




Acceptance and Commitment Therapy for perinatal mood and anxiety disorders: A feasibility and proof of concept study

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Objectives. The aim of the current study was to assess the feasibility, safety, and effectiveness of a newly developed Acceptance and Commitment Therapy (ACT) intervention developed specifically to address the unique context of pregnancy and parenthood. The intervention was delivered to women accessing a specialist Perinatal Community Mental Health Service (PCMHS).

Design. An open-label pilot study was conducted of an 8-week, group-delivered ACT intervention targeting women with moderate-to-severe mood and/or anxiety disorders during pregnancy and/or postpartum.

Methods. Outcomes included session attendance rates, dropout rates, crisis/inpatient service use, and standardized symptom scales. Participant's responses to open-ended questions contained in an end of therapy questionnaire were analysed using thematic analysis.

Results. Seventy-four women were referred to the intervention with 65 (88%) completing treatment. The median number of sessions attended was 7. No women required input from crisis/inpatient services. All reported finding the intervention helpful. The implementation of ACT in daily life, therapist support, and group processes were cited as helpful aspects of the intervention. At post-treatment, there was a significant reduction in global distress ($d = 0.99$) and depressive symptoms ($d = 1.05$), and an increase in psychological flexibility ($d = 0.93$). On the secondary outcome of global distress, 38% of women were classified as recovered, 31% had reliably improved, 27% remained the same, and 4% had reliably deteriorated.

Conclusions. The delivery of ACT in a routine practice setting is feasible, safe, and effective. A randomized control trial (RCT) is needed to establish the efficacy and cost-effectiveness of this group-delivered ACT intervention.

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Practitioner points

- Group-delivered Acceptance and Commitment Therapy (ACT) is acceptable for women with moderate-to-severe perinatal mood and/or anxiety disorders and can be feasibly delivered in a routine practice setting.
- The trans-diagnostic nature of ACT enables the concurrent treatment of depressive and anxiety symptoms within the same intervention which is particularly helpful in the perinatal context given the comorbidity of mood and anxiety disorders.
- With training and supervision, mental health practitioners without extensive education in the delivery of psychological therapies can facilitate the ACT group programme.
- As this was a feasibility study, there was no control group, adherence to the manual was not assessed, and the absence of a follow-up period limits our knowledge of the longer-term benefits of the ACT group programme.

Maternal mood and anxiety disorders during pregnancy and the postpartum are a major public health problem that requires urgent attention (Bauer, Parsonage, Knapp, Lemmi, & Adelaja, 2014). The negative impact of perinatal mood and anxiety disorders on women, children, and families is well documented (Goodman *et al.*, 2011; Howard *et al.*, 2014; Stein *et al.*, 2014), and the economic costs are substantial (Bauer *et al.*, 2014; Dagher, McGovern, Dowd, & Gjerdingen, 2012). Psychological interventions for the treatment of perinatal mood and anxiety disorders are strongly recommended (NICE, 2014), and particularly pertinent in the perinatal context given the potential risks to foetal and infant development associated with psychotropic medication exposure (Howard *et al.*, 2014; O'Connor, Rossom, Henninger, Groom, & Burda, 2016; Waters, Hay, Simmonds, & vanGoozen, 2014). Yet the evidence base for psychological interventions for the treatment of perinatal mood and anxiety disorders is underdeveloped and requires expansion, particularly for women with moderate-to-severe disorders (Howard *et al.*, 2014; NICE, 2014).

The evidence base for psychological therapies in the perinatal context has largely focused on the prevention and treatment of mild-to-moderate depression – particularly postnatal depression (Dennis, & Hodnett, 2007; O'Connor *et al.*, 2016). Following a series of systematic reviews and meta-analyses based on a limited number of studies, cognitive behavioural therapy (CBT) and interpersonal psychotherapy (IPT) are recommended for the treatment of antenatal and postnatal depression (Matrics Cymru, 2017; NICE, 2014; O'Connor *et al.*, 2016). While CBT and IPT are generally effective, existing studies are not without their limitations including small samples (McGregor, Coghlan, & Dennis, 2014; Zlotnick, Johnson, Miller, Howard, & Pearlstein, 2001), the exclusion of women with comorbidity/disorders other than depression (O'Hara & McCabe, 2013; Spinelli & Endicott, 2003), and treatment non-responders (Werner, Miller, Osborne, Kuzava, & Monk, 2015). In light of the increased recognition of the impact of perinatal mood and anxiety disorders (Granville, Sugarman, & Tedder, 2016), which in the United Kingdom has led to the rapid expansion of specialist perinatal mental health services, there is a need to develop psychological interventions that meet the needs of women accessing these newly developed services. Perinatal women often present with symptoms that cross the diagnostic categories, and psychological interventions need to be timely, readily available and tailored to the unique context of pregnancy and the postpartum (Howard *et al.*, 2014; Matrics Cymru, 2017; NICE, 2014). First and foremost, it needs to be demonstrated that newly developed psychological interventions are feasible, safe, and effective when delivered in a routine practice setting.

