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The Feasibility and Acceptability of Dialectical Behaviour Therapy Groups for Perinatal Women with Mental Health Conditions Including Complex Post- Traumatic Stress Disorder

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Abstract

Background

Complex Post-traumatic Stress Disorder (C-PTSD) arises from early life adversity and relational trauma. Women face heightened mental health risks during the perinatal period, and those with C-PTSD often struggle with emotion regulation and relationships. Dialectical Behaviour Therapy (DBT) is evidence-based for such difficulties, yet its feasibility and acceptability in perinatal populations are underexplored. This study aimed to explore 1) the feasibility and acceptability of a DBT intervention, delivered in group format online to perinatal women with moderate to severe mental health conditions including C-PTSD, and 2) potential change indicators in key outcome measures, namely, emotion regulation and perceived mother-baby bond.

Method

A mixed-methods cohort design was used. Routine feasibility and outcome data (relating to mental wellbeing, mother-baby bond and emotion regulation) were analysed using descriptive statistics and the Reliable Change Index. Individual interviews were also conducted with group participants who were considered to have C-PTSD and clinicians/group facilitators to explore experiences of the intervention and recovery. Qualitative data were analysed using Reflexive Thematic Analysis.

Results

Data from 17 participants, including eight with C-PTSD, were analysed. Six DBT groups were run. The average attendance was 7.7 sessions (adjusting for early dropouts). Attendance rates were 4.26% for full completion, 38% for 75% and 61.9% for 50% completion. Outcome questionnaire scores improved across all measures, with significant gains in emotion regulation. Three themes, with eight sub-themes, were developed from interviews with six women with C-PTSD and four clinicians: *1) therapeutic foundations amid perinatal complexity, 2) holding the group - relationships and continuity* and 3) *finding the balance between access and connection.*

Conclusions

Online DBT skills groups were feasible and acceptable for patients and clinicians. Participants showed notable improvements in emotion regulation. Findings support the continued use and further refinement of this intervention for perinatal women with C-PTSD.

1 Introduction

The perinatal period (typically conceptualised as ranging from pregnancy to 12 months postnatal) involves intense change and stress, with one in four women experiencing mental health difficulties [1] and maternal suicide being the leading cause of deaths within the first postnatal year [2, 3]. In response, the National Health Service (NHS) Long Term Plan [4] outlined the expansion of access to evidence-based psychological therapies in the United Kingdom (UK), to improve maternal mental health and strengthen mother-baby bonding within specialist perinatal mental health teams.

During this period, many women experience the emergence of new mental health conditions and the exacerbation of existing ones, with deterioration in this period frequently influenced by emotion regulation abilities [5, 6]. Emotion regulation is a critical faculty for all individuals; however, it plays an important role for mothers specifically, because they must regulate their own emotions while simultaneously adapting to their babies' often dysregulated states [7]. Perinatal maternal mental health difficulties, which frequently involve emotional dysregulation, can compromise the mother-baby bond and negatively affect the child's social and emotional development [8]. The long-term impact of maternal mental health difficulties underscores the importance of prioritising perinatal mental health care for mothers in the UK [4]. Consequently, mitigating the intergenerational transmission of mental health problems and relational trauma remains a central focus of both clinical practice and research.

One mental health condition frequently encountered in this context is Complex Posttraumatic Stress Disorder (C-PTSD, as defined in the International Classification Diseases-11th Revision; [9]) which is diagnosed by assessing difficulties with emotional regulation, self-organisation, and relational security, in addition to the core symptoms of posttraumatic stress disorder [9]. C-PTSD typically arises from multiple or repeated traumatic experiences, often impacting interpersonal relationships. The estimated prevalence of C-PTSD in the UK ranges from 0.5% to 13% [10, 11, 12] and 1 to 8% globally [13], with reported prevalence from the United States of America being 3.8% [14]. Whilst higher rates of up to 50% are reported within mental health populations [13], little is known about its specific prevalence during the perinatal period. Given that this period can be relationally and emotionally challenging for new parents [7], it is likely that C-PTSD is highly prevalent within perinatal services, with anecdotal and preliminary research supporting this assumption [15].

Dialectical Behaviour Therapy (DBT) is a well-evidenced psychological intervention, combining cognitive-behavioural and mindfulness techniques, which aims to improve emotion regulation and interpersonal difficulties [16, 17]. Traditional DBT offers a comprehensive treatment programme, including a weekly skills group, individual therapy session and 24/7 crisis support. This intervention has been well-studied in clinical populations, particularly for diagnoses characterised by emotion dysregulation, such as Borderline Personality Disorder (BPD, as defined in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition; [18]) Various randomised control trials (see [19], for an overview) and systematic reviews [20, 21] have shown DBT to be effective in the reduction of self-harm and suicidal ideation/attempts, as well as in improving interpersonal relationships and emotion regulation.

Although DBT was originally developed for individuals with BPD, there is considerable symptom overlap between BPD and C-PTSD, particularly in the domains of emotional dysregulation, interpersonal difficulties, and identity disturbance [11, 22]. While BPD is typically associated with pervasive instability in mood and relationships often beginning in adolescence, C-PTSD emerges following prolonged exposure to trauma and is more explicitly anchored in trauma history [22]. Despite these differences, both disorders reflect chronic emotion regulation difficulties and heightened relational sensitivity, suggesting a shared therapeutic need that DBT may address. Recognising these similarities provides a compelling rationale for examining the application of DBT in populations with C-PTSD, particularly in the perinatal period where relational stressors and emotion dysregulation are amplified.

Furthermore, the potential benefits of DBT have also been examined in various clinical groups, with improvements in emotional dysregulation and depression reported in groups with diagnoses such as eating disorders [23], attention-deficit hyperactivity disorder [24] and C-PTSD [25, 26]. Although, as outlined, Linehan [16, 17, 19] developed a particular, comprehensive way of delivering DBT, other variations have also been developed and tested. For example, a stand-alone DBT skills group. There is increasing evidence emerging to support the use of such formats, with various clinical and non-clinical populations in which emotional dysregulation is a component of the presentation [19, 27, 28, 29].

In Valentine et al.'s [30] systematic review of 31 studies, stand-alone DBT intervention was found to effectively improve clinical outcomes in 26 of the 31 studies across clinical groups including patient groups with BPD and/or suicidality and/or self-harm. Five of the 31 reviewed studies included female-only samples drawn from populations with a diagnosis of BPD, eating disorders, suicidality and non-clinical student groups.

Whilst Valentine et al. [30] did not identify any studies with perinatal women or mothers in their review, there are some preliminary studies that show initial encouraging findings that DBT is credible, acceptable and valuable to women in perinatal services. Furthermore, Agako et al.'s [31] findings suggest that perinatal emotional coping skills groups are effective in reducing emotion dysregulation symptoms, with Klieber et al. [32] finding that a similar intervention appeared to be feasible, credible and acceptable for perinatal female adolescents with depression (n = 25). Similarly, Wilson and Donachi's [15] within-subjects study examined the clinical benefits of stand-alone DBT-groups in 32 perinatal women experiencing emotion dysregulation, reporting encouraging transdiagnostic outcomes within a community setting. Although, Klieber et al. [32] included a descriptive composite case study that referenced patient experiences, additional data on multiple patient experiences are needed to explore women's experiences of this intervention. This is particularly relevant given the growing body of literature emphasising the importance of understanding patient perspectives, including treatment acceptability, satisfaction and perceived therapeutic gains [33, 34].

Given that DBT targets emotional dysregulation, which is common in perinatal women with C-PTSD, it can be assumed that a stand-alone DBT group could be a useful therapeutic intervention. As current guidelines stress the importance of incorporating both quantitative and qualitative research to assess

the fidelity and quality of complex clinical interventions [35], this mixed-methods study aimed to explore 1) the feasibility and acceptability of a DBT intervention, delivered in group format online to perinatal women with C-PTSD, considering what helped or hindered their psychological recovery, and 2) potential change indicators in key outcome measures, namely, emotion regulation and perceived mother-baby bond.

2 Methods

2.1 Design, setting and ethical approval

This study employed a mixed methods design to investigate the feasibility and acceptability of a stand-alone DBT skills group, offered by a specialist perinatal service's community team, in the northwest of England, United Kingdom. Ethical approval was obtained from the NHS Research Ethics Committee (West of Scotland, ref: 23-WS-0177), the Health Research Authority and the participating NHS Trust. All procedures involving human participants and/or human data were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the principles of the Declaration of Helsinki and its later amendments.

2.2 Quantitative aspect of the study

2.2.1 Participant eligibility, recruitment and quantitative data collection

A specialist perinatal service comprising three mental health teams within the participating NHS trust provided data for the quantitative aspect of the study. In all cases, to be considered suitable for the DBT intervention by the service, women had to a) experience perinatal mental health problems requiring input from the specialist perinatal service, b) experience emotion dysregulation and/or interpersonal difficulties, 3) be able to engage with group psychological work (including attending 12 sessions). Women were excluded if they were in an acute mental health crisis (e.g., actively psychotic), or if they were unable to commit to most of the weekly sessions. Women were initially identified by members of the multidisciplinary team involved in their care and referred to psychology for screening.

Anonymised service-level data regarding the DBT group were shared with the researchers, via secure email, as per ethical approval. Information on attendance/drop out and routine clinical outcome measures were provided, but data on referral and uptake rates (e.g., those who were offered and declined the intervention) were not readily available from the service. As quantitative data were anonymised, participant consent was not required for this aspect of the study.

2.2.2 DBT skills group

The DBT skills group was delivered online, via video-conferencing software, by two facilitators from the service (with at least one Clinical Psychologist). The learning objectives and homework for each session

were: i) to practise the mindfulness skill covered in that weeks' session and ii) to practise the DBT skill(s) covered in that week's session. These objectives aimed to promote 'skills generalisation', i.e., the translation of a skill from intellectually understood to being practically applied in life outside the group.

