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Can emotion regulation ability be effectively improved through group interventions?

A portfolio thesis of a systematic review and a mixed method study

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Doctorate in Clinical Psychology

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This thesis is dedicated to Dr Joyce Kennedy, my grandmother, who passed away in July 2021. As the first in her family to go to university, she was so proud to see me go on to my doctoral degree and was thrilled to hear I'd passed my viva. She also contributed to my thesis by proofreading some of my drafts. I am truly grateful to have had her as part of my life and part of my thesis process.

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gave me encouragement when I needed it most. You have all been there for me and believed in me when I didn’t believe in myself. I couldn’t have done it without you all.

Covid-19 impact statement

This thesis has been created and written in the context of the global Covid-19 pandemic, and this section will outline how the thesis has been impacted by the ongoing pandemic.

My original thesis was in a different area of clinical psychology, the empirical piece was a qualitative study looking at experiences of being detained under the mental health act. This was given IRAS and University of Edinburgh ethical approval in December 2019 and data collection began in January 2020. Due to the sensitive nature of the topic, the IRAS panel felt that phone or online interviews would not be appropriate. At this time, I had also completed an initial scoping search for my systematic review.

At the start of the pandemic, all face-to-face research activity was postponed from March 16th 2020. Combined with permission being refused for telephone interviews, I realised that the empirical project would no longer be viable and began to look at other options. The empirical piece in my current thesis is therefore an adaptation of my small-scale research project, as I already had some data collected and ethical approval for completing telephone interviews with participants. I made the decision to adapt the small scale rather than start a completely new topic as it was still unknown how long research restrictions would last for and when data collection would be possible. My systematic review topic was also changed to fit with the new focus of the empirical piece. I received initial approval from the University of Edinburgh to pursue the current thesis on 8th May 2020. This has meant that I have had a much shorter time frame to complete the thesis than I would have done if my original project was viable. Additionally, the Covid-19 pandemic meant that no further ERG groups were run, limiting the data that was available. Some participants were not keen to complete interviews over the phone, and this limited the qualitative data available.

Despite these disruptions to the original planned research, I have produced a coherent body of research work that identifies important questions in the field of emotion regulation and addresses these questions using systematic review as well as quantitative and qualitative analyses

Contents

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Thesis portfolio abstract

This thesis portfolio explores the impact of emotional regulation (ER) group interventions on ER skills. The first chapter is a systematic review of the impact of different ER group interventions on ER ability. The 13 studies included showed a positive impact of the group interventions, however, due to limited quality of the studies, this is tentative. Theory to practise links were poor and it was not always clear how ER was defined and how interventions were constructed from theories. The second chapter is an empirical study of a specific ER group intervention in a Scottish health board. This mixed method study showed that although ER ability and other wellbeing factors were improved in the short term, it was unclear if benefits were sustained long term. The qualitative component of the study explored participant experiences of the ER intervention and found that the majority of participants experienced change in the group, but this was hard to sustain and the group represented part of a wider process of ongoing learning and change.

Thesis portfolio lay summary

This thesis contains two chapters. Both chapters are focused on emotion regulation (ER) ability and how this may be improved by group interventions focused on teaching ER skills.

ER refers to the things people do to manage what emotions they have and when, and how they react to them. ER ability refers to how well people are able to effectively manage their emotions in a way that is helpful to them and their goals in the short and long term. Many people struggle with ER, and poor ER has been found to underlie many mental health diagnoses. Improving ER ability also seems to improve other wellbeing factors and mental health symptoms. Therefore, ER is an important treatment target for mental health services.

The first chapter is a review of studies that look at ER group interventions and examines whether they improve ER. In these studies, participants took part in an ER group intervention and their scores on a questionnaire measuring ER were measured before and after the group intervention. Chapter one combines the results of 13 different studies to make stronger conclusions. The results suggested that ER interventions can improve ER skills, at least in the short term. There was limited evidence to suggest that ER interventions were better than other interventions or had a long term impact.

The second chapter is a research study of an ER group intervention. Participants filled out measures of ER and other wellbeing measures before and after the group intervention, and three and six months after the intervention ended. Fourteen participants also completed an interview where they discussed their experiences of the group. The results showed that ER ability and other measures improved during the group but it was unclear if the improvements were sustained after the group ended. Participants described various positive changes during the group, but found it hard to implement these changes after the group ended. This suggests that for ER groups to be effective we need to provide ways of prompting people to maintain behaviour changes, for example by booster sessions of patient-led groups.

Chapter 1: Systematic Review

The impact of group emotion regulation interventions on emotion regulation ability: A systematic review

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Abstract

Emotional regulation (ER) as a concept is poorly defined, and models of emotional regulation may not be easily operationalised into a clinical context. Therefore, there is a lack of clarity within the field about how ER can be improved. Nevertheless, there is increasing evidence of the importance of emotional regulation as a transdiagnostic treatment target across mental health problems. Group interventions are one way these transdiagnostic interventions can be delivered in a cost and resource effective manner. This review examines the evidence for the impact of ER group interventions on ER ability compared with no intervention, other comparable group interventions, or control conditions. A systematic review of the literature was conducted using three databases, PsychINFO, EMBASE and Medline. Studies using ER group interventions in adult clinical populations with a measure of ER pre and post intervention were included. The quality of the studies was assessed using a modified version of the Downs and Black (1998) checklist and a narrative synthesis of the studies' main findings was created. A total of 13 studies of various designs were included. Although the type of ER intervention was mixed, the interventions had a considerable overlap in skills taught and how ER was measured. In all but one study, the ER intervention improved ER ability from pre to post intervention. ER interventions were superior to waitlist or treatment as usual, but there was limited evidence to suggest they were superior to other active treatment comparators. Data from a minority of studies suggest that improved ER is sustained at follow-up. Although the results need to be interpreted with caution due to issues with methodological quality in the majority of the studies, there is promising evidence that ER group interventions significantly improve ER ability at least in the short term. Across the studies, there was generally poor theory to practice links which hampers understanding of how interventions were constructed and why different skills were included. Future research in this area will be improved by a focus on clear conceptualisation, a clear theory of emotion and emotion regulation, and a clear focus on measurement.

Introduction

Conceptual difficulties with emotion regulation

Emotion regulation (ER) is an important concept in psychological intervention. There has been exponential growth in publications in this area over the past 30 years and conclusive links between healthy ER and good health outcomes, as well as emotional dysregulation (ED) and poor outcomes (Aldao et al., 2010; Gross, 2007; Koole, 2009; Sloan et al., 2017). ER has also been implicated in both the development and the maintenance of a wide range of mental health problems, for example post-traumatic stress disorder, borderline personality disorder and eating disorders (Berking & Wupperman, 2012; Cloitre et al., 2019; Putnam & Silk, 2005). ER has also has been proposed as a transdiagnostic factor that may underpin various expressions of psychological distress (Aldao et al., 2010; Bullis et al., 2015b; Sloan et al., 2017). Thus, ER is an important treatment target in psychological interventions.

One of the key difficulties that remains when designing interventions to improve ER is that of definition. There is a myriad of definitions and models of ER, and little consensus on what ER is (Gratz et al., 2015). Furthermore, the field is extremely broad, encompassing a range of disciplines including neuroscience, cognitive, social and developmental psychology. Additionally, it has been observed that there can be a divide between how ER is measured in a clinical context and popular definitions of ER (Hallion et al., 2018). Models of ER often focus on the process of ER, whereas measurement tools more often focus on trait level-abilities (Hallion et al., 2018).

Conceptual clarity about ER is needed to design effective interventions that target ER specifically. Given the lack of conceptual clarity, this review takes a broad definition of ER as meaning the processes and strategies that people use to influence which emotions they have, how they experience them, and how they express them explicitly and behaviourally, in keeping with Gross's original definition of ER (Gross, 2015). This breadth of definition is a pragmatic choice, allowing this

review to include a range of putative ER processes and skills. This review will cover two main models and outline the practical applications of these models to intervention and measurement. These have been chosen as they are widely cited in the field of ER and have the good empirical support (Fowler et al., 2014; Gratz et al., 2015, 2018; Gratz & Roemer, 2004; Gross, 2015; Schutte et al., 2009; Thiruchselvam et al., 2011).

A consideration of the process model and the functional model of ER

The process model is a popular model of ER with considerable empirical support (Gross, 2015; Schutte et al., 2009; Sheppes & Gross, 2012; Thiruchselvam et al., 2011; Webb et al., 2012; Werner & Gross, 2010). It specifies that there are a series of steps involved in emotion generation, and at each of these steps there are different opportunities for ER strategies. These strategies are used to increase, maintain or decrease emotional experiences and behavioural responses, depending on the individuals' goal of ER in the specific moment. These steps split ER strategies into five "families" of strategies depending on what point in the process they occur. The five steps are: (a) situation selection, (b) situation modification, (c) attentional deployment, (d) cognitive change and (e) response modulation (Gross, 1998). These five families of strategies are then broadly split into antecedent focused (i.e. things people do before the emotion is generated) and response focused (i.e. strategies for when the emotion is already underway). The practical application of this model to date has largely been on identifying what the strategies are, if they are adaptive or maladaptive, and identifying their relationship to psychological distress and functioning (Aldao et al., 2010; D'Avanzato et al., 2013; Ehring et al., 2010; Gross, 2001). Much of the research on this model to date has been focused on two strategies: reappraisal (antecedent focused) and suppression (response focused). Reappraisal is a cognitive strategy that aims to modify the meaning and impact of an emotion-eliciting situation, and suppression refers to the act of inhibition of emotional expression (Gross, 1998). Reappraisal is generally seen as an adaptive strategy, and suppression a maladaptive strategy: suppression has been linked to a more negative mood, interpersonal difficulties and psychological

distress, and the opposite pattern has been found for reappraisal (Dennis, 2007; Ehring et al., 2010; Gross & John, 2003; Moore et al., 2008).

A strength of the model and the subsequent work on identifying strategies and their role in psychological difficulties is the ability to target these specific strategies in interventions. For example, as reappraisal appears to be associated with more positive consequences, interventions can teach reappraisal strategies and increase individuals' use of them, and conversely. A specific self-report measure related to these two strategies has been created, the Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003), which measures the tendencies individuals have to use reappraisal and suppression. The ERQ is widely used, and is an example of a practical application of the Gross model as it can be used to measure ER tendencies across a wide variety of applied contexts (Abler & Kessler, 2009; Ehring et al., 2010; Gross & John, 2003). However, it only measures two ER strategies, despite Aldao et al. (2010) identifying six main strategies based on this model; acceptance, avoidance, problem solving, reappraisal, rumination and suppression. ER strategies other than reappraisal and suppression have been under researched, for example rumination, despite its identified role within mental health problems (Smith & Alloy, 2009). Additionally, the wider process model has been criticised as it is not clear what strategies should be included in ER, and it has also been proposed that the primary function of the strategies may not always be to regulate emotion, so the extent to which these should be considered "ER" strategies is debatable (Berking & Wupperman, 2012). For example, suppression is widely considered an ER strategy, however inhibiting expression of emotion could be due to the person fearing negative evaluation by others (e.g. crying in public), rather than the strategy being chosen to for ER purposes.

The process model and the ER strategies related to this have also been criticised due to their overreliance on non-clinical samples (often undergraduate students) to verify the theory, as well as using experimental designs that lack ecological validity for the clinical context (Gratz et al., 2015; Sloan et al., 2017). Furthermore, some studies have shown that relying exclusively on improving

adaptive strategies such as reappraisal may be less beneficial than more flexible treatment approaches that target the function of thoughts and behaviours (Dimidjian et al., 2006). The model has also been critiqued as the five stages of the model indicate strategies being deployed over time in a set sequence; however, more recent studies have found that people often utilise multiple strategies simultaneously (Aldao & Nolen-Hoeksema, 2013).

An alternative to the process model specifically designed for clinical utility is Gratz and Roemer's (2004) functional model. This model focuses on the function of emotions, as opposed to the process model's focus on emotional control and strategies, and argued that focusing solely on control strategies may not differentiate between adaptive and maladaptive ER, as what is an effective ER strategy may depend on the context (Gratz et al., 2015; Gratz & Roemer, 2004). ER in this model is conceptualised as a multidimensional construct involving the following parts: (a) awareness, understanding, and acceptance of emotions; (b) ability to engage in goal-directed behaviours, and inhibit impulsive behaviours, when experiencing difficult emotions; (c) using strategies flexibly to change intensity and/or duration of emotional responses, rather than to eliminate emotions entirely; and (d) willingness to experience difficult emotions (Gratz et al., 2015). Explicit as part of this definition was the applicability to clinical practice by the parallel development of a measure of difficulties in emotion regulation, the Difficulties in Emotion Dysregulation Scale (DERS) (Gratz & Roemer, 2004). The DERS was designed to assess emotional dysregulation and has an overall score as well as six subscales measuring different aspects of dysregulation: nonacceptance of emotional responses, difficulties engaging in goal directed behaviour, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity (Gratz & Roemer, 2008). Higher scores are associated with a greater level of emotional dysregulation. The DERS is probably one of the most widely used ER questionnaires, with the original paper having been cited around 7000 times since its publication in 2004. Although widely used in a range of clinical populations, the DERS has been criticised as the psychometric properties had not

been investigated for all of the populations with which it has been used and, as with the ERQ, the initial psychometrics were based on samples of undergraduate students (Gratz & Roemer, 2004; Hallion et al., 2018). Several studies have found the six-factor of the DERS an inadequate fit for different populations, including those with chronic pain, severe mental illness and those receiving dialectical behaviour therapy (DBT) (Fowler et al., 2014; Kökönyei et al., 2014; Osborne et al., 2017). However, a range of research shows association between the DERS and symptoms of various psychological diagnoses, indicating evidence for construct validity for the total scale score and the model it is based on where ER is seen as a transdiagnostic construct (Ehring & Quack, 2010; Gratz & Tull, 2011). A recent paper has examined the DERS in a transdiagnostic clinical population and found that the total score and five of the subscales (excluding the awareness subscale) provide the best fit for the data, and that the DERS may have utility in predicting treatment outcome (Hallion et al., 2018). Clear strengths of the functional model are that it is designed for clinical contexts, responds to criticism of earlier models such as the process model, and has a specific measurement scale associated with it. Additionally, the functional model's creators have also developed a group ER intervention based on the model and measurement, an example of clear theory to practice links (Gratz & Gunderson, 2006). However, it is a broad model and therefore may fall prey to criticisms around definitions of ER being too broad to be meaningfully useful and not being clear on what is and is not an ER strategy (Berking & Wupperman, 2012).

Practically, many studies use integrative or blended approaches which acknowledge the contributions and utility of various approaches (e.g. Bacon et al., 2018; Lennon, 2015). As noted by Gratz et al. (2015), the definition that is used for ER in particular studies seems to be a pragmatic choice related to what type of research question is being asked.

Measurement of ER

As definitions of ER have proliferated, there has been a parallel increase in the development of outcome measures purported to measure ER, the majority of which are self-report measures (Aldao et al., 2010).Two widely used measures, the DERS and the ERQ have already been outlined above in relation to their development from specific ER models.

Measurements of ER are not always related to overarching theories of ER. Additionally, ER scales vary in the construct they aim to measure, for example a focus on the type of ER strategy used or the frequency of ER strategy use (Bridges et al., 2004; Cole et al., 2004). This lack of overarching coherence means it is hard to ascertain whether measures are actually measuring the same underlying construct, and therefore to what extent different studies using different measurements can meaningfully be compared, contrasted or synthesised. The lack of clarity around measurement provides a further barrier to understanding which interventions can improve ER. In relation to these issues, there have been small to medium correlations found between aspects of the DERS and the ERQ (Bardeen & Fergus, 2014; Ehring & Quack, 2010; Salsman & Linehan, 2012). However, other explorations of ER factors have found that that process oriented ER measures (e.g. ERQ) and competency based measures (e.g. DERS) do not necessarily converge on the same underlying factor, suggesting there needs to be further research and more precise definitions and measurement clarity before different ER scales are assumed to be measuring the same concept (Zelkowitz & Cole, 2016).

Interventions to improve ER

The majority of research evaluating intervention efficacy to improve ER has been focused on non-ER specific interventions, such as acceptance and commitment therapy (ACT) (Hayes, 2004), dialectical behaviour therapy (DBT) (Linehan, 2014) and cognitive behavioural therapy approaches (CBT) (Papa et al., 2012) (Forkmann et al., 2014; Gratz et al., 2015; Morton et al., 2012; Neacsiu et al., 2014; Slee et al., 2008). These therapies include aspects of ER as part of a wider treatment package but also include other components, so it cannot be ascertained exactly which part of the intervention has an

impact on ER, or on general clinical or functional improvement. Nevertheless, these interventions do seem to be effective in improving ER when it is measured in various ways (use of strategies, e.g. by way of the ERQ; improving abilities, e.g. measured by the DERS), and improvement in ER as measured in these ways has been shown to mediate improvement in psychiatric symptoms and severity (Forkmann et al., 2014; Gratz et al., 2015; Morton et al., 2012; Neacsiu et al., 2014; Slee et al., 2008). There is also a range of ER-specific interventions that have been developed and found to improve ER, for example, the Unified Protocol (UP) (Bullis et al., 2015b), a transdiagnostic intervention, and emotion regulation group therapy (ERGT) (Gratz & Gunderson, 2006), a group intervention for self-harming women with borderline personality disorder (BPD), but research on these is limited (Berking & Whitley, 2014; Gratz et al., 2015; Hall et al., 2018). Additionally, many of these interventions have been developed for specific populations, so the findings may not be generalisable to other populations with ER difficulties.

There are limited systematic reviews to date that have considered ER as a treatment target. Sloan et al. (2017) considered ER as a multifunctional intervention component and included studies using clinical samples that measured ER pre and post intervention. The results showed that across intervention type and sample population, both the use of maladaptive emotion-regulation strategies and overall emotion dysregulation were decreased following the intervention in the majority of studies. The review also showed decreases in symptoms of anxiety, depression, substance use, eating pathology and BPD. Again, as these were multi-component interventions it is unknown exactly which parts of the intervention improved ER. A systematic review on a transdiagnostic ER intervention showed promising results across a range of disorders, but this only included a single intervention, the UP (Barlow et al., 2004) and it was unclear if this ER-specific intervention was any better than a non ER intervention (Sakiris & Berle, 2019).

Despite evidence that ER can be improved in a variety of ways, there is still a lack of clarity as to what specific interventions are most likely to improve ER, and research on the utility of ER-specific

interventions is still limited. A systematic review on a range of ER-specific interventions in clinical populations will therefore extend the knowledge in this area and ascertain which components of interventions might contribute to improved ER. Additionally, to date no review has examined theory to intervention links, and this seems an important area to consider due to the ambiguity of what ER is and what "form, focus and amount" of ER intervention is needed to improve ER ability (Gratz et al., 2015, p. 87). Format of delivery of the intervention is a further factor that has not yet been examined. ER interventions that have been studied are a mixture of individual and group interventions (Aldao et al., 2010; Sakiris & Berle, 2019; Sloan et al., 2017). In the context of increased demand for psychological interventions, groups can often be a pragmatic and resource effective way of delivering interventions. As ER appears to be an important target for treatment across psychological difficulties, a group format would seem to be well suited to this sort of intervention. Additionally, group interventions can have an added benefit of normalisation, reducing shame and providing opportunities for validation (Yalom & Leszcz, 2005). Group interventions also tend to be for a predetermined number of sessions, with set materials and topics for each session. This may aid evaluation, as it may be clearer exactly what the intervention consists of compared to individual treatment which may take a more personalised approach.

This systematic review

To address the gaps outlined, this systematic review will focus on specific ER groups in adult clinical populations and the impact of those groups on measures of ER. It is well established that ER interventions can improve specific symptoms, and general distress and wellbeing, so this review will focus exclusively on measures of ER. If included studies have additional measures apart from ER these will not be extracted or analysed as part of the review. A secondary focus will be on how ER is defined and how this leads to the intervention choice, due to the aforementioned conceptual lack of clarity in the broader field of ER. This should improve the evidence base of how ER skills can be improved and, importantly, how this can be theoretically driven.

Review questions:

1. What is the impact of ER groups on ER skills in adult clinical populations?

2. What ER theories, definitions and concepts are used in these interventions?

3. How strong are the theory to practice links in these intervention groups?

These questions are fairly broad, reflecting the current state of the literature as outlined in this introduction. This systematic review will therefore include some elements of a scoping review, in the breadth and diversity of papers included. However, the application of systematic searches and reviews of quality as detailed in the method elevates this review beyond a scoping review and into a systematic review with some of the features of a scoping review.

Method

The systematic review was conducted in accordance with PRISMA guidance, and a protocol for the systematic review was registered on PROSPERO, ID: CRD42020196080.

Inclusion and Exclusion Criteria

Studies were included if they were a group-based intervention specifically designed to improve emotional regulation; if they had pre and post outcome measures on a validated scale of emotional regulation (e.g., DERS); and if the participants were adults from a clinical population. For the purposes of this review, a clinical population is defined as people who have a mental health diagnosis or who score above clinical cut-offs on validated measurements of psychological distress or dysfunction, and are seeking or receiving treatment for their mental health difficulties. Due to time and funding constraints, only English-language publications were included. All types of intervention study designs were included, for example randomised control trials, non-randomised control trials, single case experimental designs where sufficient data was available, case series where

sufficient data was available, pilot studies, service evaluation studies, and pre-post treatment efficacy studies.

Studies were excluded if the participants were under 16 or over 65, if they were from a non-clinical community population, or if the intervention was part of parent, couple or family-based interventions. Interventions that were not clearly specifically focused on ER, or did not have a majority of sessions focused on ER (defined as over 50% of sessions focused on ER), were also excluded. Interventions that were focused exclusively on people with cognitive impairments, intellectual disabilities, autism spectrum disorder or attention deficit hyperactivity disorder were also excluded. Studies with only qualitative data were excluded, as were trial registers and all non-published research including doctoral theses, MSc projects, conference proceedings, books, reviews and meta-analysis studies.

Search strategy

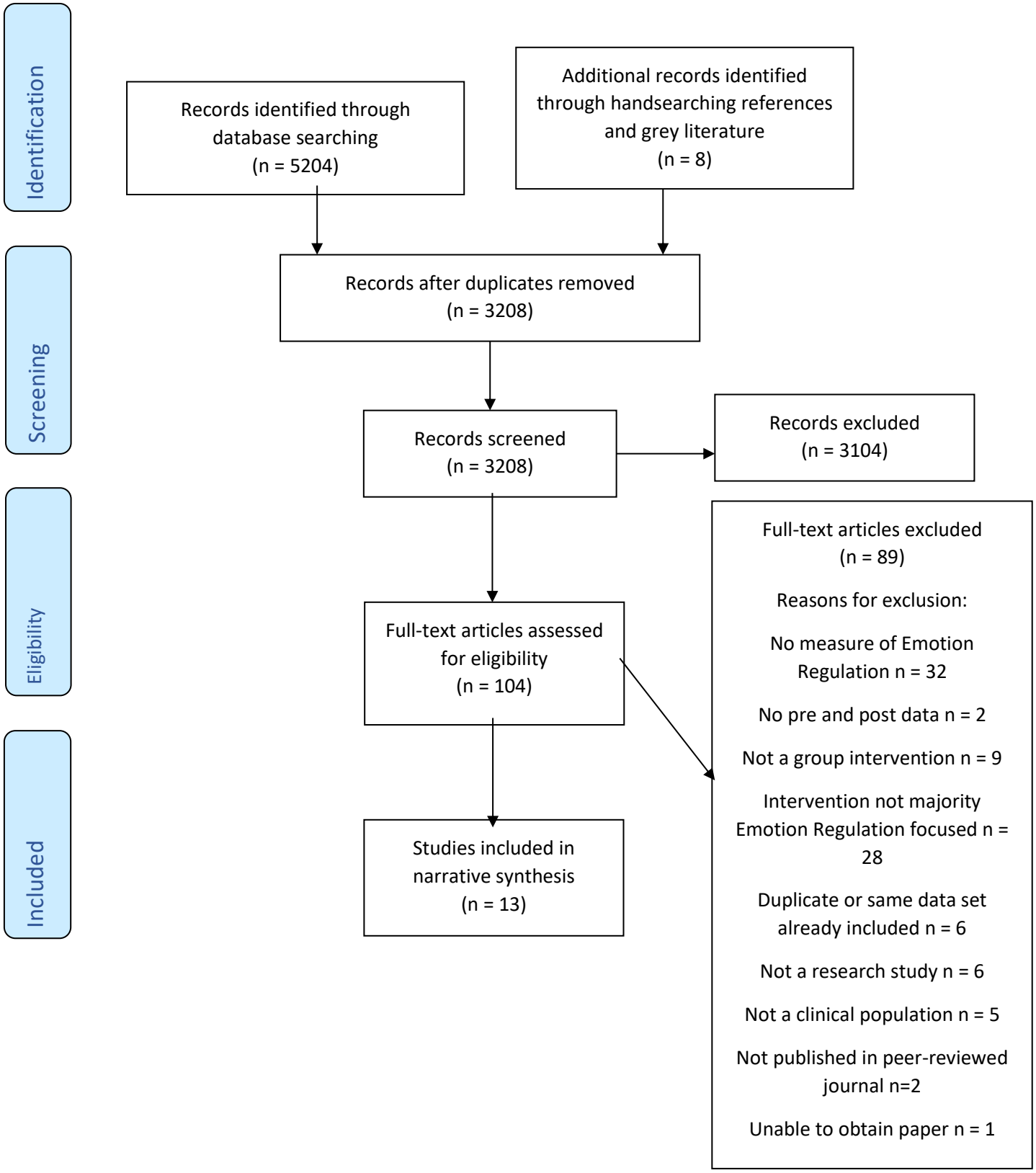
Advice was sought from an expert librarian at the University of Edinburgh to create a search strategy. Three databases were used: PsycINFO, MEDLINE and Embase. Reference lists from included studies were hand searched and a hand search of Google Scholar was also performed to identify additional literature and grey literature not captured through the database searches. The search terms that were used were: emotion* regulation or affect regulation or emotion* dysregulation or emotion* efficacy or emotional predictability or STEPPS or DBT or Unified protocol or Dialectical behavior therapy or Dialectical behaviour therapy AND Skills or course or training or intervention or treatment or therapy AND group. The search was performed on 17th July 2020 and repeated on 1st April 2021 to check for any additional papers for inclusion.