Recently, Acceptance and Commitment Therapy (ACT) has been highlighted as a psychological intervention that is well placed to meet the needs of women presenting with moderate-to-severe perinatal mood and/or anxiety disorders (Bonacquisti, Cohen, & Schiller, 2017). Commonly referred to as a 'third wave' or 'contextual' behavioural therapy, ACT is grounded in an empirical, principle-focused approach (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes, Villatte, Levin, & Hildebrandt, 2011). The applied ACT model is centred on six core processes: acceptance, cognitive defusion, self as context, contact with the present moment, values, and committed action – which all combine to promote psychological flexibility and reduce experiential avoidance (Hayes *et al.*, 2006). A growing number of randomized controlled trials (RCTs) summarized in a series of systematic reviews and meta-analyses attest to the efficacy of ACT for a range of psychiatric disorders and chronic health conditions including mood and anxiety disorders, psychosis, chronic pain, cancer, diabetes, epilepsy, obesity, and substance abuse (A-Tjak *et al.*, 2015; Hayes *et al.*, 2011; Öst, 2014; Powers, Vording, & Emmelkamp, 2009; Ruiz, 2012). The trans-diagnostic nature of ACT and the comorbidity of physical and mental health problems during the perinatal period are cited as reasons why ACT maybe uniquely beneficial for moderate-to-severe perinatal mental health problems (Bonacquisti *et al.*, 2017). However, to our knowledge, there are no published studies evaluating the feasibility, safety, or effectiveness of ACT for women with mood and/or anxiety disorders during the perinatal period.

We developed a group-delivered ACT intervention for women with mood and/or anxiety disorders who were accessing a specialist Perinatal Community Mental Health Service (PCMHS). The intervention targeted the six core ACT processes through experiential and group-based exercises that were tailored to the perinatal context. Informed by the evidence that reduced self-compassion, increased self-criticism, and maladaptive beliefs about motherhood are associated with psychopathology during the perinatal period (Felder, Lemon, Shea, Kripke, & Dimidjian, 2016; Sockol & Battle, 2015; Sockol, Epperson, & Barber, 2011), a module on self-compassion was added to the ACT intervention. This is in keeping with developments in the ACT literature where similarities between the constructs of self-compassion and psychological flexibility have been emphasized (Dahl, Plumb, Stewart, & Lundgren, 2009; Neff & Tirsch, 2013), and compassion-focused strategies have been incorporated into ACT interventions (Neff & Tirsch, 2013; Tirsch, Schoendorff, & Silberstein, 2014; Yadavaia, Hayes, & Vilardaga, 2014). The trans-diagnostic nature of ACT enables the concurrent treatment of depressive and anxiety symptoms which could be particularly helpful in the perinatal context given the comorbidity of mood and anxiety disorders. The aim of the current study is to evaluate the feasibility, safety, and effectiveness of a novel ACT intervention that was developed and evaluated within the context of a specialist PCMHS.

Method

Design and setting

An open-label pilot study was conducted of an 8-week, group-delivered ACT intervention targeting women with moderate-to-severe mood and/or anxiety disorders during pregnancy/the first 12 months postpartum. Nine ACT groups were run sequentially within the context of a specialist PCMHS in the NHS, United Kingdom. Women were referred to the PCMHS by their midwife, obstetrician, or care coordinator in another secondary-care mental health service. Following assessment with

a Consultant Psychiatrist, Clinical Psychologist, and/or Community Psychiatric Nurse (CPN), eligible women were referred to the ACT intervention by their care co-ordinator within the PCMHS. The PCMHS offers mental health care and treatment, with a preventative focus, to women who are currently experiencing or are 'at risk' of developing a moderate-to-severe mental health problem during the perinatal period. The PCMHS defines 'at risk' as women with a prior history of a diagnosed psychotic disorder or a moderate-severe mood or anxiety disorder that required treatment from a specialist mental health service.

Participants

Women under the care of the PCMHS were eligible for ACT if they met the following inclusion criteria: currently pregnant/given birth within the last 12 months; currently presenting with/at risk of developing a moderate-to-severe perinatal mood/anxiety disorder; and motivated to attend group-delivered therapy. Exclusion criteria were as follows: primary alcohol and/or drug addiction; currently engaged in another psychological therapy; and florid psychotic symptoms. Psychotropic medication use was not an exclusion criterion. For those taking psychotropic medication, all were at a stable dose for the 2-month period preceding the first ACT session and throughout the subsequent 2-month intervention period. The care co-ordinator within the PCMHS (Community Psychiatric Nurse, Clinical Psychologist, or Consultant Psychiatrist) discussed the aims and objectives of the intervention, the session content, and practicalities (e.g., venue, transport etc.) with each participant who met the inclusion criteria. If the participant agreed that they were willing and able to attend group-delivered ACT, then they were referred to the intervention delivery team. The study was registered with and approved by the host organizations research and development committee. Characteristics of the sample are presented in Table 1.