This group intervention consisted of 12 sessions in total (see Table 1 for an overview). Each session lasted two hours (which consisted of a recap of the previous week, introduction to new skill content/practice, a mindfulness exercise and a 10-minute break), with the group running continuously in a rolling format (e.g., with no break between cohorts) for 12 weeks. Copies of homework sheets were provided each week [18]. Women were able to join during any *mindfulness* week. Women referred to the perinatal service and deemed to meet the above eligibility criteria were offered the DBT group. Women were encouraged to arrange childcare during the group if possible.

The DBT group included skills from all four DBT modules (e.g., *mindfulness, emotion regulation, distress tolerance, and interpersonal effectiveness*). These modules were drawn from Linehan (2015) and were delivered as outlined by Wilson and Donachie [15], combining psychoeducation with skills-based work. The perinatal adaptation of the DBT group placed a particular emphasis on the experience of motherhood and the relationship between the mother and her baby. For example, within the *mindfulness* module "mind mindedness of baby" is considered (i.e., being aware of our thoughts about baby's thoughts), and within the *emotion regulation* module, frequent examples of parenting paradigms (i.e., if baby needs feeding in the night, and you feel frustrated) were used. An overview of the group structure and content is provided in Table 1.

Telephone coaching was not offered as part of this intervention. A distress management protocol was in place for this study; however, no adverse events were expected as part of this study. In addition, most group participants had an allocated Care Coordinator and/or Psychiatrist, so when risk to self or others was identified in a group session, it was followed up individually via a telephone call by group facilitators, and the relevant information shared with the allocated clinician. If a group participant did not have an allocated clinician, the relevant information was shared with their locality's duty worker to be appropriately followed up.

A completed TIDieR (Template for Intervention Description and Replication) checklist is provided (see Supplementary Material 1).

2.2.3 Clinical outcomes

The service routinely asked mothers enrolled in the group to complete three routine questionnaires pre- and post-intervention (approximately one to two weeks prior to, and after the group) to consider clinical outcomes (see Table 2 for details). As part of this study, women were also asked to complete Cloitre et al.'s [38] *International Trauma Questionnaire* (ITQ) as a screening tool. The rationale for this was due to the relatively recent recognition of C-PTSD as a diagnosis [9] many participants may not have a formal diagnosis of C-PTSD in their clinical notes. Therefore, the ITQ was used to determine if women met the inclusion criteria for C-PTSD. The ITQ was scored as per its specified instructions by clinicians within the

service. As these measures are freely available online for non-commercial use, explicit permissions for their use were not required.

Table 1
Overview of the DBT skills group

Session number	Module	Aim	Selected Skills
1*	Mindfulness	Improve awareness and acceptance	States of mind, wise mind. What skills: observe, describe, participate
2	Emotion Regulation	Processing emotion	What do emotions do for you? What makes emotion regulation hard? Model of emotions.
3	Emotion Regulation	Cognitive change Managing emotional expression Managing situations that trigger emotions	Check the facts. Opposite action and problem solving.
4	Emotion Regulation	Building emotion resilience; reducing emotional vulnerability	Taking care of your mind by taking care of your body, PLEASE. Build mastery and cope ahead.
5	Emotion Regulation	Building emotion resilience; reducing emotional vulnerability	Accumulate positive experiences
6*	Mindfulness	Improve awareness and acceptance	States of mind, wise mind. What skills: observe, describe, participate
7	Distress Tolerance	Managing biological changes of distress Controlling attention	TIP skills. Distract, self-soothe, improve the moment.
8	Distress Tolerance	Cognitive change Managing biological changes of distress	Radical acceptance
9*	Mindfulness	Improve awareness and acceptance	States of mind, wise mind. What skills: observe, describe, participate
10	Interpersonal Effectiveness	Managing situations that cue emotion.	Clarify goals in interpersonal situations. Factors that interfere with interpersonal effectiveness.

*Note: blue indicates mindfulness content, orange indicates emotion regulation content, yellow indicates distress tolerance content and green indicates interpersonal effectiveness content. * denotes points at which new participants can join.*

Session number	Module	Aim	Selected Skills
11	Interpersonal Effectiveness	Managing situations that cue emotion	DEAR MAN GIVES FAST
12	Interpersonal Effectiveness	Managing situations that cue emotion	Finding and getting people to like you. Ending relationships.

*Note: blue indicates mindfulness content, orange indicates emotion regulation content, yellow indicates distress tolerance content and green indicates interpersonal effectiveness content. * denotes points at which new participants can join.*

2.2.4 Quantitative data analysis

Descriptive statistical analysis was used to summarise quantitative data and examine feasibility, including attendance and retention rates. In line with the exploratory nature of our study, retention rates were reported and discussed with reference to typical progression criteria (e.g., > 80% retention rate would warrant progression to a definitive trial, 60–80% retention rate would warrant progression to definitive trial following necessary adjustments to counter attrition and < 60% retention rate would indicate progression to a definitive trial is unlikely [36, 37]).

Means, percentages and standard deviations were calculated for clinical outcome data, including sub-scales. Due to being a feasibility study, the authors were unsure if the sample size would be large enough to reliably complete a related t-test, or non-parametric equivalent. Therefore, the reliable change index (RCI) was chosen to assess for clinically significant change on all group attendees pre- and post-intervention scores, as well as for women with C-PTSD specifically. An RCI score greater than 1.96 indicated clinically significant change [39]. Prior to analysis data were checked to identify any potential errors.

Table 2
Overview of the routine clinical measures used

1	Measure name and reference	Purpose and use	Item and sub-scale numbers	Scoring information	Psychometric properties
	Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-10) [40]	**Brief self-report measure of common presentations of psychological distress. Includes items covering anxiety, depression, trauma, physical problems, functioning and risk to self.** **Widely used for assessing the effectiveness of psychological interventions and services and widely recommended as a core outcome measure for UK perinatal services [40].**	**10 items, no subscales.**	**Each item considers a symptom or experience and asks participants to rate how frequently it has been experienced over the past week. A Likert scale is used to rate each item from 0 being 'not at all' to 4 being 'most or all of the time'.** **To calculate the clinical score, scores from all completed items are summed, then divided by the number of items completed and multiplied by 10.** **The minimum group score possible would be 0, and the maximum would be 64.** **The clinical score categories are as follows: 0–5 is healthy', 6–10 is 'low level distress', 11–14 is 'mild psychological distress', 15–19 is 'moderate psychological distress', 20–24 is 'moderate to severe psychological distress' and 25–40 is indicative of 'severe**	**The Core-10 has been found to be valid and reliable in adult populations [40, 41], with strong psychometric properties reported and it being endorsed for transdiagnostic use [40]. The internal consistency of the scale, as assessed by Cronbach's alpha, was found to be 0.90 [40].**

				psychological distress'.	
2	**The Post-partum Bonding Questionnaire (PBQ)** [44]	Self-report measure assessing the mother-baby relationship, and maternal attitudes towards the baby. The PBQ is widely used and recommended for use within perinatal mental health services [41]. The PBQ was only completed by women who were postpartum and not by those who were pregnant during the intervention.	25 items, four sub-scales:1) Impaired Bonding (12 items); 2) Rejection and Anger (7 items); 3) Anxiety about care (4 items); 4) Risk of Abuse (2 items).	Each item is rated on a 6-point Likert scale (0–5), in relation to the frequency ('always' through to 'never') which a mother experiences that feeling. For some items, 'always' is scored as 0, and 'never' as 5, and others are reverse scored. To calculate the overall score all scores are summed. The minimum overall score possible would be 0, and the maximum would be 125. Subscales can also be calculated (Impaired Bonding, 0–60; Rejection and Anger, 0–35; Anxiety about care, 0–20; and Risk of Abuse 0–10). In all instances, higher scores indicate greater difficulty in bonding. For total score, ≥ 26 is seen as indicative of disturbed bonding, with a score of ≥ 40 indicating a more severe disturbance, A score of 12 or above on the impaired bonding subscale, 13 or	The PBQ is globally validated and is shown to have good specificity and sensitivity in clinical and non-clinical samples [45, 46, 47]. Internal consistency for the total scale, impaired bonding, rejection and anger and anxiety about care subscales was reported as acceptable (0.76, 0.79, 0.63 and 0.63 respectively). However, internal consistency for the fourth subscale could not be determined in this study due to zero variance [48]. Taylor et al. [46] demonstrate the PBQ's convergent validity, when compared with another self-report measure of mother-baby bonding. Further, the PBQ's concurrent validity is highlighted by Wittkowski et al. [48].

				above on the rejection and anger subscale, 10 or more on the infant-focused anxiety subscale and 3 or more on the risk of abuse subscale are considered high [46].	
3	**The Difficulties in Emotional Regulation Scale Short Form (DERS-SF)** [50]	Brief version of the original DERS full scale [51] which assesses emotional dysregulation.	18 items, 6 sub-scales: 1) Strategies, 2) Non-acceptance, 3) Impulse, 4) Goals, 5) Awareness, 6) Clarity. All sub-scales consist of 3 items each.	Women are asked to indicate the frequency of how much each item applies to them. Each item is rated on a 5-point Likert scale, ranging from 'almost never' (1) to 'almost always (5). The overall score can be calculated by summing each items score. The minimum overall score would be 18, and the maximum overall score would be 90. Higher scores (overall and on individual sub-scales) indicate greater dysregulation. Sub-scales can be scored using sums or averages of items. If the aim is to compare scores to original DERS questionnaire, then averages of each sub-scale are advised. All items in the Awareness sub-scale are reverse coded [50].	The DERS-SF's internal consistency is reported as 0.93 for an adult sample, which is comparable to its longer predecessor (DERS), despite being only half the length [50, 52]. The DERS-SF has good convergent, discriminant and criterion validity [50] with Gratz and Roemer's [51] original paper also supports validity frameworks.