Data extraction

The first author screened titles and abstracts against the inclusion and exclusion criteria. Full-text versions of studies that were deemed to meet the inclusion criteria were then examined and criteria

applied. Figure I shows how the final number of included papers were selected and the reasons for exclusions. Where papers reported other outcome measures as well as ER, this was not extracted or analysed. Relevant data from each study was extracted by the first author and is presented in tables below.

Figure I PRISMA 2009 Flow Diagram (Moher et al., 2009)



Quality assessment

Once the data was extracted, this study used a modified version of the Downs and Black checklist (Downs & Black, 1998) (see Appendix I). The modifications were in response to criticism of the checklist and in relation to the specific study aims (Deeks et al., 2003; O'Connor et al., 2015). This included adding questions about whether studies stated an ER theory, assessing groups equivalence at baseline, and if other interventions participants are receiving are described. The Downs and Black is a widely used checklist, and has strength in being able to accommodate different study designs (Deeks et al., 2003; Downs & Black, 1998; McDermott et al., 2013). Score ranges are given corresponding quality levels: excellent (34–38); good (26–33); fair (19–25); and poor (≤19) modified from Hooper et al.'s (2008) description of quality level ratings.

The first author rated all papers for quality using this checklist, and another author (AW) rated 30% of the papers that were selected through random number generation. From this, inter-rater agreement was calculated.

Data Synthesis

Two of the initially included papers did not report pre and post means of the ER outcome measure (Azizi et al., 2010; Mendez, 2015). The first author attempted to contact the papers' authors but was not successful in obtaining any further data from the studies, therefore they were excluded from the review. Apart from this, all papers had sufficient data that could be extracted.

A narrative synthesis was decided to be the most appropriate way of summarising the included studies, due to the heterogeneity in intervention type, sample population and study designs. For these reasons, a meta-analysis was not deemed appropriate.

Results

Characteristics of included studies

A total of 13 studies were included in the narrative synthesis. A summary of the study characteristics is in Table I.

The study designs were varied. Five were randomised control trials (Berking et al., 2019; Ford et al., 2013; Gratz et al., 2014; Gratz & Gunderson, 2006; Zargar et al., 2019). Of these, one had an active comparison intervention as well as a non-active waitlist control condition (Berking et al., 2019), one had an active control only (Ford et al., 2013), and three had non-active waitlist or treatment as usual (TAU) controls (Gratz et al., 2014; Gratz & Gunderson, 2006; Zargar et al., 2019). Two further studies had randomisation processes and control groups but were described as either pilot studies or quasi-experimental studies (Dixon-Gordon et al., 2015; Morvaridi et al., 2019). Of these, one had TAU controls (Morvaridi et al., 2019) and one had active comparators as controls (Dixon-Gordon et al., 2015). Four studies were "before and after" (B&A) studies with no control or comparison group (Bacon et al., 2018; Gratz & Tull, 2011; Holmqvist Larsson et al., 2020; Sahlin et al., 2017). One study was a B&A study with an active comparison group (Rizvi & Steffel, 2014) and one was an observational case series study (Varkovitzky et al., 2018).

In the studies with active control conditions, the type of intervention used was varied. Three used a generic supportive and/or psychoeducational group with no ER skills to control for the common therapeutic factors often found in group interventions (Berking et al., 2019; Dixon-Gordon et al., 2015; Ford et al., 2013). Two used different combinations of DBT skills modules including mindfulness, interpersonal effectiveness and ER (Dixon-Gordon et al., 2015; Rizvi & Steffel, 2014.

There was considerable heterogeneity across the types of ER intervention used. The sessions were all delivered once a week. The number of ER sessions ranged from 5 to 14 weeks, with the mean number of sessions being 10. Session length ranged from 75 to 180 minutes and the mean session length was 112 minutes.

There was a range of target populations in the studies. Four studies recruited people with BPD who self-harmed (Gratz et al., 2014; Gratz & Gunderson, 2006; Gratz & Tull, 2011; Sahlin et al., 2017) and one study also recruited people with BPD but did not stipulate self-harming as one of the criteria (Dixon-Gordon et al., 2015). Two papers were transdiagnostic (Bacon et al., 2018 Rizvi & Steffel,

2014). One paper focused on participants with substance use problems (Zargar et al., 2019) and two focused on those with post-traumatic stress disorder (Ford et al., 2013; Varkovitzky et al., 2018). One paper only recruited people with major depressive disorder (Berking et al., 2019), one paper recruited people with social anxiety (Morvaridi et al., 2019) and one paper focused on people with eating disorders (Holmqvist Larsson et al., 2020).

The gender of participants was disproportionately female. Eight studies recruited only women (Dixon-Gordon et al., 2015; Ford et al., 2013; Gratz et al., 2014; Gratz & Gunderson, 2006; Gratz & Tull, 2011; Holmqvist Larsson et al., 2020; Morvaridi et al., 2019; Sahlin et al., 2017); and in contrast, one study recruited men only (Zargar et al., 2019). In three out of four studies with mixed gender, women represented the majority of participants, ranging from 58% to 81% of the sample size (Bacon et al., 2018; Berking et al., 2019; Rizvi & Steffel, 2014). In the mixed gender studies, the only study with a majority of male participants was Varkovitzky et al (2018), where women represented 17% of the sample, probably due to the sample population being veterans with PTSD, and veterans tending to be predominantly male. Additionally, for the mixed gender studies it is unknown the proportion of men and women to whom the intervention was offered, so it is similarly unknown to what extent the proportion of men/women in the sample represents the wider population, or if it is a self-selecting sample where more women have chosen to opt in to the intervention.

Age in the studies ranged from 18 to 69 years. Two studies focused on young people, with age ranging from 18 to 29 (Holmqvist Larsson et al., 2020; Rizvi & Steffel, 2014). Mean ages in the studies that reported this range from 24 to 47.

Table I: Summary of study characteristics

Study	Design	Intervention(s)	Intervention duration	Study population and demographics	Sample size and gender (% female)	Data used for analysis	Data collection points
Bacon et al. (2018) Scotland	Before and after **Randomisation:** No **Control group:** No	1. Semi-manualized ER group programme	6 weeks, 150 minutes each session	Patients attending routine secondary care mental health services, variety of diagnoses Mean age 1. 36 No range reported	*N*= 52 (81%) Number in each condition 1. 52	Total data sets analysed *N* =47 - 30 full data sets and 17 Intent to treat (ITT) data sets	Pre and post intervention No follow-up
Berking et al. (2019) Germany	Randomised control trial (RCT) **Randomisation:** Yes **Control group:** Yes, and active treatment comparison	1. Affect regulation training (ART) 2. Waitlist control condition 3. Common factors control condition	6 weeks, 180 minutes each session, then four weeks of independent skills practise and one 90 minute booster session on week 8	Diagnosis of major depressive disorder Mean age 1. 38.9 2. 38.8 3. 41.1 Range 18-69	*N* = 218 (64%) Number in each condition: 1. *N* =76 (64%) 2. *N* =72 (67%) 3. *N* =70 (61%)	Total data sets analysed *N* =218 – 181 completed treatment and 37 ITT data sets	Pre, mid, mid, post intervention Two weeks post-booster follow-up
Dixon-Gordon et al. (2015) USA	Pilot study **Randomisation:** Yes **Control group:** Yes	1. DBT-ER (ER skills only) 2. DBT-IE (interpersonal	6 weeks, no information on session length	Women with Borderline Personality Disorder (BPD) Mean age	*N* =19 (100%) Number in each condition: 1. *N* =7 2. *N* =6	Total data sets analysed *N* =19 – 17 completed treatment and 2 ITT data sets	Pre, mid and post intervention Two month follow-up

		effectiveness skills only) 3. Interpersonal and Psycho-Education group (IPE), no DBT skills		34.47 across groups Range 20-60 Ethnicity: white 63.2%, East Asian 21.1%	3. *N* =6		
Ford et al. (2014) **USA**	RCT **Randomisation:** Yes **Control group:** Yes	1. Trauma Affect Regulation: Guide for Education and Therapy (TARGET) 2. Supportive group therapy	12 weeks, 75 minutes each session	Women in prison with full or partial Post-traumatic stress disorder (PTSD) Mean age 1. 34.6 2. 38 Range 23-57 Ethnicity: 40% people of colour, 60% white	*N* = 80 (100%) Number in each condition: 1. *N* =41 2. *N* =39	Total data sets analysed *N* =72	Pre and post intervention No follow-up
Gratz & Gunderson (2006) **USA**	RCT **Randomisation:** Yes **Control group**: Yes	1. Acceptance-based emotion regulation group intervention (ERGT) and treatment as usual (TAU) 2. TAU – mixture of individual therapy, self-help, group	14 weeks, 90 minutes each session	Women with BPD who self-harm Mean age 1. 33 2. 33.7 Range 19-58 Ethnicity: 100% white	*N* =24 (100%) Number in each condition: 1. *N* =12 2. *N* =10	Total data sets analysed *N* =22	Pre and post intervention No follow-up

		therapy, other appointments					
Gratz & Tull (2011) USA	Before and after **Randomisation:** No **Control group:** No	1. ERGT and TAU	14 weeks, 90 minutes each session	Women who self-harm with either threshold or subthreshold diagnoses of BPD Mean age 1. 34.3 Range 18-50 Ethnicity 87% white, 13% non-white	*N* =23 (100%) Number in each condition: 1. *N* =23	Total data sets analysed *N* =23 – 19 completed intervention and 4 ITT data sets	Pre and post intervention No follow-up
Gratz et al. (2014) USA	RCT and uncontrolled 9-month follow-up **Randomisation:** Yes **Control group:** Yes	1. ERGT and TAU 2. TAU	14 weeks, 90 minutes each session	Female out-patients who self-harm with either threshold or subthreshold diagnoses of BPD Mean age 1. 33.3 2. 33 Range 18-60 Ethnicity: 1. 16.1% racial/ethnic minority 2. 13.7% racial/ethnic minority	*N* =61 (100%) Number in each condition: 1. *N* =31 2. *N* =30	Total data sets analysed *N* =61 – 53 completed intervention and 8 ITT data sets	Pre and post intervention Three and six months follow-up

Holmqvist Larsson et al. (2020) Sweden	Before and after **Randomisation**: No **Control group**: No	1. Emotion regulation skills training. Based on ERGT, UP, DBT and ACT	5 weeks, 120 minutes each session	Female out-patients with eating disorders Mean age 1. 21.41 Range 18-24 Ethnicity: primarily Caucasian	*N* =39 (100%) Number in each condition: 1. *N* =39	Total data sets analysed *N* =29	Pre and post intervention No follow-up
Morvaridi et al. (2019) Iran	Quasi-experimental **Randomisation:** Yes **Control group:** Yes	1. Emotional schema therapy (Leahy, 2015) 2. Waitlist	10 weeks, 120 minutes each session	Women with social anxiety Mean age 1. 23.83 2. 24 Range 18 to 35	*N* =26 (100%) Number in each condition: 1. *N* =13 2. *N* =13	Total data sets analysed *N* =24	Pre and post intervention No follow-up
Rizvi & Steffel (2014) USA	Before and after **Randomisation:** No **Control group:** Yes	1. ER skills training from DBT modules 2. ER and mindfulness skills training from DBT modules	8 weeks, 120 minutes each session	Undergraduates with significant problems with emotional regulation Mean age no mean provided Range 18-29 Ethnicity: 71% Caucasian, 17% Asian and 13% African American	*N* =24 (88%) Number in each condition: 1. *N* =8 2. *N* =16	Total data sets analysed *N* =24 – 17 completed intervention and 7 ITT data sets	Pre, mid and post intervention Three-month follow-up (apart from first group)

Sahlin et al. (2017) Sweden	Before and after **Randomisation:** No **Control group:** No	1. ERGT	14 weeks, 120 minutes each session	Women at 14 psychiatric outpatient clinics meeting 3 or more diagnostic criteria for BPD and 3 or more episodes of DSH in last 6 months Mean age 1. 25.1 Range 18-49	*N* =95 (100%) Number in each condition: 1. *N* =95	Total data sets analysed *N* =95, 74 completed intervention and 21 ITT data sets	Pre and post intervention Six month follow-up
Varkovitzky et al. (2018) USA	Observational case series **Randomisation:** No **Control:** No	1. Unified protocol (UP) for the transdiagnostic treatment of emotional disorders group intervention	16 weeks, 90 minutes each session	Patients at PTSD outpatient clinic for veterans Mean age 1. 46.65 No range reported Ethnicity: White (65.4%), black (9.6%), Native Hawaiian/Pacific Islander (3.8%), Asian American (3.8%), Latino (19.2%).	*N* =170 (17%) Number in each condition: 1. *N* =170	Total data sets analysed *N* = 52	Pre and post intervention No follow-up
Zargar et al. (2019) Iran	RCT **Randomisation:** Yes **Control:** Yes	1. ERGT +TAU	8 weeks, 120 minutes each session	Male patients admitted to addiction centre	*N* =34 (0%)	Total data sets analysed *N* =30	Pre and post intervention

	2. TAU – methadone (medication) therapy	with substance use disorder Mean age 1. 25.70 2. 24.85 Range 20-50	Number in each condition: 1. *N* = 17 2. *N* =17	No follow-up

Quality assessment

Tables IIa and b show the methodological quality ratings for the included studies. Five studies were rated as poor using the modified Downs and Black (1998) checklist (Bacon et al., 2018; Gratz & Tull, 2011; Morvaridi et al., 2019; Rizvi & Steffel, 2014; Varkovitzky et al., 2018), six were rated as fair (Dixon-Gordon et al., 2015; Gratz et al., 2014; Gratz & Gunderson, 2006; Holmqvist Larrsson et al., 2020; Sahlin et al., 2017; Zargar et al., 2019) and two were rated as good (Berking et al., 2019; Ford et al., 2013). No studies were rated as excellent. Papers rated good or fair are higher quality, and results from these papers are at less risk of methodological biases. Papers rated poor have a number of methodological problems meaning findings from these papers are less trustworthy. Particular issues that the quality checklist highlighted will be explored in the next section.

Inter-rater reliability was calculated using Cohen's Kappa, $\kappa = .524$, $p < .005$, which indicates there was a moderate level of agreement between the two raters, RM and AW. Differences in scoring were resolved through discussion.

Missing data

All studies had at least one point of missing data, and varied in approaches to managing this. In intervention research, intent to treat (ITT) analysis and imputation methods are commonly used to manage missing data while preserving sample size and power. ITT measures the effect of the intervention on all participants who were assigned to the study, regardless of whether they subsequently dropped out or did not complete the intervention (Fisher, 1990). ITT is thought to give a pragmatic estimate of the benefit of treatment interventions, and not using this may cause clinical effectiveness of an intervention to be over-estimated (Hollis & Campbell, 1999). Where data is missing, this is normally managed in ITT by using imputation methods, normally by carrying forwards the last observed response (Gupta, 2011; Streiner & Geddes, 2001). ITT is thought to give a less biased estimate of treatment effect than completer analysis, and this is reflected in the modified quality checklist which has questions about how missing data was handled. Three questions in the checklist (questions 11, 33 and 34) examine this aspect; whether characteristics of patients lost to

follow-up have been described, whether these losses to follow-up were taken into account during analysis, and whether ITT or similarly robust methods were used to manage losses to follow-up.

In the studies in this review, seven used ITT analysis (Bacon et al., 2018; Berking et al., 2019; Dixon-Gordon et al., 2015; Gratz et al., 2014; Gratz & Tull, 2011; Rizvi & Steffel, 2014; Sahlin et al., 2017). Apart from Bacon et al. (2018), papers using ITT analysed all participants that were assigned to the intervention and control groups. Bacon et al. (2018) excluded five data sets from participants who had been found to meet the exclusion criteria during the study.

For the papers that did not use ITT, no other methods of handling missing data were described, and these papers only analysed data from participants who completed the study and provided outcome measures at the last time point specified. Where missing data is minimal, using completer analysis may not introduce bias, which was the case for two studies (Gratz & Gunderson, 2006; Morvaridi et al., 2019). As missing data increases, so does the likelihood of bias. One papers had over 50% of data missing, meaning interpretation of these findings needs to be done with caution due to the high risk of bias and overestimation of treatment effect (Varkovitzky et al., 2018). The remaining three papers using completer analysis had around 10% of data missing, which may affect the analysis and introduce bias into the results (Ford et al., 2013; Holmqvist Larsson et al., 2020; Zargar et al., 2019).

Table IIa: Quality rating by question

Paper Question	Bacon et al. (2018)	Berking et al. (2019)	Dixon-Gordon et al. (2015)	Ford et al. (2014)	Gratz & Gunderson (2006)	Gratz & Tull (2011)	Gratz et al. (2014)	Holmqvist Larsson et al. (2020)
1.Hypothesis/aim/objective clearly described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Main outcomes clearly described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Characteristics of patients described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4. Interventions clearly described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. Theory to practice links that justify the use of intervention to improve ER?[a]	Yes	Yes	Yes	Partially Yes	Yes	Yes	Partially Yes	Yes
6. Any other interventions participants are receiving described?[a]	No	Yes	No	Yes	Yes	Yes	Yes	Yes
7. Distributions of principal confounders clearly described?	No	Partially Yes	Partially Yes	Partially Yes	Partially Yes	No	Yes	Yes
8. Main findings described?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9. Does the study estimate random variability in data for main outcomes?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10. Have all the important adverse events been reported?	No	Yes	No	No	No	No	No	No

11. Have characteristics of patients lost to follow-up been described?	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
12. Have actual probability values and effect sizes been reported for the main outcomes except probability < 0.001?	Yes	Yes	No	No	No	No	No	Yes
13. Source of funding stated?[a]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14. Were subjects representative of the entire population recruited?	No	No	No	No	No	No	No	No
15. Were those subjects who were prepared to participate representative of the recruited population?	No	No	No	No	No	No	No	No
16. Was where patients were treated, representative of the treatment the majority of patients receive?	Yes	No	No	Yes	Yes	No	No	Yes
17. Was an attempt made to blind those measuring the main outcomes?	No	No	No	Yes	No	No	No	No
18. Were analyses planned a priori, pre-registered on a public website, and the analysis plan followed?[a]	No	Yes	No	No	No	No	No	No
19. Was the time period between intervention and	No	Yes	No	Yes	Yes	Yes	Yes	Yes

outcome the same for intervention and control groups or adjusted for?								
20. Were the statistical tests appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21. Was compliance with the interventions reliable?	No	No	No	Yes	No	No	No	No
22. Was the intervention delivered as intended?	Yes	Yes	Yes	Yes	No	Yes	Yes	No
23. Main outcome measures accurate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24. Were patients in different intervention groups recruited from the same population?	No	Yes	Yes	Yes	Yes	No	Yes	No
25. Were study subjects in different intervention groups recruited over the same period of time?	No	Yes	No	Yes	Yes	No	Yes	No
26. Were study subjects randomized to intervention groups?	No	Yes	Yes	Yes	Yes	No	Yes	No
27. Appropriate method of randomisation?[a]	No	Yes	Yes	Yes	No	No	No	No
28. Were attempts made to assess groups equivalence at baseline?[a]	No	Yes	Yes	Yes	Yes	No	Yes	No
29. Any other interventions participants are receiving controlled for?	No	Yes	No	Yes	Yes	No	Yes	No

30. Adequate control group?[b]	No	Yes	Yes	Yes	No	No	No	No
31. Randomized intervention assignment concealed until recruitment was complete?	No	Yes	No	No	No	No	No	No
32. Was there adequate adjustment for confounding in the analyses from which main findings were drawn?	No	Yes	No	Yes	Yes	No	Yes	Yes
33. Were losses of patients to follow-up taken into account?	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
34. Intention-to-treat analysis or similarly robust methods to manage losses to follow-up?[a]	Yes	Yes	Partially Yes	Yes	No	Yes	Yes	Partially Yes
35. Was the study sufficiently powered?[a]	No	Yes	No	Yes	No	No	No	No
Overall rating	17	32	19	30	23	18	25	21
Quality label	**Poor**	**Good**	**Fair**	**Good**	**Fair**	**Poor**	**Fair**	**Fair**

Table IIb: Quality rating by question

Paper	**Morvardidi et al. (2019)**	**Rizvi & Steffel (2014)**	**Sahlin et al. (2017)**	**Varkovitzky et al. (2018)**	**Zargar et al. (2019)**
1.Hypothesis/aim/objective clearly described?	Yes	Yes	Yes	Yes	Yes

2. Main outcomes clearly described?	Yes	Yes	Yes	Yes	Yes
3. Characteristics of patients described?	No	Yes	Yes	No	Yes
4. Interventions clearly described?	No	Yes	Yes	Yes	Yes
5. Theory to practise links that justify the use of intervention to improve ER?[a]	Partially Yes	No	No	Yes	Yes
6. Any other interventions participants are receiving described?[a]	No	No	Yes	No	Yes
7. Distributions of principal confounders clearly described?	No	No	Yes	Partially Yes	Yes
8. Main findings described?	Yes	Yes	Yes	Yes	Yes
9. Does the study estimate random variability in data for main outcomes?	Yes	Yes	Yes	Yes	Yes
10. Have all the important adverse events been reported?	No	No	No	Yes	No
11. Have characteristics of patients lost to follow-up been described?	Yes	No	Yes	No	Yes
12. Have actual probability values and effect sizes been reported for the main outcomes except probability < 0.001?	No	No	Yes	No	Yes

13. Source of funding stated?[a]	No	Yes	Yes	Yes	No
14. Were subjects representative of the entire population recruited?	No	No	No	No	No
15. Were those subjects who were prepared to participate representative of the recruited population?	No	No	No	No	No
16. Was where patients were treated, representative of the treatment the majority of patients receive?	No	No	Yes	Yes	No
17. Was an attempt made to blind those measuring the main outcomes?	No	No	No	No	No
18. Were analyses planned a priori, pre-registered on a public website, and the analysis plan followed?[a]	No	No	No	No	No
19. Was the time period between intervention and outcome the same for intervention and control groups or adjusted for?	No	No	Yes	No	Yes
20. Were the statistical tests appropriate?	Yes	Yes	Yes	Yes	Yes
21. Was compliance with the interventions reliable?	No	No	Yes	No	Yes

22. Was the intervention delivered as intended?	No	No	Yes	No	No
23. Main outcome measures accurate?	Yes	Yes	Yes	Yes	Yes
24. Were patients in different intervention groups recruited from the same population?	No	Yes	No	No	Yes
25. Were study subjects in different intervention groups recruited over the same period of time?	No	No	No	No	Yes
26. Were study subjects randomized to intervention groups?	Yes	No	No	No	Yes
27. Appropriate method of randomisation?[a]	No	No	No	No	Yes
28. Were attempts made to assess groups equivalence at baseline?	No	No	No	No	Yes
29. Any other interventions participants are receiving controlled for?	No	No	No	No	No
30. Adequate control group?[b]	No	Yes	No	No	No
31. Randomized intervention assignment concealed until recruitment was complete?	No	No	No	No	No
32. Was there adequate adjustment for confounding in the analyses	No	No	Yes	No	No

from which main findings were drawn?					
33. Were losses of patients to follow-up taken into account?	Yes	Yes	Yes	No	Yes
34. Intention-to-treat analysis or similarly robust methods to manage losses to follow-up?[a]	Partially Yes	Partially Yes	Yes	No	No
35. Was the study sufficiently powered?[a]	No	No	Yes	No	Yes
Overall rating	11	13	23	13	24
Quality label	**Poor**	**Poor**	**Fair**	**Poor**	**Fair**

[a] denotes additional or modified questions for the purposes of this systematic review

[b] additional question added from MINORS (Slim et al., 2003)

Power

Related to the issue of managing missing data, statistical power is another area that many papers did not address. If studies are not adequately powered, the probability of a type II error is increased, as well as type I error as the estimate of effect is not as reliable as if it were made with more participants. Power analyses are often performed a priori and help the study determine sample size needed to detect statistically significant effects. Four papers considered power when setting the sample size and were adequately powered at analysis (Berking et al., 2019; Ford et al., 2013; Sahlin et al., 2017; Zargar et al., 2019). One paper considered power issues post hoc, and concluded that their study was under-powered to detect even large effect sizes (Dixon-Gordon et al., 2015).

For papers with no or limited information about power, the first author of the present review performed calculations using G*Power (Faul et al., 2007) to ascertain whether studies were likely to have had adequate power to detect medium sized effects or larger. For pre-post studies with no control condition, three papers are likely to be underpowered to detect a medium effect size (within participants), increasing the chance of a type II error (Gratz & Tull, 2011; Holmqvist Larsson et al., 2020; Lennon, 2015) . The other two were sufficiently powered (Bacon et al., 2018; Varkovitzky et al., 2018). For studies with control groups, three studies were likely underpowered to detect between-group effects and within x between group interactions with medium sized effects (Gratz & Gunderson, 2006; Morvaridi et al., 2019; Rizvi & Steffel, 2014). One study was underpowered to detect between group differences but adequately powered for detecting within x between interactions (Gratz et al., 2014).

Overall, only six papers were thought to be sufficiently powered, resulting in considerable risk of type II errors, and the potential for type I errors in seven of the included studies.

Concordance with intervention

Whether the intervention was reliably delivered as intended is a further quality marker. Factors that may affect this include participant concordance with intervention, for example if they attended all sessions, as well as facilitator fidelity to the treatment intervention. Knowledge of facilitator training

and facilitator competence may also give information on whether the intervention was delivered as intended.

Four studies contained no information about therapist competence or training, fidelity to intervention or participants' concordance with intervention, meaning it is unknown the extent to which the intervention was delivered as planned (Gratz & Gunderson, 2006; Morvaridi et al., 2019; Varkovitzky et al., 2018; Zargar et al., 2019). All studies provided information that indicated group facilitators were competent, sufficiently trained and supervised on the interventions they delivered. Six studies examined intervention fidelity through the use of video recordings or other methods. In all of these, facilitator adherence to the intervention manual was high, indicating the intervention was delivered as intended (Berking et al., 2019; Dixon-Gordon et al., 2015; Ford et al., 2013; Gratz et al., 2014; Gratz & Tull, 2011; Sahlin et al., 2017).