Table 1. Characteristics of the sample ($N = 74$)

Variable	Statistics (mean/ <i>SD</i> /%)
Mean age (years: <i>SD</i>)	33.5 (3.87), range 23–41 years
Marital status	
Married	65%
Cohabiting	25%
Single	3%
In a relationship, living separately	7%
Parity	58% primiparous
Number of children in the home (mean, <i>SD</i>)	1.7 (1.0)
Pregnant at start of intervention	61%
Postpartum at start of intervention	39%
Current psychotropic medication use	None = 38%; anti-depressant = 57%; anti-psychotic = 5%
Previous input from mental health services	None = 38%; secondary care = 34%; primary care = 16%; non-statutory = 12%
Previous psychological intervention	None = 61%; individualized = 16%; group therapy = 8%, counselling = 15%

Intervention and therapists

The ACT intervention was delivered over eight consecutive weeks (2 hr duration) to groups of 6–10 women. Women attending the group were either pregnant or postnatal (Table 2). A manual to support the delivery of the intervention was developed by the first author (a senior Clinical Psychologist) who provided ongoing training and supervision to the ACT therapists. Each ACT workshop was delivered by two therapists, drawn from a team of five trained staff (two CPNs with undergraduate degrees in Mental Health Nursing, one assistant psychologist with a BSc/MSc in Psychology and two final year Doctoral students in Clinical Psychology). ACT therapists were engaged in a programme of continuous learning and supervised practice. This included the completion of two 10 credit modules on ACT delivered at a local University and training on the ACT for perinatal mental health manual. Didactic and experiential teaching methods were used during ACT training that included feedback on therapist's skills development to enhance adherence to the manual. Initial training to achieve competence included the running of an ACT group alongside the first author, live demonstration and skills practice, and weekly supervision. The intervention aimed to increase psychological flexibility through the practice of techniques and experiential exercises that mapped onto the six ACT processes (*acceptance, contact with the present moment, self as context, cognitive fusion, valued living, committed action*). The intervention included ACT techniques tailored to the perinatal context (e.g., *mindfulness exercises that focused on the foetus/infant; applying ACT skills to childbirth/parenthood*). A module on self-compassion was incorporated and interwoven into weekly ACT skills practice (e.g., *mindfulness and cognitive fusion exercise with a self-compassion focus*). Didactic, metaphor, *en vivo*, and experiential methods (e.g., guided imagery) facilitated learning. Therapists practised the skills in their daily lives and shared their experiences with the group through direct modelling and self-disclosure. An audio CD of mindfulness, defusion, and guided imagery exercises was provided. Weekly handouts summarized session content.

Assessments and measures

Information on maternal age, marital status, pregnancy status, and current mental state was collected at the point of referral and initial assessment with the PCMHS team Consultant Perinatal Psychiatrist, a CPN, or a Perinatal Clinical Psychologist. Diagnoses of moderate-to-severe mood and anxiety disorders were made by the PCMHS team Consultant Perinatal Psychiatrist (SS) by reviewing all routinely obtained clinical data against ICD-10 criteria. When the Consultant Psychiatrist (SS) had not assessed the patient directly via clinical interview, all routinely obtained clinical data were compared against ICD-10 criteria. If additional information was required, the Consultant Psychiatrist (SS) discussed the participant's presenting symptoms with the CPN/Clinical Psychologist who co-ordinated the participant's care and treatment. Prior to starting session one, and following the final session, women completed questionnaires administered by the ACT therapists. Non-attendance at a session was followed up with a phone call to ascertain the reason and encourage subsequent attendance.

Primary outcome measures

Feasibility, safety, and helpfulness

Rates of treatment adherence (number of sessions attended), dropout (attended three or fewer sessions), and reasons for withdrawing from treatment were collected as indicators

Table 2. Session description of the ACT intervention

Session	Topic	Description
1	Introduction and mindfulness	The priority of this session was to help attendees feel safe and normalize anxieties/worries. An icebreaker exercise opened the session, followed by basic housekeeping and an overview of the programme. A group contract was developed followed by an exercise that explored participants' hopes/fears. ACT's underlying theoretical model and evidence base was presented. The basic components of mindfulness were introduced and practiced (e.g., noticing, describing, and participating skills). Daily mindfulness practice was set as homework
2	Mindfulness and acceptance	The aim of this session was to practice and develop mindfulness and acceptance skills. The session began with a mindfulness exercise and homework review. The concepts of present moment awareness, self as context, and acceptance were taught and practised via experiential exercises. The role and impact of judgements/self-critical thoughts on thinking, feeling, and behaviour was taught and experienced through a series of exercises. Daily mindfulness practice and a noticing judgements/self-critical thoughts exercise were set as homework
3	Defusion	This session focused on understanding the mind and the role of language and cognition in psychological suffering. The session began with a mindfulness exercise and homework review that focused on drawing out common judgements/self-critical thoughts associated with pregnancy/parenthood. A group discussion on the challenges/benefits of mindfulness practice was conducted and defusion-related themes highlighted. A series of thought defusion exercises were taught and practised (e.g., 'leaves on the stream exercise, 'hands as thoughts metaphor'). Mindfulness and thought defusion exercises were set as homework
4	Accepting, regulating and understanding emotions	This session focused on increasing awareness, understanding, and skills in emotion regulation and began with a thought defusion exercise and homework review. The concepts of the emotion bell curve, urge surfing, and the happiness trap were discussed. Expansion and acceptance skills were practiced. The evolutionary basis of emotions and their common functions was taught. The distinction between primary and secondary emotions was taught in relation to common challenges associated with pregnancy/postpartum/parenthood. The skill of opposite to action urge was taught. Mindfulness and defusion exercises were set as homework
5	Self-compassion and self-soothe	This session focused on increasing participant's self-compassion and self-soothe skills and began with a mindfulness exercise and homework review. Exercises that sought to generate a compassionate mind were practiced including a safe space visualization exercise, a loving kindness mindfulness meditation, and a body map exercise. Participants generated a self-soothe strategy using the five senses and made a plan for generating a self-soothe kit. A group-based exercise exploring the benefits of self-soothe was delivered and participants were encouraged to think of how they could apply the skills/knowledge of how to soothe babies/children to themselves. Mindfulness practice and generating a self-soothe kit was set as homework

