



BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email [info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)

# BMJ Open

## Toward a conceptual framework of the working alliance in a blended cognitive behavioural therapy intervention: A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2019-036299
Article Type:	Original research
Date Submitted by the Author:	17-Dec-2019
Complete List of Authors:	Doukani, Asmae; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Free, Caroline; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Michelson, Daniel ; University of Sussex, School of Psychology Smith, Sarah; London School of Hygiene & Tropical Medicine, Health Services Research and Policy Araya, Ricardo; King's College London, Health Service and Population Research Department Montero-Marin, J; Dharamsala Institute of Mindfulness and Psychotherapy Cerga-Pashoja, Arlinda; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Kakuma, Ritsuko ; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health
Keywords:	Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, MENTAL HEALTH, Depression & mood disorders < PSYCHIATRY

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

1 Toward a conceptual framework of the working alliance in a blended cognitive behavioural  
2 therapy intervention: A qualitative study

#### 3 4 **Corresponding author**

5 Asmae Doukani, Research Fellow

6 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
7 Medicine, Keppel Street, London, WC1E 7HT, United Kingdom.

8 Email: [Asmae.Doukani@lshtm.ac.uk](mailto:Asmae.Doukani@lshtm.ac.uk)

9 Telephone: +44(0)207 927 2462

#### 10 11 **Co-authors**

12 Caroline Free, Professor in Primary Care and Epidemiology

13 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
14 Medicine, Keppel Street, London, United Kingdom (Caroline.Free@lshtm.ac.uk)

15  
16 Daniel Michelson, Senior Lecturer in Clinical Psychology

17 School of Psychology, University of Sussex, Pevensey Building, Falmer, Brighton, United  
18 Kingdom. (D.Michelson@sussex.ac.uk)

19  
20 Sarah Smith, Associate Professor in Psychology

21 Department of Health Services Research and Policy, London School of Hygiene and Tropical  
22 Medicine, Keppel Street, London, United Kingdom. (Sarah.Smith@lshtm.ac.uk)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

24 Ricardo Araya, Professor in Global Mental Health  
25 Health Service and Population Research Department, King’s College London, De Crespigny  
26 Park, London, SE5 8AF, United Kingdom. (Ricardo.Araya@lshtm.ac.uk)  
27  
28 Jesus Montero-Marin, Senior Researcher  
29 Dharamsala Institute of Mindfulness and Psychotherapy, Zaragoza, Spain  
30 (jmonteromarin@hotmail.com)  
31  
32 Arlinda Cerga Pashoja, Research Fellow  
33 Faculty of Epidemiology and Population Health London School of Hygiene and Tropical  
34 Medicine, Keppel Street, London, United Kingdom. (Arlinda.Cerga-Pashoja@lshtm.ac.uk)  
35  
36 Ritsuko Kakuma, Associate Professor  
37 Faculty of Epidemiology and Population Health London School of Hygiene and Tropical  
38 Medicine, Keppel Street, London, United Kingdom. ([Ritsuko.Kakuma@lshtm.ac.uk](mailto:Ritsuko.Kakuma@lshtm.ac.uk))  
39  
40 Word count: 5716

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

## Abstract

**Objectives:** To examine and adapt a conceptual framework of the working alliance (WA) in the context of a blended (human therapist plus computerised program) cognitive behavioural therapy intervention (b-CBT) for depression.

**Design:** Patient involvement was enlisted to collaboratively shape the design of the project from the onset, before data collection. In-depth semi-structured interviews were carried out with participants who experienced b-CBT as part of a trial in the UK. A thematic analysis was conducted using a constant comparative method informed by grounded theory.

**Setting:** Recruitment was carried out in four psychological primary care services across the UK.

**Participants:** Nineteen participants from the b-CBT treatment arm of the E-compared trial, who completed at least one computerised module and face-to-face session, were recruited to the study.

**Results:** Qualitative interviews that were guided by WA and SUI input, revealed four themes: (1) A healthcare provider with good interpersonal competencies for building a working relationship with the client ('Bond'); (2) collaborative efforts between the client and the provider to appropriately identify what the client hopes to achieve through therapy ('Goals'); (3) the selection of acceptable therapeutic activities that address client goals and the availability of responsive support ('Task'); and (4) the promotion of active engagement, self-discovery and autonomous problem solving ('Heuristics'). Participants also described how blended delivery by the human therapist and the digital program uniquely and collectively contributed to different WA needs.

**Conclusions:** This study was the first to offer a preliminary conceptual framework of WA in b-CBT, and how such demands can be addressed through blended therapist-digital delivery.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

65 These findings can be used to promote WA in technological design and clinical practice,  
66 thereby promoting engagement to b-CBT interventions, and the effective deployment of  
67 therapist and digital support resources.

68 **Trial registration:** E-Compared Trial, ISRCTN registry, ISRCTN12388725. Registered on 20  
69 March 2015.

70 **Keywords:** Working alliance, blended psychotherapy, cognitive behavioural therapy, patient  
71 and public involvement.

72

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

73

## Article summary

### Strengths and limitations of the study

- Patient involvement enabled the project aims to be grounded on the needs and interests of people who have experienced mental illness and service-use, in order to enhance the application of the findings.
- Bordin's working alliance theory was adopted to explore within b-CBT due to the theory's comprehensive description, its' pan-theoretical nature, and its' openness to adaptation in relation to different therapeutic formats.
- The studies' sample is limited to 19 individuals with a primary diagnosis of mild-to-moderate depression, largely reporting moderate to high WA, thereby restricting the generalisability of our findings to other clinical presentations.
- Exposure to only one type of digital program, may have influenced participant's experience of WA (e.g. a computerised platform that doesn't work adequately might generate more data on the importance of 'ease of use', than one that does), limiting the breadth of data collected on the working alliance.
- Efforts were made to broaden the reach of the conceptual framework through interview topic guides which were guided by the working alliance theory and patient involvement input, and a data analysis approach which avoided surface level themes, specific to technological design.

74

75

76

77

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**INTRODUCTION**

Mental disorders impact one in six people in the European Union, resulting in an estimated economic burden of over €600 billion.[1] The treatment gap in the region remains high with 35-50% of people experiencing mental health concerns not accessing treatment.[1] The wide disparity between mental health care needs and access to services has prompted calls for the strategic deployment of technology to facilitate and expand access to mental health services at a lower cost.[2,3] In the past decade, an increasing number of studies have investigated the efficacy of computerised cognitive behavioural therapy (c-CBT), a type of digital intervention that delivers CBT via interactive presentation features.[4] The evidence for c-CBT has demonstrated equal benefits to face-to-face CBT for a range of mental disorders.[4] However, these findings largely hold true when digital psychotherapies are guided by a human facilitator. Higher support from a therapist or another human facilitator appears to be related with better adherence and clinical outcomes.[5]

The effects of human support on engagement with c-CBT raises important questions about mechanisms that support positive change in c-CBT. This has led scholars to consider the applicability of established mechanisms of change derived from conventional psychotherapies, to ‘blended’ (digital plus human facilitation) formats. Particular interest has centred on the construct of the client-therapist alliance<sup>i</sup> (therapeutic, working etc.).[6,7] While the concept of the alliance has taken root in a number of therapy approaches, Edward Bordin[8] drew on their commonalities to formulate a pan-theoretical theory called the Working Alliance (WA) originally defined as:

*“a formation between the client seeking change and the therapist offering to act as a change agent that incorporated a mutual understanding and agreement about change*

101 *goals and the necessary tasks to move forward these goals along with the establishment*  
102 *of bonds to maintain the partners' work".[8,9]*

103 Here, the 'task' refers to an agreed-upon contract that specifies the activities used to work on  
104 the client's goals. 'Goals' entails the exploration and review of what the client wants to achieve  
105 in therapy, while the 'bond' relates to the perceived compatibility between the client and the  
106 therapist, and the partnership that stems from shared activities.[8,9] Central to Bordin's[8,9]  
107 conceptualisation, is the collaboration and consensus between the therapist and the client, in  
108 order to promote meaningful engagement with the intervention.

109 The alliance has consistently been found to predict positive therapeutic outcomes. A keystone  
110 meta-analytic review found that the therapeutic alliance accounted for more variance (30%)  
111 than the therapeutic technique (15%) and therapy expectancy (15%).[10] This alliance-  
112 outcome relationship finding, was mirrored in recent meta-analyses, one of 191 varied  
113 therapeutic studies ( $r = .28$  [95% CI: .25 to .30]),[11] and another focusing on CBT  
114 interventions for depression ( $r = .26$  [95% CI: .19 to .32]).[12] Despite the emerging era of  
115 digitisation, a guiding framework to understand the nature of WA as an agent of change has  
116 yet to be developed for blended CBT (b-CBT). While some models of behavioural intervention  
117 technologies (BITs) offer valuable behavioural change formalisations for informing  
118 intervention design, such models are intended to be broad and do not address the client-provider  
119 alliance.[13] Given that healthcare is moving towards a model of symbiotic delivery between  
120 human healthcare providers and technology, we aim to understand what the WA demands are  
121 in b-CBT, through patient involvement and participant qualitative interviews, to adapt  
122 Bordin's[8,9] conceptualisation of WA, for a b-CBT format of delivery.[14]

123

124

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**METHOD**

A qualitative methodology design was used to gain an in-depth understanding of WA with participants who experienced b-CBT on the E-compared trial.[15] E-compared is a non-inferiority, pragmatic trial that evaluated the cost effectiveness of b-CBT for depression, when compared to usual care, across eight countries in the European region. The b-CBT intervention consisted of 11 sessions, six with a low intensity psychological wellbeing practitioner and a least five at home via a synchronised computerised platform and mobile-application called Moodbuster. The treatment course spanned across 11 weeks. Additional information about the trial and the b-CBT intervention can be accessed from the trial protocol by Kleiboer and colleagues.[15]

**Participants**

E-Compared participants from the UK were invited to take part in qualitative interviews. Trial participants aged 18 years or older with a clinical diagnosis of Major Depressive Disorder were enrolled in the study.[15] People with substance abuse, suicidal tendencies, other severe psychiatric disorders, cognitive disability or people who had insufficient knowledge of English were excluded. E-Compared trial[15] participants were invited to participate in the study if they: (a) provided written consent to be involved in the qualitative interviews when they enrolled on the trial (total number of participants, n=101); (b) were randomised to the b-CBT arm (n=49); and (c) had completed at least one computerised module and face-to-face session (n=42). We purposively selected individuals who represented the sample of participants in the treatment arm, in relation to their sex, age, and recruitment site.[16] Altogether, 26 out of 42 people were invited to take part in the qualitative study, with 19 re-consenting to participate. The remaining seven participants were unable to take part in the study, because they could not find an appropriate time to attend an interview (n=2), did not respond to a formal invitation to participate in the study (n=4), or did not meet the eligibility criteria (n=1<sup>ii</sup>).

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

## Procedure

E-compared participants were invited to take part in face-to-face individual semi-structured qualitative interviews, at least 2 weeks after they completed their course of therapy on the trial. This was to provide participants with enough time to reflect on their experience of the b-CBT intervention. Potential participants were invited to take part in one-to-one semi-structured interviews about their experience of b-CBT, and were emailed a patient information sheet (PIS) following their initial correspondence with the research team. Participants were provided with at least 48 hours to read and consolidate the information, before they were followed up and booked in for a qualitative interview at an acceptable time and place. Written consent for their participation was sought again prior to starting their interviews and were reminded of their right to withdraw at any time and without giving a reason. Data collection took place until saturation was reached.[16] The study adopted Corbin and Strauss's definition of saturation, which is described as the point where further data collection becomes 'counter-productive', and where 'new' themes do not add anything to the overall narrative of the story.[16] Saturation was monitored through writing memos after each interview, in which information on both key and novel emerging themes from the interview were recorded.[16]

The project was approved by the Health Research Authority's Ethics Committee on 17th April 2015 (REC reference: 15/LO/0511) and the London School of Hygiene and Tropical Medicine Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref: 9409).

## Measures

Self-reported WA and symptoms of depression, collected on the E-Compared trial[15] were reported to further describe participant characteristics (in addition to sociodemographic data) and to provide insights on WA and the level of depression experienced by the participants on the study. Self-reported WA was assessed through the Working Alliance Inventory Short Form

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

– Client (WAI-SF-C).[17] Scores for the 12 items on WAI-SF-C range between 12- 60. Scores were divided into 3 groups to produce a low-range (12-28), medium-range (29-44), and high-range (45-60) to indicate the level of WA reported by each participant. Higher scores indicate better WA. Self-reported depression was assessed through the Patient Health Questionnaire-9 (PHQ-9).[18] Scores for the 9 items on the PHQ-9 range between 0-27. Higher scores indicate more severe symptoms. Data was collected during the trial’s three months follow-up assessments.[15]

**Guiding framework**

Our study adopted Edward Bordin’s[8,9] theory of WA to explore in the context of b-CBT for three reasons. The first relates to the generalisable nature of the theory. While the concept of the alliance stemmed from psychodynamic theory in 1912, it has since been incorporated in various therapeutic approaches, leading to heterogeneity in the way the concept is defined.[11] In 1979, Bordin[8,9] attempted to unify the way the alliance is defined, by proposing a pan-theoretical conceptualisation[8] that drew on the key features of all therapeutic approaches.[11] Second, Bordin’s[8,9] theory is operationalised as task focused,[11] and therefore offers a suitable fit for task-orientated psychological approaches such as CBT.[19] Third, the theory is open to adaptation. Bordin[8,9] suggested that while a pan-theoretical approach allowed the basic measurement of the bond, goals and task to produce beneficial therapeutic change, he also suggested that the ideal alliance *profile* is likely to be different across therapeutic approaches and interventions.[8,9,11]

**Data collection**

Data collection took place between October 2016 and July 2017 across four primary care mental health services in the UK. Qualitative interviews were adopted to enable a detailed examination of the participant’s personal experiences and perspectives of WA within the

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

context of their experience of receiving b-CBT. The study predominately included a deductive approach to exploring WA in b-CBT based on Bordin's[8,9] theoretical framework, while remaining open to novel or unexpected inductive new findings. On average, participant interviews lasted around 47 minutes. Interviews were conducted in a confidential setting within a university campus or the health service which the participant was recruited from. All interviews were audio-recorded using an Olympus digital voice recorder WS-852 and transcribed to produce orthographic verbal verbatim. AD (female) conducted the qualitative interviews, was a PhD Candidate with experience of conducting and analysing qualitative interviews. Semi-structured interviews with a conversational technique was used to achieve a balance between the need for consistency of questioning across participants, and the ability to explore topics that are important to the participant. During interviews there was also scope to allow topics covered to evolve iteratively based on the emerging data.[16,23] The development of an interview topic guide was supported by patient involvement input and guided by the WA theory[8,9]. The initial topic guide was used to suggest topics of discussion, and not as a definitive framework to limit conversations. As the data collection progressed, the topic guides evolved iteratively based on emerging themes. Subsequent interviews were therefore influenced by interviews that previously took place, providing opportunities to validate and refute interpretations.[16]

## Data analysis

A preliminary data analysis took place alongside early interviews, allowing subsequent interviews to progress iteratively.[16] Memos were written after each interview, to aid the preliminary analysis and iterative adaptation of the topic guide and to propose possible relationships between codes. Thematic analysis was adopted due to the theoretical flexibility,

1  
2  
3 223 as well as the ‘thick descriptions’ afforded by the approach.[24] The data analysis incorporated  
4  
5 224 a constant comparative method from grounded theory, to enable the analyst to search for new  
6  
7  
8 225 theoretical models that are grounded in empirical data, and to enhance the trustworthiness of  
9  
10 226 data.[16]  
11  
12  
13 227 The lead analyst (AD) commenced the data analysis by reading through the transcripts, while  
14  
15 228 listening to the audio recording and reading the corresponding memos. The analyst then  
16  
17 229 actively re-read the data, searching for meaning, and noted down initial concepts. Data was  
18  
19  
20 230 coded line-by-line. Codes were generated by searching for interesting features across the entire  
21  
22 231 dataset and collating data relevant to each code segments. The emerging codes were clustered  
23  
24 232 into categories and labelled thematically. Once the data was initially coded and collated, the  
25  
26  
27 233 analyst commenced searching for themes that were compatible with Bordin’s[8,9] WA theory  
28  
29 234 and patient involvement input, while also searching for novel alliance concepts. Themes were  
30  
31 235 located at a latent level, to delve beyond the semantic content of the data, to identify and  
32  
33 236 examine underlying ideas, assumptions, conceptualisation and ideologies that theorise  
34  
35  
36 237 semantic content of the data.[24] The initial codes were gradually merged into broader  
37  
38 238 categories through comparison across transcripts, to identify overarching themes. The themes  
39  
40 239 were then reviewed to ensure that the codes cohere together meaningfully, while maintaining  
41  
42 240 a clear and identifiable distinction with no overlap between the themes. Finally, the themes  
43  
44 241 were reviewed to consider their relationship to the overall thematic map. Once a thematic ‘map’  
45  
46  
47 242 was identified, the findings were developed into a conceptual framework of WA in b-CBT.[24]  
48  
49  
50 243 Two other members of the research team (CF and DM), who are highly familiar with qualitative  
51  
52 244 methodologies and Bordin’s[8,9] WA theory, read through 20% of all transcripts and reviewed  
53  
54 245 all supporting quotes across all phases of the analysis, so that close to half of the transcripts  
55  
56  
57 246 were reviewed. Discrepancies were discussed and reconciled. The final framework was  
58  
59  
60 247 discussed and revised over eight meetings. The entire coding process was performed using the

248 NVivo 11 data analysis software package. Supporting quotes were anonymised to ensure that  
249 that participants and their therapist could not be identified.

250 To ensure the final conceptual framework truly reflected WA, a ‘therapeutic process’, was not  
251 confounded with early manifestations of ‘treatment outcomes’ we defined “therapeutic  
252 processes” relevant to WA, and the ‘treatment outcomes’ associated with CBT.[17]  
253 ‘Therapeutic processes’ was defined as “*actions, experiences, and relatedness of the client and*  
254 *the therapist in therapy sessions...*”.[25] We a-priori extended the use of the term ‘therapy  
255 session’ to include face-to-face and digital delivery in the context of blended therapy. Horvath  
256 and colleagues[17] noted three ways of defining the outcome in psychotherapy including: (a)  
257 the core value attributed to the outcome by the client, (b) the importance of the outcome in the  
258 theoretical framework of the therapist, and (c) the utility of the outcome (e.g. the technique) to  
259 promote other outcomes that are valued. We defined outcome in relation to definitions b and c  
260 to enable a standardised definition that does not vary from client-to-client (i.e., definition a).  
261 We a-priori define the outcomes of CBT as the alleviation of distress (b) through helping the  
262 client to develop more adaptive cognitions and behaviours (c).[19] The final conceptual  
263 framework was reviewed in light of the aforementioned definitions by members of the research  
264 team. Themes and sub-themes that were judged to correspond with the definition of ‘treatment  
265 outcome” were removed. We used the SRQR checklist when writing our report.[26]

266

## 267 **Patient and public involvement**

268 Patient advisors were enlisted at a pre-research data collection stage to collaboratively examine  
269 WA in a digital CBT program without human support. Patient advisors were not involved in  
270 the recruitment of participants or of conducting the study. Patient involvement included eleven  
271 advisors with experience of mental health service use. Advisors attended two meetings in the  
272 summer of 2015. The first meeting consisted of a comprehensive pre-involvement preparation

273 briefing, to provide advisors with the knowledge and skills that would enable optimal  
274 conditions to aid their role.[20] Advisors were also provided with access to a computerised  
275 CBT for depression program called Moodbuster (program used on the E-Compared trial),[15]  
276 which they were encouraged to test and review in their own time, to provide context for  
277 discussion.[20] Advisors voluntarily tested all components of the Moodbuster intervention  
278 between meetings. In the second meeting, advisors were split into three small focus group  
279 discussion interviews, to facilitate the sharing of personal experiences and enable a higher level  
280 of opportunities to participate.[21] Discussions attempted to address three pre-patient  
281 involvement objectives, including: (i) is WA, as defined by Bordin[8,9] relevant in the context  
282 of a digital program intervention? (ii) What are the intrinsic WA demands between the client  
283 and digital provider? and (iii) Can digital delivery offer new ways of building WA, above and  
284 beyond Bordin's[8,9] bond, goals and task? The three focus group discussions were audio-  
285 recorded using an Olympus digital voice recorder WS-852, transcribed, and analysed to  
286 identify thematic patterns and themes. Patient involvement contribution was reported in line  
287 with version 2 of the Guidance for Reporting Involvement of Patients and the Public Short  
288 Form (GRIPP2-SF).[22] Patient advisors were thanked for their contribution after their  
289 involvement and also in the acknowledgements of this paper. The results of the study will be  
290 disseminated via a lay summary of the research which will be supplemented with a peer-  
291 reviewed publication.

292  
293 Patient involvement was instrumental in shaping the focus of the study and in guiding  
294 participant interviews in three different ways: First, patient involvement input suggested that  
295 Bordin's[8,9] WA as a function of enhancing engagement, was both relevant and important in  
296 the context of a digital psychological intervention. Second, the focus of the planned participant  
297 interviews changed from exploring WA within a computerised CBT (c-CBT) intervention only,

to exploring the shared therapist-program format of CBT, as advisors unanimously suggested that some WA needs (especially bond and elements of support) could not be satisfied without human facilitation. Third, we set out to extend Bordin's[8,9] WA theory as patient involvement suggested that the c-CBT program could lead to additional alliance building and maintenance features.

## RESULTS

### Description of sample

An exploration of WA in b-CBT was undertaken through 19 qualitative interviews with participants who experienced b-CBT in the treatment arm of the E-Compared trial[15]. Participants were aged between 19-67 years (Mean=34.47 years, SD=14.44 years), largely male (n=13), white British or white other (n=12), and university educated (n=12). All interviews were conducted face-to-face apart from one, which was completed by phone. Saturation appeared to be reached by the 16<sup>th</sup> interview. Another three interviews were carried out to ensure that the selected saturation cut-off point had been accurately identified and to further validate interpretations. Tables 2-4 show that the main themes were endorsed by 89% – 100% of participants, indicating that the selected saturation cut-off point was sufficient.

**Table 1.** Sample characteristics of participants who took part in the qualitative interviews (n=19)

Characteristics	Mean (SD) or Percentage (n)
Age in years	34.47 (14.44) range 19- 67 years
Gender (male)	69% (13)
Marital status	
<i>Divorced</i>	5% (1)
<i>Living together</i>	11% (2)
<i>Single</i>	63 % (12)
<i>Married</i>	21% (4)

Highest educational level completed	
Secondary School, equivalent	11% (2)
Colleague, equivalent	26% (5)
University degree or higher	63% (12)
Ethnicity	
British white or white other	63.1% (12)
Black/African/ Caribbean / Black British	5.3% (1)
Asian or Asian British (Any other Asian)	21% (4)
Mixed or Multiple Ethnic Group	5.3% (1)
Other	5.3% (1)
Session completion level	
Completed course b-CBT	63.2% (12)
Incomplete course of b-CBT	36.8% (7)
WAI-SF-P*	46.29 (SD=10.21), score range 27-60 (17)
High WAI-SF-P	score range 47-60 (10)
Medium WAI-SF-P	score range 31-41 (6)
Low WAI-SF-P	score range 27 (1)
No score	(4)
PHQ-9**	7.8 (6.87), score range 1-22 (n=18)

\*WAI-SF: Working Alliance Inventory Short Form

\*\*PHQ-9: Patient Health Questionnaire-9.

316 **Conceptual framework of WA in b-CBT**

317 A thematic analysis with a constant comparative method[24] revealed multifaceted WA  
318 demands which show that the work of building WA in b-CBT involves a symbiotic effort by  
319 the therapist and the digital program, to actively engage the client to meaningful therapeutic  
320 activities and to promote self-discovery and commitment to the intervention. Such demands  
321 can be grouped into four overarching WA themes, (1)‘bond’, (2)‘task’, (3)‘goals’ (in line with

322 Bordin's[8,9] WA theory categories<sup>iii</sup>) and (4)'heuristics' (a newly emerging theme) (See Fig.  
323 1 for a summary of the main themes and sub-themes).

#### 324 Theme 1: Bond

325 The 'bond' is defined as a set of provider competencies that enable a working relationship to  
326 be established and maintained with a client. Participants unanimously reported that a human  
327 therapist was the most important facilitator for building the bond in a b-CBT context. This was  
328 because participants valued qualities of 'humanity', and 'responsiveness' attributed to a human  
329 therapist. Through a process in which participants appeared to compare and contrast the  
330 strengths of the digital program with a human therapist, most participants questioned the  
331 'meaningfulness' of interacting with a digital platform that was incapable of understanding or  
332 responding to a client's needs as demonstrated by the following quote:

333  
334 *"an app is like a machine, it's not personal at all. I think it's good to have some*  
335 *element[s] of talking to a human about this kind of thing because I think you want*  
336 *reassurance as well, which you wouldn't get from an app and if you did it would just*  
337 *be responses built in".*

338 (P8, M, 24 y/o, lower-range Working Alliance Inventory Short Form – Client (WAI-  
339 SF-C))

340  
341 Data from participant interviews revealed three broad therapist attributes considered to be  
342 important for the bond building process, namely the mental health providers' ability to;  
343 effectively demonstrate their understanding of their client's struggles and needs (sub-theme  
344 1.1); convey that they are genuine in their endeavours towards the client (sub-theme 1.2); and  
345 forge a working partnership founded on friendliness, feeling cared for, empathy and trust (sub-  
346 theme 1.3) (see Table 2 for sub-theme descriptions and supporting quotes). Some participants

elaborated on these concepts further to unearth granular insights of what it means to be in the presence of a human therapist. Visually observing a therapist’s non-verbal cues was reported to be especially important for gauging abstract relational concepts such as empathic understanding (sub-theme 1.1), and genuineness (sub-theme 1.2). The recognition of positive non-verbal cues appeared to increase congruence between the therapist and the client (sub-theme 1.3) throughout the course of therapy:

*“[During telephone therapy] he was like “mm hm, go on...so how do you feel?” I can’t see his face. I don’t know what he was thinking. I can’t feel him. But during face-to-face [sessions] I think when I talk about something I can notice, his or her like facial expression. I know he’s listening ...That make[s] me feel like talk[ing] more”.*  
(P14, M, 34 y/o, WAI-SF-C score not available<sup>iv</sup>)

**Table 2.** Theme 1, bond sub-theme descriptions and supporting quotes

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 1: Bond, 89%, (17)	
1.1 Feeling understood, 74% (14)	<b>P12, M, 23 y/o, high-range WAI-SF-C score:</b>
The therapist’s ability to make the client feel understood. This requires the therapist to closely listen to the client, comprehend what is being said and demonstrate empathic awareness and insight into the client’s concerns.	“My therapist did make a real effort to try and get to know me, try to maybe get to know what made me tick and why I was feeling how I did, rather than just assuming this is what you need without ... taking into account maybe what I as a person, personally needed”.
1. 2 Genuineness, 32% (6)	<b>P17, M, 39 y/o, WAI-SF-C* scores not available:</b>
The therapist’s efforts to help the client, that are perceived as genuine and	“I never felt we were just going through the sort of motions if you like, if there was a list of things to do, well this is what you want to do, it seemed more than that”

authentic, as opposed to procedural or routine.