Only two studies recorded the number of sessions attended by participants (Ford et al., 2013; Sahlin et al., 2017), and in Sahlin et al (2017) the number of sessions attended was associated with greater treatment effects, indicating the importance of participant concordance with intervention. However, in Ford et al. (2013), treatment concordance was shown to be unrelated to change. One paper asked participants to leave the intervention if they missed more than one sessions, implying that included participants mainly attended all sessions (Bacon et al., 2018).

Impact of other interventions

Controlling adequately for the impact of other interventions outwith the study protocol is an important quality feature. If studies have not adequately described and accounted for other non-study interventions, it is impossible to ascertain the impact of the ER intervention on ER outcome measures as it may be confounded by the impact of non-study interventions. One paper explicitly excluded any participants who were currently receiving any other therapy, controlling for this possible confound (Berking et al., 2019). Five papers had no information on whether any other treatment was being received by participants (Bacon et al., 2018; Ford et al., 2013; Morvaridi et al.,

2019; Rizvi & Steffel, 2014; Varkovitzky et al., 2018). When looking at the settings of these studies, it is possible that there may have been other ongoing treatment, especially as referrals to the ER interventions often came from other providers (nurses, psychiatrists etc.) who may have been continuing treatments with participants. There is no way to know in these studies the impact of any non-study interventions. In the remaining seven studies, participants were described as receiving a range of other treatments. Receiving other treatments is less likely to impact the results if studies have a control group also receiving equivalent amounts and types of non-study interventions. In three papers, participants were receiving other interventions but there was no information as to what these interventions were and if they were equivalent across study groups, so it is difficult to assess their impact (Dixon-Gordon et al., 2015; Sahlin et al., 2017; Zargar et al., 2019). Sahlin et al. (2017) also had no control group, meaning there is potential for the outcome data to have been impacted by other interventions to an unknown extent. Two studies gave a specific outline of what other treatment was received by participants, and as the control group in these studies was treatment as usual, and was shown to be equivalent across intervention and control groups, this possible confound is well controlled for (Gratz et al., 2014; Gratz & Gunderson, 2006). Finally, in one study the other interventions which participants were receiving were better described, but as they had no control group it is unknown to what extent non-study interventions may have impacted outcome data (Gratz & Tull, 2011; Holmqvist Larsson et al., 2020).

ER intervention and ER theory

ER treatment interventions drew from various different treatment modalities, mainly from ACT, DBT and CBT, as well as UP, mindfulness interventions and emotion focused psychotherapy. Most studies used previously established group ER treatments, but a minority were studies evaluating newly developed interventions.

The most commonly delivered intervention was emotion regulation group intervention (ERGT), used in four studies (Gratz et al., 2014; Gratz & Gunderson, 2006; Gratz & Tull, 2011; Sahlin et al., 2017).

ERGT is an acceptance-based behavioural group designed to reduce self-harming behaviour in women with BPD (Gratz & Gunderson, 2006). Two studies used the ER module from DBT skills training (Dixon-Gordon et al., 2015; Rizvi & Steffel, 2014). One study (Berking et al., 2019) used affect regulation training, a transdiagnostic intervention designed to enhance emotion regulation skills in clinical and at risk populations. One study used emotion regulation group therapy based on the Gross model of ER (ERGT(G)) (Zargar et al., 2019). Another study used a group version of the Unified Protocol, and one used Emotional Schema Therapy, both transdiagnostic interventions (Morvaridi et al., 2019; Varkovitzky et al., 2018). Three studies were evaluating a newly created group intervention, and as with the established group interventions, drew on a variety of established therapeutic modalities and existing ER groups to create the group intervention (Bacon et al., 2018; Ford et al., 2013; Holmqvist Larsson et al., 2020).

Despite the variety of approaches, the content of each intervention had considerable overlap. Core components across groups was psychoeducation about emotions, strategies to increase emotional awareness, identifying and labelling emotions, accepting and tolerating emotions, promoting appropriate expression of emotion, monitoring emotions and reactions, and understanding triggers of emotion. Mindfulness was another core component across many groups, specifically with the focus of creating distance from emotions and cultivating a non-judgemental attitude to them. Most groups were proactive skills groups and taught a variety of specific skills to enable participants to modify their emotions and emotional reactions. There was some variation across groups in the specific skills, but broad categories of skills frequently implemented were reappraisal, relaxation, grounding, distraction, problem-solving, self-soothing, acting opposite, and increasing opportunities for positive emotions (e.g., by way of self-care). Many groups emphasised the importance of skills practice outside the group and gave participants homework and practice tasks between sessions. A minority of groups included active emotional exposure in the group sessions (Bacon et al., 2018; Varkovitzky et al., 2018). Some groups had other content not specifically focused on ER, for example

psychoeducation on specific conditions (e.g. Ford et al., 2013; Gratz & Gunderson, 2006), or a focus on values (e.g., Holmqvist Larsson et al., 2020) .This non-ER content made up a minority of sessions. Interventions with a strict focus on only ER skills were Bacon et al (2018), Dixon-Gordon et al (2015), Morvaridi et al (2019) and Rizvi and Steffel (2014).

As outlined in the introduction to the present review, there are numerous theories and models of ER. Although there was considerable commonality in core skills and tasks across groups, there was less commonality or clarity relating to why particular skills were included and which theories were being drawn upon to guide the creation of the intervention. A clear definition of ER was outlined in six studies. One paper did not define ER at all (Sahlin et al., 2017); one paper described ER only as a treatment target in people who had experienced trauma and/or incarceration (Ford et al., 2013); two stated that emotional dysregulation was the root cause of deliberate self-harm (Gratz et al., 2014; Gratz & Tull, 2011); and three stated that skills deficits in ER underlie and lead to a range of mental health problems (Berking et al., 2019; Dixon-Gordon et al., 2015; Rizvi & Steffel, 2014). These seven papers did not define what ER was or how it might lead to the intervention chosen in the studies.

Where papers defined ER, they drew on a range of models and theories. One paper focused solely on the Gross (1998) process model, which gives a range of different targets for ER unfolding over time (Zargar et al., 2019). One paper drew on a social-cognitive, meta-cognitive approach to emotion regulation as described by Leahy (2015), which states that individuals have differing abilities in identifying, labelling and differentiating their emotions, their appraisal of their emotions, and their use of unhelpful coping strategies (Morvaridi et al., 2019). Two papers used Gratz & Roemer's (2008) multidimensional definition which emphasises the functionality of emotion regulation (Gratz & Gunderson, 2006; Varkovitzky et al., 2018). The remaining two papers created an integrative model and theory of ER from a range of sources. Bacon et al. (2018) drew on the Gross (1998) process model, but also included Koole's (2009) functional approach emphasising the importance of

functions of ER, as well as the theory of constructed emotion (Barrett, 2017b). Holmqvist Larsson et al. (2020) combined Gross (1998) and Gratz and Roemer's (2008) models, and also emphasised the importance of ER in the development and maintenance of eating disorders.

Regardless of ER definition, many papers acknowledged the importance of ER as a transdiagnostic concept underlying and driving emotional distress across mental health problems (Bacon et al., 2018; Berking et al., 2019; Holmqvist Larsson et al., 2020; Rizvi & Steffel, 2014; Varkovitzky et al., 2018). Five papers had clear theory to practice links, where the theories and models of ER clearly informed the intervention that was used in the study (Bacon et al., 2018; Gratz & Gunderson, 2006; Morvaridi et al., 2019; Varkovitzky et al., 2018; Zargar et al., 2019).

In relation to the quality of studies, it seems that clear definitions of ER do not match to quality labels. A study may be methodologically "good" or "fair" quality but may not describe ER well or have good theory to practice links (e.g., Berking et al., 2019; Dixon-Gordon et al., 2015). Conversely, some papers rated as "poor" quality provided very thorough description of ER theories and how these lead to intervention targets (e.g., Bacon et al., 2018).

ER Outcome Measures

The majority of included studies (11 out of the 13) used the Difficulties with Emotion Regulation Scale (DERS) as a measure of emotional regulation (Gratz & Roemer, 2008). This scale is widely used, well validated and has significant positive association between score on the DERS and symptoms of various mental health problems, providing support for the idea of ER as a transdiagnostic concept (Ehring & Quack, 2010; Gratz et al., 2006; Hallion et al., 2018; Van Rheenen et al., 2015).

Other ER measures used in the studies were the Emotion Regulation Skills Questionnaire (ERSQ) (Berking et al., 2019), the Generalized Expectancies for Negative Mood Regulation (NMR) (Ford et al., 2013) and the Emotion Regulation Questionnaire (ERQ) (Morvaridi et al., 2019). Some studies have shown that the ERSQ correlates well with the DERS and NMR (Grant et al., 2018), and the ERQ and DERS have small to medium correlations between aspects of their scales (Ehring & Quack, 2010;

Salsman & Linehan, 2012). This provides some evidence that these four measures assess similar constructs of emotion regulation and can be compared. However, other studies have found that ER measures based on different theories, such as the DERS and ERQ, do not always converge on the same underlying factor, suggesting there needs to be caution when comparing different outcome measures (Zelkowitz & Cole, 2016).

Outcomes

Table III summarises the main outcome data from the included studies. With the exception of Ford et al. (2013) the ER intervention significantly improved ER ability from pre to post treatment. Additionally, in all papers, change in ER ability was also accompanied by changes in other clinically relevant measures, including reduced anxiety, depression, self-harm frequency and BPD or PTSD symptomatology.

Considering within participant effects, for studies showing a pre-post improvement on the ER outcome measure, there was a large effect size in eight cases (Bacon et al., 2018; Gratz & Gunderson, 2006; Gratz & Tull, 2011; Holmqvist Larsson et al., 2020; Morvaridi et al., 2019; Rizvi & Steffel, 2014; Sahlin et al., 2017; Zargar et al., 2019); a medium effect size in three (Berking et al., 2019; Gratz et al., 2014; Varkovitzky et al., 2018) and a small effect size in one (Dixon-Gordon et al., 2015).

This must be interpreted in light of the quality ratings, and in papers rated "good", one found no significant effect of the ER intervention and one had a medium effect size (Berking et al., 2019; Ford et al., 2013). For papers rated "fair" three found a large effect size (Gratz & Gunderson, 2006; Holmqvist Larsson et al., 2020; Zargar et al., 2019), one a medium effect size (Gratz et al., 2014) and one a small effect size (Dixon-Gordon et al., 2015). It seems that papers rated as "poor" were more likely to find large effect sizes, with five out of the six papers reporting a large effect size (Bacon et al., 2018; Gratz & Tull, 2011; Morvaridi et al., 2019; Rizvi & Steffel, 2014; Sahlin et al., 2017. This is considered further in the Discussion, below.

The four studies using a range of comparison interventions, including different DBT skills modules and common factor controls, found no difference between the ER intervention and the comparison intervention (Berking et al., 2019; Dixon-Gordon et al., 2015; Ford et al., 2013; Rizvi & Steffel, 2014). Although Rizvi & Steffel's (2014) study did not find a significant difference, the active comparison in this case was DBT modules of ER and mindfulness, and the ER intervention was the ER module from DBT alone. This indicates that the ER module may be a more "active" part of the intervention as the addition of mindfulness made no significant difference to outcomes. In the four studies comparing ER interventions to waitlist or TAU, there were significant differences between the ER and control condition, indicating the ER was superior to waitlist and TAU (Gratz et al., 2014; Gratz & Gunderson, 2006; Morvaridi et al., 2019; Zargar et al., 2019). It would seem from these results that there is reasonable evidence that ER interventions can improve ER skills with small-medium effect sizes in higher quality studies, and are superior to waitlist or treatment as normal, but the evidence that they are superior to other interventions is limited and inconclusive.

The majority of papers only collected data pre and post intervention. Of the five that collected follow-up data, the follow-up period ranged from two weeks post treatment to nine months (Berking et al., 2019; Dixon-Gordon et al., 2015; Gratz et al., 2014; Rizvi & Steffel, 2014; Sahlin et al., 2017). The lack of follow-up and variability in follow-up times makes it hard to assess the long-term impact of ER interventions. Nonetheless, from the data available ER improvements were either maintained at follow-up with similar effect sizes (Berking et al., 2019; Gratz et al., 2014; Rizvi & Steffel, 2014; Sahlin et al., 2017), or continued to improve with larger effect sizes (Dixon-Gordon et al., 2015). These results need to be interpreted with caution due to the heterogeneity of follow-up times and three of the papers including follow-ups being rated as poor quality.

Table III: Summary of treatment effects on ER outcome measure

Study	ER measure	Pre Mean (SD)	Post Mean (SD)	Effect size(s) and/or summary of results	Were changes in ER accompanied by other clinically relevant changes?
Studies with active control conditions (N=4)					
Berking et al. (2019) **Quality rating:** **32/38 (Good)**	ERSQ Higher scores indicate better emotional regulation, maximum score of 4	ART 1.72 (0.66) CFC 1.73 (0.63) WLC 1.63 (0.62)	ART 2.18 (0.65) CFC 1.91 (0.77) WLC 1.71 (0.66)	**Within Participants** *d*=0.70[a] p<.0001 *d*=0.26[a] p<.001 *d*=0.13[a] *ns* **Between Participants** Self-report ERSQ: Significantly greater increase for ART than in WLC: *d* = 0.73, *p* < .001. Observer-based ERSQ - ART is associated with a greater increase of emotion regulation skills than WLC: *d* = 0.69, *p*<.01. Difference between WLC and CFC: *d* = 0.46, *p* < .10	Yes – depressive symptoms also reduced – significantly larger reduction in ART compared to WLC. However no significant differences in symptom reduction between ART and CFC.

				No significant difference between CFC and ART on ERSQ **Interaction effects** Time x group $\chi 2 = 4.27$ $p < .001$ ART vs. WLC $t = 3.75$ $p < .001$ ART vs. CFC $t = 1.39$ *ns* CFC vs. WLC $t = 2.29$*ns*	
Dixon-Gordon et al. (2015) **Quality rating:** **19/38 (Fair)**	DERS Lower scores indicate better emotion regulation	DBT-ER 123.86 (28.72) DBT-IE 109.50 (15.86) IPE 108.50 (14.69)	DBT-ER 106.00 (31.13) 2. DBT-IE 106.40 (22.01) IPE 97.00 (17.28)	**Within Participants** *d*=0.48 *p*<0.05 *d*=0.18 *ns* *d*=0.75 *ns* **Interaction effects** Condition x Time interaction was nonsignificant.	Yes – improvements in a range of other domains: interpersonal skills, distress tolerance, mindfulness, BPD symptoms, depressive symptoms and non suicidal self-injury

				d=.85$_{6,16.35}$ *ns*	
Ford et al.	NMR	TARGET	TARGET	**Within Participants**	Yes – reduction in PTSD and trauma symptoms and general distress (as measured by CORE-OM)
(2014)	Higher scores indicate better emotion regulation	98.7 (16.2)	105.1 (18.0)	*d*=.37 *ns*	
Quality rating:		SGT	SGT		
30/38 (Good)		104.7 (15.8)	104.7 (15.9)	*d*=.00 *ns*	
				Interaction effects	
				Group×Time interaction was not significant: d = .32 *ns*	
Rizvi & Steffel (2014)	DERS	DBT - ER	DBT - ER	**Within Participants**	Yes – improvements in depression and stress
	Lower scores indicate better emotion regulation	124.88 (14.27)	98.54 (18.55)	*d*=1.59$_a$ *p* <0.05	
		DBT - MF+ER	DBT - MF+ER		
Quality rating:		120.31 (23.16)	83.16 (26.54)	*d*=1.49$_a$ *p* <0.05	
13/38 (Poor)					
				Between Participants	

				No significant differences between groups on DERS **Interaction effects** Time x group interaction: F= 23.80 p < .001* d =1.52 * p < .01 set as significance level due to multiple comparisons	
Studies with waitlist or TAU control N=4					
Gratz et al. **(2014)** **Quality rating:** **25/38 (Fair)**	DERS Lower scores indicate better emotion regulation	ERGT + TAU 106.81 (21.87) TAU 112.26 (25.31)	ERGT + TAU 95.27 (15.60) TAU 113.62 (15.60)	**Within Participants** *d*=0.61$_a$ *p* <0.05 *d*=-0.06$_a$ *ns* **Between Participants** ERGT superior to TAU *d*= 0.55 *p*<0.05 ERGT+TAU – 29% reliable improvements, 61.3% normal functioning	Yes – significant improvements on deliberate self-harm, BPD symptoms, depression, stress and quality of life

				TAU 10% reliable improvement, 23.3% normal functioning **Interaction effects** Not reported	
Gratz & Gunderson (2006) **Quality rating:** **23/38 (Fair)**	DERS Lower scores indicate better emotion regulation	ERGT + TAU 127.92 (19.99) TAU 119.90 (20.86)	ERGT + TAU 79.75 (23.97) TAU 115.80 (16.74)	**Within Participants** n_p^2 =0.80 p < .01. n_p^2 =0.07 *ns* **Between Participants** Significant between group differences n_p^2 =0.54, p < .01 in favour of ERGT The treatment group reached normative levels of functioning on measures of emotion dysregulation (mean DERS among female college students = 77.99)	Yes – positive effects on self-harm, experiential avoidance, BPD symptoms, depression, anxiety and stress

				83% of participants in the treatment group reported reliable improvements in ER **Interaction effects** Not reported	
Morvaridi et al. **(2019)** **Quality rating:** **11/38 (Poor)**	Emotion Regulation Questionnaire (ERQ) Measures the use of two ER strategies: Cognitive Reappraisal (R) and Expressive Suppression (S). Higher scores on R indicates better ER, higher scores on S indicate lower ER	EST R 20.08 (5.33) S 16 (3.83) WLC R 18.58 (3.60) S 17.58 (3.20)	EST R 33.16 (4.08) S 9.25 (2.70) WLC R 17.75 (3.67) S 18.66 (3.42)	**Within Participants** d=2.76$_a$ p <0.05 d=2.04$_a$ p <0.05 d=0.23$_a$ *ns* d=0.33$_a$ *ns* **Between Participants** There was a significant difference between the EST and WLC in the post-test scores of both ER components, suppression and reappraisal (p < 0.001) (n_p^2 = 0.76 and n_p^2 =0.81), with the experimental group	Yes – reduced anxiety symptoms

				showing significantly improved ER. **Interaction effects** Not reported	
Zargar et al. **(2019)** **Quality rating:** **24/38 (Fair)**	DERS Lower scores indicate better emotion regulation	ERGT(G) + TAU 104.12 (9.21) TAU 97.65 (5.62)	ERGT(G) + TAU 96.69 (5.38) TAU 73.70 (5.05)	**Within Participants** d=0.99$_a$ p <0.05 d=4.48$_a$ p <0.05 **Between Participants** Significant difference between ERGT(G) and TAU and TAU, ERGT(G) superior. n^2 = 0.81, p=0.001 **Interaction Effects** Not reported	Yes – improved martial adjustment, decreased cravings

Studies with no control N= 5					
Bacon et al. **(2018)** **Quality rating:** **17/38 (Poor)**	DERS Lower scores indicate better emotion regulation	ERG 132.19 (19.73)	ERG 108.38 (25.56)	**Within Participants** d = 1.04, p < .001 51% demonstrated reliable change and 43% demonstrated clinical significant change	Yes – significant improvements in self-efficacy and mental wellbeing
Gratz & Tull **(2011)** **Quality rating:** **18/38 (Poor)**	DERS Lower scores indicate better emotion regulation	ERGT 110.74 (22.13)	ERGT 80.32 (23.31)	**Within Participants** n_p^2 = 0.67, p=<.05 63.2% reliable change 84.2% normal functioning	Yes – improvements in deliberate self-harm, experiential avoidance and psychiatric symptoms
Holmqvist Larsson et al. **(2020)**	DERS Lower scores indicate better emotion regulation	ERST 112.19 (16.38)	ERST 93.56 (16.42)	**Within Participants** d= 1.14 p < 0.001	Yes – improvement in alexithymia and reduction in eating disorder symptoms and clinical impairment

Quality rating: **21/38 (Fair)**					
Sahlin et al. **(2017)** **Quality rating:** **23/38 (Fair)**	DERS Lower scores indicate better emotion regulation	ERGT 125.98 (19.37)	ERGT 104.66 (27.40)	**Within Participants** *d*=0.91 *p*<0.001	Yes – reduction in self-harm frequency, other self-destructive behaviours and general psychiatric symptoms
Varkovitzky et al. **(2018)** **Quality rating:** **13/38 (Poor)**	DERS Lower scores indicate better emotion regulation	UP 125.39 (19.98)	UP 109.12 (29.35)	**Within Participants** Hedges's *g* 0.64, *p*<.001	Yes – improvements in PTSD and depressive symptoms

Notes: [a] = Effect size calculated by first author. ART = Affect regulation training, CFC = Common factors control condition, SGT= Supportive group therapy, TAU = Treatment as normal, WLC = Waitlist control condition , ERGT = Emotion regulation group therapy, ERGT(G) = Emotion regulation group therapy based on Gross model, ERG = Emotional resources group, UP=Unified protocol for transdiagnostic treatment of emotional disorders, ERST = Emotion regulation skills training, EST = Emotional schema therapy, DBT – ER = Dialectical Behaviour Therapy – Emotion regulation skills module, DBT - MF+ER = Dialectical Behaviour Therapy –

Mindfulness and emotion regulation skills modules, DBT-IE = Dialectical Behaviour Therapy – Interpersonal effectiveness skills module, IPE = psychoeducation group. DERS = Difficulties in emotion regulation scale, ERSQ= Emotion Regulation Skills Questionnaire, NMR = Generalized Expectancies for Negative Mood Regulation. ns= not significant, p>0.05

Effect sizes for Cohen's *d* and Hedges *g* are the following: 0.2 a "small" effect size, 0.5 represents a "medium" effect size and 0.8 a "large" effect size. Effect sizes for partial eta squared n_p^2 and eta squared n^2 are the following: 0.01 a small effect size, 0.06 a moderate effect size and 0.14 a large effect size.

Discussion

This review was focused on three key questions:

1. What is the impact of ER groups on ER skills in adult clinical populations?

2. What ER theories, definitions and concepts are used in these interventions?

3. How strong are the theory to practice links in these intervention groups?

In relation to the first question, from the results it seems that there is good evidence ER ability can be improved at least in the short term by ER group interventions, across a range of ER intervention types and populations. This is consistent with other evidence in the field, i.e. that changes in ER seem to occur no matter what the ER intervention is, or the ER construct examined, or the sample population (Sakiris & Berle, 2019; Sloan et al., 2017). Effect sizes, where it was possible to calculate them, ranged from small to large, with the majority being large. ER interventions were found to be superior to waitlist or TAU; however, it is not clear from this review if ER is any better than any other group intervention not specifically targeting ER, or if skills can be improved in the long term by these groups. This conclusion is similar to Sakiris & Berle's (2019) review where it was also unclear how UP, an ER-specific intervention, performed compared to other interventions. This review gives provisional evidence that gains made in treatment can be maintained, but due to heterogeneity in follow-up times and poor quality of studies, this is not certain. Future studies should where possible include follow-up periods of at least six to twelve months to ascertain the longer-term impact of ER group interventions.

The effect sizes also need to be interpreted in the context of methodological quality, and this review found studies that were assessed as being poor in methodological quality were more likely to find larger effect sizes compared to those rated fair or medium. This finding of effect sizes increasing as study quality lowers is a common finding in psychological therapy research (A-Tjak et al., 2015;

Cuijpers et al., 2010). Methodological issues such as underpowered studies, lack of an adequate control or other confounding variables are more likely to be present in lower quality studies and may cause an overestimation of intervention effect size.

In relation to the second and third question, half the studies did not define ER or state a theory of ER upon which the intervention was constructed. Given the myriad definitions of ER in the field, and wide disagreements on what ER is and is not, this may be problematic as it is unknown how and why skills are being taught. Depending on what theory is being drawn on by facilitators, the same skill may be delivered in very different ways or for different purposes. For example, relaxation exercises are widely included across ER interventions, but the purpose and function of these exercises may differ according to the model of ER. Poor theory to practice links further complicates the ER field and undermines efforts to produce truly evidence-based interventions where interventions are designed based on theoretical models. These developments are needed to establish more targeted and efficient interventions that best meet individual and service needs. Future research in this area should focus on clearly defining ER, and should demonstrate theory to intervention links and accurate measurement of ER. Unfortunately, this is not a new proposal. More than a decade on from a similar call for conceptual clarity (Bloch et al., 2010), the field seems to be no further forward in this regard. This review re-iterates these findings and emphasises the importance of having links between affective science research and clinical practice. Nevertheless, although only present in a minority of studies, it is encouraging to see some studies that do have clear theories that inform the ER intervention (Bacon et al., 2018; Gratz & Gunderson, 2006; Morvaridi et al., 2019; Varkovitzky et al., 2018; Zargar et al., 2019) and this enhances our understanding of what improves ER. It is also interesting to note that many papers are now using integrative models of ER, perhaps reflecting the wider state of the field of ER, where ER is seen as complex and multi-faceted, and moving to a "both/and" position rather than trying to prove one theory over another. However, it is worth considering that such integrative models may be a double-edged sword, although they may bring

benefits in terms of combining strengths of different models, and making definitions of ER more inclusive, the integration of possibly contradictory models may further dilute the clarity of ER conceptualisation, clear measurement and clear theory to intervention links.

To move the understanding of ER and how it can be improved, it is also necessary to have clarity in how ER should be measured. As stated earlier, various ER measurements exist but it is unclear to what extent they actually measure the same underlying construct (Zelkowitz & Cole, 2016). The majority of included studies used the DERS, and this seems to reflect the wider field of ER where the DERS is frequently used as the default ER measure. The DERS is widely used and is largely well accepted (Hallion et al., 2018; Victor & Klonsky, 2016). However, what it measures is emotional dysregulation, rather than emotional *regulation*, and it does not measure any aspect of ER strategy use, as the ERQ does. There has also been criticism of the DERS based on the awareness subscale not contributing to the higher order total score of the measurement, and problems with accurate scoring due to some items requiring reverse scoring (Bardeen et al., 2016; Bardeen & Fergus, 2014; Fowler et al., 2014). A modified version of the DERS, where the reverse scored items are reworded, seems to effectively manage both of these difficulties (Bardeen et al., 2016). This version should be used in future to prevent methodological difficulties in scoring and to retain psychometric strength.