Continued

Table 2. (Continued)

Session	Topic	Description
6	Valued living and committed action	This session explored the role of personal values and committed action in maintaining well-being and guiding behaviour during times of distress and crisis. The session began with mindfulness practice and homework feedback. The struggle switch metaphor and the difference between values and goals was taught. A series of exercises elicited participants' personal values including completion of the valued living and bullseye questionnaires, an exercise that required the selection of a set of visual images to represent participant's values, and a facilitated discussion on parenthood-related values. In pairs participants generated a set of committed actions. The session closed with a mindfulness exercise and homework setting
7	Committed action, willingness and goal setting	The aim of the session was to reinforce committed action skills and teach goal setting. The session began with mindfulness practice and a homework review. ACT metaphors and animations including 'mindfriend' and 'passengers on the bus' were revisited and reflected upon in relation to the barriers/opportunities to living in accordance with one's values/committed actions. SMART goals were generated. The concept of willingness was taught and practised through experiential exercises (e.g., the cactus metaphor). A loving kindness meditation and homework setting closed the session
8	Review, skills practice, and ending	The session began with a homework review and mindfulness practice. A review of sessions 1–7 was conducted. Participants wrote letters to themselves detailing what they had learnt and what they aimed to continue practicing. A reflective exercise on the positives and negatives of endings was conducted. A loving kindness mindfulness meditation closed the session

Table 3. Baseline psychiatric diagnoses with comorbidities (N = 74)

Diagnostic category (ICD-10)	%
Depressive disorder	35.1
Depressive and anxiety disorder (GAD, OCD, PD)	14.9
Depressive disorder and PTSD	4.1
Depressive and body dysmorphic disorder	1.3
Depressive and eating disorder (NOS)	1.3
Adjustment disorder with depressed and/or anxious mood	17.6
Anxiety disorder (GAD, OCD, PD)	17.6
Bipolar affective disorder	4.1
PTSD	2.7
PTSD, GAD and Eating disorder	1.3

Note. GAD = Generalized Anxiety Disorder; OCD = Obsessive Compulsive Disorder; PD = Panic Disorder; PTSD = Post-Traumatic Stress Disorder.

of intervention feasibility. Treatment completers were defined *a priori* to data analysis as those who attended at least half (four of eight) of the intervention sessions and remained engaged during the early, middle, and late stages of the group programme. Patient safety was measured via adverse event monitoring on three indices (1) crisis/home treatment team involvement during the intervention (present/absent and number of treatment days); (2) inpatient hospitalization days during the intervention (present/absent and number of inpatient days); and (3) a reliable deterioration on the CORE-OM (see below) as defined by Jacobson and Truax (1991). The criteria for the reporting of adverse events in the current study are based on the recommendations of Duggan, Parry, McMurrin, Davidson, and Dennis (2014). The same criteria have been used in similar studies of psychological interventions conducted in secondary-care mental health service contexts (e.g., Evans, Kellett, Heyland, Hall, & Majid, 2016). Perceived helpfulness of ACT in relation to both content and delivery was rated on a bespoke 4-point scale. These items were embedded within an end of treatment questionnaire that included open-ended questions about helpful/unhelpful aspects of the intervention and areas of improvement (see below for further details).

Clinical outcome measures

Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM; Barkham, Gilbert, Connell, Marshall, & Twigg, 2005; Barkham *et al.*, 2001) is a trans-diagnostic measure that generates a global distress score and four sub-scale scores: *risk* (to self/others), *problems/symptoms* (depression, anxiety, physical problems, trauma), *functioning* (in relationships/general activity levels), and *well-being* (feelings about self/optimism). The CORE-OM is a well-validated, reliable, and widely used outcome measure of psychological treatments (Barkham *et al.* 2006; Barkham, Mullin, Leach, Stiles, & Lucock, 2007; Evans *et al.*, 2002).

