappropriate selection procedures (e.g., inappropriate comparison group if intervention in women is compared to intervention in men). Or presence of selection bias which likely seriously distorted the results (e.g., obvious selection on “exposure” in a case-control study).

**N/A:** Descriptive case series/reports.

4. *Subject (and comparison group, if applicable) characteristics or input variables/information (e.g., for decision analyses) sufficiently described?*

**Yes:** Sufficient relevant baseline/demographic information clearly characterizing the participants is provided (or reference to previously published baseline data is provided). Where applicable, reproducible criteria used to describe/categorize the participants are clearly defined (e.g., ever-smokers, depression scores, systolic blood pressure > 140). If “healthy volunteers” are used, age and sex must be reported (at minimum). *Decision analyses:* baseline estimates for input variables are clearly specified.

**Partial:** Poorly defined criteria (e.g. “hypertension”, “healthy volunteers”, “smoking”). Or incomplete relevant baseline / demographic information (e.g., information on likely confounders not reported). *Decision analyses:* incomplete reporting of baseline estimates for input variables.

**No:** No baseline / demographic information provided.  
*Decision analyses:* baseline estimates of input variables not given.

**N/A:** Should not be checked for this question.

5. *If random allocation to treatment group was possible, is it described?*
- Yes:** True randomization done - requires a description of the method used (e.g., use of random numbers).
- Partial:** Randomization mentioned, but method is not (i.e. it may have been possible that randomization was not true).
- No:** Random allocation not mentioned although it would have been feasible and appropriate (and was possibly done).
- N/A:** Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.
6. *If interventional and blinding of investigators to intervention was possible, is it reported?*
- Yes:** Blinding reported.
- Partial:** Blinding reported but it is not clear who was blinded.
- No:** Blinding would have been possible (and was possibly done) but is not reported.
- N/A:** Observational analytic studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports. Decision analyses.
7. *If interventional and blinding of subjects to intervention was possible, is it reported?*
- Yes:** Blinding reported.
- Partial:** Blinding reported but it is not clear who was blinded.
- No:** Blinding would have been possible (and was possibly done) but is not reported.
- N/A:** Observational studies. Uncontrolled experimental studies. Surveys. Descriptive case series / reports.
8. *Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?*
- Yes:** Defined (or reference to complete definitions is provided) and measured according to reproducible, "objective" criteria (e.g., death, test completion – yes/no, clinical scores). Little or minimal potential for measurement / misclassification errors. *Surveys:* clear description (or reference to clear description) of questionnaire/interview content and response options. *Decision analyses:* sources of uncertainty are defined for all input variables.
- Partial:** Definition of measures leaves room for subjectivity, or not sure (i.e., not reported in detail, but probably acceptable). Or precise definition(s) are missing, but no evidence or problems in the paper that would lead one to assume major problems. Or instrument/mode of assessment(s) not reported. Or misclassification errors may have occurred, but they did not likely seriously distort the results (e.g., slight difficulty with recall of long-ago events; exposure is measured only at baseline in a long cohort study). *Surveys:* description of



questionnaire/interview content incomplete; response options unclear. *Decision analyses*: sources of uncertainty are defined only for some input variables.

**No:** Measures not defined, or are inconsistent throughout the paper. Or measures employ only ill-defined, subjective assessments, e.g. “anxiety” or “pain.” Or obvious misclassification errors/measurement bias likely seriously distorted the results (e.g., a prospective cohort relies on self-reported outcomes among the “unexposed” but requires clinical assessment of the “exposed”). *Surveys*: no description of questionnaire/interview content or response options. *Decision analyses*: sources of uncertainty are not defined for input variables.

**N/A:** Descriptive case series / reports.

#### 9. *Sample size appropriate?*

**Yes:** Seems reasonable with respect to the outcome under study and the study design. When statistically significant results are achieved for major outcomes, appropriate sample size can usually be assumed, unless large standard errors ( $SE > \frac{1}{2}$  effect size) and/or problems with multiple testing are evident. *Decision analyses*: size of modeled cohort / number of iterations specified and justified.

**Partial:** Insufficient data to assess sample size (e.g., sample seems “small” and there is no mention of power/sample size/effect size of interest and/or variance estimates aren’t provided). Or some statistically significant results with standard errors  $> \frac{1}{2}$  effect size (i.e., imprecise results). Or some statistically significant results in the absence of variance estimates. *Decision analyses*: incomplete description or justification of size of modeled cohort / number of iterations.

**No:** Obviously inadequate (e.g., statistically non-significant results and standard errors  $> \frac{1}{2}$  effect size; or standard deviations  $> \_$  of effect size; or statistically non-significant results with no variance estimates and obviously inadequate sample size). *Decision analyses*: size of modeled cohort / number of iterations not specified.

