

1-1-2020

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[10.1111/papt.12277](https://ro.ecu.edu.au/ecuworkspost2013/8663)

Taylor, P. J., Fien, K., Mulholland, H., Duarte, R., Dickson, J. M., & Kullu, C. (2020). Pilot service evaluation of a brief psychological therapy for self-harm in an emergency department: Hospital Outpatient Psychotherapy Engagement Service. *Psychology and Psychotherapy: Theory, Research and Practice*, e12277. <https://doi.org/10.1111/papt.12277>

This Journal Article is posted at Research Online.  
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*Special issue paper*

# Pilot service evaluation of a brief psychological therapy for self-harm in an emergency department: Hospital Outpatient Psychotherapy Engagement Service

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**Background.** Brief psychological therapies may be helpful for people who have recently self-harmed. The current paper reports on a service evaluation of a novel brief therapy service based within an Emergency Department, Hospital Outpatient Psychotherapy Engagement (HOPE) Service. This service combines elements of psychodynamic interpersonal and cognitive analytic therapy to help people who present with self-harm-related difficulties. The primary aim of this service evaluation was to ascertain the feasibility of HOPE in terms of attendance rates. The study also examined variables associated with engagement, and change over time in psychological distress for those attending the service.

**Method.** The HOPE service was evaluated over a ten-month period. Consenting patients completed measures of psychological distress and working alliance across four therapy sessions and one follow-up session. Measures of emotion regulation style and self-harm function were also completed at the point of referral.

**Results.** Eight-nine patients were referred to the service (83 eligible referrals). Fifty-three (64%) attended at least one therapy session. Baseline variables did not distinguish people who attended and people who did not. Psychological distress decreased significantly across the sessions. Most people reported a good working alliance with their therapist.

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**Conclusions.** The results of this service evaluation support the feasibility of the HOPE service, demonstrating good engagement rates given the complexity of the population and context. Whilst there was evidence of reductions in distress, randomized controlled trials are needed to determine if HOPE has clinical efficacy.

## Practitioner points

- Rates of engagement with HOPE suggest the service is feasible in an Emergency Department context
- Working alliance scores were positive for the majority of patients
- The HOPE service shows promise as a brief intervention for people who self-harm but requires further evaluation
- Randomized controlled trials are needed to determine the clinical efficacy of the HOPE service

Suicide is a major problem globally (World Health Organization, 2019), and in the United Kingdom, with rates of ten deaths in every 100,000 people in 2017 (Office of National Statistics, 2018). Self-harm, defined as acts of self-injury both with and without suicidal intent, encompassing behaviours such as self-cutting and overdoses (National Institute for Health and Clinical Excellence, 2013), is associated with an increased risk of death by suicide (Hawton *et al.*, 2015; Ribeiro *et al.*, 2016). There are approximately 200,000 admissions annually to Emergency Departments (EDs) in the United Kingdom due to self-harm (Clements *et al.*, 2016; Hawton *et al.*, 2007), and approximately 21% of those will repeat self-harm in the following year (Bergen, Hawton, Waters, Cooper, & Kapur, 2010). These people are therefore an important focus for suicide prevention and intervention efforts. Self-harm is also indicative of psychological distress and difficulty, providing a further reason for intervention with this group (Goldman-Mellor *et al.*, 2014). EDs provide a setting whereby people with recent self-harm might be identified and referred to intervention. Rapid access to intervention at this point may help prevent deterioration and worsening difficulties and is a key National Health Service (NHS) target to ensure parity of esteem between physical and mental ill-health (NHS England, 2017).

Systematic reviews and meta-analyses indicate that psychological therapies can help people struggling with self-harm, leading to a reduction in the risk of repetition, as well as improvements in associated difficulties such as suicidal ideation or depression (Hawton *et al.*, 2017; Hetrick, Robinson, Spittal, & Carter, 2016; Turner, Austin, & Chapman, 2014). These reviews provide preliminary support for various approaches including mentalization-based therapy, Cognitive Behavioural Therapy, Dialectical Behaviour Therapy and Emotion-Regulation Group Therapy. Brief (four-session) Psychodynamic Interpersonal Therapy (PIT) has also been shown to reduce repetition of self-harm, depressive symptoms, and suicidal thinking (Guthrie *et al.*, 2001). Briefer approaches like PIT may have particular utility within a pressured ED context. Brief therapies are important in increasing access despite limited resources. For people presenting at ED with recent self-harm, more immediate psychological support may be needed to reduce the risk of deterioration and short-term repetition. Brief psychological therapies that can be provided quickly (e.g., within a few weeks) to those presenting at ED following self-harm may be one solution to these difficulties.

