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The Acceptability of Computer-Aided Cognitive Behavioural Therapy: A Pragmatic Study

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Abstract. The clinical and cost-effectiveness of a computer-aided cognitive behavioural therapy (CCBT) programme, *Beating the Blues*, is indicated by a number of studies, but relatively little is known about its acceptability for patients with depression, anxiety, or both. This study investigated the acceptability of *Beating the Blues* offered on eight scheduled clinic visits with brief face-to-face support. Pre and posttreatment measures explored the relationship among programme acceptability, treatment continuation, and outcomes for people accessing the programme in routine care. Two hundred and nineteen patients with depression, anxiety, or both were offered *Beating the Blues* in 11 primary and secondary care practices. One hundred and ninety-one (87%) completed the pretreatment measures and 84 (38%) completed a treatment feedback questionnaire. Analysis of treatment acceptability for CCBT indicated a positive patient experience with the programme. Pretreatment expectancies predicted CCBT treatment completion but not outcomes. No differences were found between men and women on pretreatment measures. Posttreatment, women reported more favourable responses to the therapy, finding the programme more helpful and more satisfactory, than did men. No relationship between treatment acceptability and age was found. Study limitations, including research methods and attrition rates, and implications for future research are discussed. It is concluded that the *Beating the Blues* CCBT programme is an acceptable treatment for common mental health problems in routine care. *Key words:* computer-aided cognitive behavioural therapy; CCBT; *Beating the Blues*, treatment acceptability; depression; anxiety.

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Mental health services are using a number of strategies to expand the availability of psychological treatments for common mental health problems and to extend the reach of evidence-based interventions. Stepped-care approaches indicate that, for mild to moderate anxiety and depression, brief interventions with minimal therapist guidance are likely to be appropriate for many people (e.g. National Institute for Health and Clinical Excellence [NICE], 2004a, 2004b). One such strategy is

the implementation of computer-aided cognitive behavioural therapies (CCBT; U.K. Department of Health, 2007). In its 2006 technology appraisal of CCBT, NICE recommended two such programmes as treatment options for anxiety – *FearFighter* – and depression – *Beating the Blues* – in the National Health Service (NHS).

Although there is a growing evidence base for the clinical and cost-effectiveness of CCBT programmes (e.g. Marks, Cavanagh, & Gega,

2007; NICE, 2006), little is known about their acceptability to patients. It has been hypothesized that computer-aided therapies might be especially acceptable to young males, whose rates of consultation with traditional mental health professionals are typically low (Proudfoot, 2004).

To date, no published study has explicitly addressed patients' pretreatment expectations of CCBT. Professional expectation about computer-aided therapy is dominated by uncertainty and the belief that patients find face-to-face therapies more acceptable (Whitfield & Williams, 2004). Two studies evaluating the acceptability of computer therapy programmes among student populations have supported this concern. In these studies, the computer-aided therapy programmes fared poorly, being rated 12 out of 14 in order of personal preference for treatments of posttraumatic stress disorder (Tarrier, Liversage, & Gregg, 2006) and as the preferred treatment choice for depression for only 10% of participants (Mitchell & Gordon, 2007). However, the computer-aided therapy programmes described in these studies had a limited evidence base, and prior knowledge of computer-based therapies in the samples was low. Attitudes toward computer-aided therapy for depression improved somewhat after a demonstration of the CCBT programme (Mitchell & Gordon, 2007).

In contrast to these findings, there is some evidence that many potential users of mental health services want to access computer-aided therapies (Graham, Franses, Kenwright, & Marks, 2000) and that many patients who are offered CCBT take up the programmes as they are presented (Marks, Kenwright, McDonough, Whittaker, & Mataix-Cols, 2004; Proudfoot et al., 2004, cf. Whitfield, Hinshelwood, Pashely, Campsie, & Williams, 2006). CCBT completion rates in randomised controlled trials (Marks et al., 2004; Proudfoot et al., 2004) and pragmatic studies (Cavanagh et al., 2006; Kenwright, Liness, & Marks, 2001; Wright et al., 2002) are comparable to those seen in face-to-face cognitive behavioural therapies (CBTs; Watkins & Williams, 1998; Westbrook & Kirk, 2006), adult outpatient psychology services (Aubrey, Self, & Halstead, 2003), and primary care counselling/therapy services (Evans, Connell,

Barkham, Marshall, & Mellor-Clark, 2003). Such findings suggest that CCBT can be an acceptable alternative for people with anxiety and or depression.

