

Self-management interventions for people who present at risk of harm of self-harm and suicide in acute crisis mental health settings: A systematic review and narrative synthesis

Liberty Newlove , Thomas Gant , Sarah Rowe , Lisa Wood

PII: S0165-1781(25)00416-0
DOI: <https://doi.org/10.1016/j.psychres.2025.116771>
Reference: PSY 116771



To appear in: *Psychiatry Research*

Received date: 1 August 2024
Revised date: 30 April 2025
Accepted date: 10 October 2025

Please cite this article as: Liberty Newlove , Thomas Gant , Sarah Rowe , Lisa Wood , Self-management interventions for people who present at risk of harm of self-harm and suicide in acute crisis mental health settings: A systematic review and narrative synthesis, *Psychiatry Research* (2025), doi: <https://doi.org/10.1016/j.psychres.2025.116771>

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- Self-management interventions have been provided to support patients presenting with self-harm and suicide (intent and behaviours) and demonstrate some initial promise in reducing such behaviours.
- The most common type of self-management intervention was coping skills development and relapse prevention.
- Self-management interventions for self-harm and suicide (intent and behaviours) may be useful to people in acute mental health crisis settings. However, additional research and meta-analyses are required to further develop the evidence base. Future research should focus on co-producing studies with lived-experience caregivers. Larger RCTs should also be undertaken.

Self-management interventions for people who present at risk of harm of self-harm and suicide in acute crisis mental health settings: A systematic review and narrative synthesis.

Liberty Newlove 1

Thomas Gant 1

Sarah Rowe 2

Lisa Wood 1, 2*

1 Research and Development, North East London NHS Foundation Trust, Essex, United Kingdom

2 Division of Psychiatry, University College London, London, United Kingdom

*Corresponding Author: Division of Psychiatry, University College London, Maple House, 149 Tottenham Court Road, London, United Kingdom, l.wood@ucl.ac.uk

Competing interests: LW is a co-author of the Fife et al (2019) paper.

Acknowledgments: None

Funding: None

Ethics statement: Ethics approval was not required as no new data was generated.

Transparency declaration: The authors can confirm that this is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Author contributions: L.W. designed and supervised the review. L.N. and T.G. undertook the review. S.R. contributed to the design of the review. All authors contributed to the final draft of the manuscript.

Journal Pre-proof

Abstract:

Background: Self-management interventions could potentially benefit individuals in acute mental health crises experiencing self-harm and suicidal ideation, yet no reviews have been conducted to date. The aim of this systematic review was to examine self-management interventions for patients with self-harm and suicidal intent in acute crisis mental health settings.

Method: Five databases were searched, and quantitative, English-language studies were included if they examined self-management interventions for adults under acute crisis mental health services who are currently experiencing self-harm and/or suicidal intent. Risk of bias was assessed using established tools, and a narrative synthesis was conducted.

Results: Seven papers were included in the review, all of which had a high risk of bias. The most utilised self-management strategies were coping skills, followed by recognising early warning signs of relapse, with psychoeducation being the least implemented. The effectiveness of these interventions varied across studies in terms of reducing self-harm and suicidal intent. However, studies that implemented comprehensive, recovery-focused self-management approaches generally reported more positive outcomes in managing self-harm and suicidal intent.

Conclusions: This review found mixed results but with some evidence suggesting that recovery-focused self-management interventions can reduce self-harm and suicidal ideation. However, further high-quality, large-scale research is required.

Keywords: Self-harm; suicide; self-management interventions; mental health crisis; mental health inpatient; systematic review

Introduction

Context

An acute mental health crisis is defined as a severe disruption in psychological functioning, in which an individual's usual coping mechanisms fail, resulting in significant distress and functional impairment (Roberts, 2005). Mental health crises are heterogeneous and may involve experiences such as self-neglect, acute psychotic symptoms, and elevated risk to self, including self-harm and suicidal intent (Brooker et al., 2007). Motivations for self-harm vary both between individuals and within the same individual across different episodes of crisis (De Beurs, 2018; Horrocks et al., 2003). While some researchers have attempted to categorise self-injurious behaviours as either suicidal or non-suicidal, emerging evidence suggests that these motivations are better conceptualised along a continuum (Orlando et al., 2015). Suicidal ideation and self-harm are strongly associated, with individuals who self-harm experiencing a suicide risk approximately 50 times higher than the general population (Zahl & Hawton, 2004; Carroll, Metcalfe, & Gunnell, 2014). Both phenomena are closely linked to emotional dysregulation, highlighting the importance of targeting this domain within psychosocial interventions (Saccaro et al., 2024). Reducing self-harm and suicidal ideation remains a global public health priority, with many health systems adopting zero-suicide frameworks as a long-term strategic goal (NHS Confederation, 2019).

Individuals who present in crisis with high levels of suicidal ideation and self-harm, that are not being managed by usual community mental health care, will receive care from the acute crisis services pathway. This may include psychiatric liaison services, crisis resolution and home treatment teams (CRHTTs), and inpatient mental health services, all of which are designed to support individuals with complex mental health needs and elevated risk, particularly in relation to suicidality and self-injury (Eckerström et al., 2020; Opmeer et al., 2017). These services aim to reduce immediate risk, contain suicidal and self-harming behaviours, alleviate acute psychiatric symptoms, and enhance functioning and quality of life (Paton et al., 2016). However, a recent qualitative systematic review of individuals diagnosed with Emotionally Unstable Personality Disorder (EUPD) found that many service users report feeling unsupported by these services and unable to access the specialist care required to effectively manage suicidal ideation and self-harm. A consistent concern is the limited availability of evidence-based psychosocial treatments (De Leo et al., 2022). Furthermore, acute mental health professionals have similarly reported significant gaps in service provision, citing a lack of appropriate specialist services for individuals requiring targeted support for suicidality and self-injury (Byrne et al., 2021; De Leo et al., 2022).

Furthermore, individuals discharged from acute crisis services often do not receive consistent or timely follow-up care in the community, particularly those without prior engagement with mental health services (Spittal et al., 2017). This is especially concerning given that the post-discharge period represents a time of heightened vulnerability, with increased risk of suicidal ideation and self-harm (Bickley et al., 2013). There is an urgent need to improve interventions that support individuals in managing suicidal thoughts and self-injurious behaviours, developing coping skills to navigate both current and future crises, and ultimately reducing the likelihood of recurrence (Bickley et al., 2013; De Leo et al., 2022).

The National Institute for Health and Care Excellence (NICE, 2022) recommends that coexisting conditions commonly associated with suicidal ideation and self-harm—such as EUPD or substance use disorders—should be identified and appropriately treated as part of a comprehensive care approach. For individuals presenting with suicidality and self-harming behaviours, person-centred psychological interventions are advised. These should be tailored to individual needs and preferences and may include evidence-based approaches such as Cognitive Behavioural Therapy (CBT) or Dialectical Behaviour Therapy (DBT). Such interventions aim to reduce emotional dysregulation and maladaptive behaviours, thereby lowering the risk of further self-harm or suicidal crises (Mewton & Andrews, 2016)

However, these evidenced-based psychological interventions are not usually feasible in crisis services due to the acuity of patient presentations, and the short-term nature of crisis care delivery (Wood et al., 2021). Indeed, only 25% of patients in crisis settings get offered formal psychological intervention (Royal College of Psychiatrists, 2022). Moreover, pharmacological treatments are not indicated as a specific interventions for suicidal ideation and self-harm (NICE, 2022). There is a clear gap for psychosocial interventions to reduce suicidal intent and self-harm in crisis settings to offer adjunctive skills-based teaching to support crisis stabilisation. Although NICE (2022) does not explicitly endorse self-management interventions for suicidal ideation and self-harm, it does recommend strategies such as the use of safety plans—which include identifying warning signs, triggers, and coping strategies—as well as harm minimisation techniques. These strategies incorporate key elements of self-management and suggest a promising direction for intervention development in crisis settings (Mueser et al., 2002).

Self-management interventions generally refer to strategies that support individuals in managing the physical, social, and emotional consequences of living with a chronic condition (Taylor et al., 2014). In the context of mental health, Mueser et al. (2002) identified four core components of self-management interventions: psychoeducation about mental illness and its treatment, behavioural strategies to support medication adherence, development of relapse

prevention plans, and the teaching of coping strategies for persistent symptoms. The UK Department of Health (2006) has highlighted self-management as a foundational element in supporting individuals to lead meaningful and purposeful lives. As self-management interventions are typically condition-specific and time-limited, they hold promise for use in acute crisis settings, where lengthy therapeutic engagement may be unfeasible (Wood et al., 2022). However, limited research has explored their utility in this context (Lean et al., 2019).

Prior research

Lean et al. (2019) conducted a systematic review assessing the effectiveness of self-management interventions for adults with severe mental illness. The review identified benefits across multiple outcomes, including symptom reduction, reduced length of admission, and improved quality of life. However, only eight of the 37 included studies involved delivery in crisis settings, and none focused specifically on suicidal ideation or self-harm. Witt et al. (2017) reviewed the effectiveness of digital self-management interventions targeting suicidal ideation and self-harm. While reductions in suicidal ideation were observed post-intervention, no significant effects were found for self-harming behaviour or suicide attempts. Most programmes were designed for depression, with suicide-related outcomes assessed secondarily; only six were specifically developed for self-harm or suicidality, and none were delivered in crisis settings. To date, no systematic review has examined the evidence base for self-management interventions specifically targeting suicidal ideation or self-harm within crisis services.

Objectives

There is a need to examine whether self-management interventions for suicidal ideation and self-harm have potential use in crisis settings as they could be a useful and efficient way to offer psychosocial support to those in most need. Self-management interventions are time-limited and empower patients to take a more active role in their recovery and facilitate better coping post-discharge, potentially lowering rates of re-hospitalisation. These are important qualities of a crisis management intervention. Moreover, patients regularly request access to psychosocial support to manage suicidal ideation and self-harm whilst in crisis setting (De Leo et al., 2022; Wood et al., 2019) but this is rarely offered (Royal College of Psychiatrists, 2022). Therefore, the primary aim of the current review is to: (a) examine what self-management interventions are available for individuals who present with suicidal ideation and self-harm or behaviours in acute mental health crisis settings and the effects on the *incidence* of suicidal ideation, self-harm and suicidal behaviours; (b) examine the quality of the evidence available; (c) examine the types of outcomes used to examine the efficacy of self-management

interventions for suicidal ideation and self-harm; and (d) examine the efficacy of self-management interventions on available outcomes.

Journal Pre-proof

Method

Design

A systematic review and narrative synthesis were conducted in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al., 2009). The review was prospectively registered on PROSPERO (CRD42022323161) in line with best practice. No amendments were made to the protocol following registration. The PRISMA 2020 checklist is provided in the supplementary materials (S1).