Whilst there is currently not strong evidence to support a specific brief psychotherapy approach, brief PIT was found to be effective in an ED context (Guthrie *et al.*, 2001). PIT is a relational approach (focused on relationships with self and others), and this may be important given that interpersonal antecedents for self-harm appear most common (Bickley *et al.*, 2013). Cognitive-Analytic Therapy (CAT; Ryle & Kerr, 2002) is another

relational approach that may be helpful for people who self-harm. There is evidence that brief CAT-informed approaches may help improve subsequent engagement with treatment amongst young people who self-harm (Ougrin, Boege, Stahl, Banarsee, & Taylor, 2013; Ougrin, Ng, & Low, 2008). Small-scale case series suggest a brief CAT approach can be feasibly administered within ED settings, by staff with limited therapy experience (Sheard *et al.*, 2000). A pilot trial of a CAT-informed approach for young people with co-occurring psychosis and borderline personality difficulties (a population where self-harm is very prevalent) also suggested further evaluation was warranted (Gleeson *et al.*, 2012).

The Hospital Outpatient Psychotherapy Engagement (HOPE) service was set up in a busy inner-city hospital ED to provide brief psychological therapy (four sessions plus one follow-up) to those people presenting to ED following self-harm. HOPE uses an integrative approach that combines PIT with elements of CAT (Turpin, 2011), based on preliminary evidence that such approaches may be helpful for people who self-harm. HOPE was developed in response to the growing awareness of the prevalence of self-harm within the area, and a recognition of the need for prompt access to treatment. HOPE is delivered by nursing and psychiatric liaison staff, who typically have less training in psychological therapies than clinical psychologists or psychiatrists who might usually provide such interventions. Within HOPE, a therapeutic conversation with clients is facilitated with a focus on attending to, describing and elaborating the client's feelings, both within the room with the therapist and in their wider lives (Hobson, 1985). The therapy focuses on identifying and understanding possible links between feelings, relationships, and experiences (e.g., noting a common pattern of avoiding conflict with others that occurs across various relationships). Both CAT and PIT have a relational focus, considering the client's relationships with others and the way they relate to themselves (e.g., self-critical, supportive, dismissive) as important processes underlying problems like self-harm, and this is therefore a focus within HOPE.

This paper reports on a pilot service evaluation of HOPE. The primary aim was to evaluate the feasibility of HOPE by assessing the rates of session attendance. A secondary aim was to investigate differences between those who engaged with HOPE by attending at least one session and those who did not, in terms of age, gender, method of self-harm, self-harm function, and emotion regulation style. Evidence that certain patient groups are more likely to engage with HOPE would have implications for the accessibility of the service. A tertiary aim was to provide a preliminary estimate of changes over time in psychological distress, suicide plans, and working alliance for patients referred to HOPE. Both group-level change statistics and individual-level rates of reliable change (improvement or deterioration) were evaluated. Whilst changes in suicide plans and distress cannot be attributed to the intervention due to the lack of a comparison group, it is nonetheless of value to track the trajectory of change for these patients to determine whether people in this setting tend to see an improvement or worsening in their difficulties. The data on working alliance were used to indicate whether a positive alliance could be developed and maintained across the four sessions. This is important given the impact that working alliance has on therapy outcomes (Blake, Larkin, & Taylor, 2019; Goldsmith, Lewis, Dunn, & Bental, 2015).

## Method

### Sample

The evaluation took place over a ten-month period. Patients were adults (aged over 16 years) who had attended an ED within a North West hospital presenting with an

episode of self-harm. Self-harm was defined as a non-fatal, intentional act, causing harm, or likely to cause potential harm to oneself, including overdoses and direct physical injury such as self-cutting (National Institute for Health and Clinical Excellence, 2013; Schmidtke *et al.*, 1996).

To be included in the evaluation, patients had to be eligible for the HOPE service. Eligibility required a recent (past year) episode of self-harm (other than the presenting episode). Exclusion criteria included current receipt of psychological therapy, non-English language or current substance or alcohol dependence. The latter exclusion criterion was adopted by the service as it was felt such people may require more specialized care that takes their substance or alcohol use difficulties into account. Eligibility for HOPE was determined as part of the psychosocial assessment provided to people at ED by the psychiatric liaison team.

## **Measures**

### *Demographic information*

Patient age and gender were recorded.