Where posttreatment satisfaction with CCBT has been investigated, patients typically report high satisfaction (Whitfield et al., 2006; Wright et al., 2005), mirroring findings in face-to-face therapies (Hemmings, 1997; Seligman, 1995). Patients receiving CCBT are as satisfied as those receiving clinician-led CBT (Marks et al., 2004) and are more satisfied than those receiving usual care (Proudfoot et al., 2004; cf. King et al., 2000). However, this evidence is piecemeal and relies largely on single-item measures of satisfaction (see Kaltenthaler, Sutcliffe, Parry, Beverly, & Ferriter, 2008, for a review).

Several reviews have highlighted the importance of examining treatment acceptability in the development and evaluation of nontraditional treatment options such as CCBT (e.g. Kaltenthaler, Parry, & Beverly, 2004; Richards, 2004; Richardson & Richards, 2006). More research is needed to understand why patients do not take up or drop out early from different types of CCBT and what they make of their experiences using such programmes (Marks et al., 2007).

In traditional, face-to-face therapies, there is some evidence that positive expectations and experiences of treatment are associated with longer treatment continuation (Longo, Lent, & Brown, 1992) and improved treatment outcomes (Kirsch, 1999; Meyer et al., 2002; Sotsky et al., 1991; Weinberger & Eig, 1999). The treatment principle credibility of cognitive behavioural approaches is typically high (Hardy, Barkham, Shapiro, Reynolds, & Rees, 1995; Pistrang & Barker, 1992) and may raise patients' expectations for these therapies. Pretreatment credibility, including expectation of outcome, predicts treatment outcomes for patients receiving brief (eight-session) psychological therapies (Hardy et al., 1995). It is anticipated that the same principles will apply to new therapeutic delivery models, such as CCBT, although to date little is known of the relationship between the expectation and experience of CCBT and treatment continuation and outcome.

In accord with the National Service Framework for Mental Health's guiding principle that mental health services should

“deliver high quality treatment and care which is known to be effective and *acceptable*” (UK Department of Health, 1999, p. 4, italics added), the present study systematically examines the acceptability of CCBT when accessed in routine primary and secondary care. It measures treatment principle credibility and pretreatment expectations of CCBT and, for those completing treatment, post-therapy evaluation of the experience. It also marries these acceptability variables with measures of treatment continuation and outcome in order to test hypotheses about the role of treatment acceptability in treatment effectiveness. Finally, this study tests the hypothesis that the acceptability of CCBT will be mediated by age and gender (being more acceptable to younger, and male, patients).

Method

Design

A naturalistic, open trial was undertaken of an eight-session CCBT programme offered as part of routine primary and secondary care in 11 participating health care practices comprising eight general practices (four rural, four urban), two community mental health teams, and one primary care clinical psychology service. Each participating service had purchased an annual licence to use the CCBT programme *Beating the Blues* (for more details, see www.ultrasis.com), which included a 2-hr staff training course on how to use the programme. Patient-level pretreatment data were established at intake, and posttreatment data were collected immediately after the final computer session. Additional clinical outcome data from this study are reported elsewhere (Cavanagh et al., 2006).

Participants

The study population consisted of 219 adults—131 (60%) women, 88 (40%) men—with anxiety, depression, or both and identified by a health professional (general practitioner [GP], clinical psychologist, community psychiatric nurse, CBT therapist, counsellor) as likely to benefit from CCBT. To be included in the study, participants had to (1) be in the age range of 16 to 75 years; (2) suffer from depression, mixed anxiety/depression, or anxiety disorder (including panic or phobias);

and (3) score 4 or higher on the 12-item General Health Questionnaire (GHQ-12; Goldberg, 1972), without meeting any of the following exclusion criteria: currently receiving face-to-face psychological treatment or counselling for the target condition; experiencing suicidal ideation; or having a current diagnosis of psychosis, organic mental disorder, or primary alcohol/substance use disorder.

Participants ranged in age from 19 to 70 years ($M=44$, $SD=12$). The mean number of participants per site was 19.7 ($SD=12.6$, range=7–48). One hundred and ninety-five patients returned information on their type of problem on entry to the study: 32 (16%) reported depression, 31 (16%) anxiety, and 128 (65%) mixed anxiety and depression; four (2%) reported another specific problem. Reported problem durations ranged from 1 month to 47 years ($M=6$ years 8 months, $SD=9$ years 2 months).

Measures

Demographic information, treatment history, and previous computer experience were collected for all participants before commencement of the programme.

Opinions about Psychological Problems Questionnaire (OPP; Barker, Pistrang, & Shapiro, 1983). The combined cognitive (seven-item) and behavioural (six-item) treatment subscales of the OPP questionnaire (CB-OPP) were used to measure the treatment principle credibility of cognitive and behavioural therapies, that is, the extent to which users endorsed cognitive and behavioural principles as good ways of helping psychological problems. For each question, a response is given on a 7-point scale ($-3=$ totally disagree, $3=$ totally agree). The internal consistency for the CB-OPP was .72 in this study. *The Attitudes to CCBT Questionnaire* (A-CCBTQ). The A-CCBTQ was developed specifically for use with the *Beating the Blues* computer programme and was used to elicit treatment credibility, comprehensibility, and intended compliance. Its seven items include four from the Treatment Credibility Form (e.g. “How useful does the treatment seem to you?”; Morrison & Shapiro, 1987), two tapping users’ understanding of both CBT in general and the CCBT programme specifically

("Do you understand what CBT is?"), and a single item regarding intention to engage in homework. Each item is rated on a 9-point scale (0=*not at all*, 8=*extremely*). The internal consistency for the A-CCBTQ was .83 in this study.

The Patient Feedback Questionnaire for CCBT (PFQ-CCBT). This was developed specifically for use with the *Beating the Blues* computer programme and was used to elicit users' attitudes toward and experience with the CCBT programme regarding the introductory video ("How useful was the video?": 0=*not useful at all*, 4=*very useful*), programme features, satisfaction, and helpfulness and a comparison of the CCBT programme with previous treatments received for depression or anxiety.

The CCBT Features scale of the PFQ-CCBT is a five-item measure designed to tap users' evaluations of the specific multimedia features of the *Beating the Blues* programme. Each item is rated on a 5-point scale (1=*disliked a lot*, 5=*liked a lot*). The internal consistency for the CCBT Features scale was .84.

The CCBT Satisfaction scale of the PFQ-CCBT is a four-item measure designed to tap user's satisfaction with using the CCBT programme. Each item is rated on a 5-point scale (1=*disagree strongly*, 5=*agree strongly*). The internal consistency for the CCBT Satisfaction scale was .81.

The CCBT Helpfulness and Comparison scales of the PFQ-CCBT are single-item measures. The former is rated on a 4-point scale (1=*not helpful at all*, 4=*very helpful*) and the latter on a 5-point scale (1=*not good at all*, 5=*much better than previous treatment*).

As previously reported (Cavanagh et al., 2006), patients were screened for the study using the GHQ-12 (Goldberg, 1972), and clinical outcomes were assessed using the Clinical Outcomes in Routine Evaluation–Outcome Measure (CORE-OM; Barkham et al., 2001; Barkham, Gilbert, Connell, Marshall, & Twigg, 2005; Evans et al., 2002), the Work and Social Adjustment Scale (WSA; Mundt, Marks, Shear, & Greist, 2002), and the programme's routinely collected weekly single-item measures of anxiety and depression (0=*not at all anxious/depression*, 8=*extremely anxious/depressed*). Treatment attrition and stage of attrition for the CCBT programme were also noted for each user.

Treatment

Beating the Blues comprises eight treatment sessions, in addition to a 15-min introductory video, viewed on the computer. The eight interactive therapy sessions are normally taken at weekly intervals. Each session lasts about 50 min and is completed in the routine care setting (GP office, community mental health team centre, mental health resource centre, clinical psychology service), with homework projects to complete between sessions (e.g. problem diaries, thought records, behavioural experiments). Details of the content of sessions are presented in Proudfoot et al. (2003). Weekly progress reports, including the anxiety and depression ratings reported here, together with problem distress ratings, life events, and reported suicidality are generated and delivered to the GP or other health professional at the end of each session.

Procedure

During routine visits, local health professionals identified patients meeting study eligibility criteria and likely to benefit from CCBT and offered the treatment and associated research programme. Patients who agreed to take part completed the GHQ-12. Those who met the entry criterion of a score of 4 or higher on the GHQ were invited to read and endorse a Multi-Centre Research Ethics Committee-approved information and consent form (Northern and Yorkshire Multi-Centre Research Ethics Committee, no. 99/3/43).

Following completion of the informed consent procedure, the patient watched the *Beating the Blues* introductory video, completed the pretreatment research questionnaires (A-CCBT, OPP) in the service setting, and arranged a booking for their first computer session.

On patients' arrival at the first computer session, a clinical helper (generally a local service receptionist or administrator) spent approximately 5 min orienting patients to the computer programme, and at each subsequent computer session ensured that patients were settled at the computer before leaving them to work through the programme unattended. Patients were always informed of the clinical helper's location and availability for any assistance required during the session.

The PFQ-CCBT was completed in the routine care setting posttreatment (immediately after

each patient's last CCBT session). The CORE-OM and WSA were also administered pre and posttreatment. All scales were returned by hand to the clinical helper, who was not present during their completion.

Results

Trial profile/patient flow

Figure 1 details patient flow through the study. Of the 219 patients using the programme, 191 (87%) completed the A-CCBTQ, 189 (86%) completed the CB-OPP questionnaire, and 84 (38%) completed the PFQ-CCBT. Eighty-one (60% of the programme completer sample, $N=135$) of those completing the PFQ-CCBT had also completed all eight sessions of the computer treatment programme. No significant differences were found on the PFQ-CCBT between feedback completer and noncompleter samples in terms of gender, pretreatment computer experience, self-reported anxiety or depression at first session, setting (primary or secondary care) in which the patient was treated, type of problem (depression, anxiety, both), treatment credibility, pretreatment attitudes and expectations, pretreatment WSA, or pretreatment CORE-OM mean item score. The feedback completer sample was significantly

older than those who did not complete the feedback ($M=46$ years vs. 42 years), $t(208)=2.02$, $p<.05$. Eighty-two per cent of participants had used a computer before. No significant relationship was found between prior computer use and treatment expectations or outcomes.

Pretreatment expectations

Average ratings of CBT credibility were significantly higher than the neutral midpoint (0) on the CB-OPP scale ($M=1.8$, $SD=0.8$), $t(186)=29.5$, $p<.001$.

Table 1 presents the summary data from the A-CCBT Questionnaire. CCBT was rated higher than the midpoint (4) on all items of the A-CCBT (all $ps<.001$), finding it logical, useful, understandable, and engaging and having confidence in its benefits before treatment. Average item ratings of the acceptability of CCBT were significantly higher than the midpoint ($M=6.3$, $SD=1.1$), $t(183)=29.42$, $p<.001$.

Subgroup analyses revealed no significant differences in pretreatment attitudes to CCBT between groups according to gender (for males, $M=6.2$, $SD=1.1$; for females, $M=6.4$, $SD=1.1$) or age (using a median split above 42 years; younger, $M=6.2$, $SD=1.0$; older, $M=6.4$, $SD=1.1$).