Eligibility criteria

Studies were included if they involved participants: a) aged 18 years or older; b) examined the usefulness of a self-management intervention focused on suicidal ideation and self-harm (intent and/or behaviours), delivered in an acute crisis mental health setting, such as inpatient units, crisis teams, Accident and Emergency departments (A&E), and stabilisation units, as these services comprise the acute mental health care pathway (NHS Confederation, 2019); c) used a quantitative study design, including controlled approaches (e.g. Randomised Controlled Trials (RCTs), cluster RCTs, non-randomised trials) and non-controlled approaches (e.g. pre-post studies, cohort studies, observational studies), with or without a control group. Studies examining adolescent populations were excluded due to the existence of separate crisis service models tailored to meet the needs of this population.

To be classified as a self-management intervention, the intervention had to include at least one of the following three recovery-focused self-management domains in relation to suicidal ideation and/or self-harm (Mueser et al., 2002; Lean et al., 2019): i) psychoeducation about mental illness and its treatment (e.g. teaching patients about the prevalence and symptoms of suicide and self-harm within the context of mental health); ii) recognition of early warning signs of relapse and development of a relapse prevention or safety plan; or iii) coping skills for dealing with persistent symptoms (e.g. teaching a new skill or technique to manage symptoms). The intervention could draw on relevant psychological models or theory to inform its content but was excluded if it constituted a formal psychological intervention. Interventions were also excluded if they included components of therapeutic support in addition to self-management (e.g. follow-up, counselling, or therapy sessions). The intervention had to be delivered while the patient was under the care of acute mental health crisis services.

Studies were excluded if they: a) examined a self-management intervention not specifically focussing on suicidal ideation and self-harm, were delivered to carers/relatives only, or delivered alongside/incorporated within another intervention were not included b) focused on

patients with intellectual disabilities or neurological illnesses; c) were of case study, case series, qualitative design due to not providing data to answer the aims of the study (d) focused on adolescent populations (<18 years) due to having developmentally different needs in relation to mental health support and interventions.

Selection criteria

CINAHL, ClinicalTrials.gov, MEDLINE, EMBASE, and PsycINFO were searched in March 2022 and repeated in March 2023, covering the period from January 1990 onwards. Searches were restricted to English-language publications (see Supplementary Material 2 for full strategy). Two reviewers (T.G. and L.N.) each independently screened 50% of titles and abstracts. Full-text articles were then reviewed, with 20% assessed in duplicate. Discrepancies were resolved through discussion or, where necessary, consultation with a third reviewer (L.W.). Forward and backward citation tracking was performed to identify additional studies.

Data extraction

Relevant data was extracted into predefined tables by T.G. and L.N. using Microsoft Excel. The data extracted was informed by the PRISMA guidelines (Moher et al., 2009) and consisted of participant characteristics (age, gender, ethnicity and diagnosis), study characteristics (design, sample size, location of study), intervention characteristics (intervention type, number of sessions, intervention facilitator), outcome measures (all data on all available outcome measures), and data analysis methods.

Risk of bias assessment

Quality assessment of the included studies was undertaken using the relevant risk of bias assessment tools. The risk of bias assessments were conducted independently by both T.G. and L.N., and any discrepancies in ratings were discussed with L.W. and collectively agreed upon. The risk of bias assessments were not used to exclude studies with a higher risk of bias from the current review. For randomised trials, Cochrane's RoB-2 (Sterne et al., 2019) was used, and for cluster randomised trials, the RoB-2 for Cluster-Randomised Trials (Eldridge et al., 2021) was applied. Both tools allowed for the judgement of a paper as 'Low', 'Some concerns', or 'High' risk of bias. For cohort and controlled/non-randomised trials, Cochrane's ROBINS-I (Sterne et al., 2016) was used, which generates a judgement of 'Low', 'Moderate', 'Serious', or 'Critical' risk of bias. For single-arm pre-post studies, the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool (Thomas et al., 2004) was used, leading to a 'Weak', 'Moderate', or 'Strong' risk of bias.

Data synthesis

Due to the heterogeneity of the interventions (i.e., design, duration, self-management domains, outcome measures, follow-up), a meta-analysis was deemed inappropriate (see Supplementary Material 3 for the data synthesis protocol). Therefore, following our study protocol, a narrative synthesis was carried out to examine the relationships within and between the studies and to provide a comprehensive summary of the overall evidence. The narrative synthesis adhered to the method described by Popay et al. (2006), which involved developing a preliminary synthesis, exploring relationships in the data, and assessing the robustness of the synthesis. First, study characteristics were narratively described and tabulated, and then intervention outcomes were narratively summarised by outcome type. This process was undertaken in turn to answer each of the review objectives.

Results

Overall, a total of 9,865 results were identified. Eleven results could not be retrieved for abstract screening, and 4,039 were removed as duplicates, leaving 5,815 papers to be screened at the title and abstract stage. Four full-text papers could not be sourced, leaving 67 full texts to be assessed for eligibility. In total, seven papers were included in the current review (see Figure 1). A link to the full search results has been provided (see Supplementary Material).

[INSERT FIGURE 1]

Evidence quality and risk of bias

Figure 2 presents the risk of bias assessments for the included studies, with all seven studies rated as having a high overall risk of bias (see Supplementary Material 8 for further details). No studies were excluded due to the limited volume of research in this area. Selection bias was a notable concern, with only two studies employing randomisation (Dimeff et al., 2021; O'Connor et al., 2020). Despite small sample sizes, baseline characteristics were generally balanced, although significant differences in age and sex were reported in some studies (Dimeff et al., 2021; Gibson et al., 2014; O'Connor et al., 2015). Performance bias was rated as low to moderate, while detection bias ranged from moderate to high, largely due to assessors being aware of treatment allocation. Attrition bias was significant across most studies, with dropout rates ranging from 0% to 53%, and higher attrition observed in longer-duration interventions. Reporting bias was identified in three studies, particularly O'Connor et al. (2020), due to the absence of pre-specified analysis plans and the potential for selective reporting. Further details on baseline differences, attrition, and missing data are available in Supplementary Material 12.

[INSERT FIGURE 2]

Characteristics of Included Studies

The characteristics of the included studies are summarised in Table 1. A full breakdown of baseline characteristics can be found in the supplementary material.

Most studies were conducted in Europe (Bahlmann et al., 2022; Booth et al., 2014; Fife et al., 2019; Gibson et al., 2014), with additional studies from the United States (Dimeff et al., 2021; O'Connor et al., 2015; 2020). Four studies were carried out in acute inpatient psychiatric units

(Bahlmann et al., 2022; Booth et al., 2014; Fife et al., 2019; Gibson et al., 2014). The remaining studies recruited participants from emergency departments (Dimeff et al., 2021) and medical inpatient units (O'Connor et al., 2015; 2020). Across the seven studies, sample sizes ranged from 20 to 114 participants, with a total sample size of 370.

Only two studies reported participant diagnoses in detail (Fife et al., 2019; Gibson et al., 2014), representing 34% of the total sample ($n = 127$). Of this subgroup, 57% met diagnostic criteria for Emotionally Unstable Personality Disorder (EUPD); other reported diagnoses included depression (34%), anxiety disorders (17%), and psychosis (4%). Females made up the majority of participants (63%). Ethnicity data were reported in four studies (Dimeff et al., 2021; Fife et al., 2019; O'Connor et al., 2015; 2020), indicating 63.2% of participants identified as White, 19.5% as Asian, 8.3% as Black, and 9% as mixed or "other" ethnic backgrounds.

[INSERT TABLE 1]

Characteristics of intervention and control conditions

The intervention conditions for the trials included in this review have been summarised below. Please see table 2 for further detail of the interventions, which adhere to TIDieR (Template for Intervention Description and Replication) reporting guidelines for interventions (Hoffmann et al., 2014).

[INSERT TABLE 2]

Self-management interventions

Table 2 provides an overview of the self-management domains covered by the seven included studies. As per the criteria of the current review, each study was required to implement at least one of the three recovery-focused self-management domains (Mueser et al., 2002; Lean et al., 2019). Two studies implemented a single approach, three studies implemented two approaches, and two studies incorporated all three. Overall, the most frequently implemented self-management domain was *coping skills for dealing with persistent symptoms*, followed by *recognition of early warning signs of relapse and development of a relapse prevention plan*. The least implemented domain was *psychoeducation about mental illness and its treatment*. The most common combination of two domains was coping skills and relapse prevention planning ($n = 3$).

Intervention modality/ approach

A total of six distinct interventions were examined across the seven studies. All interventions broadly aimed to reduce suicidal ideation, self-harm behaviours, and associated emotional dysregulation, while enhancing individuals' problem-solving and coping abilities. The interventions drew on a range of psychological models, including Cognitive Behavioural Therapy (CBT), Behavioural Analysis (BA), Acceptance and Commitment Therapy (ACT), Dialectical Behaviour Therapy (DBT), and the Collaborative Assessment and Management of Suicidality (CAMS). Two interventions—*Living Through Distress* (LTD) (Booth et al., 2014; Gibson et al., 2014) and *Coping with Crisis* (CwC) (Fife et al., 2019)—were informed solely by DBT-based skills development.

Intervention Delivery

Five of the six interventions were delivered face-to-face (Bahlmann et al., 2022; Booth et al., 2014; Gibson et al., 2014; Fife et al., 2019; O'Connor et al., 2015; 2020). Of these, three were delivered in a one-to-one format (Bahlmann et al., 2022; O'Connor et al., 2015; 2020), and two were delivered in a group format (Booth et al., 2014; Gibson et al., 2014). The remaining intervention (Dimeff et al., 2021) was self-directed and accessed via a tablet-based, AI-powered chatbot application. Group interventions were facilitated by psychological professionals (Booth et al., 2014; Gibson et al., 2014; Fife et al., 2019). Information on the facilitators of the one-to-one interventions was limited; however, the *Teachable Moment Brief Intervention* (TMBI; O'Connor et al., 2020) was delivered by either a psychiatry resident, social worker, or graduate counsellor. Session lengths varied considerably across studies. The shortest intervention was a single session averaging 43.98 minutes (SD = 12.87) (O'Connor et al., 2015), while the longest consisted of 24 sessions, each 60 minutes in duration, delivered over six weeks (Booth et al., 2014; Gibson et al., 2014). Most interventions were delivered over one to five sessions.

Comparator conditions

Of the seven trials included in this review, four employed a treatment-as-usual (TAU) or usual care (UC) comparator group in their design (see Table 2). TAU/UC consisted of standard care in the following settings: Emergency Department (ED) care (Dimeff et al., 2021), inpatient psychiatric mental health care (Gibson et al., 2014), and acute inpatient medical care (O'Connor et al., 2015; 2020).

Examined Outcomes

The included studies varied in the outcome measures used to assess the efficacy, feasibility, and acceptability of their interventions. They also differed in the length of follow-up periods,

which ranged from 2 hours to 12 months post-intervention. A combination of clinician-/researcher-administered and self-reported measures was used across studies. All included studies assessed outcomes related to self-harm, suicide, or both. Additional outcome measures were evaluated; however, these were not consistent across studies (see Table 3 below for a full list of outcome measures assessed at various time points).