### *Emotion regulation style*

The Affective Styles Questionnaire (ASQ; Hoffman & Kashdan, 2010) was used to assess individual differences in emotion regulation style. The ASQ is a 20-item self-report measure, with statements rated on a 1 to 5 scale in terms of how true the participant believes the statement is of themselves. The ASQ has three subscales capturing the perceived ability to conceal emotions from others (concealing subscale, eight items, scores range from 8 to 40), the perceived ability to adjust or alter negative emotions (adjusting subscale, seven items, scores range from 7 to 35), and the perceived ability to tolerate emotions (tolerating subscale, five items, scores range from 5 to 25). The scales factor structure and convergent validity with other measures of emotion regulation has been demonstrated (Hoffman & Kashdan, 2010). Internal reliability for the ASQ in the current sample was adequate for the concealing and adjusting subscales,  $\alpha = .78-.81$ , but low for the tolerating subscale,  $\alpha = .55$ .

### *Self-harm functions*

The perceived functions of self-harm were recorded at baseline via the Inventory of Statement about Self-harm (ISAS; Klonsky & Glenn, 2009). This self-report measure typically asks about non-suicidal self-injury, but was adapted for this context to ask about self-harm more generally. The second part (39 items) of this measure asks the respondent to report the extent to which a series of potential functions or reasons for self-harm apply to them, on a scale from 0 ('not at all') to 2 ('very relevant'). These items are summed to generate 13 distinct function scale scores. Two overarching subscales representing the endorsement of interpersonal (e.g., to influence others or enforce boundaries) and intrapersonal functions (e.g., to punish oneself or regulate emotions) are then created through summing the various individual function scale scores, with scores ranging from 0 to 48 and 30, respectively (higher scores indicating greater endorsement of functions). The factor structure and validity of this scale has been supported (Klonsky & Glenn, 2009). Internal reliability for the ISAS interpersonal and intrapersonal subscales in the

current sample were  $\alpha = .75$  and  $.76$ , respectively. A single item was added to this scale relating to the self-harm function 'trying to end my life'.

#### *Global distress and suicide plans*

The Clinical Outcomes in Routine Evaluation (CORE10; Barkham *et al.*, 2013) is a widely used, brief, self-report measure assessing psychological distress ('I have felt tense, anxious or nervous') over the previous week, with ten items rated on a scale from 0 ('not at all') to 5 ('most or all of the time'). Within this service evaluation, the total score (ranging from 0 to 40) was used to capture general psychological distress, and the suicide plans score, based on a single item ('I have made plans to end my life'), was used to assess suicide risk more specifically (scores range from 0 to 4). Higher scores indicate greater difficulty. The convergent validity of the CORE 10 has been supported, and this scale has shown good sensitivity (.92) and specificity (.72) in detecting depression diagnoses based on structured interviews (Barkham *et al.*, 2013). Internal reliability for the CORE 10 in the current sample was  $\alpha = .79$ .

#### *Working alliance*

The Session Rating Scale is a four-item self-report measure assessing working alliance (SRS; Duncan *et al.*, 2003). Items relate to a specific therapy session and cover the relationship with the therapist, agreement on therapy goals and topics, views on the therapist's approach, and overall evaluation of the session. Each item is rated on a visual analogue scale. In this evaluation, each scale was 92 mm in length, but these were rescaled to provide a score between 0 and 10 for each subscale (consistent with the original version of the scale; Duncan *et al.*, 2003), with a total score ranging from 0 to 40, where a higher score indicates a better working alliance. The scale has shown good internal reliability and concurrent validity against other measures of working alliance (Duncan *et al.*, 2003). The authors suggest a score below 36 may be indicative of problems with the working alliance. Internal reliability for the SRS in the current sample was  $\alpha = .82$ .

#### **Procedure**

People referred to HOPE were informed about the evaluation of this service, including provision of an information sheet about the evaluation, and invited to take part in this evaluation. Only people who provided written consent to take part in the evaluation were included. People who did not give consent were still able to access treatment. People who consented to take part in the evaluation were first asked to complete the ISAS and ASQ at the point of referral. Data from these measures were introduced for all patients attending ED with self-harm to complement existing assessments, but only data from those consenting to take part in the evaluation were used here. The CORE10 was then completed at the start of each therapy session, whilst the SRS was completed at the end of each session (since it relates to working alliance developed within the session). Data on attendance rates were recorded in order to assess feasibility and acceptability of HOPE.

The project was deemed a service evaluation of ongoing clinical practice according to the local NHS Trust Research & Development department and the Health Research Authority decision tool. Approval for the project was therefore obtained from the NHS Trust Research & Development department. The project was overseen by the Applied Research Innovation and Service Evaluation (ARISE) Steering Group which is a research



co-production partnership between the local NHS Trust and University, involving clinicians, NHS managers, experts-by-experience, and researchers/academics.

