

Brief Behavioural Activation (Brief BA) for Adolescent Depression: A Pilot Study

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Background: Depression in adolescence is a common and serious mental health problem. In the UK, access to evidence-based psychological treatments is limited, and training and employing therapists to deliver these is expensive. Brief behavioural activation for the treatment of depression (BATD) has great potential for use with adolescents and to be delivered by a range of healthcare professionals, but there is limited empirical investigation with this group. **Aims:** To adapt BATD for depressed adolescents (Brief BA) and conduct a pilot study to assess feasibility, acceptability and clinical effectiveness. **Method:** Twenty depressed adolescents referred to the local NHS Child and Adolescent Mental Health service (CAMHs) were offered eight sessions of Brief BA followed by a review around one month later. Self- and parent-reported routine outcome measures (ROMs) were collected at every session. **Results:** Nineteen of the 20 young people fully engaged with the treatment and all reported finding some aspect of Brief BA helpful. Thirteen (65%) required no further psychological intervention following Brief BA, and both young people and parents reported high levels of acceptability and satisfaction with the approach. The pre–post effect size of Brief BA treatment was large. **Conclusions:** Brief BA is a promising innovation in the treatment of adolescent depression. This approach requires further evaluation to establish effectiveness and cost effectiveness compared with existing evidence-based treatments for adolescent depression. Other questions concern the effectiveness of delivery in other settings and when delivered by a range of professionals.

Keywords: depression, adolescents, behavioural activation

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Introduction

Adolescent depression

Depression is a serious mental health problem in adolescence, with 2.6% of the world youth population experiencing depression at any one time (Polanczyk et al., 2015). Core symptoms include depressed mood or irritability, and/or a loss of interest and pleasure (anhedonia) along with other cognitive and behavioural changes including appetite and sleep disturbances, cognitive difficulties and negative self-perceptions (American Psychiatric Association, 1994). Depression in adolescence predicts a wide range of long-term negative impacts, including mental illness in adulthood (McLeod et al., 2016), educational under-achievement (Fletcher, 2008), and increased risk of suicidal behaviour (Cash and Bridge, 2009).

Adolescent depression treatments

The current National Institute for Health and Care Excellence (NICE) guidelines for treatment of moderate/severe depression in young people recommend individual cognitive behavioural therapy (CBT), interpersonal therapy (IPT), family therapy or psychodynamic psychotherapy for at least three months (NICE, 2015). NICE recommend that such therapies should only be provided by healthcare professionals trained to an appropriate standard of competence. However, there are a limited number of therapists with these qualifications, which can be a barrier to accessing these treatments. Waiting times in Child and Adolescent Mental Health (CAMH) services across the UK are extremely variable (National Society for the Prevention of Cruelty to Children, 2015), can be lengthy (House of Commons Health Committee, 2014) and GPs report inadequate CAMH provision for the young people they try to refer (Stem4, 2016). Evidence-based treatments are simply not able to meet the needs of the majority of depressed young people.

There are also difficulties engaging depressed adolescents in psychological therapy. Recent trials have provided evidence of a significant level of drop-out from CBT and other therapies (Goodyer et al., 2016), and a meta-analysis of adolescent depression treatments found psychological interventions with a cognitive component were no more effective than those without cognitive work (Weisz et al., 2006).

Behavioural activation for depression

In the UK, behavioural activation (BA) is recommended as an evidence-based treatment for adult depression (NICE, 2016). BA is based on the behavioural theory of depression and aims to improve mood by increasing positive reinforcement for healthy behaviours. Meta-analyses suggest that BA is equivalent to CBT for adults with depression (Cuijpers et al., 2008; Ekers et al., 2008) and can be more effective than medication (Ekers et al., 2014). Two contemporary BA approaches have been developed. One involves 16–20 sessions (BA; Martell et al., 2001, 2010) and the other is a brief, more structured approach [behavioural activation treatment for depression (BATD); Lejuez et al., 2001, 2011].

Treatment complexity/length and clinician level of training do not affect BA treatment outcome (Ekers et al., 2008). Because BA can be delivered by staff who are not formally trained as psychological therapists, it is more cost effective than CBT (Richards et al., 2016).