The Edinburgh Postnatal Depression Scale (EPDS) is a well-validated 10-item screening tool for depression in pregnancy/the postpartum (Cox, Holden, & Sagovsky, 1987; Gaynes *et al.*, 2005). Total scores range between 0 and 30. Higher scores indicate greater severity. Scores of >12 identify depressive disorder (Jardri *et al.*, 2006).

Table 4. Effectiveness outcome measures ($N = 55$)^a

Measure	Pre-intervention (mean, SD)	Post-intervention (mean, SD)	t	p Value	Effect size
CORE Global Distress	16.52 (5.63)	10.30 (5.47)	7.36	<.001	0.99
CORE Problems	21.59 (7.09)	14.19 (6.96)	6.89	<.001	0.93
CORE Functioning	15.96 (6.38)	10.05 (5.97)	6.88	<.001	0.93
CORE Well-being	22.34 (8.31)	13.64 (9.12)	6.39	<.001	0.86
CORE Risk	2.61 (3.57)	0.97 (2.55)	3.08	<.001	0.42
EPDS	16.69 (4.71)	10.63 (4.29)	7.55	<.001	1.05
AAQ-II	20.82 (8.06)	29.83 (7.52)	-7.05	<.001	0.93

Note. AAQ-II = Acceptance and Action Questionnaire-II; CORE-OM = Clinical Outcomes in Routine Evaluation-OM; EPDS = Edinburgh Postnatal Depression Scale.

^a $N = 10$ missing data CORE-OM/EPDS and $N = 8$ on AAQ-II at post-treatment among treatment completers due to: earlier than planned childbirth; mother/infant illness; appointment clashes; and human error, for example, not all pages of the post-treatment questionnaire pack were completed

The Acceptance and Action Questionnaire-II (AAQ-II: Bond et al., 2011) is a well-validated 7-item scale that measures psychological flexibility. Items were reverse scored so that higher mean scores indicate greater psychological flexibility.

Qualitative data collection

End of therapy questionnaire

A bespoke end of therapy questionnaire was developed for the purposes of the current study that included nine questions. Five questions required both an open-ended and a closed-ended response. For each of these questions, participants rated their response on a 3-point (e.g., too short/about right/too long) or 4-point scale (e.g., not helpful/a little helpful/helpful/very helpful) with space provided below each question for open-ended responses. The questions were as follows: (1) Please rate how helpful/unhelpful the intervention has been for you and in the space below please write the reasons why it was helpful/unhelpful? (2) How did you feel about the length of the course? (3) How did you feel about the length of each session? (4) How did you feel about the facilitators of the group? (5) How did you feel about the balance between the focus on learning new skills and the opportunity to get support and feedback? Four additional questions included an

Table 5. Categories of change on the CORE-OM at post-treatment ($N = 55$)^a

Category	N	%
Recovered ^b	21	38%
Improved	17	31%
Same	15	27%
Deteriorated	2	4%

^a $N = 10$ missing data CORE-OM at post-treatment due to earlier than planned childbirth; mother/infant illness; appointment clashes; or human error, for example, not all pages of the post-treatment questionnaire pack were completed.; ^bThe recovery rate is 46% when the seven participants who did not score in the clinical range at baseline are excluded from the analysis.

open-ended response only. (6) Please let us know any changes you feel would be helpful for us to make to the intervention? (7) Please let us know any advice or messages you would like to give to people considering attending the intervention? (8) What would you change about the format/content/set-up of the intervention? and (9) Do you think the intervention was delivered in a suitable venue or would a venue in maternity services be preferable? All open-ended responses were copied verbatim and transferred to Microsoft Word for analysis.

Data analysis

Descriptive statistics and paired-sample *t* tests analyse feasibility, safety, and effectiveness data. Effect sizes are reported (Cohen, 2013). Reliable and clinically significant improvement statistics are calculated (Jacobson, Roberts, Berns, & McGlinchey, 1999). In line with other studies that have used the CORE-OM, a score of 10[>] divides the clinical/non-clinical population, with a pre-post increase/decrease of 4.5 indicating reliable change (Connell *et al.*, 2007; Stiles, Barkham, & Wheeler, 2015). The clinically meaningful and reliable change calculations generate four categories: (1) *recovered*, criteria for clinically meaningful and reliable change met; (2) *improved*, only reliable change met; (3) *same*, neither criteria met; (4) *deteriorated*, a reliable worsening of symptoms (Thomas & Truax, 2008). Thematic analysis was used to analyse participants' responses to open-ended questions in the end of therapy questionnaire (Braun & Clarke, 2006). The six phases of thematic analysis as outlined by Braun and Clarke (2006) were followed: familiarizing and immersing self in the data; generating initial codes; searching for themes; reviewing and refining themes; defining and naming themes; and the writing up of the analysis. Author CSW conducted the thematic analysis using a 'data driven' approach (Braun & Clarke, 2006) in Microsoft Word.