### 1.3. Partnership, 74% (14)

**P12, M, 23 y/o, high-range WAI-SF-C score:**

The ability of the client and therapist to achieve a working relationship that is akin to a friendship. Such a partnership is characterised by trust, feeling liked and feeling cared for.

*"I feel like she, as I said earlier, took the time to get to know me and ... what I was currently doing, so it did feel like she kind of knew me on an individual level, rather than just being the patient."*

\*WAI-SF-C: Working Alliance Inventory Short Form- Client.

## Theme 2: Goals

'Goals' refers to the collaborative work between the therapist, the client and the digital interface, to appropriately identify what the client hopes to achieve through therapy (68% of sample endorsed the 'goals' theme, n=13). While 'goals' emerged as a distinct factor, it also appears to be interrelated with the 'task', thereby playing a fundamental role in framing activity-based tasks and maintaining the client's motivation to work towards creating change.

*"The goal setting actually was something that I spoke to [the therapist] quite a bit about in the session [...] I was then like "God well what are my goals? [...] what, where am I exactly going?" (P5, M, 22 y/o, higher-range WAI-SF-C score)*

## Theme 3: Task

The 'task' refers to the careful selection and acceptability of the therapeutic activities prescribed to address the client's presenting symptoms ('activity-based task'), and the degree to which the support received by the healthcare provider on these activities is responsive ('responsive support').

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

375 The defining features of ‘activity based-task’ refers to the client’s ability to work on tasks that  
376 are; personalised and acceptable for addressing the client’s therapy goals (sub-theme 3.1);  
377 useful in promoting new learning, insights and reflection (sub-theme 3.2) and are  
378 complimentary across both modes of delivery (sub-theme 3.3). The defining features of  
379 ‘responsive support’ relate to the provider’s (largely referring to the therapist’s role) ability to  
380 appropriately respond to a range of clients’ expressed and unexpressed need to; maintain  
381 accountability (sub-theme 3.4); provide activity-based guidance (sub-theme 3.5); and have a  
382 safe-space for clients to express their feelings and emotions (sub-theme 3.6) (see Table 3 for  
383 sub-theme descriptions, and supporting quotes).  
384

**Table 3. Theme 2, task sub-theme descriptions and supporting quotes**

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 3: Task 100%, (19)  Activity-Based Task, 100% (19)	
3.1. <i>Personalisation, 95% (18)</i>  The level at which a client is able to tailor the therapeutic task to their individual needs. A non-personalised digital intervention was reported to negatively impact engagement. The therapist in blended-therapy can play an important role in making a generic intervention (i.e. computerised CBT) as more personalised.	<b>P12, M, 23 y/o, high-range WAI-SF-C Score:</b>  <i>“I think it’s a bit more personalised, because I would say whilst the E-Compared is good, it is still, it is to an extent generic, because it can’t kind of know every single person that’s watching the video, so whereas the therapists can kind of get an idea of you, your story, your journey, what’s maybe led you to kind of this maybe relapse, or for you to be feeling the way you are, and you can’t maybe get that from a computer...Whereas if I’m hearing it from the person, I’m going to take a bit more notice, but then if I’m just hearing it from the computer, where it will say that to everyone watching the video”</i>
3.2. <i>Usefulness, 95% (18)</i>	<b>P4, F, 18 y/o, medium-range WAI-S-C score:</b>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

<p>A useful task was defined as one that promotes new learning, reflection and is effective in creating desired change in the client's life.</p>	<p><i>"But like the modules themselves, feelings-wise they were often quite helpful for clarifying stuff. Like I usually came out the other end feeling better or more kind of composed...it would kind of shape how I was seeing things. So like if I, you know learned about thought distortions, I'd kind of go in with that knowledge and be able to kind of talk about it..."</i></p>
<p><b>3.3. Complementary, 84% (16)</b></p> <p>The ability to experience complementary tasks in face-to-face therapy and on the digital platform as continuous and cohesive, as opposed to stilted and disjoint. Knowing what to expect from the respective components of blended therapy was reported to help the client optimise the benefits sought from different components of therapy.</p>	<p><b>P16, F, 35 y/o, medium working alliance:</b></p> <p><i>"I was finding it really hard to leave the house so that whole thought of going to therapy was quite difficult in the very beginning, so it did take me a couple of sessions to really start talking to [therapist] and opening up but because I had this online support I found it easier to open up to [therapist] so maybe instead of you know, two sessions it would have taken four or five."</i></p>
<p>Responsive support Task, 100% (19)</p>	
<p><b>3.4. Accountability, 79% (15)</b></p> <p>The availability of a figure of authority that the client can (positively) feel responsible towards, as a means of garnering motivation to work on therapeutic activities. For the process of accountability to positively impact the client's motivation, a therapist is required to demonstrate their knowledge of the client's progress and provide feedback accordingly.</p>	<p><b>P19, M, 59 y/o, medium-range WAI-S-C score:</b></p> <p><i>"Oh right, OK. Well, to me, I saw it like homework, you've got to get it done otherwise you get into trouble, not that I would have got in trouble, but do you know what I mean, you're sort of motivated that way. And there is the other, the embarrassment of going in and saying 'oh yeah, I didn't do the modules' and then you feel really about that big and you know, someone's trying to help you and you haven't bothered to do your bit kind of thing. So that was a motivation in itself."</i></p>
<p><b>3.5. Guidance, 89% (17)</b></p> <p>The provision of guidance and reassurance on the therapeutic tasks by a therapist. The therapist's intuition, expertise, interpretation and foresight is especially considered as helpful in</p>	<p><b>P10, M, 45 y/o, high-range WAI-SF-C score:</b></p> <p><i>"When you speak to your therapist, obviously she's had a lot of different scenarios with a lot of different people, she's got the experience and the know-how, and then obviously how I'm looking at it thinking the module's really working like this, she</i></p>

addressing salient issues that would not have otherwise been communicated by the client.	then says, "That's really brilliant, but to then add onto that and to support you, how about if you think about that?."
3.6. Expression of feelings 100% (19)	P14, M, 34 y/o, WAI-SF-C score unavailable:
The client's expressed need to speak to another human being, in order to communicate issues that are pertinent to their treatment journey. In order for the client to optimally benefit, clients require the therapist to dedicate a sufficient amount of time for the activity. The amount of time required by each person appears to vary in relation to pre-therapy expectations and symptom severity.	"I think it's nice to have someone to talk to. It's kind of, I think it's important for me to express my feelings like in a private situation. Because sometimes I have, kind of I live with my partner but, you know, some[times], you can't talk to her."

WAI-SF-C: Working Alliance Inventory Short Form-Client.

The majority of participants noted the importance of experiencing the therapeutic activity as complementary across modes of delivery (sub-theme 3.3). Some participants elaborated that an initial step to achieving an effective symbiotic delivery was to provide the client with an understanding of how the therapist and digital delivery contributed towards their treatment both distinctively and collectively.

Our findings also suggested that the ubiquity of c-CBT appeared to positively impact the client-therapist WA, through increased opportunities to reinforce what was learned through the digital platform, with a therapist, and vice-versa, for instance:

*"Well I think it gave you something to do over and above the face-to-face... having the modules to go through, it reinforces what you're talking about face-to-face and makes*

397 *it easier to understand. It's, that repetition thing isn't it where you learn by repetition*  
 398 *basically and that's how I saw it working."*

399 (P17, M, 39 y/o, WAI-SF-C score not available)

400

#### 401 Theme 4: Heuristics

402 The final alliance building theme identified is, 'heuristics', which refers to the process of  
 403 predominantly using technology to promote active engagement, self-discovery and  
 404 autonomous problem solving in b-CBT. This category is a novel component to Bordin's[8,9]  
 405 theory. Features that enable 'heuristics' include ubiquitous digital technologies that; increase  
 406 access and immediacy to the therapeutic task (sub-theme 4.1), appropriately respond to the  
 407 client's input (sub-theme 4.2), are easy to use (sub-theme 4.3) have aesthetic appeal (sub-theme  
 408 4.4) and promotes self-directed therapy (sub-theme 4.5) (see Table 4 for sub-theme  
 409 descriptions, and supporting quotes).

410 While therapist competencies emerged as the most important facilitator for building the  
 411 alliance, almost all participants expressed that blended psychotherapy was superior to face-to-  
 412 face therapy alone. Some participants elaborated that their ability to access the intervention at  
 413 any time or place of convenience (sub-themes 4.1) further bolstered their engagement to  
 414 therapeutic activities (theme 2). Participants who reported a high technological affinity  
 415 suggested that the appearance (sub-theme 4.4) and ease of use (sub-theme 4.3) of the interface  
 416 impacted their perceptions of the digital program's credibility and therefore, their desire to  
 417 engage in treatment activities.

418 Almost all participants reported that the digital program provided them with the tools to initiate  
 419 treatment independently (sub-theme 4.5), with some participants noting that they continued to  
 420 use the digital program as a means of maintaining therapeutic gains once their therapy course

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

421 had ended. Here, autonomous completion of the therapeutic task was described as a secure-  
422 base that allowed clients to progressively explore self-directed therapy:

423 *“it kind of reminds me of Winnicott and the Secure Base in Attachment theory in*  
424 *psychology, that you know, children become securely attached if they have a secure*  
425 *base in terms of the home and the parents that they can come back to, so they can go*  
426 *off and explore the world confidently in the knowledge that they can come back to*  
427 *security, and that, that helps them to develop - and it's kind of like that, I feel, with*  
428 *having that Moodbuster resource [digital program] there, that you can keep coming*  
429 *back to it ... there is a lot in there and you can keep going back and it's a sort of source*  
430 *of strength really”.*

431 (P10, M, 51 y/o, higher-range WAI-SF-C score)

432 Participants suggested that the blended approach prepared the client to engage in autonomous  
433 self-directed therapy, through a process of supervised autonomy.

Table 4: Theme 4, Heuristics, sub-theme descriptions and supporting quotes

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 4: Heuristics, 100% (19)	
4.1. Accessibility, 95% (18)	P10, M, 45 y/o, high-range WAI-SF-C score:
The ability of a client to access the digital intervention at a time and place of convenience.	“Being on your own you know, in your own time and in your own safe place, your blanket, whatever you call it just
Higher accessibility provides opportunities for the client to review and reflect on what has been learned at a deeper level.	allowed me personally just to open up and look at it, and then going from the start of the process to the end, ... thinking positively, looking at your behaviours, looking at adding little things in and then the exercise at the end, rewarding yourself for just achieving things what I felt at the time were trivial made everything different.”

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

#### 4.2. *Interactivity*, 63% (12)

An interactive digital program that is able to react to the clients input, to produce feedback. Interactive activities were perceived as more enjoyable, and promoted a degree of accountability.

#### **P6, M, 22 y/o, high working alliance:**

"One thing immediately comes to mind, it has to be a bit more interactive I think. The client shall we say, as well I feel should be given more feedback, the results, you know when you're scoring yourself on those, what that's about you know, how do they interpret that score, when you're putting your mood in on the smartphone, what's that about you know, who's looking at that, who's interpreting that".

#### 4.3. *Ease of use*, 63% (12)

The ease of use of the digital interface is described as a well-functioning, intuitive, digital interface which enables optimal access to the therapeutic task.

#### **P2, F, 23 y/o, high-range WAI-SF-C score:**

"It was really nice, I thought it was really, well very well presented I would say, and everything was just there, like for easy viewing, so you didn't have to like go through like folders or like go deeper into the website, like it was just there, and you know, I could just easily click on what I needed to do and just follow the instructions set out on the exercises."

#### 4.4. *Aesthetic appeal*, 21% (4)

The appearance or appeal of the digital interface is a factor that clients use to judge the credibility of the digital intervention and which could impact their engagement to the therapeutic task.

#### **P13, M, 24 y/o, medium-range WAI-SF-C score:**

"Yeah, and actually it became quite a bit of work just keeping up with the calendar, sort of, I found it a bit clunky, but then I worked in I.T for sixteen years..."

#### 4.5. *Self-directed*, 79% (15)

The process of taking responsibility for one's own behaviour and well-being, appears to instil clients with a sense of independence and control.

#### **P3, F, 19 y/o, medium-range WAI-SF-C score:**

"Other times it was good kind of to do a time and also independence, kind of learning to do stuff without a therapist there...I quite liked that I could, I don't know for me because it, I suppose it ties back into the independence thing, but because I was doing it on my own I almost proved I could do it on my own...because I feel like sometimes with a therapist you almost become like

dependent on them or, it's like being taught something,  
when you're like dependent on the teacher."

WAI-SF-C: Working Alliance Inventory Short Form – Client.

**DISCUSSION**

**Statement of principal findings**

The results of the study present a preliminary conceptual framework of WA in b-CBT. It can be seen that Bordin's[8,9] 'bond', 'goals' and 'task' appear to be relevant in blended formats of CBT, however the priorities of WA demands have shifted to meet the client needs within a blended format. Moreover, an entirely new category 'heuristics', emerged as a novel means of promoting a new level of WA through a process of self-directed discovery and autonomous problem solving. Participants also explained that different modes of delivery by the therapist (e.g. client-provider bond, responsive support) and the digital program (e.g., upholding goals, task and promoting heuristics) were useful for meeting different WA demands.

**Strengths and limitations of the study**

Based on our search, this study is the first to provide an account of WA in b-CBT, and insights on how different treatment roles within a blended format of therapy, are used to meet different WA demands. This is especially important given that, digital technologies are increasingly being used to treat mental illness,[4] and that WA plays an important role in promoting positive therapeutic change.[11] The design of our study had two key strengths. First, we used the most comprehensive and commonly used theory of the 'alliance' to approach our study.[27] Second, involving patient involvement enabled the project to be grounded on the needs and interests of people who have experienced mental illness and service use, thereby enhancing the application of the findings.[20] There are also several limitations to be noted. First, our sample was limited to 19 individuals with a primary diagnosis of mild-to-moderate depression who largely reported

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).

moderate to high WA, thereby restricting the generalisability of our findings to other clinical presentations. Exposure to only one type of digital program, may have influenced participant's experience of WA. For instance, a computerised platform that doesn't work adequately might generate more data on the importance of 'ease of use', than one that does. Some of these issues were pre-empted ahead of the study. Efforts were made to broaden the reach of the conceptual framework in two ways. First, emerging participant data was guided by key literature on the alliance and patient involvement input. Second, our qualitative data analysis avoided the use of surface level themes, such as specific technological design. Instead, latent thematic analysis was used to unearth underlying psychological processes.[24]

## **Strengths and weaknesses in relation to other studies, discussing important differences in results**

Participants fed back that, while it was essential for therapeutic activities to be complimentary between modes of delivery, they also suggested that modes of delivery can uniquely meet different WA needs. For instance, participant unanimously fed back that the human therapist played an essential role in establishing the 'bond'. The role of the therapist in supporting digital interventions is well documented in the literature.[5] A recent study evaluating the relationship between the client, the human provider and their c-CBT program, found that participants rated their overall treatment approach higher when they experienced c-CBT that was supported by a human provider compared to c-CBT that was unsupported.[6] When attempts were made to unpack the importance of the therapist's role, participants suggested that the therapist's physical presence facilitated the therapist's propensity to convey important features of the bond (sub-themes 1.1-1.3) through verbal and non-verbal communication. This aligns with early psychotherapy research by Karl Rogers[28], who proposed that a therapist's ability to display active listening (empathic understanding, unconditional positive regard, and congruent

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

behaviour) was important for positively changing the impressions of the client’s perceived negative experiences. Neuroscientific research evaluating the impact of active listening, suggested that the participant’s recognition of active listening behaviour in another, can positively change the appraisal of an emotional episode and increased positive impressions of the active-listener.[29] These findings appear to be unique to human-to-human interactions. One study assessing the therapeutic alliance in a digital mental health mobile application for psychosis found that the anthropomorphizing of digital devices was not accepted by clients or mental health clinicians.[30] Given that little gains have been made to effectively deploy emotional artificial intelligence, a tool that is required for the effective biomimicry of human-beings in the digital space,[31] the exclusion or non-effective deployment of a human provider in digital psychological interventions may therefore compromise the quality of WA.

On the other hand, participants reported that while the therapist was essential for the effective delivery of psychotherapy, blended delivery appears to be superior to therapist delivery alone. Almost all participants reported WA benefits, in form of engagement, to digital delivery (i.e. ‘heuristics’), through desired opportunities to engage in self-directed therapy. Our findings are echoed in the digital mental health user-experience and the alliance literature, which indicate that digital psychotherapy can enhance the client’s perceived control, autonomy and feelings of empowerment, when sufficient human support is provided.[30,32] Our findings suggest that digital delivery within a b-CBT format cannot be disentangled from WA. For instance, a digital program that was perceived as non-interactive appeared to cause ruptures in engagement with ‘activity-based task’. Given that digital delivery appears to have a significant impact on engagement with ‘activity-based task’, we argue that the inclusion of features that uphold existing alliance structures should therefore be accounted for in the WA framework. Our findings align with Bordin’s[8,9] conceptualisation of WA, who proposed that the therapeutic tool cannot be disentangled from the means in which the alliance is built. This therefore

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).

507 suggests that the client-program WA can have an impact on the client-therapist WA, and vice-  
508 versa, contrary to research findings that suggest that WA contributions are independent and  
509 additive.[6]

510 The 'task' appears to play a central role in b-CBT, as initially theorised by Bordin[8,9]. Our  
511 findings appear to address Bordin's[9] call to distinguish between the task that is in service of  
512 'building WA' (responsive support) and the tasks in the service of 'change' (activity based-  
513 task). While many of the 'task' sub-themes appear to be novel to Bordin's[8,9] WA, with the  
514 exception of complementary tasks (sub-theme 3.3), all other 'task' sub-themes, are in fact  
515 implicit his broad conceptualisation. The integration of technology in psychotherapy has  
516 prompted a re-evaluation of the demands placed on WA by a blended psychotherapeutic  
517 format. For example, the concept of accountability is implicit and forms one of many  
518 appendages associated with the human therapist's role in building and maintaining WA.  
519 However, this concept has been propelled to the forefront as an essential ingredient for  
520 maintaining the alliance in b-CBT, in line with David Mohr and colleagues' 'supportive  
521 accountability' model for e-health.[33]

522

523 While 'bond', 'task' and 'heuristic' emerged as distinct themes, the 'goals' appears to be  
524 especially interlinked to the 'task'. The data from the qualitative interviews suggest that 'goals'  
525 was grounded in 'goals-setting activities'. This however diverges from Bordin's[8,9]  
526 description of the goals, which appears to move further, to address the therapist's efforts to  
527 unearth the core struggles that have brought the client to psychotherapy, in great detail[9]. One  
528 possible reason for our findings may be explained by the time-lag between the assessment and  
529 the first therapy session, which may have led participants to only focus on their course of b-  
530 CBT and not the proceeding assessment where more in-depth explorations of the client's  
531 struggles and goals generally take place. On the other hand, our study is not the first to question

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

the operational distinctiveness of the ‘goals’ and the ‘task’. The psychometric evaluation of the Working Alliance Inventory, based on Bordin’s[8,9] WA suggested that concepts were highly interrelated,[17] while a more recent psychometric evaluation found that concepts did not emerge as distinct factors.[34]

**Meaning of the study: possible explanations and implications for clinicians and policymakers**

Our findings address, at least in part, three of 10 clinical and research priorities of digital technology in mental health care identified by people with lived experience of mentally illness, carers and health and social care practitioners (See Box 1).[7] WA, a common element of psychotherapy appears to be both relevant and important in b-CBT. Human delivery appears to be central to the maintenance of empathy, gestures and non-verbal cues in which the therapist role in b-CBT may focus on establishing the bond, and developing and maintaining the client’s engagement through responsive support (Q8). Participants noted that both modes of delivery collaboratively contributed to the building of the alliance through distinctive pathways. While human support is perceived as ‘responsive’ and ‘meaningful’, digital delivery appears to promote autonomy and self-directed discovery (e.g. accessibility and self-directed therapy) and plays an important role in maintaining WA across ‘goal’ and ‘task’ activities (e.g. ease of use, interactivity of digital program and aesthetic appeal). Our finding appear to indicate that removing human support, seen as essential for the ‘bond’ and ‘responsive support’, may increase the risk of therapeutic ruptures and disengagement with psychological interventions delivered through a blended format (Q1 and Q3). These findings can be used to promote WA in technological design and clinical practice, thereby promoting engagement to b-CBT interventions, and the effective deployment of therapist and digital support resources.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

**Box 1.** Top ten research priorities for digital technology in mental health care, identified by the Priority Setting Partnerships [7].

Q1. What are the benefits and risks of delivering mental health care through technology instead of face-to-face and what impact does the removal of face-to-face human interaction have?

Q3. How can treatment outcomes be maximised by combining existing treatment options (medication, psychological therapies, etc.) with digital mental health interventions

Q8. Can the common elements of therapy (eg, empathy, gestures, non-verbal cues) that come from person-to-person interactions be maintained with digital technology interventions?

## Unanswered questions and future research

We propose three directions for future research. First, while our findings outline WA demands in b-CBT, it is unknown if fulfilling such demands will lead to positive clinical change. Future research should aim to investigate if self-reported WA as defined by our conceptual framework, predicts therapy outcome. Second, WA should be further explored across different computerised programs and other digital technologies (e.g. virtual experiences, gamification and text-based intervention) intended for use within a blended format, especially in relation to understanding the demands of different digital technologies in shaping 'heuristics'. Third, our findings can be used to inform the design of BIT theories, as a means of enhancing engagement and adherence to the digital components of blended interventions for mental health.

**Word count: 5716**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**References**

1. OECD/EU. Health at a Glance: Europe 2018: State of Health in the EU Cycle [Internet]. Paris: OECD Publishing; 2018. Available from: [https://doi.org/10.1787/health\\_glance\\_eur-2018-en](https://doi.org/10.1787/health_glance_eur-2018-en)[https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018\\_health\\_glance\\_eur-2018-en](https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018_health_glance_eur-2018-en)

2. World Health Organization. Mental health: New understanding, new hope [Internet]. Geneva; 2001. Available from: <https://www.who.int/whr/2001/en/>

3. World Health Organization/Europe. Services and deinstitutionalization [Internet]. World Health Organization; 2019 [cited 2019 Dec 8]. Available from: <http://www.euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/priority-areas/services-and-deinstitutionalization>

4. Fairburn CG, Patel V. The impact of digital technology on psychological treatments and their dissemination. *Behav Res Ther* [Internet]. 2017 Jan 1 [cited 2019 Mar 14];88:19–25. Available from: <https://www.sciencedirect.com/science/article/pii/S0005796716301371>

5. van Ballegooijen W, Cuijpers P, van Straten A, et al. Adherence to Internet-based and face-to-face cognitive behavioural therapy for depression: a meta-analysis. *PLoS One* [Internet]. 2014 Jan 16 [cited 2016 Jan 12];9(7):e100674. Available from: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0100674>

6. Cavanagh K, Herbeck Belnap B, Rothenberger SD, et al. My care manager, my computer therapy and me: The relationship triangle in computerized cognitive behavioural therapy. *Internet Interv* [Internet]. 2018 Mar [cited 2019 Mar 5];11:11–9. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2214782917300258>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

- 592 7. Hollis C, Sampson S, Simons L, et al. Identifying research priorities for digital  
593 technology in mental health care: results of the James Lind Alliance Priority Setting  
594 Partnership. *Lancet Heal Policy* [Internet]. 2018 [cited 2019 Mar 14]; Available from:  
595 [www.thelancet.com/psychiatry](http://www.thelancet.com/psychiatry)
- 596 8. Bordin ES. The generalizability of the psychoanalytic concept of the working alliance.  
597 *Psychother Theory, Res Pract*. 1979;16(3):252–60.
- 598 9. Bordin ES. Theory and research on the therapeutic working alliance: New directions.  
599 In: Horvath AO, Greenberg Leslie S, editors. New York: John Wiley & Sons, INC;  
600 1994. p. 13–37.
- 601 10. Lambert MJ. Psychotherapy outcome research: implications for integrative and  
602 eclectic therapists. In: John C Norcross & Marvin R Goldfried, editor. Handbook of  
603 psychotherapy integration. 1st ed. New York: Basic Books; 1992.
- 604 11. Norcross JC, Lambert MJ. Psychotherapy relationships that work II. Psychother  
605 *Theory Res Pract Train*. 2010;48(1):4–8.
- 606 12. Cameron SK, Rodgers J, Dagnan D. The relationship between the therapeutic alliance  
607 and clinical outcomes in cognitive behaviour therapy for adults with depression: A  
608 meta-analytic review. *Clin Psychol Psychother* [Internet]. 2018 May 1 [cited 2019 Jun  
609 13];25(3):446–56. Available from: <http://doi.wiley.com/10.1002/cpp.2180>
- 610 13. Mohr DC, Schueller SM, Montague E, Burns MN, Rashidi P. The behavioral  
611 intervention technology model: an integrated conceptual and technological framework  
612 for eHealth and mHealth interventions. *J Med Internet Res* [Internet]. 2014 Jun 5 [cited  
613 2018 Dec 21];16(6):e146. Available from: <http://www.jmir.org/2014/6/e146/>
- 614 14. Warraich HJ, Califf RM, Krumholz HM. The digital transformation of medicine can

1  
2  
3 615 revitalize the patient-clinician relationship. *npj Digit Med* [Internet]. 2018 Dec 20  
4  
5 616 [cited 2019 Aug 13];1(1):49. Available from: [http://www.nature.com/articles/s41746-](http://www.nature.com/articles/s41746-018-0060-2)  
6  
7 617 018-0060-2  
8  
9  
10  
11 618 15. Kleiboer A, Smit J, Bosmans J, et al. European COMPARative Effectiveness research  
12  
13 619 on blended Depression treatment versus treatment-as-usual (E-COMPARED): study  
14  
15 620 protocol for a randomized controlled, non-inferiority trial in eight European countries.  
16  
17 621 *Trials* [Internet]. 2016 Aug 3 [cited 2017 Mar 10];17(1):387. Available from:  
18  
19 622 <http://www.ncbi.nlm.nih.gov/pubmed/27488181>  
20  
21  
22  
23 623 16. Corbin J, Strauss A. Basics of Qualitative Research: Techniques and Procedures for  
24  
25 624 Developing Grounded Theory. Fourth. London: SAGE Publications; 2008.  
26  
27  
28 625 17. Horvath AO, Greenberg LS. Development and validation of the Working Alliance  
29  
30 626 Inventory. *J Couns Psychol*. 1989;36:223–33.  
31  
32  
33 627 18. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression  
34  
35 628 severity measure. *J Gen Intern Med*. 2001 Sep;16(9):606–13.  
36  
37  
38 629 19. Beck Institute. What is Cognitive Behavior Therapy | Beck Institute [Internet]. 2016  
39  
40 630 [cited 2019 Jul 16]. Available from: [https://beckinstitute.org/get-informed/what-is-](https://beckinstitute.org/get-informed/what-is-cognitive-therapy/)  
41  
42 631 cognitive-therapy/  
43  
44  
45 632 20. Hayes H, Buckland S, Tarpey M. Briefing notes for researchers: Public Involvement in  
46  
47 633 NHS, public health and social care research [Internet]. 2012. 1–52 p. Available from:  
48  
49 634 [http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+](http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+researchers:+public+involvement+in+NHS,+public+health+and+social+care+research#2)  
50  
51 635 researchers:+public+involvement+in+NHS,+public+health+and+social+care+research  
52  
53 636 #2  
54  
55  
56  
57  
58 637 21. Krueger RA. Focus groups : a practical guide for applied research. Second. London:  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

- 638 Sage; 1994.
- 639 22. Staniszewska S, Brett J, Simera I, et al. GRIPP2 reporting checklists: tools to improve  
640 reporting of patient and public involvement in research. *BMJ* [Internet]. 2017 Aug 2  
641 [cited 2019 May 24];358:j3453. Available from:  
642 <http://www.ncbi.nlm.nih.gov/pubmed/28768629>
- 643 23. Green J, Thorogood N. Qualitative methods for health research. Third edit. London;  
644 2014.
- 645 24. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*  
646 [Internet]. 2006 Jan [cited 2017 Jan 23];3(2):77–101. Available from:  
647 <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>
- 648 25. Llewelyn S, Macdonald J, Aafjes-van Doorn K. Process–outcome studies. In: APA  
649 handbook of clinical psychology: Theory and research (Vol 2) [Internet]. Washington:  
650 American Psychological Association; 2016 [cited 2019 Jul 23]. p. 451–63. Available  
651 from: <http://content.apa.org/books/14773-020>
- 652 26. O’Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting  
653 Qualitative Research. *Acad Med* [Internet]. 2014 Sep [cited 2019 Dec 9];89(9):1245–  
654 51. Available from:  
655 [http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=000018](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)  
656 [88-201409000-00021](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)
- 657 27. Cahill J, Barkham M, Hardy G, et al. A review and critical appraisal of measures of  
658 therapist-patient interactions in mental health settings. *Health Technol Assess* (Rockv).  
659 2008;12(24).
- 660 28. Rogers CR. The necessary and sufficient conditions of therapeutic personality change.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

661 J Consult Psychol [Internet]. 1957 [cited 2019 Apr 1];21(2):95–103. Available from:  
662 <http://doi.apa.org/getdoi.cfm?doi=10.1037/h0045357>

663 29. Kawamichi H, Yoshihara K, Sasaki AT, et al. Perceiving active listening activates the  
664 reward system and improves the impression of relevant experiences. *Soc Neurosci*  
665 [Internet]. 2015 [cited 2019 Apr 1];10(1):16–26. Available from:  
666 <http://www.ncbi.nlm.nih.gov/pubmed/25188354>

667 30. Berry K, Salter A, Morris R, et al. Assessing Therapeutic Alliance in the Context of  
668 mHealth Interventions for Mental Health Problems: Development of the Mobile  
669 Agnew Relationship Measure (mARM) Questionnaire. *J Med Internet Res* [Internet].  
670 2018 Apr 19 [cited 2019 Jun 13];20(4):e90. Available from:  
671 <http://www.jmir.org/2018/4/e90/>

672 31. Schuller D, Schuller BW. The Age of Artificial Emotional Intelligence. *Computer*  
673 [Internet]. 2018 Sep [cited 2019 Jun 21];51(9):38–46. Available from:  
674 <https://ieeexplore.ieee.org/document/8481266/>

675 32. Knowles SE, Toms G, Sanders C, et al. Qualitative meta-synthesis of user experience  
676 of computerised therapy for depression and anxiety. *PLoS One*. 2014;9(1).