Brief BA for adolescent depression

Almost no work has applied BA to adolescents, despite many aspects of BA fitting well with the characteristics of this developmental period (e.g. lower cognitive demands, ability to individualize therapy within a straightforward approach). Ruggiero et al. (2005) reported a case study of using BATD successfully with a depressed adolescent, with an indication that depression symptoms reduced as reinforcing life events increased. One small randomized controlled trial ($n = 60$) has evaluated Martell-based, 14 session BA with depressed adolescents in the USA (McCauley et al., 2015). Adolescents were randomized to either BA or evidence-based practice for depression, and both groups showed significant improvements in depression symptoms and functioning (with no difference between groups).

To create a more streamlined BA intervention, Pass and Reynolds (2014) adapted BATD for use in routine CAMH service settings in the UK (see Pass et al., 2015b). The aim was to create a brief, structured behavioural intervention that was acceptable to young people and could be delivered by a range of professionals, in order to increase treatment accessibility. Treatment takes 6–8 sessions, involves parents and is delivered using a structured session by session workbook (Pass and Reynolds, 2014) and therapist guide (Pass et al., 2015a). It can be used in cases where there is self-harm/suicidal ideation (Pass et al., 2016) and can be delivered successfully by non-specialist clinicians (Pass et al., 2017). This study reports the outcomes from a pilot and feasibility study of Brief BA in NHS CAMH services with data from 20 consecutive cases referred for treatment.

Method

Procedure

The study was completed within a local CAMH service Anxiety and Depression pathway. Potential participants were identified by NHS clinicians if they wished to receive treatment for depression. Brief BA was offered when a BA therapist and supervision was available. Clinicians outlined the usual treatment options [typically CBT, sometimes with selective serotonin re-uptake inhibitor (SSRI) medication if indicated] and described Brief BA to young people and parents. Collaborative decision-making determined treatment choice.

Berkshire Healthcare NHS Foundation Trust (BHFT) provided approval for an audit of these cases and dissemination of the findings (reference: 2623). All data obtained from young people and parents were part of service routine data collection.

Participants

Participants were the first 20 young people who opted to receive Brief BA treatment, referred between February 2014 and August 2015. Strict inclusion/exclusion criteria were not used; referrals were received from clinicians within the service for young people with depressive symptoms causing significant impairment in functioning. Therefore this case series was uncontrolled and unblinded, with no comparison group.

Measures

Revised Child Anxiety and Depression Scale: Child and Parent versions (RCADS, RCADS-P; Chorpita et al., 2000). The RCADS and RCADS-P are 47-item questionnaires assessing anxiety and low mood in 8–18 year olds. Both have good psychometric properties (e.g. Chorpita et al., 2000, 2005; Ebesutani et al., 2010), and provide age and gender normed *t*-scores with clinical cut-offs (*t* scores of 0–64 denote normal range, 65–69 denote borderline clinical range, 70+ denotes clinical range). The full RCADS and RCADS-P were completed at assessment and final treatment session. The self and parent report Depression subscales were completed at the start of every BA session and was the primary outcome measure. An additional question ('I thought about killing myself'/'My child thought about killing themselves') was added to monitor risk.

Outcome Rating Scale (ORS; Miller and Duncan, 2000). The ORS is a measure of functioning in four areas: Individual, Interpersonal, Social and Overall. These are marked on four 10 cm visual analog scales that are summed to give a total score, with higher scores indicating higher functioning. Young people and their parent were asked to rate the ORS every session. The ORS has good concurrent validity with other treatment outcome measures and high internal consistency and test–retest reliability (Duncan et al., 2006).

Session Rating Scale (SRS; Duncan et al., 2003). The SRS is an ultra-brief measure of therapeutic alliance. Similar to the ORS, the SRS scores are marked on four 10 cm visual analog scales that are summed to give a total score across four areas: Relationship, Goals and Topics, Approach or Method, and Overall Alliance. A higher score indicates a higher client rating of therapeutic alliance. The SRS has good psychometrics, including moderate concurrent validity with longer self-report measures of alliance (Duncan et al., 2003). The SRS was completed after each session by the young person.