Related to ER strategy use being an important construct in ER, a recent exploratory factor analysis of various ER measures revealed three different overall factors: out-of-control negative emotion, emotion awareness and expression, and cognitive strategies (Zelkowitz & Cole, 2016). While the DERS measures the first two factors, it does not measure use of strategies. Therefore, it may be helpful in future research to use multiple ER measures that cover these three factors, for example the DERS plus a measurement of strategy use.

Strengths, limitations and directions for future research

This is the first review of group interventions of ER, and has shown that, regardless of intervention and measurement type, ER was improved. This suggests that ER can be improved in multiple ways,

an important finding clinically as services may be limited as to what ER intervention they have available. The sample populations were varied, and again this shows the importance of ER as a transdiagnostic treatment target across psychological difficulties, and can give confidence to clinicians delivering ER interventions to people presenting with a range of psychological difficulties.

The focus on ER definitions and theory and their links to the intervention, is a further strength as it has not previously featured in reviews, and it has been observed there may be a disconnect between theoretical models and clinical application (Hallion et al., 2018). As stated previously, this disconnect means the understanding of what ER is and how it can be improved is not currently well understood academically or clinically. Greater conceptual clarity regarding ER is likely to lead to more precisely targeted interventions that improve patient outcomes. Therefore, adding the consideration of theory to practice links in assessments of studies quality, as this paper did, may be helpful in future reviews.

Ascertaining that across different interventions there is a commonality in what ER interventions deliver indicates there may be common components to a range of ER interventions that are mediating the changes in ER. The next steps in research may involve dismantling studies of ER interventions, to try to find what parts of the intervention are mediating changes in ER measures. For example, there is some evidence from this review than mindfulness may be a less "active" component than other ER skills (Rizvi & Steffel, 2014), and dismantling studies could explore this further. Relatedly, factor analytic studies could further clarify the measurement components of ER, and longitudinal modelling studies could track changes in components of ER in response to specific interventions. One of the difficulties that such research may face, and brough to light by this review is that what the intervention actually involves can be hard to ascertain from the article. Some studies were very clear on what was delivered week to week, and some also referred to published manuals or previous articles with more information. Others had very little information on what was included in the intervention. This is a problem common in psychological intervention research (Guidi et al.,

2018), and may in some instance be due to word limits on journal submissions, but future research should clearly outline the intervention, or provide supplementary online materials, and if needed refer to manuals or previous articles.

An alternative way of addressing the issue of "active" parts of the intervention would be to construct ER interventions based on skills that had been independently verified as being effective at improving ER, as one of the included studies did (Bacon et al., 2018). This was in response to criticism of previous ER groups that were created by selectively extracting parts of individual treatment approaches. While the treatment approach as a whole may have evidence of efficacy, it is unknown if the selected parts used in the ER intervention are efficacious on their own (Bacon et al., 2018). It may be that using both these top-down and bottom-up approaches to constructing effective ER interventions could be considered for future research.

A potential limitation to this review is the largely poor quality of included studies as rated using the Downs and Black (1998) modified checklist, which limits the strength of the findings. The oldest paper included was published in 2006, suggesting the evidence for group interventions for ER is still fairly young, so it is perhaps unsurprising that many studies are low in quality as the evidence base for ER interventions is still being established at this time. Many of the included studies label themselves as pilot studies, and are likely more concerned with establishing initial evidence for a particular intervention rather than focusing on methodological quality. As the field develops further the quality of studies needs to be a particular focus to improve the standard of evidence of ER interventions, and methodological shortcomings outlined in the results must be addressed. In particular, key weaknesses across studies were considerations of power, how missing data was handled and measurements of concordance with the intervention.

The review was inconclusive as to whether ER-specific groups were more effective at improving ER than other generic group interventions, and further research is needed to understand this. Because of the impact of non-specific group effects (Sloan et al., 2017), it is important to have active controls

that account for these findings to further develop knowledge of how ER can specifically be improved. Berking et al. (2019) and Ford et al. (2013), two higher quality studies, used generic group interventions in this way. Future research should use similar interventions as comparisons to ascertain the specific effects of the ER intervention.

A further finding is that ER can be improved in a relatively short period of time in a group setting, with 10 weeks as the mean length of interventions. This is important clinically given the pressures of services to meet demand for psychological interventions. However, further research is needed to understand which ER interventions have the most impact, if they are superior to other generic interventions and if the impact is sustained long term.

One potential limitation of the present review is that the studies included are heterogeneous in terms of intervention type and sample population, making it is harder to compare their outcomes. However, this presents an accurate representation of the state of the research on ER interventions and reflects how ER is being applied in a clinical context: i.e. there is considerable variability in how ER is conceptualised and what interventions involve. In future, when there is more research on specific ER interventions, it may be possible to have reviews and meta-analysis with more homogeneous samples, interventions and measurements and make comparisons between different ER interventions.

Most participants across studies were women, with eight papers only recruiting women. This may limit the generalisability of the findings to men, but also may reflect wider issues in the field and in society. Women tend to be over-represented in mental health services, and are more likely to be diagnosed with “emotional” disorders such as BPD (Bjorklund, 2006; Skodol & Bender, 2003). In contrast, men may be reluctant to seek help due to assumed stigma, and are more frequently diagnosed with substance use or aggression related problems (Brown et al., 2019; Keyes et al., 2008; Wendt & Shafer, 2016). This reflects wider cultural norms on emotion and gender, where women are expected to show more of their emotions such as sadness, happiness and emotional instability,

and men are expected not to show their emotions, other than those such as anger, which is more socially acceptable for men to express (Chaplin, 2015). Interestingly, the clinical literature shows that both men and women are likely to have difficulties with ER, suggesting a need for treatment regardless of gender (Nolen-Hoeksema, 2012). Where men were recruited in the studies, they were generally in the minority of participants, and this may reflect a self-selection bias, where interventions labelled in some way as an "emotional regulation" group may be less attractive to men due to societal perspectives on gender and emotion1. Future studies should examine to what extent the findings of this review are applicable to men taking part in ER interventions. Additionally, it may also be helpful to examine whether factors related to how a group is labelled and advertised to participants influences who decides to take part.

A further factor potentially impacting the generalisability of the findings is ethnicity. Where studies described ethnicity, it was overwhelmingly white. This is a common problem in intervention research in Western countries, where very few interventions include racial and ethnic minorities in efficacy studies (Miranda et al., 2003). Given the well-established health inequalities faced by racial and ethnic minorities in these societies, and the often poor treatment outcomes with mental health care, it is essential that future research conducted in Western countries considers strategies that ensure recruitment of people from minority ethnic backgrounds (McKenzie & Bhui, 2007). However, two of the included studies in the present review were conducted in Iran, and although no ethnicity data was presented in these studies it can be assumed that the sample were predominantly Iranian nationals (Morvaridi et al., 2019; Zargar et al., 2019). This indicates that ER interventions have efficacy outwith white Western populations.

1 Anecdotally, when discussing one of the ER groups with its creator, they reflected that the content of the ER group has considerable overlap as to what would be offered on an anger management course, and that while ER groups tend to be majority female, anger management groups tend to be majority male, potentially reflecting the self-selection bias (Tom Bacon, Personal communication, 8th January 2021).

One confounding variable in many of the included studies is the impact of non-study interventions. The majority of studies did not exclude participants who were receiving other psychological intervention, or did not specify whether other psychological intervention was being received. This is an obvious confound, as if participants were receiving other psychological interventions during the ER intervention period, it is impossible to know if the change in ER scores is due to the ER intervention or non-study intervention. Although there can be practical and ethical difficulties with achieving full control for interventions in clinical practice, future studies should attempt to control for this confound, either by ensuring equivalence of other treatment across groups as outlined by Gratz et al. (2014) and Gratz & Gunderson (2006) or by including it as an exclusion criterion as and Berking et al. (2019) specified.

Finally, a further potential limitation to the study is that only English language studies were included due to the timescale and resources of this project. This may mean studies in other languages are missing from the review, but it is encouraging that included studies come from a variety of countries spanning three continents.

Conclusion

To the authors' knowledge, this is the first review examining the impact of group ER interventions on ER in clinical populations. It builds on the existing evidence base of how ER can be effectively improved. However, the studies had a considerable amount of heterogeneity and were on the whole poor in methodological quality, limiting the confidence in the findings. Additionally, although there was overlap in skills taught across interventions, on the whole theoretical underpinnings of the interventions were only well described in a minority of studies. To move forwards the understanding of how ER can be effectively improved, there needs to be a clearer conceptualisation of ER, good theory to practice links and consistent measurement. These developments are likely to lead to more effective and targeted interventions to improve ER which will ultimately improve treatment outcomes for people presenting with psychological distress.

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Chapter 2: Empirical Project

The Emotional Resources Group: A mixed methods practice-based study of a transdiagnostic emotion regulation group intervention

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Abstract

Objectives: This mixed method study aimed to understand if the emotional resource group (ERG), a transdiagnostic group intervention, significantly improved emotion regulation (ER) in the short and long term. It also aimed to ascertain if the intervention had an impact on secondary measures including subjective wellbeing and confidence to manage mental health problems. A final aim was to explore participants' experiences of the ERG.

Methods: From 10 ERGs held in the data collection period, 31 participants completed pre- and post-measures of emotional regulation, psychological distress, wellbeing, self-efficacy and confidence in managing mental health problems. Measures were repeated at three and six months post intervention for 17 participants, and 14 of these participants also completed a qualitative interview about their experiences in the ERG. Thematic analysis was used to analyse the interview data.

Results: ER ability and secondary measures improved following the group intervention, but the improvement was not maintained over the three and six month follow-up period. From the themes identified through thematic analysis, the ERG was part of a wider ongoing process of learning and change for most participants. Participants described changes in awareness, and some implementation of new skills to manage their emotional difficulties. However, not all participants felt they benefited from the group, and many participants reflected it was hard to maintain gains after the intervention ended.

Conclusion: Overall the ERG was a positive experience for most participants, providing improvements in ER and other aspects of mental health. However, it is unclear if these improvements are sustained in the longer term. There may be many reasons for this, including fidelity to the ERG model and the short-term nature of the group. The ERG should be considered an option for participants with ER difficulties and further intervention should be offered as appropriate when the ERG ends. Limitations to the study include small sample size, a lack of control group and limited information about facilitator training. Adaptations to the ERG model could be considered,

such as booster sessions, rolling groups or patient-led sessions to provide further opportunities for embedding skills. Future rollouts of the programme would also benefit from using principles of implementation science frameworks to maximise effective integration of the ERG into the wider system of care.

Keywords: emotion regulation, group therapy, transdiagnostic intervention

Conflicts of interest: none

Introduction

Emotion regulation as a transdiagnostic concept across mental health difficulties

Emotion regulation (ER) ability has long been considered an important target of interventions across the spectrum of mental health presentations, and most major schools of therapeutic interventions include emotional regulation strategies, for example cognitive behaviour therapy (CBT), dialectic behaviour therapy (DBT), acceptance and commitment therapy (ACT), emotion focused therapy and short-term dynamic psychotherapy (Blackledge & Hayes, 2001; Fosha, 2000; Greenberg, 2015; Linehan, 2014; Linehan et al., 2007; Papa et al., 2012). Emotional dysregulation (ED) has been implicated as a key component of a number of psychiatric diagnoses including borderline personality disorder, eating disorders, anxiety disorders and depression (Aldao et al., 2010; Carpenter & Trull, 2012; Sloan et al., 2017).

ED has been conceptualised as a core transdiagnostic concept that is key to the development and maintenance of many complex presentations, which may partially explain the high prevalence of comorbidity within psychiatric populations (Kessler et al., 2005; Kring & Sloan, 2009). From this, transdiagnostic frameworks have been created, which propose that seemingly distinct mental disorders are manifestations of a few core concepts, of which ED is key (Barlow et al., 2004; McEvoy et al., 2009). The practical application of these transdiagnostic frameworks is the development of unified treatment interventions that can be applied to a range of mental health difficulties (e.g. Bullis et al., 2015). This has proposed benefits of reducing clinician burden and increasing fidelity by reducing the number of protocols that need to be learned, and also increasing access by the ability to deliver these interventions as group interventions (Sloan et al., 2017). Research to date on transdiagnostic interventions show high patient satisfaction and reduced ED (McEvoy et al., 2009; Sloan et al., 2017).

Though it is agreed that ER is an important treatment target, a key challenge with developing interventions is that there is remarkably little consensus on what ER actually is and what can be done to improve it (Gross, 2015). An understanding of what ER is and what strategies are likely to improve it is

essential in order to ensure the development of effective interventions that specifically target ER, rather than addressing other difficulties.

What is emotion regulation?

In 1990 the field of emotion regulation and emotion theory was defined as one of "conceptual and definitional chaos" (Buck, 1990). Thirty years later, this remains the case (Gross, 2015; Gross & Barrett, 2011). Despite this, a working definition of ER is needed to guide treatment development. The current study adopted definitions and concepts from appraisal theory and the theory of constructed emotion (Barrett, 2017b; Gross, 2002), due to the evidential support for these, and the readiness with which they lead to practical intervention strategies.

The subjective experience of emotions is that specific emotions (e.g. fear, anger) are universally experienced and occur spontaneously and uncontrollably in response to specific stimuli. An example of this theory in popular culture is the 2015 animated film "Inside Out" (Docter & Carmen, 2015), in which it is depicted that every person's brain has emotion "characters" such as joy, sadness and disgust, with these emotions being activated in different situations, directly controlling the person's reactions. From this perspective emotions are seen as universal, and static across different people, with an assumption that everyone recognises these core emotions in themselves and in others around them. Understandings of emotion such as this fall under the "basic emotion" theory of emotions (Ekman, 1999). Based on this theory, interventions to manage ER would be focused on correctly identifying emotions and developing skills to manage these specific basic emotions. Indeed, these sorts of ER interventions exist, often in relation to individuals with autism spectrum disorder or children (Reyes & Scarpa, 2009; Serret et al., 2014). Although an attractive theory in its simplicity and intuitive nature, this basic theory of emotions, and initial studies validating the theory, have been highly criticised for a lack of ecological validity as well as methodological weaknesses. Also, there is no consistent evidence of universal expressions of emotions and distinct brain areas underpinning this (Aviezer et al., 2008; Barrett et al., 2011; Giner-Sorolla, 2019; Jack et al., 2009).

Increasingly, the importance of context and the individual's active role in shaping the nature and timing of their emotions has been examined. Two influential theories that have impacted upon the construction of the Emotional Resources Group (ERG) intervention discussed in this paper are the appraisal-based model (Gross, 2002) and the theory of constructed emotion (TCE) (Barrett, 2017b).

The appraisal-based model of emotions states that, irrespective of external stimuli, the emotion we experience in a situation largely depends upon how we think about (appraise) the situation (Giner-Sorolla, 2019; Yih et al., 2018). Various experimental paradigms and neuroimaging studies support the appraisal-based model and show that differing interpretations of events can lead to different intensities or types of subjective emotions (Gross, 2002; Ochsner et al., 2002; Siemer et al., 2007). Furthermore, the idea of appraisals shaping our experience is well established within cognitive psychology (Ellsworth, 2013; Yih et al., 2018). For example, maladaptive cognitive appraisals following a traumatic event have been shown to predict PTSD symptomology (Agar et al., 2006; Meiser-Stedman et al., 2009).

An operationalisation of how this emotion theory might apply to ER is the extended process model of emotional regulation (Gross, 1998; 2015). This states that there are different emotion regulation choices at different stages in the emotional generation process (Gross, 1998), and that these different choices will lead to different outcomes. The broad categories of choices are situation selection or situational modification (e.g. avoidance of problematic situations), attentional deployment (e.g. distractions), cognitive change (e.g. reappraisal strategies) and response modification (e.g. strategies to down-regulate unpleasant emotions, such as deep breathing). The extended process model also introduces the idea of valuation, that we weigh our emotions on the dimension of "good for me" and "bad for me" (Gross, 2015). Depending on this valuation at various stages, and to what extent we have awareness of these stages in any given context, we may make different choices around which strategies for ER we attempt.

The theory of constructed emotion (TCE) further develops these ideas, and states that our emotions are an active construction based on our previous experiences, and are predictive rather than reactive to stimuli (Barrett, 2017b). In this theory, our brains generate a predictive subjective experience (which we call an "emotion") based on the outcome of previous similar situations. This means that human emotions are not an automatic response to stimuli; rather, they are an active creation serving the purpose of creating optimum conditions for our continued survival. This theory draws upon wider theories of the brain as a Bayesian predictive network that constructs our internal world and filters our perception of the world (Barrett, 2017a). This theory has been criticised for its over-reliance on verbal abilities and the separation of emotional experience from preconceptual aspects of emotion such as arousal (Sullivan & Minar, 2020). Additionally, publications regarding evidence for the TCE have been limited and restricted to a small group of authors (Barrett, 2017a, 2020).

The TCE also introduces the idea that our emotions may not be accurate, which could be helpful in encouraging distance from the emotion and our ability to reflect on it. It is also arguably an empowering theory: if it is the case that individuals are not subject to their emotions, an individual may therefore be able to change how and when they experience emotions. For example, taking action to reappraise emotions will over time update internal predictions, and may therefore change the subjective emotional experience in any given situation.

The appraisal-based model and TCE share similarities, with emotions seen as active constructions shaped by the individual and their circumstances (Gross & Barrett, 2011). However, their focus is different. The appraisal-based model is a model of regulation of emotions and leads specifically to targets for interventions. However, the TCE is a broader theory of emotions in general. While the TCE has implications for regulation, it has no specific ER model. Based on these two theories, the focus for ER interventions changes and is much broader, encompassing emotion generation processes as well as strategies used once the emotion is in conscious awareness. Both models also

emphasise the importance of meaning-making. In the Gross model, this is about cognitive appraisals and evaluations; in the TCE this is about emotional reappraisal and being able to be reflective upon the accuracy/inaccuracy of the emotion and the usefulness of this (Barrett, 2017b; Gross, 2015). Both models also propose that emotions emerge over time, suggesting that interventions aiming to improve ER should have different strategies for different time courses. Based on these two models, a range of skills should be included in ER interventions, including skills focusing on understanding and identifying emotions (e.g. mindfulness, beliefs about ability to change emotions, valuing emotion), and skills that increase awareness of emotions and ability to select which strategy to use (e.g. sense of self-efficacy/agency, distraction, reappraisal).

Two further concepts that are useful when considering ER are Koole's (2009) function and target approach and dual process theories. Koole's (2009) approach is not a new theoretical explanation for ER, it is a framework for organising ER strategies according to their function and targets. The function part of the approach considers what the purpose of the emotional response is, for example satisfying our own needs or pursuing specific goals, or to behave in a way that is consistent with our sense of personality (Koole, 2009). Depending on the purpose, people may utilise different ER strategies and show different emotional responses. The target part of this approach refers to where the ER strategy is directed, namely attention, knowledge or bodily responses.

Finally, dual process theories, the idea that much of human response and behaviour is controlled by two interacting systems - a fast, automatic system outwith conscious awareness, and a slower, consciously controlled system - have implications for ER (Evans, 2003; Gyurak et al., 2011). For people with ER difficulties, this may be due to an over-reliance on unconscious and automatic responding to emotions based on previous learning, and therefore emotions may feel overwhelming and out of control. As not all ER processes may be in conscious awareness, this points to the importance of emotional awareness in improving ER. If a person has conscious awareness of their emotions, they may be better able to modify their responses and consciously choose ER strategies

that are in line with their desired goals. For example, someone with social anxiety may automatically interpret any increase in physiological arousal as an undesired emotion such as fear, and respond by avoiding the situation, or believing that is a sign they will have a panic attack. This then becomes a vicious cycle, is self-reinforcing and is likely not in conscious awareness. By consciously becoming aware of this process, they may be able to better interpret the psychological arousal in the situation as a sign of an emotion such as anticipation, or excitement, and be therefore better able to use skills such as reappraisal (e.g. "I'm feeling excitement about meeting new people, if I stay in the situation, I know it will pass"). Similarly, someone with PTSD may be automatically responding to anything resembling the past trauma with fear, which then triggers a panic attack or a flashback to appear seemingly "out the blue". Creating conscious awareness of the emotion and trigger may help the person regulate their emotion eg "I'm feeling fear because that person looks like my attacker. If I use grounding skills I can help myself feel better".

Emotion regulation group interventions

Designing ER interventions for groups may have many benefits, some practical (e.g. allowing for efficient use of clinical time) but also in terms of group process. Group interventions can have benefits to the service delivering them as they can be less time and resource intensive than individual therapy; and although individual approaches tend to be better researched and evidenced, some studies have shown comparable benefits (Kellett et al., 2007; Morrison, 2001; Tucker & Oei, 2007). It has also been suggested that group interventions can be a useful way of researching novel approaches by simplifying the evaluation process (Owen et al., 2015).

A commonly used framework that describes the benefits of group processes is Yalom's twelve therapeutic factors (Yalom & Leszcz, 2005). This framework identifies that there are a number of core elements that participants in groups describe as being important and that contribute to the impact of the group, regardless of what the group intervention is. These factors include universality, whereby participants understand that others feel the same way; the installation of hope and the idea that their

situation could improve; altruism, where group members support one another; interpersonal learning; group cohesiveness; and imitative behaviour. More specifically for ER interventions, groups have been found to be beneficial in reducing shame and providing opportunities for validation, and are also well accepted by participants (Gratz & Gunderson, 2006; Lennon, 2015; McEvoy et al., 2009). Group interventions are therefore a pragmatic choice in terms of resource and applicability to a range of mental health difficulties, while also having benefits in terms of group process.

Various group-based interventions have been developed that focus on ER. Two widely used interventions are Emotion Regulation Group Therapy (ERGT) (Gratz & Gunderson, 2006) and Systems Training for Emotional Predictability and Problem Solving (STEPPS) (Harvey et al., 2010). These groups have been shown to produce significant improvements in ER skills and in a variety of other domains (Blum et al., 2008; Gratz & Gunderson, 2006). Additionally, ER modules from DBT skills training have also been shown to be efficacious on improving ER without the addition of other skills training modules (Dixon-Gordon et al., 2015; Rizvi & Steffel, 2014). However, these interventions come from adapting therapies for specific diagnoses, such as DBT or ACT for borderline personality disorder (BPD), and could potentially not be applicable transdiagnostically as they have not been evaluated for a range of presentations that might have difficulties with ER (Blum et al., 2008; Gratz & Roemer, 2008). There are some transdiagnostic ER group interventions, for example, a group adaptation of the Unified Protocol (Bullis et al., 2015) which draws on a range of approaches including CBT, DBT, mindfulness and ACT, again showing a range of benefits to participants (Berking et al., 2008; Bullis et al., 2015; McKay & West, 2016; Tehranirad, 2016). These interventions include elements that are not focused solely on ER, such as CBT being used as an adjunct, or a consideration of values and the inclusion of exposure therapy, so it possible that group outcomes may be related to these elements in addition to more specific ER-focused strategies. Additionally, they utilise specific skills from wider interventions (e.g. distancing techniques from ACT). While the full package of the intervention (e.g. individual ACT therapy) has been shown to be effective, it is unknown if

individual components of these interventions are effective independent of the wider intervention (Bacon et al., 2018).

As well as improving ER, ER group interventions reduce symptoms of mental health problems and enhance wider wellbeing factors (Blum et al., 2008; Gratz et al., 2014; Sloan et al., 2017). A few studies have found evidence of a mediating link between ER improvement and symptom change (Berking et al., 2008; Gratz & Gunderson, 2006; Varkovitzky et al., 2018). These findings are consistent with the theory of proposed links between ER and the development and maintenance of psychological distress.

The need for trauma-informed interventions

Trauma is a significant risk factor for developing future mental health problems, and it has been found that the majority of people who present to mental health services will have trauma in their backgrounds, even if this is not the primary reason they seek support (Álvarez et al., 2011; Dillon et al., 2014; Rossiter et al., 2015; Wu et al., 2010). In Scotland, this has led to the establishment of a trauma framework and training plan (NHS Education for Scotland, 2017a). The framework is designed to increase understanding of trauma and its impact across Scottish workforces. Given the high prevalence of trauma within mental health services, it is important that any intervention is trauma-informed, but none of the interventions mentioned above are explicitly designed to be so. This is particularly crucial as ER has been found to mediate the link between childhood trauma and mental and physical health problems in adults (Cloitre et al., 2019). This would suggest that trauma itself might also be considered as an important transdiagnostic concept, underlying ER difficulties across a range of disorders. It is therefore important to ensure that interventions target both the difficulties with ER and the underlying impact of trauma.

The Emotional Resources Group

One recently developed ER group intervention aims to address some of the criticisms outlined above. The Emotional Resources Group (ERG; Bacon & Stanley, 2016) is a transdiagnostic, trauma-informed intervention that explicitly focuses only on ER skills. The trauma-informed element is that

the aim is to embody the principles of trauma-informed working – safety, trustworthiness, choice, collaboration and empowerment – and indeed some of the skills taught in the ERG overlap with ones taught in the safety and stabilisation phase of the phase-based approach to trauma (Bacon & Stanley, 2016; NHS Education for Scotland, 2017b; NHS Education for Scotland and Scottish Government, 2019).

The ERG is held over 6 sessions of 150 minutes each, delivered once a week. Each session focuses on reviewing participants' emotional reactions, recorded during the week using a "trigger log" diary, and teaching new skills, while also providing psychoeducation on emotions. A summary of each session is outlined below, adapted from Bacon et al. (2018).

Table I: ERG session content

Session	*Focus*	*Content*
1	Psychoeducation	Emotion Triangle, Emotion Messages, Zone of Tolerance, Emotional Reactions.
2	Emotional Awareness	Emotional Acceptance, Emotional Understanding, Emotional Tolerance.
3	Emotion Triangle – Body	Controlled Breathing, Progressive Muscle Relaxation, Body Grounding
4	Emotion Triangle – Mind	Distraction, Questioning Emotions, Safe Space Imagery
5	Emotion Triangle – Behaviour	Expressing Emotions, Trigger Management, Trigger Experiments
6	Summary	Emotion Quiz, Future Emotion Goals

The group is based on the TCE, and therefore proposes that participants' subjective feelings in a situation are shaped by prior experience and learning, and may be accurate or inaccurate (Bacon et al., 2018; Bacon & Stanley, 2016). Participants are encouraged to reflect on their emotional experiences, identify patterns of responding, and gradually learn emotional reappraisal skills. Arousal management and "workability" of emotional reactions are also explored. Workability in this context is the ACT definition, the extent to which emotional reactions are bringing people closer to living a life in line with their values; if the emotional reaction does this, it is a "workable" reaction, if not, it is "unworkable" and is the target for change (Harris, 2009). Two frameworks of ER guide

facilitators in assisting participants to learn which ER skills should be implemented in which contexts. These are the Gross process model, discussed above, which highlights the importance of timing for ER, and Koole's (2009) functional model, which considers the function of ER strategies on different "targets" – in this case physiological, psychological or behavioural components of affective experience. Skills have been included in the ERG only if they have been shown to be effective independently of a wider model or intervention, (in contrast to criticisms regarding other ER groups whereby this does not seem to be the case), or if they are skills widely used in trauma-focused work, to ensure the aforementioned trauma-informed approach (Bacon & Stanley, 2016). The first author is aware of one other specific trauma-informed intervention for ER, however, this is specifically designed for incarcerated women with PTSD, and additionally it has not been shown to significantly improve ER skills, nor is it superior to a generic supportive group (Ford et al., 2013).