677 33. Mohr DC, Cuijpers P, Lehman K. Supportive accountability: A model for providing  
678 human support to enhance adherence to eHealth interventions. *J Med Internet Res*.  
679 2011;13(1).

680 34. Hatcher RL, Barends AW. Patients’ view of the alliance of psychotherapy: exploratory  
681 factor analysis of three alliance measures. *J Consult Clin Psychol* [Internet]. 1996 Dec  
682 [cited 2017 Nov 17];64(6):1326–36. Available from:  
683 <http://www.ncbi.nlm.nih.gov/pubmed/8991319>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

## FOOTNOTES

### Author contribution

Asmae Doukani (AD) developed the concept of the work. Patient involvement. shaped the focus of the research. AD led all aspects of patient involvement. Arlinda-Cerga Pashoja (ACP) and Shumaila Usmani assisted with the SUI focus groups. The design and analysis of the SUI focus groups was contributed to by Sarah Smith (SS), Jesus Montero-Marin (JMM), and Caroline free (CF) and Ricardo Araya (AR). AD, CF, SS significantly contributed to the design of the qualitative participant interview and Nicki Thorogood provided guidance in respect to the methodology. AD led all aspects of data collection, analysis and interpretation. CF and Daniel Michaelson (DM) analysed a portion of the data independently. The iterative development of the conceptual framework was overseen by DM and Ritsuko Kakuma (RK), and contributed to by CF, RA, SS and ACP. AD prepared all iterations of the manuscript, with significant contributions from RK, CF, DM, RA, JMM, ACP and SS.

**Acknowledgements:** The authors would like to thank the E-compared trial for supporting the study, the eleven patient advisors whose input shaped the methodology of the project, including Abé Chekh-Dove El-Ghassani, Michael Clarke, Paul H Ware, Dr Sarah Markham and Tibby Stodel. We would also like to express gratitude to Dr Nicki Thorogood who provided guidance on the participant qualitative interviews methodology and to Shumaila Usmani who helped facilitate and transcribe the patient involvement focus group interviews.

**Funding:** This work was supported by the E-compared trial, which was funded by the European Commission, gran agreement number 603098.

**Conflict of interest:** All authors have completed the ICMJE uniform disclosure form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

709 in the submitted work in the previous three years; no other relationships or activities that could  
710 appear to have influenced the submitted work.

711 **Ethical approval:** The project was approved by the Health Research Authority’s Ethics  
712 Committee on 17th April 2015 (REC reference: 15/LO/0511) and the London School of  
713 Hygiene and Tropical Medicine Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref:  
714 9409).

715 **Transparency declaration:** The lead author (AD) affirms that this manuscript is an honest,  
716 accurate, and transparent account of the study being reported; that no important aspects of the  
717 study have been omitted; and that any discrepancies from the study as planned (and, if relevant,  
718 registered) have been explained.

719 **Data sharing statement:** Data available upon reasonable request.

---

<sup>i</sup> The use of the ‘alliance’ as a singular, broadly refers to the client-therapist alliance, and not to a specific variation (e.g. therapeutic alliance, working alliance, helping alliance etc.,) which while at times used interchangeably, have distinct theoretical underpinnings.

<sup>ii</sup> A participant who was allocated to the treatment as usual group was erroneously put forward as a suitable b-CBT candidate. This case was discovered during the interview, and corroborated with the E-compared trial manager after the interview. Data for this participant was not analysed.

<sup>iii</sup> The aim of the study was to explore the relevance of the working alliance and to adapt the theory for the context of a b-CBT intervention. During the data analysis phase, it was decided that emerging data that fitted with Bordin’s[8,9] conceptualisation, would be labelled according to existing categories (bond, goal, task). However, while the labels broadly fit with Bordin’s[8,9] key categories, these labels are specific to b-CBT WA demands.

<sup>iv</sup> WAI-SF-C scores are unavailable for participants who did not complete their online 3 month follow-up assessments on the E-Compared Trial.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

For peer review only

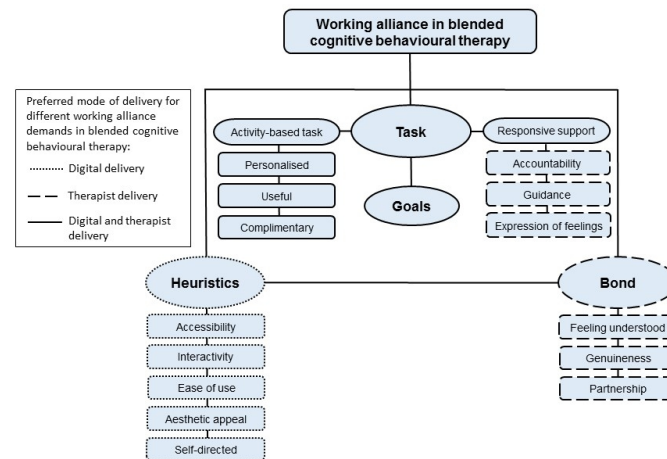


Fig 1. Participant reported working alliance demands in a blended cognitive behavioural therapy intervention.

Fig 1. Participant reported working alliance demands in a blended cognitive behavioural therapy intervention.

108x60mm (300 x 300 DPI)

## COREQ (Consolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
<b>Domain 1: Research team and reflexivity</b>			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
<b>Domain 2: Study design</b>			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the interview or focus group?	
Duration	21	What was the duration of the interviews or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
<b>Domain 3: analysis and findings</b>			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.



1	Purpose or research	<a href="#">#4</a>	Purpose of the study and specific objectives or	6-7
2	question		questions	
3				
4	<b>Methods</b>			
5				
6				
7	Qualitative approach and	<a href="#">#5</a>	Qualitative approach (e.g. ethnography, grounded	8-15
8	research paradigm		theory, case study, phenomenology, narrative	
9			research) and guiding theory if appropriate; identifying	
10			the research paradigm (e.g. postpositivist,	
11			constructivist / interpretivist) is also recommended;	
12			rationale. The rationale should briefly discuss the	
13			justification for choosing that theory, approach,	
14			method or technique rather than other options	
15			available; the assumptions and limitations implicit in	
16			those choices and how those choices influence study	
17			conclusions and transferability. As appropriate the	
18			rationale for several items might be discussed	
19			together.	
20				
21				
22				
23				
24				
25				
26				
27	Researcher	<a href="#">#6</a>	Researchers' characteristics that may influence the	12
28	characteristics and		research, including personal attributes, qualifications /	
29	reflexivity		experience, relationship with participants,	
30			assumptions and / or presuppositions; potential or	
31			actual interaction between researchers'	
32			characteristics and the research questions, approach,	
33			methods, results and / or transferability	
34				
35				
36				
37				
38	Context	<a href="#">#7</a>	Setting / site and salient contextual factors; rationale	12-13
39				
40				
41	Sampling strategy	<a href="#">#8</a>	How and why research participants, documents, or	8
42			events were selected; criteria for deciding when no	
43			further sampling was necessary (e.g. sampling	
44			saturation); rationale	
45				
46				
47				
48	Ethical issues pertaining	<a href="#">#9</a>	Documentation of approval by an appropriate ethics	9
49	to human subjects		review board and participant consent, or explanation	
50			for lack thereof; other confidentiality and data security	
51			issues	
52				
53				
54	Data collection methods	<a href="#">#10</a>	Types of data collected; details of data collection	12-13
55			procedures including (as appropriate) start and stop	
56			dates of data collection and analysis, iterative	
57				
58				
59				
60				

process, triangulation of sources / methods, and modification of procedures in response to evolving study findings; rationale

Data collection instruments and technologies	<a href="#">#11</a>	Description of instruments (e.g. interview guides, questionnaires) and devices (e.g. audio recorders) used for data collection; if / how the instruments(s) changed over the course of the study	8-7, 12-13
Units of study	<a href="#">#12</a>	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	15
Data processing	<a href="#">#13</a>	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymisation / deidentification of excerpts	13-15
Data analysis	<a href="#">#14</a>	Process by which inferences, themes, etc. were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale	12-15
Techniques to enhance trustworthiness	<a href="#">#15</a>	Techniques to enhance trustworthiness and credibility of data analysis (e.g. member checking, audit trail, triangulation); rationale	9-12, 14-15
<b>Results/findings</b>			
Syntheses and interpretation	<a href="#">#16</a>	Main findings (e.g. interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	15-25
Links to empirical data	<a href="#">#17</a>	Evidence (e.g. quotes, field notes, text excerpts, photographs) to substantiate analytic findings	15-25
<b>Discussion</b>			
Intergration with prior work, implications, transferability and contribution(s) to the field	<a href="#">#18</a>	Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application /	26-31

generalizability; identification of unique contributions(s) to scholarship in a discipline or field

Limitations	<a href="#">#19</a>	Trustworthiness and limitations of findings	26-31
<b>Other</b>			
Conflicts of interest	<a href="#">#20</a>	Potential sources of influence of perceived influence on study conduct and conclusions; how these were managed	38
Funding	<a href="#">#21</a>	Sources of funding and other support; role of funders in data collection, interpretation and reporting	39

Notes:

- 15: 7-10, 12-13 The SRQR checklist is distributed with permission of Wolters Kluwer © 2014 by the Association of American Medical Colleges. This checklist was completed on 09. December 2019 using <https://www.goodreports.org/>, a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)

# BMJ Open

## Toward a conceptual framework of the working alliance in a blended low-intensity cognitive behavioural therapy intervention for depression in primary mental health care: A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2019-036299.R1
Article Type:	Original research
Date Submitted by the Author:	28-Apr-2020
Complete List of Authors:	Doukani, Asmae; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Free, Caroline; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Michelson, Daniel ; University of Sussex, School of Psychology Araya, Ricardo; King's College London, Health Service and Population Research Department Montero-Marin, J; Dharamsala Institute of Mindfulness and Psychotherapy Smith, Sarah; London School of Hygiene & Tropical Medicine, Health Services Research and Policy Cerga-Pashoja, Arlinda; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Kakuma, Ritsuko ; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health
<b>Primary Subject Heading</b>:	Mental health
Secondary Subject Heading:	Health services research
Keywords:	Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, MENTAL HEALTH, Depression & mood disorders < PSYCHIATRY

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



*I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).*

*The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.*

*Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.*

1 Toward a conceptual framework of the working alliance in a blended low-intensity cognitive  
2 behavioural therapy intervention for depression in primary mental health care: A qualitative  
3 study

### 4 5 **Corresponding author**

6 Asmae Doukani, Research Fellow

7 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
8 Medicine, Keppel Street, London, WC1E 7HT, United Kingdom.

9 Email: [Asmae.Doukani@lshtm.ac.uk](mailto:Asmae.Doukani@lshtm.ac.uk)

10 Telephone: +44(0)207 927 2462

### 11 12 **Co-authors**

13 Caroline Free, Professor in Primary Care and Epidemiology

14 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
15 Medicine Keppel Street, London, United Kingdom (Caroline.Free@lshtm.ac.uk)

16  
17 Daniel Michelson, Senior Lecturer in Clinical Psychology

18 School of Psychology, University of Sussex, Pevensey Building, Falmer, Brighton, United  
19 Kingdom. (D.Michelson@sussex.ac.uk)

20  
21 Ricardo Araya, Professor in Global Mental Health

22 Health Service and Population Research Department, King's College London, De Crespigny  
23 Park, London, SE5 8AF, United Kingdom. (Ricardo.Araya@lshtm.ac.uk)

25 Jesus Montero-Marin, Senior Postdoc Researcher

26 Department of Psychiatry, University of Oxford, Warneford Hospital, OX3 7JX Oxford,  
27 United Kingdom (jesus.monteromarin@psych.ox.ac.uk)

29 Sarah Smith, Associate Professor in Psychology

30 Department of Health Services Research and Policy, London School of Hygiene and Tropical  
31 Medicine, Keppel Street, London, United Kingdom. ([Sarah.Smith@lshtm.ac.uk](mailto:Sarah.Smith@lshtm.ac.uk))

33 Arlinda Cerga Pashoja, Research Fellow

34 Faculty of Epidemiology and Population Health London School of Hygiene and Tropical  
35 Medicine, Keppel Street, London, United Kingdom. (Arlinda.Cerga-Pashoja@lshtm.ac.uk)

37 Ritsuko Kakuma, Associate Professor

38 Faculty of Epidemiology and Population Health London School of Hygiene and Tropical  
39 Medicine, Keppel Street, London, United Kingdom. ([Ritsuko.Kakuma@lshtm.ac.uk](mailto:Ritsuko.Kakuma@lshtm.ac.uk))

41 Word count: 6119

## Abstract

**Objectives:** To examine and adapt a conceptual framework of the working alliance (WA) in the context of a low-intensity blended (psychological wellbeing practitioner (PWP) plus computerised program) cognitive behavioural therapy intervention (b-CBT) for depression.

**Design:** Patient involvement was enlisted to collaboratively shape the design of the project from the onset, before data collection. In-depth semi-structured interviews were carried out with participants who experienced b-CBT as part of the E-compared trial. A thematic analysis was conducted using a constant comparative method informed by grounded theory.

**Setting:** Recruitment was carried out in four psychological primary care services across the UK.

**Participants:** Nineteen trial participants with Major Depressive Disorder who completed at least one computerised programme and face-to-face session with a PWP in the b-CBT arm, were recruited to the study.

**Results:** Qualitative interviews that were guided by WA and patient involvement, revealed four themes: (1) A healthcare provider (PWP and programme) with good interpersonal competencies for building a working relationship with the client ('Bond'); (2) collaborative efforts between the client and the provider to appropriately identify what the client hopes to achieve through therapy ('Goals'); (3) the selection of acceptable therapeutic activities that address client goals and the availability of responsive support ('Task'); and (4) the promotion of active engagement and autonomous problem solving ('Usability heuristics'). Participants described how the PWP and the computerised-program uniquely and collectively contributed to different WA needs.

**Conclusions:** This study was the first to offer a preliminary conceptual framework of WA in b-CBT for depression, and how such demands can be addressed through blended PWP-program

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

66 delivery. These findings can be used to promote WA in technological design and clinical  
67 practice, thereby promoting engagement to b-CBT interventions, and the effective deployment  
68 of practitioner and program resources.  
  
69 **Trial registration:** E-Compared Trial, ISRCTN registry, ISRCTN12388725. Registered on 20  
70 March 2015.  
  
71 **Keywords:** Working alliance, blended psychological interventions, cognitive behavioural  
72 therapy and patient and public involvement.  
73

74

## Article summary

### Strengths and limitations of the study

- Patient involvement enabled the project aims to be grounded on the needs and interests of people who have experienced mental illness and service-use, in order to enhance the application of the findings.
- Bordin's working alliance (WA) theory was adopted to explore within b-CBT due to the theory's comprehensive description, its' pan-theoretical nature, and its' openness to adaptation in relation to different therapeutic formats.
- The studies' sample is limited to 19 individuals with a primary diagnosis of mild-to-moderate depression, mostly reporting moderate to high WA and were largely male, British white and university educated individuals, thereby restricting the generalisability of our findings.
- Exposure to only one type of digital program, may have influenced participant's experience of WA (e.g. a computerised platform that doesn't work adequately might generate more data on the importance of 'ease of use', than one that does), limiting the breadth of data collected on the working alliance.
- Efforts were made to strengthen the conceptual framework through interview topic guides which were guided by Bordin's WA theory, patient involvement input, and a data analysis approach which avoided surface level themes, specific to technological design.

75

76

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

77

78     **INTRODUCTION**

79     Mental health conditions impact one in six people in the European Union, resulting in an  
80     estimated economic burden of over €600 billion.[1] The treatment gap in the region remains  
81     high with 35-50% of people experiencing mental health concerns not accessing treatment.[1]  
82     The wide disparity between mental health care needs and access to services has prompted calls  
83     for the strategic deployment of technology to facilitate and expand access to mental health  
84     services at a lower cost.[2,3] In the past decade, an increasing number of studies have  
85     investigated the efficacy of computerised cognitive behavioural therapy (c-CBT), a type of  
86     digital intervention that delivers CBT via interactive presentation features.[4] The  
87     implementation of c-CBT is generally either unguided (led by a computerised program with no  
88     external support), guided (led by a computerised programme and typically supported by a non-  
89     specialist facilitator) or blended (led by a therapist, incorporating a c-CBT programme, or led  
90     by a c-CBT program and supported by a therapist), with the latter approach offering the highest  
91     level of therapist support[4,5]  
92     The evidence for c-CBT has demonstrated equal benefits to face-to-face CBT for a range of  
93     mental health conditions.[4] However, these findings largely hold true when digital  
94     psychotherapies are guided by a human facilitator. Higher support from a therapist or another  
95     human facilitator appears to be related with better adherence and clinical outcomes.[6] The  
96     effects of human support on engagement with c-CBT raises important questions about  
97     mechanisms that support positive change in c-CBT. This has led scholars to consider the  
98     applicability of established mechanisms of change derived from conventional psychotherapies,  
99     to ‘blended’ formats. Particular interest has centred on the construct of the client-therapist  
100     alliance<sup>i</sup> (therapeutic, working etc.).[7,8] While the concept of the alliance has taken root in a

number of therapy approaches, Edward Bordin[9] drew on their commonalities to formulate a pan-theoretical theory called the working alliance (WA) originally defined as:

*“a formation between the client seeking change and the therapist offering to act as a change agent that incorporated a mutual understanding and agreement about change goals and the necessary tasks to move forward these goals along with the establishment of bonds to maintain the partners’ work”.*[9,10] (pg. 13)

Here, the ‘task’ refers to an agreed-upon contract that specifies the activities used to work on the client’s goals. ‘Goals’ entails the exploration and review of what the client wants to achieve in therapy, while the ‘bond’ relates to the perceived compatibility between the client and the therapist, and the partnership that stems from shared activities.[9,10] Central to Bordin’s[9,10] conceptualisation, is the collaboration and consensus between the therapist and the client, in order to promote meaningful engagement with the intervention.

The alliance has consistently been found to predict positive therapeutic outcomes. A keystone meta-analytic review found that the therapeutic alliance accounted for more variance (30%) than the therapeutic technique (15%) and therapy expectancy (15%).[11] This alliance-outcome relationship finding, was mirrored in recent meta-analyses, one of 191 varied therapeutic studies ( $r = .28$  [95% CI: .25 to .30]),[12] and another focusing on CBT interventions for depression ( $r = .26$  [95% CI: .19 to .32]).[13]

A growing body of literature on the alliance in internet-based psychological interventions indicate that the quality of the alliance in guided psychotherapy programs and b-CBT may be equal to or better than traditional formats of face-to-face therapy.[14–16] There is also evidence to suggest that the client reported alliance in guided c-CBT is directly associated with treatment outcome.[17,18] However, c-CBT may place different demands on the alliance. A narrative review evaluating WA in supported c-CBT interventions found that while significant

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12

125 associations were found between the task and goals sub-scales of WA, and treatment outcome,  
126 none were found for the bond subscale.[18] Qualitative research on the alliance in unguided  
127 mental health interventions also indicates that cCBT may offer additional alliance benefits such  
128 as higher control and autonomy.[19,20]

13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

129 Taken together, these findings underscore the importance of developing a guiding framework  
130 for understanding the nature of WA in b-CBT, amidst a gradual movement towards shared  
131 mental health care delivery between human practitioners and digital technology.[21] Our study  
132 therefore aims to examine the WA demands through patient involvement and participant  
133 qualitative interviews, to adapt Bordin’s[9,10] conceptualisation of WA for a b-CBT  
134 intervention for depression.[22]

29  
30  
31  
32  
33  
34

135  
136 **METHOD**

35  
36  
37  
38  
39  
40  
41  
42  
43

137 **Patient and public involvement**

44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

138 Patient advisors were enlisted at a pre-research data collection stage to collaboratively examine  
139 WA in a digital CBT program without human support. Patient advisors were not involved in  
140 the recruitment of participants or of conducting the study. Patient involvement included eleven  
141 advisors with experience of mental health service use, predominantly for mild-moderate  
142 depression ( $n=7$ ), but also for anxiety ( $n=1$ ) and severe mental health conditions ( $n=3$ )<sup>ii</sup>.  
143 Advisors attended two meetings in the summer of 2015. The first meeting consisted of a  
144 comprehensive pre-involvement preparation briefing, to provide advisors with the knowledge  
145 and skills that would enable optimal conditions to aid their role.[23] Advisors were also  
146 provided with access to a computerised CBT for depression program called Moodbuster  
147 (program used on the E-Compared trial),[24] which they were encouraged to test and review  
148 in their own time, to provide context for discussion.[23] Advisors voluntarily tested all  
149 components of the Moodbuster intervention between meetings. In the second meeting, advisors

were split into three small focus group discussion interviews, to facilitate the sharing of personal experiences and enable a higher level of opportunities to participate.[25] Discussions attempted to address three pre-patient involvement objectives, including: (i) is WA, as defined by Bordin[9,10] relevant in the context of a digital program intervention? (ii) What are the intrinsic WA demands between the client and digital provider? and (iii) Can digital delivery offer new ways of building WA, above and beyond Bordin's[9,10] bond, goals and task? The three focus group discussions were audio-recorded using an Olympus digital voice recorder WS-852, transcribed, and analysed to identify thematic patterns and themes. Patient involvement contribution was reported in line with version 2 of the Guidance for Reporting Involvement of Patients and the Public Short Form (GRIPP2-SF).[26] Patient advisors were thanked for their contribution after their involvement and also in the acknowledgements of this paper. The results of the study will be disseminated via a lay summary of the research, which will be supplemented with a peer-reviewed publication.

Patient involvement was instrumental in shaping the focus of the study and in guiding participant interviews in three different ways: First, patient involvement input suggested that Bordin's[9,10] WA as a function of enhancing engagement, was both relevant and important in the context of a digital psychological intervention. Second, the focus of the planned participant interviews changed from exploring WA within a computerised CBT (c-CBT) intervention only, to exploring the shared therapist-program format of CBT, as advisors unanimously suggested that some WA needs (especially bond and elements of support) could not be satisfied without human facilitation. Third, we set out to extend Bordin's[9,10] WA theory as patient involvement suggested that the c-CBT program could lead to additional alliance building and maintenance features.

**Design**

A qualitative methodology design was used to gain an in-depth understanding of WA with participants who experienced b-CBT on the E-compared trial.[24] E-compared is a non-inferiority, pragmatic trial that evaluated the cost effectiveness of b-CBT for depression, when compared to usual care, across eight countries in the European region. [24] Potential participants from the UK were referred from primary care services by clinical staff, if they scored 4 points or higher on the Patient Health Questionnaire-9,[27] and if they were interested in receiving b-CBT for depression. The b-CBT intervention consisted of 11 blended low-intensity CBT sessions, six with a low-intensity psychological wellbeing practitioner (PWP<sup>iii</sup>) (average duration of 30 minutes) and a least five at home via a synchronised computerised platform and mobile-application called Moodbuster. The treatment course spanned across 11 weeks. There were four mandatory core modules of CBT on the digital platform (psychological education, behavioural activation, cognitive restructuring, and relapse prevention) and two optional modules (physical exercise and problem solving) that were completed autonomously at home. The low-intensity PWP in the clinic encouraged participants to use the computerised programme in different ways. The PWP could introduce modules, review if the client had completed modules, or guide the client on the use of specific modules). Clinic and face-to-face sessions were alternated, however there was flexibility in the sequence of the delivery mode and the order in which the modules were completed, including opportunities for the PWP to use bespoke tasks. Additional information about the trial and the b-CBT intervention can be accessed from the trial protocol by Kleiboer and colleagues.[24]

**Participants**

E-Compared participants from the UK were invited to take part in qualitative interviews. Trial participants aged 18 years or older with a clinical diagnosis of Major Depressive Disorder (MDD), were enrolled in the study.[24] People with substance abuse, suicidal tendencies, other

severe psychiatric disorders, cognitive disability or people who had insufficient knowledge of English were excluded. Psychiatric diagnoses were confirmed by the MINI International Neuropsychiatric Interview (M.I.N.I.) version 5.0.[28] E-Compared trial[24] participants who: (a) provided written consent to the qualitative interviews when they enrolled on the trial (n=101); (b) were randomised to the b-CBT arm (n=49); and (c) had completed at least one computerised module and face-to-face session (n=42) were purposively sampled to be representative of the b-CBT arm, in relation to their sex, age, and recruitment site.[29] Altogether, 26 out of 42 people were invited to take part in the qualitative study, with 19 consenting to participate. Reasons for non-consent included scheduling conflicts (n=2) non-response to invitation (n=4), and change in eligibility status due to erroneous information about arm allocation (n=1<sup>iv</sup>).