**N/A:** Most surveys (except surveys comparing responses between groups or change over time). Descriptive case series / reports.

#### 10. *Analysis described and appropriate?*

**Yes:** Analytic methods are described (e.g. “chi square”/ “t-tests”/“Kaplan-Meier with log rank tests”, etc.) and appropriate.

**Partial:** Analytic methods are not reported and have to be guessed at, but are probably appropriate. Or minor flaws or some tests appropriate, some not (e.g., parametric tests used, but unsure whether appropriate; control group exists but is not used for statistical analysis). Or multiple testing problems not addressed.

**No:** Analysis methods not described and cannot be determined. Or obviously inappropriate analysis methods (e.g., chi-square tests for continuous data, SE given where normality is highly unlikely, etc.). Or a study with a descriptive goal / objective is over-analyzed.

**N/A:** Descriptive case series / reports.

11. Some estimate of variance (e.g., confidence intervals, standard errors) is reported for the main results/outcomes (i.e., those directly addressing the study question/objective upon which the conclusions are based)?

**Yes:** Appropriate variances estimate(s) is/are provided (e.g., range, distribution, confidence intervals, etc.). *Decision analyses:* sensitivity analysis includes all variables in the model.

**Partial:** Undefined “+/-“ expressions. Or no specific data given, but insufficient power acknowledged as a problem. Or variance estimates not provided for all main results/outcomes. Or inappropriate variance estimates (e.g., a study examining change over time provides a variance around the parameter of interest at “time 1” or “time 2”, but does not provide an estimate of the variance around the difference). *Decision analyses:* sensitivity analysis is limited, including only some variables in the model.

**No:** No information regarding uncertainty of the estimates. *Decision analyses:* No sensitivity analysis.

**N/A:** Descriptive case series / reports. Descriptive surveys collecting information using open-ended questions.

12. Controlled for confounding?

**Yes:** Randomized study, with comparability of baseline characteristics reported (or non-comparability controlled for in the analysis). Or appropriate control at the design or analysis stage (e.g., matching, subgroup analysis, multivariate models, etc). *Decision analyses:* dependencies between variables fully accounted for (e.g., joint variables are considered).

**Partial:** Incomplete control of confounding. Or control of confounding reportedly done but not completely described. Or randomized study without report of comparability of baseline characteristics. Or confounding not considered, but not likely to have seriously distorted the results. *Decision analyses:* incomplete consideration of dependencies between variables.

**No:** Confounding not considered, and may have seriously distorted the results. *Decision analyses:* dependencies between variables not considered.

**N/A:** Cross-sectional surveys of a single group (i.e., surveys examining change over time or surveys comparing different groups should address the potential for confounding). Descriptive studies. Studies explicitly stating the analysis is strictly descriptive/exploratory in nature.

13. Results reported in sufficient detail?

**Yes:** Results include major outcomes and all mentioned secondary outcomes.

**Partial:** Quantitative results reported only for some outcomes. Or difficult to assess as study question/objective not fully described (and is not made clear in the methods section), but results seem appropriate.

**No:** Quantitative results are reported for a subsample only, or “n” changes continually across the denominator (e.g., reported proportions do not account for the entire study sample, but are reported only for those with complete data



-- i.e., the category of “unknown” is not used where needed). Or results for some major or mentioned secondary outcomes are only qualitatively reported when quantitative reporting would have been possible (e.g., results include vague comments such as “more likely” without quantitative report of actual numbers).

**N/A:** Should not be checked for this question.

14. *Do the results support the conclusions?*

**Yes:** All the conclusions are supported by the data (even if analysis was inappropriate). Conclusions are based on all results relevant to the study question, negative as well as positive ones (e.g., they aren’t based on the sole significant finding while ignoring the negative results). Part of the conclusions may expand beyond the results, if made *in addition to* rather than *instead of* those strictly supported by data, and if including indicators of their interpretative nature (e.g., “suggesting,” “possibly”).

**Partial:** Some of the major conclusions are supported by the data, some are not. Or speculative interpretations are not indicated as such. Or low (or unreported) response rates call into question the validity of generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/strategy).

**No:** None or a very small minority of the major conclusions are supported by the data. Or negative findings clearly due to low power are reported as definitive evidence against the alternate hypothesis. Or conclusions are missing. Or extremely low response rates invalidate generalizing the results to the target population of interest (i.e., the population defined by the sampling frame/strategy).