[INSERT TABLE 3]

Feasibility and Acceptability

Data gathered from the four interventions assessing feasibility and acceptability outcomes broadly validated the interventions as both feasible and acceptable (see Table 2). Various domains of feasibility were reported across studies. Data indicated good levels of enrolment (Dimeff et al., 2021; Fife et al., 2019), intervention completion (Bahlmann et al., 2022), intervention engagement and satisfaction (O'Connor et al., 2015; 2020; Dimeff et al., 2021; Fife et al., 2019; Bahlmann et al., 2022), follow-up appointment completion (O'Connor et al., 2015), and clinician fidelity to the intervention manual (O'Connor et al., 2020). Fife et al. (2019) raised concerns regarding the collection of post-intervention data, with only nine participants (38% of the sample) completing post-intervention measures. Two studies reported no adverse events during the intervention period (Dimeff et al., 2021; Fife et al., 2019), while the remaining studies did not report data on this.

Intervention Effectiveness

Suicidal ideation

Four studies measured the impact their intervention had on participants' suicidal ideation, with three of them using the Beck Scale for Suicidal Ideation (BSS). One study (the RISE intervention; Bahlmann et al., 2022) showed a significant reduction in suicidal ideation between baseline and follow-up. However, no significant differences were found in the intensity of suicidal ideation or intent to act. The two Teachable Moment Brief Interventions (TMBI) presented more mixed results. One TMBI study (O'Connor et al., 2015) indicated no significant difference in suicidal ideation (BSS total scores) between groups, with most participants in both groups (~70%) reporting no wish to end their life at follow-up. Similarly, the other TMBI study (O'Connor et al., 2020) found no significant differences between groups in suicidal ideation over 12 months. Regarding coping with suicidal ideation, the Jaspr Health App intervention (Dimeff et al., 2021) resulted in a significant increase in Suicide-Related Coping Skills (SRCS) scores compared to Treatment as Usual (TAU) participants, with TAU

showing only small effects. These findings highlight the varying effectiveness across the different self-management strategies when it comes to reducing and coping with suicidal ideation.

Suicidal Behaviour

Two studies examined suicide attempts over time. The RISE Intervention (Bahlmann et al., 2022) found that 89% (n=16) of participants at 6 months reported no suicide re-attempts. However, two participants (11%) did attempt suicide, both of whom had a history of multiple suicide attempts. Similar outcomes were observed in O'Connor et al. (2020), with two intervention participants attempting suicide (one reported a suicide attempt with a strong intent to die and the other with an ambivalent desire to die) and two Treatment as Usual (TAU) participants attempting suicide (both with a clear intent to die).

Self-harm

Three studies reported on the effectiveness of their intervention in reducing participants' self-harming behaviour, with two studies assessing the same Living Through Distress (LTD) Group intervention, both finding a reduction in the frequency of self-harm. Booth et al. (2014) identified significant decreases in self-harm over time from baseline to post-intervention and at the 3-month follow-up. Similarly, Gibson et al. (2014) identified significant between-group differences, with the LTD intervention group showing a lower frequency of self-harm compared to Treatment as Usual (TAU). In contrast, the Coping with Crisis (CwC) intervention (Fife et al., 2019) showed that, of the nine participants (38%) who completed post-intervention outcome measures, five (56%) reported no self-harm post-intervention, while two (22%) reported self-harming, and two (22%) did not answer. In both interventions, the overall frequency of self-harm decreased for intervention participants. However, some participants in each study continued to report no change in their self-harming behaviour, and in some cases, there was an increase.

Secondary outcomes

The RISE intervention demonstrated significant reductions in both clinician-rated and self-reported depressive symptoms, alongside notable decreases in hopelessness and the intensity of mental pain. Additionally, participants reported a significant increase in self-efficacy following the intervention (Bahlmann et al., 2022). Participants using the Jaspr Health App showed reductions in agitation and distress (Dimeff et al., 2021). The TMBI intervention group exhibited significant improvements in reasons for living scores when compared to the usual care group. Moreover, TMBI participants showed increased motivation to address their problems (O'Connor et al., 2015).

A significant reduction in inpatient days per year was observed following the LTD group intervention (Booth et al., 2014). Participants in the RISE programme reported higher levels of help-seeking behaviour, with 82% seeking professional assistance as part of their safety plan. TMBI intervention participants attended 27% more outpatient appointments, had 43% more contact with counsellors/therapists, and experienced a 43% reduction in hospitalization rates compared to control participants (O'Connor et al., 2020). An increase in distress tolerance skills was reported both post-intervention and at the three-month follow-up for the LTD group (Booth et al., 2014). Participants using the Jaspr Health App demonstrated enhanced coping ability (Dimeff et al., 2021). Further details on secondary outcomes, as well as non-significant findings, are provided in Supplementary Material 10

Journal Pre-proof

Discussion

This review aimed to examine the types, perceived utility, and effectiveness of self-management interventions targeting suicidal ideation and self-harm within acute mental health crisis settings. These settings typically provide time-limited, focused care, where longer-term psychosocial interventions are often neither feasible nor readily available (Wood et al., 2022). Self-management interventions may offer a viable solution to this limitation. The included studies employed varying recovery-focused self-management approaches, as conceptualised by Mueser et al. (2002) and Lean et al. (2019). The most frequently implemented domain was coping skills, followed by the recognition of early warning signs of relapse, while psychoeducation was the least commonly applied. Findings from this review tentatively suggest that interventions incorporating all three recovery-focused domains may be particularly effective in reducing suicidal ideation. Interventions aimed at reducing self-harm may benefit from an emphasis on the coping skills domain.

Overall, the reviewed self-management interventions were broadly validated as both feasible to deliver and acceptable to service users. This is consistent with existing literature on time-limited psychological interventions for suicidality, which report relatively high levels of engagement and acceptability (McCabe et al., 2018). Although only one of the three studies assessing suicidal ideation reported statistically significant reductions, all demonstrated a downward trend, with no studies reporting a worsening of symptoms—an important consideration given concerns about potential iatrogenic effects in suicidal populations (Franklin et al., 2016). Similarly, all three studies examining self-harm reported reductions following intervention, though only one employed a control group (Gibson et al., 2014). Suicide attempts were rare, with just four reported across all studies, precluding any meaningful conclusions on this outcome. While the studies included were not statistically powered to detect changes in suicide attempts, the absence of adverse effects is encouraging. In accordance with Medical Research Council (MRC) guidance on developing complex interventions (Skivington et al., 2021), the next stage should involve fully powered trials to more rigorously assess the efficacy of these interventions in acute care contexts.

A range of secondary outcomes were also evaluated across the studies, though few findings were consistent, limiting generalisability. For example, Gibson et al. (2014) found no significant differences in anxiety or depression between intervention and control groups, whereas Bahlmann et al. (2022) reported significant reductions in depressive symptoms, mental pain, and hopelessness, alongside mood improvements. While both studies were conducted in inpatient settings, Gibson et al. (2014) reported that a substantial proportion of their sample

met criteria for EUPD—a diagnosis frequently comorbid with depression and associated with poorer treatment response (Ceresa, Esposito, & Buoli, 2021)—which may account for the disparity in findings. Service use outcomes were consistently positive, including reductions in inpatient bed days, improved attendance at outpatient appointments, and increased help-seeking behaviours. These results suggest that self-management interventions may foster greater self-agency in managing care (Mueser et al., 2002). This interpretation is further supported by improvements in distress tolerance, coping skills, and confidence reported across several studies (Booth et al., 2014; Dimeff et al., 2021; Bahlmann et al., 2022). Taken together, these findings indicate that self-management interventions in acute settings may also offer economic benefits; however, further research is required to substantiate these conclusions.

Interventions that were effective in reducing participants' suicidal ideation (SI) utilised self-management skills based on Cognitive Behavioural Therapy (CBT), Acceptance and Commitment Therapy (ACT), Dialectical Behaviour Therapy (DBT), and Collaborative Assessment and Management of Suicidality (CAMS) approaches. For reducing self-harm over time, effective interventions used DBT-informed skills. Current treatment guidelines for self-harm highlight the effectiveness of CBT-informed interventions (NICE, 2022). While this paper does not dispute this, it tentatively suggests that additional self-management approaches can be effective in managing suicidal ideation in the presence of self-harm, and that focusing on patient-identified drivers for suicide (CAMS), alongside DBT-informed skills, could enhance individuals' coping skills in dealing with suicidal ideation. Potentially helpful aspects of the intervention were highlighted, such as learning skills for behavioural activation, developing a hope box, safety planning, psychoeducation, and coping skills development. This provides valuable insight into strategies that clinicians may wish to consider when supporting patients in developing these skills.

There are several evidence-based interventions with established efficacy in addressing emotion dysregulation, a key individual-level factor associated with suicidal ideation and self-harm. A recent umbrella review of 21 systematic reviews, including 11 meta-analyses and rated as having a moderate overall risk of bias, identified Dialectical Behaviour Therapy (DBT) and Cognitive Behavioural Therapy (CBT) as effective across a broad range of adult psychiatric populations, both transdiagnostic and healthy, in community and inpatient settings (Saccaro et al., 2024). The present review found that all included interventions incorporated components targeting emotional dysregulation. Consequently, self-management interventions informed by CBT, DBT, and Acceptance and Commitment Therapy (ACT) may be particularly well-suited for crisis settings, where brief interventions are often necessary. However, larger-scale trials

incorporating analyses of mechanisms of change are needed to further evaluate the effectiveness and active components of these interventions in such contexts.

The current review adhered to rigorous pre-established guidelines and best practices for conducting systematic reviews. It followed the PRISMA guidelines, was pre-registered on PROSPERO, and employed narrative synthesis methods in line with established guidance (Popay et al., 2006). These methodological choices enhanced the specificity, reliability, and comprehensiveness of the review. In addition, the interventions included were examined using the TIDieR (Template for Intervention Description and Replication) reporting framework. The review was conducted in an under-researched area, which ultimately resulted in a limited number of eligible studies. Nevertheless, the rigorous procedures employed enabled a robust narrative synthesis of the available literature and interventions, supporting the formulation of informed recommendations for future research.

Regarding limitations, a technical issue prevented the export of 11 articles from the CINAHL database during the initial search. However, given the small number of potentially affected papers, the high rate of ineligible studies, and the large number of duplicates identified, we are confident that this did not impact the overall findings. The review also took longer to complete than initially anticipated. To account for this, an updated search was conducted. During this process, the original search platform (HDAS) had become unavailable, requiring the use of EBSCO to access the same databases. Despite this change in platform, the search strategy itself remained consistent across both time points.