4	**The International Trauma Questionnaire (ITQ)** [38]	Due to the relatively recent recognition of C-PTSD as a diagnosis [9] many participants may not have a formal diagnosis of C-PTSD in their clinical notes. Therefore, the ITQ was used to determine if women met the inclusion criteria for C-PTSD.	18 items, with 3 sub-scales: PTSD, Disturbances in Self-Organisation (DSO)/C-PTSD and functional impairment. All 3 sub-scales comprise 6 items. The PTSD sub-scale comprises 3 symptom clusters: 1) re-experiencing in the here and now, 2) avoidance, 3) sense of current threat. The DSO/C-PTSD sub-scale also comprises 3 symptom clusters: 1) affective dysregulation, 2) negative self-concept, 3) disturbances in relationships. All symptom clusters consist of 2 items.	Participants are asked to consider how much each experience is typical for them. Six items specifically relate to experiences in the past month only. Each item is rated on a 5-point Likert scale, ranging from 0 ('not at all') to 4 ('extremely'). Total overall scores range from 0 to 48, with higher overall score indicates greater symptom severity. The possible PTSD sub-scale score ranges from 0 to 24. A score of ≥ 2 on at least one item in each of the three PTSD symptom clusters, and a score ≥ 2 on the PTSD functional impairment item indicates PTSD criteria are met. The possible C-PTSD sub-scale ranges from 0 to 24. A score of ≥ 2 on at least one item in each of the three DSO symptom clusters, plus a score of ≥ 2 on both DSO functional impairment items, indicates C-PSTD criteria are met.	The ITQ is a well-validated and widely accepted diagnostic tool [38, 53]. Internal consistency is high, with Cronbach's alpha reported as 0.88–0.91 and 0.89–0.94 for the PTSD and DSO scales respectively [54]. The ITQ has good convergent, discriminant and criterion validity [38, 54, 55].

2.3 Qualitative aspect of the study

2.3.1 Participant eligibility and recruitment for interviews

Patient participants were included for interview if they met the following criteria: They 1) were ≥ 18 years old, 2) were pregnant or had a baby in the past 12 months, 3) were proficient in English, 4) engaged with at least 50% of the DBT group (deemed by the service as an adequate therapeutic dose) within the last 12 months, 5) presented with C-PTSD, as assessed by the ITQ diagnostic threshold [38] and 6) were able to provide written or audio-recorded informed consent. Exclusion criteria included mothers who were acutely unwell (e.g., actively suicidal with intent, or actively psychotic, or experiencing a severe episode of depression).

Patient participants were recruited from a specialist perinatal service in the northwest of England. Given the specific eligibility criteria, a convenience sampling method was used. Practitioners working in the participating service identified eligible patients for the DBT group. Eligible participants were provided with study information via an involved clinician, and if interested, completed a consent-to-contact form.

According to Guest, Bunce and Johnson [56], a sample size between six and 12 participants is considered appropriate to reach data saturation in qualitative studies. As recruitment of women proved challenging, the inclusion criteria were amended later to allow group facilitators'/clinicians' experiences to be included. Clinicians were eligible to be interviewed if they had facilitated at least one full iteration of the group. The service identified eligible clinicians and shared their contact details with the main researcher, who then made contact to discuss the study.

2.3.2 Interview guide development

The topic guide for patient interviews was developed first, informed by literature on similar feasibility studies with perinatal populations, clinical and research experience of the supervisors, and in consultation with a parent Community Liaison Group representative. The topic guide included open-ended questions focusing on acceptability in terms of group delivery, facilitation, content, dynamics, and psychological changes experienced (see Supplementary Materials 2).

The topic guide for clinicians was derived from the above to capture experiences of similar issues, from a facilitator's perspective. The clinician topic guide considered factors related to feasibility, for example, the ease of implementation within the service (see Supplementary Marerials 3).

2.3.3 Demographic information

Patients completed a modified version of the *Family Background Questionnaire* [57] prior to interview. This measure provided demographic data on women's mental health and family structure. Clinicians also completed a brief demographic form prior to interview which captured their age bracket, profession/role, and education level.

2.3.4 Procedure

Once consent to contact forms were received, the main researcher then confirmed eligibility and provided all participants with further study information. All participants were given at least 24 hours to consider participation before scheduling an interview, during which they could ask any questions.

Participants could choose if they preferred online or in-person semi-structured interviews. All participants opted for online interviews, which were facilitated on Microsoft Teams, by the main researcher (AH). At the start of each interview the consent form was completed with consent audio recorded. Confidentiality was discussed with all participants at the outset. The relevant demographic form and main interview were then discussed and audio-recorded separately for confidentiality purposes. Interviews were recorded (via Dictaphone), transcribed verbatim and cross-checked for accuracy. After the interview, participants were offered a debrief and £10 reimbursement for their time. Additionally, patient participants were asked if they would like to select their own pseudonym for the paper.

2.3.5 Qualitative data analysis

Reflexive Thematic Analysis (RTA, Braun & Clarke, [58, 59]) was employed to analyse the transcripts, using NVivo 12 analysis software to facilitate coding (QSR International Pty Ltd., [60]). The analysis followed the six stages of RTA: familiarisation with the data, initial code generation, searching for themes, reviewing potential themes, defining and naming themes, and producing the final report. An emphasis was placed on being reflective and transparent about data quality. Notably, patient and clinician transcripts were initially coded separately; however, codes were later considered together during the theme generation stage. RTA allowed for a rich, detailed interpretation of patterns, highlighting potential barriers and facilitators to women's engagement, as well as identifying key elements of the intervention that participants found most and least useful.

2.4 Reflexivity and rigour

All researchers were psychologists with experience of delivering and/or evaluating therapies. Two researchers (AW, BOC) had experience of working in perinatal services, which likely informed their assumptions and biases. The first researcher, a Trainee Clinical Psychologist (AH), conducted and transcribed the interviews, resulting in their full immersion in the data.

Attention was paid during analysis to the issue of reflexivity and rigour. In line with available guidance [61], the research team made use of the following strategies to increase the trustworthiness/rigour of their analysis: 1) the utilisation of a reflective journal by the first researcher, to record methodological decisions, alongside their initial thoughts and impressions of participant interviews and transcribed interviews; 2) clear audit trails for coding and theme development maintained; 3) themes were reviewed and agreed by the research team to enable consideration of other viewpoints and perspectives; 4) the adequacy of themes was tested by returning to the raw data set with the initial thematic structure and 5) a thematic diagram was produced in order to make sense of theme connections.

3 Results

3.1 Quantitative results

3.1.1 Feasibility

Data on group attendance were available for the rolling DBT group for 18 months, from August 2023 until February 2025, which covered six iterations of the rolling group schedule. In this time period 47 women (with varying mental health needs) attended the group. The number of sessions attended ranging from one to 12, with the mean number of attended sessions for all women being 6.4 (*SD* 3.5) The mean number of attended sessions increased to 7.7 (*SD* 2.50) when data for women who dropped out within the first two sessions were removed.

Two (4.26%) women attended 100% of the 12-week intervention. A total of 14 out of 47 women (29.8%) completed 75% or more of the intervention, which is deemed by the service as completing the intervention. However, when removing data for women who dropped out after one or two sessions, this completion rate increased to 38%. A total of 29 out of 47 women (61.7%) completed 50% or more of the intervention, which is deemed by the service as an adequate therapeutic dose. However, when removing data for women who dropped out after one or two sessions, this completion rate increased to 78.3%. Please see Fig. 1 for a CONSORT flow diagram relating to this study.

Data regarding which geographical area or team the attending women were from was not readily available from the service for comparison. The attendance rates across the four main modules (*mindfulness, emotion regulation and distress tolerance*) were similar (54%, 54% and 55%), with *interpersonal effectiveness* being slightly lower (47%). No clear patterns were observed regarding the session, or stage of the group women dropped out at.

3.1.2 Clinical outcomes

Clinical outcomes for all group participants were examined first, followed by group participants who met the ITQ criteria for C-PTSD. Mean and standard deviations for pre- and post-intervention measures (including sub-scales) are presented in Table 3, for all group participants. The mean changes on the CORE-10, PBQ and DERS-SF were all in the expected direction. The CORE-10 mean score pre-intervention was within the ‘moderate-to-severe psychological distress’ category, falling five points post-intervention to within the ‘moderate distress’ category. The mean score on the PBQ decreased by four points, with both being below the threshold for ‘disturbed bonding’ (≥ 26) [45]. The overall mean score on the DERS-SF decreased by 13 points, which is classed as a significant improvement (following the guidelines of the Minimally Important Difference; [62]. When the RCI was calculated for all group attendees, change was only found to be statistically significant on the DERS-SF measure (see Table 4).

Summary statistics (mean and standard deviation) for pre- and post-intervention measures (including sub-scales) are presented in Table 5, for eight out of 17 group participants who met the ITQ criteria for C-PTSD. The mean change on the CORE-10 was in the expected direction for C-PTSD patients and fell by five points from the ‘severe distress’ to the ‘moderate to severe distress’ classification. The mean PBQ

score slightly increased for this cohort from a mean of 13.17 pre-DBT group to 15.60 post-DBT group (i.e., an increase of about two points but both means remained well below the threshold for 'disturbed bonding' (≥ 26) [45]. The mean DERS-SF scores decreased for C-PTSD patients by 15 points, which is classed as a significant improvement [62]. When the RCI was calculated for this group, the change was only found to be statistically significant on the DERS-SF measure (see Table 6).