An initial evaluation of the group showed positive effects on emotion regulation, as well as other domains such as well-being and self-efficacy (Bacon et al., 2018). However, there are several limitations to the research to date. Firstly, there was no control group or randomisation, so it is unclear to what extent any changes are related to the group intervention. Additionally, it was a small sample (n=47) and there was no long-term follow-up to see if changes are maintained over time. Given that one of the stated aims of the group is to create lasting change, there is a need to measure beyond pre- and post- scores. The ERG is also significantly shorter than other similar interventions, and a longer-term follow-up would be helpful to understand whether the six weeks with a very specific focus on just ER skills is enough to change ER in the long term.

Research to date has focused on quantitative measures. While using validated outcome measures to establish efficacy of psychological interventions is part of routine clinical practice (Ogles et al., 2002), it would also be beneficial to understand participant's experiences of the ERG. More generally, it has been proposed that using only routine outcome measures can fail to detect potentially harmful interventions or likely treatment responders (Langkaas et al., 2018). This may be especially

important given the use of the TCE to underpin the group: it is not currently well-evidenced, and may be counter-intuitive to participants as it contrasts with people's naïve experience of emotion (Barrett, 2017b). Qualitative interviews could therefore explore participants' understanding of emotion regulation and if this understanding has changed through participation in the group, as well as exploring any potential harmful effects of the intervention. This would go some way to identifying what kinds of participants may benefit from the ERG.

The current research

There is a plethora of research and theory about emotion regulation, however there is less practical information about how individuals struggling with emotion regulation can be directly helped through clinical interventions. Given the commonality of emotional dysregulation across people with mental health problems, this might be considered a key target for treatment. Groups are a commonly used intervention in routine clinical practice as they can be used to treat transdiagnostic difficulties and are less resource and time intensive than individual therapy. Additionally, group interventions have added benefits through normalisation of difficulties, sharing of experiences and mutual support, and are largely well-accepted by participants. Although a range of putative ER-based group interventions have been developed and used, they are often not exclusively focused on teaching ER skills and therefore it cannot be concluded that benefits are due to improved ER. The ERG was developed to address these difficulties, but research on this is limited to date. To address the current gaps in the research, the present study will complete a long term follow-up of the ERG and use a wider range of quantitative measures to assess ER ability, general psychological distress and wellbeing, and whether these domains are impacted by the ERG. Qualitative interviews will also be used to explore participants' experiences and to better understand the impact of the group on ER skills and participants' wider lives.

The following research questions will be addressed:

Research questions

Does the ERG significantly increase emotional regulation ability in the short and long-term?

Does the ERG have a secondary impact on subjective wellbeing and confidence to manage mental health?

What are participants' experiences of the ERG group?

As a longer term follow up from an initial pilot study, this study could be usefully contextualised by using the MRC framework for complex interventions. The MRC framework is a framework that outlines necessary steps to take when building evidence for new interventions (Craig et al., 2008). The framework consists of four phases: development, feasibility/piloting, evaluation, and implementation (O'Cathain et al., 2019).

It emphasises the importance of adequate development, including theory to practice links, which as outlined above is an important consideration in this research. Although this study is following on from an initial pilot study, it is still fairly exploratory, and can be seen as a further part of the piloting and feasibility phase. The contribution of this research to the evidence process and the next steps for the research according to the MRC framework will be reflected upon in the discussion.

Method

Design

A mixed method design was used to evaluate the implementation of Emotional Resources Groups (ERG) in a Scottish health board. The study was non-randomised and did not have a control group. Mixed methods were chosen as a helpful way to assess the ERG as the quantitative findings can be explained and understood using the more in-depth qualitative findings, and vice versa (Creswell et al., 2006).

Measures

The following measures were collected pre/post intervention and after three and six months:

Difficulties in Emotion Regulation Scale (DERS) – this is the primary measure, as it would be expected that the ERG would improve emotion regulation. The DERS is a widely used measure with good

psychometric properties, with Cronbach's alpha of .93 and .92 in recent studies (Bacon et al., 2018; Gratz & Roemer, 2008).

Mental Health Confidence Scale (MHCS) – this measures the sense of self-efficacy that people living with mental health problems have and is used to assess if participants' confidence in living with mental health challenges increases throughout the intervention. It also has good psychometrics, with a Cronbach's alpha of .88 in a similar study (Bacon et al., 2018; Carpinello et al., 2000).

Warwick Edinburgh Mental Wellbeing scale (WEMWBS, full scale) – this measure gives a single measure of wellbeing and is also well validated, with previous studies finding a Cronbach's alpha of .84. (Bacon et al., 2018; Stewart-Brown et al., 2011). This will be used to understand if there is a secondary impact of the ER group on general wellbeing.

Work and Social Adjustment Scale (WSAS) is a measure of functional impairment and can be used across different groups and disorders (Mundt et al., 2002). The WSAS has good validity and is sensitive to treatment related change (Zahra et al., 2014). It also measures social functioning, a dimension not captured in other outcome measures (Martin et al., 2006).

The CORE-10 is a brief assessment measure that is valid across a range of common mental health presentations and widely used within routine clinical practice (*CORE Outcome Measurement Tools*, n.d.). It has clear clinical cut-offs and a reliable change index, and is used in this research to measure the impact of the ERG on psychological distress (Barkham et al., 2013).

These measures were used based on previous evaluation of the ERG by Bacon et al. (2018). In this study, it was predicted that the intervention would lead to increased ability to regulate emotion, and that improvement would also be seen on secondary measures of subjective well-being and confidence to manage mental health. The DERS, MHCS and WEMWBS were used in Bacon et al.'s (2018) study and the WSAS was added to later iterations of the ERG manual to address how function

was affected by attending the group sessions. The CORE-10 was added in this study to understand the impact of the ERG on psychological distress.

Treatment fidelity

Group facilitators were staff from the local psychological therapies' teams. Facilitators were a mixture of clinical associates including applied psychologists, clinical/counselling psychologists and assistant psychologists. All facilitators had either attended specific training on the ERG and/or observed an ERG before facilitating. All facilitators received routine supervision of their practice, but there was no specific supervision on the ERG. All groups used the standard ER materials including PowerPoints, handouts and workbooks. There was no form of fidelity measure taken to measure adherence to the ER model.

Participants

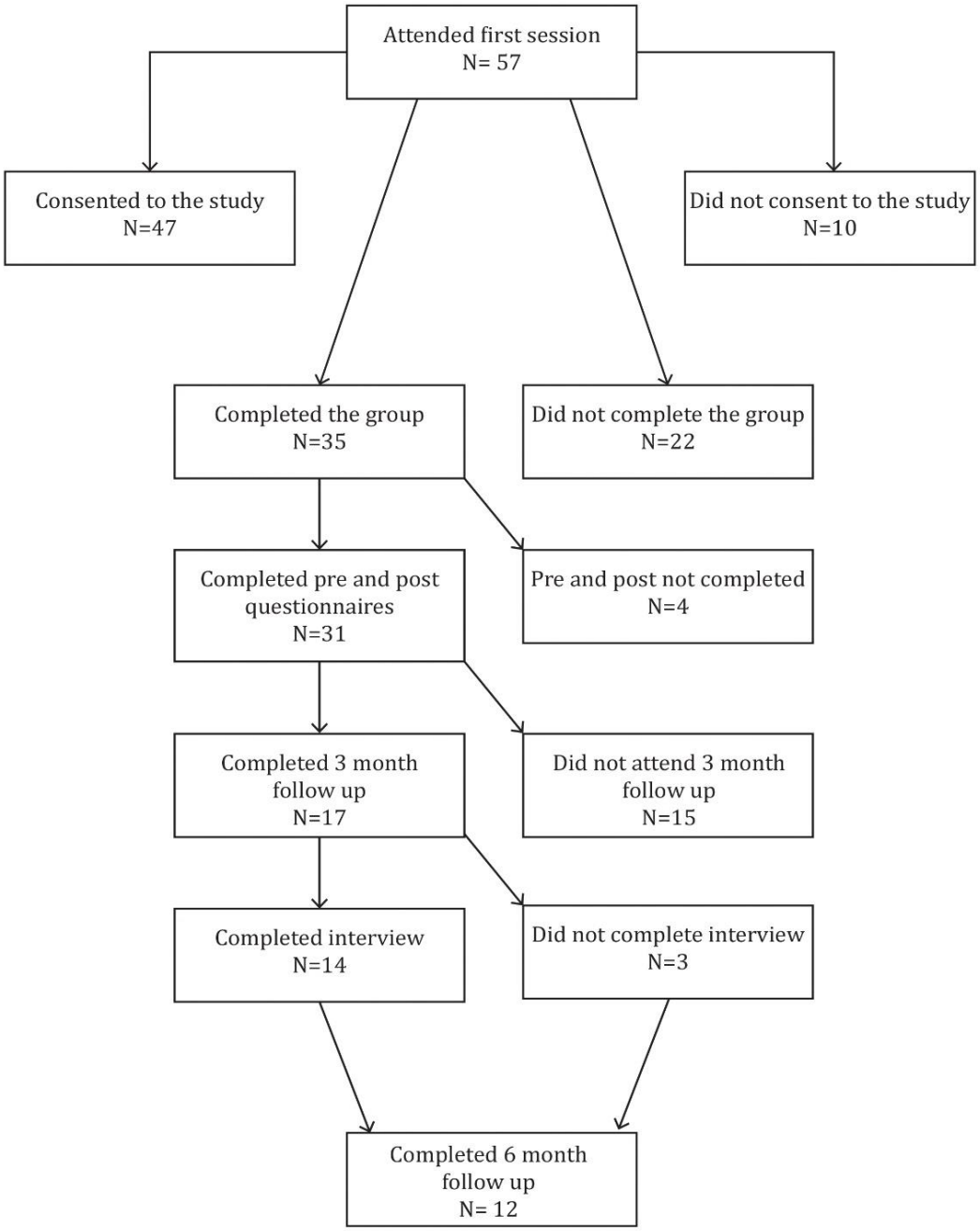
Participants were included if they had attended the ERG within RM's employing board at the time of the study from March 2019 to August 2020, were over the age of 16, had capacity to consent to the research and were fluent in English.

The ERG is a transdiagnostic group, aimed at patients assessed as having chronic mental health difficulties, across a range of diagnostic categories and struggling with emotional regulation. Participants had a range of diagnoses, including depression, anxiety, OCD, PTSD and personality disorders. They could be newly referred from other mental health services or primary care for psychological intervention or could be already in individual psychological treatment. They were assessed for suitability for the group by a range of mental health professionals including psychologists and mental health nurses. Participants in individual therapy did not have individual treatment sessions scheduled during the weeks the group was running. Most participants went on to receive individual therapy after the group finished. There was no information about how many participants had had individual therapy prior to the group starting. Participants were able to access general mental health support from community mental health services during the weeks the ERG ran. Participants were given detailed written information about the group and

had an opportunity to meet with the group facilitators and ask questions about it prior to the group starting.

In the data collection period, seven groups were completed and pre and post scores were available for all of these. Figure I shows the sample attrition from the ERG and how the final numbers of participants for analysis were obtained.

Figure I: Participant attrition through the data collection period



Procedure

Participants were made aware of the research at the start of the ERG. Participants had time to consider the information before giving written consent. The information sheet and consent form are in Appendix III.

After the end of each group, RM contacted the group facilitators to arrange access to the pre/post data and contact details for those who had consented to the study and had completed the group. The pre/post data was collected by group facilitators and held securely on NHS computer systems.

RM contacted consenting participants to arrange follow-up appointments. When the participant attended the three-month appointment, consent was revisited, and the questionnaires repeated. A qualitative interview was also offered to all participants to explore their experiences of the ERG in depth. Originally, it had been planned to invite a random sample of participants to participate in the qualitative interview, however due to the high rates of attrition during the group and further attrition of participants when arranging follow-ups, all participants who attended the three-month appointment were offered an interview. Interviews were recorded on an encrypted digital recorder. The transcript and all other data were securely stored in line with University of Edinburgh and NHS procedures.

At the six-month follow-up, the questionnaires were administered again, either in person or over the telephone.

Qualitative interview

Data was collected by author RM through semi-structured interviews with individuals. The interviews were completed either face-to-face in an appropriate confidential room or over the telephone, depending on participant availability and preference. Between March 2020 and September 2020, only telephone interviews were completed, due to Covid-19 restrictions.

A flexible topic guide (Table II) was used to explore participants' experiences of the intervention in detail. Prompts were also used, and additional questions asked depending on the course of the interview. The interview time ranged between 20 – 70 minutes.

Table II: Topic guide for qualitative interviews

1. Referral process and experience prior to the group
Can you tell me about how you came into contact with mental health services?
What was happening in your life in the time leading up to the referral to the ER group?
Prompts:
Break into steps – pre-referral, referral, meeting with group facilitator, pre-joining information
What motivated the initial referral to mental health and then what prompted referral to ER group?
What was good/not so good about life pre-referral?
First time you heard about the group
What information were you given about the group? Who by?
Feelings at this time about the group and possible participation
Expectation of the group
2. During group
Can you tell me about your experience during the group intervention?
Prompts:
First day – expectations and reality
Facilitators
Other group members
Course content – are there particular weeks that stick out?
What did you find helpful/unhelpful, enjoy most/least?
Was it like you expected? In what way? If not, what was different?
Three words to describe the group
3. Life now and any changes
How would you describe your life now?
Compared to how it was before the group, is it better, worse, the same?
Prompts:
Has anything changed because of the group?
What impact – positive or negative - did participating in the group have on your life?
When you encounter problems in your life, how do you manage them?
*trying to elicit use of skills learnt in the group
Would you recommend the group to other people? Why/why not? What would you say to others about it?

4. Closing
Is there anything else you would like to add or elaborate on?
Do you have any questions for me?
Go over what happens next – note preference for 6 month contact

Ethics

The study obtained ethical approval from University of Edinburgh Clinical & Health Psychology Research Ethics Committee. Caldicott approval was given by the health board, who also advised that further NHS ethical review was not required. RM was not involved with facilitating any ERGs until after the data collection period and did not have any clinical involvement with any participants, to avoid conflict of interest.

Analysis

Quantitative measures

Prior to analysis the data was screened for any missing data and decisions were made about how to manage missing data. These decisions are detailed in the results section. The quantitative measures were analysed using IBM Statistical Package for Social Sciences version 25 (IBM Corp, 2017). The primary analysis was paired t-tests analysing the pre/post data to answer the central question of whether the ERG improves ER and other measures associated with poor mental health within the intervention period. The secondary analysis used a repeated measures ANOVA to ascertain if any improvements from the ERG were maintained over time.

Both questions could have been answered using one analysis, however due to significant attrition, the data was broken down into two analyses. The first author acknowledges that the secondary analysis will likely be underpowered, and due to this there is increased risk of type II error; further, there will be potentially unrealistic estimates of effect due to the small sample size, which increases risk of type I error. Therefore, any interpretations of this data will be tentative.

Multi-level modelling (MLM) was considered as an alternative, due to its capacity to handle missing data by providing estimates. However, it was decided MLM would not be appropriate in this study due to the very small sample size meaning that estimates may be unreliable, therefore would be prone to a type I error and would likely not be replicated in future studies. Additionally, the sample is underpowered for MLM analysis.

Qualitative interviews

The qualitative interview transcripts were transcribed verbatim by RM who removed any personally identifiable information and assigned pseudonyms to each transcript. Orthographic transcription was used in this study, using the notation system described in Braun and Clarke (2013). Dedoose, a secure cloud-based research platform specifically designed for mixed method research, was used to store and organise the data (*Dedoose*, 2018).

Thematic analysis (TA) was then used to identify themes within the interviews. TA is a way of identifying, analysing and reporting patterns in the data (Braun & Clarke, 2006). There are several different TA approaches within the literature, based on different philosophical positions. This research followed Braun and Clarke's orientation to TA, which locates TA within a qualitative paradigm, often called "Big Q" (Braun & Clarke, 2013). Big Q is non-positivist, assuming there is no universally correct, "objective" version of reality, and emphasises the importance of context, which seemed particularly important in this research as a significant proportion of the data was collected during the Covid-19 pandemic. Similarly, the first author's ontological position was critical realism, which again acknowledges that culture and context shape what version of reality we can access. Within this theoretical position, RM's subjectivity was explicitly acknowledged and was discussed throughout with the wider research team.

RM used the following steps to analyse the interview data, within the theoretical position outlined previously (see Braun et al., 2014 and Braun & Clarke, 2013 for more detail).

1. Data familiarisation, through listening to the recording and reading and re-reading the transcript. Initial notes containing impressions of the data were taken.

2. Generating initial codes, by labelling segments of the data that capture something that the first author perceives as interesting in the data.

3. Searching for themes, by sorting the codes into themes. Themes capture patterns of data that tie together.

4. Refining themes. The relationship between themes was also examined and refined.
5. Defining and naming themes. Each theme was formed around a core concept that pulled the data together. Some themes held contrasting pieces of information and tapped into underlying meanings to tell a story that made the theme. A final thematic map was also created.
6. Writing up the analysis into this article.

Quality control

Throughout the data analysis, the first author's understanding of the data and the development of codes and themes was discussed and reflected upon with authors DG and SS. A reflexive notebook was kept by RM and included in the analysis, as were notes from the reflective discussions with DG and SS. Member checking was completed with four participants who completed interviews and consented to their contact details being used for this purpose. Expert triangulation was also completed with two of the ERG's creators. Member checking and expert triangulation was completed once a draft of the provisional themes was made, and the comments and feedback from participants and experts helped RM refine and solidify the themes into their final iteration.

Reflexive statement of first author

I am a middle-class woman, a qualified counsellor as well as a trainee clinical psychologist. I have an interest in social justice and have spent many years campaigning for the rights of marginalised groups. I am therefore likely to be sensitive to data around power, inequalities and injustice. I am

currently working within the NHS, which I am very proud of. However, I am aware of it being a flawed system. I have witnessed discrimination and harmful behaviour towards people with mental health problems, in particular people who have a personality disorder diagnosis, and/or people who present their distress in ways services can find difficult. For example, self-harm, interpersonal difficulties, and aggressive behaviour.

I mentioned being middle class, because I am conducting research in primarily working class areas, with a lot of poverty and associated health inequalities. It is likely that this disparity limits my full understanding of participants' experiences.

I am someone who has had experience of mental health problems. I am aware of my privilege in relation to this, as I have had the resources to seek private therapy. This has potentially given me much more autonomy, choice and power in my treatment journey compared to if I had accessed support through primary care. Because of my lived experience, I can find myself relating strongly to participants' experiences, but I also acknowledge that my experience is different.

The purpose of this statement is to be explicit of my subjectivity and the fact that my background and beliefs are likely to shape my interpretation of the themes.

Results

Quantitative results

Prior to analysis the data was inspected for missing data. There was no missing data at baseline, and considerable missing data at all other time points. This was due to participants being lost to follow-up at the three and six month time points. Imputation methods were not a viable way of managing the missing data due to the volume of missing data and the likelihood that it was not a random pattern of missing data as missing data was due to being lost to follow-up. Due to this, casewise deletion was used for the analysis examining all four time points. However, to preserve the power of the analysis a separate analysis of the larger pre-post data set was completed.

There was no significant difference at baseline between completers and non-completers across each measure, apart from WSAS. For the WSAS, those completing the follow-up had on average a higher baseline score (mean 27.52, SD 6.26) than those lost to follow-up (mean 25.94, SD 11.4). However, although this is a statistically significant difference, it is not a clinically significant difference: both scores are in the same severity range of the WSAS, “severe or worse psychopathology”(Mundt et al., 2002). Therefore, this is seen as a trivial difference and overall, completers and non-completers are more similar than different, and are therefore treated as the same in the above table.

Each measure was checked for normal distribution by the Shapiro-Wilk test (Shapiro & Wilk, 1965) and the measures were normally distributed apart from the DERS pre and post scores. As the paired-samples t-test is robust in terms of violations of normality for type I errors, the t-test was still performed, though due to this, results need to be interpreted with caution (Rasch & Guiard, 2004; Wiedermann & von Eye, 2013). The data was also checked for outliers. Outliers were noted in the WSAS across the four time points and DERS, MHCS and WSAS pre and post scores. There were also outliers in the DERS subscales apart from NONACCEPT when examining pre and post scores. All

outliers were treated by winsorizing, i.e. replacing the score with another score that is the highest in the distribution, so the score is still an extreme score but falls within the normal distribution and does not skew the results. This is a commonly used way of managing outliers and is statistically robust (Field, 2018).

As noted above, due to the level of attrition between the end of the group and the three month follow-up, a separate analysis – a paired-samples t-test – was completed for the larger data set that was available for the two time points of baseline and intervention end. In all five measures, there was a statistically significant difference between the two time points, indicating improvement between the start and end of the group. For the DERS, the primary outcome measure, a reliable change and clinically significant change was calculated in a previous study (Bacon et al., 2018) using the Jacobson and Truax method (1991), which produced a cut-off value of 14.47. Based on this value, 42% (n=13) of participants in the present study showed reliable change between pre and post ERG. A value for clinically significant change was also calculated based on this method, by calculating the halfway point between the pre-group mean score (a clinical group) and a "normal" population mean (using data from Gratz & Roemer, 2004), giving a value of 104.14. Any participant whose scores were below, or equal to this value is described as showing clinically significant change, and this was the case for 32% (n=10) of participants.

Although there was a statistically significant difference between pre and post scores on the CORE-10, only 55% of participants showed reliable improvement and 13% showed clinically significant change according to criteria outlined by Barkham et al., (2013). Clinically significant change on the WSAS is thought to be a decrease in scores by at least 8: this was seen in 19% (n=6) of participants (Zahra et al., 2014). Only two participants improved to an extent that their scores were considered subclinical. This suggests quite a modest improvement in functioning across participants.

The WEMWBS has no clinical cut-offs, but scores are often compared to the national average. In Scotland this is 50.7, indicating that participants in the present study on average had lower wellbeing than the population mean at both the start and end of the group intervention (Stewart-Brown et al., 2009). WEMWBS scores can also be split into low (14-42), average (43-60), and high mental wellbeing (60-70), and by this measure, 61% (n=19) of participants started and finished the group with low mental wellbeing, 16% (n=5) improved from low to average wellbeing during the group, 16% (n=5) started and finished the group with average mental wellbeing, and 6.5% (n=2) declined from average to low mental wellbeing during their time in the ERG. Considering these points, although there is a statistically significant improvement, it is likely that the ERG has only a small effect on improving subjective sense of mental wellbeing.

The MHCS has possible scores between 16 and 96, and has no clinical cut-offs or reliable change index. Mean scores indicate that participants' confidence to manage their own mental health difficulties increased following the ERG.

Paired sample t-tests were completed for the DERS subscales: nonacceptance of emotional responses (NONACCEPT), difficulty engaging in goal-directed behaviour (GOALS), impulse control difficulties (IMPULSE), lack of emotional awareness (AWARENESS), limited access to emotion regulation strategies (STRATEGIES) and lack of emotional clarity (CLARITY). The subscale data was normally distributed, apart from the GOALS and CLARITY subscales. Although the mean group scores reduce between the ERG start and end, a significant difference between the two time points was found only for IMPULSE and STRATEGIES. This suggests that the improvement in DERS scores overall is due to changes on these subscales. A Bonferroni correction was applied to the DERS subscale tests due to the multiple tests, which gives a conservative significant level of $p = <0.0083$. However, even without this correction, a significant difference between the two time points was only found for two additional subscales, GOALS and CLARITY.

To establish if there were statistically significant differences between group means at the four different time points, a one-way repeated measures analysis of variance (ANOVA) was completed for each of the five measures. Each measure was checked for normal distribution by the Shapiro-Wilks test and were all normally distributed. Mauchly's test of sphericity (Mauchly, 1940) indicated that the assumption of sphericity had not been violated, apart from for the CORE-10 measure; a Greenhouse-Geisser correction was applied in this instance to correct for this (Greenhouse & Geisser, 1959). On measures where higher scores indicated improvement (WEMWBS and MHCS), there was a general upward trend across the different time periods, indicating improvement. However, this was only statically significant for the WEMWBS. Post hoc analysis with simple contrast also revealed that the only significant differences between the time points were between pre- and post-intervention on the WEMWBS.

On measures where lower scores indicated improvement, there was a general downwards trends across the four time periods, suggesting participants improving. However, this was not statistically significant for any of these measures.

Table III (below) outlines the full descriptive statistics and findings from the quantitative analysis.