### **Intervention**

Hospital Outpatient Psychotherapy Engagement was developed based on the Self-harm Assessment, Follow-up and Engagement (SAFE) service that was previously developed in Manchester (Guthrie *et al.*, 2001). This evaluation focuses on data from the pilot period of HOPE, in the hospital where it was initially set up. The therapy was delivered by Mental Health Nurses or Assistant Psychologists employed by the NHS Trust. This pilot evaluation focuses on data from three therapists. Therapists received one day focused training on the HOPE therapy approach delivered by a Clinical Psychologist, and a further five-day training course on PIT. HOPE therapists received ongoing weekly supervision from a qualified clinical psychologist. Therapy sessions took place in a private room connected to the main hospital ED. Sessions were scheduled to last approximately 50 minutes.

Hospital Outpatient Psychotherapy Engagement uses a four-session integrative talking therapy (Turpin, 2011) that combines aspects of PIT (Hobson, 1985) and CAT (Ryle & Kerr, 2002). The therapy does not follow a pre-determined structure across the four sessions. The initial focus of the therapy is on a process of exploring and mapping out the connections between the clients experiences of self-harm, feeling states (including avoided or ignored feelings), and experiences with themselves and others. There is an emphasis on staying with emotions, helping the client to recognize and label these feelings and understand how they connect with their difficulties around self-harm. This appears important given that problems in identifying, recognizing, and labelling emotions may be elevated amongst people who self-harm (Hemming, Taylor, Haddock, Shaw, & Pratt, 2019; Klonsky & Muehlenkamp, 2007) and that regulating emotional states is a commonly cited function of self-harm (Taylor, Jomar, *et al.*, 2018). The therapist may use diagrams to help capture connections between experiences and feelings, and explore the antecedents and consequences of instances of self-harm or suicidal thinking (Ryle & Kerr, 2002; Sheard *et al.*, 2000). Later in therapy, there is a shift to focus on discussing alternatives to self-harm, and, given the shared understanding that has been formed about what drives the self-harm, what preventive strategies may be helpful. Given the brief nature of the therapy, the therapy ending, and how this may affect the client, is also discussed. Clients are invited to a fifth, follow-up session, a month after they complete therapy, to review progress and reflections following therapy.

### **Statistical analysis**

Differences between those who attended at least one therapy session and those who did not were investigated using Fisher's exact test (binary variables) and *t*-tests (continuous variables). Where continuous variables had skewed distributions, bootstrapped bias-corrected and accelerated confidence intervals (generated with 5,000 resamples) were used for statistical inference. Group-level change in psychological distress across the five sessions was assessed with a mixed-model regression analysis. A random-intercept and slope model was used as it was expected that individual change trajectories would vary. A *t*-test with Satterthwaite's approximations for degrees of freedom was used to test whether the effect of time was significant (Luke, 2017). Residuals from this model were approximately normal and homoscedastic. Because suicide plan scores only range between 0 and 4 and were heavily positively skewed (many people scored zero at each



session), these scores were collapsed into a binary variable where 0 = no plans to end ones' life in the last week, and 1 = plans made to end ones' life at least occasionally in the last week. Change in this binary variable across the five sessions was assessed with a mixed-model logistic regression analysis. Again, a random-intercept and slope model was estimated. These analyses allow cases with incomplete data (i.e., missed sessions) to still contribute to the analysis. Analyses were conducted using STATA version 14 (StataCorp, 2015). Scale totals where <20% of items were missing were calculated using proration.

Rates of reliable change at the individual level were determined using the Reliable Change Index (RCI; Jacobsen & Truax, 1991) and the Standardized Individual Difference (SID). The latter statistic is more conservative and less prone to false positives (Ferrer & Pardo, 2014). RCI was calculated using the values provided in the CORE manual (Connell & Barkham, 2007), whilst the SID was calculated based on available study data. Rates of reliable change were calculated using both the available complete data (participant with both pre and post data available), and also using last observation carried forward (LOCF) to impute missing values.