Table 3
Outcome measures pre- and post-intervention for all group participants (n = 17)

	Pre-intervention				**Post-intervention**			
Measure	**M**	**SD**	***n***	**% of missing participant data *(n)***	**M**	**SD**	***n***	**% of missing participant data *(n)***
CORE-10	21.76	6.40	17	0% (0)	16.00	8.17	17	0% (0)
PBQ Total Score	24.79	15.60	14	0% (0)	20.85	14.64	13	7.14% (1)
Mother infant relationship problems	11.71	7.80	14	0% (0)	10.64	8.33	13	7.14% (1)
Rejection and pathological anger	6.86	5.36	14	0% (0)	5.42	4.80	13	7.14% (1)
Infant focused anxiety	6.21	3.69	14	0% (0)	4.79	2.96	13	7.14% (1)
Incipient abuse	0	0	14	0% (0)	0	0	13	7.14% (1)
DERS-SF Total Score	65.65	8.28	17	0% (0)	52.65	12.40	17	0% (0)
Strategies	11.65	2.37	17	0% (0)	8.41	3.16	17	0% (0)
Non-acceptance	12.18	1.72	17	0% (0)	8.94	2.86	17	0% (0)
Impulse	9.47	3.26	17	0% (0)	7.00	3.03	17	0% (0)
Goals	13.52	1.68	17	0% (0)	11.00	3.27	17	0% (0)
Awareness	9.82	2.38	17	0% (0)	10.24	2.73	17	0% (0)
Clarity	8.88	2.19	17	0% (0)	7.06	2.29	17	0% (0)

Table 4
Differences in outcome measures from pre- to post-intervention for all group participants (n = 17)

Measure	Pre-Intervention (M ± SD)	Post-Intervention (M ± SD)	RCI Value	Reliable Change Classification
CORE-10	22.76 ± 12.60	16 ± 12.60	-1.55	Not statistically significant
PBQ	24.79 ± 7.17	20.85 ± 7.17	-0.83	Not statistically significant
DER-SF	65.65 ± 12.49	52.65 ± 12.49	-2.12	Statistically significant

Table 5
Outcome measures pre- and post-intervention (attendees who met C-PTSD criteria on the ITQ, n = 8)

	Pre-intervention				**Post-intervention**			
Measure	**M**	**SD**	***n***	**% of missing participant data *(n)***	**M**	**SD**	***n***	**% of missing participant data *(n)***
CORE-10	25.38	5.80	8	0% (0)	20.75	9.06	8	0% (0)
PBQ Total Score	13.17	8.62	6	0% (0)	15.60	15.09	5	16.66% (1)
Mother infant relationship problems	6.50	3.20	6	0% (0)	8.60	9.04	5	16.66% (1)
Rejection and pathological anger	3.17	3.077	6	0% (0)	3.80	4.96	5	16.66% (1)
Infant focused anxiety	3.50	2.81	6	0% (0)	3.20	2.23	5	16.66% (1)
Incipient abuse	0	0	6	0% (0)	0	0	5	16.66% (1)
DERS-SF Total Score	69.00	4.52	8	0% (0)	54.88	12.11	8	0% (0)
Strategies	12.25	2.44	8	0% (0)	8.50	3.64	8	0% (0)
Non-acceptance	11.88	1.76	8	0% (0)	8.88	3.30	8	0% (0)
Impulse	10.50	3.20	8	0% (0)	8.13	3.26	8	0% (0)
Goals	13.75	1.48	8	0% (0)	11.25	3.31	8	0% (0)
Awareness	11.13	1.83	8	0% (0)	11.75	2.22	8	0% (0)
Clarity	9.25	1.98	8	0% (0)	6.38	2.06	8	0% (0)

Table 6
Differences in outcome measures from pre- to post-intervention (attendees who met C-PTSD criteria, n = 8)

Measure	Pre-Intervention (M ± SD)	Post-Intervention (M ± SD)	RCI Value	Reliable Change Classification
CORE-10	25.38 ± 12.60	20.75 ± 12.60	-1.07	Not statistically significant
PBQ	13.17 ± 7.17	15.60 ± 7.17	0.54	Not statistically significant
DER-SF	69 ± 12.49	54.88 ± 12.49	-2.38	Statistically significant

3.2 Qualitative findings

3.2.1 Participant demographics

Seven women consented to be interviewed; however, one was found to be ineligible because they did not meet ITQ C-PTSD criteria. Interviews ranged from 25 minutes to 59 minutes (mean 44 minutes).

Patient demographic data for the six women interviewed are available in Table 7. Patient age ranged from 23 to 34, with a mean age of 28.67 (*SD* 4.22). Half the six participants were first time parents (*n* = 3) with one being pregnant and two being postpartum, and for half it was their second child (*n* = 3). Four participants had female children only, with one participant having both a male and female child, and one pregnant participant expecting a boy. Patients' current mood ratings (1 being low, 10 being high) ranged from 5 to 8, with the mean being 6.5 (*SD* 1.05).

Four clinicians were eligible and consented to be interviewed. One clinician was aged 20–29, and three were aged 30–39. Two clinicians were parents, and two were not. All clinicians described themselves as White British. Three clinicians had a professional doctoral degree and were qualified Clinical Psychologists, and one had a master's degree and was employed as an Assistant Clinical Psychologist.

Women chose their own pseudonyms: *Sunny, Valentine, Jane, Claire, Kelly* and *Jasmin.* Clinicians were allocated pseudonyms: *Sophie, Ben, Emily* and *Jamie*.

Table 7
Patient demographics

Characteristic	Percentage (*n*)
Age group	
20–24	16.67% (*n* = 1)
25–29	50% (*n* = 3)
30–34	33.33% (*n* = 2)
Ethnicity	
White British	66.67% (*n* = 4)
Asian/Asian British	16.67% (*n* = 1)
Mixed	16.67% (*n* = 1)
Education	
University	50% (*n* = 3)
College	50% (*n* = 3)
Medication	16.67% (*n* = 1)
DBT group only	33.33% (*n* = 2)
Marital status	
Married	66.66% (*n* = 4)
Co-habiting	33.33% (*n* = 2)
Employment status	
In education part-time	16.67% (*n* = 1)
In education, full-time	16.67% (*n* = 1)
Part-time employment	16.67% (*n* = 1)
Full-time employment	16.67% (*n* = 1)
Employed, on maternity leave	16.67% (*n* = 1)
Unemployed	16.67% (*n* = 1)
First time parent	
Yes	50% (*n* = 3)
No	50% (*n* = 3)

Characteristic	Percentage (*n*)
Age group	
Previous mental health diagnosis	
Trauma (PTSD/C-PTSD)	50% (*n* = 3)
Personality disorder	16.67% (*n* = 1)
OCD	16.67% (*n* = 1)
Panic	16.67% (*n* = 1)
Eating disorder	16.67% (*n* = 1)
Previous mental health intervention	
Support from Child and Adolescent Mental Health Services (CAMHS)	50% (*n* = 3)
Cognitive behavioural therapy (CBT)	50% (*n* = 3)
Eye-Movement Desensitisation Therapy (EMDR)	16.67% (*n* = 1)
Crisis support (e.g., Home-Based Treatment)	33.33% (*n* = 2)

3.2.2 Thematic analysis

Three themes, with eight sub-themes, related to women's and clinician's experiences of the DBT group were generated as a result of thematic analysis: *1) therapeutic foundations amid perinatal complexity, 2) holding the group - relationships and continuity* and *3) finding the balance between access and connection*. Italicised quotes illustrating each theme are provided within the text, with quotes from clinicians indicated for clarity. Table 8 highlights additional illustrative quotes. Figure 2 presents a conceptual diagram of the themes and their presumed relation to each other.

Theme 1: Therapeutic foundations amid perinatal complexity

This theme, comprising three sub-themes, encapsulated women's and clinicians' experiences of the DBT group, including helpful aspects of the model and content, as well as its limitations. It describes how participants were navigating individual differences within a structured group intervention, whilst highlighting the positive gains for mothers and by extension their families.

Sub-theme 1.1: DBT content

Women and clinicians spoke positively about all four modules and the DBT skills they resonated with. They highlighted *mindfulness, emotion regulation* and *interpersonal effectiveness* as particularly useful in supporting therapeutic gains. *Mindfulness* was credited with reducing distress and supporting skill development by both women and clinicians, making the intervention more acceptable:

"I think, Wise Mind [DBT skill of balancing emotion and reason]. *Like erm, that, the different states of mind you can be in, and what these mean. And what to do to try and get myself balanced… if you can get yourself in that right balance, it helps a lot" (Kelly).*

Clinicians echoed the value of *mindfulness* skills such as Wise Mind. In particular, they expanded that *mindfulness* was vital in allowing receptivity of other skill content:

"I think mindfulness from my perspective is kind of a core skill. To be able to do any of the rest of it, we've got to be able to notice in the moment what's going on so we can make a decision" (Jamie, clinician).

The *emotion regulation* module had also positively impacted women's psychological wellbeing, through improving emotional literacy and validating their feelings, and therefore was viewed as a favourable part of the intervention:

"I did find that very beneficial, cause a lot of people spoke about emotions, and obviously sometimes I'd only think of like a negative impact of that emotion but also it has a lot of positives, so…it made me think of looking from a different perspective or a different way from how I would have normally before" (Jasmin).

Moreover, the *interpersonal effectiveness* skills seemed particularly satisfactory and useful for women. It seemed that women often related to this content, because it aligned with their therapeutic goals. This alignment in turn seemed to lead to increased skill practice and therefore greater positive relational outcomes in their lives:

"All the people coming to the group, seem to prioritise the interpersonal effectiveness skills. People always seem to say, "I need to work on my relationships", "I really need to work on how to be more assertive", or "I need to work on not biting everyone's head off" (Jamie, clinician).

More generally, women generally found the content (communicated via PowerPoint slides) helpful, well-structured and supportive of their psychological knowledge developing, comparing them favourably to other previous therapy and DBT resources. Women described finding the group's examples (which often involved relationships or being a parent) relatable which encouraged reflection and made the intervention more acceptable. All participants emphasised the benefits of DBT's skill practice homework, noting that applying skills in calmer moments led to more automatic cognitive and behavioural change and promoted motivation, therefore supporting attendance and engagement:

"But the homework, making sure that we are practicing what we're learning, and it helps keep me motivated…definitely makes it easier to stay committed to practicing the techniques, it really does. Erm, I think it's very beneficial in that sense" (Jasmin).

However, women and clinicians also acknowledged struggling with the DBT content at times. For example, some clinicians expressed reservations that *mindfulness* seemed harder for women to engage with (particularly neurodivergent women) and that group facilitators had to work harder to 'sell it'. Furthermore, women found that the language and acronyms used sometimes hindered their progress.