Table III: Descriptive statistics and findings

Measure	*Baseline N=31*		*End of ERG N=31*		*T (30) T (27)~*	*Cohen's d*	*3 month N=12*		*6 month N=12*		*Within F F(3,33) F(1.657,18.232) ε*	*Partial ω2*
	Mean	*SD*	Mean	*SD*			Mean	*SD*	Mean	*SD*		
Difficulties in Emotion Regulation Scale (DERS)-	128.94[a]	21.97	114.06[b]	26.79	4.23**	0.76	118.33[a]	24.74	113.08[a]	29.28	2.60 ε p=.69 *ns*	0.11
Subscales:	N=28		N=28									
NONACCEPT	20.75[a]	5.69	19.36[a]	6.32	1.75ns~**B**	0.33						
GOALS	20.21[a]	4.10	18.71[b]	4.45	2.25ns~**B**	0.43						
CLARITY	15.52[a]	3.62	14.82[b]	3.23	2.43ns~**B**	0.46						
AWARENESS	19.71[a]	3.63	18.75[a]	3.79	1.48ns~**B**	0.28						
IMPULSE	21.71[a]	5.21	18.86[b]	5.10	4.18*~**B**	0.84						
STRATEGIES	29.68[a]	6.33	26.21[b]	6.26	3.91*~**B**	0.74						

CORE-10-	24.71[a]	6.70	19.87[b]	8.18	3.62**	0.65	22.25[a]	8.25	20.42[a]	8.93	1.88 p=.19 ns	0.05
Work and Social Adjustment Scale (WSAS)-	28.02[a]	7.94	25.39[b]	8.31	2.28*	0.41	25.58[a]	7.79	25.58[a]	8.70	1.05 p=.70 ns	<0.00
*Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)^*	32.53[a]	8.68	39.50[b]	9.78	4.48**	0.81	37.75[a]	7.46	38.50[a]	7.65	2.90*	0.11
*Mental Health Confidence scale (MHCS)^*	46.35[a]	12.19	53.87[b]	15.62	3.93*	0.61	55.75[a]	12.26	56.42[a]	10.82	2.38 p=.09 ns	0.08

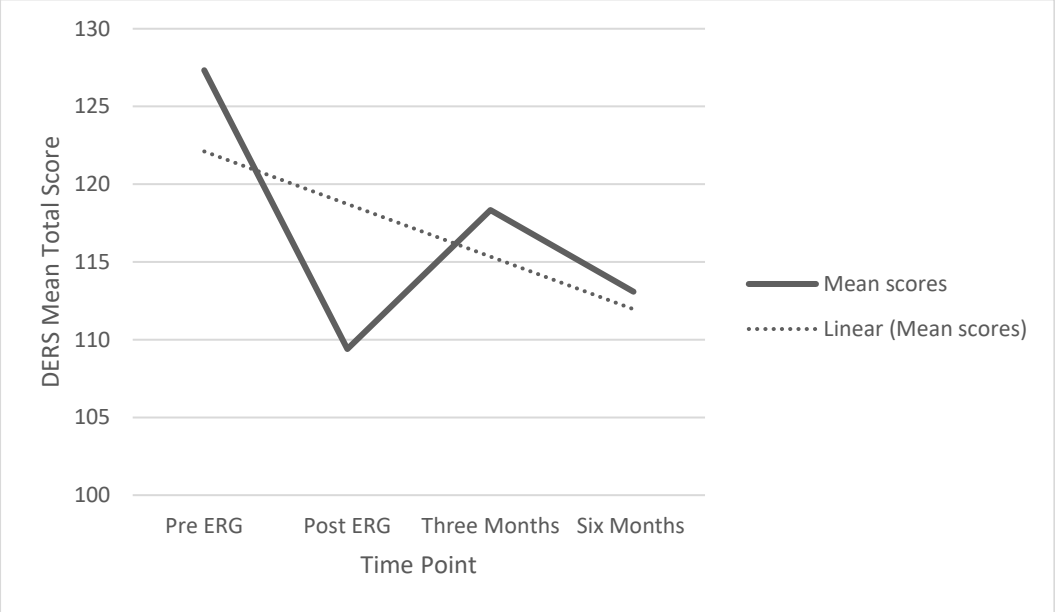
Table III notes:

^ higher score indicates improvement, - lower score indicates improvement. Means with different superscripts (e.g. [a], [b]) are significantly different for within participant comparisons at the level of p<.05. Significance of *F* and *T* tests, * denotes p<.05, ** denotes p<.001. ε Greenhouse-Geisser correction applied to degrees of freedom due to violation of sphericity assumption. Effect sizes for Cohen's *d* are the following: 0.2 a "small" effect size, 0.5 represents a "medium" effect size and 0.8 a "large" effect size. Effect size for partial ω2 is described as 0.01 as a "small" effect size, 0.06 as a "medium" effect size, and 0.14 as a "large" effect size (Field, 2018). ~N=28 for DERS subscales

as three subscale scores were not collected due to an error in administration. **B** indicates that a Bonferroni correction has been applied to correct for multiple tests. Significant p values for these are 0.05/6 = 0.0083. and are indicated with a *.

For the primary outcome measure, the DERS, estimated mean scores shows a decrease between ERG start and end, an increase in scores from end of ERG to three months and then a decrease from three months to six months. The trendline in Figure II below shows there was a general downwards trend over time, although this was not significant. Overall, from these results it can be seen that participants' emotion regulation skills improved significantly during the intervention, and show an unclear pattern of variability up to six months. The low sample size due to attrition makes it difficult to interpret with confidence whether treatment gains are maintained or lost.

Figure II: DERS Mean Total Score over time with fitted trendline



Qualitative results

14 participants completed qualitative interviews with RM. Basic information about each participant is in the table below.

Table IV: Participant characteristics

Participant Pseudonym	*Gender*	*Age range*	*Self-described difficulty*	*Previous use of mental health services*	*Individually therapy arranged after ERG*
David	Male	36-45	OCD	No	Yes

Stacey	Female	46-55	Anxiety and depression	Yes	Yes
Sally	Female	16-25	EUPD/BPD	Yes	Yes
Nicola	Female	26-35	Trauma	Yes	No
Yvonne	Female	16-25	Not stated	Yes	Yes
Florence	Female	56-65	Depression	Yes	No
Phoebe	Female	26-35	Trauma	Yes	No
Eilidh	Female	16-25	Not stated	Yes	No
Danielle	Female	46-55	Trauma	Yes	No
Mary	Female	36-45	Anxiety and depression	Yes	Yes
Andrea	Female	46-55	Anxiety and depression	No	Yes
Charlotte	Female	26-35	Depression	Yes	Yes
Gabby	Female	16-25	Not stated	No	Yes
Heather	Female	26-35	EUPD/BPD	Yes	Yes

The process of theme development was as follows. After an initial coding of all data, RM discussed first impressions of the data with SS and DG. Incorporation of impressions from SS and DG helped RM produce a draft of themes. This had two overarching themes and a number of levels of subthemes. Through a process of further discussion and reflection with SS and DG, themes were reorganised and relabelled, with some themes being demoted to codes and other codes being promoted to themes. All of this was informed by continual engagement with, and reflection upon the original data set. For example, one initial theme – "the group as a steppingstone" – did not have enough data to support it, which was pointed out by SS and DG. Upon reflection, RM observed that the idea of the group being part of a wider journey was an important aspect of this theme, and while the "steppingstone" theme did not appear in the final themes, the important aspect was preserved under the overarching theme of "An ongoing process of learning and change".

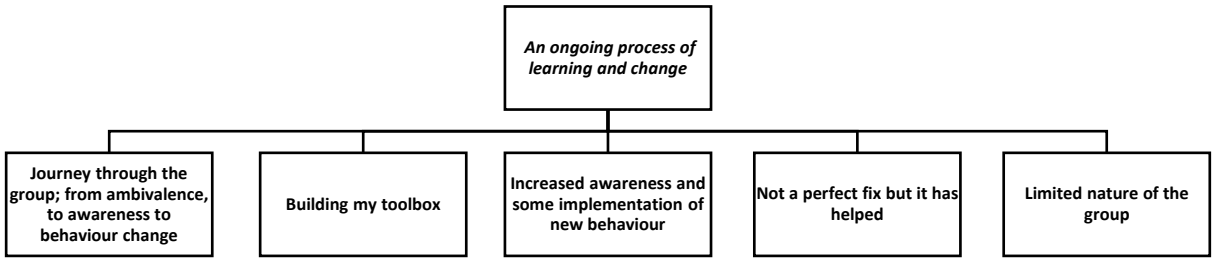
At this point, member checking with four participants was carried out. This helped further refine the themes and contribute to the richness in each theme. For example, participant Danielle provided the language around "navigation" that appears in the final theme, "meeting of multiple worlds". Following member checking, some further reorganisation and relabelling of themes was carried out.

Finally, expert triangulation with the ERG's creators was conducted. The creators had no input into the present study until this point, and were able to provide a "bigger picture" perspective which helped RM further refine themes. Their comments also added nuance to the themes, for example being more explicit about power dynamics evident in the themes.

Through this active and iterative process of thematic analysis, RM created the following final themes. The previously identified research questions also informed the process of theme development. Two overarching themes were identified with several subthemes under each of theme. The overarching themes were "Meeting of multiple worlds" and "An ongoing process of learning and change". However, the first theme "Meeting of multiple worlds" was more generic and related to peoples' experiences with the wider systems of healthcare rather than the specific group experiences. Therefore, this theme is not reported on further in the results and the discussion and the second overarching theme is focused on. Further information on the first overarching themes and subthemes can be obtained from the first author by request.

The thematic map below shows the hierarchy of the themes and subthemes.

Figure III: Thematic map



Although a theme does not have to be present across all participants to be valid, it can be an indication of the strength of the theme and whether it is being dominated by particular voices. The table on the next page indicates which participants contributed to the different themes.

Table V: Theme presence across participants

Theme / *Participant*	*An ongoing process of learning and change*	*Journey through the group; from ambivalence, to awareness to behaviour change*	*Building my toolbox*	*Increased awareness and some implementation of new behaviour*	*Not a perfect fix but it has helped*	*Limited nature of the group*
David	√	√	√	√		√
Stacey	√		√	√		
Sally	√	√	√			√
Nicola	√	√	√	√	√	√
Yvonne	√	√	√	√	√	√
Florence	√			√		
Phoebe	√	√	√	√	√	√
Eilidh	√	√	√	√	√	√
Danielle	√	√	√	√	√	
Mary	√	√	√	√	√	√
Andrea	√	√	√	√	√	√
Charlotte	√	√	√	√	√	√
Gabby	√	√	√	√	√	√
Heather	√	√	√	√	√	√

Themes

An ongoing process of learning and change

This overarching theme is about the group being one part of a longer more complex journey to recovery. For many, there was a journey within the group itself, from being unsure at the start, to growing in awareness and learning new skills. There was considerable diversity within the overarching themes and in the five subthemes under it. For some, the group was a very significant step and was life-changing; for others, it helped in some ways, but the benefits may not last long.

Eilidh "the group was like a wee cherry on the top to finish it off, to help me…before I obviously go on ma quest to try and handle things maself"

Andrea: "I got a lot of information, that I have took away from it and I'm still tryna put stuff in practise, but it's harder. When you're alone, to do it."

Nicola: "I got a lot more out of it than I thought I would…this is kinda making me enjoy ma life a bit more… I actually feel teary thinking back about it. ((laughs)) See this group, for emotional dysregulation, it's…almost the perfect thing for it."

Gabby "I feel like I'm still in the waiting area"

For most participants, the journey continues beyond the group, with most participants engaging in individual therapy after the end of the group, as detailed in Table IV.

Journey through the group; from ambivalence, to awareness, to behaviour change

Eleven participants described some sort of journey through the group, often starting with ambivalence or even strong opposition to the group. This seemed to change as the content of the intervention prompted increased awareness of themselves and their own struggles with emotion, and for many this new awareness resulted in behavioural changes as participants started implementing strategies taught in the group.

Heather "… I felt ah wisnae getting anything oot of it. But then when ah took a step back, I wis actually realising that I got more oot of it than I thought I had…it brought oot an awareness in me."

Mary "not only did I get the strategies, I feel that I really got to learn about me, which made a huge difference em (.) Because once you know more about yourself, I suppose the better you use the strategies? Em, the more self-aware you are, you understand how you react, and that just makes a big big difference. So I got MORE than what I went for."

Building my toolbox

This subtheme describes the process of the group as one of gaining specific skills and resources that will be beneficial in the future. Many participants spoke about "the folder", a handout of all the slides and exercises during the group that participants took away with them which they used as a physical reminder to prompt them when they were feeling overwhelmed.

Gabby "you left there feeling better and like, your binders a bit more full… [facilitator] said that it was more like, collecting skills, you don't automatically like get the skills, it's something you build over time and the binder's something that helps, yeah."

Andrea "if I'm in a very bad way…it's good to have that there to kinda… try and put some stuff into practice… it's good to reflect on it sometimes... Em, but it's nice to know that I have it there, it's something that I can fall back on."

Nicola "I've got that wee card that ah pull out and it's like, what are you feeling… how can you respond, what actions can you take… you're able to carry [the card] with you. See with big books and folders, I cannae carry that about wi me day to day, so, just wee things like that help."

Participants reflected that the educational environment of the group was helpful, with the emphasis on learning skills rather than focusing on individual problems.

Yvonne "it was kinda like sitting in a college class… it wasn't so much like what's wrong with you, it was like you're being taught about like, all these things that are bothering you. You're going to sit here and look into it all and understand it for yourself. Instead of, like, aw what's wrong with you… I did think that was good."

David "I think for the most part it was very informative… explaining how your mind works and the explanation towards surrounding different distraction techniques and the stuff like that, that I found helpful."

However, others felt that the group atmosphere was too formal, and found this off-putting.

Phoebe "…it was weird, I thought it was quite closed off, like, I think it would have been better… to be more open, to be more… like relaxed maybe… but it was if it was like a meeting… we all had to, like, individually introduce ourselves….and everybody started stressing out about it, because that's quite an ask for people that are like anxious and stuff… I just felt pure pressured and like I didn't want to do it…"

Charlotte "like the slide shows, they were annoying… cos that's aw it WIS! They were just reading oot half the slide show, they didnae have a clue… ah jist felt like they were jist reading it aff, cos that's their job"

Increased awareness and some implementation of new behaviour

People described multiple changes due to the group. These seemed primarily to be about growing awareness of self and emotions, plus some ability to put new skills into practice. Self-efficacy and confidence also appeared to be something people gained from the group. This theme would seem to directly link to the quantitative results showing improvements in the short-term in ER, confidence to manage their difficulties and general distress and wellbeing.

Mary "I'd maybe be more able to ask for help now, than I would be before… I think now that I can NAME ma emotions more, and I feel kinda explain it better now… if I was in a bad situation I could, I could probably get that across better…I think I've always felt ma feelings were valid, but since going to the group I feel they're MORE valid"

Eilidh "it did have a big impact… kinda being able to see…where ma thoughts are leading, and kinda being able to look inside… and focus on ma physical ma mental and ma emotional feelings and

thoughts… and trying to y'know, change them into something a bit brighter… be able to do the tasks and stuff like that, a lot more than before, em, with it, so it has, has a big impact on ma life, yeah."

Nicola "see before…I just kinda launched into things without thinking about it…But now I just kinda, if there's a problem I'll actually sit and think about it, like what am I actually going to do about this, how will this make me feel, em, if I do this action, that will make me feel that way, if I do, I'll feel like that. Em, just, instead of just firing straight it, I'm breaking it down for maself…it's just good being able to do that with emotions now, whereas before I didn't have the tools to be able to do that."

There was also something really important for some participants about having words to describe their experience and knowing that their experience was real and valid. For example, several participants realised through the group that they dissociated but had not known there was a word for it.

Phoebe "it actually made it so much clearer for me to understand and put a name to it, so like, for example like, dissociation was one... I didn't even know there was a name for it. Like I didn't know it was a thing, I just thought it was something that I done… so it made me understand a lot more about maself and why I do things, em (.)"

Particular aspects of the course were mentioned as bringing about changes. Consistent across almost all participants was the transformative power of the "zone of tolerance" exercise, a diagrammatic way of explaining emotional regulation and how to manage hypo- and hyper-arousal. This was a new idea for participants and helped them understand and explain their emotions.

Heather "but the way this wan wis set oot, wi the red, amber and stuff, ah found that A LOT easier. I could jist point to where ah wis sitting at, ma mood. Instead of explaining how my mood feels… that wis a new thing for me… felt that was pretty guid."

Andrea "taking a minute and understanding where you are on the scale, like, if you're red or if you're blue, red being like aggravated and blue being like a kinda numb kinda feeling, or like, green, you're

fine, you're in the middle, em, and ah think like, learning about that, it kinda made me think, 'I'm in this zone, because of, x y and z', em. And, kinda, like, it's still kinda hard, like still trying to get into the practice of, 'I feel like this because of this, and how do ah combat that?'

Other skills that were commented on were breathing exercises, visualisations, the prompt card using the acronym STOPP, and trigger logs. Broadly, related to the subtheme "Building my toolbox", it seemed that having a variety of tools and opportunities to practise them through the group seemed to lead to at least some changed behaviour, where participants described continuing to use skills from the group.

Not a perfect fix but it has helped

Related to the previous subtheme was the idea that the group, while beneficial, was not a cure or a perfect fix. For some, this was something they realised through the group; others came already with this expectation. Participants seemed largely to have acceptance around this and a recognition that the group did move things forward for people, sometimes in profound ways.

Nicola "It has changed it, like…CBT made me want to live, kinda. But this is kinda making me enjoy ma life a bit more…so, I know, it sounds like a lot, but it really did help, I actually feel teary thinking back…I know it's not like foolproof, I still struggle with it, at least like it's something now, to help me, instead of nothing before."

Danielle "I think it's had a very positive one, because um, I'm able to deal with things in a different manner than what I would have done in the past…like I said, doesn't always work, I've had the odd blip…But I think that's like the mist coming over your eyes, and you kinda wipe that away and kinda go like, right, get a grip."

David "I think I finally sorta realised to myself that y'know what, you canae wave a magic wand and it's all going to go away and back to the way you were and stuff like that. I think I thought if people are going to give you the opportunity for help then you have to take that opportunity cos you have to help yourself"

Most participants said they would recommend the group to others, even if they had not had a great experience themselves, perhaps again reflecting the recognition that there is value in it for many people.

Limited nature of the group

Participants struggled with the perceived limited nature of the group and many wanted longer in the group or more out of the group. Participants felt that the skills they were taught were not always helpful, particularly when in a state of hyper-arousal, and many stated it was not possible to use the skills at this point.

Andrea "I'm still tryna put stuff in practice, but it's harder. When you're alone, to do it…when you're being triggered, it's hard… like I still struggle to get maself out of being triggered… sometimes it doesn't work."

Nicola "There were some things that I know are useful in certain situations, but if I'm feeling really really bad they'll maybe not help me."

There were also worries that the skills from the group would fade and get less useful over time. For some participants, they felt that this had already happened, and they had lost the benefit of the skills they had learned.

Charlotte: "I think while I wis there [at the group], it did improve slightly… I need that sorta input every week or every two weeks, or every month, I need to sorta REMEMBER we done this, so I can keep going…but after, I just went back tae the way ah wis before. It helped at the time but I'm back to where ah wis"

Mary "I felt it really was helping me and I really enjoyed all the people that I met and all the things that I was learning and I felt that y'know if we'd kept going, y'know, if it had gone on for even longer, those techniques that we'd learned would have been even further embedded, within us. Because y'know the more you practise and the more better you become at using them naturally I suppose"

Many participants suggested that the group should be longer, or have booster sessions, and felt that this would help further implement skills that were learned. Generally, aspects of this theme reflect the quantitative results, which showed an improvement after the ERG but that this benefit was not maintained over the long term.

Discussion

Results and implications for practice

The qualitative and quantitative results suggest that the ERG significantly improves ER ability, as well as secondary measures such as general distress, wellbeing and confidence in ability to manage mental health difficulties. This seems only to be a short-term effect based on the quantitative results, which is also somewhat supported by the qualitative results with the theme "limited nature of the group" where participants felt changes were short-lived, and participants found it hard to implement what was learned in the group after the group ended.

The themes identified in the research strongly resonate with other group interventions. For example, the "Limited nature of the group" and the desire for longer interventions seems to be common across other qualitative research (Dahlberg et al., 2018; Hertenstein et al., 2012; Laberg et al., 2001). This is perhaps unsurprising as group interventions are generally time-limited and of a predetermined length, often shorter than 1-1 interventions. However, other group research participants felt that six sessions was sufficient (Abrahamsson et al., 2018).

Similarly, the "Not a perfect fix but it has helped", reflecting participant's changes in the group but also the desire to have accomplished more also seems to be common to other group interventions (Laberg et al., 2001). A further common finding is that one of the components of groups that participant value is being taught strategies for managing emotional difficulties, which was also present in the themes in this research (Abrahamsson et al., 2018; Dahlberg et al., 2018; Hopper et al., 2018; Lennon, 2015). There are also commonalities with longer term groups such as schema therapy, with similar benefits such as increased awareness of own behaviour, ability to choose more adaptive strategies and increased self-efficacy being described by participants (Tan et al., 2018).

The quantitative results also show quite modest changes in terms of clinical significance, which the qualitative themes of "limited nature of the group" and "not a perfect fix but it has helped" also corroborate.

However, in contrast to the quantitative results, some participants in the interviews described significant and long-lasting changes in their daily lives that they believe is due to the ERG in the themes “Building my toolbox”, “Increased awareness and some implementation of new behaviour” and “Journey through the group; from ambivalence, to awareness, to behaviour change”. It may be that for these individuals the quantitative measures chosen do not accurately capture participants subjective sense of better wellbeing, ER and ability to manage their difficulties.

There may be a number of explanations for the lack of long-term impact. Behavioural theories of learning, including those located within contemporary contextual behavioural science (e.g. Hayes, 2004), emphasise the role of context in learning. Context is seen as a key driver of new behaviour (Bouton et al., 2006; Nilsen et al., 2012), and in this case the group intervention is an essential aspect of the context. During the intervention, it is the group that initially provides the context in which new behaviours (e.g. learning, trying out skills) might be enacted; equally importantly, the group itself also provides a source of mutual positive reinforcement for those endeavours. When the group ends, the contextual cues and reinforcers provided by it cease, with concomitant potential impact on behaviour. For example, participants may remember that they have the group to attend during the week: a clear contextual cue to fill out a trigger log. This behaviour might be reinforced both negatively (broadly, “If I don’t fill this out then I risk being judged by others: I don’t want that, so I’ll fill it in”) and positively (praise and verbal reinforcement from facilitators and peers). If this behaviour does not continue after the group, this might be perceived as a failure to establish relational frames between salient aspects of the group and the wider context outwith it, but perhaps more pertinently as a lack of intrinsic positive reinforcement from the new behaviours: filling out a trigger log was not meaningful enough or useful enough in itself to be continued. In summary, the changed behaviour has been contingent solely on the person being part of the group, and without the group there is a lack of both context and appropriate reinforcement.

Although there is an emphasis on skills practise in the ERG, the time-limited nature of the group means there are limited opportunities to practise and to make links between the examples explored in the ERG and their emotion regulation choices in daily life. The theoretical underpinnings of the group, especially the TCE, posit that participants' emotional states are based on years of prior experiences: it may therefore take a lot of dedicated practice to update these predictions.

Many participants felt the group was too short or suggested booster sessions. Dialectical behaviour therapy (DBT) groups are frequently successfully run as open, rolling programmes, where participants can join in at the start of each module and repeat modules if they wish to (e.g. Lyng et al., 2020; Neacsiu et al., 2014). DBT has a similar patient population to the referral criteria for the ERG and shares a skill-based focus (Linehan, 2014), indicating that such a rolling approach might be of value. Rolling and open groups would provide more opportunities for skills practice over a longer period of time, and may therefore assist with longevity of improvements in accordance with generalisability principles and giving more opportunities for participants to update unhelpful predictions in line with the TCE as outlined above. However, with open and rolling groups there is a possibility that some of the benefits of the group process, such as trust, validation and solidarity – which participants in the ERG describe as highly valued – could be lost, as membership of the group may not be the same every week. Additionally, the ERG was designed to be a pragmatic intervention for routine clinical practice, bearing in mind the increased pressure on NHS services to meet the demand for psychological interventions (Bacon et al., 2018). A lack of resources may preclude services' ability to provide continued additional sessions for participants who have completed the group.

One alternative to increase opportunities for practice while retaining the benefits of the group process is patient-led groups. This approach has been shown to be effective for other groups, such as in pain management services, and in line with principles from the wider recovery movement: i.e. that people with lived experience should be involved in their own treatment and have choice and collaboration around this (Doughty & Tse, 2011). There may be risk-management and clinical governance issues with

establishing these within the NHS. However, the first author is aware of effective collaborations between the NHS and service user led organisations which have lived experience input and facilitation of groups, including the ERG (The Beacons, 2021).

When reflecting on the evidence around long-term impact of the ERG, it is important to be mindful that the group is not intended to be a panacea for ER difficulties. Explicitly in the manual and in the material delivered to patients is the idea of realistic expectations, that the intervention for many will be the start of change, not its endpoint (Bacon & Stanley, 2016). This links to the theme "An ongoing process of learning and change" – i.e. for the majority of participants the group is part of a wider journey. The majority of participants in this study had previous contact with mental health services and the majority also went on to individual therapy. This supports the suggestion that skills practice and implementation may be driven by the context of "being in therapy". Future implementations of the group should consider ensuring that further intervention is accessible after the intervention ends, and perhaps integrating the group as part of wider systems of care. Anecdotally, the first author is aware this is happening in some Scottish health boards where the ERG is implemented as a part of the trauma pathway. Individual therapy could also be delivered in parallel with the ERG, as with DBT and other ER interventions (Gratz & Gunderson, 2006; Linehan, 2014).

These findings, and the overarching theme of an ongoing process of learning and change, point to the need to examine the efficacy of any specific intervention in the context of wider systems of healthcare. This is also an important consideration in the MRC framework, examining the context in which a intervention is applied and ensuring the efficacy in this context (Craig et al., 2008). For example, external pressures on services to meet demand may impact quality of care; staff morale and turn-over may affect the facilitation skills and fidelity to the model, and therefore how the ERG was delivered. It was beyond the scope of this study to look at these wider systems, but the overarching theme clearly identify them as important to participants' experiences of the intervention. Utilising an implementation science framework is one way this could be examined in future. Implementation science is concerned with the

translation of scientific evidence into practice, and has increasingly been applied to healthcare to understand the barriers and facilitators to delivering effective interventions in routine clinical practise (Victora et al., 2004; Villalobos Dintrans et al., 2019). An implementation science framework could shed light on wider systemic aspects of the ERG's implementation, for example service staff and managers' perspectives on how the group should be used and what it is for, and how referral criteria are being applied in the clinical context. Although implementation science frameworks are generally used when there is an existing scientific evidence base for a particular intervention, the qualitative findings point so strongly to contextual factors affecting participants' experiences of the group that it may be worth pursuing efficacy, effectiveness and implementation trials at least partially in parallel, as it seems to be impossible to separate the group intervention impact from the wider experiences of care.