## Results

### *Patient characteristics*

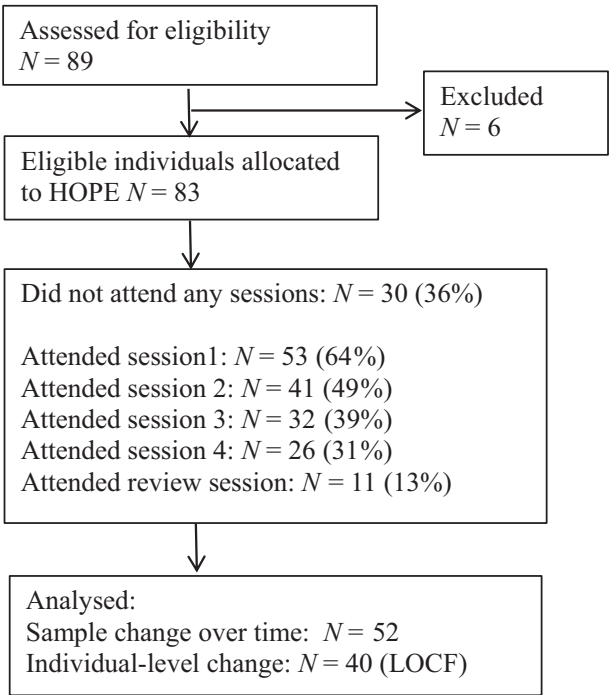
Overall, 89 patients were referred to HOPE (54 Female; 61%; one participant was transgender). Patient age ranged from 16 to 58 years, with an average age of 25.03 years ( $SD = 9.44$ ). The most commonly reported form of self-harm was cutting ( $n = 27$ ), followed by overdose with paracetamol ( $n = 19$ ) and overdose by more than one drug ( $n = 16$ ).

### *Attendance rates*

The flow of patients through the service is detailed in Figure 1. Over the evaluation period, 89 eligible people were referred to HOPE and agreed to be included in this evaluation. Six referrals were rejected as they did not meet criteria or practitioners felt therapy was inappropriate at this time. The average monthly rate of successful referrals was 8.3. Overall, fifty-three people (64% of eligible referrals) attended at least one therapy session. Twelve (23% of attenders) attended only one session, 9 (17% of attenders) attended two therapy sessions, 6 (11% of attenders) engaged in three therapy sessions, and 26 (49% of attenders) completed therapy (attending all four sessions) with 11 (21% of attenders) of those also attending the review session one month later. The average number of sessions attended amongst those engaging with therapy (attending at least one session) was  $M = 3.08$ ,  $SD = 1.49$ .

### *Differences between those who attended and those who did not*

We compared people who attended at least one session ( $n = 53$ ) against those who were eligible but did not attend any sessions ( $n = 30$ ) in terms of baseline characteristics. The results of these comparisons are reported in Table 1. Whilst those who attended appeared more likely to be female and having only engaged in non-suicidal self-harm, these differences in rates of engagement were not significant, Fisher's exact  $p = .16$  and  $p = .29$ , respectively. There was also no difference in terms of proportion that had self-harmed via overdose vs. physical self-injury, such as cutting, scratching, and hitting,



**Figure 1.** Flow chart of Patient Engagement with the Service.

**Table 1.** Differences between those who attended at least one therapy session and those who did not

	Attended (N = 53) N (%)	Not attended (N = 30) N (%)
Female	36 (68)	15 (50)
Overdose (rather than self-injury) <sup>a</sup>	26 (49)	17 (57)
Non-suicidal self-harm	14 (26)	7 (23)
	Mean (SD)	Mean (SD)
Age	24.64 (1.31)	24.50 (1.34)
Emotion regulation style: Concealing	25.83 (6.27)	26.73 (6.98)
Emotion regulation style: Adjusting	13.18 (5.70)	13.48 (5.95)
Emotion regulation style: Tolerating	11.91 (3.68)	11.76 (3.54)
Interpersonal functions	6.42 (6.91)	6.79 (4.49)
Intrapersonal functions	17.40 (7.78)	15.62 (5.81)

Note. Sample sizes vary between analyses due to missing data.

<sup>a</sup>For this variable, physical self-injury included cutting, scratching, and hitting. This comparison excluded three cases with alternative methods (hanging, drowning, overdose via alcohol), and five cases where method was not recorded. Self-harm was deemed non-suicidal if the function ‘trying to end my life’ was not endorsed.