Results

Pre-intervention diagnoses and symptom scores

At the pre-intervention assessment, over half of the women (42/74) met criteria for a depressive disorder, and a third (25/74) for one or more anxiety disorders. A quarter of women with a depressive disorder (11/42) also had a comorbid anxiety disorder. The remainder of women (18/74) met criteria for PTSD, bipolar disorder, or an adjustment disorder with depressed and/or anxious mood. The full range of diagnoses is presented in Table 3. The pre-intervention mean on the CORE-OM global distress scale is well above the clinical cut-off score of 10 and within the moderate severity range (see Table 4). Similarly, the pre-intervention mean on the EPDS is well above the clinical cut-off score of >12 and within the moderate severity range.

Intervention feasibility and safety

Of the 74 women referred to ACT, 65 (88%) were defined as treatment completers. Of the nine treatment non-completers, two delivered their babies earlier than planned, three found the group environment overwhelming, three reported clashes with other commitments (e.g., health-related appointments/childcare), and one woman reported that her mental health improved and she was discharged from the PCMHs. None of the non-completers reported that the intervention had an adverse impact on their mental

Table 6. Themes, sub-themes, and participant quotes from the end of therapy questionnaire

Themes and Sub-themes	Quotes
(1) Taking Solace from Others -Normalisation of difficulties -Feelings of not being alone -Emotional support from others	<p>'It is helpful to recognise that it is something most people are going through' 'Meeting others in the same situation made me feel more "normal" and less alone. It reduced the stigma I felt from my postnatal depression and anxiety' 'Meeting people with similar thoughts was really reassuring' 'Support from the group as a whole and new friendships' 'Comfortable and safe environment. I felt confident to share most of my worries' 'Learning to accept and live with thoughts rather than trying to get rid of them' 'Learning how to ground myself... mindfulness helps me to relax and switch off' 'Increased awareness and learning how to relax during the difficult moments' 'I've spent many years attempting to "cure" anxiety... thinking about it alongside me rather than pushing it away has been very helpful' 'I now believe looking after myself is important and it's okay for this to be a priority' 'Being told it's OK to take time for myself, as a mum it's easy to believe this is selfish' 'Values part of course has made me feel more of a valuable person and given me a feeling that my life is meaningful and I'm a worthwhile person' 'Very useful course and has really helped with my extreme mood swings, negative thoughts, anxiety and paranoia' 'Complete the homework... the times that I did were very beneficial' 'I recommend you go, embrace it, not to be nervous as everyone is in the same boat' 'Give it a try and stick with it – You don't have to learn or be perfect at everything' 'Give it a go. You will learn a lot and also meet people in the same situation' 'Helped me to acknowledge and accept unpleasant thoughts or feelings and provided methods to deal with them that are easy to practice' 'You select the techniques which work for you' 'When I go back to work I'm confident I can apply the course learning to make my work less stressful' 'I have learnt ways to cope with anxiety and have put this into practice' 'Tools and techniques to take into my daily life – introducing the importance of values especially during this transformative period of motherhood' 'Metaphors gave clarity around some of the psychology of thoughts and made stuff click into place'</p>
(2) Components and Processes of Change -Increased awareness and acceptance of difficulties -Reduced experiential avoidance -The benefits of mindfulness practice -Cultivating self-compassion -Prioritisation of values	
(3) Advice to Others Contemplating ACT -Increased well-being -Course adherence -Reassurance	
(4) Skill Acquisition and Application -The learning of ACT skills and techniques -The benefits of applying the ACT skills in daily life -ACT techniques facilitated understanding and practice	

Continued

Table 6. (Continued)

Themes and Sub-themes	Quotes
<p>(5) Therapist Support and Style</p> <ul style="list-style-type: none"> -Therapist self-disclosure -Approachable and supportive style -Developing trust -Competent in delivering therapeutic techniques 	<p>'[Therapists] Couldn't have been more helpful, they shared their life experiences with us which also developed trust'</p> <p>'Instructors bringing personal experience and insight into teaching is really engaging'</p> <p>'It was very easy to get involved and feel comfortable thanks to the course leaders'</p> <p>'Facilitators were brilliant, supportive, and they explained things in a way that I could understand and relate to'</p> <p>'Exceeded my expectations. Approachable, caring, informative [therapists], well educated in subject matter which helped put me at ease'</p>
<p>(6) Improving the intervention</p> <ul style="list-style-type: none"> -Difficulty implementing techniques when distressed -Increasing communication between participants -Issues with childcare -Increasing the duration of the intervention 	<p>'Difficulty implementing techniques when feeling at my worst'</p> <p>'It's a shame it's not longer to cover things in more depth. There is a such a lot to take on board in a short space of time'</p> <p>'Awkward for childcare'</p> <p>'I had to pay £200-£240 for childcare, but it was worth the expense'</p> <p>'More group exercises to encourage participants to interact more would be helpful'</p> <p>'Would have liked a little more time after the session to have the opportunity to talk with other group members'</p> <p>'Could have gone on longer as I've really enjoyed it and meeting the people'</p>

health. Treatment non-completers were not significantly different from treatment completers on any of the baseline demographic, obstetric, or mental health-related measures. Of the treatment completers, the mean number of sessions attended was 6.5 ($SD = 1.1$), median = 7. Reasons for non-attendance at a given session included illness of the mother/infant, holidays, and appointment clashes. In terms of the three key indicators of intervention safety, none of the 74 participants required access to the crisis and home treatment service and no participant required an inpatient admission during the 2-month intervention period. Only two participants (4%) demonstrated reliable deterioration on the CORE-OM at post-treatment – one of these women reported finding the intervention helpful, the other very helpful (Table 5).