Our definition of self-management interventions was based on two robust definitions utilised in previous studies (Mueser et al., 2002; Lean et al., 2019), however the final studies included in the review were heterogeneous and most could be conceptualised as adapted evidenced-based psychological interventions. Future reviews should ensure a robust definition of self-management interventions is used, which are interventions that provide recipients with skills required to successfully live with and manage the physical, social, and emotional impact of a chronic condition (Taylor et al., 2014), that better distinguishes between self-management interventions and adapted psychological interventions. Due to the heterogeneity in the included studies interventions, conducting a meta-analysis was unfeasible, which meant that we could not quantitatively assess the intervention effects. We could also not undertake any subgroup analysis, for example compare intervention effectiveness across age groups, which would have provided insights given emotion regulation matures in early adulthood. All included studies had a high risk of bias upon assessment, which means that the results from the included studies could potentially lead to inaccurate or misleading results, this necessitates

a cautious and critical approach to interpreting their results. The inclusion of open label uncontrolled studies of self-management interventions is a further limitation as it does not allow us to determine that any effects found in the study were due to the reported intervention. Self-management interventions are often an adjunct to other treatment methods, including a comprehensive medication regimen, and a limitation of our review is that any effects reported in the intervention effectiveness section cannot be attributed to the self-management intervention itself. We excluded qualitative and mixed method studies in order to focus on clinical trials but this may have led to the exclusion of studies that provide important insight into the topic area. Moreover, we excluded studies that were not published in English and did not search grey literature meaning further relevant studies may have been missed.

We included studies that were conducted in a variety of crisis service settings namely inpatient unit, crisis teams, Accident and Emergency departments (A&E), and stabilisation units, as this reflects the crisis mental health care pathway in the United Kingdom, where the researchers are based. However, we acknowledge that this may not reflect the care pathways in other countries, which may limit the generalisability of findings. Moreover, the spectrum of crisis services also meant that the interventions included in our review were diverse and heterogenous. This may also further limit the interpretability and generalisability of findings.

Future research should prioritise the implementation of large-scale randomised controlled trials (RCTs) to build upon the smaller pilot and feasibility studies included in the current review. These studies should be rigorously designed to minimise risk of bias and incorporate evaluations of mechanisms of change. To enhance comparability and reduce variability in findings, future research should also adopt standardised measures of intervention feasibility and acceptability, in line with best practice guidance (Lancaster & Thabane, 2019). Furthermore, the development and use of standardised outcome measures—such as core outcome sets, which are currently lacking in this field—should be prioritised for self-management interventions (Jacobsen et al., 2024). Given the heterogeneity of intervention modalities and approaches, future studies may benefit from employing multi-arm trial designs to compare the effectiveness of individual versus combined components, thereby identifying the most impactful elements of self-management interventions. Additionally, the consistent use of comparable secondary outcome measures (e.g., depression, anxiety, and service use) across studies would facilitate future meta-analyses and systematic comparisons. Finally, addressing high attrition rates is critical for advancing research in acute care settings. Strategies to enhance participant retention should be integrated into study designs. Previous research suggests that methods such as offering researcher flexibility, collecting multiple contact details, obtaining consent to be contacted via a trusted third party, and aligning follow-

up assessments with routine clinical appointments can significantly improve retention (Jacobsen et al., 2022).

In conclusion, this review identified seven studies of six self-management interventions which aimed to reduce suicidal intent and self-harm. The most commonly used self-management strategies were developing coping skills, recognition of early warning signs of relapse and development of a relapse prevention plan. The included studies show mixed results with only a small number demonstrating improvements in suicidal ideation and self-harm. The majority of studies demonstrated a high risk of bias and therefore definitive conclusions cannot be drawn. Further large-scale high-quality definitive clinical trials of self-management interventions for suicidal ideation and self-harm is required.

Journal Pre-proof

Reference List:

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>

Autism spectrum disorder - Symptoms, diagnosis and treatment | BMJ Best Practice. (n.d.). <https://bestpractice.bmj.com/topics/en-gb/379>

Autism Spectrum Disorder. (n.d.). National Institute of Mental Health (NIMH). <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd#:~:text=Autism%20Spectrum%20Disorder-,Overview,first%202%20years%20of%20life.>

Bahlmann, L., Lübbert, M. B., Sobanski, T., Kastner, U. W., Walter, M., Smesny, S., & Wagner, G. (2022). Relapse Prevention Intervention after Suicidal Event (RISE): Feasibility study of a psychotherapeutic short-term program for inpatients after a recent suicide attempt. *Frontiers in psychiatry*, 13.

Booth, R., Keogh, K., Doyle, J., & Owens, T. (2014). Living through distress: a skills training group for reducing deliberate self-harm. *Behavioural and cognitive psychotherapy*, 42(2), 156-165.

Bickley H, Hunt IM, Windfuhr K, Shaw J, Appleby L, Kapur N. Suicide within two weeks of discharge from psychiatric inpatient care: a case-control study. *Psychiatr Serv.* 2013 Jul 1;64(7):653-9. doi: 10.1176/appi.ps.201200026. PMID: 23545716.

Brooker, C., Ricketts, T., Bennett, S., & Lemme, F. (2007). Admission decisions following contact with an emergency mental health assessment and intervention service. *Journal of Clinical Nursing*, 16(7), 1313-1322.

Byrne, S. J., Bellairs-Walsh, I., Rice, S. M., Bendall, S., Lamblin, M., Boubis, E., ... & Robinson, J. (2021). A qualitative account of young people's experiences seeking care from emergency departments for self-harm. *International journal of environmental research and public health*, 18(6), 2892.

Carroll, R., Metcalfe, C., & Gunnell, D. (2014). Hospital presenting self-harm and risk of fatal and non-fatal repetition: systematic review and meta-analysis. *PLoS one*, 9(2), e89944.

DeLeo, K., Maconick, L., McCabe, R., Broeckelmann, E., Sheridan Rains, L., Rowe, S., & Johnson, S. (2022). Experiences of crisis care among service users with complex emotional needs or a diagnosis of “personality disorder”, and other stakeholders: systematic review and meta-synthesis of the qualitative literature. *BJPsych Open*, 8(2), e53. doi:10.1192/bjo.2022.1

De Beurs, D., Vancayseele, N., van Borkulo, C., Portzky, G., & van Heeringen, K. (2018). The association between motives, perceived problems and current thoughts of self-harm following an episode of self-harm. A network analysis. *Journal of affective disorders*, 240, 262-270.

Dimeff, L. A., Jobes, D. A., Koerner, K., Kako, N., Jerome, T., Kelley-Brimer, A., Boudreaux, E.D., Beadnell, B., Goering, P., Witterholt, S., Melin, G., Samike, V., & Schak, K. M. (2021). Using a tablet-based app to deliver evidence-based practices for suicidal patients in the emergency department: Pilot randomized controlled trial. *JMIR mental health*, 8(3), e23022.

Eckerström, J., Flyckt, L., Carlborg, A., Jayaram-Lindström, N. and Perseus, K.-I. (2020), Brief admission for patients with emotional instability and self-harm: A qualitative analysis of patients' experiences during crisis. *Int J Mental Health Nurs*, 29: 962-971. <https://doi.org/10.1111/inm.12736>

Fife, S., Blumenfeld, F., Williams, C., & Wood, L. (2019). A feasibility study highlighting challenges in evaluating a structured, psychological treatment for self-harm in adult psychiatric inpatient settings. *Psychiatry research*, 282, 112609.

Franklin, J. C., Fox, K. R., Franklin, C. R., Kleiman, E. M., Ribeiro, J. D., Jaroszewski, A. C., ... & Nock, M. K. (2016). A brief mobile app reduces nonsuicidal and suicidal self-injury: Evidence from three randomized controlled trials. *Journal of Consulting and Clinical Psychology*, 84(6), 544.

Franklin, J. C., Fox, K. R., Franklin, C. R., Kleiman, E. M., Ribeiro, J. D., Jaroszewski, A. C., ... & Nock, M. K. (2016). A brief mobile app reduces nonsuicidal and suicidal self-injury: Evidence from three randomized controlled trials. *Journal of Consulting and Clinical Psychology*, 84(6), 544.

Gibson, J., Booth, R., Davenport, J., Keogh, K., & Owens, T. (2014). Dialectical behaviour therapy-informed skills training for deliberate self-harm: A controlled trial with 3-month follow-up data. *Behaviour research and therapy*, 60, 8-14.

Horrocks, J., Price, S., House, A., & Owens, D. (2003). Self-injury attendances in the accident and emergency department: Clinical database study. *The British Journal of Psychiatry*, 183(1), 34-39.

Jacobsen, P., Haddock, G., Raphael, J., Peak, C., Winter, R., & Berry, K. (2022). Recruiting and retaining participants in three randomised controlled trials of psychological interventions conducted on acute psychiatric wards: top ten tips for success. *BJPsych open*, 8(4), e125.

Jacobsen, P., Berry, K., Clarkson, L. et al. Development of a core outcome set for psychological therapy trials on acute psychiatric inpatient wards. *BMC Psychiatry* 24, 821 (2024). <https://doi.org/10.1186/s12888-024-06294-x>

Lapsley, H., Nikora, L. W., & Black, R. M. (2002). *"Kia Mauri Tau!" Narratives of recovery from disabling mental health problems*. Mental Health Commission.

Lean, M., Fornells-Ambrojo, M., Milton, A., Lloyd-Evans, B., Harrison-Stewart, B., Yesufu-Udechuku, A., & Johnson, S. (2019). Self-management interventions for people with severe mental illness: systematic review and meta-analysis. *The British Journal of Psychiatry*, 214(5), 260-268.

Linehan, M. (2014). *DBT? Skills training manual*. Guilford Publications.

McCabe, R., Garside, R., Backhouse, A., & Xanthopoulou, P. (2018). Effectiveness of brief psychological interventions for suicidal presentations: a systematic review. *BMC psychiatry*, 18, 1-13.

McManus, S., Bebbington, P. E., Jenkins, R., & Brugha, T. (2016). *Mental health and wellbeing in England: the adult psychiatric morbidity survey 2014*. NHS digital.

Mewton, L., & Andrews, G. (2016). Cognitive behavioral therapy for suicidal behaviors: improving patient outcomes. *Psychology Research and Behavior Management*, 9, 21–29. <https://doi.org/10.2147/PRBM.S84589>

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group*, T. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine*, 151(4), 264-269.

Mueser, K. T., Corrigan, P. W., Hilton, D. W., Tanzman, B., Schaub, A., Gingerich, S., ... & Herz, M. I. (2002). Illness management and recovery: a review of the research. *Psychiatric services*, 53(10), 1272-1284.

National Institute of Health and Care Excellence (NICE). (2022). Self-harm: assessment, management and preventing recurrence.

NHS Confederation (2019) The NHS Long Term Plan

O'Connor, S. S., Comtois, K. A., Wang, J., Russo, J., Peterson, R., Lapping-Carr, L., & Zatzick, D. (2015). The development and implementation of a brief intervention for medically admitted suicide attempt survivors. *General hospital psychiatry*, 37(5), 427-433.