This sentiment was echoed regarding skills with multiple steps, such as DEAR MAN. It seemed the DBT manual's inaccessible and complex terminology made it harder for challenging concepts to be understood and retained by women:

"I don't feel like those moments where you are hitting crisis or you're facing difficulty, it's not linear, you know you can't necessarily work through this acronym and think 'right now I do this, or now I do that'" (Claire).

DBT's traditional structure is designed for complex patients, however, some clinicians questioned if the simpler intervention aligned with the complex cohort, which possibly stemmed from uncertainty around the model's appropriateness or evidence base. At times, the didactic and directive structured content of the group felt limiting, particularly when faced with histories of trauma. This could be uncomfortable to navigate for clinicians, when there was perhaps a relational pull to dedicate more time to exploring individual's complex needs. Specifically, certain skills such as TIPP and *mindfulness* felt as though they might seem invalidating:

"Like sometimes you hear some stories, and you're like "oh my god and we're telling them to tip their face in some cold water" (Sophie, clinician).

There were some suggestions that accessibility could be improved through content adaptations, such as incorporating more creative and varied tasks to increase engagement and meet diverse needs. Additionally, emailed materials were described as inaccessible, with suggestions for printed versions or booklets to promote greater accessibility:

"I get hundreds of emails, and it's like difficult, and like now because I want to keep all of the stuff to go back to, and I don't have a printer, so that's tricky" (Jane).

Sub-theme 1.2: Value and fidelity of DBT perinatally

The group often seemed to help perinatal women become psychologically stronger, thus providing a foundation for future trauma work:

"We are meeting women with complex needs, so this is a part of something else, a part of their journey. It's not going to be the "cure" or "the fix", recognising it is going to be a part of it. So, I think that helps, erm, maybe seeing it as stabilisation for people, and that maybe we can do this in the perinatal period." (Sophie, clinician).

Women and clinicians noted the interventions timing in their life was powerful in reducing isolation and enhancing coping during a vulnerable period. When delivered at the 'right time' of the perinatal journey, DBT was described as transformational *("she was saying the group had been life-changing", Emily, clinician).*

The immense value of the intervention was echoed through women's discussion of their therapeutic gains. Women reflected on powerful wide-ranging benefits, including improvements in emotion regulation, *("the main benefit so far is its offering a better, more emotionally regulated solution", Claire)*, ability to 'be present' *("and it's like just stay in the moment… and let it fade off", Valentine)*, self-awareness *("I can realise when I am getting a bit irrational now, a bit more.", Kelly)*, use of adaptive coping skills *("the main thing I've taken out of it all, is having the practical tools, cause I felt like I've done a lot of talking before, and then I've not had a lot of actual things that I can then implement, to help myself.", Jane)* and relationships *("and I can see the impact and change not just on me, but on my partner, my family and my children", Jasmin).*

Clinicians observed psychological improvements week by week but described that this progress was not always captured in the quantitative routine outcome measures, possibly limiting how the intervention's value was perceived by service stakeholders. Clinicians stressed that the group remained faithful to the DBT model and was well organised, while thoughtfully integrating perinatal-specific content, such as 'keeping baby in mind' segments, which supported relational progress:

"*What I do really like about the group, is the way it is tailored to the perinatal experience. So, whoever has developed the resources, have done a really good job of honouring the DBT manual whilst also bringing in perinatal examples too. So, I think that's been done really well" (Emily, clinician).*

Sub-theme 1.3: Women's suitability, complexity and attrition

Despite its value, challenges remained, particularly regarding the intersection of patient complexity and attrition, and therefore therapeutic gains. Clinicians noted that those who most needed the support often lacked the stability to engage consistently. Women's complex lives contradicting with having the time and space to practice skills that DBT required to be optimally successful could have contributed to some women disengaging. In addition, it seemed plausible that high attrition for this cohort could reflect relational dynamics such as acquiescence, when women initially agree to participate, but later withdraw due to competing practical and emotional demands:

"I suspect it's because people just don't have the resources to meaningfully engage, or either that or, we're kind of in a bit of a disguised non-compliance position, erm of, wanting to say all the right things to show willing, but actually not meaningfully committing" (Jamie, clinician).

To reduce the attrition and maximise gains, practicalities (for example, text reminders) and suitability for the group emerged as important considerations. A thorough psychological assessment and screening prior to the group helped facilitate this. Clinicians were encouraged to look beyond the surface symptoms and consider deeper drivers of distress:

"Some people have been referred to the group to regulate their emotions, but we've said maybe CFT would be a better fit because maybe what's driving the dysregulation is, erm, thoughts of incompetency or not feeling good enough, feeling guilty about things perinatally" (Sophie, clinician).

Theme 2: Holding the group - connection and continuity

Interpersonal relationships, both between group members and with clinicians, enabled the intervention to be perceived as acceptable, beyond the DBT content. This theme illustrates the relational depth afforded by this intervention, and the clinical skill required to facilitate this effectively with a complex cohort. It highlights how validation, safety and connection were particularly beneficial to perinatal women with C-PTSD within a therapeutic group context.

Sub-theme 2.1: Facilitator style and skill of creating psychological safety

Women expressed admiration for their clinicians' communication and therapeutic abilities, emphasising how their approach improved understanding and outcomes:

"I found that the way my previous therapist had explained it was just not helpful, and I struggled with it, but then the way it was explained in the group, I was like "oh my god that makes so much sense" (Sunny).

Likewise, women valued the emotional safety (*"Now I feel like it is really good because it creates, at least this is how I feel, I feel really safe…there is so much reassurance", Valentine)* and calming presence created by clinicians *("the tones in their voice and how they speak, are so calming and soothing, it just makes you feel at ease and relaxed", Jasmin).*

Clinicians reflected that using DBT with complex women required flexibility and adaptability, which they observed as having a direct impact on participant engagement. They further considered the value of their core therapeutic skills, including empathy, communication and facilitating psychological safety which seemed fundamental in enabling a space for growth and change with this cohort of women:

"Which can be a skill really, cause if someone if someone is throwing a lot at you at once, so yeah, you need to be on it and efficient in your questions, I think. And try to get the right answers" (Sophie, clinician).

Clinicians highlighted the skillful management of managing complex group dynamics, including disclosures and complex turn-taking and social communication. The clinicians also referenced some apprehensions with facilitation, including challenges with joining groups midway, and feeling pressure to maintain momentum amongst attrition concerns with this cohort:

"I was a bit worried that people would get bored…that people would get bored, or there'd be that lack of connection…that felt like a bit of pressure, to make sure that people listen, and you are as interesting as you talk, and you're engaged" (Ben, clinician).

Clinicians noted trying to balance encouraging discussing homework successes and barriers empathetically. Navigating these conversations required tact, with clinicians wary of shaming women, and possibly negatively impacting their view of the intervention:

"And if people are feeling brave enough to acknowledge that they've not done any practice this week, then exploring this in hopefully, as non-shaming a way as possible. Erm, what's gotten in the way, and how skills

might actually have been practiced in a subtle way" (Jamie, clinician).

Given the demands of motherhood, homework could feel overwhelming. Some clinicians modelled their own struggles with homework, which was hoped to normalise the challenges and reduce possible experiences of guilt or shame.

Sub-theme 2.2: Group dynamics and peer support

While some women initially expressed discomfort speaking in groups (*"I am a bit more reserved with speaking in groups", Claire)*, many found peer support to be profoundly validating and helpful on their psychological journey, making them view the intervention more favourably:

"It makes you feel like you have a, like sense of connection, a little community, so it does feel nice" (Jasmin).

They reflected on the group providing unity, shared understanding and reducing feelings of isolation, particularly through normalising emotional experiences:

"With validating each other's feelings and these thoughts that we have. And I think that this is the most beneficial part of doing it in a group setting, is other people's experiences, and their offers and perspectives of things" (Claire).

Peer dynamics were also seen to increase motivation and accountability, enhancing attendance and motivation to engage with content, therefore contributing to women experiencing the intervention as acceptable and therapeutic gain. However, women noted that the online setup constrained their ability to make natural connections and spontaneously converse, with some suggesting a few in-person sessions would help address this:

"So even though we were in a group, it still kind of also felt like one on one, and I don't know if that is because we never got the chance to get to know each other properly… so I feel like that's where that in-person session would kind of do that and make that bridge" (Sunny).

Theme 3: Finding the balance between access and connection

This theme and its sub-themes explore and illustrate how the group format and delivery, particularly the rolling, online format was experienced. It considers the interpersonal and practical implications of this intervention's structure for women and clinicians. Although there are benefits to the format discussed, this theme highlights how clinicians' desires to make the intervention more accessible, inadvertently created some confusion for women, possibly affecting acceptability.

Sub-theme 3.1: Rolling format

The rationale for the rolling format from the clinician's point of view was to reduce waiting times, offer flexibility and minimise attrition. Nevertheless, there was recognition by clinicians and women that the

format occasionally caused confusion, especially regarding an individual's progress through the group. This disorientation possibly affected attrition for this complex cohort, and could have reinforced difficult feelings of inadequacy for women, when they misunderstood their stage in the programme:

"I'd thought I'd finished, and they'd said no you're on 9, so I said, 'oh are we sorry I didn't know, I thought I was finished'" (Jasmin).

Clinicians further reflected on how the rolling format disrupted group cohesion, making it difficult for group attendees to build peer relationships or feel a consistent sense of containment. Women echoed this, noting how joining mid-way could hinder connection and progress. Some clinicians questioned if the less-defined boundaries of a rolling structure were especially challenging for this cohort, potentially compromising psychological safety:

"I think setting up this style which maybe is a bit uncontaining, and boundaries are perhaps a bit unclear about the expectations and how you're meant to, yeah, feel contained" (Ben, clinician).

Repetition of the *mindfulness* session was experienced as confusing and frustrating by some women, especially those who were eager to maximise their time in the group by learning a greater variety of skills:

"I think there was one scenario, where it was exactly the same thing again, like repeated, and for a bit I was confused, like wait what's happening?! And then they said, no we do repeat things. And I'm not sure I find that particularly helpful to be honest, I feel myself switching off, as I'd already done the slides" (Jane).