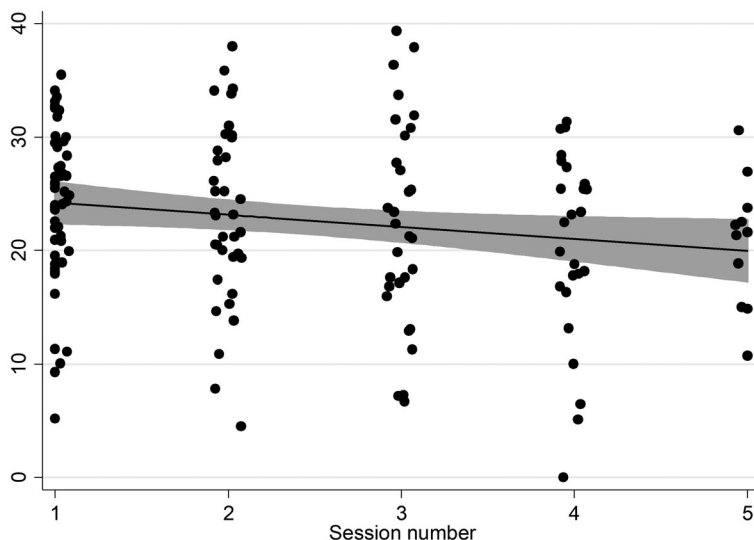
Fisher's exact  $p = .82$ . Age was also comparable between those who attended and those who did not ( $M$  difference =  $-0.14$  years; bootstrapped 95% CI:  $-3.47, 3.81$ ). In terms of emotion regulation style, there were no significant differences between the two groups for the concealing subscale ( $M$  difference =  $-0.91$ ; bootstrapped 95% CI:  $-4.15, 2.43$ ), adjusting subscale ( $M$  difference =  $-0.30$ ; bootstrapped 95% CI:  $-3.10, 2.58$ ), or tolerating subscale ( $M$  difference =  $0.15$ ; bootstrapped 95% CI:  $-1.69, 2.06$ ) of the ASQ. There was no significant difference in terms of the level of endorsement of interpersonal functions of self-harm ( $M$  difference =  $-0.36$ ; bootstrapped 95% CI:  $-2.93, 2.80$ ) or intrapersonal function of self-harm ( $M$  difference =  $1.79$ ; bootstrapped 95% CI:  $-1.56, 5.12$ ).

### Tertiary outcomes

Figure 2 provides a scatter plot of psychological distress scores across the four sessions plus the review session, with a group-level trend line added. There was a general trend of declining distress. Table 2 presents group-level descriptive statistics across the four sessions plus the review session. A similar declining trend can be observed in the average scores at each session. A random-intercept and slope mixed-model regression analysis suggested a significant effect of time,  $B = -1.51$  (95% CI:  $-2.37, -0.65$ ),  $p < .01$ ,  $n = 153$  observations across 52 patients, whereby distress reduced over time.

A larger proportion of people endorsed suicide plans at session 1 (52%) compared to session 4 (40%), and a slight decline is also apparent in Table 2. A random-intercept and slope mixed-model logistic regression analysis, however, did not identify any significant effect of time,  $OR = 0.72$  (95% CI:  $0.42, -1.24$ ),  $p = .24$ ,  $n = 153$  observations across 52 patients. Similar, McNemar's test of the change in the proportion endorsing suicide plans between sessions 1 and 4 was also not significant,  $p = .29$ .

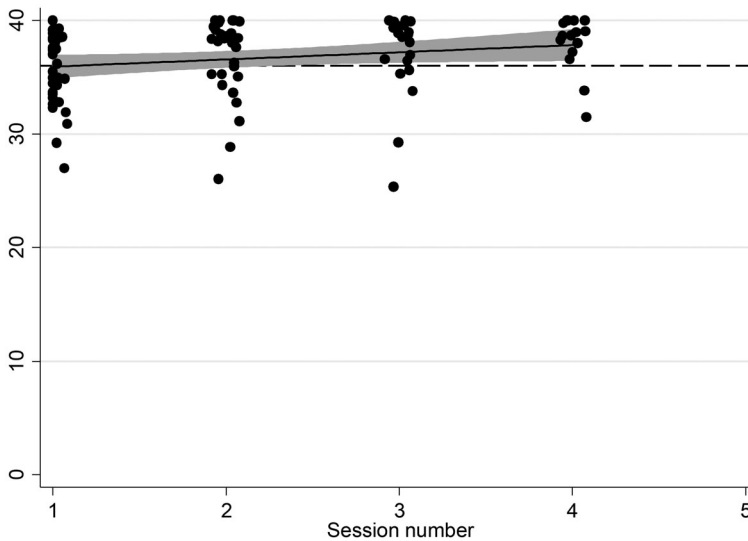
Figure 3 provides a scatter plot of working alliance scores across the four sessions. Only one person completed the SRS at the follow-up session (session 5) but they had