O'Connor, S. S., Mcclay, M. M., Choudhry, S., Shields, A. D., Carlson, R., Alonso, Y., Lavin, K., Venazi, L., Comtois, K. A., Wilson, J. E., & Nicolson, S. E. (2020). Pilot randomized clinical trial of the Teachable Moment Brief Intervention for hospitalized suicide attempt survivors. *General hospital psychiatry*, 63, 111-118.

Opmeer BC, Hollingworth W, Marques EMR (2017) Extending the liaison psychiatry service in a large hospital in the UK: a before and after evaluation of the economic impact and patient care following ED attendances for self-harm. *BMJ Open*:e016906. doi: 10.1136/bmjopen-2017-016906

Orlando, C. M., Broman-Fulks, J. J., Whitlock, J. L., Curtin, L., & Michael, K. D. (2015). Nonsuicidal self-injury and suicidal self-injury: A taxometric investigation. *Behavior therapy*, 46(6), 824-833.

Owens, C., Fox, F., Redwood, S., Davies, R., Foote, L., Salisbury, N., ... & Thomas, K. (2020). Measuring outcomes in trials of interventions for people who self-harm: qualitative study of service users' views. *BJPsych Open*, 6(2), e22.

Paton F, Wright K, Ayre N, Dare C, Johnson S, Lloyd-Evans B, et al. Improving outcomes for people in mental health crisis: a rapid synthesis of the evidence for available models of care. *Health Technol Assess* 2016;20(3). <https://doi.org/10.3310/hta20030>

Roberts, A. R. (2005). *Crisis Intervention Handbook: Assessment, Treatment, and Research*. Oxford: Oxford University Press.

Saccaro LF, Giff A, De Rossi MM, Piguet C. Interventions targeting emotion regulation: A systematic umbrella review. *J Psychiatr Res*. 2024 Jun;174:263-274. doi: 10.1016/j.jpsychires.2024.04.025. Epub 2024 Apr 18. PMID: 38677089.

Singleton, N., Bumpstead, R., O'Brien, M., Lee, A., & Meltzer, H. (2003). Psychiatric morbidity among adults living in private households, 2000. *International Review of Psychiatry*, 15(1-2), 65-73.

Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., ... & Moore, L. (2021). A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj*, 374.

Taylor, S. J., Pinnock, H., Epiphaniou, E., Pearce, G., Parke, H. L., Schwappach, A., ... & Sheikh, A. (2014). A rapid synthesis of the evidence on interventions supporting self-management for people with long-term conditions.(PRISMS Practical Systematic Review of Self-Management Support for long-term conditions). *Health services and delivery research*, 2(53), 1-580.

Witt, K. G., Hetrick, S. E., Rajaram, G., Hazell, P., Salisbury, T. L. T., Townsend, E., & Hawton, K. (2021). Psychosocial interventions for self-harm in adults. *Cochrane Database of Systematic Reviews*, (4).

Witt, K., Spittal, M. J., Carter, G., Pirkis, J., Hetrick, S., Currier, D., ... & Milner, A. (2017). Effectiveness of online and mobile telephone applications ('apps') for the self-

management of suicidal ideation and self-harm: a systematic review and meta-analysis. *BMC psychiatry*, 17, 1-18.

Wood, L., Williams, C., Pinfold, V. et al. Crisis-focused Cognitive Behavioural Therapy for psychosis (CBTp) in acute mental health inpatient settings (the CRISIS study): protocol for a pilot randomised controlled trial. *Pilot Feasibility Stud* 8, 205 (2022).
<https://doi.org/10.1186/s40814-022-01160-7>

World Health Organization. (2014). *Preventing suicide: A global imperative*. World Health Organization.

World Health Organization. (2019). F84 Pervasive developmental disorders. In *International statistical classification of diseases and related health problems* (11th ed.).
<https://icd.who.int/browse11/l-m/en#http%3a%2f%2fid.who.int%2fid%2fentity%2f505909942>

Zahl, D. L., & Hawton, K. (2004). Repetition of deliberate self-harm and subsequent suicide risk: long-term follow-up study of 11 583 patients. *The British Journal of Psychiatry*, 185(1), 70-75.

Figure 1: PRISMA Flow Diagram

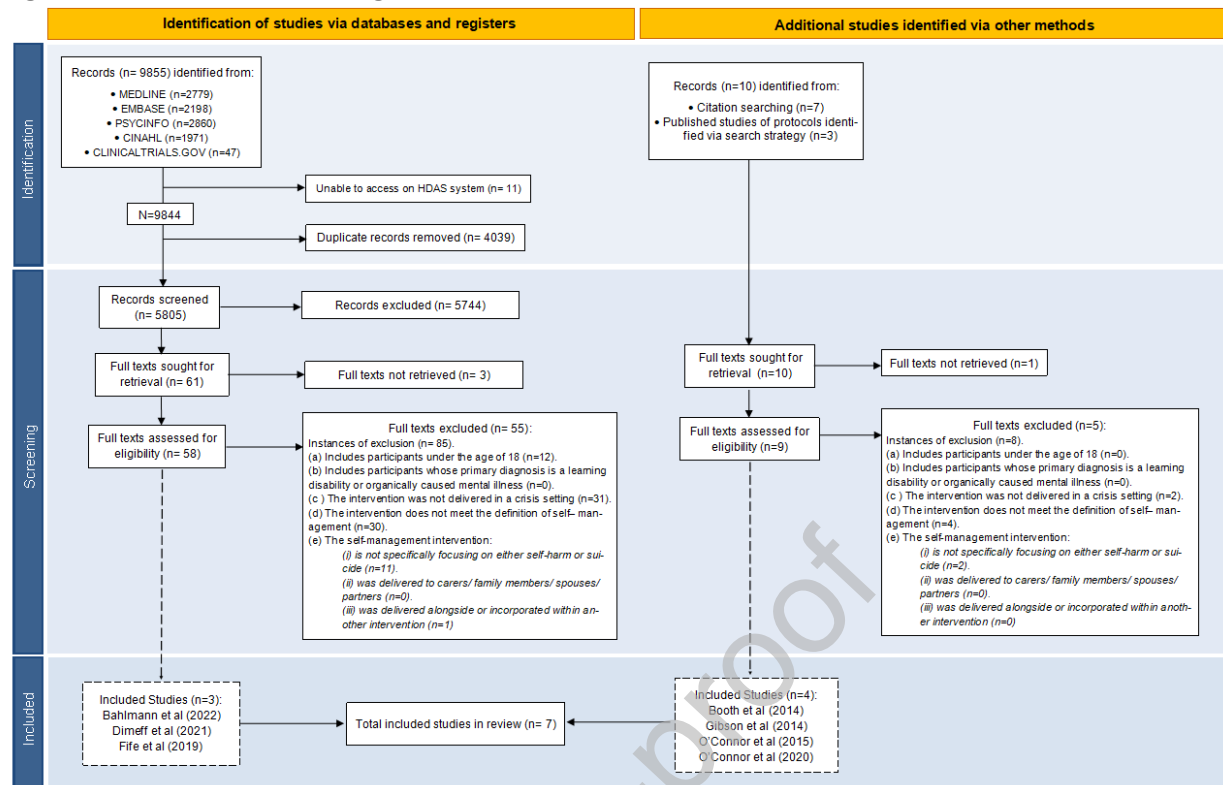


Table 1: Included Study Characteristics

Author and title	Design and Sampling Method	Criteria	Study Setting and Sample Size	Participant Baseline Demographics	Study Conditions	Outcome Measures & Results
Bahlmann et al (2022) <i>Relapse Prevention Intervention after Suicidal Event (RISE): Feasibility study of a psychotherapeutic short-term program for inpatients after a recent suicide attempt.</i>	Design: Open Pre-post pilot study. Sampling method: Referred by MDT/ RC's.	Inclusion: a) DSM-5 criteria for current SBD. Exclusion: a) Acute psychosis; b) Acute intoxication, or withdrawal symptoms; c) Diagnosed intelligence impairment; d) Language barriers; e) Lack of insight; f) DX of dementia.	Psychiatric inpatient hospital ward, Jena, Germany. EC, N=20	Age and gender: Age (M=35.6, SD=14.2), Male (N=11, 55%) Clinical features: Suicide intent scale (M=12.5, SD=4.3) MDD (N=15, 75%). DX: Alcohol dependence (N=1, 5%) OCD (N=2, 10%), Acute Stress Disorder (N=1, 5%), BN (N=1, 5%). SA HX: 1 prior SA (N=20,	Relapse Prevention Intervention after Suicidal Event (RISE) Programme + TAU. There was no comparator group.	Pre and post* intervention: German BSS, MADRS, QIDS-SR, BHS and SWE. During intervention: HAQ and NAS. Feasibility/ Acceptability: *10 open ended questions. Adherence: N of pts completing intervention. 6- month follow-up: Occurrence of

				60%), >2 SA's (N=8, 40%) Index SA: Drug intoxication (N=13, 65%), SH from sharp object (N=4, 20%), SP from alcohol (N=1, 5%), SH from strangulation (N=1, 5%), SH from motor vehicle accident (N=1, 5%).		SA's. And to what extent RISE program elements were used. Results: Significant reduction in SI and mental pain, no sig difference in SI intensity or intent. Improved mood and depressive symptoms. Reduced hopelessness. Increased confidence in coping skills. Positive pt satisfaction with the intervention. Majority of pts reported no SA's, and safety plans were widely used. 95% of pts completed intervention.
Booth et al (2014) <i>Living through distress: a skills training group for reducing deliberate self-harm.</i>	Design: Pre-post design. Sampling method: Referred by MDT/RC's.	Inclusion: a) 18 years+; b) HX/risk of DSH. Exclusion: a) Not permitted to leave hospital's special care ward.	Psychiatric inpatient hospital in Dublin, Ireland. EC, N=167	Age and gender: Age (M=35.22, SD=10.97), Female (N=92, 80.7%). Clinical features: SCID criteria for EUPD (N=70, 61.4%), HX of DSH (N=102, 89.5%).	Living Through Distress Group (LTD) + TAU. <i>There was no comparator group.</i>	Baseline: SCID-II participant reported measures, SCID-II interview questions, DSH/DSH interview, self-reported DTS, M number of pre-LTD inpatient days per year for the previous 4 years. Post intervention: DSHI and self-reported DTS. 3-month follow-up: DSHI, self-reported DTS, days per spent

						as an inpatient. Results: Significant decrease in frequency of SH incidents (baseline vs post-LTD and baseline vs 3-month). No SH at post group assessment. Sig decreases in N of inpatient days per year. Increase in self-reported distress tolerance skills. Challenges with engagement and data completion.
*Dimeff et al (2021) <i>Using a Tablet-Based App to Deliver Evidence-Based Practices for Suicidal Patients in the Emergency Department: Pilot Randomized Controlled Trial.</i>	Design: Unblinded multi-site pilot RCT. Sampling method: Referred by RC's.	Inclusion: (a) 18 years+; (b) English-speaking; (c) Acutely suicidal in the ED. Exclusion: (a) Actively psychotic; (b) Severely agitated; (c) Significantly impaired by alcohol or drugs.	ED based psychiatric crisis services from 2 EDs located in the Midwest, USA. EC, N=14 TAU/UC, N= 17 Total, N= 31	Age and Gender: Age (Overall, M=34.3, SD= 15.17; Jaspr Health, M= 29, range= 19-49, SD= 10.76; TAU, M= 39, range= 18-68, SD=16.92), Gender (Overall female, n=20, 65%; Jaspr Health, Males n= 6, 43%, Females n=8, 57%; TAU, Males n=5, 29%, Females n=12, 71%). Ethnicity: Black/ African American (Jaspr Health, n=0, 0%; TAU, n=1, 6%), White (Jaspr Health, n=12, 86%; TAU, n=15, 88%), Multiple/Other (Jaspr Health, n=2, 14%;	Jaspr Health App + TAU. Compared to: UC/ TAU.	Pre and post intervention measures: SIDQ, and SRCS. 2-hour post intervention measures: SRCS, SIDQ and brief semi structured interview asking about suicide prevention "best practices", thoroughness and delivery. Feasibility/ Acceptability: ER-PSS, total N of minutes used, and satisfaction (JHPSQ). AEs, premature stopping of a session (by staff due to welfare) or disengagement (after 20 mins). Results:

				TAU, n=1, 6%). SA's and severity: None (Jaspr Health, n=3, 21%; TAU, n=3, 18%), 1 SA (Jaspr Health, n=5, 36%; TAU, n=4, 24%), ≥2 (Jaspr Health, n=6, 43%; TAU, n=10, 59%). SH: Yes (Jaspr Health, n=7, 50%; TAU, n=12, 71%), No (Jaspr Health, n=7, 50%; TAU, n=5, 29%).		Intervention pts showed sig decrease in agitation and distress. Increase in coping ability. Sig increases in suicidal crisis symptoms scores. Positive pt feedback on app usefulness. Reported receiving more best practice interventions. No statistically sig effect on readiness to go home safely.
Fife et al (2019) A feasibility study highlighting challenges in evaluating a structured, psychological Treatment for self-harm in adult psychiatric inpatient settings.	Design: Single Arm Feasibility Trial. Sampling method: Referred by RC's.	Inclusion: (a) Aged 18-65 years; (b) Admitted (formally/ informally under MHA); (c) HX of SH/ ≥1 episode of SH; (d) capacity to consent. Exclusion: (a) Non-English speaking; (b) Unable to provide informed consent; (c) Unable to concentrate for an hour at a time.	5 inpatient wards in a National Health Service (NHS) Trust based in outer London, UK. EC, N=24.	Age and Gender: Age (M= 36.3, SD= 8.8, range= 21-55) Gender (Males, n= 17; Females, n= 7), Age Male (M= 38.8, SD= 5.7, range= 21-55), Age Female (M= 37.4, SD= 14.3, range= 25- 48). Ethnicity: White British (total n=17, 71%; male n= 14, 82%; female n=3, 43%), 'Mixed' Ethnicity (total n=2, 9%; male n= 0, 0%; female n=2, 29%), Black British (total n=1, 4%; male n= 0, 0%; female n=1, 14%), Pakistani (total n=1, 4%; male n= 1, 6%; female n=0, 0%), White	Coping with Crisis' (CwC) Group + TAU. <i>There was no comparator group.</i>	Baseline measures: Participant demographics, DTS and ISAS (up to 2 sections). Post intervention measures: ISAS (up to 2 sections) and DTS. Feasibility/ Acceptability: Specifically developed measure looking at: rates of recruitment, participant engagement, session attendance and outcome measure completion. Clinician recorded AEs and qualitative feedback questionnaires. Results:

				European (total n=1, 4%; male n= 1, 6%; female n=0, 0%), Jamaican (total n=1, 4%; male n= 1, 6%; female n=0, 0%), Polish (total n=1, 4%; male n= 0, 0%; female n=1, 14%) DX's: EUPD (total n= 6, 25%; male n= 3, 18%; female n= 3, 44%), Psychosis (total n= 5, 21%; male n= 3, 18%; female n= 2, 28%), Depression (total n= 5, 17%; male n= 5, 29%; female n= 0, 0%), Anxiety (total n= 1, 4%; male n= 1, 6%; female n= 0, 0%), ASD (total n= 1, 4%; male n= 1, 6%; female n= 0, 0%), DX not known (total n= 4, 17%; male n= 2, 11%; female n= 2, 28%), No DX (total n= 2, 8%; male n= 2, 12%; female n=0, 0%).		Limited data completion and engagement. Only descriptive statistics available due to low participant numbers.
Gibson et al (2014) <i>Dialectical behaviour therapy-informed skills training for deliberate self-harm: A controlled trial with 3-month follow-up data.</i>	Design: Single centre, non-randomised controlled trial. Sampling method: Referred by MDT.	Inclusion: a) 18 - 60 years of age; b) DSH during previous 6 weeks and/or meet diagnostic criteria for EUPD. Exclusion: a) Not permitted to	Independent, not for profit mental health hospital, Location not specified. EC, N=82 TAU/UC, N=21 Total= 103	Age and gender: Age (TAU, M=31.52, SD=11.23; LTD, M=38.07, SD=10.26), Female (TAU, N=12, 57.1%; LTD, N=55, 78.6%). DX's: (TAU, N=20; LTD, N=81),	Living Through Distress Group (LTD) + TAU. Compared to: UC/ TAU.	Baseline only measures: Demographic and clinical information (from medical notes). Baseline, post-intervention and 3-month follow-up measures:

		leave the ward.		Depression (TAU, N=8, 38.1%; LTD, N=35, 50%), BaD (TAU, N=3, 14.3%; LTD, N=13, 18.6%), Anxiety disorders (TAU, N=7, 33.3%; LTD, N=14, 20%), Adjustment disorders (TAU, N=1, 4.8%; LTD, N=3, 4.3%), Eating disorders (TAU, N=1, 4.8%; LTD, N=2, 2.9%), EUPD (TAU, N=18, LTD, N=78) (TAU, N=14, 66.7%; LTD, N=52, 74.3%). Frequency of SH: (TAU, M=15.06, SD=19.71; LTD, M=21.06, SD=35.96).		DSHI/DSH interview, Depression (13 items) and Anxiety (10 items) subscales of the SCL-90-R, DERS and CERQ-short. Results: LTDG pts sig decreases in frequency of SH between baseline vs post-intervention and baseline vs 3-month. No sig diff for anxiety or depression. Positive and negative correlation results for SH and ER measures.
O'Connor et al (2015) <i>The development and implementation of a brief intervention for medically admitted suicide attempt survivors.</i>	Design: Feasibility Pilot RCT. Sampling method: RC referrals and APCS caseload reviews.	Inclusion: **a) ≥15 years of age; b) Inpatient on medical/surgical unit; c) ADM following SA; d) Sufficient English; f) Provides consent. Exclusion: a) Lack of sufficient English; b) Prisoner/inmate at ADM; c) Cognitively impaired, delirious, or psychotic; d) ADM for SH without intent to die or denied SA.	Medical/surgical floor, Level 1 trauma centre. Vanderbilt University Medical Centre, Tennessee, USA. EC, N= 15 TAU/UC, N= 15 Total, N= 30	Age and gender: Age (TAU, M=39.02, SD=14.43; TMBI, M=43.67, SD=13.13), Female (Total, n=8; TAU, n=7; TMBI, n=1), Male (Total, n=22; TAU, n=8; TMBI, n=14). Ethnicity: Asian/Asian American (Total, n=22; TAU, n=12; TMBI, n=12), Black/African American (Total, n=2; TAU, n=0; TMBI, n=2), Native American	The Teachable Moment Brief Intervention (TMBI) + TAU. Compared to: UC/ TAU.	Pre-randomisation/ Baseline measures: SSI, SASIC, RFL (adol. Version), SCQ, and DDS. Post Intervention Feasibility/ Acceptability: CSQ. Adherence: TMBI-RS for selected participants. 1-month follow-up measures: SSI, SASIC, RFL (adol. Version) and SCQ. Results: TMBI pts showed improved

				(Total, n=1; TAU, n=1; TMBI, n=0), White (Total, n=1; TAU, n=0; TMBI, n=1), Other (Total, n=1; TAU, n=1; TMBI, n=0). SA's: (TAU, M=10.21, SD=18.4, IQR=2.00 (1.0-9.2); TMBI, M=4.14, SD=4.42, IQR=2.5 (1.0-5.3)).		readiness to change over time, sig improved reasons for living scores. TAU pts showed decline in motivation at 1-month and greater but non-sig improvement in SI overall. Adherence data was not included in the analyses/ publication.
***O'Connor et al. (2020) <i>Pilot randomized clinical trial of the Teachable Moment Brief Intervention for hospitalized suicide attempt survivors.</i>	Design: Pilot RCT. Sampling method: RC referrals and APCS caseload reviews.	Exclusion: a) Not ADM to medical/ surgical floor following episode of SH; b) DX severe head, spinal cord or other injury impacting participation; c) Incarcerated/ recent HX of severe violence (likely to lead to criminal charges); d) Non-English speaking.	Psychiatric inpatient unit and medical/ surgical floor, Level 1 trauma centre. Vanderbilt University Medical Centre, Tennessee, USA. EC, N=23 TAU/UC, N= 25 Total, N= 48	Age and gender: Age (TAU, M=41.96, SD=2.70; TMBI, M=43.26, SD=2.48), Female (TAU, n=12, 48%; TMBI, n=10, 43.47%). Ethnicity: Asian (TAU, n=0, 0%; TMBI, n=1, 4.35%), Black (TAU, n=4, 16%; TMBI, n=2, 8.7%), Mexican (TAU, n=0, 0%; TMBI, n=1, 4.35%), Native Hawaiian (TAU, n=1, 4%; TMBI, n=1, 4.35%), White (TAU, n=20, 80%; TMBI, n=18, 78.26%). SA's: (TAU, median=2.0, IQR=1.0; TMBI, median=1.0, IDR=1.25).	The Teachable Moment Brief Intervention (TMBI) + TAU. Compared to: UC/ TAU.	Baseline measures: SCQ, BSS, SASIC, RFL, Health Services and Medication Use, INQ-15 (19), and DDS. Post Intervention Feasibility/ Acceptability: CSQ. Fidelity/ Adherence: Fidelity ratings for interventionists and TMBI-RS 1-month, 3-month and 12-month follow-up measures: SASIC (Abbr), SCQ, BSS, RFL, Health Services and Medication Use and INQ-15 (19). Results: No sig differences in SI, reasons for living, and stages for change subscales between TMBI and TAU

						across time points. TMBI pts non-sig improvements in motivation to change behaviours. Greater but non-sig improvements at 3-months in motivation to change. TMBI pts had increased outpatient appointments but reduced hospitalisations TAU sig improvement in thwarted belongingness between baseline and 12-months. Across groups SA's reported with varying intent. Overall TMBI-RS M=4.78, SD=0.77 and comparable fidelity ratings for interventionists (F=0.73, p=0.5).
--	--	--	--	--	--	--

*Dimeff et al: Noted that demographic numbers and percentages may not sum to total because of missing data.