Although clinicians were attuned to patient needs and recognised this frustration, they viewed the repetition as a valuable mechanism for embedding core *mindfulness* skills and supporting broader therapeutic skill development.

Sub-theme 3.2: Online delivery

Women discussed both the practical and emotional implications of online delivery. For many, it increased accessibility, particularly because of childcare and employment constraints, and enabled continued engagement even during difficult times. Clinicians also appreciated logistical advantages, such as ease of presenting media (e.g., PowerPoint slides and video clips) and promoting equity across geographically dispersed group attendees.

Nonetheless, the digital format appeared to limit interpersonal connection, which stood out for all participants as noted in sub-theme 2.2. Women and clinicians noted that screens diminished opportunities for natural interaction, with social cues often lost:

"You can miss a lot of that online, the body language and stuff, you can't pick up as much on that" (Sophie, clinician).

Clinicians described the difficulty in monitoring group attendees' wellbeing in a virtual environment, especially when cameras were off. This limited their ability to identify and respond to emotional distress in real time which was concerning. There seemed to be disparity between women's views on cameras being off, however, which often allowed them to feel more comfortable and relaxed:

"They did say like "keep your camera on" usually, but there were times where I was having one of them days where I kept my camera off and just listened, it helped" (Jasmin).

Clinicians expressed a preference for encouraging camera use (when not attending to baby) within 'group guidelines' to support engagement, equity and facilitate appropriate wellbeing, with some women agreeing, noting frustrations when they were the only one with their camera on. As raised in sub-theme 2.2, some women suggested a hybrid delivery model might bridge the relational gap, allowing for occasional in-person connection alongside online convenience.

Sub-theme 3.3: Session length and structure

The two-hour session length was broadly acceptable, though some women reported difficulties maintaining concentration (*"I do find myself sort of starting to lag", Claire)*, which subsequently influenced their skill learning and psychological recovery, leading to suggestions for how the group could be offered differently:

"If you have the most energy at the start, then you're disengaging after the break, then you're losing out on sort of retaining that new information in the second half" (Claire).

Generally, the pace was described as acceptable, although all participants acknowledged the challenge of balancing group discussion time with delivery of structured skill content. Maintaining this equilibrium was reported as challenging by clinicians, with having sufficient time to cover perinatal-specific aspects and the rationale for all skills being of particular concern. Women reflected that having sufficient time was similarly challenging, and seemed to experience frustration at times:

"Cause sometimes we had to stop, well not stop someone talking, but someone would have their hand up, and we would have to just move on, and they'd say, "oh sorry we can't listen to everyone" (Sunny).

Clinician narratives revealed that they had considered possible intervention structure improvements, such as adjusting the final session to better align with the rolling format or revising the emphasis on different DBT modules. Increasing time spent on *interpersonal effectiveness* and *distress tolerance* skills was considered, to better align with the group's emphasis on relational goals and emotional regulation.

Some women suggested adaptations to the structure, to maintain accountability whilst reducing frustrations, therefore improving acceptability. For example, offering brief weekly follow ups outside of the group, or shortening the recap and homework section:

“The only thing that I am going to say, is that I feel that the recap, when they do the following weeks session, is too long” (Claire).

Table 8
Thematic structure with additional illustrative quotes

Theme	Illustrative quotes
Theme 1: Therapeutic foundations amid perinatal complexity	
Sub-theme 1.1: DBT content	*"You know we do that design a human, and you know "tell us why this human would have these emotions" and that can be really powerful in helping people, well it can be really de-shaming really. Erm, for people to understand why they feel a certain way" (Sophie, Clinician).* *"The examples are more relevant to me. With radical acceptance* [DBT skill of fully acknowledging reality without judgement] *the book says the news and things happening in the world, well that's not appropriate to me, I don't watch the news, I don't get upset over that kind of stuff. Mine is more interpersonal stuff, like I've got a favourite person bond with my partner and that's what's unhealthy, so I need that emotion regulation and radical acceptance based on that… and I feel like the worksheets the group has work better for me, rather than about the news or whatever" (Sunny).* *"We did an activity in one of the sessions where we had to draw a swan, and it's like, perhaps they could you know, in the worksheets, instead of it being written, it feels very clinical and school like, maybe they could do something where it requires a little bit more creativity, because that to me is a bit more motivating than having to do written answers" (Claire).*
Sub-theme 1.2: Value and fidelity of DBT perinatally	*"So, if we are advocating and saying, "we really want to do this group because it's really relevant and helpful", but they're seeing these scores and seeing "well these scores have gone up" or something, then, it's tricky" (Sophie, Clinician).*
Sub-theme 1.3: Women's suitability, complexity and attrition	*"It's helpful for people with the stability to practice and implement the skills, which frequently isn't people who typically might be referred to an emotion coping skills group" (Jamie, Clinician).* "*Which again is difficult because we have to kind of contain that and maybe steer the conversation more to the present moment." (Ben, Clinician)* *"They speak at length about something, and balancing giving them the time and space to feel heard, with "I don't know how long to let this go on for" and then trying to redirect it back to the content" (Emily, Clinician).*
Theme 2: Holding the group – relationships and continuity	
Sub-theme 2.1: Facilitator style and skill of creating psychological safety	*"I worry about it feeling exposing, but I hope that we do it in a way that feels supportive" (Emily, Clinician).* *"I would say the thing that really stimulates engagement and conversation is, er, hopefully clinicians and the experience of psychological safety within the group" (Jamie, Clinician).* *"I think my facilitation style leans much more towards interaction and discussion anyway, so er, I think there are ways to adapt the group as it exists, to make sure that the people attending are engaged" (Jamie, Clinician).*
Sub-theme 2.2: Group dynamics and peer support	*"I feel like hearing how other people cope with their, like their strategies in their day to day lives, their ideas, it does help me as well. Because I think like "okay, maybe I can give that a try" you know" (Jasmin).*

Theme	Illustrative quotes
Theme 1: Therapeutic foundations amid perinatal complexity	
	"I feel like the accountability and encouragement; that's really a good one" (Jasmin).
Theme 3: **Finding the balance between access and connection**	
Sub-theme 3.1: Rolling format	*"Do we set that up well enough at screening? Do we say, 'look this group has been going for 4 weeks already, but we want you to join next week', I don't know whether we mitigate that enough" (Sophie, Clinician).* *"Whereas the group that I attended before this, because I attended towards the end, and they were there from the start, I felt a little bit left out when they would speak about examples" (Valentine).*
Sub-theme 3.2: Online delivery	*"We had a lady last week who was vocally expressing that she'd had a really difficult week, but also you could just tell by her body language on the screen, she was looking down a lot, she was filling up in her eyes" (Emily, Clinician).* *"At first, I was really engaged like with my camera on, and other people were, and that was nice. But now nobody else was really going camera on, so in the end I just stopped putting mine on as well, as I didn't want to be the only person with the camera on…" (Jane).*
Sub-theme 3.3: Session length and structure	*"When we did the recap there was a break, so yeah maybe just a second break" (Sunny).* *"I feel like, maybe, an hour, then maybe do it twice a week" (Valentine).* *"I think we just have certain people that talk more than others, which can be really helpful…but it can also be a bit tricky in balancing it and knowing when to stop it and move on and change it to get through everything" (Emily, Clinician).*

3.3 Integration of quantitative and qualitative results

Table 9 presents a joint visual display, informed by Guetterman et al. [63], integrating quantitative outcomes with qualitative themes, highlighting areas of convergence, divergence, and expansion.

Table 9
Joint visual display integrating quantitative and qualitative findings

Quantitative Findings	Qualitative Themes	Convergence / Divergence	Meta-Inference
Significant improvement in emotion regulation (DERS-SF) for whole sample and C-PTSD subgroup (RCI significant)	**Theme 1: Therapeutic foundations amid perinatal complexity** Sub-themes: DBT content; Value and fidelity of DBT perinatally	Strong convergence	Improvements in emotion regulation appear to be a core mechanism of change, supported by women's reports of increased emotional literacy, regulation skills, and psychological stabilisation.
Reduction in CORE-10 distress (non-significant RCI); shift from moderate-severe to moderate distress (whole sample)	Women described feeling "more emotionally regulated," "more present," and psychologically stronger	Convergent (partial statistical support)	Quantitative distress reductions align with perceived improvements; lack of statistical significance may reflect small sample size rather than absence of clinical change.
PBQ decreased in whole sample (non-significant RCI; below bonding threshold)	Women described relational improvements with partners and children; perinatal tailoring ("keeping baby in mind") valued	Convergent (directional)	Bonding improvements may be emerging but modest; qualitative data suggest relational gains not fully captured by PBQ scores.
PBQ slightly increased in C-PTSD subgroup (remained well below disturbed bonding threshold; non-significant RCI)	Clinicians noted trauma complexity; women described increased awareness and emotional insight; group may increase reflection on relational patterns	Apparent divergence	Increased PBQ scores may reflect heightened relational awareness rather than deterioration. Bonding outcomes in C-PTSD require cautious monitoring and triangulation with qualitative experience in future trials.
Missing PBQ post-data (7–16%)	Clinicians noted quantitative measures did not fully capture progress	Convergent	Routine measures may underestimate perceived gains; future trials should integrate qualitative feedback prospectively.

4 Discussion

To the authors knowledge, this is the first study to have explored the feasibility and acceptability of group-based DBT for women referred to perinatal mental health services, including those with C-PTSD. It offers novel insights using a convergent mixed-methods design that integrated quantitative outcomes with perspectives on experience from both patients and clinicians. In addition, the study explored the intervention's benefits on emotion regulation and perceived mother-baby bond.