Brief BA feedback questionnaire. At the end of treatment, young people and parents were asked to complete a questionnaire about their experiences of Brief BA. There were three forced choice questions about whether they liked the approach ('really liked it' to 'hated it'), whether they found BA useful ('very' to 'not at all'), and whether they would recommend BA to a friend/for a friend's child ('yes definitely' to 'definitely not'). Young people and parents were also asked open-ended questions about what they liked best about BA, what they liked least, and any other comments including about the practical resources.

Participant characteristics

Most participants were white, 16-year-old females, representative of all young people who were referred with depression during this period (Orchard et al., 2016). Ten had at least one co-morbid anxiety disorder (see Table 1), and in addition one had a diagnosis of chronic fatigue syndrome (CFS), and another was waiting for an autism spectrum disorder (ASD) assessment. There were no co-morbid behavioural diagnoses.

Nine young people were taking prescribed SSRI medication, and two of these had changes in medication type/dose during Brief BA treatment following psychiatry reviews. Thirteen young people reported active suicidal ideation at assessment, indicating an active wish to end their life.

Table 1. Participant characteristics

Characteristic	Total (%)
Gender (% female)	18 (90%)
Mean age in years (SD)	16.12 (0.71)
Age range (years)	14–17
Ethnicity	
Caucasian	18 (90%)
Other	2 (10%)
Active suicidal ideation	13 (65%)
Anti-depressant medication	9 (45%)
Previous psychological therapy	4 (20%)
Co-morbidity	
None	10 (50%)
One anxiety disorder	7 (35%)
Two anxiety disorders	2 (10%)
3+ anxiety disorders	1 (5%)
Family involvement in Brief BA	
None	1 (5%)
Minimal	1 (5%)
Routine	18 (90%)

Four participants had previously received CBT (two for anxiety and two for depression). A higher proportion had accessed some form of counselling, but this varied greatly and clinical records were not available to accurately assess this.

Brief BA treatment

Brief BA involves 6–8 one-hour individual sessions with structured parental involvement in part of sessions 1, 6 and 8. There is a review session with the young person and parent approximately one month after the final treatment session (see [Table 2](#) for Brief BA overview). One young person did not have any parental involvement as she was attending boarding school, and another attended most sessions alone and parental involvement was minimal.

Brief BA clinicians and supervision

Brief BA was delivered in the routine CAMH service setting by three therapists including a clinical psychologist ($n = 12$) and two graduate psychologists, both of whom received additional training in Brief BA (four cases each). For further details on Brief BA training for clinicians, see Pass et al. (2017). Supervision was provided by a clinical psychologist involved in the adaptations for Brief BA. During Brief BA, other multidisciplinary clinical care was provided as appropriate (e.g. ongoing psychiatry reviews).

Treatment adherence

No treatment adherence measure is available for Brief BA. However, all clinicians sought consent for audio recording of sessions, and a random selection of tapes were listened to by

Table 2. Brief BA for adolescent depression: session overview

Session	Young person content	Parent content	Homework
1	Introduction to Brief BA approach and rationale, session workbook	Attend part of session (rationale, structure of Brief BA), parent workbook	Activity log
2	Review of Brief BA approach, review of activity log, session workbook	Parent workbook	Activity log
3	Review of activity log, introduction to values, session workbook	Parent workbook	Activity log, values
4–5	Review of values, plan valued activities across life areas, session workbook	Parent workbook	Valued activities
6	Review of progress, introduction to problem-solving and contracting, session workbook	Attend part of session (review, problem-solving, contracts), parent workbook	Valued activities
7	Review of progress, identification of activities to continue working towards, session workbook	Parent workbook	Valued activities
8	Review of progress, relapse prevention, session workbook, relapse prevention hand-out	Attend part of session (review, relapse prevention), parent workbook	
Review	Review of progress, plan for further input/discharge	Attend part of review	

one of the developers of Brief BA (L.P.). BA supervision was held fortnightly (weekly for the first training case for each clinician) and used treatment audio recordings.

Analysis plan

Data were explored to assess the assumptions of parametric testing (paired *t*-tests). Where variables violated these assumptions, a non-parametric equivalent test was used (Wilcoxon signed ranks test) and any change to the results reported, for all analyses a $p < .05$ significance level was used. We used an ‘intent to treat’ (ITT) analysis; all participants were included in the analysis. Where data were missing, a last observation carried forward (LOCF) procedure was used. The exception to this was when no data was available at any time point. For data missing from assessment, a first observation carried backwards (FOCB) procedure was used.

Results

Engagement

Out of the 20 adolescents who started Brief BA, 19 engaged with the treatment and 18 completed all eight sessions and review. One young person reported that Brief BA was not the right treatment for her after four sessions. Two more sessions were used to review her symptoms

Table 3. Pre- and post-Brief BA RCADS Depression subscale raw scores

Respondent and time point	<i>n</i>	Mean raw score (SD)	Raw score range	Median raw score	Interquartile range
<i>Self-report RCADS-Dep</i>					
Baseline assessment	20	20.65 (5.66)	8–28	21	17–25.75
Session 8	20	15.00 (6.79)	5–30	14	9.5–19.5
Review	20	14.45 (7.98)	2–30	12.5	8.75–20.75
<i>Parent-report RCADS-Dep</i>					
Baseline assessment	19	16.58 (5.85)	8–29	16	12–22
Session 8	19	11.63 (3.95)	5–21	11	8–14
Review	19	10.66 (6.52)	1–29	10	6–14

Table 4. Pre- and post-Brief BA comparisons of RCADS Depression raw scores

Respondent and comparison time points	<i>n</i>	d.f.	<i>t</i> -value	BCa bootstrapped 95% CI	Cohen's <i>d</i>
<i>Self-report RCADS-Dep</i>					
Assessment–session 8	20	19	3.97**	[2.50–8.83]	0.90
Assessment–review	20	19	4.30**	[3.20–9.55]	0.90
<i>Parent report RCADS-Dep</i>					
Assessment–session 8	19	18	5.50**	[3.26–6.68]	0.99
Assessment–review	19	18	4.10**	[3.27–8.90]	0.96

* $p < .05$, ** $p < .01$; d.f., degrees of freedom; CI, confidence interval.

and progress, before discontinuing Brief BA and putting her onto the waiting list for CBT. She subsequently declined CBT or any other input and was discharged from the service. Another young person attended four sessions of Brief BA, then was discharged because her symptoms remitted.

Primary outcome: RCADS Depression subscale

Pre- and post-treatment data for the RCADS Depression subscale are presented in Table 3. The data were slightly non-normally distributed, so pre/post comparisons were run both with parametric and non-parametric tests. There was no difference in results, so parametric tests are reported for simplicity, along with bias corrected and accelerated (BCa) bootstrapped 95% confidence intervals.

As shown in Table 4, there was a significant reduction in self-reported depression symptoms from assessment to session 8, and from assessment to review. This reduction was also shown by mean *t*-scores moving from the clinical range at assessment (mean = 82.25, *SD* = 15.95), to the borderline range at session 8 (mean = 66.25, *SD* = 16.19) and review (mean = 65.40, *SD* = 19.91). This decrease equates to a large effect size (0.2 = small, 0.5 = medium, 0.8 or above = large effect size; Cohen, 1992).

Table 5. Pre- and post-Brief BA ORS scores

Respondent and time point	<i>n</i>	Mean score (<i>SD</i>)	Range	Median	Interquartile range
<i>Self-report ORS</i>					
Session 1	18	18.21 (9.33)	1.10–36.95	16.05	12.88–25.10
Session 8	18	25.30 (10.16)	8.00–38.30	27.45	17.63–33.38
Review	18	25.69 (11.23)	4.90–39.10	29.55	15.83–35.31
<i>Parent report ORS</i>					
Session 1	16	17.73 (8.67)	4.40–31.20	18.55	11.85–26.33
Session 8	16	30.04 (8.11)	8.80–38.50	32.60	25.38–35.65
Review	16	28.21 (10.06)	3.10–39.90	28.05	21.03–36.88

Case 7 excluded as she did not feel her ORS self-report was valid, so this measure was discontinued; case 17 excluded as both self- and parent-report ORS score were 0 at session 1, indicating a lack of validity; case 9 had no parent ORS data; case 15 parent ORS excluded as only available from session 6.

Parent-report RCADS Depression subscale

The pre- and post-treatment mean scores for the parent-reported RCADS Depression subscale are shown in Table 3, and the pre and post comparisons in Table 4. There was a significant reduction in parent-reported RCADS Depression scores from assessment to session 8, and from assessment to review. The parental mean *t*-scores reduced but stayed in the clinical range across time points (assessment mean = 86.53, *SD* = 18.21; session 8 mean = 72.00, *SD* = 11.92; review mean = 69.24, *SD* = 19.59). In line with self-report scores, the parent-reported reduction in depression symptoms equates to a large effect size (Cohen, 1992).

Secondary analyses: Outcome Rating Scale

The ORS was completed for the first time at the beginning of session 1 as it was not part of the assessment measures. The pre- and post-treatment mean ORS scores are presented in Table 5. There was a significant increase in self-reported functioning from session 1 to session 8 [$t(17) = -2.51, p = .022, d = 0.73$], and from session 1 to review [$t(17) = -2.44, p = .026, d = 0.73$]. Parental report also indicated a significant increase in functioning from session 1 to session 8 [$t(15) = -5.60, p < .001, d = 1.47$] and from session 1 to review [$t(15) = -4.69, p < .001, d = 1.12$]. The treatment effect size was medium for self-report, and large for parent-report (Cohen, 1992).

Clinical outcomes

In addition to scores on routine outcome measures we examined clinical outcomes for each young person. Following completion of Brief BA, 13 young people (65%) required no further psychological input; of this group, eight were discharged from the service completely and five remained on SSRI medication (so required ongoing psychiatric monitoring). Of the remaining seven young people, four were referred for CBT (three for anxiety, one for anxiety and low mood). Two young people were offered additional input in CAMH services but declined this (one who had disengaged with Brief BA, and one who was offered both group CBT for anxiety and family therapy). One young person was referred to adult mental health services for CBT for anxiety as she was almost 18.

Reliable and clinically significant change: RCADS Depression subscale

Reliable change on the RCADS Depression subscale was indicated by a change score greater than the published reliable change criterion (RCC) based on each individual's age and gender. Clinically significant change was defined as moving down a clinical category. Two young people were already in the normal range on the RCADS Depression subscale at assessment, therefore clinically significant change was not possible. Out of the remaining 18, six (33%) showed reliable and clinically significant change between assessment and session 8. Two showed reliable improvement but did not change clinical category, while the others did not show reliable change in their scores. Between assessment and BA review session, seven (39%) of the 18 young people who could evidence reliable and clinically significant change showed this. Three others also showed reliable improvement but did not change clinical category.

Reliable and clinically significant change: ORS

Four young people scored in the normal range (28+) on the ORS at assessment so clinically significant change was not possible. Six (38%) of the 16 young people able to evidence reliable and clinically significant change (increase of more than 5 points and move from clinical to normal range) showed this between assessment and BA session 8. Another four showed reliable improvement but their ORS scores remained in the clinical range.

Between assessment and BA review, eight (50%) of the 16 young people who could show reliable and clinically significant change evidenced this. Another young person showed reliable improvement but remained in the clinical range.

Treatment satisfaction

Therapeutic alliance ratings were high across all Brief BA sessions, with mean SRS scores ranging from 35.55 (session 1) to 38.09 (session 7). At the end of treatment, feedback was received from 17 young people and 16 parents. The majority (over 70%) reported that they liked or really liked Brief BA, and importantly, nobody said they disliked it. Nearly all (94%) of young people reported they would definitely or probably recommend Brief BA to a friend, and 88% found the approach useful. Open-ended comments were also positive, including on the therapeutic relationship (e.g. 'they truly listened to me', 'being able to talk freely') and often directly about the Brief BA content (e.g. 'It made me think about my activities and how they affect my mood', 'I like that it made me think about my own values').

Over 75% of parents liked or really liked Brief BA, 81% found it very or fairly useful, and over 87% would recommend the treatment to a friend for their child. Positive parental comments identified the practical elements of Brief BA (e.g. 'the focus on positive outcomes and encouraging activities, and a balance of fun and social as well as achievement') and the importance of the therapeutic relationship (e.g. 'the therapist treated [young person] like a young adult').