Implications for ER theory

As outlined in the introduction, one of the main difficulties in ER research is the lack of clarity in conceptualisation of what ER is and how it can be improved. This research builds on evidence from (Bacon et al., 2018) of the efficacy of an ER group intervention with a clear articulation of theory and theory informing practice, as the ERG is directly built on theoretical understandings of ER.

While this theoretical clarity and the importance of this may be clear to clinicians, it is unknown to what extent this influenced participants' experiences and learning in the group. While there was a lot of data on the practical aspects of the course and the skills that participants found helpful, there was very little allusion to the theoretical components of the intervention. While it would not be expected that participants would necessarily know or discuss every nuance of TCE for example, given how much the theoretical underpinnings of the group is emphasised in the training manual (Bacon & Stanley, 2016), where it is very much about *how* intervention skills are delivered rather than *what* the skills are, it is interesting that no participant commented on their understanding of emotions or ER, and if this changed through the group intervention.

One reason for this may have been that no specific question was asked in the interview about these aspects. This would be a helpful addition for future research to see how these theoretical components are delivered to participants and how participants are making sense of them. As discussed, some of the theoretical components such as the TCE are quite a different stance to common understanding of emotions, so it would be helpful to explore participants reactions to new understandings about emotion and ER.

However, other aspects drawn directly from ER theory, such as the importance of increased awareness of emotions, being able to label emotions and choose an appropriate strategy, do seem to be well understood by participants, as the below quotes from Mary and Nicola exemplify:

Mary: "I know now that there probably are things that I can do once I recognise and put a name to [the emotion]… And thinking about… how you're feeling, and what you can do to improve the situation, improve how you feel"

Nicola: "it takes all the emotions that are in your head and breaks it down into smaller chunks… makes emotions seem a bit more logical instead of it being like a big mess that you don't know how to deal with."

Conversely, there are some tentative indications in the interviews that some of the other theoretical underpinnings may not be fully understood. A key implication of the TCE is that learning needs to be experiential, and related to this, a core component of the ERG is participants' practising "triggering" an emotion, then using ER skills to regulate their emotions. Many participants did not seem to understand the point of the trigger experiments, and connect them with learning to use ER skills in a hyper-aroused state. Possibly because of this, some participants felt it was impossible to use ER skills when hyper-aroused, meaning that when they finished the group they were still unable to manage their emotions at times when they were dysregulated, as Heather's quote below illustrates:

Heather: "…breathing techniques… not helpful to me… when I am overwhelmed wi emotion, ah can't do that… if I'm a way up in red, that aint going to happen ((laughs))."

As will be discussed later, one reason for these difficulties in understanding key aspects of the group could be the facilitator's understanding of the theory and their delivery of the ERG.

Overall, as there is quite limited data presently on participants understanding of ER theory from the group, it is difficult to say what impact the theory and conceptualisations of ER had on participants, and this could be a future focus for subsequent research.

Reflections on the research process

As discussed, thematic analysis is an iterative process, and researcher reflexivity is an important part of this (Braun & Clarke, 2013, p 303). This section outlines some of the first authors' reflections on the process of completing the research, and how her subjectivity influenced this.

When conducting the interviews and doing the analysis, awareness of the researcher's dual role and how it could be impacting the research was maintained through journaling and reflective conversations with the other authors. Although RM was introduced to participants as someone conducting research, they were aware she was a trainee psychologist and therefore employed by the NHS. Although participants confidentiality and the researcher's independence from their care and treatment by the NHS was emphasised, it may be that RM was still seen as part of "the system" and this may have changed what participants felt comfortable discussing in interviews. Several of the participants alluded to this, and two specifically asked questions on whether they would be identified by mental health services staff by completing the research. Similarly, it was clear in other interviews that participants were wary of being critical of the ERG and on at least two occasions participants apologised for being "too harsh". This reflection influenced the theme development, as it was felt that due to the dual role the data gathered may be biased towards a positive evaluation of the group. It was therefore important that more "critical" aspects of the data were present during the development of themes. Member checking was a further method to introduce balance, by

providing another opportunity for participants to feedback on their perspectives and assist the shaping of the themes.

The awareness of the potential “Us and them” divide, and reflections on how the researcher's accent and class might be impacting participants also influenced decisions around transcription and including quotes in the final report. From an epistemological and ethical standpoint, it was important to transcribe in people’s dialect and not alter participant’s words into plain English, as is often the convention for readability. Firstly, it felt like the original words and dialect made it easier to hear the true voices of the participants, and by translating the words into plain English the meaning or emphasis may be lost. Additionally, after reflecting on participants' perspectives on class and power, it was agreed that changing participants' words or dialect would be silencing their authentic voices and further contributing to power inequalities.

Strengths, limitations & implications for future research

This study has strengths, limitations and opportunities for future research.

A key strength is the integration of quality features in the qualitative aspect of the research which gives confidence in the integrity of the findings. There is no one universally accepted way of ensuring quality in qualitative research, and this research used a number of accepted methods to improve trustworthiness, validity and transferability of the results (Braun & Clarke, 2013). Firstly, a reflexive journal was kept by the first author. This was written in throughout the data collection, analysis and writing process and contained the first authors reflections as well as notes from discussions with the other authors. As described by Smith (1999), the aim of this was to provide an “audit trail”, so when developing themes the research team is aware of how this has been shaped by the first authors’ reflections and subjectivity. Frequent discussions with all the authors was a further quality feature, as RM had collected the data and drafted the themes, these discussions helped bring other perspectives to the developing themes. Member checking was another quality feature, which acted as a credibility check, whereby participants gave feedback on the provisional drafts of themes and

ensured there was a good fit between the participants' own understanding of their experiences and the researcher's interpretation. Finally, expert triangulation was also a quality feature, which shaped the themes by including the perspectives of the creators of the ERG. Overall, the multiple perspectives included in the thematic analysis improved the quality of the final themes by creating a more well rounded and in depth understanding of participants' experiences of the ERG.

A potential limitation of the research was the small sample size of the quantitative analysis, and considerable attrition at all time points of data collection. As acknowledged above, the quantitative results are therefore underpowered and can be read only as tentative suggestions of the impact of the group. At the start of the project, it was anticipated that more ERGs would run during the data collection period: however, due to the global Covid-19 pandemic and other internal factors within the health board, this was not possible. Additionally, the level of attrition during the group intervention had not been anticipated based on previous research, which meant there were fewer data points than expected within the groups that had been completed. The first author is aware that the ERG is now being run across various health boards, and it may be possible in future to access and combine data sets which would give adequate power to the quantitative analysis. This would help to better understand the impact of the ERG.

A considerable amount of the data collection took place during the Covid-19 pandemic. Initial research has shown worsening general mental health in the population during the pandemic (Daly et al., 2020; Serafini et al., 2020) and it may be that the lack of a prolonged benefit of the group could be due to the negative impact of the pandemic. Indeed, several of the interview participants reflected that their mental health had been worse since the start of the pandemic.

A further limitation is the lack of a control group, meaning it is unknown whether any improvements – or lack of – were due to the intervention or other factors in participants' lives. This is particularly important given research on spontaneous improvement in people with mental health problems (Whiteford et al., 2013) and of course the ongoing Covid-19 pandemic during the data collection

period. There are of course ethical considerations with having a non-active control group, however, utilising an active control should be possible.

Additionally, as many of the qualitative themes seem to resonate with similar research on group interventions as described above, in future studies, an active control group would be best, such as a general supportive group, which has been used successfully in other similar studies (Berking et al., 2008; Ford et al., 2013). Having an active control group would help elucidate which benefits of the group were due to the non-specific group effect, and which may be due to the specific components of the ERG. This is particularly important given findings of a systematic review showing that while ER skills are improved by a range of ER interventions, there is limited evidence that this is superior to any other group intervention not specifically targeting ER (Moore et al., 2021).

As mentioned, there was significant attrition. A limitation related to this was that there was no mechanism for following up non-completers, which would have provided additional data and perspectives to analyse. As suggested by several qualitative interviews, it is likely that those who dropped out of the group may have done so as they were not feeling any benefits from the group, so the results as depicted here may be overly optimistic. An improvement to a future study would be establishing a way of including follow-ups with non-completers. This would be important to understand what kinds of people are benefitting from this sort of intervention to better tailor the referral pathway, which is key given research suggesting that current ways of assessing suitability and predicting improvements are limited (Langkaas et al., 2018; Morrison, 2001).

Due to the attrition at the groups' end and at follow-ups, the qualitative interviews were not offered to a random sample of participants. This meant that for some ERGs no participants completed interviews, and for another ERG five of the participants completed interviews. Although this was a pragmatic decision due to the attrition and timeframe of the research to use convenience sampling, it may have introduced bias, where the opinions of some groups are over or underrepresented.

A final key limitation is lack of information about facilitators' training. In the original study (Bacon et al., 2018), facilitators observed a group, then co-facilitated a group, and attended quarterly supervision to enhance fidelity to the model. In this study, there was no information on whether facilitators had received training on the ERG or observed the group before facilitating. This means it is unknown how closely the ERG model was adhered to, which is likely to be key given the emotion theory the group is built on, the TCE. This theory is not the mainstream way of understanding emotion (Barrett, 2017b), and if facilitators have not fully grasped the nuances of this then some benefit of the group could be lost. For example, many participants reported difficulty with triggering emotions when they were by themselves and using skills when triggered, yet this is a core component of the group based as it is on TCE, i.e. gradually learning emotional reappraisal and arousal management (Bacon et al., 2018; Bacon & Stanley, 2016). If this rationale is not both understood by facilitators and successfully imparted to participants, the skills are unlikely to be used effectively or practised after the group has finished. This in turn would mean skills were unlikely to be utilised effectively in the long term. Following discussions with RM and the ERG's creators, these aspects are now being included in new iterations of the group intervention manual (Tom Bacon, Personal communication, 8th January 2021), an example of this research directly and immediately informing practice.

An improvement in future would be more information on facilitators' training and the development of a fidelity measure to examine how the model was being adhered to and what the impact of this was. It may also be helpful to conduct interviews with the facilitators to ascertain their understanding of the important aspects of the group and the implications of the TCE on how the group is delivered. This proposed research may be suitable for future clinical psychology trainees.

Additionally, the first author is aware that the ERG is now being delivered as an online group due to the ongoing Covid-19 pandemic meaning face to face groups are not possible. As the group was not originally designed for this context and there is a likelihood of psychological services continuing to

provide telehealth as an option (Thomas et al., 2021), it would be beneficial to evaluate this new implementation and ascertain if the benefits observed in this study and Bacon et al (2018) translate into the online context. Again, this may be a suitable project for new trainees.

Finally, as stated in the introduction, it is useful to reflect on this study using the MRC framework for complex interventions. As guidance on the MRC states, the process of developing, piloting, evaluating, reporting and implementing complex interventions is a long one, and it is important not to neglect development and piloting work, as well as considering the practical issues of implementation (Craig et al., 2008). The study situated itself in the feasibility/pilot phase, although it also had features of evaluation, implementation and development by assessing effectiveness, considering theory and having a longer term follow up. As well as the results showing the change the ERG can have in participants, this study has contributed to the development of the ERG by highlighting several issues that are pertinent to the development phase: facilitator training, fidelity to the manual, attrition, a lack of long-term effect and the importance of contextual factors in implementation. An important conclusion of this research is that there needs to be further work on practical effectiveness addressing the above factors.

Conclusion

This mixed-methods study shows that, as a trauma-informed, transdiagnostic intervention, the ERG leads to at least short-term improvements to ER and secondary measures of general distress, wellbeing and ability to manage mental health difficulties. In the qualitative interviews, participants describe a range of benefits, but some difficulties in implementing change when the group ends. As a short-term group intervention, the ERG is also a pragmatic solution to increased demand for psychological intervention that most services in the UK and further afield are experiencing. However, it is unclear if the short-term improvements it fosters are sustained in the long-term. There may be many reasons for this, including difficulties with facilitator training fidelity meaning the full model is

not being implemented, as well as the short-term nature of the group meaning that there is not sufficient time for learning to produce full implementation.

The authors propose that the ERG should be considered an option for participants struggling with ER in accordance with a matched care model, and further intervention should be offered as appropriate when the ERG ends. As a stand-alone treatment, it is unlikely to resolve ER difficulties, but this was also not the intention of the ERG. Instead, the ERG should be implemented as part of a wider pathway of care. Adaptations to the ERG model might usefully be considered, such as booster sessions, rolling groups or patient-led sessions to provide further opportunities for embedding skills. Future rollouts of the programme would also benefit from using principles of implementation science frameworks to maximise effective integration of the ERG into the wider system of care.

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Appendixes

Appendix I: Author Guidelines for the Journal of Clinical Psychology

Author guidelines for Journal of Clinical Psychology have been followed in the write up of both chapters of the thesis. However, some adaption was required to submit the thesis in line with requirement of the Doctorate of Clinical Psychology.

The full guidelines for the Journal of Clinical Psychology is found below.

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Training and Professional Issues	Original research and training methods related to the education and training of professional psychologists	Yes, structured	Data Availability Statement
Case Reports (In Session – by invitation only)	original articles illustrated through case reports	Yes, structured	Data Availability Statement

Peer Review

This journal operates under a double-blind peer review model. You can read more about peer review model here. Papers will only be sent to review if the Editor-in-Chief determines that the paper meets the appropriate quality and relevance requirements.

In-house submissions, i.e. papers authored by Editors or Editorial Board members of the title, will be sent to Editors unaffiliated with the author or institution and monitored carefully to ensure there is no peer review bias.

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Authors will receive an e-mail notification with a link and instructions for accessing HTML page proofs online. Authors should also make sure that any renumbered tables, figures, or references match text citations and that figure legends correspond with text citations and actual figures. Proofs must be returned within 48 hours of recipes of the email.

Appendix II: Downs and Black (1998) modified checklist

Downs and Black 1998 modified checklist

Reporting		**Score**
1. Is the hypothesis/aim/objective of the study clearly described?	Yes=1, No = 0	
2. Are the main outcomes clearly described in the Introduction or Methods? No if main outcome measures first mentioned in results.	Yes=1, No = 0	
3. Are characteristics of the patients included in the study clearly described? Yes if inclusion and exclusion criteria clearly described.	Yes=1, No = 0	
4. Are the interventions clearly described? Yes if it clear what intervention is being delivered and an attempt has been made to describe the content of the intervention and what ER skills are used.	Yes=1, No = 0	
5. Are there clear theory to practise links that justify the use of the specific intervention to improve ER?$_a$ Yes if there is a described ER theory and explicit links to the intervention used. Partially if an ER theory is presented but no or little attempt is made to link it to the intervention used.	Yes = 2, Partially = 1, Unclear=0, No = 0	
6. Are any other interventions participants are receiving clearly described?$_a$ eg other therapeutic input	Yes = 1, Unclear=0, No = 0	
7. Are the distributions of principal confounders in each group of subjects clearly described? If the answer to 6. is unclear or no, the answer to this cannot be Yes.	Yes = 2, Partially = 1, No = 0	
8. Are the main findings of the study clearly described? Yes if at least pre and post measures of ER are reported.	Yes=1, No = 0	
9. Does the study estimate random variability in data for main outcomes? Eg standard error, standard deviation, interquartile range or confidence interval reported.	Yes=1, No = 0	

10. Have all the important adverse events consequential to the intervention been reported? This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).	Yes=1, No = 0	
11. Have characteristics of patients lost to follow-up been described? This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.	Yes=1, No = 0	
12. Have actual probability values and effect sizes been reported for the main outcomes except probability < 0.001?	Yes=1, No = 0	
13. Is the source of funding clearly stated?[a]	Yes=1, No = 0	
External validity		**Score**
14. Were subjects who were asked to participate in the study representative of the entire population recruited? The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine	Yes = 1, No = 0, Unable to determine = 0	
15. Were those subjects who were prepared to participate representative of the recruited population? The proportion of those asked who agreed should be stated. Validation that the sample was representative would	Yes = 1, No = 0, Unable to determine = 0	

include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.		
16. Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive? For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist centre unrepresentative of the hospitals most of the source population would attend.	Yes = 1, No = 0, Unable to determine = 0	
Internal validity - bias		**Score**
17. Was an attempt made to blind those measuring the main outcomes? For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.	Yes = 1, No = 0, Unable to determine = 0	
18. Were analyses planned apriori, pre-registered on a public website, and the analysis plan followed?[a] Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes	Yes = 1, No = 0, Unable to determine = 0	
19. Was the time period between intervention and outcome the same for intervention and control groups or adjusted for? Where follow-up was the same for all study patients the answer should yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.	Yes = 1, No = 0, Unable to determine = 0	
20. Were the statistical tests used to assess main outcomes appropriate? The statistical techniques used must be appropriate to the data. For example	Yes = 1, No = 0, Unable to determine = 0	

nonparametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes.		
21. Was compliance with the interventions reliable?[a] Eg did participants attend all sessions, and if not, was this reported and taken into account. Where there was non compliance with the allocated treatment or where there was contamination of one group, the question should be answered no.	Yes = 1, No = 0, Unable to determine = 0	
22. Is there evidence that the intervention was delivered as intended?[a] Eg was there a measure of facilitator fidelity, were facilitators adequately trained and supervised	Yes = 1, No = 0, Unable to determine = 0	
23. Were main outcome measures used accurate? (valid and reliable) For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes	Yes = 1, No = 0, Unable to determine = 0	
Internal Validity – Confounding (Selection Bias)		**Score**
24. Were patients in different intervention groups recruited from the same population? For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case control studies where there is no information concerning the source of patients included in the study	Yes = 1, No = 0, Unclear = 0	
25. Were study subjects in different intervention groups recruited over the same period of time? For a study which does not specify the time period over which patients were recruited, the question should be answered as unable to determine	Yes = 1, No = 0, Unclear = 0	

26. Were study subjects randomized to intervention groups? Studies which state that subjects were randomised should be answered yes except where method of randomisation would not ensure random allocation. For example alternate allocation would score no because it is predictable	Yes = 1, No = 0, Unclear = 0	
27. Was an appropriate method of randomisation described?[a] Yes if a method was described unless it would not lead to truly random allocation – eg alternate, alphabetical, date of birth	Yes = 1, No = 0, Unclear = 0	
28. Were attempts made to assess groups equivalence at baseline?[a] If groups are not equivalent, are there statistical techniques introduced to control for between group differences at baseline? Eg baseline scores on measures, age, gender, diagnosis, number in each group	Yes = 1, No = 0, Unclear = 0	
29. Are any other interventions participants are receiving adequately controlled for? Eg are they equivalent across groups and if not techniques introduced to control for this	Yes = 1, Unclear=0, No = 0	
30. Was there an adequate control group?[b] No if no control or waitlist/TAU control. Yes if attempts are made to control for common therapeutic/group factors or comparative group intervention used	Yes = 1, No = 0, Unclear = 0	
31. Was the randomized intervention assignment concealed from patients and staff until recruitment was complete? All non-randomised studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.	Yes = 1, No = 0, Unclear = 0	
32. Was there adequate adjustment for confounding in the analyses from which main findings were drawn? This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In nonrandomised studies if the effect of the main confounders	Yes = 1, No = 0, Unclear = 0	

was not investigated or confounding was demonstrated but no adjustment was made in the final analyses the question should be answered as no		
33. Were losses of patients to follow-up taken into account? If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.	Yes = 1, No = 0, Unclear = 0	
34. Are attempts made to use intention-to-treat analysis or similarly robust methods to manage losses to follow up?[a] Yes if ITT is used or the use of a similar method of handling missing data is described and defended. Partially if mentioned but no justification of choice of handling missing data.	Yes = 2, Partially = 1, Unclear=0, No = 0	
Power[a]		**Score**
35. Was the study sufficiently powered to detect clinically important effects where probability value for a difference due to chance is < 5%? Yes if power is discussed and clearly taken into account apriori	Yes = 1, No = 0, Unclear = 0	

[a] denotes additional or modified questions for the purposes of this systematic review

[b] additional question added from MINORS (Slim et al., 2003)

Total possible for RCT: 38

Total possible for non-randomised with comparator/control group: 35

Total possible for non-randomised with no comparator/control group: 28

Score ranges are given corresponding quality levels: excellent (35–38); good (26–34); fair (21–25); and poor (≤19) modified from Hooper et al (2008) quality level ratings.

Appendix III: Participant Information Sheet and Consent Form

Participant information sheet [Version 1; 15/02/19]

NHS Lanarkshire Psychological Services

Small Scale Research project - Participant Information Sheet

An Evaluation of the Emotional Resources Group in adult mental health in NHS Lanarkshire

What is the evaluation about?

NHS Lanarkshire Psychological Therapies Teams have recently started running the Emotional Resources Group (ER group). During the ER group, you will be asked to complete different questionnaires about how you are feeling and what is happening in your life. This is standard information that NHS Lanarkshire collects from everyone who participates in the ER groups. You do not need to give your permission for this information to be collected.

Other research already suggests that people tend to feel better through participating in the ER group. However, as the questionnaires are only filled in during the ER group, we don't yet know how people feel several months after attending the ER group and what the long term impact is.

What we would like your consent for is for the evaluator to contact you 3 and 6 months after the ER group has finished, and for you to complete the same questionnaires. We would also collect basic demographic details – age range, gender, locality and postcode.

We would also like to do longer interviews with people who have taken part in the ER group. This would be arranged as part of the 3 month follow up.

We are really interested in finding out how people have experienced the ER group, what they think is helpful and unhelpful about it, and what skills they have learnt that they are continuing to use.

Why is the evaluation being done?

This evaluation is important to NHS Lanarkshire to understand how useful the ER group is for people. This will help us understand what is working and what needs adapted. The report that comes from it may also help other health boards in Scotland decide if they want to run the ER group in their area, or if they already are, give them some ideas on how it could be more effective.

Who is doing the evaluation?

Rebekah Moore, a trainee clinical psychologist is the lead evaluator. Rebekah is doing her Doctorate in Clinical Psychology at the University of Edinburgh. She is supervised by Dr Simon Stuart, a qualified clinical psychologist in NHS Lanarkshire.

Why have I been asked to take part?

You have been asked to take part as you are going to be participating in the ER Group. We are asking everyone who takes part in the ER groups across NHS Lanarkshire to take part as we want as many opinions as possible. This will help us get the best understanding we can.

Do I have to take part?

No. Participation is entirely voluntary. It is up to you to decide whether or not to take part. Declining to take part will not affect your care or rights. If you do give your permission, you can withdraw it at any point prior to it being presented or published. Withdrawing your permission will not affect your care or rights.

What would taking part involve?

If you give consent to take part in the evaluation, you will ask you to sign a consent form to say you have read this sheet and understand what is involved.

Once the ER group has ended, everyone will be invited back to see the facilitator. At this meeting, they will check if you are still happy to take part in the evaluation. If you are, they will pass your details to the evaluator who will contact you to arrange the 3 and 6 month follow up and the interview if appropriate.

You can consent to the 3 and 6 month follow up and not the interview. The evaluator will only be interviewing a proportion of people who attend the ER group.

The 3 and 6 month follow ups will be arranged between you and the evaluator at a time and place that suit you both. The questionnaires should take no longer than 30 minutes to complete, and if you are doing the interview at 3 months this will take no longer than an hour. The interviews would be recorded on an encrypted digital recorder and stored in line with NHS Lanarkshire secure procedures.

Who gave approval for the evaluation?

NHS Lanarkshire's Caldicott Guardian has given approval for patient data to be collected for the purposes of the evaluation, and the evaluation has been approved by University of Edinburgh Ethics Committee.

Confidentiality

Your personal information will remain strictly confidential. Any information you give will be anonymous and it will not be possible for anyone to identify you from the report.

If you consent to taking part in the interview, all possible identifying information will be removed and anonymised.

All data will be held in a secure area of NHS Lanarkshire's computer systems and is only accessible to Rebekah Moore.

What are the possible problems and disadvantages of taking part?

We do not anticipate any problems or disadvantages to taking part in the evaluation. However, sometimes people can find it upsetting to talk about their experiences of therapeutic interventions, if this does happen please inform the evaluator who will be able to signpost you on to appropriate support. Remember that participation is voluntary, and you can withdraw consent if you wish to.

What are the possible benefits of taking part?

There are unlikely to be direct personal benefits to you from this report. Many people enjoy participating in evaluations or hope that their experiences may help other people in the same situation. If you want, you can receive a copy of the report once it is written, and/or attend a presentation and give your feedback on it.

What will happen to the evaluation report?

Rebekah Moore will write up the report and submit it as part of her Doctorate in Clinical Psychology. It will also be disseminated with NHS Lanarkshire psychology teams and submitted to a psychology journal so that others can learn from the evaluation.

Who can I contact if I have questions, concerns or complaints about this evaluation?
You can contact the lead evaluator Rebekah Moore (details below), if you have any questions, concerns or complaints. If you are not satisfied by this response, you can also contact Dr Simon Stuart who is supervising the evaluation (details below).

Contact details:
Rebekah Moore
Trainee Clinical Psychologist
Psychological Services for Adults with Learning Disabilities
Longdales Admin building
Kirklands Site
Fallside Road
G71 8BB
01698 855522

Dr Simon Stuart
Clinical Psychologist
Carluke Health Centre, 40 Chapel Street, Carluke
NHS Lanarkshire
01555 777425

CONSENT FORM for Small Scale Research Project

Title of Project: **An Evaluation of the Emotional Resources Group in adult mental health in NHS Lanarkshire**

Name of evaluator(s): Rebekah Moore, Trainee Clinical Psychologist supervised by Dr Simon Stuart, Clinical Psychologist

---

1. I have read, and I understand the Participant Information Sheet. I have had time to ask any questions I need to [Version 1; 15/2/19]

2. I agree to participate in this evaluation, consisting of 3 and 6 month follow up questionnaires and basic demographic details – age range, gender, locality and postcode being collected and used for the purposes of this report

3. I consent to the interview at 3 months after the group has ended. I understand that this will be recorded and I give my consent for this.