Intervention helpfulness and effectiveness

All participants reported finding the ACT intervention helpful – with 76% rating very helpful, 20% helpful, and 4% a little helpful. Similarly, all participants reported finding the facilitators helpful – with 94% rating very helpful and 6% helpful.¹ At the sample level, and following ACT, there was a significant reduction on the global distress scale and on each CORE-OM sub-scale (Table 4). Excluding the risk scale, the post-treatment effect size on each CORE-OM sub-scale is large. Correspondingly, at post-treatment, there was a significant reduction in mean depressive symptoms on the EPDS representing a large effect size (Table 4). A similar pattern of results was observed for the ACT process measure (AAQ-II) where there was a significant post-treatment increase in psychological flexibility. In order to better understand the data at the level of the individual, clinically meaningful and statistically reliable change analyses were conducted on the primary measure of symptom change (CORE-OM global distress). At post-treatment, 38 of 55 women (69%) demonstrated a statistically reliable decrease in global distress. As detailed in Table 5, 38% of participants met criteria for both clinically meaningful and statistically reliable change (recovered), 31% reliably improved, 27% remained the same, and 4% reliably deteriorated.

Reporting of qualitative data

Thematic analysis of participants' responses to the open-ended questions contained in the end of treatment questionnaire identified six core themes with supporting sub-themes (Table 6). 'Taking Solace from Others' describes how the group environment helped normalise perinatal mental health difficulties, provided emotional support, and decreased stigma and isolation. 'Components and Processes of Change' captures perceived changes in cognitive, behavioural, emotional, and relational functioning following ACT. Sub-themes summarise the techniques and processes that fostered change including increased awareness and acceptance, reductions in experiential avoidance, mindfulness practice, cultivating self-compassion, and prioritisation of values. 'Advice to Others Contemplating ACT' details the words of reassurance and advice given to women who are contemplating ACT, and the benefits of regular attendance and homework practice. 'Skill Acquisition and Application' captures participants' comments about acquiring and applying ACT skills in daily life as well as the benefits of doing so. 'Therapist Support and Style' summarises the

¹ Reasons for non-completion of the end of therapy questionnaire ($N = 7$), the EPDS/CORE-OM ($N = 10$), and the AAQ-II ($N = 8$) include the following: earlier than planned childbirth; mother/infant illness; appointment clashes; and human error.

benefits of therapists' modelling their own ACT practice, feelings of safety in the group environment, and how these processes helped develop trust. The final theme 'Improving the Intervention' summarises ideas about how the intervention could be improved.

Discussion and Conclusions

This study represents one of the first attempts to evaluate ACT for women experiencing a moderate-to-severe perinatal mood and/or anxiety disorder. We found that the provision of an 8-week, group-delivered ACT intervention is both feasible and safe for women presenting to a specialist PCMHS. All women reported finding the intervention helpful, dropout rates were low, session attendance rates were high and no women required intervention from crisis or inpatient services during ACT treatment. These findings are particularly important given the paucity of research examining the feasibility, safety, and effectiveness of psychological interventions for women presenting with moderate-to-severe mood and anxiety disorders during the perinatal period. In particular, there is a paucity of evidence for interventions in the perinatal context that are trans-diagnostic and enable the simultaneous treatment of mood and anxiety disorders.

Our ACT intervention is novel, incorporating evidence-based strategies from the ACT literature alongside techniques and exercises developed to address the unique context of pregnancy and parenthood including a module on self-compassion. This is one of the first evaluations of ACT for perinatal mood and anxiety disorders, and the simultaneous treatment of mood and anxiety symptoms is a strength of the ACT intervention. The qualitative feedback contained in the end of therapy questionnaire was overwhelmingly positive. Thematic analysis identified six core themes, with supporting sub-themes, that captured the positive benefits of ACT skills and techniques, the normalisation of perinatal mental health problems, and a reduction in stigma associated with the group environment. The therapists approach and style during the delivery of ACT was frequently cited as a helpful component of the intervention, particularly the therapists modelling their own ACT practice through direct observation and self-disclosure. Future evaluations of this ACT intervention would benefit from conducting both qualitative and quantitative investigations into the potential mechanisms of action highlighted in the thematic analysis, for example, group processes.