Forty-seven women enrolled on the group, with 4.26% retained for 100% of the intervention, 38% retained for 75% and 78.3% retained for 50%. Group only retention data in the literature are scarce; however, the current study's findings are relatively comparable to general DBT group RCT completion rates of 48% [64] or 72% [65], and similar to some non-RCT perinatal group-only research rates of 66% [15] and 71% [66], although the definitions of 'completion' vary from study to study. This observation suggests that, given the target population's challenges with emotional regulation, a degree of attrition may be an inherent feature of DBT interventions. Qualitative results suggested that the rolling format might have influenced attrition, for example, through confusion about session structure and its impact on group cohesion. Additionally, the multiple demands of the perinatal period were recognised as specific factors contributing to attrition in this cohort, as attendance seemed to vary from woman to woman. Nevertheless, the overall retention rate was very low and if this was a funded feasibility study conducted to determine the progression to a full trial, this retention rate would be concerning, because it fell below the typical threshold of < 60% [36, 37].

Interview data indicated the intervention was feasible, with online delivery particularly supportive of the logistical facilitation of the group. Covering a wide geographical area, the online delivery promoted accessibility and equity for all patients. This delivery format helped to reduce barriers to attendance, and addressed concerns outlined in a previous study, in which long travel distances were reported and possibly affected attrition [15]. Clinicians also noted that online delivery facilitated multimedia use, which helped with skill learning for women. However, both women and clinicians identified group timing as a barrier and offered suggestions to improve feasibility, which are outlined in Table 10.

Qualitative findings also suggested high levels of acceptability, with participants describing the intervention as relevant, supportive and appropriately tailored to their perinatal mental health needs. The perceived relevance of content and resources was said to promote skill use and psychological gains. Furthermore, women described the intervention as validating, safe and fostering a sense of connection, which contributed to acceptability. Some aspects, however, were viewed as less acceptable, including DBT language and acronyms, the rolling format and extended homework and recap discussions. Quantitative findings (e.g., comparable retention rates to other studies, and equal attendance across modules) also suggest that this intervention was acceptable to women. However, additional data, such as session satisfaction ratings may provide greater insights regarding satisfactoriness. Table 10 outlines suggestions for refining these areas to enhance acceptability.

Improvements in emotion regulation were demonstrated for all participants (including those with C-PTSD) by significant improvement on the *DERS-SF*, as measured via RCI. This aligns with DBT's therapeutic goals and is consistent with findings from similar studies [31]. Interview data further supported these findings, with both women and clinicians describing improvements in emotional regulation and interpersonal functioning. Out of the six *DERS-SF* sub-scales improvements were noted in five, with the exception of *Awareness*, which very slightly increased. Given that this subscale is reverse scored, this anomaly may reflect scoring error rather than a lack of change [67].

Changes in the CORE-10 and PBQ scores for all women were in the expected directions, but they did not reach statistical significance when the RCI was calculated, which might be due to the generic nature of these tools, possibly reflecting the impact of broader service engagement rather than intervention-specific change. For example, improvements could relate to psychiatric input or care coordination rather than DBT intervention specifically, as neither the CORE-10 nor PBQ are targeted directly by this psychological intervention. Regarding the slight increase in PBQ scores amongst the C-PTSD group, it is possible that increased awareness of bonding through participation in DBT group discussions may have enabled mothers to respond more accurately; additionally, as their infants were approximately three months older, they may have been experiencing different caregiving challenges at the time of assessment. Furthermore, the increase in PBQ scores among the C-PTSD group raises questions if the PBQ adequately captures the types of relational improvements this intervention targets, and if a self-report measure is appropriate in this context. Despite this, qualitative findings supported improved relational experiences with babies for women with C-PTSD (e.g., *"yeah that's helped me to parent, and manage my emotions, which helps me to manage her emotions too. Just pause and work out what is going on, is really helpful", Sunny)*.

Building on these findings, the joint visual display (Table 9) highlights the convergence and divergence between quantitative outcomes and participants' qualitative experiences. Improvements in emotion regulation and distress reduction were broadly supported across both data types, with participants describing enhanced coping, emotional literacy, and psychological stability. While PBQ scores decreased in the overall sample, they slightly increased in the C-PTSD subgroup; qualitative feedback suggests this may reflect heightened relational awareness rather than deterioration in bonding, underscoring the need for cautious interpretation and triangulation in future studies. Attendance patterns and attrition were similarly illuminated by qualitative themes, demonstrating that structural and practical factors, such as the rolling format and online delivery, influenced engagement alongside therapeutic content. Overall, this integrated perspective strengthens the interpretation of feasibility, acceptability, and preliminary effectiveness, emphasizing areas for refinement in both measurement and intervention delivery.

Given that trauma is often present in all DBT clients, whether that be relational, discrete, or meeting a diagnostic threshold, this study demonstrates how a relatively brief (12- week) intervention can offer both psychological gains and, for many, stabilisation on the path to more intensive trauma therapy.

Overall, this study's findings support previous preliminary perinatal studies, suggesting DBT skills groups may be beneficial for this population [32, 68, 69]. Moreover, this study expands on previous research specifically supporting the interventions acceptability for individuals with C-PTSD. Furthermore, the findings align with mixed-methods research which support the intervention's feasibility and acceptability when delivered online [70], and with qualitative research which supports the interventions acceptability in a different setting, such as education provisions [71].

4.1 Clinical recommendations

This study identified possible refinements to this intervention, which could be implemented to further enhance its feasibility and acceptability. Clinical recommendations for practice are outlined in Table 10.

Table 10
Clinical recommendations

Therapy component	Recommendations
Accessibility and engagement	• Services should consider providing printed or digital resource booklets to support skill practice, increase accessibility and reduce patient confusion about group progression. • Services should maintain weekly homework discussions but standardise the time allocated to ensure consistency. • Services may consider alternative formats (e.g., 2x1-hour sessions, or 1.5-hour sessions with an additional 30-minute individual review) to promote concentration and address individual challenges in greater depth. • Alternatively, consideration of adapting the 2-hour session, with new material presented earlier when concentration is highest.
Group content	• The inclusion of more *interpersonal effectiveness* content. • Adaptation of *mindfulness* practices for neurodivergent attendees. Perhaps having optional practices and tasks, that clinicians can select once they know the needs of each cohort. • Review of homework practices, with greater inclusion (or optional offers) of creative tasks, alongside written tasks. • Integration of baby-focused content consistently (e.g., dedicated time at session end or earlier placement in session). • Review of language used, including ensuring clear explanations of all DBT manual acronyms. • Services may wish to introduce a session rating scale, to explore the acceptability of individual modules and/or sessions further.
Attendance and retention	• Services may want to reassess the benefits and drawbacks of a rolling vs closed group formats, possibly completing a cost-benefit analysis. • If they are maintaining a rolling format, consider reducing the number of intake points to support group cohesion and reduce repetition. • Exploration of hybrid delivery (e.g., first, mid and final sessions in person) to be considered, to strengthen connection and engagement. The location of this may have to be considered flexibly dependent on the primary geographical locations of women attending. • Services should consider how they improve communication about group structure and individual progress (e.g., use of a workbook with session tracking). • A review of the group screening process may be useful. For example, a training session or clinical discussion held with all who complete these assessments to ensure consistency. • Services may find routinely recording data on number of women referred, screened in and declining intervention useful. As well as data noting the geographical locations referrals come from. This approach would allow for better

Therapy component	Recommendations
	identification of any attrition patterns, therefore informing tailored targeting of attempts to reduce this.
Measuring progress	• Although some generic measures are mandated for perinatal services, psychology teams specifically, might review the utility of generic outcome measures for evaluating therapeutic progress following a specific therapeutic group like DBT, and if these can be delegated to Care Coordinators, with therapist time being reserved for intervention specific measures. • Re-evaluation of the PBQ's utility may be useful. Considering if it is fit for intended purpose when measuring therapeutic change in the self-reported mother-infant relationship. For example, considering whether its measurement of bonding is appropriate, or a measure with a more general relational focus would be more apt. • A review of how outcome data are recorded might be useful. For example, exploration of alternative methods such as online surveys, may lead to higher completion rates. • Consideration of scoring software, or spreadsheets may be beneficial to the service, in reducing the possibility of human error when completing outcome measures. • Qualitative feedback is important to demonstrate intervention impact. An online survey link shared during the last few sessions, or text/emailed to participants may increase responses and reduce response bias.

4.2 Strengths, limitations and future research suggestions

A key strength of this study was the use of a mixed-methods approach, providing corroboration between quantitative and qualitative results and enhancing the credibility of findings. Furthermore, the use of women's and clinician's perspectives provided rich data and allowed for triangulation when comparing perspectives from different stakeholders. Additionally, including women who completed at least 50% of the intervention ensured that the views of those who may have experienced barriers or challenges to attendance were captured, thereby reducing positive response bias. The involvement of both junior and senior clinicians also contributed to a range of perspectives.

However, some limitations must be acknowledged when interpreting the findings of this study. Firstly, small sample sizes, driven by recruitment challenges, limit the transferability of findings. The overall group completion and retention rates were relatively low. Furthermore, the service did not collect data regarding the referral and refusal rates for this intervention, which, if available, would have provided critical information and allowed further exploration of whether or not the estimation of acceptability was systematically biased or not. Unfortunately, the service also did not collect information on the presence of the infant during each session their mothers attended. Furthermore, the study was conducted in a single service, albeit one covering multiple socioeconomically and ethnically diverse areas. Future research investigating psychological change in the perinatal period should aim a) to collect more contextual information (e.g., presence of the infant during sessions, perinatal stage, etc.) that could

influence attendance and engagement and b) to increase sample sizes, retention and group completion rates and subsequently the diversity of patient experiences.

Quantitatively, missing post-intervention data impacted the ability to fully evaluate changes on the PBQ measure. Although preliminary analyses suggested a change in PBQ scores in the CPTSD subgroup, the small subgroup size and incomplete post-intervention data mean that this finding should be interpreted cautiously. Importantly, this finding does not negate the potential clinical relevance of this signal; rather, it highlights the need for careful monitoring of parent–infant bonding outcomes in future trials involving mothers with CPTSD. Future research would benefit from prospectively examining this subgroup with adequately powered samples and triangulating PBQ outcomes with qualitative feedback to better understand the lived experience and meaning of any observed changes.