## Procedure

E-compared participants were invited to take part in face-to-face individual semi-structured qualitative interviews, at least 2 weeks after they completed their course of therapy on the trial. This was to provide participants with enough time to reflect on their experience of the b-CBT intervention. Potential participants were invited to take part in interviews about their experience of b-CBT, and were emailed a patient information sheet following their initial correspondence with the research team. Participants were provided with at least 48 hours to read and consolidate the information, before they were followed up and booked in for a qualitative interview at an acceptable time and place. Written consent for their participation, as well as audio recording of the interview, was sought again prior to starting their interviews and were reminded of their right to withdraw at any time and without giving a reason. Data collection took place until saturation was reached.[29] The study adopted Corbin and Strauss's definition of saturation, which is described as the point where further data collection becomes 'counter-productive', and where 'new' themes do not add anything to the overall narrative of the story.[29] Saturation

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

225 was monitored through writing memos after each interview, in which information on both key  
226 and novel emerging themes from the interview were recorded.[29]  
227 The project was approved by the Health Research Authority’s Ethics Committee on 17th April  
228 2015 (REC reference: 15/LO/0511) and the London School of Hygiene and Tropical Medicine  
229 Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref: 9409).

230 **Measures**

231 Self-reported WA and symptoms of depression, collected on the E-Compared trial[24] were  
232 reported to further describe participant characteristics (in addition to sociodemographic data)  
233 and to provide insights on WA and the level of depression experienced by the participants on  
234 the study. Self-reported WA was assessed through the Working Alliance Inventory Short Form  
235 – Client (WAI-SF-C).[30] Scores for the 12 items on WAI-SF-C range between 12- 60. Scores  
236 were divided into 3 groups to produce a low-range (12-28), medium-range (29-44), and high-  
237 range (45-60) to indicate the level of WA reported by each participant. Higher scores indicate  
238 better WA. Self-reported depression was assessed through the Patient Health Questionnaire-9  
239 (PHQ-9).[27] Scores for the 9 items on the PHQ-9 range between 0-27. Higher scores indicate  
240 more severe symptoms. Data was collected during the trial’s three months follow-up  
241 assessments.[24]

242 **Guiding framework**

243 Our study adopted Edward Bordin’s[9,10] theory of WA to explore in the context of b-CBT  
244 for three reasons. The first relates to the generalisable nature of the theory. While the concept  
245 of the alliance stemmed from psychodynamic theory in 1912, it has since been incorporated in  
246 various therapeutic approaches, leading to heterogeneity in the way the concept is defined.[12]  
247 In 1979, Bordin[9,10] attempted to unify the way the alliance is defined, by proposing a pan-  
248 theoretical conceptualisation[9] that drew on the key features of all therapeutic approaches.[12]

Second, Bordin's[9,10] theory is operationalised as task focused,[12] and therefore offers a suitable fit for task-orientated psychological approaches such as CBT.[31] Third, the theory is open to adaptation. Bordin[9,10] suggested that while a pan-theoretical approach allowed the basic measurement of the bond, goals and task to produce beneficial therapeutic change, he also suggested that the ideal alliance *profile* is likely to be different across therapeutic approaches and interventions.[9,10,12]

### Data collection

Data collection took place between October 2016 and July 2017 across four primary care mental health services in the UK. Qualitative interviews were adopted to enable a detailed examination of the participant's personal experiences and perspectives of WA within the context of their experience of receiving b-CBT. The study predominately included a deductive approach to exploring WA in b-CBT based on Bordin's[9,10] theoretical framework, while remaining open to novel or unexpected inductive new findings. On average, participant interviews lasted around 47 minutes. Interviews were conducted in a confidential setting within a university campus or the health service which the participant was recruited from. All interviews were audio-recorded using an Olympus digital voice recorder WS-852 and transcribed to produce orthographic verbal verbatim. AD (female) conducted the qualitative interviews, was a PhD Candidate with experience of conducting and analysing qualitative data. Semi-structured interviews with a conversational technique were used to achieve a balance between the need for consistency of questioning across participants, and the ability to explore topics that are important to the participant. During interviews there was also scope to allow topics covered to evolve iteratively based on the emerging data.[29,32] The development of an interview topic guide was supported by patient involvement input and guided by the WA theory[9,10]. The initial topic guide was used to suggest topics of discussion, and not as a

1  
2  
3 274 definitive framework to limit conversations. As the data collection progressed, the topic guides  
4  
5 275 evolved iteratively based on emerging themes. Subsequent interviews were therefore  
6  
7 276 influenced by interviews that previously took place, providing opportunities to validate and  
8  
9  
10 277 refute interpretations.[29]  
11

12  
13 278  
14

15  
16 279 **Data analysis**  
17

18  
19 280 A preliminary data analysis took place alongside early interviews, allowing subsequent  
20  
21 281 interviews to progress iteratively.[29] Memos were written after each interview, to aid the  
22  
23 282 preliminary analysis and iterative adaptation of the topic guide and to propose possible  
24  
25 283 relationships between codes. Thematic analysis was adopted due to the theoretical flexibility,  
26  
27 284 as well as the ‘thick descriptions’ afforded by the approach.[33] The data analysis incorporated  
28  
29 285 a constant comparative method from grounded theory, to enable the analyst to search for new  
30  
31 286 theoretical models that are grounded in empirical data, and to enhance the trustworthiness of  
32  
33 287 data.[29]  
34  
35  
36

37  
38 288 The lead analyst (AD) commenced the data analysis by reading through the transcripts, while  
39  
40 289 listening to the audio recording and reading the corresponding memos. The analyst then  
41  
42 290 actively re-read the data, searching for meaning, and noted down initial concepts. Data was  
43  
44 291 coded line-by-line. Codes were generated by searching for interesting features across the entire  
45  
46 292 dataset and collating data relevant to each code segments. The emerging codes were clustered  
47  
48 293 into categories and labelled thematically. Once the data was initially coded and collated, the  
49  
50 294 analyst commenced searching for themes that were compatible with Bordin’s[9,10] WA theory  
51  
52 295 and patient involvement input, while also searching for novel alliance concepts. Themes were  
53  
54 296 located at a latent level, to delve beyond the semantic content of the data, to identify and  
55  
56 297 examine underlying ideas, assumptions, conceptualisation and ideologies that theorise  
57  
58  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

semantic content of the data.[33] The initial codes were gradually merged into broader categories through comparison across transcripts, to identify overarching themes. The themes were then reviewed to ensure that the codes cohere together meaningfully, while maintaining a clear and identifiable distinction with no overlap between the themes. Finally, the themes were reviewed to consider their relationship to the overall thematic map. Once a thematic ‘map’ was identified, the findings were developed into a conceptual framework of WA in b-CBT.[33]

Two other members of the research team (CF and DM), who are highly familiar with qualitative methodologies and Bordin’s[9,10] WA theory, read through 20% of all transcripts and reviewed all supporting quotes across all phases of the analysis, so that close to half of the transcripts were reviewed. Discrepancies were discussed and reconciled. The final framework was discussed and revised over eight meetings. The entire coding process was performed using the NVivo 11 data analysis software package. Supporting quotes were anonymised to ensure that that participants and their PWP could not be identified.

To ensure the final conceptual framework accurately reflected WA, a ‘therapeutic process’, was not confounded with early manifestations of ‘treatment outcomes’ we defined “therapeutic processes” relevant to WA, and the ‘treatment outcomes’ associated with CBT.[30] ‘Therapeutic processes’ was defined as “*actions, experiences, and relatedness of the client and the therapist in therapy sessions...*”. [34] We a-priori extended the use of the term ‘therapy session’ to include face-to-face and digital delivery in the context of blended therapy. Horvath and colleagues[30] noted three ways of defining the outcome in psychotherapy including: (a) the core value attributed to the outcome by the client, (b) the importance of the outcome in the theoretical framework of the therapist, and (c) the utility of the outcome (e.g. the technique) to promote other outcomes that are valued. We defined outcome in relation to definitions b and c to enable a standardised definition that does not vary from client-to-client (i.e., definition a). We a-priori define the outcomes of CBT as the alleviation of distress (b) through helping the

client to develop more adaptive cognitions and behaviours (c).[31] The final conceptual framework was reviewed in light of the aforementioned definitions by members of the research team. Themes and sub-themes that were judged to correspond with the definition of ‘treatment outcome’ were removed. We used the SRQR checklist when writing our report.[35]

RESULTS

Description of sample

An exploration of WA in b-CBT was undertaken through 19 qualitative interviews with participants who experienced b-CBT in the treatment arm of the E-Compared trial[24]. Participants were aged between 19-67 years (Mean=34.47 years, SD=14.44 years), largely male (n=13), white British or white other (n=12), and university educated (n=12). All interviews were conducted face-to-face apart from one, which was completed by phone. Saturation appeared to be reached by the 16<sup>th</sup> interview. Another three interviews were carried out to ensure that the selected saturation cut-off point had been accurately identified and to further validate interpretations. Tables 2-4 show that the main themes were endorsed by 89% – 100% of participants, indicating that the selected saturation cut-off point was sufficient.

Table 1. Sample characteristics of participants who took part in the qualitative interviews (n=19)

Characteristics	Mean (SD) or Percentage (n)
Age in years	34.47 (14.44) range 19- 67 years
Gender (male)	69% (13)
Marital status	
Divorced	5% (1)
Living together	11% (2)
Single	63 % (12)
Married	21% (4)

Highest educational level completed	
<i>Secondary School, equivalent</i>	11% (2)
<i>Colleague, equivalent</i>	26% (5)
<i>University degree or higher</i>	63% (12)
Ethnicity	
<i>British white or white other</i>	63.1% (12)
<i>Black/African/ Caribbean / Black British</i>	5.3% (1)
<i>Asian or Asian British (Any other Asian)</i>	21% (4)
<i>Mixed or Multiple Ethnic Group</i>	5.3% (1)
<i>Other</i>	5.3% (1)
Intervention completion level <sup>a</sup>	
<i>Completed course of b-CBT</i>	63.2% (12)
<i>Incomplete course of b-CBT</i>	36.8% (7)
WAI-SF-P <sup>b</sup>	46.29 (SD=10.21), score range 27-60 (17)
<i>High WAI-SF-P</i>	score range 47-60 (10)
<i>Medium WAI-SF-P</i>	score range 31-41 (6)
<i>Low WAI-SF-P</i>	score 27 (1)
<i>No score</i>	(4)
PHQ-9 <sup>c</sup>	7.8 (6.87), score range 1-22 (n=18)

<sup>a</sup> Intervention completion level: A complete course of b-CBT refers to the completion of four mandatory Moodbuster modules (psychological education, behavioural activation, cognitive restructuring and relapse prevention), while an incomplete course of b-CBT course refers to the non-completion of the four mandatory Moodbuster modules.

<sup>b</sup> WAI-SF: Working Alliance Inventory Short Form. Four participants did not provide data for this questionnaire during their 3 month follow-up assessment.

<sup>c</sup> PHQ-9: Patient Health Questionnaire-9.

## Conceptual framework of WA in b-CBT

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

A thematic analysis with a constant comparative method[33] revealed multifaceted WA demands which show that the work of building WA in b-CBT involved a symbiotic effort by the PWP and the digital program, to actively engage the client to meaningful therapeutic activities and to promote self-discovery and commitment to the intervention. Such demands can be grouped into four overarching WA themes, (1)‘bond’, (2)‘task’, (3)‘goals’ (in line with Bordin’s[9,10] WA theory categories<sup>v</sup>) and (4)‘usability heuristics’ (a newly emerging theme) (See Fig. 1 for a summary of the main themes and sub-themes).

Theme 1: Bond

The ‘bond’ is defined as a set of mental health care provider (including both the PWP and computerised program) competencies that enable a working relationship to be established and maintained with a client. Participants unanimously reported that a human therapist was the most important facilitator for building the bond in a b-CBT context. This was because participants valued qualities of ‘humanity’, and ‘responsiveness’ attributed to a human therapist. Through a process in which participants appeared to compare and contrast the strengths of the digital program with the PWP, most participants questioned the ‘meaningfulness’ of interacting with a digital platform that was incapable of understanding or responding to a client’s needs as demonstrated by the following quote:

*“an app is like a machine, it’s not personal at all. I think it’s good to have some element[s] of talking to a human about this kind of thing because I think you want reassurance as well, which you wouldn’t get from an app and if you did it would just be responses built in”.*

(P8, M, 24 y/o, low-range Working Alliance Inventory Short Form – Client (WAI-SF-C))

Data from participant interviews revealed three broad PWP attributes considered to be important for the bond building process, namely the mental health providers' ability to; effectively demonstrate their understanding of their client's struggles and needs (sub-theme 1.1); convey that they are genuine in their endeavours towards the client (sub-theme 1.2); and forge a working partnership founded on friendliness, feeling cared for, empathy and trust (sub-theme 1.3) (see Table 2 for sub-theme descriptions and supporting quotes). Some participants elaborated on these concepts further to unearth granular insights of what it means to be in the presence of a PWP. Visually observing a PWP's non-verbal cues was reported to be especially important for gauging abstract relational concepts such as empathic understanding (sub-theme 1.1), and genuineness (sub-theme 1.2). The recognition of positive non-verbal cues appeared to increase congruence between the PWP and the client (sub-theme 1.3) throughout the course of therapy:

*"[During telephone therapy] he was like "mm hm, go on...so how do you feel?" I can't see his face. I don't know what he was thinking. I can't feel him. But during face-to-face [sessions] I think when I talk about something I can notice, his or her like facial expression. I know he's listening ...That make[s] me feel like talk[ing] more".*

(P14, M, 34 y/o, WAI-SF-C score not available<sup>vi</sup>)

**Table 2.** Theme 1, bond sub-theme descriptions and supporting quotes

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 1: Bond, 89%, (17)	
1.1 Feeling understood, 74% (14)	<b>P12, M, 23 y/o, high-range WAI-SF-C score:</b>
The PWP's ability to make the client feel understood. This requires the PWP to closely listen to the client, comprehend	<i>"My therapist did make a real effort to try and get to know me, try to maybe get to know what made me tick and why I was feeling how I</i>

what is being said and demonstrate empathic awareness and insight into the client's concerns.	<i>did, rather than just assuming this is what you need without ... taking into account maybe what I as a person, personally needed".</i>
1. 2 Genuineness, 32% (6) The PWP's efforts to help the client, that are perceived as genuine and authentic, as opposed to procedural or routine.	<b>P9, M, 24 y/o, low WAI-SF-C score:</b> <i>"To be honest, I kind of felt like she [PWP] was very fake...Every time I'd say something there would be an, ahh, it just felt not genuine at all, that she was just saying it because she thought I felt down..."</i>
1.3. Partnership, 74% (14) The ability of the client and PWP to achieve a working relationship that is akin to a friendship. Such a partnership is characterised by trust, feeling liked and feeling cared for.	<b>P12, M, 23 y/o, high-range WAI-SF-C score:</b> <i>"I feel like she, as I said earlier, took the time to get to know me and ... what I was currently doing, so it did feel like she kind of knew me on an individual level, rather than just being the patient."</i>

\*WAI-SF-C: Working Alliance Inventory Short Form- Client.

Theme 2: Goals

‘Goals’ refers to the collaborative work between the PWP, the client and the digital interface, to appropriately identify what the client hopes to achieve through therapy (68% of sample endorsed the ‘goals’ theme, n=13). While ‘goals’ emerged as a distinct factor, it also appears to be interrelated with the ‘task’, thereby playing a fundamental role in framing activity-based tasks and maintaining the client’s motivation to work towards creating change.

*“The goal setting actually was something that I spoke to [the PWP] quite a bit about in the session [...] I was then like “God well what are my goals? [...] what, where am I exactly going?” (P5, M, 22 y/o, higher-range WAI-SF-C score)*

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).

### Theme 3: Task

The 'task' refers to the careful selection and acceptability of the therapeutic activities prescribed to address the client's presenting symptoms ('activity-based task'), and the degree to which the support received by the healthcare provider on these activities is responsive ('responsive support').

The defining features of 'activity based-task' refers to the client's ability to work on tasks that are; personalised and acceptable for addressing the client's therapy goals (sub-theme 3.1); useful in promoting new learning, insights and reflection (sub-theme 3.2) and are complimentary across both modes of delivery (sub-theme 3.3). The defining features of 'responsive support' relate to the provider's (largely referring to the PWP's role) ability to appropriately respond to a range of clients' expressed and unexpressed need to; maintain accountability (sub-theme 3.4); provide activity-based guidance (sub-theme 3.5); and have a safe-space for clients to express their feelings and emotions (sub-theme 3.6) (see Table 3 for sub-theme descriptions, and supporting quotes).

**Table 3. Theme 2, task sub-theme descriptions and supporting quotes**

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 3: Task 100%, (19)	
Activity-Based Task, 100% (19)	
3.1. <i>Personalisation, 95% (18)</i>	<b>P12, M, 23 y/o, high-range WAI-SF-C Score:</b>
The level at which a client is able to tailor the therapeutic task to their individual needs. A non-personalised digital intervention was reported to negatively impact engagement. The <b>PWP</b> in blended-therapy can play an important role in making a generic intervention (i.e. computerised CBT) as more personalised.	<i>"I think it's a bit more personalised, because I would say whilst the E-Compared is good, it is still, it is to an extent generic, because it can't kind of know every single person that's watching the video, so whereas the therapists can kind of get an idea of you, your story, your journey, what's maybe led you to kind of this maybe relapse, or for you to be feeling the way you are, and you can't maybe get that from a</i>

<p>computer...Whereas if I'm hearing it from the person, I'm going to take a bit more notice, but then if I'm just hearing it from the computer, where it will say that to everyone watching the video"</p>	
<p>3.2. Usefulness, 95% (18)</p> <p>A useful task was defined as one that promotes new learning, reflection and is effective in creating desired change in the client's life.</p>	<p><b>P4, F, 18 y/o, medium-range WAI-S-C score:</b></p> <p>"But like the modules themselves, feelings-wise they were often quite helpful for clarifying stuff. Like I usually came out the other end feeling better or more kind of composed...it would kind of shape how I was seeing things. So like if I, you know learned about thought distortions, I'd kind of go in with that knowledge and be able to kind of talk about it..."</p>
<p>3.3. Complementary, 84% (16)</p> <p>The ability to experience complementary tasks in face-to-face therapy and on the digital platform as continuous and cohesive, as opposed to stilted and disjoint. Knowing what to expect from the respective components of blended therapy was reported to help the client optimise the benefits sought from different components of therapy.</p>	<p><b>P16, F, 35 y/o, medium working alliance:</b></p> <p>"I was finding it really hard to leave the house so that whole thought of going to therapy was quite difficult in the very beginning, so it did take me a couple of sessions to really start talking to [therapist] and opening up but because I had this online support I found it easier to open up to [therapist] so maybe instead of you know, two sessions it would have taken four or five."</p>
<p>Responsive support Task, 100% (19)</p>	
<p>3.4. Accountability, 79% (15)</p> <p>The availability of a figure of authority that the client can (positively) feel responsible towards, as a means of garnering motivation to work on therapeutic activities. For the process of accountability to positively impact the client's motivation, a <b>PWP</b> is required to demonstrate their knowledge of the client's progress and provide feedback accordingly.</p>	<p><b>P19, M, 59 y/o, medium-range WAI-S-C score:</b></p> <p>"Oh right, OK. Well, to me, I saw it like homework, you've got to get it done otherwise you get into trouble, not that I would have got in trouble, but do you know what I mean, you're sort of motivated that way. And there is the other, the embarrassment of going in and saying 'oh yeah, I didn't do the modules' and then you feel really about that big and you know, someone's trying to help you and you haven't bothered to do your bit kind of thing. So that was a motivation in itself."</p>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

### 3.5. Guidance, 89% (17)

The provision of guidance and reassurance on the therapeutic tasks by a **PWP**. The PWP's intuition, expertise, interpretation and foresight is especially considered as helpful in addressing salient issues that would not have otherwise been communicated by the client.

#### **P10, M, 45 y/o, high-range WAI-SF-C score:**

*"When you speak to your therapist, obviously she's had a lot of different scenarios with a lot of different people, she's got the experience and the know-how, and then obviously how I'm looking at it thinking the module's really working like this, she then says, "That's really brilliant, but to then add onto that and to support you, how about if you think about that?."*

### 3.6. Expression of feelings 100% (19)

The client's expressed need to speak to another human being, in order to communicate issues that are pertinent to their treatment journey. In order for the client to optimally benefit, clients require the **PWP** to dedicate a sufficient amount of time for the activity. The amount of time required by each person appears to vary in relation to pre-therapy expectations and symptom severity.

#### **P14, M, 34 y/o, WAI-SF-C score unavailable:**

*"I think it's nice to have someone to talk to. It's kind of, I think it's important for me to express my feelings like in a private situation. Because sometimes I have, kind of I live with my partner but, you know, some[times], you can't talk to her."*

WAI-SF-C: Working Alliance Inventory Short Form-Client.

The majority of participants noted the importance of experiencing the therapeutic activity as complementary across modes of delivery (sub-theme 3.3). Some participants elaborated that an initial step to achieving an effective symbiotic delivery was to provide the client with an understanding of how the PWP and digital delivery contributed towards their treatment both distinctively and collectively.

Our findings also suggested that the ubiquity of c-CBT appeared to positively impact the client-PWP WA, through increased opportunities to reinforce what was learned through the digital platform, with a PWP, and vice-versa, for instance:

*“Well I think it gave you something to do over and above the face-to-face... having the modules to go through, it reinforces what you’re talking about face-to-face and makes it easier to understand. It’s, that repetition thing isn’t it where you learn by repetition basically and that’s how I saw it working.”*

(P17, M, 39 y/o, WAI-SF-C score not available)

Theme 4: Usability heuristics

The final alliance building theme identified is, ‘usability heuristics’, which refers to the process of predominantly using technology to promote active engagement, self-discovery and autonomous problem solving in b-CBT. This category is a novel component to Bordin’s[9,10] theory. Features that enable ‘usability heuristics’ include ubiquitous digital technologies that; increase access and immediacy to the therapeutic task (sub-theme 4.1), appropriately respond to the client’s input (sub-theme 4.2), are easy to use (sub-theme 4.3) have aesthetic appeal (sub-theme 4.4) and promotes self-directed therapy (sub-theme 4.5) (see Table 4 for sub-theme descriptions, and supporting quotes).

While PWP competencies emerged as the most important facilitator for building the alliance, almost all participants expressed that they preferred blended psychotherapy to face-to-face therapy alone. Some participants elaborated that their ability to access the intervention at any time or place of convenience (sub-themes 4.1) further bolstered their engagement to therapeutic activities (theme 2). Participants who reported a high technological affinity suggested that the appearance (sub-theme 4.4) and ease of use (sub-theme 4.3) of the interface impacted their

perceptions of the digital program's credibility and therefore, their desire to engage in treatment activities.

Almost all participants reported that the digital program provided them with the tools to initiate treatment independently (sub-theme 4.5), with some participants noting that they continued to use the digital program as a means of maintaining therapeutic gains once their therapy course had ended. Here, autonomous completion of the therapeutic task was described as a secure-base that allowed clients to progressively explore self-directed therapy:

*"it kind of reminds me of Winnicott and the Secure Base in Attachment theory in psychology, that you know, children become securely attached if they have a secure base in terms of the home and the parents that they can come back to, so they can go off and explore the world confidently in the knowledge that they can come back to security, and that, that helps them to develop - and it's kind of like that, I feel, with having that Moodbuster resource [digital program] there, that you can keep coming back to it ... there is a lot in there and you can keep going back and it's a sort of source of strength really".*

(P10, M, 51 y/o, higher-range WAI-SF-C score)

Participants suggested that the blended approach prepared the client to engage in autonomous self-directed therapy, through a process of supervised autonomy.

**Table 4: Theme 4, Usability heuristics, sub-theme descriptions and supporting quotes**

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 4: <b>Usability</b> heuristics, 100% (19)	

4.1. Accessibility, 95% (18)

The ability of a client to access the digital intervention at a time and place of convenience. Higher accessibility provides opportunities for the client to review and reflect on what has been learned at a deeper level.

**P10, M, 45 y/o, high-range WAI-SF-C score:**

"Being on your own you know, in your own time and in your own safe place, your blanket, whatever you call it just allowed me personally just to open up and look at it, and then going from the start of the process to the end, ... thinking positively, looking at your behaviours, looking at adding little things in and then the exercise at the end, rewarding yourself for just achieving things what I felt at the time were trivial made everything different."

4.2. Interactivity, 63% (12)

An interactive digital program that is able to react to the clients input, to produce feedback. Interactive activities were perceived as more enjoyable, and promoted a degree of accountability.

**P6, M, 22 y/o, high working alliance:**

"One thing immediately comes to mind, it has to be a bit more interactive I think. The client shall we say, as well I feel should be given more feedback, the results, you know when you're scoring yourself on those, what that's about you know, how do they interpret that score, when you're putting your mood in on the smartphone, what's that about you know, who's looking at that, who's interpreting that".

4.3. Ease of use, 63% (12)

The ease of use of the digital interface is described as a well-functioning, intuitive, digital interface which enables optimal access to the therapeutic task.

**P2, F, 23 y/o, high-range WAI-SF-C score:**

"It was really nice, I thought it was really, well very well presented I would say, and everything was just there, like for easy viewing, so you didn't have to like go through like folders or like go deeper into the website, like it was just there, and you know, I could just easily click on what I needed to do and just follow the instructions set out on the exercises."

4.4. Aesthetic appeal, 21% (4)

The appearance or appeal of the digital interface is a factor that clients use to judge the credibility of the digital intervention and which could impact their engagement to the therapeutic task.

**P13, M, 24 y/o, medium-range WAI-SF-C score:**

"Yeah, and actually it became quite a bit of work just keeping up with the calendar, sort of, I found it a bit clunky, but then I worked in I.T for sixteen years..."

#### 4.5. Self-directed, 79% (15)

The process of taking responsibility for one's own behaviour and well-being, appears to instil clients with a sense of independence and control.