**N/A:** Should not be checked for this question.

## **Appendix 8: Email to Heads of Psychological Services**

Dear all,

### **Clinicians' attitudes and behaviours regarding computerised CBT**

My name is Niamh Fingleton and I am a Trainee Clinical Psychologist at the University of Edinburgh. I am contacting you to ask for your help with recruitment for a research study being carried out at the University of Edinburgh and across NHS Scotland. The aim of the study is to better understand the factors that predict clinicians' attitudes towards computerised CBT and whether they refer patients to it. A computerised CBT programme is an online or CD-ROM programme designed to help in the delivery of therapeutic interventions, either in session or as a tool for clients to use outside of therapy. The study has been reviewed and approved by the School of Health in Social Science Research Ethics Committee at the University of Edinburgh and NHS management approval has been obtained.

I would be extremely grateful if you could circulate the email below to all relevant staff members within your service. Those who provide psychological input to people with mental health difficulties are eligible to participate, and staff do not need to have used or referred a patient to computerised CBT to participate.

If you have any queries, please do not hesitate to contact me.

Best wishes,

Niamh

Niamh Fingleton

**Trainee Clinical Psychologist**

University of Edinburgh/NHS Grampian

**Email:**

Dear colleague,

### **Clinicians' attitudes and behaviours regarding computerised CBT**

My name is Niamh Fingleton and I am a Trainee Clinical Psychologist at the University of Edinburgh. I would like to invite you to take part in a research project which aims to explore clinicians' attitudes towards, and use of, computerised CBT. A computerised CBT

programme is an online or CD-ROM programme designed to help in the delivery of therapeutic interventions, either in session or as a tool for clients to use outside of therapy. If you provide psychological input to people with mental health difficulties, you are eligible to take part. You don't need to have used or referred a patient to computerised CBT to participate. I am interested in opinions from all staff, whether you have referred people frequently, rarely or never to any computerised CBT programme.

Participation involves completing an anonymous 15-minute online survey about your current role and your attitudes towards, and experiences of, computerised CBT. Your employer will not be informed as to whether or not you choose to participate.

Please click on the following link for further information and to access the survey:

[https://edinburgh.eu.qualtrics.com/jfe/form/SV\\_2rcny2BbQhNhTWS](https://edinburgh.eu.qualtrics.com/jfe/form/SV_2rcny2BbQhNhTWS)

Thank you for your time.

Best wishes,

Niamh

Niamh Fingleton

**Trainee Clinical Psychologist**

University of Edinburgh/NHS Grampian

**Email:** niamh.fingleton@nhs.scot

## **Appendix 9: Email to individuals on public register**

Dear [name],

### **Clinicians' attitudes and behaviours regarding computerised CBT**

My name is Niamh Fingleton and I am a Trainee Clinical Psychologist at the University of Edinburgh. I would like to invite you to take part in a research project which aims to explore clinicians' and therapists' attitudes towards, and use of, computerised cognitive behaviour therapy (CBT). A computerised CBT programme is an online or CD-ROM programme designed to help in the delivery of therapeutic interventions, either in session or as a tool for clients to use outside of therapy.

Your contact details were obtained from <https://www.cbtregisteruk.com>. If you provide psychological input to people with mental health difficulties in the UK, you are eligible to take part. You don't need to have used or referred a patient to computerised CBT to participate. We are interested in opinions from all therapists, whether you have referred people frequently, rarely or never to these programmes.

Participation involves completing an anonymous 15-minute online survey about your current role and your attitudes towards, and experiences of, computerised CBT. The study has been reviewed and approved by the School of Health in Social Science Research Ethics Committee at the University of Edinburgh and NHS management approval has also been obtained.

Please also consider sharing the survey with any eligible colleagues.

Please click on the following link for further information and to access the survey:

[https://edinburgh.eu.qualtrics.com/jfe/form/SV\\_2rcny2BbQhNhTWS](https://edinburgh.eu.qualtrics.com/jfe/form/SV_2rcny2BbQhNhTWS)

Thank you for your time.

Best wishes,

Niamh

Niamh Fingleton

**Trainee Clinical Psychologist**

University of Edinburgh/NHS Grampian

**Email:**

## Appendix 10: Social media advert

Clinicians' attitudes and behaviours regarding cCBT; Version 1 16/09/2021

### **Do you provide psychological input in the UK for people with mental health difficulties?**

We are interested in clinicians' attitudes and use of computerised cognitive behavior therapy (CBT). You don't need to have used or referred a patient to computerised CBT to take part.

#### **What will it involve?**

Completing an anonymous 15-minute online survey about your current role and your attitudes towards, and experiences of, computerised CBT.

#### **Interested in participating?**

Click the survey link or scan the QR code for more information:

[https://edinburgh.eu.qualtrics.com/jfe/form/SV\\_2rcny2BbQhNhTWS](https://edinburgh.eu.qualtrics.com/jfe/form/SV_2rcny2BbQhNhTWS)

#### **Questions?**

Contact the lead researcher, Niamh Fingleton, at [n.fingleton@sms.ed.ac.uk](mailto:n.fingleton@sms.ed.ac.uk)



## Appendix 11: Survey

Are you..?

- Female
  - Male
  - Prefer not to say
  - Other (please specify) \_\_\_\_\_
- 

What age are you (in years)?

\_\_\_\_\_

---

Where do you currently work?

- England
  - N. Ireland
  - Scotland
  - Wales
  - Other (please specify) \_\_\_\_\_
- 

Which of the following best describes your current profession?

- Accredited Therapist
- Allied Health Professional
- Assistant Psychologist
- Clinical Associate in Applied Psychology
- Clinical Psychologist
- Counselling Psychologist
- Educational Psychologist
- Forensic Psychologist
- Health Psychologist
- IAPT/CBT Therapist
- Nurse
- Psychiatrist
- Psychological Practitioner



- Psychological Wellbeing Practitioner
- Social Worker
- Trainee Clinical Associate in Applied Psychology
- Trainee Clinical Psychologist
- Other (please specify) \_\_\_\_\_

---

If you underwent professional training for delivering psychological therapies, how long have you been qualified (in years and months)? Please enter 'in training' if you are currently in training or 'no training' if you have not been involved in a professional training programme.

\_\_\_\_\_

---

Which specialty do you currently work in? If you hold a split post, please choose the specialty within which you spend the most time or identify most strongly with. **Please only consider this population whilst answering the remainder of the questionnaire.**

- Adult Mental Health
- Child and Adolescent Mental Health
- Eating Disorders
- Forensic
- Health
- Intellectual Disability
- Neuropsychology
- Older Adult
- Perinatal
- IAPT/Primary Care
- Substance use
- Other (please specify) \_\_\_\_\_

---

How long have you worked in your current post (in months and years)?

\_\_\_\_\_

---

How long have you worked in mental health care (in years)?

\_\_\_\_\_

In which sector is your primary job?

- NHS
- Private sector
- Public sector (non-NHS)
- Third/charity sector
- Other (please specify) \_\_\_\_\_

*Display This Question:*

*If In which sector is your primary job? = NHS*

In which NHS board or trust do you currently work?

\_\_\_\_\_

What severity of cases do you typically work with? Please rank in order with 1 being the category that your patients most commonly fall into and 4 being the category that your patients are least likely to fall into.

- \_\_\_\_\_ Mild
- \_\_\_\_\_ Moderate
- \_\_\_\_\_ Severe
- \_\_\_\_\_ Very severe

Do you currently work full-time or part-time?

- Full-time ( $\geq 32$  hours per week)
- Part-time (

How many patients are on your current caseload?

\_\_\_\_\_

On average, how much time (in hours) do you spend in direct contact with patients per week? This may include face-to-face, telephone or online video contact.

\_\_\_\_\_

**Cognitive behaviour therapy (CBT) is a time-sensitive, structured, present-oriented psychotherapy directed toward solving current problems and teaching clients skills to modify dysfunctional thinking and behaviour.**

The following statements are about CBT. Please indicate the extent to which you agree with each statement.

	Strongly disagree 1	2	3	4	Strongly agree 5
I agree with the principles of CBT (e.g. present-oriented, time-limited, structured)	<input type="radio"/>				<input type="radio"/>
CBT is an effective therapeutic approach	<input type="radio"/>				<input type="radio"/>

Do you have experience in providing CBT? This may include individual, group, internet-based or computerised CBT.

Yes

No

How many years of experience do you have in providing CBT? If none, please enter 0.

\_\_\_\_\_

When it comes to direct therapeutic work with patients, would you consider CBT to be your main therapeutic orientation?

No

Yes

I don't do direct therapeutic work with patients

When it comes to direct work with patients, how frequently do you use the following approaches? If you do not do direct work with patients, please select 'Never' for all.

	Never	Seldom	Sometimes	Often	Almost always
Acceptance and commitment therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behavioural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cognitive behavioural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cognitive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compassion focused therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dialectical behaviour therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humanistic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schema therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychoanalytic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychodynamic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.

**WITHDRAW**

---

*Display This Question:*

*If you would like to withdraw from the study, please select this option and click "continue" where... = <strong>WITHDRAW</strong>*

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.
- 

**A computerised CBT programme is an online or CD-ROM programme designed to help in the delivery of therapeutic interventions, either in session or as a tool for clients to use outside of therapy.**

---

Are you currently aware of any computerised CBT programmes?

- No
- Yes (please name the computerised CBT programmes that you are currently aware of)
- \_\_\_\_\_
- 

Have you ever seen or viewed a computerised CBT programme?

- No
- Yes (please name the computerised CBT programmes that you have seen or viewed)
- \_\_\_\_\_
- 

Have you read any outcome evidence on the effectiveness or efficacy of computerised CBT?

- No
- Yes
- 

Are you able to refer or signpost patients to computerised CBT in your current role?

- Yes
- No
- I don't know
- 

For how many years have you been able to refer or signpost patients to computerised CBT in your current role? If none, please enter 0.

\_\_\_\_\_

---

Have you ever referred or signposted a patient to computerised CBT in any current or previous role?

- No
- Yes

---

*If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.*

- WITHDRAW**

---

*Display This Question:*

*If you would like to withdraw from the study, please select this option and click "continue" where... = <strong>WITHDRAW</strong>*

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.

---

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

Roughly how many patients have you referred or signposted to computerised CBT over the past:

- 1 month \_\_\_\_\_
- 12 months \_\_\_\_\_

---

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

Roughly what **percentage** of patients with whom you are currently working with have you referred or signposted to computerised CBT?

\_\_\_\_\_

---

Roughly what **percentage** of patients with whom you are currently working with do you estimate might be suitable for computerised CBT?

\_\_\_\_\_

---

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

To what extent has computerised CBT met your needs in treating patients?

- None of my needs have been met 1
- 2
- 3
- Almost all of my needs have been met 4

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

From the knowledge that you have, how satisfied are you that computerised CBT has offered a useful input for patients you work with?

- Quite dissatisfied 1
- 2
- 3
- Very satisfied 4

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

If you were to provide a CBT intervention again, would you use computerised CBT again?

- No, definitely not 1
- 2
- 3
- Yes, definitely 4

*Display This Question:*

*If Have you ever referred or signposted a patient to computerised CBT in any current or previous role? = Yes*

How often have you referred patients to computerised CBT for the following reasons?

	Never 1	2	3	4	Always 5
As an alternative to therapist contact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For relapse prevention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To clients on a waiting list	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To supplement individual therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To supplement family therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To supplement group therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your clinical opinion, how useful do you believe computerised CBT programmes are at present for the following disorders?

	Ineffective 1	2	Moderately effective 3	4	Highly effective 5	Don't know
Depression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phobias	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generalised anxiety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obsessive-compulsive disorder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social phobia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Panic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol/substance use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.

**WITHDRAW**

*Display This Question:*

*If you would like to withdraw from the study, please select this option and click "continue" wher... = <strong>WITHDRAW</strong>*

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.

The following statements describe ways people might feel towards using **computerised CBT programmes**. Please indicate how much you agree with each statement.

	Strongly disagree 1	2	3	4	Strongly agree 5
If given the opportunity and training, I would like to use computerised CBT in therapy	<input type="radio"/>				<input type="radio"/>
I feel apprehensive about using computerised CBT in therapy	<input type="radio"/>				<input type="radio"/>
I am afraid that if I begin to use computerised CBT in therapy I will become dependent upon it and lose some of my own skills	<input type="radio"/>				<input type="radio"/>
Using computerised CBT in therapy will interfere with rapport	<input type="radio"/>				<input type="radio"/>
My clients will be more likely to drop out of treatment if I use computerised CBT as part of therapy	<input type="radio"/>				<input type="radio"/>
I believe that using computerised CBT in therapy will lead to better outcomes for my clients	<input type="radio"/>				<input type="radio"/>
The challenge of learning about the use of computerised CBT in therapy seems overwhelming to me	<input type="radio"/>				<input type="radio"/>
My clients would find it engaging to learn new skills using computerised CBT	<input type="radio"/>				<input type="radio"/>

-----

If there are any other factors that you think might affect your decision to use computerised CBT as a therapy, please enter them here.

-----



The following statements describe ways people might feel towards using computerised CBT programmes. Please indicate the extent to which you agree with each statement.