When asked what they liked least about Brief BA, four young people chose not to write anything and one young person stated 'nothing, I liked it all'. The others identified various minor issues, including challenges with completing activity logs and engaging in the work between sessions (e.g. 'the activity logs at the start', 'having to organize things'). Five parents did not identify any negative aspect of Brief BA. A few identified concerns over the brief nature

of the intervention (e.g. '8 weeks was probably too short, I feel she needs a little more help'), or practical issues (e.g. 'planning appointments'). Two parents commented that they should have had greater involvement in the treatment (e.g. 'I sometimes felt that my concerns about my child were not considered', 'the lack of communication between therapist, child and parent – a debrief I felt was needed to end the session').

Discussion

The aim of this pilot study was to investigate the acceptability, feasibility and clinical effectiveness of a brief, structured behavioural intervention adapted for adolescents within a routine CAMH service setting. The high treatment completion rate, SRS ratings and feedback scores suggest that Brief BA was acceptable to both young people and their parents. Brief BA resulted in a significant decrease in depression symptoms over the course of treatment and a significant increase in functioning on both self and parent report. The treatment effect size on depression symptoms was large, and the majority of young people (65%) needed no further psychological intervention following Brief BA. These findings are promising (particularly given that this was a routine CAMH service population with a range of comorbidity, suicidal ideation and previous therapy experience), and suggest that Brief BA warrants further evaluation on a larger scale.

Developing alternative treatments for adolescent depression is important and urgent. Adolescent depression is a serious health problem, a cause of great distress and long-term impairments in functioning and a leading cause of premature death (Thapar et al., 2012). A number of evidence-based psychological therapies are recommended but they have some serious limitations. First, and perhaps most importantly, many young people do not engage with treatment and drop out before they receive the planned number of sessions. Secondly, existing psychological treatments (e.g. CBT, IPT, family therapy) are complex, require lengthy training and are delivered by specialist psychological therapists. This means that access to treatment is extremely limited and most young people with depression (or other mental health problems) are not able to access treatment at all, or must endure lengthy waiting lists. Evidence-based treatments are therefore simply not able to meet the needs of the majority of depressed young people.

Brief BA has the potential to overcome these two key limitations of existing therapies: engagement and accessibility. Brief BA treatment appears to engage young people successfully in treatment – although this must be examined in a larger sample and in other clinical settings. Features of Brief BA that may appeal more to young people include it being short-term, focused and simple to understand. Brief BA builds on a strong theoretical base (learning theory) that can explain symptoms of depression in simple (as well as more complex) terms. This simple version of the model can be adapted to the individual young person and their experience, and leads directly to a treatment plan. Successful engagement in any treatment is extremely important because it means that depressed young people are more likely to receive a full 'dose' of treatment and end therapy through mutual agreement with their therapist. If further treatment (medication or a more intensive psychological therapy) is then required, this engagement means that care can be more continuous and coherent and the well-being of the young person can be monitored.

BA also has the potential to be more accessible to young people. This is because the simple model of depression and treatment plan can be delivered to patients in a flexible but highly

structured format. The treatment has been designed so that it could be delivered skilfully, and with fidelity, by professionals who are not fully trained psychotherapists. If effective interventions can be delivered by a wider range of professionals, in community settings (e.g. schools) there is potential to provide this brief focused and simple therapy to young people more promptly and efficiently.

However, this pilot study can only provide data that supports further research and evaluation of Brief BA. The treatment was provided in just one clinical setting by members of a team responsible for adapting Brief BA for depressed adolescents. The intervention clearly needs to be evaluated in more independent clinical settings to assess if these promising data can be replicated in services not directly affiliated with the research team, and in different types of services and staff teams. In addition, the absence of a control or active comparison treatment group means we cannot compare outcomes of Brief BA with current evidence-based treatments. Recent reviews (Weisz et al., 2006) and treatment trials (Goodyer et al., 2016) suggest that a range of psychological therapies for depression are equivalent. It is possible that Brief BA is not more effective than other psychological therapies; however, it may be more cost effective, and even more importantly, more acceptable to young people who are depressed.

These are promising preliminary results that need to be investigated further. However, Brief BA could be one possible solution to considerably stretched CAMH services delivering effective, cost effective, and engaging therapies to adolescents with depression.

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