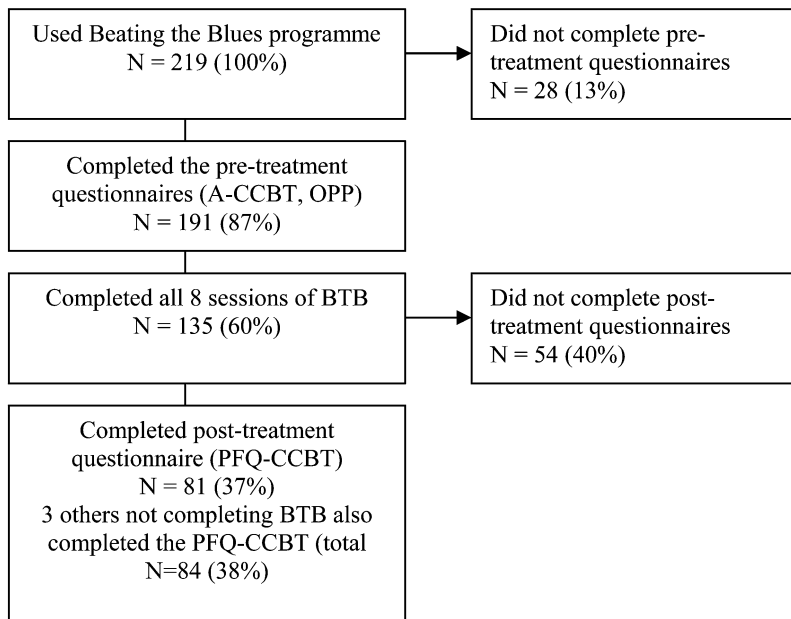


Figure 1. Trial profile: patient flow through acceptability study.

Table 1. Mean (SD) expectation ratings from Attitudes to CCBT Questionnaire items (N=191)

Item	M	SD
How logical does the treatment seem to you?	6.2	1.6
How useful does the treatment seem to you?	6.1	1.6
How confident are you that this treatment will help you?	5.3	1.8
Would you recommend this treatment to a friend?	5.6	1.7
How hard are you prepared to work on exercises?	7.4	0.9
Do you understand what CBT is?	6.4	1.7
Do you understand what <i>Beating the Blues</i> is?	6.8	1.4
Item mean total	6.3	1.1

Note. Ratings range: 0=not at all, 8=extremely. CCBT=computer-aided cognitive behavioural therapy; CBT=cognitive behavioural therapy.

Treatment principle credibility was significantly correlated with pretreatment CCBT expectations measured by the A-CCBT ($r=.35, p<.001$).

Posttreatment feedback and evaluation

Table 2 reports summary evaluative data regarding programme features from the PFQ-CBBT. Average ratings of the usefulness of the programme's introductory video were above the midpoint of 2.5 ($M=3.3, SD=0.6$), $t(81)=12.12, p<.001$. Subgroup analysis by gender revealed that women ($M=3.4, SD=0.6$) found the introductory video more useful than did men ($M=3.1, SD=0.6$), $t(82)=2.42, p<.05$. No significant differences in video ratings were found by age (younger, $M=3.2, SD=0.5$; older, $M=3.4, SD=0.7$).

Average ratings of the interactive, multi-media programme features were above the neutral midpoint of 3 on the PFQ-CCBT Features scale ($M=4.0, SD=0.67$), $t(80)=12.64, p<.001$. Subgroup analysis revealed that women ($M=4.5, SD=0.6$) rated CCBT features more favourably than did men ($M=3.6, SD=0.7$), $t(80)=3.4, p<.001$. CCBT feature ratings were unrelated to the age of participants (younger, $M=3.8, SD=0.7$; older, $M=4.0, SD=0.6$).

Table 3 presents a summary of CCBT Satisfaction scale data from the PFQ-CCBT. Average ratings were above the neutral midpoint of 3 on the PFQ-CCBT Satisfaction rating scale ($M=4.1, SD=0.67$), $t(81)=15.22, p<.001$. Subgroup analysis revealed that women ($M=4.2, SD=0.6$) rated CCBT satisfaction

Table 2. Response frequency data regarding programme features from the Posttreatment Feedback Questionnaire (N=83)

Item	Liked a lot	Liked	Neutral	Disliked	Disliked a lot
Presenters' instructions and explanations	26 (31.3%)	40 (48.2%)	16 (19.3%)	1 (1.2%)	—
Video clips of case study patients	38 (45.8%)	29 (34.9%)	12 (14.5%)	3 (3.6%)	1 (1.2%)
Graphics and cartoons	25 (30.1%)	35 (42.2%)	18 (21.7%)	5 (6.0%)	—
On-screen activities	23 (27.7%)	40 (48.2%)	17 (20.5%)	3 (3.6%)	—
Homework projects ^a	12 (14.6%)	33 (40.2%)	26 (31.7%)	8 (9.8%)	3 (3.7%)

Note. ^aOne participant did not complete this item (N=82).

Table 3. Response frequency data regarding programme experience from the Posttreatment Feedback Questionnaire ($N=84$)

Item	Agree strongly	Agree	Neutral	Disagree	Disagree strongly
I was happy to use the computer.	46 (54.8%)	31 (36.9%)	5 (6.0%)	0 (0.0%)	2 (2.4%)
I found the program easy to use. ^a	30 (36.1%)	40 (48.2%)	10 (12.0%)	0 (0.0%)	3 (3.6%)
I feel the course will have a long-lasting effect. ^a	15 (18.1%)	31 (37.3%)	30 (36.1%)	6 (7.2%)	1(1.2%)
I would recommend the program to other users. ^a	25 (30.1%)	39 (47.0%)	18 (21.7%)	0 (0.0%)	1 (1.2%)

Note. ^aOne participant did not complete this item ($N=83$).

more favourably than men ($M=3.8$, $SD=0.7$) $t(81)=3.0$, $p<.01$. CCBT satisfaction was unrelated to participants' age (younger, $M=4.0$, $SD=0.5$; older, $M=4.0$, $SD=0.7$).

Overall helpfulness of the programme

Eighty-nine per cent of patients providing feedback rated the programme overall as very (35%) or quite (54%) helpful, and averaged ratings of its usefulness were above the midpoint of 2.5 ($M=3.2$, $SD=0.7$), $t(80)=9.78$, $p<.001$. One patient (1%) reported that the programme was not helpful at all. Subgroup analysis by gender revealed that women were significantly more likely than men to rate the programme as very helpful, $\chi^2(1, N=81)=6.1$, $p=.02$, and as more helpful overall (women, $M=3.5$, $SD=0.6$; men, $M=2.9$, $SD=0.7$), $t(81)=3.23$, $p<.01$. CCBT Helpfulness scale ratings were unrelated to participants' age (younger, $M=3.2$, $SD=0.7$; older, $M=3.2$, $SD=0.7$).

Comparison between Beating the Blues and other treatments

Sixty-seven (80%) of the feedback completers reported having had prior treatment for anxiety, depression, or stress. Of these, 21 (31%) had received medication, seven (10%) had accessed counselling or psychotherapy services, and 39 (59%) had received both. Of those who had received prior treatment, 56 (83%) rated the programme as good as or better than the previous treatment(s) they had received, and average ratings of its usefulness

were above the midpoint ("about the same") of 3 ($M=3.7$, $SD=1.1$), $t(65)=4.99$, $p<.001$. One respondent (1%) endorsed the statement that *Beating the Blues* was "not good at all." No significant differences were found between groups receiving different prior treatment types (medication, $M=3.6$, $SD=1.0$; talking therapies, $M=3.9$, $SD=0.9$; both, $M=3.1$, $SD=1.1$) on comparative ratings of *Beating the Blues*, $F(2, 65)=1.1$, $p=.3$.

Relationship among treatment credibility, attitudes to CCBT, and treatment completion

Programme completers (attending all eight sessions of *Beating the Blues*) reported significantly higher treatment principle credibility (measured by the CB-OPP; $M=6.0$, $SD=0.9$) than noncompleters ($M=5.6$, $SD=0.7$), $t(185)=2.8$, $p<.01$. No statistically significant difference in pretreatment attitudes to CCBT was found between programme completers ($M=6.5$, $SD=1.0$) and noncompleters ($M=6.2$, $SD=1.0$), although the analysis indicated a trend toward higher pretreatment expectations in completers, $t(182)=1.9$, $p=.06$.

Relationship among treatment credibility, attitudes to CCBT, and treatment outcomes

Controlling for pretreatment clinical scores, no significant relationship was found between treatment principle credibility and treatment outcomes on the CORE-OM ($r=.01$), WSA ($r=.14$), self-reported anxiety ($r=.08$), or

depression ($r=.05$). No significant relationship was found between pretreatment attitudes to CCBT and treatment outcomes on the CORE-OM ($r=.18$) or WSA ($r=.08$). Small but statistically significant relationships were found between pretreatment attitudes to CCBT and self-reported anxiety ($r=0.15$, $p<0.05$) and depression ($r=0.18$, $p<0.01$) ratings posttreatment.

Discussion

The primary aim of this study was to explore the acceptability of an evidence-based CCBT programme, *Beating the Blues*, by measuring pretreatment expectancies and posttreatment evaluations of patients accessing the programme in routine care. Our analysis indicated that CCBT, administered under minimal supervision, is associated with positive pretreatment ratings of treatment principle credibility and treatment expectations and, for programme completers, posttreatment ratings of high satisfaction.

CBT credibility for this routine care sample ($M=1.8$, $SD=0.8$) was comparable to that found in previous studies measuring treatment credibility in patients before commencing psychotherapy in specialist services (e.g. Hardy et al., 1995; CB-OPP scale, $M=2.0$, $SD=0.8$). After watching the programme's introductory video, patients' ratings of programme credibility, including expectation of outcome, were above the neutral midpoint. No differences were found in therapy expectations between patients who had previous computer experience and those who did not. No differences were found between male and female and between younger and older patients. This suggests that CCBT may be an acceptable treatment option for a wide range of people.

Higher treatment principle credibility and more positive expectations of CCBT predicted programme completion. This agrees with previous findings of research on traditional face-to-face therapy (Longo et al., 1992). It suggests that patients with preexisting positive expectations of CBT and CCBT may be more likely to complete a treatment episode and that raising understanding and expectation of CCBT in screening sessions may improve treatment continuation (see Hamilton & Dobson, 2002).

After completing their treatment episode with the CCBT programme, the majority of users giving feedback rated the multimedia features of the programme, programme satisfaction, and programme helpfulness positively, with few users rating any of the feedback questions negatively. Of users giving feedback, 89% rated the programme overall as very or quite helpful; one user rated the programme as "not helpful at all." Given the research and programme attrition rate in this study, this feedback is likely to skew positive, with less satisfied patients choosing not to return feedback questionnaires. However, previous research has indicated that CCBT treatment dropout is only partially accounted for by treatment dissatisfaction (see Kaltenthaler et al., 2008) and can be, in part, attributable to positive early response to the programme or other changes to patients' circumstances (Proudfoot et al., 2003).

Women in this study tended to give more positive feedback than men and report that the programme was more helpful. The gender difference in these ratings is especially interesting in light of the expectation that male users may find psychotherapies delivered by computer particularly attractive (Proudfoot, 2004). There is a paucity of research exploring gender differences in cognitive therapy for common mental health problems, with little evidence of disproportionate response benefits to either men or women (Hamilton & Dobson, 2002). Women in this study may have preferred aspects of the computer programme, such as the fact that three of five case vignettes presented involved a female and a female therapist/narrator voice is used throughout the introductory video and computer program. Alternatively, this gender difference could reflect a response bias such that females may tend to complete therapy satisfaction questionnaires in a more socially desirable way (cf. Gaston & Sabourin, 1992). Treatment satisfaction was not related to users' age, and there was no evidence from this study that younger people prefer CCBT as a treatment option more so than older people.

Of users giving feedback, those who had received previous treatment for episodes for anxiety, depression, or stress reported in 80% of cases that *Beating the Blues* was as good as or better than their previous experience. Only

one user rated the programme as “not good at all.” Interpretative caution is required because, in the absence of comparison data, findings may be accounted for by recency effects or a hindsight or social desirability bias.

Overall, our findings agree well with previous research indicating acceptance of computer-aided therapy and further support the idea that CCBT programmes may be considered acceptable by many service users.

The final aim of this study was to investigate the relationship among treatment principle credibility, CCBT expectations, and treatment outcomes. We found no evidence of a relationship between treatment principle credibility and treatment outcomes. This contrasts with evidence of better outcomes in patients rating CCBT as more logical (Osgood-Hynes et al., 1998). More research in this domain is warranted to clarify whether endorsement of therapeutic principles is an important factor in therapy outcomes across treatment media (cf. Hardy et al., 1995).

Neither did we find any strong evidence of a relationship between CCBT expectations and treatment outcomes. This contrasts with previous studies of face-to-face therapies demonstrating a powerful relationship between patients' expectancies of treatment effectiveness and clinical improvement (e.g. Sotsky et al., 1991). Although this relationship is supported by a pair of single-item distress ratings in our study, it is not supported in outcome measurement by psychometrically validated multi-item measures. One explanation for these weak findings might be that the novel nature of the CCBT treatment modality reduces the validity of patient expectations regarding engagement with the programme. That is, perhaps the introductory video does not sufficiently equip the user with the information required to make veridical judgments about the treatment's effect. It has certainly been argued that treatment expectancies become stronger predictors of treatment outcomes commensurately with patients' understanding of their treatment (Perotti & Hopewell, 1980). If this is the case, the predictive relationship between treatment expectations and CCBT outcomes may improve over time, as CCBT becomes more widely accessible with routine care and lay knowledge of the nature of these services expands.

Evidence from this study that people who had received prior treatment for depression or anxiety rated the CCBT programme above the midpoint of “about the same” for helpfulness has implications for the use of CCBT in stepped care. Although CCBT is typically indicated as a treatment for early steps of care, it may, in fact, be helpful for people who have not recovered using alternative therapies. This might suggest that CCBT could also be offered to patients higher up on the stepped-care hierarchy where deemed appropriate. Further research is needed to gain a better understanding of the implications of multiple episodes of treatment in stepped-care approaches, in particular the implications of sequential episodes of care where earlier episodes have been unsuccessful or benefits unsustainable.

Limitations

This article reports an uncontrolled study of the acceptability of a CCBT program. Standing alone, this research design warrants no firm conclusions as to the comparative acceptability of the CCBT program to alternative treatment options, including no treatment at all. No data were collected on the number of eligible participants who declined to take part in the study as offered by their health care practitioner. In addition, research attrition rates between pre and posttreatment measures were high. Although response rates were reasonable for patients completing the *Beating the Blues* programme (62%), the pragmatic nature of this research did not permit extensive follow-up of patients who had discontinued the CCBT programme to facilitate or encourage their completion of the research questionnaires. This kind of attrition rate appears typical of pragmatic therapy research (Bewick, Trusler, Mullin, Grant, & Mothersole, 2006). Because of this attrition, patient feedback findings may be generalisable primarily to programme completers, although the fact that no significant differences in demographic or problem variables were found between feedback completers and noncompleters may improve their reliability.

Study findings relate to CCBT offered in a health care setting with brief face-to-face support. Further research is needed to address the acceptability of CCBT delivered via other methods, such as on the Internet accessed at home.

A further limitation was the use of novel and untested measures (A-CCBT and PFQ-CCBT) for programme evaluation. The further development of psychometrically robust measures to interrogate patients' experience of new therapeutic technologies is warranted. In addition, further measures administered later in the course of treatment (e.g. "emergent credibility" and "treatment alliance") may have exerted more powerful effects on outcome than pretreatment expectancy measures alone (cf. Meyer et al., 2002). Further research into the process of engagement with CCBT treatments is timely.

Conclusions

This study demonstrates the acceptability of routine-care CCBT services. These findings, coupled with evidence regarding the clinical impact (Proudfoot et al., 2004; Cavanagh et al., 2006) and cost-effectiveness (McCrone et al., 2004) of the CCBT programme, support its broader use within health care services.

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