	Totally disagree 1	2	3	4	Totally agree 5
I do not expect long-term effectiveness from a computerised CBT programme	<input type="radio"/>				<input type="radio"/>
Clients do not receive professional mental health support from a computerised CBT programme	<input type="radio"/>				<input type="radio"/>
For clients, it is difficult to implement the suggestions of a computerised CBT programme effectively in everyday life	<input type="radio"/>				<input type="radio"/>
Computerised CBT programmes could increase isolation and loneliness	<input type="radio"/>				<input type="radio"/>
A computerised CBT programme can help clients to recognize the issues that they have to challenge	<input type="radio"/>				<input type="radio"/>
I have a feeling that computerised CBT programmes can help affected clients	<input type="radio"/>				<input type="radio"/>
A computerised CBT programme can inspire clients to better approach their problems	<input type="radio"/>				<input type="radio"/>
I believe that the concept of computerised CBT programmes makes sense	<input type="radio"/>				<input type="radio"/>
In crisis situations, a therapist can help clients better than a computerised CBT programme	<input type="radio"/>				<input type="radio"/>
Clients learn skills to better manage their everyday life from a therapist rather than from a computerised CBT programme	<input type="radio"/>				<input type="radio"/>
Clients are more likely to stay motivated with a therapist than when using a computerised CBT programme	<input type="radio"/>				<input type="radio"/>
Clients do not understand therapeutic concepts as well with a computerised CBT programme as they do with a therapist	<input type="radio"/>				<input type="radio"/>
A computerised CBT programme is more confidential and discreet than visiting a therapist	<input type="radio"/>				<input type="radio"/>
By using a computerised CBT programme, clients can reveal their feelings more easily than with a therapist	<input type="radio"/>				<input type="radio"/>
Clients would be more likely to tell their friends that they use a computerised CBT programme than that they visit a therapist	<input type="radio"/>				<input type="radio"/>
By using a computerised CBT programme, clients do not have to fear that someone will find out that they have psychological problems	<input type="radio"/>				<input type="radio"/>

*If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.*

**WITHDRAW**

*Display This Question:*

*If you would like to withdraw from the study, please select this option and click "continue" wher... = <strong>WITHDRAW</strong>*

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.

The following questions ask about **computerised CBT (cCBT)**. When answering these questions, please think about computerised CBT in general rather than a specific programme. For each statement please select an answer that best suits your experience.

Please try to answer all questions. Some of the wording is confusing but the various options allow you to answer that you do not feel this is relevant to you, your role or to cCBT; however, if you really cannot answer then please leave the item blank.

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree	Not relevant to my role	Not relevant at this stage	Not relevant to cCBT
I can see how using cCBT as a therapy differs from usual ways of working	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff in this organisation have a shared understanding of the purpose of using cCBT as a therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand how using cCBT as a therapy affects the nature of my own work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can see the potential value of using cCBT as a therapy for my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are key people who drive using cCBT as a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

therapy forward and get others involved

I believe that participating in using cCBT as a therapy is a legitimate part of my role

I'm open to working with colleagues in new ways to use cCBT as a therapy

I will continue to support using cCBT as a therapy

I can easily integrate using cCBT as a therapy into my existing work

Using cCBT as a therapy disrupts working relationships

I have confidence in other people's ability to use cCBT as a therapy

Work is assigned to those with skills appropriate to using cCBT as a therapy

Sufficient training is provided to enable staff to implement using cCBT as a therapy

Sufficient resources are available to support using cCBT as a therapy

Management adequately supports using cCBT as a therapy

I am aware of reports about the effects of using cCBT as a therapy

The staff agree that using cCBT as a therapy is worthwhile

I value the effects that using cCBT as a therapy has had on my work

Feedback about using cCBT as a therapy can be used to improve it in the future

I can modify how I work with using cCBT as a therapy

---

*If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.*

**WITHDRAW**

**Display This Question:**

If you would like to withdraw from the study, please select this option and click "continue" when... = <strong>WITHDRAW</strong>

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.

The following question asks about your feelings about using **new** types of therapy, interventions, or treatments. Please indicate the extent to which you agree with the following statements:

	Not at all 1	To a slight extent 2	To a moderate extent 3	To a great extent 4	To a very great extent 5
I like to use new types of therapy/interventions to help my clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to try new types of therapy/interventions even if I have to follow a treatment manual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to use new and different types of therapy/interventions developed by researchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would try a new therapy/intervention even if it were very different to what I am used to doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If there are any other factors that influence your decision to use new therapies/interventions, please enter them here.

The following statements describe ways people might feel towards using **computers**. Please indicate the extent to which you agree with each statement.

	Strongly disagree 1	2	3	4	Strongly agree 5
In general, I am comfortable using computers	<input type="radio"/>				<input type="radio"/>
I am comfortable using the internet	<input type="radio"/>				<input type="radio"/>
I tend to avoid computers because they are unfamiliar and somewhat intimidating to me	<input type="radio"/>				<input type="radio"/>
I have difficulty in understanding the technical aspects of computers in general	<input type="radio"/>				<input type="radio"/>
Anyone can learn how to use a computer if they are patient and motivated	<input type="radio"/>				<input type="radio"/>

Learning to operate computers is like learning any new skill - the more you practice, the better you become

I feel that I am able to keep up with the advances happening in the computer field

---

*If you would like to withdraw from the study, please select this option and click "continue" where you will be asked to confirm your choice. If you select "withdraw" by mistake, you will be able to reverse this on the next screen.*

**WITHDRAW**

*Display This Question:*

*If you would like to withdraw from the study, please select this option and click "continue" where... = **WITHDRAW***

Are you sure that you would like to withdraw from the study? Your response will be final.

- Yes, I would like to withdraw and I give consent for the data I provided to be used.
- Yes, I would like to withdraw and I do not give consent for the data I provided to be used.
- No, I would like to continue with the study.

## **Appendix 12: Participant Information Sheet**

### **Clinicians' attitudes towards, and use of, computerised CBT**

You are being invited to take part in research on clinicians' attitudes towards and use of computerised Cognitive Behaviour Therapy (CBT). A computerised CBT programme is an online or CD-ROM programme designed to help in the delivery of therapeutic interventions, either in session or as a tool for clients to use outside of therapy. This research is led by Niamh Fingleton, Trainee Clinical Psychologist, at the University of Edinburgh, and is supervised by Professor Elizabeth Gilchrist (University of Edinburgh) and Dr Joanne Persson (Clinical Psychologist, NHS Grampian). Before you decide whether to take part it is important you understand why the research is being conducted and what it will involve. Please take time to read the following information carefully.

This information is also available in a pdf format. It is recommended that you download the pdf and save it for future reference: Participant Information Sheet.pdf

#### **What is the purpose of the study?**

The purpose of the study is to better understand what factors predict clinicians' attitudes towards computerised CBT and whether/how frequently they use it.

#### **Why have I been invited to take part?**

You are invited to participate in this study because you provide psychological input for people with mental health difficulties in the UK.

#### **Do I have to take part?**

No – it is entirely up to you. If you do decide to take part, please read this information sheet and the consent statements carefully to understand your rights as a participant. Deciding not to take part or withdrawing from the study will not affect your employment in any way. You can withdraw from the study at any point while completing the questionnaire by selecting the “withdraw” option at the end of each page. You will be able to decide whether we may use the data you entered prior to withdrawing. Please note that once you submit your survey responses it will not be possible to withdraw your data.

#### **What will happen if I decide to take part?**

If you do decide to take part, please keep this Information Sheet. You will be asked to provide consent electronically to show that you understand your rights in relation to the research, and that you are happy to participate. This will be done prior to progressing to the questionnaire.

You will then be asked to complete an online questionnaire which will ask you questions about your current role and your attitudes and experience of computerised CBT. You are encouraged to complete the questionnaire at a time that is suitable for you. The questionnaire should take around 15 minutes to complete.

### **What are the possible benefits of taking part?**

There are no direct benefits, but by sharing your experiences with us, you will be helping the research team to better understand the factors that predict clinicians' attitudes and use of computerised CBT.

### **Are there any risks or disadvantages associated with taking part?**

There are no significant risks associated with participation. In the event that you do experience any distress, information about support services will be available once you have completed the survey.

### **Will my taking part be kept confidential?**

All the information we collect during the course of the research will be kept confidential and there are strict laws which safeguard your privacy at every stage.

### **How will we use information about you?**

The information that you provide while completing the questionnaire will be accessible to the research team and will be used to conduct the research. This information will include your age, professional role and health board (if applicable). People will use this information to do the research or to check your records to make sure that the research is being done properly.

The University of Edinburgh is the sponsor for this study and therefore your data may be viewed by appropriate individuals from the University of Edinburgh to make sure the research is being conducted properly. We will keep all information about you safe and secure. All electronic data will be stored on a password-protected computer file. Once we have finished the study, we will keep some of the data so we can check the results. The University of Edinburgh will keep identifiable information about you for 3 years after the study has finished and your anonymised data for a minimum of 10 years. Your anonymised data may be used in future ethically approved research. We will write our reports in a way that no-one can work out that you took part in the study. You can find out more about how we use your information [here](#).

### **What are your choices about how your information is used?**

- You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have.
- We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

### **Where can you find out more about how your information is used?**

You can find out more about how we use your information

- by asking one of the research team
- at <https://www.ed.ac.uk/records-management/privacy-notice-research>
- by sending an email to the University of Edinburgh Data Protection Officer at [dpo@ed.ac.uk](mailto:dpo@ed.ac.uk)



### **What will happen with the results of this study?**

The results of this study may be summarised in published articles, reports and presentations. You will not be identifiable from any published results. Quotes or key findings will always be made anonymous in any formal outputs. A summary of the findings from the study will be made available on the following website once the study is complete:

<https://computerisedcbt.wordpress.com/>. This will be available until August 2022.

### **Who has reviewed the study?**

The study proposal has been reviewed by the School of Health in Social Science Research Ethics Committee at the University of Edinburgh. NHS management approval has also been obtained.

### **Who can I contact?**

If you have any further questions about the study, or if you would like to participate but are unable to in its current format, please contact the lead researcher, Niamh Fingleton, at [n.fingleton@sms.ed.ac.uk](mailto:n.fingleton@sms.ed.ac.uk).

If you would like to discuss this study with someone independent of the study, please contact Dr Rachel Happer, Director of the Centre for Psychological Therapies, at

If you wish to make a complaint about the study, please contact the Head of School, Dr Matthias Schwannauer, at [headofschool.health@ed.ac.uk](mailto:headofschool.health@ed.ac.uk) or the Research Governance team at [cahss.res.ethics@ed.ac.uk](mailto:cahss.res.ethics@ed.ac.uk). In your communication, please provide the study title and detail the nature of your complaint.

### **Please confirm that you agree with the following statements**

1. I confirm that I have read and understood the information (Version 2, 05/11/2021) above for the study.
2. I have been given the opportunity to consider the information provided, ask questions and have had these questions answered to my satisfaction.
3. I understand that my participation is voluntary and that I can withdraw at any time without giving a reason and without my employment being affected.
4. I understand that my anonymised data will be stored for a minimum of 10 years and may be used in future ethically approved research.
5. I understand that relevant sections of data collected during the study may be looked at by individuals from the Sponsor (the University of Edinburgh) or from the NHS Boards where it is relevant to my taking part in this research. I give permission for those individuals to have access to my records.

- I agree to all of the above points and by selecting this option I confirm that I agree to take part in the above study
- I do not agree to the above points and do not agree to take part in the study

## Appendix 13: Ethical approval

<b><u>This section is to be completed after review only</u></b>
<b>ISSUES ARISING FROM THE PROPOSAL – <u>to be completed by Ethics Reviewer</u></b>
<p>Thank you for your application. The review process has generated the following minor queries regarding your application. Please address the following items, and provide a note underneath each comment letting us know how you have addressed them:</p> <ul style="list-style-type: none"><li>• Provide a brief background justification for your study in response to Q1.<ul style="list-style-type: none"><li>○ A brief section including the rationale for the study has now been added. Further background is also contained in the originally attached protocol if needed.</li></ul></li><li>• Debrief for non-consenter's - this needs to make it clear they haven't consented and aren't taking part in the study.<ul style="list-style-type: none"><li>○ The debrief for non-consenters has been updated to make this clearer. See attached document. The debrief for survey completers has also been amended to fix a typo, add a word and improve the layout (content remains the same). See attached.</li></ul></li><li>• Information sheet – it is not clear why participants are being directed to <a href="http://www.hra.nhs.uk/information-about-patients/">www.hra.nhs.uk/information-about-patients/</a> when they are not patients.<ul style="list-style-type: none"><li>○ This specific item was added by University sponsorship (<a href="mailto:cahss.res.ethics@ed.ac.uk">cahss.res.ethics@ed.ac.uk</a>) but has now been removed with their approval. See attached.</li></ul></li></ul> <p>Signature: <i>Ingrid Obsuth (sig)</i></p> <p>Position: Ethics &amp; Integrity Lead</p> <p>Date: 26 Oct 2021</p>
<b>APPLICANT'S SIGNATURE FOLLOWING REVISIONS – <u>to be completed by applicant</u></b>
<p>I confirm that I have addressed all of the queries generated during the ethical review process of my application. I have outlined in the box above underneath each comment how each request was addressed and/or provided further clarification.</p> <p><b>Supervisor/PI Signature:</b></p> <p><b>Student signature:</b></p> <p><b>Date: 05/11/21</b></p>
<b>CONCLUSION TO ETHICAL REVIEW – <u>to be completed by Ethics Lead</u></b>
<p>The applicant's response to our request for further clarification or changes has now satisfied the requirements for ethical practice and the application has therefore been given a favourable opinion.</p> <p>Signature: <i>Ingrid Obsuth (sig)</i></p> <p>Position: Ethics &amp; Integrity Lead</p> <p>Date: 10 Nov 2021</p> <p><b>NOTE: Once reviewed please include the page on which this box appears as a formal document demonstrating that favourable opinion has been provided for this project (for example as an attachment to MSc dissertations).</b></p>