**Figure 2.** CORE 10 Psychological Distress Scores across the five sessions.

**Table 2.** Group-level descriptive statistics for psychological distress and risk scores by session

	Psychological distress			Risk		
	N	Mean (SD)	Median (range)	N	Mean (SD)	Median (range)
Session 1	50	24.14 (6.82)	25.50 (29)	50	1.06 (1.22)	1.00 (4)
Session 2	37	23.32 (7.71)	23.00 (33)	37	1.00 (1.20)	1.00 (4)
Session 3	30	22.21 (8.95)	21.56 (33)	30	1.10 (1.40)	0.00 (4)
Session 4	25	20.40 (8.39)	22.00 (31)	25	0.64 (0.95)	0.00 (3)
Review session	11	20.73 (5.64)	22.00 (19)	11	1.00 (0.89)	1.00 (2)



**Figure 3.** Working alliance scores across the five sessions. Dashed line represents suggested cut-off score indicative of problematic working alliance.

incomplete items and so a total score could not be calculated. The horizontal dashed line indicates the suggested cut-off of 36 (scores below 36 indicate possible problems with the working alliance; Duncan *et al.*, 2003). Notably, the majority of patients score above this cut-off (between 54% and 87% of cases across the four sessions). Across sessions 1 to 4, a trend of increasing working alliance is visible.

Using the conventional criteria suggested by Jacobsen and Truax (1991), 38% (9/24) of people demonstrated a reliable improvement in distress between session 1 and 4 (38% if LOCF used; 15/40). Applying the more conservative approach to judging reliable change based on the SID, however, only 8% (2/24) experienced an improvement in distress (8% if LOCF used; 3/40). Only one person (three if LOCF used) experienced a reliable deterioration (increase) in distress using Jacobsen and Truax (1991) criteria (no deteriorations were identified using the SID). With regard to suicide plans, 25% of people with available data (6/24) experienced a reduction in planning between session 1 and 4 (change from endorsement of making suicide plans to no planning), whereas 8% experienced an increase (2/24).

## Discussion

This paper reports on a pilot evaluation of a brief psychotherapy service based within ED for people who self-harm. The primary aim of this study was to evaluate the feasibility of the service in terms of attendance rates. The majority of eligible people referred to the service attended at least one session, and nearly half of these people attended all four therapy sessions. Given this is a population of patients recently in crisis, who did not necessarily attend ED with the intention of accessing psychotherapy, this rate of engagement appears positive. The rate of engagement is similar to that observed in other trials of brief therapies for self-harm in ED settings (e.g., 51%; Guthrie *et al.*, 2001). Age, gender, emotion regulation style, and method of self-harm were all comparable between those who attended at least one session and those who did not. In future, qualitative interviews with patients would help ascertain reasons for attending or not attending.

There was a general decline in psychological distress across the sessions. This result should be treated with caution, due to the small sample, lack of a control group, and potential for artefactual change (e.g., regression to the mean). The observed change may also reflect natural recovery from a crisis that would have still occurred in the absence of therapy. There was no significant change in the percentage of patients reporting suicidal planning on the CORE10. HOPE may target general distress better than suicide-specific cognitions and feelings, but it is also notable that as a single item, the CORE 10 suicide plans score is likely to be less sensitive to change than the scale total. Over a third of patients experienced a reliable reduction in distress, although very few showed a reliable improvement when more conservative criteria were adopted. Deterioration or worsening in difficulties was rare. Overall, it remains plausible that HOPE could be helpful to this population. Further, larger-scale evaluation of the intervention, with a comparator, is needed.

This pilot evaluation is in line with other research suggesting that therapies with a relational focus, including PIT and CAT, may be helpful for people who self-harm (Guthrie *et al.*, 2001; Sheard *et al.*, 2000). From a CAT perspective, for example, self-harm can be readily conceptualized as a self-relational act that forms part of a wider pattern of how some relate to themselves (Taylor, McDonald, Smith, Nicholson, & Forrester, 2019). For example, in the context of a highly self-critical pattern of relating to oneself, self-harm may emerge as a form of self-punishment. Relational psychotherapeutic approaches may also be useful because interpersonal difficulties are a commonly cited trigger for self-harm (Tatnell, Kelada, Hasking, & Martin, 2014; Turner, Cobb, Gratz, & Chapman, 2016), and negative social experiences such as rejection and marginalization are also linked to self-harm risk (Batejan, Jarvi, & Swenson, 2015; Cawley, Pontin, Touhey, Sheehy, & Taylor, 2019; Taylor, Dhingra, Dickson, & McDermott, 2018). Whilst clinical trials support the efficacy of a number of psychological therapies for self-harm (Hawton *et al.*, 2017; Hetrick *et al.*, 2016; Turner *et al.*, 2014), work is still needed to determine which approaches might be most effective and in which settings.