Complementing the evidence that the delivery of ACT in a secondary-care mental health setting is both feasible and safe are the analyses of the effectiveness measures. At the group level, there was a significant post-treatment reduction on the CORE-OM global distress scale and at the level of the individual, two thirds of women (69%) showed a reliable improvement in global distress. Only two women (4%) demonstrated a reliable deterioration – both of these women evaluated ACT as helpful and neither reported any adverse intervention effects. In line with these results, a significant post-treatment reduction in EPDS depressive symptoms and a significant increase in psychological flexibility was observed. This latter finding is in line with ACT's underlying theoretical model which posits that improvements in psychological flexibility are associated with reductions in psychological distress.

The results of the current study are also consistent with the limited number of studies that have evaluated the effectiveness of group-delivered CBT and IPT for mild-moderate perinatal depressive symptoms (Dennis & Hodnett, 2007; Sockol *et al.*, 2011), and studies that have demonstrated the efficacy of ACT for mood and/or anxiety disorders outside of the perinatal period (A-tjak *et al.*, 2015; Hayes *et al.*, 2011; Ruiz, 2012). However, given

that our ACT intervention was adapted for the perinatal context and targeted at women with moderate-to-severe mood and/or anxiety disorders, comparisons with existing studies using different ACT protocols, and/or those conducted with different populations need to be viewed with caution. We advance the evidence base by demonstrating the feasibility and preliminary effectiveness of group-delivered ACT for women with moderate-to-severe mental health problems during the perinatal period.

Our findings have good ecological validity and demonstrate that both pregnant and postnatal women with a range of mood and anxiety disorders, including those with comorbid diagnoses, can be successfully treated with the same intervention in routine care. This has benefits at the level of the individual and wider system. Women do not have to wait to access psychological therapy until a sufficient number of other women with the same diagnosis are ready to commence therapy. Prompt access to treatment is particularly important in the perinatal period given the time-limited nature of pregnancy and the postpartum. The fact that both pregnant and postnatal women accessed the same intervention further facilitated access and patient flow through the PCMHs. With training and supervision, the ACT intervention can be delivered by mental health professionals without extensive training in psychological therapies (e.g., mental health nurses/graduate trainee clinical psychologists). In alignment with the prudent health care agenda (Bevan Commission, 2017), this further increases access to psychological therapies and enables the senior Psychologist to focus on the treatment of women with the most complex problems. Future evaluations of this ACT intervention would benefit from incorporating an economic analysis to determine the potential longer-term cost savings of augmenting usual care with group-delivered ACT.

As a feasibility and open pilot study there are a number of limitations that are important to highlight. The lack of a control condition precludes conclusions about intervention efficacy. The lack of a follow-up period also limits our knowledge of the longer-term benefits of the intervention. We did not conduct a diagnostic assessment at post-treatment nor include a standardised measure of anxiety symptoms. The measures that generated both the quantitative and qualitative data were administered by the group facilitators; therefore, it is possible that participants' responses are influenced by a desirability to please the facilitators and/or suppress less positive feedback. Furthermore, a sizable proportion of women (58%) were taking a stable dose of psychotropic medication and therefore the impact of medication on symptom improvement is not accounted for. The rates of medication use in this sample are considerably higher than a pilot RCT of individualised CBT for antenatal depression, where 20% of women in the intervention arm were taking an anti-depressant (Burns *et al.*, 2013), and a pilot RCT of individualized CBT for postnatal OCD where 41% of women were treated with psychotropic medication (Challacombe *et al.*, 2017). While a strength of our study is establishing that it is feasible to deliver ACT within a routine practice setting, future evaluations of this intervention would benefit from collecting information on the number of women screened as eligible for ACT who subsequently did, or did not, commence treatment. Future studies would also be improved by measuring the impact of participants' baseline motivation to engage in group-delivered ACT and their readiness to change on intervention outcomes.

Despite these limitations, our findings are promising and support the design and execution of an RCT. Results suggest that ACT is feasible, safe, and acceptable to women diagnosed with moderate-to-severe perinatal mood and/or anxiety disorder(s). Future research would benefit from including a longer-term follow-up, testing the mechanisms that underpin symptom improvement, and assessing the impact of ACT on a wider range

of outcomes including an assessment of the mother–infant relationship. The feasibility and effectiveness of ACT for women with an addictive disorder during the perinatal period also needs to be established. Qualitative analyses indicated that providing childcare could increase access and attendance. The promising results of this study signify that group-delivered ACT can be provided within the context of a specialist PCMHS by mental health professionals without extensive training in psychological therapies. An RCT to establish the efficacy and cost-effectiveness of this intervention is now required.

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Conflicts of interest

All authors declare no conflict of interest.

Author contributions

Cerith S. Waters, Ph.D, D.Clin.Psy (Conceptualization; Formal analysis; Methodology; Supervision; Writing – original draft; Writing – review and editing); Benjamin Annear (Project administration; Resources; Writing – review and editing); Gillean Flockhart (Project administration; Resources); Ian Jones (Writing – review and editing); Jessica R. Simmonds (Resources; Writing – review and editing); Sue Smith (Resources; Writing – review and editing); Claire Traylor (Project administration; Resources; Writing – review and editing); Jessica F. Williams (Resources; Writing – review and editing).

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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