4. I understand that participation is voluntary and that I can withdraw my consent at any time up until publication and this will not affect my care or my rights

5. I consent to my contact details being passed to the lead evaluator to arrange follow up

6. I have been given a copy of the Participant Information Sheet and Consent Form to keep.

Name of Participant

Signature of Participant

Date

Name of Evaluator

Signature of Evaluator

Date

Appendix IV: Ethical Approval Letter

SCHOOL *of* HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Rebekah Moore
Trainee Clinical Psychologist
Department of Clinical and Health Psychology
School of Health in Social Science
University of Edinburgh

24 June 2019

Dear Rebekah,

Application for Level 2 Approval

Reference: CLIN624
Project Title: An Evaluation of the Emotional Resources Group in Adult Mental Health in NHS Lanarkshire
Project Supervisor: Simon Stuart

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 26/03/19.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner

Administrative Secretary
Clinical Psychology

Appendix V: Thesis Research Proposal

Doctoral Psychology

Thesis Research Proposal
(For Methodological Review Only)

This form is for methodological review of projects that are **not** being submitted as assessed work for Research 1. (e.g. where a trainee has already received a pass mark for Research 1, but subsequently changed the intended thesis project, or for trainees who started training in 2009 or earlier and thus did not need to complete Research 1 and have not previously had university approval for their study).

In such circumstances the form will be reviewed by a member of the academic team and will receive detailed feedback, but will not be graded. The feedback will include an evaluation of the viability of the project and any recommendations. If there are significant concerns about viability, the project will be flagged to the research director and the research committee will decide whether the project can proceed in its current form.

Trainee Name
Rebekah Moore

Provisional Thesis Title
An Evaluation of the Emotional Resources Group in adult mental health in NHS Lanarkshire

Proposed Setting
Adult mental health

Allocated Thesis Project Supervisors	
Clinical	Simon Stuart
Academic 1	David Gillanders
Academic 2	
Others Involved	

Anticipated Month / Year of Submission

Must be May of final year. Trainees from 2011 intake onwards must submit in May. Trainees who started in 2010 or earlier are advised to submit in May to reduce potential for HCPC registration difficulties.
May 2021

Date Form Submitted / Version
V1 30th April 2020

Please Note: Whilst this is not an ethics review process, where questions have some similarities to questions contained in the NHS IRAS Research Ethics form, the corresponding IRAS question numbers are given in parentheses. This is intended to facilitate completion of NHS ethics where such approval is needed.

Section 1: Introduction
1.1 Provide a brief critical review of relevant literature, which should clearly demonstrate the rationale and scientific justification for the research 1000 – 1500 words *Relevant to IRAS A12*
There is an ever-increasing demand on adult mental health services throughout the UK and a need to develop cost-effective evidence-based interventions to address the demand (The Guardian, 2019; Trades Union Congress, 2018). There have been many approaches to try and improve access to services, for example the IAPT programme in England, however there have been criticisms of this and this is generally dealing with mild-moderate mental health problems (Binnie, 2015; Jolley et al., 2015; Williams, 2015). Demand is similarly increasing in moderate to severe difficulties, with presentations such as personality disorders, C-PTSD, PTSD, psychosis, chronic anxiety and depression. One approach to increasing access in this population is to offer group interventions that target common psychopathology across different presentations. For example, there has been increased interest in process-focused approaches (Hayes & Hofmann, 2017). Emotional regulation difficulties have been identified as a difficulty that underlies many complex presentations (Sloan et al., 2017). Due to this, various group-based interventions have been developed that focus on emotional regulation (ER). Two main interventions are Emotion Regulation Group therapy (ERGT) and Systems Training for Emotional Predictability and Problem Solving (STEPPS) (Gratz & Gunderson, 2006; Harvey et al., 2010). These groups have been shown to produce significant improvements in ER skills and in a variety of other domains (Blum et al., 2008; Gratz & Gunderson, 2006). However, STEPPS and ERGT come from adapting therapies for specific diagnosis, such as DBT or ACT for borderline personality disorder (BPD), and could potentially not be applicable trandiagnositically as they have not been evaluated for a range of presentations that might have difficulties with emotion regulation (Blum et al., 2008; Gratz & Roemer, 2008). There are some

transdiagnostic ER group interventions, which draw on a range of approaches including CBT, DBT, mindfulness, ACT, and again show a range of benefits to participants (Berking & Whitley, 2014; Bullis et al., 2015a; McKay & West, 2016). Looking at the content of the groups, they seem to include other elements as well as ER, such as CBT being used as an adjunct, or focusing on values, or including exposure, so it possible that group outcomes may be related to these different elements rather than specifically on ER.

It has been argued that these groups may be longer than necessary to specifically target ER (Bacon et al., 2018). This is important, bearing in mind the pressure on services and need to increase access. The groups described above run from 8-20 sessions depending on the individual approach, and this represents a significant investment of time and resource for clinicians. If it was possible to successfully improve ER skills in a shorter time period, this would be beneficial.

Additionally, in recent years, there has been an increased focus on the prevalence and impact of trauma. Trauma is a significant risk factor in developing future mental health problems, and it has been found that the majority of people who present to mental health services will have significant trauma in their backgrounds, even if this is often not the primary reason they seek support (Álvarez et al., 2011; Dillon et al., 2014; Rossiter et al., 2015; Wu et al., 2010). In Scotland, this has led to several developments, including the establishment of the Trauma Framework and training plan (NHS Education for Scotland, 2017a). The framework is designed to increase understanding of trauma and its impact across Scottish workforces. All services should now be aiming to be trauma informed. Given the high prevalence of trauma within moderate-severe presentations to mental health services it is important that any intervention is trauma-informed, which none of the intervention mentioned are explicitly. This is particularly crucial as emotion regulation has recently been found to mediate the link between childhood trauma and mental and physical health problems in adults (Cloitre et al., 2019).

There is one recently developed ER group intervention that aims to address some of the criticisms outlined above. The group, called the Emotional Resources group (ERG) developed by Bacon and colleagues (2018), is 6 sessions, transdiagnostic, trauma-informed and explicitly only focuses on ER skills. Their evaluation of the group showed positive effects on emotion regulation, as well as other domains such as well-being and self-efficacy. However, there are several limitations to the research to date. Firstly, there was no control group or randomisation, so it is unclear to what extent any changes are related to the group intervention. Additionally, it was a small sample and there was no long term follow up to see if changes are maintained over time. One of the guidelines in creating the group was to create lasting change, but it is not known whether this occurred due to only pre and post scores being available. The lead author of the research is also the creator of the group intervention, which is a possible conflict of interest and introduces a potential bias.

A further weakness in research to date is they have almost exclusively focused on quantitative measures. While using validated outcome measures is important, it would also be beneficial to understand participant's experience of being in the group which could be explored through a qualitative interview. It has been suggested that mixed methods may be suitable to evaluate interventions, as the qualitative component may help explain quantitative findings, for example by explaining individual variations, and to clarify any discrepancies between the intervention and participants experience (Creswell et al., 2006).

To further investigate the efficacy of the ERG and to address the limitations outlined above, this study proposes a follow up to Bacon's study that addresses some of the issues in the literature to date. As well as pre and post measures, 3 and 6 month follow ups will also be taken, to see what the long term impact of the group is. Additionally, qualitive interviews will also be conducted with a proportion of participants to ascertain what the experience of participants is in the group. The interviews will also help understand how the group is being implemented in a different health board and identify any improvements that could be made. Interviews also should make it possible to try and understand any adverse impacts of the group, an important aspect of assessing new interventions.

Section 2: Research Questions / Objectives

2.1 What is the principal research question / objective?

IRAS A10

Does the ER group significantly increase emotional regulation ability in the short and long-term?

2.2 What are the secondary research questions / objectives, if applicable?

Keep these focused and concise, with a maximum of 5 research questions

IRAS A11

Does the ER group have a secondary impact on subjective wellbeing and confidence to manage mental health?

What is participants experience of the ER group?

Section 3: Methodology

3.1 Give a full summary of your design and methodology

It should be clear exactly what will happen at each stage of the project

IRAS A13

Design

This study evaluates existing routinely collected data and combines it with interviews with participa who have completed the group. 3 and 6 month follow up measures will also be taken.

Mixed methods will be used for this research. Mixed methods have been found to be a helpful way assess interventions as the quantitative findings can be explained and understood using the more in depth qualitative findings (Creswell et al., 2006). The qualitative interviews will describe and understands people's experiences in an in-depth manner and will be able to make sense of multiple complex experiences (J. Smith & Firth, 2011). as A semi-structured interview can focus on research questions, while at the same time being open to and led by the participant's story. This may open up other important aspects the researcher did not anticipate, which could not be uncovered without engaging in someone's lived experience. The nature of the semi-structured interview may also serve

an added benefit of being an empowering and collaborative process for the participant as previous research has identified (Shamai, 2003).

The quantitative measures will objectively measure the central questions, whether the is an increas ER and a positive impact on wider wellbeing and confidence in managing mental health. Using the same quantitative measures as (Bacon et al., 2018) also makes the research a suitable and appropri follow up as findings can be directly compared.

Ethics

The study has already obtained ethical approval from University of Edinburgh Ethics as the small scale research project. Caldicott approval has also been given from the health board.

The researcher would not be involved with the running of the group or have any clinical involvemen with any of the group participants to avoid possible conflicts of interest.

Participants

Participants will be all people who have participated in the ER group from March 2019 to August 20 This is a transdiagnostic group, aimed at patients assessed as being at Tier 3 and struggling with emotional regulation. Potential suitability for this group is assessed initially by a range of mental hea professionals working with potential participants, and if patient consents one of the group facilitato would speak with them to further assess suitability and for the patient to decide if the group is right them.

To date, 7 groups have been completed and pre and post scores are available for all of these. 8 qualitative interviews have already been completed, alongside several 3 and 6 month follow ups. Th data that will be collected from this point on will be interviews and 3 and 6 month follow ups for the final group. Additionally, if any new group start data will also be collected from then. However, this thought to be unlikely given the current Covid-19 pandemic.

Procedure

This project proposes to evaluate this intervention using the routine data set that is collected before during and at intervention end as well as collecting this information at 3 and 6 months post treatme In addition, a qualitative interview will be offered to a proportion of participants to explore more in depth their experience of being part of the group, what they found helpful or unhelpful in the intervention, their use of the skills learned in the group. Basic demographic details would also be collected – age range, gender and postcode.

Participants were made aware of the evaluation at the start of the group, by the evaluator coming t introduce themselves, brief the participants about the evaluation, answer any questions and ask for written consent. Participants had time to consider the information and did not have to decide about written consent there and then. It was made clear to participants the difference between routine da and novel data being collected in the briefing in the information sheet they would be given.

The interview with the participants will be semi-structured, based on the topic guide, using open questions and focusing on each individual's experience with people being able to tell their story in their own words. The interview will be recorded on an encrypted digital recorder and then transcribed verbatim, by the researcher. The interview transcript and all other data will be

securely stored in line with University of Edinburgh and NHS Lanarkshire procedures. NVivo will be used to store and organise the data.

Basic demographic information will also be collected at the point of interview, such as gender, age range, ethnicity etc., to better understand the sample population and to see if there are any differences based on these demographics.

The core data set has been collected by group facilitators and held securely on NHS computer syster The follow up data set is being collected by the evaluator. The interviews are conducted by the evaluator. Interviews are recorded using an encrypted digital recorder and the recordings held on N systems. The recordings are only accessed by the evaluator and their supervisor. At the point of transcription, the evaluator will remove all potentially identifiable information. Each participant in t interviews is assigned a pseudonym or number at the point of data collection and referred to as this the report and transcription to ensure anonymity.

Signed consent forms are held securely and separately from any participant data.

Participants will be able to obtain of the report once completed if they wished to.

Analysis

The quantitative measures will be analysed using a repeated measures ANOVA to understand the impact of the group on ER and other wellbeing factors. This will be used to qualify the impact on the individual and the group over the four time points.

The qualitative interview transcripts will be transcribed verbatim by the researcher, who will also remove any personally identifiable information at this point and assign pseudonyms to each transcript. The transcription will be analysed using thematic analysis. Thematic analysis is a way of identifying, analysing and reporting patterns in the data (Braun & Clarke, 2006).

Quality control

Segments of coding will be checked by the clinical and academic supervisor to ensure quality control. A reflexive notebook will also be kept by the researcher and included in the analysis, and notes from reflective discussions with supervisors will also be included in the analysis. An element of triangulation will be possible by linking participants data to their interview, for those participants who completed interviews.

3.2 List the principal inclusion and exclusion criteria

IRAS A17-1 and IRAS A17-2

- Aged 16+
- Attended an ER group in Lanarkshire since February 2018
- Has capacity to consent to the research
- Fluent in English

3.3 How will data be collected?

If quantitative, list proposed measures and justify the use of these measures. If qualitative, explain how data will be collected, giving reasonable detail (don't just say "by interviews".)

The following measures are collected pre/post intervention and at 3 and 6 months:

Difficulties in Emotion Regulation Scale (DERS) – this is the primary measure, as it would be expected that an ER group would improve emotion regulation. The DERS is a widely used measure with good psychometric properties (Gratz & Roemer, 2008).

Mental Health Confidence Scale (MHCS) – this measures the sense of self-efficacy that people living with mental health problems have and is used to assess if participants confidence increases throughout the intervention. It also has good psychometrics (Carpinello et al., 2000).

The Warwick Edinburgh Wellbeing scale (WEMWBS) – this measure gives a single measure of wellbeing and is also well validated (S. L. Stewart-Brown et al., 2011). This will be used to understand if there is a secondary impact of the ER group on general wellbeing.

Work and Social Adjustment Scale (WSAS) is a measure of impairment and can be used across different groups and disorders, as will be the case in this study (Mundt et al., 2002). The WSAS has good validity is sensitive to treatment related change (Zahra et al., 2014). It also measures social functioning, a dimension not captured in other similar outcome measures such as the PHQ-9 (Martin et al., 2006).

The CORE-10 is a brief assessment measure that is valid across a range of common mental health presentations (*CORE Outcome Measurement Tools*, n.d.). It has clear clinical cut-offs and a reliable change index and is used in this research to measure impact of the ER group on psychological distress (Barkham et al., 2013).

These measures were used based on Bacon and colleagues (2018) prediction that clinically significant increased ability to regulate emotion and improvement in secondary measures of subjective well-being and confidence to manage mental health would be seen after the ER group. The DERS, MHACS and WEMWBS were used in Bacon et al's (2018) study and the WSAS and CORE-10 are added in this study to understand the impact of the ER group on psychological distress and functioning.

Qualitative

Data will be collected by the researcher through semi-structured interviews with individuals. This will be done face-to-face in an appropriate confidential room or over the telephone. A topic guide will be created to explore in detail the research questions outlined above and there will be flexibility in it to be guided by the individual experience. Prompts may be used and additional questions may be asked depending on the course of the interview. It is estimated the interviews will take around 1 hour. The interviews will be recorded on an encrypted digital device and then transcribed verbatim by the researcher before being analysed. Hand-written notes may also be taken during the interview and analysed. A reflexive notebook will also be kept by the researcher.

Overall, the interview will move from surface level discussion to more specific and sensitive information as the interview progresses and trust and rapport is built. Examples from the topic guide are included below.

1. Referral process and experience prior to the group

Can you tell me about how you came contact with mental health services?

What was happening in your life in the time leading up to the referral to the ER group?

Prompts:

Break into steps – pre-referral, referral, meeting with group facilitator, pre-joining information

What motivated the initial referral to mental health and then what prompted referral to ER group

What was good/not so good about life pre-referral

First time you heard about the group

What information were you given about the group? Who by?

Feelings at this time about the group and possible participation

Expectation of the group

2. During group

Can you tell me about your experience during the group intervention?

Prompts:

First day – expectations and reality

Facilitators

Other group members

Course content – are there particular weeks that stick out?

What did you find helpful/unhelpful, enjoy most/least?

Was it like you expected? In what way? If not, what was different?

Three words to describe the group

3. Life now and any changes

How would you describe your life now?

Compared to how it was before the group, is it better, worse, the same?

Prompts:

Has anything changed because of the group?

What impact – positive or negative did participating in the group have on your life?

When you encounter problems in your life, how do you manage them?

*trying to elicit use of skills learnt in the group

Would you recommend the group to other people? Why/why not? What would you say to others about it?

4. Closing

Is there anything else you would like to add or elaborate on?

Do you have any questions for me?

Section 4: Sample Size

4.1 What sample size is needed for the research and how did you determine this?

For quantitative projects, outline the relevant Power calculations and the rationale for assuming given effect sizes. For qualitative projects, outline your reasoning for assuming that this sample size will be sufficient to address the study's aims

IRAS A59 and IRAS A60

A power analysis was completed to assess the likely required sample size. A similar study looking at pre-post scores found an overall effect size of 1.04 for emotional regulation, the primary anticipated outcome (Bacon et al., 2018). G-power was used to calculate the sample size for pre-post and follow up scores for analysis using ANOVA: repeated measures, within factors. A more conservative effect size was used, 0.5, with 80% power and 05% alpha. This gave a sample size of 6 to achieve adequate power (Faul et al., 2007). A minimum of 6 participants would be needed for an adequately powered analysis of pre, post and follow up at two points based on the assumptions above.

Based on the timescale and scope of a doctoral thesis, my qualitative sample size will be approximately 12 participants. This is based on guidance from Braun and Clarke (2006) that recommends 6-10 participants for small thematic projects, as this thesis is. Approximately 12 participants should allow for any drop out or withdrawal of consent and to ensure data saturation consistent with findings from Guest et al (2006).

4.2 Outline reasons for your confidence in being able to achieve a sample of at least this size

Give details of size of known available sample(s), percentage of this type of sample that typically participate in such studies, opinions of relevant individuals working in that area

The data collection period will be for 18 months to allow for maximum data collection (14 months completed at present).

Based on correspondence with those organising, it was estimated at least 10 groups would run across this period (to date there have been 7 groups). The group size is recommended to be between 8-12 people (Bacon et al., 2018), giving a potential 120 participants.

For the qualitative interviews, around 12 participants should also be sufficient to cover a range of experiences within the sample and it seems reasonable to assume that out of 120 potential participants 10% would consent to taking part in the research.

Section 5: Analysis

5.1 Describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative methods) by which the data will be evaluated to meet the study objectives

IRAS A62

The quantitative measures will be analysed using a repeated, measure ANOVA to understand the impact of the group on ER and other wellbeing factors. This analysis will be used to qualify the impact on the individual and the group over the four time points.

The qualitative interviews will be recorded and then transcribed verbatim by the researcher. Thematic analysis (TA) will then be used to identify themes within the research. TA is a commonly used method within psychology, and has been used widely to understand patient's experiences and views on therapy, and will be suitable in this context to understand the experience of the ER group (Carew, 2009; Clarke & Braun, 2018; Hunt, 2014). There are several different TA approaches within the literature based on different philosophical positions, this research will follow Braun and Clarke's original orientation to TA, which is TA within a qualitative paradigm, focusing on an 'organic' approach to coding and theme development, where the quality of coding results from in-depth engagement with the data (Braun & Clarke, 2006; Clarke & Braun, 2018). This contrasts with other TA approaches which have more structured approaches to coding under a positivist framework and approaches such as template or framework analysis.

The TA approach chosen consists of the following steps(Braun & Clarke, 2006; Braun et al., 2014; Braun & Clarke, 2013):

- Data familiarisation – the researcher will start this at the point of transcription, listening to the recording, and reading and re-reading the transcript. Initial notes may be taken at this stage but no coding/identifying themes will occur until the whole data set has been read.
- Generating initial codes – initial 'codes' will be identified. Codes are labels for different aspects of the data, often consisting of a single word or small phrase.
- Searching for themes – the various codes are sorted into themes. Themes should be more than descriptive summaries and look at patterns that tie codes together.
- Reviewing themes – themes are then refined. The original data is re-read to check that the themes make sense and form a pattern coherently. The relationship between themes is also examined and refined. The relationship between the themes should reflect the meaning of the data as a whole.
- Defining and naming themes - Each theme should have an 'essence' – a core concept that pulls the data together. Themes are active creations, they do not just 'emerge' from first glance at the data, and may hold contrasting pieces of information and tap into underlying meanings to tell a story that makes the theme. A final thematic map is also created at this stage.
- Producing the report – writing up the analysis for the intended purpose and audience.

Researcher reflectivity is important within TA. A reflective notebook will be kept by the researcher and notes will be made throughout the analysis process. Notes from meetings between supervisor

and the researcher discussing their understanding of the data may also be included into the analysis.

NVivo will be used to store and organise the data.

Section 6: Project Management / Timetable

6.1 Outline a timetable for completion of key stages of the project

E.g. ethics submission, start and end of data collection, data analysis, completion of systematic review

Ethics submission February 2019

Start data collection – March 2019

Finish data collection – August 2020

Data analysis start – August 2020

Data analysis finish – December 2020

Write up start – January 2021

Write up finish – April 2021

Final edits and viva prep – May 2021

Systematic review

Decide on topic – Summer 2020

Refine search terms – August 2020

Start search – September 2020

Finish search – December 2020

Begin writing review – January 2021

Finish writing review – March 2021

Final edits – April 2021

Section 7: Management of Risks to Project

7.1 Summarise the main potential risks to your study, the perceived likelihood of occurrence of these risks and any steps you will or have taken to reduce these risks. Outline how you will respond to identified risks if they should occur

- Gaining sample size – medium likelihood as groups could be cancelled, or there could be a lot of attrition, especially between group ending and 3-6 months follow up. To mitigate this, data from other health boards running the group could be included, however, this would only be possible for pre and post data. If there is not enough data to analyse 3 and 6 month scores, pre/post only will be analysed with the qualitative interviews. The current Covid-19 pandemic is also likely to impact the sample size as no new groups may be run and it may be difficult to contact participants. However, most of the data has already been collected at the time of writing (April 2020) – 6 out of 7 groups have finished data collection.
- Emotional distress of interviewee – low likelihood, but possible if participant has had a negative group experience or difficulty since this time. There will be opportunities for breaks during the interview if the participant becomes too distressed, and the interview can be ended at any time if the participant wishes. The researcher will also terminate the interview if it is felt that it would not be beneficial for the participant to continue due to levels of distress. The researcher is a trainee clinical psychologist and will be able to use clinical skills to manage emotional distress in the interview environment and appropriately signpost to support services if necessary
- Participants may be reticent to take part, or when they do participate, to disclose negative or difficult experiences due to the researcher being an NHS psychologist. Medium likelihood of occurrence. The researcher will make it clear that participation is entirely voluntary. The researcher will emphasise that the participant's data will be made confidential and will not have any impact on their current or future care. The researcher will not interview anyone whom they have had previously had clinical contact with, due to conflict of interest and potential for bias.

Section 8: Knowledge Exchange

8.1 How do you intend to report and disseminate the results of the study?

IRAS A51

It will be disseminated within NHS Lanarkshire and NHS Scotland community mental health teams to promote awareness of the group and the results of the study. It may be used to help make further decisions on the suitability of this group intervention in adult mental health populations. It is also intended that the results will be written into a journal format and submitted for publication for further knowledge dissemination. It is also anticipated that this project will also be presented at a conference. Participants will be asked if they want a copy of the findings and how they want to receive these (email, paper copy etc) and this will be given to them once the report is complete. The evaluator is also happy to present the findings to group members if this is desired.

8.2 What are the anticipated benefits or implications of the project?

E.g. If this is an NHS project, in what way(s) is the project intended to benefit the NHS?

There is a need across NHS mental health services for trauma-informed, evidence-based treatment targeting ER, a key underlying problem common to a range of diagnoses. This research should provide additional evidence as to whether the ER group (Bacon et al., 2018) is suitable for this. The research will also assess the long-term impact of the group. The research should help understanding how the group is being implemented and how participants are experiencing it. The ER group is currently part of a training cascade, and this research may provide information as to how this is working in routine clinical practice. These findings should help NHS boards make

decisions on whether to run the group and if any improvements need to be made to the current implementation of the group.

8.3 Are the any potential costs for the project?

Outline any potential financial costs to the project, including the justification for the costs (why are these necessary for the research project?) and how funding will be obtained for these costs (how will they be met?) Please separate these into potential costs for the University and potential costs for your NHS Board and note that you should ask your NHS Board to meet stationery, printing, postage and travel costs.

Costs of the project will mainly consist of travel and stationery which will be met by the NHS health board. The encrypted digital recorder will be borrowed from the health board.

Section 9: Any Other Relevant Information

This research was previously approved for the Small Scale Research project. It has ethical approval from University of Edinburgh and Caldicott approval from NHS Lanarkshire. Due to the Covid-19 pandemic the previous thesis project was not possible so this research is proposed as an alternative. In addition, the original proposal offered scope for much more comprehensive research than the constraints of a small-scale project allowed; and it was felt that adapting it to a thesis was both pragmatic and valuable.

Section 10: Key References

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Section 11: Confirmation of Supervisors' Approval	
"I confirm that both my Academic and Clinical Supervisors have seen and approved this research proposal and have both completed the supervisors' appraisal forms below." *Delete as appropriate*	
Yes	No

Appendix 1

Main Academic Supervisor's Appraisal of Project Risk

Supervisor's Name
David Gillanders

Date
29/04/2020

Do you consider that the project should proceed in broadly its current form? *Delete as appropriate*		
Yes	Yes, subject to the revisions outlined below	No

Outline the reasons for the above response Highlight any areas of risk to the completion of the project that have not been fully addressed within the proposal and any steps that could be taken to reduce risks
Rebekah has had to change project due to COVID19 restrictions. She has existing data on the ER group that is routinely collected. She has existing ethical approval to use this data for a small scale research study. She also has ethical approval to continue telephone interviews for the qualitative component. This would be a large SSRP, and I think will lead to a mixed methods empirical project that will be suitable for the Doctoral degree, and Rebekah will source an alternative SSRP.

Appendix 2

Clinical Thesis Supervisor's Appraisal of Project Risk

Supervisor's Name
Dr Simon Stuart

Position
Clinical Psychologist, NHS Lanarkshire

Date
27 April 2020

Do you consider that the project should proceed in broadly its current form? *Delete as appropriate*		
Yes	Yes, subject to the revisions outlined below	No

Outline the reasons for the above response Highlight any areas of risk to the completion of the project that have not been fully addressed within the proposal and any steps that could be taken to reduce risks
This proposal has been developed from a very ambitious small-scale project, and it is galvanising to see it presented it here as a potential doctoral thesis. This will allow for a more comprehensive analysis of appropriate data, which will be of great value to NHS Psychology services in Scotland and potentially more widely. The ongoing Covid-19 pandemic is having a marked impact upon research projects everywhere. However, it is important to note that the proposer has already gathered a considerable amount of data, and already has a solid basis for the project as proposed. With the obvious caveat that Covid-19 poses global uncertainties on an unprecedented scale, I am confident that the project will be successful as described here, and am very happy to supervise it in its current form.