#### P3, F, 19 y/o, medium-range WAI-SF-C score:

"Other times it was good kind of to do a time and also independence, kind of learning to do stuff without a therapist there...I quite liked that I could, I don't know for me because it, I suppose it ties back into the independence thing, but because I was doing it on my own I almost proved I could do it on my own...because I feel like sometimes with a therapist you almost become like dependent on them or, it's like being taught something, when you're like dependent on the teacher."

WAI-SF-C: Working Alliance Inventory Short Form – Client.

## DISCUSSION

### Statement of principal findings

The results of the study present a preliminary conceptual framework of WA in b-CBT. It can be seen that Bordin's[9,10] 'bond', 'goals' and 'task' appear to be relevant in blended formats of CBT, however the priorities of WA demands have shifted to meet the client needs within a blended format. Moreover, an entirely new category 'usability heuristics', emerged as a novel means of promoting a new level of WA through a process of self-directed discovery and autonomous problem solving. Participants also explained that different modes of delivery by the PWP (e.g. client-provider bond, responsive support) and the digital program (e.g., upholding goals, task and promoting usability heuristics) were useful for meeting different WA demands.

### Strengths and limitations of the study

Based on our search, this study seems to be the first to provide an account of WA in b-CBT, and insights on how different treatment roles within a blended format of therapy, are used to

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

475 meet different WA demands. This is especially important given that, digital technologies are  
476 increasingly being used to treat mental illness,[4] and that WA plays an important role in  
477 promoting positive therapeutic change.[12] The design of our study had two key strengths.  
478 First, we used the most comprehensive and commonly used theory of the ‘alliance’ to approach  
479 our study.[36] Second, involving patient involvement enabled the project to be grounded on  
480 the needs and interests of people who have experienced mental health conditions and service  
481 use, thereby enhancing the application of the findings.[23] There are also several limitations to  
482 be noted. Our study does not include the PWP’s perspective, which may have provided  
483 additional insights on WA in b-CBT, [18] however, this will be explored in a separate paper.  
484 Our sample was limited to 19 individuals with a primary diagnosis of mild-to-moderate  
485 depression who mostly reported moderate to high WA, were largely male, British white or  
486 white other and university educated, thereby limiting the representativeness of people seeking  
487 treatment in the UK[37] and restricting the generalisability of our findings. Exposure to only  
488 one type of digital program, may have influenced participant’s experience of WA. For instance,  
489 a computerised platform that doesn't work adequately might generate more data on the  
490 importance of ‘ease of use’, than one that does. Some of these issues were pre-empted ahead  
491 of the study. Efforts were made to strengthen the conceptual framework in two ways. First,  
492 emerging participant data was guided by key literature on the alliance and patient involvement  
493 input. Second, our qualitative data analysis avoided the use of surface level themes, such as  
494 specific technological design. Instead, latent thematic analysis was used to unearth underlying  
495 psychological processes.[33]

496  
497 **Strengths and weaknesses in relation to other studies, discussing important differences in**  
498 **results**

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

Participants fed back that, while it was essential for therapeutic activities to be complimentary between modes of delivery, they also suggested that modes of delivery can uniquely meet different WA needs. For instance, participants unanimously fed back that the human PWP played an essential role in establishing the 'bond'. The role of the practitioner in supporting digital interventions is well documented in the literature.[6] A recent study evaluating the relationship between the client, the human provider and their c-CBT program, found that participants rated their overall treatment approach higher when they experienced c-CBT that was guided by a human provider compared to c-CBT that was unguided.[7] Another study evaluating the expectations of clients and practitioners in c-CBT for depression found personalised interactions with a therapist was key[38]. When attempts were made to unpack the importance of the therapist's role, participants suggested that the PWP's physical presence facilitated the PWP's propensity to convey important features of the bond (sub-themes 1.1-1.3) through verbal and non-verbal communication. This aligns with early psychotherapy research by Karl Rogers[39], who proposed that a therapists ability to display active listening (empathic understanding, unconditional positive regard, and congruent behaviour) was important for positively changing the impressions of the client's perceived negative experiences. Neuroscientific research evaluating the impact of active listening, suggested that the participant's recognition of active listening behaviour in another, can positively change the appraisal of an emotional episode and increased positive impressions of the active-listener.[40] These findings appear to be unique to human-to-human interactions. One study assessing the therapeutic alliance in a digital mental health mobile application for psychosis found that the anthropomorphizing of digital devices was not accepted by clients or mental health practitioners.[20] Given that little gains have been made to effectively deploy emotional artificial intelligence, a tool that is required for the effective biomimicry of human-beings in

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

the digital space,[41] the exclusion or non-effective deployment of a human provider in digital psychological interventions may therefore compromise the quality of WA.

On the other hand, participants reported that while the PWP was essential for the effective delivery of psychotherapy, participant’s preferred blended delivery compared to PWP delivery alone. Almost all participants reported WA benefits, in the form of engagement, to digital delivery (i.e. ‘usability heuristics’), through desired opportunities to engage in self-directed therapy. Our findings are echoed in the digital mental health user-experience and the alliance literature, which indicate that digital psychotherapy can enhance the client’s perceived control, autonomy and feelings of empowerment, when sufficient human support is provided.[20,42]

Our findings suggest that digital delivery within a b-CBT format cannot be disentangled from WA. For instance, a digital program that was perceived as non-interactive appeared to cause ruptures in engagement with ‘activity-based task’. Given that digital delivery appears to have a significant impact on engagement with ‘activity-based task’, we argue that the inclusion of features that uphold existing alliance structures should therefore be accounted for in the WA framework. Our findings align with Bordin’s[9,10] conceptualisation of WA, who proposed that the therapeutic tool cannot be disentangled from the means in which the alliance is built. This therefore suggests that the client-program WA can have an impact on the client-PWP WA, and vice-versa, contrary to research findings that suggest that WA contributions are independent and additive.[7]

The ‘task’ appears to play a central role in b-CBT, as initially theorised by Bordin[9,10]. Our findings appear to address Bordin’s[10] call to distinguish between the task that is in service of ‘building WA’ (responsive support) and the tasks in the service of ‘change’ (activity based-task). While many of the ‘task’ sub-themes appear to be novel to Bordin’s[9,10] WA, with the exception of complementary tasks (sub-theme 3.3), all other ‘task’ sub-themes, are in fact implicit in his broad conceptualisation. The integration of technology in psychotherapy has

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

prompted a re-evaluation of the demands placed on WA by a blended psychotherapeutic format. For example, the concept of accountability is implicit and forms one of many appendages associated with the PWP's role in building and maintaining WA. However, this concept has been propelled to the forefront as an essential ingredient for maintaining the alliance in b-CBT, in line with David Mohr and colleagues' 'supportive accountability' model for e-health.[43]

While 'bond', 'task' and 'heuristic' emerged as distinct themes, the 'goals' appears to be especially interlinked to the 'task'. The data from the qualitative interviews suggest that 'goals' was grounded in 'goals-setting activities'. This however diverges from Bordin's[9,10] description of the goals, which appears to move further, to address the PWP's efforts to unearth the core struggles that have brought the client to psychotherapy, in great detail[10]. One possible reason for our findings may be explained by the time-lag between the assessment and the first therapy session, which may have led participants to only focus on their course of b-CBT and not the proceeding assessment where more in-depth explorations of the client's struggles and goals generally take place. On the other hand, our study is not the first to question the operational distinctiveness of the 'goals' and the 'task'. The psychometric evaluation of the Working Alliance Inventory, based on Bordin's[9,10] WA suggested that concepts were highly interrelated,[30] while a more recent psychometric evaluation found that concepts did not emerge as distinct factors.[44]

### **Meaning of the study: possible explanations and implications for clinicians and policymakers**

Our findings address, at least in part, three of 10 clinical and research priorities of digital technology in mental health care identified by people with lived experience of mental health conditions, carers and health and social care practitioners (See Box 1).[8] WA, a common

1  
2  
3 573 element of psychotherapy appears to be both relevant and important in b-CBT for depression.  
4  
5 574 Human delivery appears to be central to the maintenance of empathy, gestures and non-verbal  
6  
7  
8 575 cues in which the PWP role in b-CBT may focus on establishing the bond, and developing and  
9  
10 576 maintaining the client’s engagement through responsive support (Q8). Participants noted that  
11  
12 577 both modes of delivery collaboratively contributed to the building of the alliance through  
13  
14 578 distinctive pathways. While human support is perceived as ‘responsive’ and ‘meaningful’,  
15  
16 579 digital delivery appears to promote autonomy and self-directed discovery (e.g. accessibility  
17  
18 and self-directed therapy) and plays an important role in maintaining WA across ‘goal’ and  
19  
20 580 ‘task’ activities (e.g. ease of use, interactivity of digital program and aesthetic appeal). Our  
21  
22 581 findings appear to indicate that removing human support, seen as essential for the ‘bond’ and  
23  
24 582 ‘responsive support’, may increase the risk of therapeutic ruptures and disengagement with  
25  
26 583 psychological interventions delivered through a blended format (Q1 and Q3). These findings  
27  
28 584 can be used to promote WA in technological design and clinical practice, thereby promoting  
29  
30 585 engagement to b-CBT interventions for depression, and the effective deployment of PWP and  
31  
32 586 digital support resources.  
33  
34  
35  
36  
37  
38

**Box 1.** Top ten research priorities for digital technology in mental health care, identified by the Priority Setting Partnerships [7].

Q1. What are the benefits and risks of delivering mental health care through technology instead of face-to-face and what impact does the removal of face-to-face human interaction have?

Q3. How can treatment outcomes be maximised by combining existing treatment options (medication, psychological therapies, etc.) with digital mental health interventions

Q8. Can the common elements of therapy (eg, empathy, gestures, non-verbal cues) that come from person-to-person interactions be maintained with digital technology interventions?

39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51 588  
52  
53  
54 589 **Unanswered questions and future research**  
55  
56  
57 590 We propose four directions for future research. First, while our findings outline WA demands  
58  
59 591 in b-CBT, it is unknown if fulfilling such demands will lead to positive clinical change. Future  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

research should aim to investigate if self-reported WA as defined by our conceptual framework, predicts therapy outcome. Second, WA should be further explored across different computerised programs, clinical groups, higher-intensity interventions and other digital technologies (e.g. virtual experiences, gamification and text-based intervention) intended for use within a blended format, especially in relation to understanding the demands of different digital technologies in shaping 'usability heuristics'. Third, our findings can be used to inform the design of behavioural intervention technology theories, as a means of enhancing engagement and adherence to the digital components of blended interventions for mental health. Fourth, given the promising potential of harnessing digital technologies for bridging the gap in mental healthcare in low resource settings[45], future research should examine WA in digital mental health interventions in non-western cultures and settings.

603

604 **Word count: 6,119**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**References**

1. OECD/EU. Health at a Glance: Europe 2018: State of Health in the EU Cycle [Internet]. Paris: OECD Publishing; 2018. Available from: [https://doi.org/10.1787/health\\_glance\\_eur-2018-en](https://doi.org/10.1787/health_glance_eur-2018-en)[https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018\\_health\\_glance\\_eur-2018-en](https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018_health_glance_eur-2018-en)

2. World Health Organization. Mental health: New understanding, new hope [Internet]. Geneva; 2001. Available from: <https://www.who.int/whr/2001/en/>

3. WHO. Services and deinstitutionalization [Internet]. World Health Organization; 2019 [cited 2019 Dec 8]. Available from: <http://www.euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/priority-areas/services-and-deinstitutionalization>

4. Fairburn CG, Patel V. The impact of digital technology on psychological treatments and their dissemination. Behav Res Ther [Internet]. 2017 Jan 1 [cited 2019 Mar 14];88:19–25. Available from: <https://www.sciencedirect.com/science/article/pii/S0005796716301371>

5. Kleiboer A, Smit J, Bosmans J, Ruwaard J, Andersson G, Topooco N, et al. European COMPARative Effectiveness research on blended Depression treatment versus treatment-as-usual (E-COMPARED): study protocol for a randomized controlled, non-inferiority trial in eight European countries. Pol Clin NCT02389660 Regist Clin NCT02449447 Regist. 2016;17(30).

6. van Ballegooijen W, Cuijpers P, van Straten A, Karyotaki E, Andersson G, Smit JH, et al. Adherence to Internet-based and face-to-face cognitive behavioural therapy for depression: a meta-analysis. PLoS One [Internet]. 2014 Jan 16 [cited 2016 Jan

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

- 12];9(7):e100674. Available from:  
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0100674>
7. Cavanagh K, Herbeck Belnap B, Rothenberger SD, Abebe KZ, Rollman BL. My care manager, my computer therapy and me: The relationship triangle in computerized cognitive behavioural therapy. *Internet Interv* [Internet]. 2018 Mar [cited 2019 Mar 5];11:11–9. Available from:  
<https://linkinghub.elsevier.com/retrieve/pii/S2214782917300258>
8. Hollis C, Sampson S, Simons L, Bethan Davies E, Churchill R, Betton V, et al. Identifying research priorities for digital technology in mental health care: results of the James Lind Alliance Priority Setting Partnership. *Lancet Heal Policy* [Internet]. 2018 [cited 2019 Mar 14]; Available from: [www.thelancet.com/psychiatry](http://www.thelancet.com/psychiatry)
9. Bordin ES. The generalizability of the psychoanalytic concept of the working alliance. *Psychother Theory, Res Pract*. 1979;16(3):252–60.
10. Bordin ES. Theory and research on the therapeutic working alliance: New directions. In: Horvath AO, Greenberg Leslie S, editors. New York: John Wiley & Sons, INC; 1994. p. 13–37.
11. Lambert MJ. Psychotherapy outcome research: implications for integrative and eclectic therapists. In: John C Norcross & Marvin R Goldfried, editor. *Handbook of psychotherapy intergration*. 1st ed. New York: Basic Books; 1992.
12. Norcross JC, Lambert MJ. Psychotherapy relationships that work II. *Psychother Theory Res Pract Train*. 2010;48(1):4–8.
13. Cameron SK, Rodgers J, Dagnan D. The relationship between the therapeutic alliance and clinical outcomes in cognitive behaviour therapy for adults with depression: A

1  
2  
3 652 meta-analytic review. Clin Psychol Psychother [Internet]. 2018 May 1 [cited 2019 Jun  
4  
5 653 13];25(3):446–56. Available from: <http://doi.wiley.com/10.1002/cpp.2180>  
6  
7  
8 654 14. Sucala M, Schnur JB, Constantino MJ, Miller SJ, Brackman EH, Montgomery GH.  
9  
10 655 The therapeutic relationship in E-therapy for mental health: A systematic review. J  
11  
12 656 Med Internet Res. 2012;14.  
13  
14  
15  
16 657 15. Vernmark K, Hesser H, Topooco N, Berger T, Riper H, Luuk L, et al. Working  
17  
18 658 alliance as a predictor of change in depression during blended cognitive behaviour  
19  
20 659 therapy. Cogn Behav Ther [Internet]. 2019 Jul 4 [cited 2020 Feb 25];48(4):285–99.  
21  
22 660 Available from:  
23  
24 661 <https://www.tandfonline.com/doi/full/10.1080/16506073.2018.1533577>  
25  
26  
27  
28 662 16. Kooistra, Ruwaard, Wiersma, van Oppen, Riper. Working Alliance in Blended Versus  
29  
30 663 Face-to-Face Cognitive Behavioral Treatment for Patients with Depression in  
31  
32 664 Specialized Mental Health Care. J Clin Med [Internet]. 2020 Jan 27 [cited 2020 Mar  
33  
34 665 3];9(2):347. Available from: <https://www.mdpi.com/2077-0383/9/2/347>  
35  
36  
37  
38 666 17. Pihlaja S, Stenberg J-H, Joutsenniemi K, Mehik H, Ritola V, Joffe G. Therapeutic  
39  
40 667 alliance in guided internet therapy programs for depression and anxiety disorders – A  
41  
42 668 systematic review. Internet Interv [Internet]. 2018 Mar 1 [cited 2018 Feb 8];11:1–10.  
43  
44 669 Available from:  
45  
46 670 <https://www.sciencedirect.com/science/article/pii/S2214782917300994>  
47  
48  
49  
50 671 18. Berger T. The therapeutic alliance in internet interventions: A narrative review and  
51  
52 672 suggestions for future research. Psychother Res [Internet]. 2016 Jan 6 [cited 2017 May  
53  
54 673 10];1–14. Available from:  
55  
56 674 <http://www.tandfonline.com/doi/full/10.1080/10503307.2015.1119908>  
57  
58  
59  
60 675 19. Barazzone N, Cavanagh K, Richards DA. Computerized cognitive behavioural therapy

- and the therapeutic alliance: A qualitative enquiry. *Br J Clin Psychol* [Internet]. 2012 Nov [cited 2016 Oct 5];51(4):396–417. Available from: <http://doi.wiley.com/10.1111/j.2044-8260.2012.02035.x>
20. Berry K, Salter A, Morris R, James S, Bucci S. Assessing Therapeutic Alliance in the Context of mHealth Interventions for Mental Health Problems: Development of the Mobile Agnew Relationship Measure (mARM) Questionnaire. *J Med Internet Res* [Internet]. 2018 Apr 19 [cited 2019 Jun 13];20(4):e90. Available from: <http://www.jmir.org/2018/4/e90/>
21. Torous J, Jän Myrick K, Rauseo-Ricupero N, Firth J. Digital Mental Health and COVID-19: Using Technology Today to Accelerate the Curve on Access and Quality Tomorrow. *JMIR Ment Heal* [Internet]. 2020 Mar 26 [cited 2020 Apr 25];7(3):e18848. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/32213476>
22. Warraich HJ, Califf RM, Krumholz HM. The digital transformation of medicine can revitalize the patient-clinician relationship. *npj Digit Med* [Internet]. 2018 Dec 20 [cited 2019 Aug 13];1(1):49. Available from: <http://www.nature.com/articles/s41746-018-0060-2>
23. Hayes H, Buckland S, Tarpey M. Briefing notes for researchers: Public Involvement in NHS, public health and social care research [Internet]. 2012. 1–52 p. Available from: <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+researchers:+public+involvement+in+NHS,+public+health+and+social+care+research#2>
24. Kleiboer A, Smit J, Bosmans J, Ruwaard J, Andersson G, Topooco N, et al. European COMPARative Effectiveness research on blended Depression treatment versus treatment-as-usual (E-COMPARED): study protocol for a randomized controlled, non-

1  
2  
3 700 inferiority trial in eight European countries. *Trials* [Internet]. 2016 Aug 3 [cited 2017  
4  
5 701 Mar 10];17(1):387. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27488181>  
6  
7  
8 702 25. Krueger RA. *Focus groups : a practical guide for applied research*. Second. London:  
9  
10 Sage; 1994.  
11 703  
12  
13 704 26. Staniszewska S, Brett J, Simera I, Seers K, Mockford C, Goodlad S, et al. GRIPP2  
14  
15 reporting checklists: tools to improve reporting of patient and public involvement in  
16 705 research. *BMJ* [Internet]. 2017 Aug 2 [cited 2019 May 24];358:j3453. Available from:  
17  
18 706 <http://www.ncbi.nlm.nih.gov/pubmed/28768629>  
19 707  
20  
21 708 27. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression  
22  
23 severity measure. *J Gen Intern Med*. 2001 Sep;16(9):606–13.  
24 709  
25  
26 710 28. Lecrubier Y, Sheehan D, Weiller E, Amorim P, Bonora I, Harnett Sheehan K, et al.  
27  
28 The Mini International Neuropsychiatric Interview (MINI). A short diagnostic  
29 711 structured interview: reliability and validity according to the CIDI. *Eur Psychiatry*.  
30  
31 1997;12(5):224–31.  
32 712  
33  
34 713 29. Corbin J, Strauss A. *Basics of Qualitative Research: Techniques and Procedures for*  
35  
36 Developing Grounded Theory. Fourth. London: SAGE Publications; 2008.  
37 714  
38  
39 715 30. Horvath AO, Greenberg LS. Development and validation of the Working Alliance  
40  
41 Inventory. *J Couns Psychol*. 1989;36:223–33.  
42 716  
43  
44 717 31. Beck Institute. What is Cognitive Behavior Therapy | Beck Institute [Internet]. 2016  
45  
46 [cited 2019 Jul 16]. Available from: [https://beckinstitute.org/get-informed/what-is-](https://beckinstitute.org/get-informed/what-is-cognitive-therapy/)  
47 718  
48  
49 719  
50  
51  
52  
53 720  
54  
55 32. Green J, Thorogood N. *Qualitative methods for health research*. Third edit. London;  
56 721  
57  
58 2014.  
59 722  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

- 723 33. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*  
724 [Internet]. 2006 Jan [cited 2017 Jan 23];3(2):77–101. Available from:  
725 <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>
- 726 34. Llewelyn S, Macdonald J, Aafjes-van Doorn K. Process–outcome studies. In: APA  
727 handbook of clinical psychology: Theory and research (Vol 2) [Internet]. Washington:  
728 American Psychological Association; 2016 [cited 2019 Jul 23]. p. 451–63. Available  
729 from: <http://content.apa.org/books/14773-020>
- 730 35. O’Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting  
731 Qualitative Research. *Acad Med* [Internet]. 2014 Sep [cited 2019 Dec 9];89(9):1245–  
732 51. Available from:  
733 [http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=000018](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)  
734 [88-201409000-00021](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)
- 735 36. Cahill J, Barkham M, Hardy G, Gilbody S, Richards D, Bower P, et al. A review and  
736 critical appraisal of measures of therapist–patient interactions in mental health settings.  
737 *Health Technol Assess (Rockv)*. 2008;12(24).
- 738 37. IAPT. Analysis document for Improving Access to Psychological Therapies (IAPT)  
739 referral rates by sex and age and sex and ethnicity. [Internet]. London; 2017. Available  
740 from: [https://www.england.nhs.uk/publication/improving-access-to-psychological-](https://www.england.nhs.uk/publication/improving-access-to-psychological-therapies-services-analysis/)  
741 [therapies-services-analysis/](https://www.england.nhs.uk/publication/improving-access-to-psychological-therapies-services-analysis/)
- 742 38. Montero-Marín J, Prado-Abril J, Botella C, Mayoral-Cleries F, Baños R, Herrera-  
743 Mercadal P, et al. Expectations among patients and health professionals regarding  
744 Web-based interventions for depression in primary care: a qualitative study. *J Med*  
745 *Internet Res* [Internet]. 2015 Mar 10 [cited 2020 Apr 25];17(3):e67. Available from:  
746 <http://www.ncbi.nlm.nih.gov/pubmed/25757358>

1  
2  
3 747 39. Rogers CR. The necessary and sufficient conditions of therapeutic personality change.  
4  
5 748 J Consult Psychol [Internet]. 1957 [cited 2019 Apr 1];21(2):95–103. Available from:  
6  
7 749 <http://doi.apa.org/getdoi.cfm?doi=10.1037/h0045357>  
8  
9  
10  
11 750 40. Kawamichi H, Yoshihara K, Sasaki AT, Sugawara SK, Tanabe HC, Shinohara R, et al.  
12  
13 751 Perceiving active listening activates the reward system and improves the impression of  
14  
15 752 relevant experiences. Soc Neurosci [Internet]. 2015 [cited 2019 Apr 1];10(1):16–26.  
16  
17 753 Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25188354>  
18  
19  
20  
21 754 41. Schuller D, Schuller BW. The Age of Artificial Emotional Intelligence. Computer  
22  
23 755 (Long Beach Calif) [Internet]. 2018 Sep [cited 2019 Jun 21];51(9):38–46. Available  
24  
25 756 from: <https://ieeexplore.ieee.org/document/8481266/>  
26  
27  
28 757 42. Knowles SE, Toms G, Sanders C, Bee P, Lovell K, Rennick-Egglestone S, et al.  
29  
30 758 Qualitative meta-synthesis of user experience of computerised therapy for depression  
31  
32 759 and anxiety. PLoS One. 2014;9(1).  
33  
34  
35  
36 760 43. Mohr DC, Cuijpers P, Lehman K. Supportive accountability: A model for providing  
37  
38 761 human support to enhance adherence to eHealth interventions. J Med Internet Res.  
39  
40 762 2011;13(1).  
41  
42  
43 763 44. Hatcher RL, Barends AW. Patients’ view of the alliance of psychotherapy: exploratory  
44  
45 764 factor analysis of three alliance measures. J Consult Clin Psychol [Internet]. 1996 Dec  
46  
47 765 [cited 2017 Nov 17];64(6):1326–36. Available from:  
48  
49 766 <http://www.ncbi.nlm.nih.gov/pubmed/8991319>  
50  
51  
52  
53 767 45. Naslund JA, Aschbrenner KA, Araya R, Marsch LA, Unützer J, Patel V, et al. Digital  
54  
55 768 technology for treating and preventing mental disorders in low-income and middle-  
56  
57 income countries: a narrative review of the literature. The Lancet Psychiatry [Internet].  
58  
59 769 2017 Jun [cited 2019 Feb 25];4(6):486–500. Available from:  
60 770

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

771 <http://www.ncbi.nlm.nih.gov/pubmed/28433615>

For peer review only

Enseignement Supérieur (ABES) .  
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

773 **FOOTNOTES**

774 **Author contribution**

775 Asmae Doukani (AD) developed the concept of the work. Patient involvement shaped the focus  
776 of the research. AD led all aspects of patient involvement. Arlinda-Cerga Pashoja (ACP) and  
777 Shumaila Usmani assisted with the patient involvement focus groups. The design and analysis  
778 of the patient involvement focus groups was contributed to by Sarah Smith (SS), Jesus  
779 Montero-Marin (JMM), Caroline free (CF) and Ricardo Araya (AR). AD, CF, SS significantly  
780 contributed to the design of the qualitative participant interview and Nicki Thorogood provided  
781 guidance in respect to the methodology. AD led all aspects of data collection, analysis and  
782 interpretation. CF and Daniel Michaelson (DM) analysed a portion of the data independently.  
783 The iterative development of the conceptual framework was led by AD, overseen by DM and  
784 Ritsuko Kakuma (RK), and contributed to by CF, RA, and ACP. AD prepared all iterations of  
785 the manuscript, with significant contributions from RK, CF, DM, RA, JMM, SS and ACP.

786 **Acknowledgements:** The authors would like to thank, the E-compared trial for supporting the  
787 study and the eleven patient advisors whose input shaped the methodology of the project,  
788 including Abé Chekh-Dove El-Ghassani, Michael Clarke, Paul H Ware, Dr Sarah Markham  
789 and Tibby Stodel. We would also like to express gratitude to Dr Nicki Thorogood who provided  
790 guidance on the participant qualitative interviews methodology and to Shumaila Usmani who  
791 helped facilitate and transcribe the patient involvement focus group interviews. Jesus Montero-  
792 Marin is supported by the Wellcome Trust Grant (104908/Z/14/Z).

793 **Funding:** This work was supported by the E-compared trial, which was funded by the  
794 European Commission’s Seventh Framework Programme (Health), grant agreement number  
795 603098.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

**Conflict of interest:** All authors have completed the ICMJE uniform disclosure form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

**Ethical approval:** The project was approved by the Health Research Authority's Ethics Committee on 17th April 2015 (REC reference: 15/LO/0511) and the London School of Hygiene and Tropical Medicine Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref: 9409).