A further limitation concerns the inability to report additional indices of treatment change, including Reliable Change Indices (RCIs), effect size estimates (Hedges' *g*), and associated 95% confidence intervals. Consequently, the quantitative findings are limited to descriptive comparisons of pre- and post-intervention scores, restricting the extent to which the clinical significance and precision of observed changes can be inferred. Future studies should incorporate these metrics to provide a more comprehensive evaluation of intervention effects.

Future studies may benefit from using online assessments or utilising a more robust post-intervention data collection process, to improve data completeness. Future studies may also benefit from addressing missing or erroneous data, as well as utilising multiple questionnaires that are better tailored to DBT aims. This study only considered mothers who had recently engaged with the group; therefore, future research would benefit from considering views and impact of this intervention longer term, with a particular focus on the presence of infants during the session as an engagement barrier. Furthermore, this study only explored views of women who had completed > 50%, therefore future research would benefit from considering views of those who attended < 50% to better understand the causes of attrition in this cohort.

RTA allowed for an inductive approach, which allowed participant voices to remain central throughout. However, it is acknowledged that alternative frameworks, such as the *Theoretical Framework of Acceptability* [71] might have produced a more structured interpretation of acceptability. Furthermore, it is acknowledged that distinguishing the specific therapeutic gains attributable to DBT from those resulting from group psychological interventions more generally is challenging. Future studies would benefit from addressing this distinction more explicitly in their design.

4.3 Conclusions

This study suggests that an online DBT skills group may be a feasible and acceptable intervention for perinatal women, including those with C-PTSD, who were accepted by a specialist perinatal mental health service for psychological treatment. Despite the low retention rate for group completion, findings tentatively indicated a potential for DBT to reduce emotion regulation difficulties in perinatal women with

mental health difficulties, including women with C-PTSD. Qualitative data appeared to support those results by offering a deeper insight into participants' experiences. Interview findings illuminated aspects that might have improved accessibility and feasibility (e.g., therapeutic relationships, *emotion regulation* and *interpersonal effectiveness* content and supportive resources), as well as impeded this (e.g., complex terminology and lengthy homework and recap discussions). Overall, participants who managed to complete a significant number of sessions reported meaningful therapeutic gains, highlighting the value of this intervention during a particularly vulnerable period in these women's lives. In summary, these findings provide very preliminary support for the continued delivery of this group intervention in specialist perinatal mental health services for perinatal women, including those with C-PTSD, with some suggested refinements to further enhance patient gains. However, further research with a larger sample and ideally a control condition is required, with particular attention to not only the presence of infants during sessions as a potential barrier to engagement, but also the possible benefits for the infants of these mothers experiencing psychological distress.

Declarations

Ethical Approval and Consent to Participate

Ethical approval was granted by the West of Scotland ethics committee (ref: 23-WS-0177). All procedures involving human participants and/or human data were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the principles of the Declaration of Helsinki and its later amendments.

Consent to Participate

All participants provided informed consent for the interviews.

Consent for Publication

Not applicable. We do not information that compromises a participant's anonymity.

Conflict of Interest

BOC, who acted as a non-academic advisor, was employed by the specialist perinatal service. The remaining authors declare that they have no conflicts of interest or financial ties to disclose.

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Author Contribution

All authors participated in the design of this study, which was initially conceived by AW and BOC. AH and BOC coordinated recruitment and data collection. AH completed quantitative and qualitative analysis, under supervision by LG and AW. AH drafted the manuscript, which was reviewed by LG and AW who also led on the revisions for the final draft. AW acted as the main academic supervisor of this project.

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Data Availability

We generated data in the form of interview transcripts but these are not made available due to their sensitive nature.

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Figures

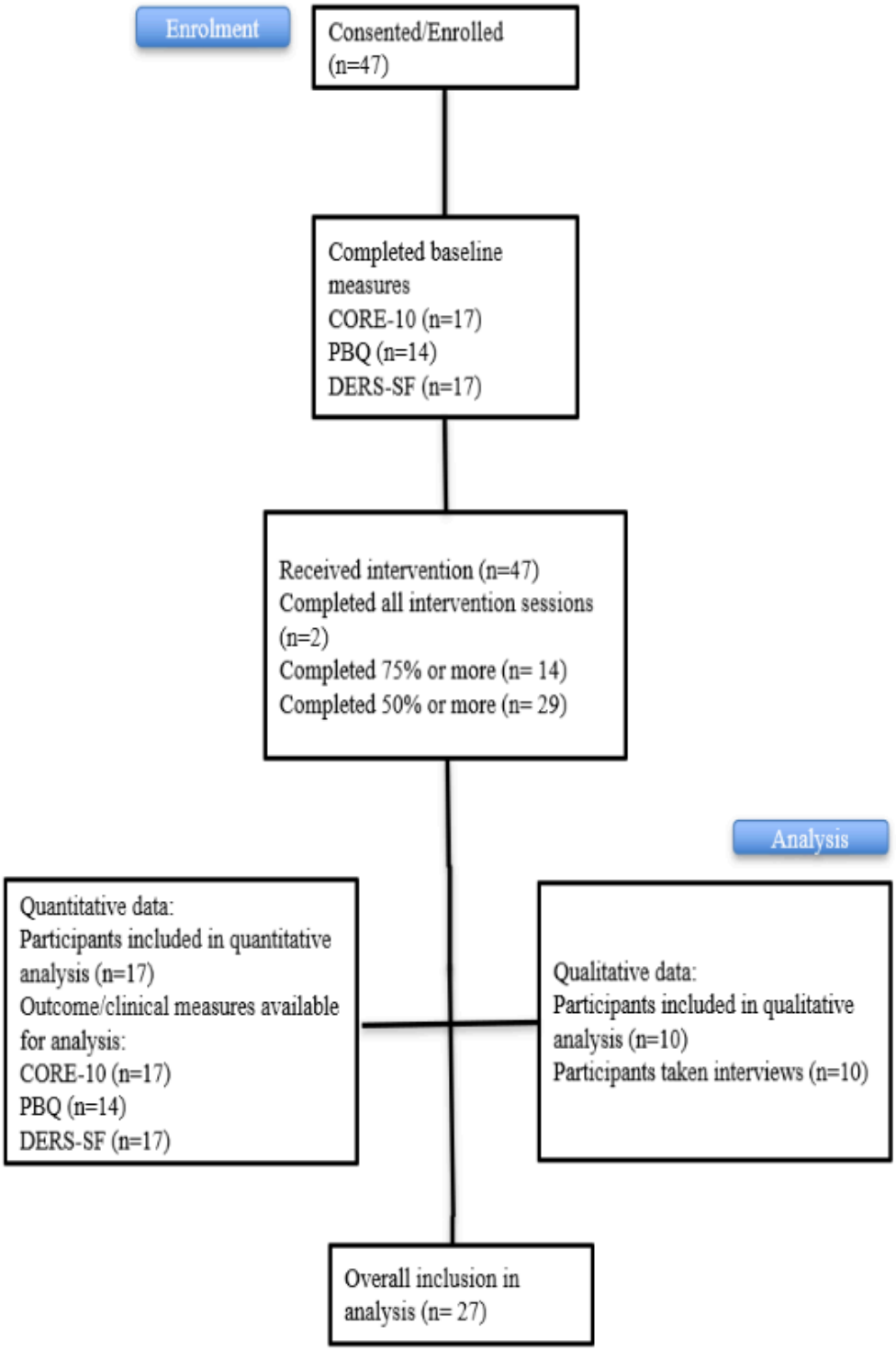

Figure 1

CONSORT flow diagram

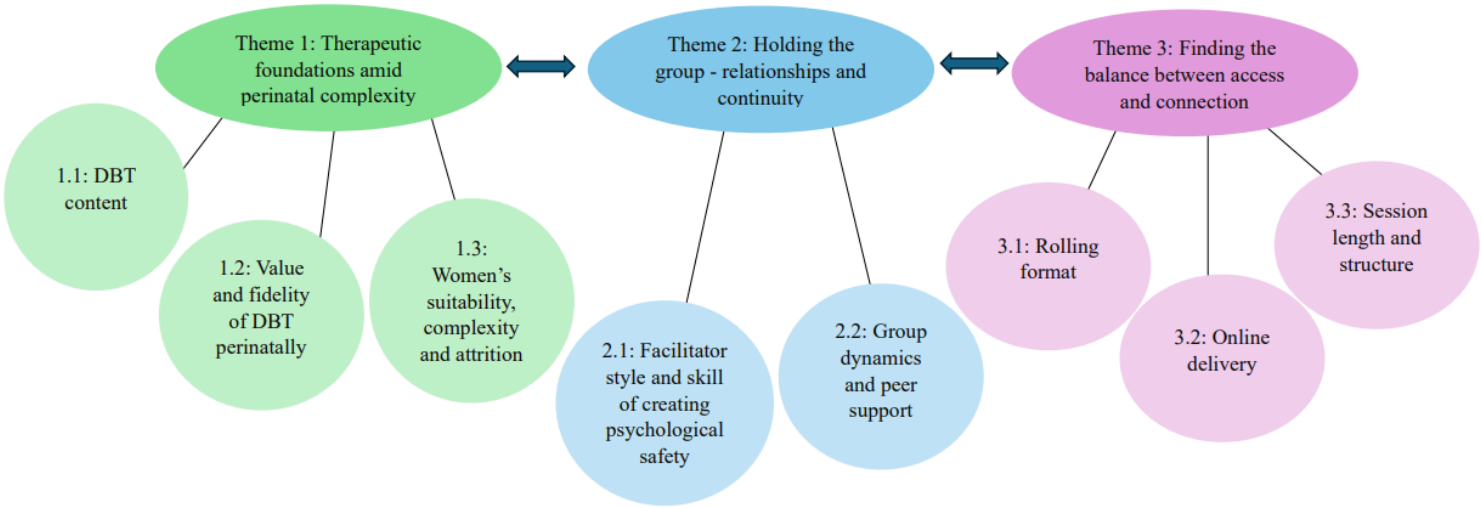

Figure 2

Conceptual diagram depicting themes and sub-themes

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