**O'Connor et al (2015): Noted that no minors (under 18's) were recruited to the study. Full criteria found on clincialtrials.gov page for the study. Not discussed in published paper.

***O'Connor et al. (2020): Inclusion criteria not found in paper.

ADM (admission), AE (Adverse Event), APCS (Adult Psychiatry Consultation Service), ASD (Autism Spectrum Disorder), BaD (Bipolar Affective Disorder), BHS (German Hopelessness Scale, based on Beck's cognitive theory of depression), BN (Bulimia Nervosa), EUPD (Emotionally Unstable Personality Disorder), BSS (Scale for Suicide ideation; 19-item used to evaluate the current intensity of specific attitudes toward, behavior, and plans to commit suicide), CAMS (Collaborative Assessment and Management of Suicidality), CERQ-short (Cognitive Emotion Regulation Questionnaire (measures nine cognitive strategies used to cope with negative event), CG (control group), CSQ (Client Satisfaction Questionnaire- 8-item measure of individual satisfaction with health and human services. 4-point Likert scale: 1=poor, 2=fair, 3=good, 4=excellent), C-SSRS (Columbia scale to evaluate the severity of the suicidal ideation), DDS (Demographic Data Survey (gender, sexual orientation, marital status, income, ethnicity, and number of family members located within a 50-mile radius), DERS (Difficulties in Emotional Regulation Scale; 36-item measure of six domains of emotion dysregulation (a) Non-Acceptance of Emotions, (b) Inability to Engage in Goal-Directed Behaviours when Distressed, (c) Impulse Control Difficulties, (d) Limited Access to Emotion Regulation Strategies, (e) Lack of Emotional Awareness, and (f) Lack of Emotional Clarity), DSH (Deliberate Self Harm), DSHI (or DSI) (Deliberate Self-Harm Inventory; 17-item questionnaire that measures various aspects of DSH such as type, frequency, and severity), DSM-5 (The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition), DTS (Distress Tolerance Scale (15 items, which measures participants' appraisal of their emotional distress, their ability to tolerate this distress and any regulation efforts to alleviate it), DX (diagnosis), EC (Experimental Condition), ED (Emergency Department), ER-PSS (Emergency Room-Patient Satisfaction Survey; 7-item measure used to assess patient experience in the ED. Developed in consultation with healthcare patient experience service division. The initial 6 items used a 5-point rating scale (1=poor; 5=excellent). Items included the helpfulness of ED visit, the degree to which individual felt listened to and cared about by their care team, the likelihood that they would recommend the ED to others in their situation, and their overall rating of care they received. A final item involves rating their overall ED experience from 1 (worst) to 100 (best)), ES (Emergency service(s)), EUPD (Emotionally Unstable Personality Disorder), GP (general practitioner), HAQ (Helping Alliance Questionnaire; 11-item self-reported measure to evaluate the quality of the patient-therapist relationship), HDRS (Hamilton Depression Rating Scale; to evaluate the severity of depressive symptoms), HX (history), INQ-15(19) (The Interpersonal Needs Questionnaire; 15-item measure that inquiries about the extent to which individuals feel connected to others (i.e., belongingness) and the extent to which they feel like a burden on the people in their lives (i.e., perceived burdensomeness)), ISAS (The Inventory of Statements About Self-Injury; 46 item self-report measure, with two additional optional items, designed to assess the function and frequency of self-harm previously reported), JHPSQ (Jaspr Health Patient Satisfaction Questionnaire; 8-item survey that adapts the ER-PSS to evaluate Jaspr Health,

including its ease of use and helpfulness to patients), LTE (The Brugha's scale of life threatening experiences), MADRS (Montgomery-Åsberg Depression Rating Scale, clinician rated depressive symptoms), MDD (Major Depressive Disorder), MDS (Beck's scale of medical damage caused by the suicide attempt; scores classified previous attempts as of high (MDS ≥ 4) or low lethality (MDS < 4)), MDT (Multi-Disciplinary Team), MHA (Mental Health Act), NAS (1st, 3rd, and 5th session: 1-10 scale to assess the intensity and intent of SI, and 1-10 scale to measure the intensity of pre-session psychological pain), NDA (Next Day Appointment), OCD (Obsessive Compulsive Disorder), OT (Occupational Therapy), PLEs (people with lived experiences), pts (Participants), PTSD (Post Traumatic Stress Disorder), QIDS-SR (Quick Inventory of Depressive Symptomatology-Self Rating; 16-item (0-27 score) questionnaire assessing the severity of depressive symptoms within the past week. Higher scores indicating more severe depressive symptoms), RC (Responsible Clinician), RCT (Randomised Control Trial), RFL (The Reasons for Living Inventory; 48-item measure that assesses the extent to which different factors serve as perceived barriers to suicide), RFL adol. Version (The Reasons for Living Inventory Adolescent version; 32-item adolescent version), SA (Suicide Attempt), SASIC (The Suicide Attempt Self-Injury Count collects information on the date of attempt/self-injury, method used and previous attempts (using definitions of self-inflicted injuries which include situations of actual tissue damage and situations where tissue damage would have occurred except for outside intervention or sheer luck), intent to die (i.e., intent to die, ambivalent, no intent to die), highest level of medical treatment received, and lethality), SBD (suicidal behaviour disorder), SCID (The Structured Clinical Interview for DSM-IV), SCID-II (The Structured Clinical Interview for DSM-IV Axis II Personality Disorders), SCL-90-R (symptom's checklist-90-revised; measures distress caused by psychiatric symptoms), SCQ (The Stages of Change Questionnaire; 18-item measure with 4 subscales reflecting precontemplation, contemplation, action, and maintenance regarding working on one's problems), SD (Standard Deviation), SH (Self Harm), SI (Suicidal ideation), SIDQ (Safety and Imminent Distress Questionnaire; 4-item looking at intensity of emotional distress (1=none; 10=highest ever felt), the extent to which they felt calm or agitated (1=very calm; 10=very frustrated or agitated), their ability to cope with thoughts of killing themselves (1=no ability to cope; 10=strong ability to cope), and their ability to go home safely (1=not able; 10=very able), SIn (Self injury), SP (Self poisoning), SRCS (Suicide-Related Coping Scale; 17-item self-report measure of coping with suicidal thoughts, urges, and crises. Uses a 5-point rating scale (0=strongly disagree; 4=strongly agree), SSI (The Scale for Suicidal Ideation; 19-item assessment used to evaluate the current intensity of the patient's specific attitudes toward, behaviour, and plans to commit suicide), SW (Social Work), SWE (The General Self-Efficacy Scale; assess changes in patient's self-efficacy before and after treatment), TAU (Treatment As Usual), TMBI-RS (The Teachable Moment Brief Intervention Rating Scale, 9 specific adherence items, scores range from 1 (poor) to 6 (excellent)), TX (Treatment), UC (Usual Care), WHO/EURO (European World Health Organisation Region Europe).

Table 2: Overview of intervention conditions (TIDieR informed table re guidelines for interventions).

	Bahlmann et al (2022)	Booth et al (2014) & Gibson et al (2014)	Dimeff et al (2021)	Fife et al (2019)	O'Connor et al (2015)	O'Connor et al (2020)
Intervention name:	Relapse Prevention Intervention	Living Through Distress	Jaspr Health.	Coping with Crisis'	The Teachable Moment Brief	The Teachable Moment Brief

	on after Suicidal Event (RISE) Programme.	Group (LTD).		(CwC) Group.	Intervention (TMBI).	Intervention (TMBI).
(a) Psychoeducation about mental illness and its treatment:	✓	✗	✓	✗	✗	✗
(b) Recognition of early warning signs of relapse and development of a relapse prevention plan:	✓	✗	✓	✓	✓	✓
(c) Coping skills for dealing with persistent symptoms:	✓	✓	✓	✓	✓	✓
Modality/ approach:	CBT/ BA/ ACT	DBT informed–skills	CAMS/ DBT informed–skills	DBT informed–skills	CAMS/ FA SDV DBT	CAMS/ FA SDV DBT/ CBT-SP / BCBT-SP
Number of sessions:	5	24	1	4	1	1
Length of sessions:	50-60 minutes	60 minutes	Up to 120 minutes	60 minutes	M= 43.98 minutes	30-60 minutes
Delivery schedule:	2-3 weeks (2-3 sessions per week).	6 weeks (4 sessions per week).	N/A	2 weeks (within a 31-day period).	N/A	N/A

Delivery, how:	1:1 Face to face.	Face to face group.	Self-directed.	Face to face group.	1:1 Face to face.	1:1 Face to face.
Number of attendees:	N/A	Unknown	N/A	Unknown	N/A	N/A
Delivery, where:	Psychiatric inpatient setting.	Psychiatric inpatient setting.	A&E inpatient setting.	Psychiatric inpatient setting.	Medical inpatient setting.	Medical inpatient setting.
Delivered by:	Unknown	Senior Clinical Psychologists/ Clinical Psychologists.	AI powered chatbot tablet application	Assistant Psychologists/ Clinical Psychologists.	Unknown	Psychiatry Residents/ Social Worker/ Graduate Counsellor
Main aim/ goal of intervention:	To reduce suicide re-attempts in those who SH, enhance ability to cope with suicidal thoughts and crises, and boost motivation for further treatment.	To provide individuals with skills they can implement when they experience intense emotional distress, in an effort to reduce SHB.	Increase the delivery of suicide prevention evidence-based practices to reduce SB and improve quality of A&E care delivered to those with SI.	Provide inpatients, who SH, coping strategies to deal with crises and SHB.	Help pts identify factors underlying SI and move towards rejecting suicide and address problems leading to SB.	Keep protective factors after SA elevated for a longer period of time.
Intervention content:	Recent SA used to generate timeline identifying triggers/ warning signs. Case conceptualisation for deeper understanding of SB. Education	Sessions included brief mindfulness exercise, review of homework, teaching skill of the day and in session skill practice (self-	Conducting suicide assessment, discusses the importance of lethal means safety management, delivers psychoeducation	Standalone sessions focused on SH and CM strategies. 15 min mindfulness task ('wise mind', observing skills, describing	Discussion of what was lost and gained with SA. Validation of internal/ external motivations with SA, while acknowledging that death may	Drivers contributing to SA are identified. Discussion about what has been lost and gained and why SA occurred and relationships