**Transparency declaration:** The lead author (AD) affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

**Data sharing statement:** Data available upon reasonable request.

<sup>i</sup> The use of the 'alliance' as a singular, broadly refers to the client-therapist alliance, and not to a specific variation (e.g. therapeutic alliance, working alliance, helping alliance etc.,) which while at times used interchangeably, have distinct theoretical underpinnings.

<sup>ii</sup> PPI was enlisted before the focus of the project was finalised, therefore people with a range of lived experiences were invited to be involved.

<sup>iii</sup> The PWP workforce provide short-term, evidenced-based treatment in line with National Institute for Health and Care Excellence (NICE) guidance, to help people manage symptoms of mild to moderate depression and/or anxiety.

<sup>iv</sup> A participant who was allocated to the treatment as usual group was erroneously put forward as a suitable b-CBT candidate. This case was discovered during the interview, and corroborated with the E-compared trial manager after the interview. Data for this participant was not analysed.

<sup>v</sup> The aim of the study was to explore the relevance of the working alliance and to adapt the theory for the context of a b-CBT intervention. During the data analysis phase, it was decided that emerging data that fitted with Bordin's[9,10] conceptualisation, would be labelled according to existing categories (bond, goal, task). However, while the labels broadly fit with Bordin's[9,10] key categories, these labels are specific to b-CBT WA demands.

<sup>vi</sup> WAI-SF-C scores are unavailable for participants who did not complete their online 3 month follow-up assessments on the E-Compared trial.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

---

For peer review only

Enseignement Supérieur (ABES) .  
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.



Fig 1. Participant reported working alliance demands in a blended cognitive behavioural therapy intervention.

16x9mm (600 x 600 DPI)

COREQ (Consolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
<b>Domain 3: analysis and findings</b>			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

**Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.**

# Reporting checklist for qualitative study.

Based on the SRQR guidelines.

## Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the SRQRreporting guidelines, and cite them as:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.

Reporting Item		Page Number
Title	<a href="#">#1</a> Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g. ethnography, grounded theory) or data collection methods (e.g. interview, focus group) is recommended	3
	Abstract	
Introduction	<a href="#">#2</a> Summary of the key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results and conclusions	3-4
	Problem formulation	
	<a href="#">#3</a> Description and significance of the problem / phenomenon studied: review of relevant theory and empirical work; problem statement	6-7

Purpose or research question	<a href="#">#4</a>	Purpose of the study and specific objectives or questions	6-7
<b>Methods</b>			
Qualitative approach and research paradigm	<a href="#">#5</a>	Qualitative approach (e.g. ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g. postpositivist, constructivist / interpretivist) is also recommended; rationale. The rationale should briefly discuss the justification for choosing that theory, approach, method or technique rather than other options available; the assumptions and limitations implicit in those choices and how those choices influence study conclusions and transferability. As appropriate the rationale for several items might be discussed together.	8-15
Researcher characteristics and reflexivity	<a href="#">#6</a>	Researchers' characteristics that may influence the research, including personal attributes, qualifications / experience, relationship with participants, assumptions and / or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results and / or transferability	12
Context	<a href="#">#7</a>	Setting / site and salient contextual factors; rationale	12-13
Sampling strategy	<a href="#">#8</a>	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g. sampling saturation); rationale	8
Ethical issues pertaining to human subjects	<a href="#">#9</a>	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	9
Data collection methods	<a href="#">#10</a>	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative	12-13

1			process, triangulation of sources / methods, and	
2			modification of procedures in response to evolving	
3			study findings; rationale	
4				
5	Data collection	<a href="#">#11</a>	Description of instruments (e.g. interview guides,	8-7, 12-
6	instruments and		questionnaires) and devices (e.g. audio recorders)	13
7	technologies		used for data collection; if / how the instruments(s)	
8			changed over the course of the study	
9				
10				
11	Units of study	<a href="#">#12</a>	Number and relevant characteristics of participants,	15
12			documents, or events included in the study; level of	
13			participation (could be reported in results)	
14				
15				
16				
17	Data processing	<a href="#">#13</a>	Methods for processing data prior to and during	13-15
18			analysis, including transcription, data entry, data	
19			management and security, verification of data	
20			integrity, data coding, and anonymisation /	
21			deidentification of excerpts	
22				
23				
24				
25				
26	Data analysis	<a href="#">#14</a>	Process by which inferences, themes, etc. were	12-15
27			identified and developed, including the researchers	
28			involved in data analysis; usually references a specific	
29			paradigm or approach; rationale	
30				
31				
32				
33	Techniques to enhance	<a href="#">#15</a>	Techniques to enhance trustworthiness and credibility	9-12,
34	trustworthiness		of data analysis (e.g. member checking, audit trail,	14-15
35			triangulation); rationale	
36				
37				
38	<b>Results/findings</b>			
39				
40	Syntheses and	<a href="#">#16</a>	Main findings (e.g. interpretations, inferences, and	15-25
41	interpretation		themes); might include development of a theory or	
42			model, or integration with prior research or theory	
43				
44				
45	Links to empirical data	<a href="#">#17</a>	Evidence (e.g. quotes, field notes, text excerpts,	15-25
46			photographs) to substantiate analytic findings	
47				
48				
49	<b>Discussion</b>			
50				
51				
52	Intergration with prior	<a href="#">#18</a>	Short summary of main findings; explanation of how	26-31
53	work, implications,		findings and conclusions connect to, support,	
54	transferability and		elaborate on, or challenge conclusions of earlier	
55	contribution(s) to the field		scholarship; discussion of scope of application /	
56				
57				
58				
59				
60				

generalizability; identification of unique contributions(s) to scholarship in a discipline or field

Limitations	<a href="#">#19</a>	Trustworthiness and limitations of findings	26-31
<b>Other</b>			
Conflicts of interest	<a href="#">#20</a>	Potential sources of influence of perceived influence on study conduct and conclusions; how these were managed	38
Funding	<a href="#">#21</a>	Sources of funding and other support; role of funders in data collection, interpretation and reporting	39

#### Notes:

- 15: 7-10, 12-13 The SRQR checklist is distributed with permission of Wolters Kluwer © 2014 by the Association of American Medical Colleges. This checklist was completed on 09. December 2019 using <https://www.goodreports.org/>, a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)

# BMJ Open

## Toward a conceptual framework of the working alliance in a blended low-intensity cognitive behavioural therapy intervention for depression in primary mental health care: A qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2019-036299.R2
Article Type:	Original research
Date Submitted by the Author:	18-Jul-2020
Complete List of Authors:	Doukani, Asmae; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Free, Caroline; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Michelson, Daniel ; University of Sussex, School of Psychology Araya, Ricardo; King's College London, Health Service and Population Research Department Montero-Marin, J; Oxford University, Department of Psychiatry Smith, Sarah; London School of Hygiene & Tropical Medicine, Health Services Research and Policy Cerga-Pashoja, Arlinda; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health Kakuma, Ritsuko ; London School of Hygiene and Tropical Medicine, Faculty of Epidemiology and Population Health
<b>Primary Subject Heading</b>:	Mental health
Secondary Subject Heading:	Health services research
Keywords:	Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS, MENTAL HEALTH, Depression & mood disorders < PSYCHIATRY

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



*I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).*

*The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.*

*Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.*

1 Toward a conceptual framework of the working alliance in a blended low-intensity cognitive  
2 behavioural therapy intervention for depression in primary mental health care: A qualitative  
3 study

### 4 5 **Corresponding author**

6 Asmae Doukani, Research Fellow

7 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
8 Medicine, Keppel Street, London, WC1E 7HT, United Kingdom.

9 Email: [Asmae.Doukani@lshtm.ac.uk](mailto:Asmae.Doukani@lshtm.ac.uk)

10 Telephone: +44(0)207 927 2462

### 11 12 **Co-authors**

13 Caroline Free, Professor in Primary Care and Epidemiology

14 Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical  
15 Medicine Keppel Street, London, United Kingdom (Caroline.Free@lshtm.ac.uk)

16  
17 Daniel Michelson, Senior Lecturer in Clinical Psychology

18 School of Psychology, University of Sussex, Pevensey Building, Falmer, Brighton, United  
19 Kingdom. (D.Michelson@sussex.ac.uk)

20  
21 Ricardo Araya, Professor in Global Mental Health

41 Word count: 6148

## Abstract

**Objectives:** To examine and adapt a conceptual framework of the working alliance (WA) in the context of a low-intensity blended (psychological wellbeing practitioner (PWP) plus computerised program) cognitive behavioural therapy intervention (b-CBT) for depression.

**Design:** Patient involvement was enlisted to collaboratively shape the design of the project from the onset, before data collection. In-depth semi-structured interviews were carried out with participants who experienced b-CBT as part of the E-compared trial. A thematic analysis was conducted using a constant comparative method informed by grounded theory.

**Setting:** Recruitment was carried out in four psychological primary care services across the UK.

**Participants:** Nineteen trial participants with Major Depressive Disorder who completed at least one computerised programme and face-to-face session with a PWP in the b-CBT arm, were recruited to the study.

**Results:** Qualitative interviews that were guided by WA theory and patient involvement, revealed four themes: (1) A healthcare provider (PWP and programme) with good interpersonal competencies for building a working relationship with the client ('Bond'); (2) collaborative efforts between the client and the provider to appropriately identify what the client hopes to achieve through therapy ('Goals'); (3) the selection of acceptable therapeutic activities that address client goals and the availability of responsive support ('Task'); and (4) the promotion of active engagement and autonomous problem solving ('Usability heuristics'). Participants described how the PWP and computerised-program uniquely and collectively contributed to different WA needs.

**Conclusions:** This study is the first to offer a preliminary conceptual framework of WA in b-CBT for depression, and how such demands can be addressed through blended PWP-program

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

66 delivery. These findings can be used to promote WA in technological design and clinical  
67 practice, thereby promoting engagement to b-CBT interventions, and the effective deployment  
68 of practitioner and program resources.  
  
69 **Trial registration:** E-Compared Trial, ISRCTN registry, ISRCTN12388725. Registered on 20  
70 March 2015.  
  
71 **Keywords:** Working alliance, blended psychological interventions, cognitive behavioural  
72 therapy and patient and public involvement.  
  
73

74

## Article summary

### Strengths and limitations of the study

- Patient involvement enabled the project aims to be grounded on the needs and interests of people who have experienced mental health service-use, in order to enhance the application of the findings.
- Bordin's theory was specifically selected to examine the working alliance (WA) in blended cognitive behavioural therapy, due to the theory's comprehensive description, pan-theoretical nature, and openness to adaptation to accommodate different therapeutic formats.
- The studies' sample is limited to 19 individuals with a primary diagnosis of mild-to-moderate depression, mostly reporting moderate to high WA and were largely male, British white and university educated individuals, thereby restricting the generalisability of our findings.
- Exposure to only one type of digital program, may have influenced participants' experience of WA (e.g. a computerised platform that doesn't work adequately might generate more data on the importance of 'ease of use', than one that does), limiting the breadth of data collected on WA.
- Efforts were made to strengthen the conceptual framework through interview topic guides which were guided by Bordin's WA theory, patient involvement input, and a data analysis approach which avoided surface level themes, specific to technological design.

75

76

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

77

78   **INTRODUCTION**

79   Mental health conditions impact one in six people in Europe, resulting in an estimated  
80   economic burden of over €600 billion.[1] The treatment gap in the region remains high with  
81   35-50% of people experiencing mental health concerns not accessing treatment.[1] The wide  
82   disparity between mental health care needs and access to services has prompted calls for the  
83   strategic deployment of technology to facilitate and expand access to mental health services at  
84   a lower cost.[2,3] In the past decade, an increasing number of studies have investigated the  
85   efficacy of computerised cognitive behavioural therapy (c-CBT), a type of digital intervention  
86   that delivers CBT via interactive presentation features.[4] The implementation of c-CBT is  
87   generally either unguided (led by a computerised program with no external support), guided  
88   (led by a computerised programme and typically supported by a non-specialist facilitator) or  
89   blended (led by a therapist, incorporating a c-CBT programme, or led by a c-CBT program and  
90   supported by a therapist), with the latter approach offering the highest level of human  
91   support.[4,5]

92   The evidence for c-CBT has demonstrated equal benefits to face-to-face CBT for a range of  
93   mental health conditions.[4] However, these findings largely hold true when digital  
94   psychotherapies are guided by a human facilitator. Higher support from a therapist or another  
95   human facilitator appears to be related with better adherence and clinical outcomes.[6] The  
96   effects of human support on engagement with c-CBT raises important questions about  
97   mechanisms that support positive change in c-CBT. This has led scholars to consider the  
98   applicability of established mechanisms of change derived from conventional psychotherapies,  
99   to ‘blended’ formats. Particular interest has centred on the construct of the client-therapist  
100   alliance<sup>i</sup> (therapeutic, working etc.).[7,8] While the concept of the alliance has taken root in a

number of psychotherapeutic approaches, Edward Bordin[9] drew on their commonalities to formulate a pan-theoretical theory called the working alliance (WA) originally defined as:

*“a formation between the client seeking change and the therapist offering to act as a change agent that incorporated a mutual understanding and agreement about change goals and the necessary tasks to move forward these goals along with the establishment of bonds to maintain the partners’ work”.*[9,10] (pg. 13)

Here, the ‘task’ refers to an agreed-upon contract that specifies the activities used to work on the client’s goals. ‘Goals’ entails the exploration and review of what the client wants to achieve in therapy, while the ‘bond’ relates to the perceived compatibility between the client and the therapist, and the partnership that stems from shared activities.[9,10] Central to Bordin’s[9,10] conceptualisation, is the collaboration and consensus between the therapist and the client, in order to promote meaningful engagement in therapy.

The alliance has consistently been found to predict positive therapeutic outcomes. A keystone meta-analytic review found that the therapeutic alliance accounted for more variance (30%) than the therapeutic technique (15%) and therapy expectancy (15%).[11] This alliance-outcome relationship finding, was mirrored in recent meta-analyses, one of 191 varied therapeutic studies ( $r = .28$  [95% CI: .25 to .30]),[12] and another focusing on CBT interventions for depression ( $r = .26$  [95% CI: .19 to .32]).[13]

A growing body of literature on the alliance in internet-based psychological interventions indicate that the quality of the alliance in guided psychotherapy programs and b-CBT may be equal to or better than traditional formats of face-to-face therapy.[14–16] There is also evidence to suggest that the client reported alliance in guided c-CBT is directly associated with treatment outcome.[17,18] However, some literature appears to suggest that c-CBT may place different demands on the alliance. A narrative review evaluating WA in supported c-CBT found that

1  
2  
3 125 while significant associations were found between the task and goals sub-scales of WA and  
4  
5 126 treatment outcome, none were found for the bond subscale.[18] Qualitative research on the  
6  
7  
8 127 alliance in unguided mental health interventions also indicate that cCBT may offer additional  
9  
10 128 alliance benefits such as higher control and autonomy.[19,20]

11  
12  
13 129 Taken together, these findings underscore the importance of developing a guiding framework  
14  
15 130 for understanding the nature of WA in b-CBT, amidst a gradual movement towards shared  
16  
17 131 mental health care delivery between human practitioners and digital technology.[21] Our study  
18  
19 132 therefore aims to examine the WA demands through patient involvement and participant  
20  
21 133 qualitative interviews, to adapt Bordin’s[9,10] conceptualisation of WA for a b-CBT  
22  
23 134 intervention for depression.[22]

24  
25  
26 135

27  
28  
29  
30 136 **METHOD**

31 137 **Patient and public involvement**

32  
33  
34 138 Patient advisors were enlisted at a pre-research data collection stage to collaboratively examine  
35  
36 139 WA in a digital CBT program without human support. Patient advisors were not involved in  
37  
38 140 the recruitment of participants or of conducting the study. Patient involvement included eleven  
39  
40 141 advisors with experience of mental health service use, predominantly for mild-moderate  
41  
42 142 depression ( $n=7$ ), but also for anxiety ( $n=1$ ) and severe mental health conditions ( $n=3$ )<sup>ii</sup>.  
43  
44 143 Advisors attended two meetings in the summer of 2015. The first meeting consisted of a  
45  
46 144 comprehensive pre-involvement preparation briefing, to provide advisors with the knowledge  
47  
48 145 and skills that would enable optimal conditions to aid their role.[23] Advisors were also  
49  
50 146 provided with access to a c-CBT for depression program called Moodbuster (program used on  
51  
52 147 the E-Compared trial),[24] which they were encouraged to test and review in their own time,  
53  
54 148 to provide context for discussion.[23] Advisors voluntarily tested all components of the  
55  
56 149 Moodbuster intervention between meetings. In the second meeting, advisors were split into

three small focus group discussion interviews, to facilitate the sharing of personal experiences and enable a higher level of opportunities to participate.[25] Discussions attempted to address three objectives, including: (i) is WA, as defined by Bordin[9,10] relevant in the context of a digital program intervention? (ii) What are the intrinsic WA demands between the client and the digital provider? and (iii) Can digital delivery offer new ways of building WA, above and beyond Bordin's[9,10] bond, goals and task? The three focus group discussions were audio-recorded using an Olympus digital voice recorder WS-852, transcribed, and analysed to identify thematic patterns and themes. Patient involvement contribution was reported in line with version 2 of the Guidance for Reporting Involvement of Patients and the Public Short Form (GRIPP2-SF).[26] Patient advisors were thanked for their contribution after their involvement and also in the acknowledgements of this paper. The results of the study will be disseminated via a lay summary of the research, which will be supplemented with a peer-reviewed publication.

Patient involvement was instrumental in shaping the focus of the study and in guiding participant interviews in three different ways: First, patient involvement input suggested that Bordin's[9,10] WA as a function of enhancing engagement, was both relevant and important in the context of a digital psychological intervention. Second, the focus of the planned participant interviews changed from exploring WA within a computerised CBT (c-CBT) intervention without human support, to exploring the shared therapist-program format of CBT, as advisors unanimously suggested that some WA needs (especially bond and elements of support) could not be satisfied without human facilitation. Third, we set out to extend Bordin's[9,10] WA theory as patient involvement suggested that the c-CBT program could lead to additional alliance building and maintenance benefits.

**Design**

A qualitative methodology design was used to gain an in-depth understanding of participants' experience of WA in b-CBT on the E-compared trial.[24] E-compared is a non-inferiority, pragmatic trial that evaluated the cost effectiveness of b-CBT for depression, when compared to usual care, across eight countries in the European region.[24] Potential participants from the UK were referred from primary care services by clinical staff, if they scored 4 points or higher on the Patient Health Questionnaire-9,[27] and if they were interested in receiving b-CBT for depression. The b-CBT intervention consisted of 11 blended low-intensity CBT sessions, six with a low-intensity psychological wellbeing practitioner (PWP<sup>iii</sup>) (average duration of 30 minutes) and a least five at home via a synchronised computerised platform and mobile-application called Moodbuster. The treatment course spanned across 11 weeks. There were four mandatory core modules of CBT on the digital platform (psychological education, behavioural activation, cognitive restructuring, and relapse prevention) and two optional modules (physical exercise and problem solving) that were completed autonomously at home. The low-intensity PWP in the clinic encouraged participants to use the computerised programme in different ways. The PWP could introduce modules, review if the client had completed modules, or guide the client on the use of specific modules). Face-to-face sessions in the clinic were alternated with Moodbuster sessions away from the clinic, however there was flexibility in the sequence of the delivery mode and the order in which the modules were completed, including opportunities for the PWP to use bespoke tasks. Additional information about the trial and the b-CBT intervention can be accessed from the trial protocol by Kleiboer and colleagues.[24]

**Participants**

E-Compared participants from the UK were invited to take part in qualitative interviews. Trial participants aged 18 years or older with a clinical diagnosis of Major Depressive Disorder

(MDD), were enrolled in the study.[24] People with substance abuse, suicidal tendencies, other severe psychiatric disorders, cognitive disability or people who had insufficient knowledge of English were excluded. Psychiatric diagnoses were confirmed by the MINI International Neuropsychiatric Interview (M.I.N.I) version 5.0.[28] E-Compared trial[24] participants who: (a) provided written consent to the qualitative interviews when they enrolled on the trial (n=101); (b) were randomised to the b-CBT arm (n=49); and (c) had completed at least one computerised module and face-to-face session (n=42) were purposively sampled to be representative of the b-CBT arm, in relation to their sex, age, and recruitment site.[29] Altogether, 26 out of 42 people were invited to take part in the qualitative study, with 19 consenting to participate. Reasons for non-consent included scheduling conflicts (n=2) non-response to invitation (n=4), and change in eligibility status due to erroneous information about arm allocation (n=1<sup>iv</sup>).

## Procedure

E-compared participants were invited to take part in face-to-face individual semi-structured qualitative interviews, at least 2 weeks after they completed their course of therapy on the trial. This was to provide participants with enough time to reflect on their experience of the b-CBT intervention. Potential participants were invited to take part in interviews about their experience of b-CBT, and were emailed a patient information sheet following their initial correspondence with the research team. Participants were provided with at least 48 hours to read and consolidate the information, before they were followed up and booked in for a qualitative interview at an acceptable time and place. Written consent for their participation, as well as audio recording of the interview, was sought again prior to starting their interviews and were reminded of their right to withdraw at any time and without giving a reason. Data collection took place until saturation was reached.[29] The study adopted Corbin and Strauss's definition of saturation, which is described as the point where further data collection becomes 'counter-productive',

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

and where ‘new’ themes do not add anything to the overall narrative of the story.[29] Saturation was monitored through writing memos after each interview, in which information on both key and novel emerging themes from the interview were recorded.[29]

The project was approved by the Health Research Authority’s Ethics Committee on 17th April 2015 (REC reference: 15/LO/0511) and the London School of Hygiene and Tropical Medicine Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref: 9409).

**Measures**

Self-reported WA and symptoms of depression, collected on the E-Compared trial[24] were reported to further describe participant characteristics (in addition to sociodemographic data) and to provide insights on WA and the level of depression experienced by the participants on the study. Self-reported WA was assessed through the Working Alliance Inventory Short Form – Client (WAI-SF-C).[30] Scores for the 12 items on WAI-SF-C range between 12- 60. Scores were divided into 3 groups to produce a low-range (12-28), medium-range (29-44), and high-range (45-60) to indicate the level of WA reported by each participant. Higher scores indicate better WA. Self-reported depression was assessed through the Patient Health Questionnaire-9 (PHQ-9).[27] Scores for the 9 items on the PHQ-9 range between 0-27. Higher scores indicate more severe symptoms. Data was collected during the trial’s three months follow-up assessments.[24]

**Guiding framework**

Our study adopted Edward Bordin’s[9,10] theory to examine WA in the context of b-CBT for three reasons. The first relates to the generalisable nature of the theory. While the concept of the alliance stemmed from psychodynamic theory in 1912, it has since been incorporated in various therapeutic approaches, leading to heterogeneity in the way the concept is defined.[12] In 1979, Bordin[9,10] attempted to unify the way the alliance is defined, by proposing a pan-

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES) .

theoretical conceptualisation[9] that drew on the key features of all therapeutic approaches.[12] Second, Bordin's[9,10] theory is operationalised as task focused,[12] and therefore offers a suitable fit for task-orientated psychological approaches such as CBT.[31] Third, the theory is open to adaptation. Bordin[9,10] suggested that while a pan-theoretical approach allowed the basic measurement of the bond, goals and task to produce beneficial therapeutic change, he also suggested that the ideal alliance *profile* is likely to be different across therapeutic approaches and interventions.[9,10,12]

256

### 257 **Data collection**

258 Data collection took place between October 2016 and July 2017 across four primary care  
259 mental health services in the UK. Qualitative interviews were adopted to enable a detailed  
260 examination of the participant's personal experiences and perspectives of WA within the  
261 context of their experience of receiving b-CBT. The study predominately included a deductive  
262 approach to exploring WA in b-CBT based on Bordin's[9,10] theoretical framework, while  
263 remaining open to novel or unexpected inductive new findings. On average, participant  
264 interviews lasted around 47 minutes. Interviews were conducted in a confidential setting within  
265 a university campus or the health service which the participant was recruited from. All  
266 interviews were audio-recorded using an Olympus digital voice recorder WS-852 and  
267 transcribed to produce orthographic verbal verbatim. AD (female) conducted the qualitative  
268 interviews, was a PhD Candidate with experience of conducting and analysing qualitative data.  
269 Semi-structured interviews with a conversational technique were used to achieve a balance  
270 between the need for consistency of questioning across participants, and the ability to explore  
271 topics that are important to the participant. During interviews there was also scope to allow  
272 topics covered to evolve iteratively based on the emerging data.[29,32] The development of an  
273 interview topic guide was supported by patient involvement input and guided by the WA

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

theory[9,10]. The initial topic guide was used to suggest topics of discussion, and not as a definitive framework to limit conversations. As the data collection progressed, the topic guides evolved iteratively based on emerging themes. Subsequent interviews were therefore influenced by interviews that previously took place, providing opportunities to validate and refute interpretations.[29]

**Data analysis**

A preliminary data analysis took place alongside early interviews, allowing subsequent interviews to progress iteratively.[29] Memos were written after each interview, to aid the preliminary analysis and iterative adaptation of the topic guide and to propose possible relationships between codes. Thematic analysis was adopted due to the theoretical flexibility, as well as the ‘thick descriptions’ afforded by the approach.[33] The data analysis incorporated a constant comparative method from grounded theory, to enable the analyst to search for new theoretical models that are grounded in empirical data, and to enhance the trustworthiness of data.[29]

The lead analyst (AD) commenced the data analysis by reading through the transcripts, while listening to the audio recording and reading the corresponding memos. The analyst then actively re-read the data, searching for meaning, and noted down initial concepts. Data was coded line-by-line. Codes were generated by searching for interesting features across the entire dataset and collating data relevant to each code segments. The emerging codes were clustered into categories and labelled thematically. Once the data was initially coded and collated, the analyst commenced searching for themes that were compatible with Bordin’s[9,10] WA theory and patient involvement input, while also searching for novel alliance concepts. Themes were located at a latent level, to delve beyond the semantic content of the data, to identify and

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

298 examine underlying ideas, assumptions, conceptualisation and ideologies that theorise  
299 semantic content of the data.[33] The initial codes were gradually merged into broader  
300 categories through comparison across transcripts, to identify overarching themes. The themes  
301 were then reviewed to ensure that the codes cohere together meaningfully, while maintaining  
302 a clear and identifiable distinction with no overlap between the themes. Finally, the themes  
303 were reviewed to consider their relationship to the overall thematic map. Once a thematic ‘map’  
304 was identified, the findings were developed into a conceptual framework of WA in b-CBT.[33]

305 Two other members of the research team (CF and DM), who are highly familiar with qualitative  
306 methodologies and Bordin’s[9,10] WA theory, read through 20% of all transcripts and  
307 reviewed all supporting quotes across all phases of the analysis, so that close to half of the  
308 transcripts were reviewed. Discrepancies were discussed and reconciled. The final framework  
309 was discussed and revised over eight meetings. The entire coding process was performed using  
310 the NVivo 11 data analysis software package. Supporting quotes were anonymised to ensure  
311 that participants and their PWP could not be identified.

312 To ensure the final conceptual framework accurately reflected WA, a ‘therapeutic process’,  
313 was not confounded with early manifestations of ‘treatment outcomes’ we defined “therapeutic  
314 processes” relevant to WA, and the ‘treatment outcomes’ associated with CBT.[30]

315 ‘Therapeutic process’ was defined as “*actions, experiences, and relatedness of the client and*  
316 *the therapist in therapy sessions...*”. [34] We a-priori extended the use of the term ‘therapy  
317 session’ to include face-to-face and digital delivery in the context of blended therapy. Horvath  
318 and colleagues[30] noted three ways of defining the outcome in psychotherapy including: (a)  
319 the core value attributed to the outcome by the client, (b) the importance of the outcome in the  
320 theoretical framework of the therapist, and (c) the utility of the outcome (e.g. the technique) to  
321 promote other outcomes that are valued. We defined outcome in relation to definitions b and c  
322 to enable a standardised definition that does not vary from client-to-client (i.e., definition a).

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

We a-priori define the outcomes of CBT as the alleviation of distress (*b*) through helping the client to develop more adaptive cognitions and behaviours (*c*).[31] The final conceptual framework was reviewed in light of the aforementioned definitions by members of the research team. Themes and sub-themes that were judged to correspond with the definition of ‘treatment outcome’ were removed. We used the SRQR checklist when reporting our findings.[35]

RESULTS

Description of sample

An exploration of WA in b-CBT was undertaken through 19 qualitative interviews with participants who experienced b-CBT in the treatment arm of the E-Compared trial[24]. Participants were aged between 19-67 years (Mean=34.47 years, SD=14.44 years), were largely male (n=13), white British or white other (n=12), and university educated (n=12) (full sample characteristics are presented in Table 1). All interviews were conducted face-to-face apart from one, which was completed by phone. Saturation appeared to be reached by the 16<sup>th</sup> interview. Another three interviews were carried out to ensure that the selected saturation cut-off point had been accurately identified and to further validate interpretations. Tables 2-4 show that the main themes were endorsed by 89% – 100% of participants, indicating that the selected saturation cut-off point was sufficient.

Table 1. Sample characteristics of participants who took part in the qualitative interviews (n=19)

Characteristics	Mean (SD) or Percentage (n)
Age in years	34.47 (14.44) range 19- 67 years
Gender (male)	69% (13)
Marital status	
Divorced	5% (1)

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

<i>Living together</i>	11% (2)
<i>Single</i>	63 % (12)
<i>Married</i>	21% (4)
Highest educational level completed	
<i>Secondary School, equivalent</i>	11% (2)
<i>College, equivalent</i>	26% (5)
<i>University degree or higher</i>	63% (12)
Ethnicity	
<i>British white or white other</i>	63.1% (12)
<i>Black/African/ Caribbean / Black British</i>	5.3% (1)
<i>Asian or Asian British (Any other Asian)</i>	21% (4)
<i>Mixed or Multiple Ethnic Group</i>	5.3% (1)
<i>Other</i>	5.3% (1)
Intervention completion level <sup>a</sup>	
<i>Completed course of b-CBT</i>	63.2% (12)
<i>Incomplete course of b-CBT</i>	36.8% (7)
WAI-SF-P <sup>b</sup>	46.29 (SD=10.21), score range 27-60 (17)
<i>High WAI-SF-P</i>	score range 47-60 (10)
<i>Medium WAI-SF-P</i>	score range 31-41 (6)
<i>Low WAI-SF-P</i>	score 27 (1)
<i>No score</i>	(4)
PHQ-9 <sup>c</sup>	7.8 (6.87), score range 1-22 (n=18)

<sup>a</sup> Intervention completion level: A complete course of b-CBT refers to the completion of four mandatory Moodbuster modules (psychological education, behavioural activation, cognitive restructuring and relapse prevention), while an incomplete course of b-CBT course refers to the non-completion of the four mandatory Moodbuster modules.

<sup>b</sup> WAI-SF: Working Alliance Inventory Short Form. Four participants did not provide data for this questionnaire during their 3 month follow-up assessment.

<sup>c</sup> PHQ-9: Patient Health Questionnaire-9.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Conceptual framework of WA in b-CBT**

A thematic analysis with a constant comparative method[33] revealed multifaceted WA demands which show that the work of building WA in b-CBT involved a symbiotic effort by the PWP and the digital program, to actively engage the client to meaningful therapeutic activities and to promote self-discovery and commitment to the intervention. Such demands can be grouped into four overarching WA themes, (1)‘bond’, (2)‘task’, (3)‘goals’ (in line with Bordin’s[9,10] WA theory categories<sup>v</sup>) and (4)‘usability heuristics’ (a newly emerging theme) (See Fig. 1 for a summary of the main themes and sub-themes).

**Theme 1: Bond**

The ‘bond’ is defined as a set of mental health care provider (including both the PWP and computerised program) competencies that enable a working relationship to be established and maintained with a client. Participants unanimously reported that a human therapist was the most important facilitator for building the bond in a b-CBT context. This was because participants valued qualities of ‘humanity’, and ‘responsiveness’ attributed to a human therapist. Through a process in which participants appeared to compare and contrast the strengths of the digital program with the PWP, most participants questioned the ‘meaningfulness’ of interacting with a digital platform that was incapable of understanding or responding to a client’s needs as demonstrated by the following quote:

*“an app is like a machine, it’s not personal at all. I think it’s good to have some element[s] of talking to a human about this kind of thing because I think you want reassurance as well, which you wouldn’t get from an app and if you did it would just be responses built in”.*

(P8, low-range Working Alliance Inventory Short Form – Client (WAI-SF-C))

Data from participant interviews revealed three broad PWP attributes considered to be important for the bond building process, namely the mental health providers' ability to; effectively demonstrate their understanding of their client's struggles and needs (sub-theme 1.1); convey that they are genuine in their endeavours towards the client (sub-theme 1.2); and forge a working partnership founded on friendliness, feeling cared for, empathy and trust (sub-theme 1.3) (see Table 2 for sub-theme descriptions and supporting quotes). Some participants elaborated on these concepts further to unearth granular insights of what it means to be in the presence of a PWP. Visually observing a PWP's non-verbal cues was reported to be especially important for gauging abstract relational concepts such as empathic understanding (sub-theme 1.1), and genuineness (sub-theme 1.2). The recognition of positive non-verbal cues appeared to increase congruence between the PWP and the client (sub-theme 1.3) throughout the course of therapy:

*"[During telephone therapy] he was like "mm hm, go on...so how do you feel?" I can't see his face. I don't know what he was thinking. I can't feel him. But during face-to-face [sessions] I think when I talk about something I can notice, his or her like facial expression. I know he's listening ...That make[s] me feel like talk[ing] more".*

(P14, WAI-SF-C score not available<sup>v</sup>)

**Table 2.** Theme 1, bond sub-theme descriptions and supporting quotes

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 1: Bond, 89%, (17)	
1.1 Feeling understood, 74% (14)	<b>P12, high-range WAI-SF-C score:</b>
The PWP's ability to make the client feel understood. This requires the PWP to	<i>"My therapist did make a real effort to try and get to know me, try to maybe get to know what made me tick and why I was feeling how I</i>

closely listen to the client, comprehend what is being said and demonstrate empathic awareness and insight into the client's concerns.	<i>did, rather than just assuming this is what you need without ... taking into account maybe what I as a person, personally needed".</i>
1. 2 Genuineness, 32% (6) The PWP's efforts to help the client, that are perceived as genuine and authentic, as opposed to procedural or routine.	<b>P9, low WAI-SF-C score:</b> <i>"To be honest, I kind of felt like she [PWP] was very fake...Every time I'd say something there would be an, ahh, it just felt not genuine at all, that she was just saying it because she thought I felt down..."</i>
1.3. Partnership, 74% (14) The ability of the client and PWP to achieve a working relationship that is akin to a friendship. Such a partnership is characterised by trust, feeling liked and feeling cared for.	<b>P12, high-range WAI-SF-C score:</b> <i>"I feel like she, as I said earlier, took the time to get to know me and ... what I was currently doing, so it did feel like she kind of knew me on an individual level, rather than just being the patient."</i>

\*WAI-SF-C: Working Alliance Inventory Short Form- Client.

Theme 2: Goals

‘Goals’ refers to the collaborative work between the PWP, the client and the digital interface, to appropriately identify what the client hopes to achieve through therapy (68% of sample endorsed the ‘goals’ theme, n=13). While ‘goals’ emerged as a distinct factor, it also appears to be interrelated with the ‘task’, thereby playing a fundamental role in framing activity-based tasks and maintaining the client’s motivation to work towards creating change.

*“The goal setting actually was something that I spoke to [the PWP] quite a bit about in the session [...] I was then like “God well what are my goals? [...] what, where am I exactly going?” (P5, higher-range WAI-SF-C score)*

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).

### Theme 3: Task

The 'task' refers to the careful selection and acceptability of the therapeutic activities prescribed to address the client's presenting symptoms ('activity-based task'), and the degree to which the support received by the healthcare provider on these activities is responsive ('responsive support').

The defining features of 'activity based-task' refers to the client's ability to work on tasks that are; personalised and acceptable for addressing the client's therapy goals (sub-theme 3.1); useful in promoting new learning, insights and reflection (sub-theme 3.2) and are complimentary across both modes of delivery (sub-theme 3.3). The defining features of 'responsive support' relate to the provider's (largely referring to the PWP's role) ability to appropriately respond to a range of clients' expressed and unexpressed needs to; maintain accountability (sub-theme 3.4); provide activity-based guidance (sub-theme 3.5); and have a safe-space for clients to express their feelings and emotions (sub-theme 3.6) (see Table 3 for sub-theme descriptions, and supporting quotes).

**Table 3. Theme 2, task sub-theme descriptions and supporting quotes**

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 3: Task 100%, (19)	
Activity-Based Task, 100% (19)	
3.1. <i>Personalisation, 95% (18)</i>	<b>P12, high-range WAI-SF-C Score:</b>
The level at which a client is able to tailor the therapeutic task to their individual needs. A non-personalised digital intervention was reported to negatively impact engagement. The <b>PWP</b> in blended-therapy can play an important role in making a generic intervention (i.e. computerised CBT) as more personalised.	<i>"I think it's a bit more personalised, because I would say whilst the E-Compared is good, it is still, it is to an extent generic, because it can't kind of know every single person that's watching the video, so whereas the therapists can kind of get an idea of you, your story, your journey, what's maybe led you to kind of this maybe relapse, or for you to be feeling the way you are, and you can't maybe get that from a</i>

<p>computer...Whereas if I'm hearing it from the person, I'm going to take a bit more notice, but then if I'm just hearing it from the computer, where it will say that to everyone watching the video"</p>	
<p>3.2. Usefulness, 95% (18)</p> <p>A useful task was defined as one that promotes new learning, reflection and is effective in creating desired change in the client's life.</p>	<p><b>P4, medium-range WAI-S-C score:</b></p> <p>"But like the modules themselves, feelings-wise they were often quite helpful for clarifying stuff. Like I usually came out the other end feeling better or more kind of composed...it would kind of shape how I was seeing things. So like if I, you know learned about thought distortions, I'd kind of go in with that knowledge and be able to kind of talk about it..."</p>
<p>3.3. Complementary, 84% (16)</p> <p>The ability to experience complementary tasks in face-to-face therapy and on the digital platform as continuous and cohesive, as opposed to stilted and disjoint. Knowing what to expect from the respective components of blended therapy was reported to help the client optimise the benefits sought from different components of therapy.</p>	<p><b>P16, medium working alliance:</b></p> <p>"I was finding it really hard to leave the house so that whole thought of going to therapy was quite difficult in the very beginning, so it did take me a couple of sessions to really start talking to [therapist] and opening up but because I had this online support I found it easier to open up to [therapist] so maybe instead of you know, two sessions it would have taken four or five."</p>
<p>Responsive support Task, 100% (19)</p>	
<p>3.4. Accountability, 79% (15)</p> <p>The availability of a figure of authority that the client can (positively) feel responsible towards, as a means of garnering motivation to work on therapeutic activities. For the process of accountability to positively impact the client's motivation, a PWP is required to demonstrate their knowledge of the client's progress and provide feedback accordingly.</p>	<p><b>P19, medium-range WAI-S-C score:</b></p> <p>"Oh right, OK. Well, to me, I saw it like homework, you've got to get it done otherwise you get into trouble, not that I would have got in trouble, but do you know what I mean, you're sort of motivated that way. And there is the other, the embarrassment of going in and saying 'oh yeah, I didn't do the modules' and then you feel really about that big and you know, someone's trying to help you and you haven't bothered to do your bit kind of thing. So that was a motivation in itself."</p>

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

### 3.5. Guidance, 89% (17)

The provision of guidance and reassurance on the therapeutic tasks by a **PWP**. The PWP's intuition, expertise, interpretation and foresight is especially considered as helpful in addressing salient issues that would not have otherwise been communicated by the client.

#### P10, high-range WAI-SF-C score:

*"When you speak to your therapist, obviously she's had a lot of different scenarios with a lot of different people, she's got the experience and the know-how, and then obviously how I'm looking at it thinking the module's really working like this, she then says, "That's really brilliant, but to then add onto that and to support you, how about if you think about that?."*

### 3.6. Expression of feelings 100% (19)

The client's expressed need to speak to another human being, in order to communicate issues that are pertinent to their treatment journey. In order for the client to optimally benefit, clients require the **PWP** to dedicate a sufficient amount of time for the activity. The amount of time required by each person appears to vary in relation to pre-therapy expectations and symptom severity.

#### P14, WAI-SF-C score unavailable:

*"I think it's nice to have someone to talk to. It's kind of, I think it's important for me to express my feelings like in a private situation. Because sometimes I have, kind of I live with my partner but, you know, some[times], you can't talk to her."*

WAI-SF-C: Working Alliance Inventory Short Form-Client.

The majority of participants noted the importance of experiencing the therapeutic activity as complementary across modes of delivery (sub-theme 3.3). Some participants elaborated that an initial step to achieving an effective symbiotic delivery was to provide the client with an understanding of how the PWP and digital delivery contributed towards their treatment both distinctively and collectively.

Our findings also suggested that the ubiquity of c-CBT appeared to positively impact the client-PWP WA, through increased opportunities to reinforce what was learned through the digital platform, with a PWP, and vice-versa, for instance:

*“Well I think it gave you something to do over and above the face-to-face... having the modules to go through, it reinforces what you’re talking about face-to-face and makes it easier to understand. It’s, that repetition thing isn’t it where you learn by repetition basically and that’s how I saw it working.”*

(P17, WAI-SF-C score not available)

Theme 4: Usability heuristics

The final alliance building theme identified is, ‘usability heuristics’, which refers to the process of predominantly using technology to promote active engagement, self-discovery and autonomous problem solving in b-CBT. This category is a novel component to Bordin’s[9,10] theory. Features that enable ‘usability heuristics’ include ubiquitous digital technologies that; increase access and immediacy to the therapeutic task (sub-theme 4.1), appropriately respond to the client’s input (sub-theme 4.2), are easy to use (sub-theme 4.3) have aesthetic appeal (sub-theme 4.4) and promotes self-directed therapy (sub-theme 4.5) (see Table 4 for sub-theme descriptions, and supporting quotes).

While PWP competencies emerged as the most important facilitator for building the alliance, almost all participants expressed that they preferred blended psychotherapy to face-to-face therapy alone. Some participants elaborated that their ability to access the intervention at any time or place of convenience (sub-themes 4.1) further bolstered their engagement to therapeutic activities (theme 2). Participants who reported a high technological affinity suggested that the appearance (sub-theme 4.4) and ease of use (sub-theme 4.3) of the interface impacted their

perceptions of the digital program's credibility and therefore, their desire to engage in treatment activities.

Almost all participants reported that the digital program provided them with the tools to initiate treatment independently (sub-theme 4.5), with some participants noting that they continued to use the digital program as a means of maintaining therapeutic gains once their therapy course had ended. Here, autonomous completion of the therapeutic task was described as a secure-base that allowed clients to progressively explore self-directed therapy:

*"it kind of reminds me of Winnicott and the Secure Base in Attachment theory in psychology, that you know, children become securely attached if they have a secure base in terms of the home and the parents that they can come back to, so they can go off and explore the world confidently in the knowledge that they can come back to security, and that, that helps them to develop - and it's kind of like that, I feel, with having that Moodbuster resource [digital program] there, that you can keep coming back to it ... there is a lot in there and you can keep going back and it's a sort of source of strength really".*

(P10, higher-range WAI-SF-C score)

Participants suggested that the blended approach prepared the client to engage in autonomous self-directed therapy, through a process of supervised autonomy.

**Table 4: Theme 4, Usability heuristics, sub-theme descriptions and supporting quotes**

Theme, percentage of sample endorsed (n) and description	Supporting quotes
THEME 4: Usability heuristics, 100% (19)	

4.1. Accessibility, 95% (18)

The ability of a client to access the digital intervention at a time and place of convenience. Higher accessibility provides opportunities for the client to review and reflect on what has been learned at a deeper level.

**P10, high-range WAI-SF-C score:**

"Being on your own you know, in your own time and in your own safe place, your blanket, whatever you call it just allowed me personally just to open up and look at it, and then going from the start of the process to the end, ... thinking positively, looking at your behaviours, looking at adding little things in and then the exercise at the end, rewarding yourself for just achieving things what I felt at the time were trivial made everything different."

4.2. Interactivity, 63% (12)

An interactive digital program that is able to react to the clients input, to produce feedback. Interactive activities were perceived as more enjoyable, and promoted a degree of accountability.

**P6, high working alliance:**

"One thing immediately comes to mind, it has to be a bit more interactive I think. The client shall we say, as well I feel should be given more feedback, the results, you know when you're scoring yourself on those, what that's about you know, how do they interpret that score, when you're putting your mood in on the smartphone, what's that about you know, who's looking at that, who's interpreting that".

4.3. Ease of use, 63% (12)

The ease of use of the digital interface is described as a well-functioning, intuitive, digital interface which enables optimal access to the therapeutic task.

**P2, high-range WAI-SF-C score:**

"It was really nice, I thought it was really, well very well presented I would say, and everything was just there, like for easy viewing, so you didn't have to like go through like folders or like go deeper into the website, like it was just there, and you know, I could just easily click on what I needed to do and just follow the instructions set out on the exercises."

4.4. Aesthetic appeal, 21% (4)

The appearance or appeal of the digital interface is a factor that clients use to judge the credibility of the digital intervention and which could impact their engagement to the therapeutic task.

**P13, medium-range WAI-SF-C score:**

"Yeah, and actually it became quite a bit of work just keeping up with the calendar, sort of, I found it a bit clunky, but then I worked in I.T for sixteen years..."

#### 4.5. Self-directed, 79% (15)

The process of taking responsibility for one's own behaviour and well-being, appears to instil clients with a sense of independence and control.

#### P3, medium-range WAI-SF-C score:

"Other times it was good kind of to do a time and also independence, kind of learning to do stuff without a therapist there...I quite liked that I could, I don't know for me because it, I suppose it ties back into the independence thing, but because I was doing it on my own I almost proved I could do it on my own...because I feel like sometimes with a therapist you almost become like dependent on them or, it's like being taught something, when you're like dependent on the teacher."

WAI-SF-C: Working Alliance Inventory Short Form – Client.

## DISCUSSION

### Statement of principal findings

The results of the study present a preliminary conceptual framework of WA in b-CBT. It can be seen that Bordin's[9,10] 'bond', 'goals' and 'task' appear to be relevant in blended formats of CBT, however the priorities of WA demands have shifted to meet the client needs within a blended format. Moreover, an entirely new category 'usability heuristics', emerged as a novel means of promoting a new level of WA through a process of self-directed discovery and autonomous problem solving. Participants also explained that different modes of delivery by the PWP (e.g. client-provider bond, responsive support) and the digital program (e.g., upholding goals, task and promoting usability heuristics) were useful for meeting different WA demands.

### Strengths and limitations of the study

To our knowledge, this study appears to be the first to provide an account of WA in b-CBT, and insights on how different treatment roles within a blended format of therapy, are used to

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

476 meet different WA demands. This is especially important given that, digital technologies are  
477 increasingly being used to treat mental health conditions,[4] and that WA plays an important  
478 role in promoting positive therapeutic change.[12] The design of our study had two key  
479 strengths. First, we used the most comprehensive and commonly used theory of the ‘alliance’  
480 to approach our study.[36] Second, involving patient involvement enabled the project to be  
481 grounded on the needs and interests of people who have experienced mental health conditions  
482 and service use, thereby enhancing the application of the findings.[23] There are also several  
483 limitations to be noted. Our study does not include the PWP’s perspective, which may have  
484 provided additional insights on WA in b-CBT, [18] however, this will be explored in a separate  
485 paper. Our sample was limited to 19 individuals with a primary diagnosis of mild-to-moderate  
486 depression who mostly reported moderate to high WA, were largely male, British white or  
487 white other and university educated, thereby limiting the representativeness of people seeking  
488 treatment in the UK[37] and restricting the generalisability of our findings. Exposure to only  
489 one type of digital program, may have influenced participant’s experience of WA. For instance,  
490 a computerised platform that doesn't work adequately might generate more data on the  
491 importance of ‘ease of use’, than one that does. Some of these issues were pre-empted ahead  
492 of the study. Efforts were made to strengthen the conceptual framework in two ways. First,  
493 emerging participant data was guided by key literature on the alliance and patient involvement  
494 input. Second, our qualitative data analysis avoided the use of surface level themes, such as  
495 specific technological design. Instead, latent thematic analysis was used to unearth underlying  
496 psychological processes.[33]

498 **Strengths and weaknesses in relation to other studies, discussing important differences in**  
499 **results**

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

Participants fed back that, while it was essential for therapeutic activities to be complimentary between modes of delivery, they also suggested that modes of delivery can uniquely meet different WA needs. For instance, participants unanimously fed back that the PWP played an essential role in establishing the 'bond'. The role of the practitioner in supporting digital interventions is well documented in the literature.[6] A recent study evaluating the relationship between the client, the human provider and their c-CBT program, found that participants rated their overall treatment approach higher when they experienced c-CBT that was guided by a human provider compared to c-CBT that was unguided.[7] Another study evaluating the expectations of clients and practitioners in c-CBT for depression found that personalised interactions with a therapist were key[38] When attempts were made to unpack the importance of the therapist's role, participants suggested that the PWP's physical presence facilitated the PWP's propensity to convey important features of the bond (sub-themes 1.1-1.3) through verbal and non-verbal communication. This aligns with early psychotherapy research by Karl Rogers[39], who proposed that a therapists ability to display active listening (empathic understanding, unconditional positive regard, and congruent behaviour) was important for positively changing the impressions of the client's perceived negative experiences. Neuroscientific research evaluating the impact of active listening, suggested that the participant's recognition of active listening behaviour in another, can positively change the appraisal of an emotional episode and increased positive impressions of the active-listener.[40] These findings appear to be unique to human-to-human interactions. One study assessing the therapeutic alliance in a digital mental health mobile application for psychosis found that the anthropomorphizing of digital devices was not accepted by clients or mental health practitioners.[20] Given that little gains have been made to effectively deploy emotional artificial intelligence, a tool that is required for the effective biomimicry of human-beings in

1  
2  
3 524 the digital space,[41] the exclusion or non-effective deployment of a human provider in digital  
4  
5 525 psychological interventions may therefore compromise the quality of WA.  
6  
7  
8 526 On the other hand, participants reported that while the PWP was essential for the effective  
9  
10 527 delivery of psychotherapy, participant’s preferred blended delivery compared to PWP delivery  
11  
12  
13 528 alone. Almost all participants reported WA benefits, in the form of engagement, to digital  
14  
15 529 delivery (i.e. ‘usability heuristics’), through desired opportunities to engage in self-directed  
16  
17  
18 530 therapy. Our findings are echoed in the digital mental health user-experience and the alliance  
19  
20 531 literature, which indicate that digital psychotherapy can enhance the client’s perceived control,  
21  
22 532 autonomy and feelings of empowerment, when sufficient human support is provided.[20,42]  
23  
24 533 Our findings suggest that digital delivery within a b-CBT format cannot be disentangled from  
25  
26 534 WA. For instance, a digital program that was perceived as non-interactive appeared to cause  
27  
28 535 ruptures in engagement with ‘activity-based task’. Given that digital delivery appears to have  
29  
30 536 a significant impact on engagement with ‘activity-based task’, we argue that the inclusion of  
31  
32 537 features that uphold existing alliance structures should therefore be accounted for in the WA  
33  
34 538 framework. Our findings align with Bordin’s[9,10] conceptualisation of WA, in which he  
35  
36 539 proposed that the therapeutic tool cannot be disentangled from the means in which the alliance  
37  
38 540 is built. This therefore suggests that the client-program WA can have an impact on the client-  
39  
40 541 PWP WA, and vice-versa, contrary to research findings that suggest that WA contributions are  
41  
42 542 independent and additive.[7]  
43  
44  
45  
46  
47  
48 543 The ‘task’ appears to play a central role in b-CBT, as initially theorised by Bordin[9,10]. Our  
49  
50 544 findings appear to address Bordin’s[10] call to distinguish between the task that is in service  
51  
52 545 of ‘building WA’ (responsive support) and the tasks in the service of ‘change’ (activity based-  
53  
54 546 task). While many of the ‘task’ sub-themes appear to be novel to Bordin’s[9,10] WA, with the  
55  
56 547 exception of complementary tasks (sub-theme 3.3), all other ‘task’ sub-themes, are in fact  
57  
58 548 implicit in his broad conceptualisation. The integration of technology in psychotherapy has  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

prompted a re-evaluation of the demands placed on WA by a blended psychotherapeutic format. For example, the concept of accountability is implicit and forms one of many appendages associated with the PWP's role in building and maintaining WA. However, this concept has been propelled to the forefront as an essential ingredient for maintaining the alliance in b-CBT, in line with David Mohr and colleagues' 'supportive accountability' model for e-health.[43]

While 'bond', 'task' and 'usability heuristic' emerged as distinct themes, the 'goals' appears to be especially interlinked to the 'task'. The data from the qualitative interviews indicated that 'goals' was grounded in 'goals-setting activities'. This however diverges from Bordin's[9,10] description of the goals, which appears to move further, to address the PWP's efforts to unearth the core struggles that have brought the client to psychotherapy, in great detail[10]. One possible reason for our findings may be explained by the time-lag between the assessment and the first therapy session, which may have led participants to only focus on their course of b-CBT and not the proceeding assessment where more in-depth explorations of the client's struggles and goals *may* have taken place. On the other hand, our study is not the first to question the operational distinctiveness of the 'goals' and the 'task'. The psychometric evaluation of the Working Alliance Inventory (based on Bordin's[9,10]WA) suggested that these concepts were highly interrelated,[30] while a more recent psychometric evaluation found that goals and task did not emerge as distinct factors.[44]

### **Meaning of the study: possible explanations and implications for clinicians and policymakers**

Our findings address, at least in part, three of the 10 clinical and research priorities of digital technology in mental health care identified by people with lived experience of mental health conditions, carers and health and social care practitioners (See Box 1).[8] WA, a common

1  
2  
3 574 element of psychotherapy appears to be both relevant and important in b-CBT for depression.  
4  
5 575 Human delivery appears to be central to the maintenance of empathy, gestures and non-verbal  
6  
7  
8 576 cues in which the PWP's role in b-CBT may focus on establishing the bond, and developing  
9  
10 577 and maintaining the client's engagement through responsive support (Q8). Participants noted  
11  
12 578 that both modes of delivery collaboratively contributed to the building of the alliance through  
13  
14 579 distinctive pathways. While human support is perceived as 'responsive' and 'meaningful',  
15  
16 580 digital delivery appears to promote autonomy and self-directed discovery (e.g. accessibility  
17  
18 581 and self-directed therapy) and plays an important role in maintaining WA across 'goal' and  
19  
20 582 'task' activities (e.g. ease of use, interactivity of digital program and aesthetic appeal). Our  
21  
22 583 findings appear to indicate that removing human support, seen as essential for the 'bond' and  
23  
24 584 'responsive support', may increase the risk of therapeutic ruptures and disengagement with  
25  
26 585 psychological interventions delivered using a blended format (Q1 and Q3). These findings can  
27  
28 586 be used to promote WA in technological design and clinical practice, thereby promoting  
29  
30 587 engagement to b-CBT interventions for depression, and the effective deployment of PWP and  
31  
32 588 digital support resources.  
33  
34  
35  
36  
37  
38

**Box 1.** Top ten research priorities for digital technology in mental health care, identified by the Priority Setting Partnerships [7].

Q1. What are the benefits and risks of delivering mental health care through technology instead of face-to-face and what impact does the removal of face-to-face human interaction have?

Q3. How can treatment outcomes be maximised by combining existing treatment options (medication, psychological therapies, etc.) with digital mental health interventions

Q8. Can the common elements of therapy (eg, empathy, gestures, non-verbal cues) that come from person-to-person interactions be maintained with digital technology interventions?

39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51 589  
52  
53  
54 590 **Unanswered questions and future research**  
55  
56  
57 591 We propose four directions for future research. First, while our findings outline WA demands  
58  
59 592 in b-CBT, it is unknown if fulfilling such demands will lead to positive clinical change. Future  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

research should aim to investigate if self-reported WA as defined by our conceptual framework, predicts therapy outcome. Second, WA should be further explored across different computerised programs, clinical groups, higher-intensity interventions and other digital technologies (e.g. virtual experiences, gamification and text-based interventions) intended for use within a blended format, especially in relation to understanding the demands of different digital technologies in shaping 'usability heuristics'. Third, our findings can be used to inform the design of behavioural intervention technology theories, as a means of enhancing engagement and adherence to the digital components of blended interventions for mental health conditions. Fourth, given the promising potential of harnessing digital technologies for bridging the gap in mental healthcare in low resource settings[45], future research should examine WA in digital mental health interventions in non-western cultures and settings.

604

605 **Word count: 6,148**

References

1. OECD/EU. Health at a Glance: Europe 2018: State of Health in the EU Cycle [Internet]. Paris: OECD Publishing; 2018. Available from: [https://doi.org/10.1787/health\\_glance\\_eur-2018-en](https://doi.org/10.1787/health_glance_eur-2018-en)[https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018\\_health\\_glance\\_eur-2018-en](https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018_health_glance_eur-2018-en)

2. World Health Organization. Mental health: New understanding, new hope [Internet]. Geneva; 2001. Available from: <https://www.who.int/whr/2001/en/>

3. WHO. Services and deinstitutionalization [Internet]. World Health Organization; 2019 [cited 2019 Dec 8]. Available from: <http://www.euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/priority-areas/services-and-deinstitutionalization>

4. Fairburn CG, Patel V. The impact of digital technology on psychological treatments and their dissemination. Behav Res Ther [Internet]. 2017 Jan 1 [cited 2019 Mar 14];88:19–25. Available from: <https://www.sciencedirect.com/science/article/pii/S0005796716301371>

5. Kleiboer A, Smit J, Bosmans J, Ruwaard J, Andersson G, Topooco N, et al. European COMPARative Effectiveness research on blended Depression treatment versus treatment-as-usual (E-COMPARED): study protocol for a randomized controlled, non-inferiority trial in eight European countries. Pol Clin NCT02389660 Regist Clin NCT02449447 Regist. 2016;17(30).

6. van Ballegooijen W, Cuijpers P, van Straten A, Karyotaki E, Andersson G, Smit JH, et al. Adherence to Internet-based and face-to-face cognitive behavioural therapy for depression: a meta-analysis. PLoS One [Internet]. 2014 Jan 16 [cited 2016 Jan

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

- 12];9(7):e100674. Available from:
- <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0100674>
7. Cavanagh K, Herbeck Belnap B, Rothenberger SD, Abebe KZ, Rollman BL. My care manager, my computer therapy and me: The relationship triangle in computerized cognitive behavioural therapy. *Internet Interv* [Internet]. 2018 Mar [cited 2019 Mar 5];11:11–9. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2214782917300258>
8. Hollis C, Sampson S, Simons L, Bethan Davies E, Churchill R, Betton V, et al. Identifying research priorities for digital technology in mental health care: results of the James Lind Alliance Priority Setting Partnership. *Lancet Heal Policy* [Internet]. 2018 [cited 2019 Mar 14]; Available from: [www.thelancet.com/psychiatry](http://www.thelancet.com/psychiatry)
9. Bordin ES. The generalizability of the psychoanalytic concept of the working alliance. *Psychother Theory, Res Pract*. 1979;16(3):252–60.
10. Bordin ES. Theory and research on the therapeutic working alliance: New directions. In: Horvath AO, Greenberg Leslie S, editors. New York: John Wiley & Sons, INC; 1994. p. 13–37.
11. Lambert MJ. Psychotherapy outcome research: implications for integrative and eclectic therapists. In: John C Norcross & Marvin R Goldfried, editor. *Handbook of psychotherapy intergration*. 1st ed. New York: Basic Books; 1992.
12. Norcross JC, Lambert MJ. Psychotherapy relationships that work II. *Psychother Theory Res Pract Train*. 2010;48(1):4–8.
13. Cameron SK, Rodgers J, Dagnan D. The relationship between the therapeutic alliance and clinical outcomes in cognitive behaviour therapy for adults with depression: A

- meta-analytic review. *Clin Psychol Psychother* [Internet]. 2018 May 1 [cited 2019 Jun 13];25(3):446–56. Available from: <http://doi.wiley.com/10.1002/cpp.2180>
14. Sucala M, Schnur JB, Constantino MJ, Miller SJ, Brackman EH, Montgomery GH. The therapeutic relationship in E-therapy for mental health: A systematic review. *J Med Internet Res*. 2012;14.
15. Vernmark K, Hesser H, Topooco N, Berger T, Riper H, Luuk L, et al. Working alliance as a predictor of change in depression during blended cognitive behaviour therapy. *Cogn Behav Ther* [Internet]. 2019 Jul 4 [cited 2020 Feb 25];48(4):285–99. Available from: <https://www.tandfonline.com/doi/full/10.1080/16506073.2018.1533577>
16. Kooistra, Ruwaard, Wiersma, van Oppen, Riper. Working Alliance in Blended Versus Face-to-Face Cognitive Behavioral Treatment for Patients with Depression in Specialized Mental Health Care. *J Clin Med* [Internet]. 2020 Jan 27 [cited 2020 Mar 3];9(2):347. Available from: <https://www.mdpi.com/2077-0383/9/2/347>
17. Pihlaja S, Stenberg J-H, Joutsenniemi K, Mehik H, Ritola V, Joffe G. Therapeutic alliance in guided internet therapy programs for depression and anxiety disorders – A systematic review. *Internet Interv* [Internet]. 2018 Mar 1 [cited 2018 Feb 8];11:1–10. Available from: <https://www.sciencedirect.com/science/article/pii/S2214782917300994>
18. Berger T. The therapeutic alliance in internet interventions: A narrative review and suggestions for future research. *Psychother Res* [Internet]. 2016 Jan 6 [cited 2017 May 10];1–14. Available from: <http://www.tandfonline.com/doi/full/10.1080/10503307.2015.1119908>
19. Barazzone N, Cavanagh K, Richards DA. Computerized cognitive behavioural therapy

- 677 and the therapeutic alliance: A qualitative enquiry. *Br J Clin Psychol* [Internet]. 2012  
 678 Nov [cited 2016 Oct 5];51(4):396–417. Available from:  
 679 <http://doi.wiley.com/10.1111/j.2044-8260.2012.02035.x>
- 680 20. Berry K, Salter A, Morris R, James S, Bucci S. Assessing Therapeutic Alliance in the  
 681 Context of mHealth Interventions for Mental Health Problems: Development of the  
 682 Mobile Agnew Relationship Measure (mARM) Questionnaire. *J Med Internet Res*  
 683 [Internet]. 2018 Apr 19 [cited 2019 Jun 13];20(4):e90. Available from:  
 684 <http://www.jmir.org/2018/4/e90/>
- 685 21. Torous J, Jän Myrick K, Rauseo-Ricupero N, Firth J. Digital Mental Health and  
 686 COVID-19: Using Technology Today to Accelerate the Curve on Access and Quality  
 687 Tomorrow. *JMIR Ment Heal* [Internet]. 2020 Mar 26 [cited 2020 Apr 25];7(3):e18848.  
 688 Available from: <http://www.ncbi.nlm.nih.gov/pubmed/32213476>
- 689 22. Warraich HJ, Califf RM, Krumholz HM. The digital transformation of medicine can  
 690 revitalize the patient-clinician relationship. *npj Digit Med* [Internet]. 2018 Dec 20  
 691 [cited 2019 Aug 13];1(1):49. Available from: [http://www.nature.com/articles/s41746-](http://www.nature.com/articles/s41746-018-0060-2)  
 692 [018-0060-2](http://www.nature.com/articles/s41746-018-0060-2)
- 693 23. Hayes H, Buckland S, Tarpey M. Briefing notes for researchers: Public Involvement in  
 694 NHS, public health and social care research [Internet]. 2012. 1–52 p. Available from:  
 695 [http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+](http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+researchers:+public+involvement+in+NHS,+public+health+and+social+care+research#2)  
 696 [researchers:+public+involvement+in+NHS,+public+health+and+social+care+research](http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+researchers:+public+involvement+in+NHS,+public+health+and+social+care+research#2)  
 697 [#2](http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Briefing+notes+for+researchers:+public+involvement+in+NHS,+public+health+and+social+care+research#2)
- 698 24. Kleiboer A, Smit J, Bosmans J, Ruwaard J, Andersson G, Topooco N, et al. European  
 699 COMPARative Effectiveness research on blended Depression treatment versus  
 700 treatment-as-usual (E-COMPARED): study protocol for a randomized controlled, non-

1  
2  
3 701 inferiority trial in eight European countries. *Trials* [Internet]. 2016 Aug 3 [cited 2017  
4  
5 702 Mar 10];17(1):387. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27488181>  
6  
7  
8 703 25. Krueger RA. *Focus groups : a practical guide for applied research*. Second. London:  
9  
10 704 Sage; 1994.  
11  
12  
13 705 26. Staniszewska S, Brett J, Simera I, Seers K, Mockford C, Goodlad S, et al. GRIPP2  
14  
15 706 reporting checklists: tools to improve reporting of patient and public involvement in  
16  
17 707 research. *BMJ* [Internet]. 2017 Aug 2 [cited 2019 May 24];358:j3453. Available from:  
18  
19 708 <http://www.ncbi.nlm.nih.gov/pubmed/28768629>  
20  
21  
22  
23 709 27. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression  
24  
25 710 severity measure. *J Gen Intern Med*. 2001 Sep;16(9):606–13.  
26  
27  
28 711 28. Lecrubier Y, Sheehan D, Weiller E, Amorim P, Bonora I, Harnett Sheehan K, et al.  
29  
30 712 The Mini International Neuropsychiatric Interview (MINI). A short diagnostic  
31  
32 713 structured interview: reliability and validity according to the CIDI. *Eur Psychiatry*.  
33  
34 714 1997;12(5):224–31.  
35  
36  
37  
38 715 29. Corbin J, Strauss A. *Basics of Qualitative Research: Techniques and Procedures for*  
39  
40 716 *Developing Grounded Theory*. Fourth. London: SAGE Publications; 2008.  
41  
42  
43 717 30. Horvath AO, Greenberg LS. Development and validation of the Working Alliance  
44  
45 718 Inventory. *J Couns Psychol*. 1989;36:223–33.  
46  
47  
48  
49 719 31. Beck Institute. What is Cognitive Behavior Therapy | Beck Institute [Internet]. 2016  
50  
51 720 [cited 2019 Jul 16]. Available from: [https://beckinstitute.org/get-informed/what-is-](https://beckinstitute.org/get-informed/what-is-cognitive-therapy/)  
52  
53 721 [cognitive-therapy/](https://beckinstitute.org/get-informed/what-is-cognitive-therapy/)  
54  
55  
56 722 32. Green J, Thorogood N. *Qualitative methods for health research*. Third edit. London;  
57  
58 723 2014.  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

- 724 33. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*  
725 [Internet]. 2006 Jan [cited 2017 Jan 23];3(2):77–101. Available from:  
726 <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>
- 727 34. Llewelyn S, Macdonald J, Aafjes-van Doorn K. Process–outcome studies. In: APA  
728 handbook of clinical psychology: Theory and research (Vol 2) [Internet]. Washington:  
729 American Psychological Association; 2016 [cited 2019 Jul 23]. p. 451–63. Available  
730 from: <http://content.apa.org/books/14773-020>
- 731 35. O’Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting  
732 Qualitative Research. *Acad Med* [Internet]. 2014 Sep [cited 2019 Dec 9];89(9):1245–  
733 51. Available from:  
734 [http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=000018](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)  
735 [88-201409000-00021](http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00001888-201409000-00021)
- 736 36. Cahill J, Barkham M, Hardy G, Gilbody S, Richards D, Bower P, et al. A review and  
737 critical appraisal of measures of therapist–patient interactions in mental health settings.  
738 *Health Technol Assess (Rockv)*. 2008;12(24).
- 739 37. IAPT. Analysis document for Improving Access to Psychological Therapies (IAPT)  
740 referral rates by sex and age and sex and ethnicity. [Internet]. London; 2017. Available  
741 from: [https://www.england.nhs.uk/publication/improving-access-to-psychological-](https://www.england.nhs.uk/publication/improving-access-to-psychological-therapies-services-analysis/)  
742 [therapies-services-analysis/](https://www.england.nhs.uk/publication/improving-access-to-psychological-therapies-services-analysis/)
- 743 38. Montero-Marín J, Prado-Abril J, Botella C, Mayoral-Cleries F, Baños R, Herrera-  
744 Mercadal P, et al. Expectations among patients and health professionals regarding  
745 Web-based interventions for depression in primary care: a qualitative study. *J Med*  
746 *Internet Res* [Internet]. 2015 Mar 10 [cited 2020 Apr 25];17(3):e67. Available from:  
747 <http://www.ncbi.nlm.nih.gov/pubmed/25757358>

1  
2  
3 748 39. Rogers CR. The necessary and sufficient conditions of therapeutic personality change.  
4  
5 749 J Consult Psychol [Internet]. 1957 [cited 2019 Apr 1];21(2):95–103. Available from:  
6  
7 750 <http://doi.apa.org/getdoi.cfm?doi=10.1037/h0045357>  
8  
9  
10  
11 751 40. Kawamichi H, Yoshihara K, Sasaki AT, Sugawara SK, Tanabe HC, Shinohara R, et al.  
12  
13 752 Perceiving active listening activates the reward system and improves the impression of  
14  
15 753 relevant experiences. Soc Neurosci [Internet]. 2015 [cited 2019 Apr 1];10(1):16–26.  
16  
17 754 Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25188354>  
18  
19  
20  
21 755 41. Schuller D, Schuller BW. The Age of Artificial Emotional Intelligence. Computer  
22  
23 756 (Long Beach Calif) [Internet]. 2018 Sep [cited 2019 Jun 21];51(9):38–46. Available  
24  
25 757 from: <https://ieeexplore.ieee.org/document/8481266/>  
26  
27  
28 758 42. Knowles SE, Toms G, Sanders C, Bee P, Lovell K, Rennick-Egglestone S, et al.  
29  
30 759 Qualitative meta-synthesis of user experience of computerised therapy for depression  
31  
32 760 and anxiety. PLoS One. 2014;9(1).  
33  
34  
35  
36 761 43. Mohr DC, Cuijpers P, Lehman K. Supportive accountability: A model for providing  
37  
38 762 human support to enhance adherence to eHealth interventions. J Med Internet Res.  
39  
40 763 2011;13(1).  
41  
42  
43 764 44. Hatcher RL, Barends AW. Patients’ view of the alliance of psychotherapy: exploratory  
44  
45 765 factor analysis of three alliance measures. J Consult Clin Psychol [Internet]. 1996 Dec  
46  
47 766 [cited 2017 Nov 17];64(6):1326–36. Available from:  
48  
49 767 <http://www.ncbi.nlm.nih.gov/pubmed/8991319>  
50  
51  
52  
53 768 45. Naslund JA, Aschbrenner KA, Araya R, Marsch LA, Unützer J, Patel V, et al. Digital  
54  
55 769 technology for treating and preventing mental disorders in low-income and middle-  
56  
57 770 income countries: a narrative review of the literature. The Lancet Psychiatry [Internet].  
58  
59 771 2017 Jun [cited 2019 Feb 25];4(6):486–500. Available from:

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

772 <http://www.ncbi.nlm.nih.gov/pubmed/28433615>

For peer review only

Enseignement Supérieur (ABES) .  
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

774 **Figure Legend**

775 Fig 1. Participant reported working alliance demands in a blended cognitive behavioural  
776 therapy intervention.

777 **FOOTNOTES**

778 **Contributorship statement**

779 Asmae Doukani (AD) developed the concept of the work. Patient involvement shaped the focus  
780 of the research. AD led all aspects of patient involvement. The design and analysis of the patient  
781 involvement focus groups was contributed to by Sarah Smith (SS), Jesus Montero-Marin  
782 (JMM), Caroline free (CF) and Ricardo Araya (RA). Arlinda-Cerga Pashoja (ACP) assisted  
783 with the patient involvement focus groups. AD, CF, SS significantly contributed to the design  
784 of the qualitative participant interview. AD led all aspects of data collection, analysis and  
785 interpretation. CF and Daniel Michaelson (DM) analysed a portion of the data independently.  
786 The iterative development of the conceptual framework was led by AD, overseen by DM and  
787 Ritsuko Kakuma (RK), and contributed to by CF, RA, and ACP. AD prepared all iterations of  
788 the manuscript, with significant contributions from RK, CF, DM, RA, JMM, SS and ACP.

789 **Acknowledgements:** The authors would like to thank, the E-compared trial for supporting the  
790 study and the eleven patient advisors whose input shaped the methodology of the project,  
791 including Abé Chekh-Dove El-Ghassani, Michael Clarke, Paul H Ware, Dr Sarah Markham  
792 and Tibby Stodel. We would also like to express gratitude to Dr Thomas Kabir from the McPin  
793 Foundation for his guidance on involving patient advisors, Dr Nicki Thorogood who provided  
794 guidance on the participant qualitative interviews methodology and to Shumaila Usmani who  
795 helped facilitate and transcribe the patient involvement focus group interviews. Jesus Montero-  
796 Marin is supported by the Wellcome Trust Grant (104908/Z/14/Z).

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

**Funding:** This work was supported by the E-compared trial, which was funded by the European Commission's Seventh Framework Programme (Health), grant agreement number 603098.

**Conflict of interest:** All authors have completed the ICMJE uniform disclosure form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

**Ethical approval:** The project was approved by the Health Research Authority's Ethics Committee on 17th April 2015 (REC reference: 15/LO/0511) and the London School of Hygiene and Tropical Medicine Research Ethics Committee on 9<sup>th</sup> June 2015 (Ethics Ref: 9409).

**Transparency declaration:** The lead author (AD) affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

**Data sharing statement:** The datasets generated and analysed during the current study are available from the corresponding author on reasonable request

<sup>i</sup> The use of the 'alliance' as a singular, broadly refers to the client-therapist alliance, and not to a specific variation (e.g. therapeutic alliance, working alliance, helping alliance etc.) which while at times used interchangeably, have distinct theoretical underpinnings.

<sup>ii</sup> PPI was enlisted before the focus of the project was finalised, therefore people with a range of lived experiences were invited to be involved.

<sup>iii</sup> The PWP workforce provide short-term, evidenced-based treatment in line with National Institute for Health and Care Excellence (NICE) guidance, to help people manage symptoms of mild to moderate depression and/or anxiety.

<sup>iv</sup> A participant who was allocated to the treatment as usual group was erroneously put forward as a suitable b-CBT candidate. This case was discovered during the interview, and corroborated with the E-compared trial manager after the interview. Data for this participant was not analysed.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

---

<sup>v</sup> The aim of the study was to explore the relevance of the working alliance and to adapt the theory for the context of a b-CBT intervention. During the data analysis phase, it was decided that emerging data that fitted with Bordin’s[9,10] conceptualisation, would be labelled according to existing categories (bond, goal, task). However, while the labels broadly fit with Bordin’s[9,10] key categories, these labels are specific to b-CBT WA demands.

<sup>vi</sup> WAI-SF-C scores are unavailable for participants who did not complete their online 3 month follow-up assessments on the E-Compared trial.

For peer review only

Enseignement Supérieur (ABES) .  
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

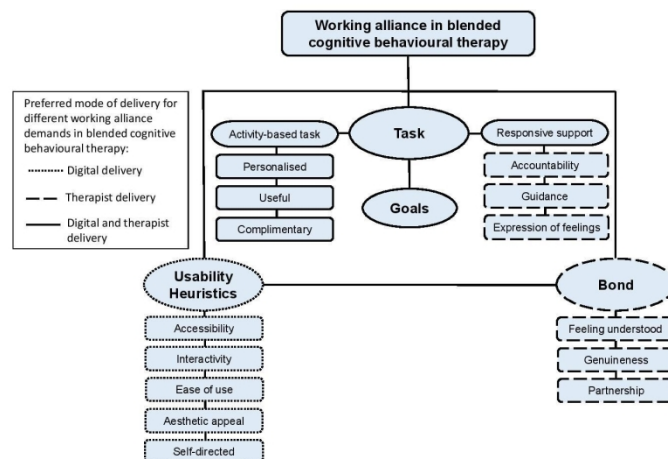


Fig 1. Participant reported working alliance demands in a blended cognitive behavioural therapy intervention.

16x9mm (3000 x 3000 DPI)

COREQ (Consolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
<b>Domain 3: analysis and findings</b>			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

**Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.**

# Reporting checklist for qualitative study.

Based on the SRQR guidelines.

## Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the SRQRreporting guidelines, and cite them as:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med. 2014;89(9):1245-1251.

	Reporting Item	Page Number
Title	<a href="#">#1</a> Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g. ethnography, grounded theory) or data collection methods (e.g. interview, focus group) is recommended	3
Abstract	<a href="#">#2</a> Summary of the key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results and conclusions	3-4
Introduction	<a href="#">#3</a> Description and significance of the problem / phenomenon studied: review of relevant theory and empirical work; problem statement	6-7

Purpose or research question	<a href="#">#4</a>	Purpose of the study and specific objectives or questions	6-7
<b>Methods</b>			
Qualitative approach and research paradigm	<a href="#">#5</a>	Qualitative approach (e.g. ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g. postpositivist, constructivist / interpretivist) is also recommended; rationale. The rationale should briefly discuss the justification for choosing that theory, approach, method or technique rather than other options available; the assumptions and limitations implicit in those choices and how those choices influence study conclusions and transferability. As appropriate the rationale for several items might be discussed together.	8-15
Researcher characteristics and reflexivity	<a href="#">#6</a>	Researchers' characteristics that may influence the research, including personal attributes, qualifications / experience, relationship with participants, assumptions and / or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results and / or transferability	12
Context	<a href="#">#7</a>	Setting / site and salient contextual factors; rationale	12-13
Sampling strategy	<a href="#">#8</a>	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g. sampling saturation); rationale	8
Ethical issues pertaining to human subjects	<a href="#">#9</a>	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	9
Data collection methods	<a href="#">#10</a>	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative	12-13

1			process, triangulation of sources / methods, and	
2			modification of procedures in response to evolving	
3			study findings; rationale	
4				
5	Data collection	<a href="#">#11</a>	Description of instruments (e.g. interview guides,	8-7, 12-
6	instruments and		questionnaires) and devices (e.g. audio recorders)	13
7	technologies		used for data collection; if / how the instruments(s)	
8			changed over the course of the study	
9				
10				
11	Units of study	<a href="#">#12</a>	Number and relevant characteristics of participants,	15
12			documents, or events included in the study; level of	
13			participation (could be reported in results)	
14				
15	Data processing	<a href="#">#13</a>	Methods for processing data prior to and during	13-15
16			analysis, including transcription, data entry, data	
17			management and security, verification of data	
18			integrity, data coding, and anonymisation /	
19			deidentification of excerpts	
20				
21	Data analysis	<a href="#">#14</a>	Process by which inferences, themes, etc. were	12-15
22			identified and developed, including the researchers	
23			involved in data analysis; usually references a specific	
24			paradigm or approach; rationale	
25				
26	Techniques to enhance	<a href="#">#15</a>	Techniques to enhance trustworthiness and credibility	9-12,
27	trustworthiness		of data analysis (e.g. member checking, audit trail,	14-15
28			triangulation); rationale	
29				
30				
31				
32	<b>Results/findings</b>			
33				
34	Syntheses and	<a href="#">#16</a>	Main findings (e.g. interpretations, inferences, and	15-25
35	interpretation		themes); might include development of a theory or	
36			model, or integration with prior research or theory	
37				
38	Links to empirical data	<a href="#">#17</a>	Evidence (e.g. quotes, field notes, text excerpts,	15-25
39			photographs) to substantiate analytic findings	
40				
41				
42	<b>Discussion</b>			
43				
44	Intergration with prior	<a href="#">#18</a>	Short summary of main findings; explanation of how	26-31
45	work, implications,		findings and conclusions connect to, support,	
46	transferability and		elaborate on, or challenge conclusions of earlier	
47	contribution(s) to the field		scholarship; discussion of scope of application /	
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				

generalizability; identification of unique contributions(s) to scholarship in a discipline or field

Limitations	<a href="#">#19</a>	Trustworthiness and limitations of findings	26-31
<b>Other</b>			
Conflicts of interest	<a href="#">#20</a>	Potential sources of influence of perceived influence on study conduct and conclusions; how these were managed	38
Funding	<a href="#">#21</a>	Sources of funding and other support; role of funders in data collection, interpretation and reporting	39

#### Notes:

- 15: 7-10, 12-13 The SRQR checklist is distributed with permission of Wolters Kluwer © 2014 by the Association of American Medical Colleges. This checklist was completed on 09. December 2019 using <https://www.goodreports.org/>, a tool made by the [EQUATOR Network](#) in collaboration with [Penelope.ai](#)