An important question remains as to whether brief therapies provide enough therapeutic input to support this potentially complex group of patients. Whilst there was a general decline in distress, many people remained with CORE 10 scores above the cut-off of 11 (used to indicate 'non-clinical' levels of distress) at the end of therapy. Longer-term follow-ups would be valuable to determine the trajectories of these patients, including how many experienced a recovery from or exacerbation in difficulties in the future.

Whilst average working alliance remained high across the sessions, a substantive proportion of patients still scored below the suggested cut-off of 36 indicating possible difficulties with the alliance (Duncan *et al.*, 2003), especially in earlier sessions. It is

unclear how appropriate this cut-off score is for the current context, with patients who have recently been in crisis. A positive alliance may be harder to forge in this context, and the brief duration of the therapy may be a further barrier for some people. For example, people may feel less willing to form a bond with a therapist they know they will only see for a few sessions. Working alliance appears to be an important factor in determining the outcome of therapy (Blake *et al.*, 2019; Goldsmith *et al.*, 2015) but there is less research evaluating the importance of alliance in determining the outcome of brief therapies. Given the small sample, an investigation of the association between earlier working alliance and latter attendance was not possible, but this would be useful to investigate in future studies.

This evaluation is limited by the lack of a randomized controlled trial design and more comprehensive measures of outcomes. The evaluation was also not pre-registered and lacked pre-established criteria for feasibility. Future evaluations should ensure a protocol with clear feasibility, and efficacy targets are pre-registered. This pilot evaluation focused on a newly set-up, real-world service, taking place within a busy ED setting. A consequence of this was that information relating to patient screening and enrolment was not systematically collected. For example, data were not collected concerning the overall number of patients who were potentially eligible but did not accept the invited referral to HOPE. This limits what can be said about the feasibility of HOPE, as it is unknown what proportion of patients consented to being referred. Reasons for exclusion were also not recorded, and it is therefore not known why some patients were deemed ineligible. Further evaluation of the service should involve robust data collection mechanisms relating to numbers screened and reasons for referral.

The provision of brief, relational psychotherapy to people presenting at ED with self-harm related difficulties is a novel and under-investigated approach to intervention. The data support the feasibility of the HOPE service in terms of rates of engagement and raise the possibility that this service may be helpful to people who arrive at ED with difficulties related to self-harm. Moreover, there was little evidence of individuals' difficulties becoming worse. Further investigation of such brief psychotherapy interventions for self-harm is warranted, especially to determine whether they can make a difference in terms of longer-term difficulties and self-harm repetition rates. A limitation of HOPE is that it is based within ED, and people must return to ED for subsequent sessions. This may create issues of access to the therapy. It may be that a community-based version of HOPE would be one means of improving access and engagement and tackling current health inequalities.

Future research on HOPE could adopt a cluster randomized controlled trial design to allow stronger inferences about the causal effect of the intervention, with measurement of longer-term difficulties and repetition of self-harm. A nested economic analysis to assess the cost effectiveness of the intervention would also be valuable. Where a full randomized controlled trial design is not feasible, other approaches such as propensity score matching could be adopted to investigate efficacy (Pan & Bai, 2018). Qualitative investigations would also be useful to better understand the acceptability of the intervention, highlight possible mechanisms of action, and identify barriers and facilitators to effective intervention and implementation of the HOPE service.

## Acknowledgements

We would like to thank the Applied Research Innovation and Service Evaluation (ARISE) Steering Group, Simon Graham, Chris Cartwright, and Siobhan Hare, for their support with this project. This project was supported by funding from the Liverpool Clinical Commissioners Group and Mersey Care NHS Foundation Trust.

## Conflicts of interest

All authors declare no conflict of interest.

## Author contributions

Peter Taylor (Conceptualization; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Supervision; Writing – original draft; Writing – review & editing) Kirsten Fien (Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Writing – original draft) Helen Mulholland (Conceptualization; Data curation; Writing – review & editing) Rui Duarte (Validation; Writing – review & editing) Joanne M. Dickson (Conceptualization; Funding acquisition; Methodology; Writing – review & editing) Cecil Kullu (Conceptualization; Funding acquisition; Methodology; Writing – review & editing)

## Data availability statement

An anonymized copy of the data used in this study is available on request from the corresponding author. In order to ensure anonymity, some demographic and clinical information has been removed from this data set.

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