	to understand, identify and manage triggering SA/ SI/ crisis situations, use of different coping strategies. Creation of individual CM plan. Reviewed and expanded on using out of session work and BA to look at its effectiveness.	soothe, wise mind, mindfulness, labelling emotion, opposite action, distraction, radical acceptance or building a life worth living).	video (delivered via PLEs), and exploring DBT skills. These are then used to develop a collaborative CM plan which is shared with the MDT for discharge planning.	skills, and participating skills) underpinned with the skill of taking a non-judgmental and not self-critical approach. Following 45 min focuses on DT and ER skills and development of CM strategies.	not have been only desired outcome of SA. Develop short term CM, discussion on navigating mental health services. Completion of worksheet.	p to SB. Develop short-term crisis plan (5 coping strategies and crisis numbers). Documenting factors which need addressing in ongoing care. Summary of what was learned and discussion of next steps in recovery.
Intervention tailoring/modification:	Intervention was not modified over the course of the study. And while sessions were tailored to the individual depending on specific needs, each session focused on a specific manualise	Intervention was not modified over the course of the study, nor does it appear to have been tailored/ adapted.	Researchers remained in the room with pts so they could answer pts questions about using the app. App use time was paused when pts met with care team and then	Intervention was not modified over the course of the study, nor does it appear to have been tailored/ adapted.	In this study pts in the final data sample received intervention which was not modified or tailored/ adapted. Initially a sample of n=10 patients informed the refinemen	Session is designed to be delivered in 45 minutes. Noted in paper that session can be delivered between 30-60 minutes. No information regarding how session

	d component of the interventio n.		resumed when done. No data was recorded regarding these componen ts i.e. how often aspects of app needed explaining or how often it was paused.		t of the treatment protocol.	changes with shorter/ longer time.
Materials used:	Sessions are accompa nied by various worksheets (unspeci fied).	Unknown	Tablet computer	Handouts and worksheets from 'DBT Skills Training Handouts and Worksheets' (Linehan, 2014).	One page worksheet for documenti ng factors underlying SI, recording crisis response plan, short-term coping strategies and long- term treatment planning.	N/A
Out of session work:	Worksheet s/ exercises/ homework.	Homewor k and/or skill practice.	N/A	N/A	N/A	N/A
Interventio n follow- up componen t:	Sent letter 4 times in 12 months after end of interventio n. Letter	N/A	N/A	N/A	N/A	N/A

	provided crisis support numbers and reminder of key elements of the intervention.					
Adherence :	Planned: N Pts completing intervention. Actual: 95% pts completed intervention.	Planned: None done Actual: None done	Planned: None done Actual: None done	Planned: None done Actual: None done	<i>Planned: Part of study aim was to refine and pilot intervention manual and adherence measure. Second author reviewed selected sessions to develop and rate adherence. Actual: Adherence data was not included in the analyses/publication.</i>	Planned: Outcome of TMBI RS. Actual: Overall TMBI-RS M=4.78, SD=0.77.

Fidelity:	Planned: None done Actual: None done	N/A	N/A	N/A	N/A	Comparable fidelity ratings for interventionist (F=0.73, p=0.50): Psychiatry Residents (M=4.83, SD=0.81), Social Worker (M=4.17, SD=0.55), and Counselling Graduate (M=4.78, SD=0.77).
Abbreviations: A&E (Accident and Emergency), ACT (Acceptance and Commitment Therapy), AI (Artificial Intelligence), BA (Behaviour Analysis), BCBT-SP (Brief Cognitive Behaviour Therapy for Suicide Prevention), CAMS (Collaborative Assessment and Management of Suicidality), CBT, (Cognitive Behavioural Therapy), CBT-SP (Cognitive Behavioural Therapy for Suicide Prevention), CM (Crisis Management), DBT (Dialectical Behavioural Therapy), DT (Distress Tolerance), ER (Emotion Regulation), FA SDV DBT (Functional Analysis of Self Directed Violence in Dialectical Behavioural Therapy), MDT (Multi-Disciplinary Team), PLEs (People with Lived Experience), pts (participants), SA (Suicide Attempt), SB (Suicidal Behaviour), SH (Self Harm), SI (Suicidal Ideation), TMBI-RS (Teachable Moment Brief Intervention Rating Scale, (9 components, scores range from 1 (poor) to 6 (excellent))).						

Figure 2: Risk of Bias Assessments- overall domain scores

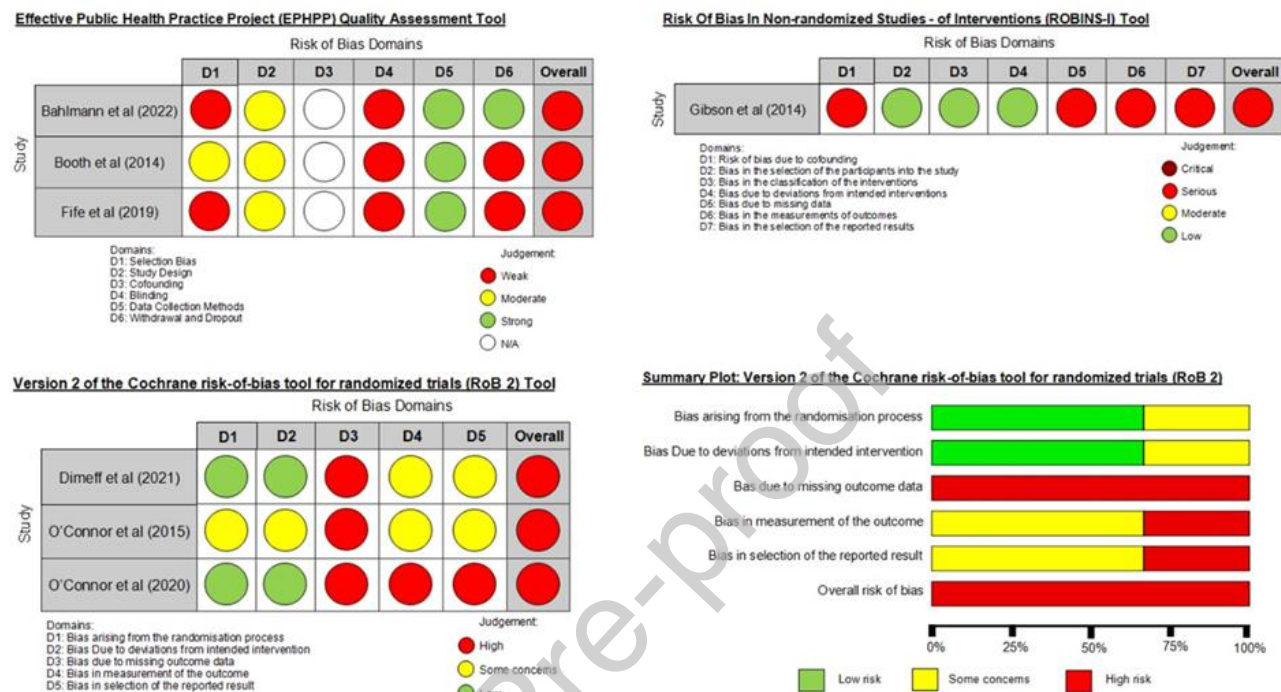


Table 3: Outcome Measure Table

Timepoint and Examined Outcome Measures								
	Baseline/ Pre- intervention n	During intervention n	Post intervention n	Feasibility/ Acceptability y	1-month	3-month	6- month	12-month
Bahlman et al (2022)	German BSS, MADRS, QIDS-SR, BHS and SWE.	HAQ and NAS.	German BSS, MADRS, QIDS-SR, BHS, SWE and	Feedback questionnaire.	N/A	N/A	N of SA's. And to what extent RISE	N/A

			Feasibility/ Acceptability measure.				program elements were used.	
Booth et al (2014)	SCID-II participant reported and interview questions, DSHI-interview, DTS, M N inpatient days per year in last 4 years.	N/A	DSHI and DTS.	N/A	N/A	DSHI, DTS and N days per spent as an inpatient.	N/A	N/A
Dimeff et al (2021)	SRCS and SIDQ.	N/A	SRCS, SIDQ, Feasibility/Acceptability measure.	Semi structured interview, ER-PSS, total N of minutes app used, JHPSQ, N AEs and premature app stopping.	N/A	N/A	N/A	N/A
Fife et al (2019)	DTS and ISAS.	N/A	DTS, ISAS and Feasibility/Acceptability measure.	Measure looking at: rates of recruitment, participant engagement, session attendance and outcome measure completion. N AEs and feedback questionnaire.	N/A	N/A	N/A	N/A
Gibson et al (2014)	DSHI-interview, DERS, CERQ-short, subscales of SCL-90-R.	N/A	DSHI-interview, DERS, CERQ-short, subscales of SCL-90-R.		N/A	DSHI-interview, DERS, CERQ-short, subscales of SCL-90-R.	N/A	N/A
O'Connor et al (2015)	SSI, SASIC, RFL (adol. Version), SCQ, and DDS.	N/A	Feasibility/Acceptability measure.	CSQ.	SSI, SASIC, RFL (adol. Version) and SCQ.	N/A	N/A	N/A

O'Connor et al (2020)	SCQ, BSS, SASIC, RFL, Health Services and Medication Use, INQ-15 (19), and DDS.	N/A	Feasibility/ Acceptability measure.	CSQ.	Abbreviated SASIC, SCQ, BSS, RFL, Health Services and Medication Use and INQ-15 (19).	Abbreviated SASIC, SCQ, BSS, RFL, Health Services and Medication Use and INQ-15 (19).	N/A	Abbreviated SASIC, SCQ, BSS, RFL, Health Services and Medication Use and INQ-15 (19).
-----------------------	---	-----	-------------------------------------	------	---	---	-----	---

Abbreviations used in table: AE (Adverse Event), BHS (German Hopelessness Scale), BSS (Scale for Suicide ideation), CERQ-short (Cognitive Emotion Regulation Questionnaire), CSQ (Client Satisfaction Questionnaire), DDS (Demographic Data Survey), DERS (Difficulties in Emotional Regulation Scale), DSI-Interview (Deliberate Self Inventory- Interview), DTS (Distress Tolerance Scale), ER-PSS (Emergency Room-Patient Satisfaction Survey), HAQ (Helping Alliance Questionnaire), INQ-15 (19) (The Interpersonal Needs Questionnaire), JHPSQ (Jaspr Health Patient Satisfaction Questionnaire), M (Mean), MADRS (Montgomery-Åsberg Depression Rating Scale), N (number of..), N/A (not applicable), NAS (Numeric scale for psychological pain related to suicidal ideation), QIDS-SR (Quick Inventory of Depressive Symptomatology-Self Rating), RFL (The Reasons for Living Inventory), SA (Suicide Attempt), SASIC (The Suicide Attempt Self-Injury Count), SCL-90-R (symptom's checklist-90-revised), SCQ (Stages of Change Questionnaire), SH (Self-harm), SIDQ (Safety and Imminent Distress Questionnaire), SRCS (Suicide-Related Coping Scale), SSI (The Scale for Suicide Ideation), SWE (The General Self-Efficacy Scale).

Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: