Dialectical behaviour therapy-informed skills training for deliberate self-harm: A controlled trial with 3-month follow-up data

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A B S T R A C T

Dialectical Behaviour Therapy (DBT) has been shown to be an effective treatment for deliberate self-harm (DSH) and emerging evidence suggests DBT skills training alone may be a useful adaptation of the treatment. DBT skills are presumed to reduce maladaptive efforts to regulate emotional distress, such as DSH, by teaching adaptive methods of emotion regulation. However, the impact of DBT skills training on DSH and emotion regulation remains unclear.

This study examined the Living Through Distress (LTD) programme, a DBT-informed skills group provided in an inpatient setting. Eighty-two adults presenting with DSH or Borderline Personality Disorder (BPD) were offered places in LTD, in addition to their usual care. A further 21 clients on the waiting list for LTD were recruited as a treatment-as-usual (TAU) group. DSH, anxiety, depression, and emotion regulation were assessed at baseline and either post-intervention or 6 week follow-up.

Greater reductions in the frequency of DSH and improvements in some aspects of emotion regulation were associated with completion of LTD, as compared with TAU. Improvements in DSH were maintained at 3 month follow-up. This suggests providing a brief intensive DBT-informed skills group may be a useful intervention for DSH.

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Individuals who engage in deliberate self-harm (DSH) are considered among the most complex and difficult to treat client groups (Slee, Arensman, Garnefski, & Spinhoven, 2007). This population typically present with a range of psychological difficulties including Borderline Personality Disorder (BPD), depression, eating disorders, and substance abuse (Nock & Kessler, 2006). While several treatment models have been shown to be effective for DSH (Klonsky & Muehlenkamp, 2007), Dialectical Behaviour Therapy (DBT) has been the most extensively researched (Lynch, Trost, Salsman, & Linehan, 2007). Research examining DBT first emerged over twenty years ago, when the treatment was shown to be effective in reducing self-harm behaviours among individuals with BPD (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). Since then, several modified versions of the treatment have been developed including adaptations for other treatment settings, such as inpatient settings (Robins & Chapman, 2004).

DSH has been defined as the intentional repetitive destruction or alteration of body tissue, severe enough to cause harm, but without conscious suicidal intent (Gratz, 2003). It includes a broad range of behaviours such as cutting, burning, and biting, and has serious physical and psychological consequences for individuals (Kerr, Muehlenkamp, & Turner, 2010; Messer & Fremouw, 2008). For example, the risk of suicide for those who engage in DSH has been shown to be over 60 times greater than the general population (Hawton, Zahl, & Weatherall, 2003). For these reasons the provision of effective treatment for DSH is a priority for mental health services.

DBT is a structured psychotherapy incorporating individual therapy, skills training groups, telephone support, and a consultation group for therapists (Linehan, 1993). Numerous studies, including several RCTs, have shown that DBT is associated with greater reductions in DSH than treatment-as-usual (Lynch et al., 2007). The effectiveness of DBT in reducing DSH has been further supported by a recent meta-analytic review of treatment studies (Kliem, Kroger, & Kosfelder, 2010). The biosocial model that underlies DBT proposes that acquiring skills to regulate intense emotional distress will lead to reductions in DSH (Linehan, 1993).
This is consistent with research indicating that DSH may function to provide relief from overwhelming emotions (Klonsky, 2007).

As the full DBT programme requires considerable time and resources to implement (Pitman & Tyrer, 2008), shorter and less intensive versions of the treatment have begun to be examined (Linehan, Bohus, & Lynch, 2009). Most notably, researchers have examined the effectiveness of the DBT skills training group, when provided without other aspects of the treatment. The DBT skills group incorporates mindfulness, emotion regulation, distress tolerance, and interpersonal effectiveness skills (Linehan, 1993). Initial studies found shortened versions of the DBT skills group, provided without individual therapy, were associated with reductions in the use of mental health services and improvements on measures of depression, hopelessness, and anger (Koons et al., 2006; Sambrook, Abba, & Chadwick, 2006). However, these studies did not measure DSH and the absence of control groups limits the conclusions that can be drawn. A more recent study found greater improvements in depression, anger, and affect instability for individuals with BPD who attended a DBT skills group as compared to standard group therapy (Soler et al., 2009). However, no improvements in DSH were found for either group (Soler et al., 2009). While the DBT skills training group seems to have several beneficial effects, it remains unclear whether it is a useful treatment for DSH.

While DBT was originally developed and evaluated in community settings, research has begun to examine adaptations of DBT for inpatient settings. For example, Bohus et al. (2004) provided an inpatient adaptation of DBT that involved three and a half hours of individual therapy and four hours of DBT skills groups per week over a three month period. Greater improvements in DSH, depression, anxiety, and interpersonal problems were reported for the DBT group compared to TAU in the community (Bohus et al., 2004). Similarly, Kroger et al. (2006) examined an inpatient version of DBT involving five hours of the skills group and one hour of the individual therapy per week over three months. They found significant reductions in overall symptoms of mental health difficulties at post-treatment and 15 month follow-up for clients with BPD and multiple co-morbid mental health problems (Kroger et al., 2006). These studies indicate that offering a more intensive form of DBT, over a reduced treatment period, may be an effective adaptation of the treatment. However, further research is needed to determine whether a DBT skills training group alone is a beneficial intervention for those who require inpatient treatment. Of note, most previous research on group interventions for DSH has tended to exclude individuals who require inpatient care (e.g. Gratz & Gunderson, 2006; Slee, Garnefski, van der Leeden, Arensman, & Spinhoven, 2008).

Another avenue of research on DSH interventions has begun to explore potential mechanisms of change within these treatments. In line with the biosocial model, improvements in emotion regulation have been identified as a potential mechanism of change within DBT (Linehan, 1993). An initial study found significant improvements in emotion regulation difficulties and DSH for individuals who attended an integrative skills group, as compared to TAU (Gratz & Gunderson, 2006). The treatment included elements of DBT, Emotion-Focused Therapy, and Acceptance and Commitment Therapy (Gratz & Gunderson, 2006). The results indicated improvements in emotion regulation may have been related to improvements in DSH. However, given the combination of treatment models used it was unclear which aspects of the treatment may have contributed to these positive outcomes. A more recent study showed improvements in emotion regulation skills mediated changes in DSH following a short-term individual CBT intervention (Slee, Garnefski, Van der Leeden, et al., 2008). Reductions in DSH were partially attributed to improvements in two aspects of emotion regulation difficulties, namely impulse control and ability to engage in goal-directed behaviours when distressed (Slee, Garnefski, Van der Leeden, et al., 2008). This indicates that improvements in emotion regulation are likely to be a mechanism of change within treatments for DSH. This is important as identifying mechanisms of change can lead to refinement of treatments and allows the theoretical models underlying the treatments to be tested (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006). At present the role of emotion regulation in DBT-informed interventions remains unclear and appears worthy of further research.

The current study examined the Living Through Distress (LTD) programme, a DBT-informed skills group for individuals with DSH in an inpatient setting. It is an intensive intervention providing one hour of skills training four days a week over a 6 week period. LTD aims to provide clients with skills they can implement when they experience intense emotional distress, in an effort to reduce their self-harm behaviour. Learning to regulate emotional distress and developing behavioural control are identified as initial treatment goals for individuals with emotion regulation difficulties (Linehan, 1993). It was hoped that the LTD programme may be valuable as an early stage of therapy for clients presenting with DSH.

An initial study found significant reductions in DSH, improvements in distress tolerance, and a reduction in inpatient days for individuals who completed the LTD programme in addition to treatment-as-usual (Booth, Keogh, Doyle, & Davies, 2014). To the best of our knowledge this was the first study of a DBT-informed skills group to report improvements in DSH. However, the absence of any control group limits the interpretation of these positive findings.

The primary aim of this controlled trial was to examine whether the addition of DBT-informed skills training to TAU was associated with any improved outcomes for individuals presenting with DSH, as compared to TAU only. The outcomes examined were frequency of DSH and two indicators of emotional distress, namely depression and anxiety. The secondary aim was to examine possible changes in emotion regulation associated with DBT-informed skills training as compared to TAU. Based on the biosocial model it was hypothesised there would be greater improvements in emotion regulation for the DBT-informed skills training group than the TAU group.

**Method**

**Participants**

One hundred and three clients (aged 18–60 years) of an independent, not for profit mental health hospital were recruited. Inclusion criteria for participants were to be over 18 years of age and to have engaged in DSH during the 6 weeks prior to the intervention and/or to meet diagnostic criteria for BPD. Exclusion criteria were kept to a minimum to increase the extent the results can be generalised to similar samples. Only clients currently receiving treatment within the secure unit of the hospital were excluded as they were not permitted to leave the ward. Participants had a broad range of psychiatric diagnoses, as assessed by their multidisciplinary teams. With regard to the inclusion criteria, 84% of participants reported a recent history of DSH behaviours and 73% participants met criteria for BPD, as assessed at study intake. See Table 1 for further information regarding other psychiatric diagnoses.

**Study design and procedure**

This was a single-centre, non-randomised clinical trial. The study was granted ethical approval by the relevant committees and
informed written consent was obtained for all participants. The LTD programme is delivered over a 6 week period five times each year. Waiting lists are operated only when the programme is not being delivered or when the group is full and closed to new members. Participants were referred by the hospital’s multi-disciplinary teams and offered individual interviews with one of the study authors. After completing the assessment interview participants were either offered places immediately (n = 82) if possible or were placed on a waiting list (n = 21) until the next group was scheduled to commence. Therefore, assignment to conditions was determined by the timing of referrals from the multi-disciplinary teams.

Participants in the LTD group completed individual interviews pre and post-intervention and a postal survey at three-month follow-up. Participants in the TAU group were offered two treatment options, such as occupational therapy, social work, or psychological therapy. See Table 1. These participants were offered places in subsequent LTD groups after the research period was completed.

### Measures

The following measures were administered pre- and post-treatment to assess outcome:

The ‘Deliberate Self-Harm Inventory’ (DSI; Gratz, 2001) is a 17-item questionnaire that measures various aspects of DSH such as type, frequency, and severity. For this study frequency of all types of DSH over a 6 week period was measured. Consistent with past research, responses to the frequency questions were summed to create a continuous variable (Gratz & Gunderson, 2006). Good psychometric data has been reported (Fliege, Lee, Grimm, & Klapp, 2009; Gratz, 2001). This measure was administered as a structured interview rather than a self-report measure at the recommendation of the ethics committee.

The Depression (13 items) and Anxiety (10 items) subscales of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994) were also administered. The SCL-90-R is a norm-referenced scale that measures distress caused by psychiatric symptoms. The depression and anxiety subscales have high internal consistency (α = .90 and .88 respectively) and test–retest reliability in adult mental health samples (Horowitz et al., 1988, as cited in Derogatis, 1994). Cronbach’s alpha coefficients were .88 for both subscales in the current study.

In addition the following two measures were administered to examine possible changes in emotion regulation:

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 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 (Gratz & Roemer, 2004). High internal consistency (α = .93), good test-retest reliability, and adequate construct and predictive validity have been reported (Gratz & Roemer, 2004). In the current study, Cronbach’s alpha coefficient for the total scale score was .88 and was .76 or above for the subscales.

The Cognitive Emotion Regulation Questionnaire, Short Form (CERQ—short; Garnefski & Kraaij, 2007) measures nine cognitive strategies used to cope with negative events (Garnefski & Kraaij, 2007). The structure of this scale has been supported by factor analysis and provisional support exists for its convergent and discriminant validity (Garnefski & Kraaij, 2007).

Demographic and clinical information, as outlined in Table 1, was obtained from a review of participants’ hospital charts. The Structured Clinical Interview for DSM-IV Axis-II Personality Disorders (SCID-II) was used to determine whether group members had a diagnosis of BPD (First, Gibbons, Spitzer, Williams, & Smith, 1997).

Data analyses

Data screening indicated that missing data was random so mean imputation was used for missing items and total scores were prorated. Pairwise deletion was used in instances where an entire measure was not completed. Less than 5% of cases had missing data on any variable. Baseline differences between the LTD + TAU and TAU only groups in demographic and clinical variables characteristics were examined using t-tests or chi square tests, as appropriate. Changes over time within each group were examined using a series of paired t-tests of intervention measurements for participants who completed the study, along with the results of the paired t-tests examining change scores on these measures. The secondary aim was to explore the possible changes in emotion regulation. A MANCOVA was conducted to examine whether an overall multivariate difference existed in emotion regulation scores between the groups at post-intervention, controlling for baseline scores on the emotion regulation measures. Pearson correlations were also completed to examine relationships between the pre–post difference scores on DSH and the emotion regulation subscales of interest. Finally, a repeated measures ANOVA was used to examine the DSH scores for the LTD + TAU group over the 3-month follow-up period.

All between-group analyses were conducted on an intention-to-treat basis, which was compiled using the last-observation-carried-forward (LOCF) method. Cohen’s d was calculated for comparisons between groups and partial-eta squared is reported for repeated measures ANOVAs. All analyses were performed using SPSS version 18.

Results

Demographic and baseline clinical characteristics

With the exception of age, there were no significant differences between the LTD + TAU and TAU only groups on any of the demographic variables or study measures at baseline (see Table 1). Participants in the LTD + TAU group (M = 37.66, SD = 10.65) were significantly older than those in the TAU only group (M = 31.52, SD = 11.23; t (89) = 2.33, p = .02). Pearson’s correlations revealed that age was not significantly associated with any of the outcome variables.

Post-intervention outcomes

Table 2 presents a summary of the mean pre- and post-intervention measurements for participants who completed the study, along with the results of the paired t-tests examining change in the LTD + TAU and TAU only groups.
over time within each group. There were no significant changes over time on any of the measures for the TAU group but significant changes over time were evidenced on several measures for the LTD + TAU group (see Table 2). Please note data presented in Table 2 refers to the completers’ sample.

Differences between the LTD + TAU and TAU groups on DSH, Anxiety, and Depression were examined using three one-way ANCOVAs, controlling for pre-treatment scores on these measures. Within the ITT sample, there was a significant between-group difference on DSH, $F(1, 89) = 4.53, p = 0.04$, Cohen's $d = .27$. Examination of mean scores indicated a lower frequency of DSH ($M = 9.41, SD = 28.48$) for the LTD + TAU group than the TAU group ($M = 14.44, SD = 18.75$) at post-intervention. There were non-significantly significant differences between the groups on Anxiety, $F(1, 100) = 3.32, p = 0.07$, and Depression, $F(1, 100) = 0.18, p = 0.67$.

With regard to DSH, 49% of participants in the LTD + TAU group showed a reduction in self-harm of 75% or greater, 12% showed a reduction of between 50% and 75%, and 4% showed a reduction of 15–30%. The remaining 19% reported no change or increases in the frequency of DSH. Those who reported no change had reported low frequencies of DSH prior to the intervention (<2 incidents in 6 weeks) and those who reported increases in DSH had low overall scores (<2 incidents per week post-intervention). Of note, 16% of participants had reported no incidents of DSH at baseline so no improvement in DSH was possible in this proportion of the sample.

A MANCOVA was conducted to examine differences between the LTD + TAU and TAU groups on the emotion regulation scales (i.e. DERS and CERQ), controlling for the baseline measurements on these scales. Within the ITT sample, there was a significant multivariate effect across groups, Wilks’s $\lambda = .686$, $F(15, 70) = 2.14$, $p = 0.02$, partial eta squared = 0.31. Power to detect the effect was .94. Significant main effects were obtained for (a) Inability to Engage in Goal-Directed Behaviour, $F(1, 84) = 5.65, p = 0.02$, Cohen’s $d = 0.62$, power = .65, (b) Limited Access to Emotion Regulation Strategies, $F(1, 84) = 6.84, p = 0.01$, Cohen’s $d = 0.55$, power = .73, (c) Positive Refocus, $F(1, 84) = 7.27, p < 0.01$, Cohen’s $d = 0.50$, power = .76 (d) Planning, $F(1, 84) = 7.08, p < 0.01$, Cohen’s $d = 0.55$, power = .75, and (e) Putting in Perspective, $F(1, 84) = 9.52, p < 0.01$, Cohen’s $d = 0.74$, power = .86.

Pre–post difference scores were calculated for DSH and the five emotion regulation subscales of interest (i.e. Inability to Engage in Goal-Directed Behaviour, Limited Access to Emotion Regulation Strategies, Positive Refocus, Planning, Putting in Perspective). Pearson’s correlation coefficients were then computed to explore relationships between the difference scores of DSH and the difference scores of the five emotion regulation subscales. There were positive correlations between DSH and ‘Inability to Engage in Goal-Directed Behaviour’ ($r = 0.07$), ‘Limited Access to Emotion Regulation Strategies’ ($r = 0.17$), and ‘Putting in Perspective’ ($r = 0.06$). There were negative correlations between DSH and Positive Refocus ($r = 0.05$) and Planning ($r = 0.23$). The correlation between DSH and Planning was statistically significant ($p = 0.03$).

3 month follow-up

Forty percent of participants who completed the DSH measure post-intervention also completed it at 3-month follow-up. No statistically significant differences were found between those who completed the 3 month follow-up assessments ($n = 20$) and those who did not ($n = 28$) on baseline assessments or socio-demographic and clinical variables. Furthermore, there were no statistically significant differences in the frequency of DSH at post-intervention between those who later completed the follow-up ($M = 5.84, SD = 18.14$) and those who did not complete follow-up ($M = 9.25, SD = 29.66$; $F(1, 83) = .29, p = .59, d = 0.11$). This indicates the follow-up assessments were not more likely to have been completed by participants who reported lower frequencies of DSH immediately after the intervention.2

The repeated-measures ANOVA showed a significant main effect for time, $F(2, 28) = 5.65, p = 0.01$, $\eta^2_g = .29$ (large effect). Post hoc tests revealed a significant decrease between baseline ($M = 23.33, SD = 29.01$) and post-intervention ($M = 9.33, SD = 22.98; p = 0.03$) and between baseline and 3 month follow-up ($M = 2.53, SD = 5.11; p = 0.01$).

Of note, the analyses were repeated on the data from the completers’ sample and similar results were obtained for the post-intervention outcomes. There was a statistically significant difference between the groups on frequency of DSH and non-statistically significant differences between the groups on anxiety and depression. Similar results were also found for the emotion regulation measures within the completer’s sample, with the exception that an additional main effect was found on the ‘Catastrophise’ subscale.

Discussion

We found that LTD, a brief DBT-informed skills group, provided in addition to TAU was associated with greater reductions in self-harm behaviours than TAU only in an inpatient setting. This study replicates Booth et al. (2014) who found the LTD group was associated with reductions in DSH, and extends that study by showing LTD + TAU is associated with greater reductions in DSH as compared to inpatient TAU. Previous studies on DBT-informed skills groups generally found positive outcomes as regards mood and well-being but DSH was either not measured or not found to improve (Koons et al. 2006; Sambrook et al. 2006; Soler et al. 2009). Improvements in DSH were previously reported for another group intervention but this incorporated aspects of several therapies rather than solely DBT (Gratz & Gunderson, 2006). To the best of our knowledge, LTD is the first DBT-informed skills group to be associated with improvements in DSH. These findings suggest that providing a DBT-informed skills group, without the other components of DBT, may be a clinically useful treatment for DSH.

With regard to emotion regulation, there were significant differences between the post-treatment scores of the LTD + TAU and TAU groups on five subscales of the measures, controlling for the baseline scores. These were ‘Inability to Engage in Goal-Directed Behaviours’ and ‘Limited Access to Emotion Regulation Strategies’ (from the DERS) and the cognitive strategies of ‘Planning’, ‘Putting in Perspective’ and ‘Positive Refocus’ (from the CERQ). Examination of the changes in emotion regulation over time within each group indicated there were significant improvements in both ‘Planning’ and ‘Putting in Perspective’ for the LTD + TAU group. The differences between the groups on the other subscales seem due to a combination of non-significant improvements in the LTD + TAU group and non-significant declines in the TAU group (see Table 2).

The core aim of DBT is to improve emotion dysregulation, which is proposed to underlie DSH (Linehan, 1993). While improvements in emotion regulation have been reported by previous DSH studies (Gratz & Gunderson, 2006; Slee, Garnefski, Van der Leeden, et al.,

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1 The authors would like to acknowledge the contribution of an independent reviewer who recommended this information be included.

2 The authors acknowledge the advice of an independent reviewer who recommended this additional analysis.
the interventions were not informed solely by the DBT model. Therefore, this finding of improvements in emotion regulation associated with a DBT-informed intervention provides some preliminary support for the theoretical model that underlies DBT. Furthermore, there was a significant negative correlation between the pre–post difference scores for DSH and the cognitive strategy of Planning. This indicates that reductions in DSH were significantly associated with improvements in Planning.

In summary, these findings indicate this DBT-informed intervention was associated with improvements in ‘Planning’ and ‘Putting in Perspective’, and the improvements in ‘Planning’ were significantly associated with reductions in DSH. However, it should be noted the correlations between the pre–post difference scores for DSH and the emotion regulation subscales were mainly small, and were non-statistically significant for four of the five subscales examined (i.e. ‘Inability to Engage in Goal-Directed Behaviours’, ‘Limited Access to Emotion Regulation Strategies’, ‘Putting in Perspective’, and ‘Positive Refocus’). Clearly, further research is required to explore whether DBT-informed interventions lead to improvements in emotion regulation, and to directly examine if changes in emotion regulation mediate reductions in DSH.

Our findings have extended those of previous DSH intervention studies by including a measure of cognitive emotion regulation strategies. As cognitive emotion regulation strategies can distinguish between individuals with a history of self harm and a comparison group it has been suggested these strategies may be important targets in treatments for DSH (Slee, Garnefski, Spinhoven, & Aresman, 2008). As noted above, the current study found improvements in two areas of cognitive emotion regulation (i.e. Planning and Putting in Perspective) suggesting these strategies may be amenable to change during short-term skills training groups. Further research is needed to examine the links between cognitive emotion regulation strategies and possible changes in DSH.

We did not find any significant differences between the LTD + TAU and TAU groups on depression or anxiety at post-intervention. This is in contrast to previous studies such as Soler et al. (2009) who reported greater improvements in depression, anxiety, anger, and irritability for their DBT group compared to standard group therapy. Examination of our mean scores indicated a trend towards reductions in depression and anxiety for the LTD + TAU group; however, these reductions were not statistically greater than those associated with inpatient TAU.

Given the adverse physical and psychological consequences of DSH, it is important to evaluate whether any reductions in DSH associated with brief interventions are maintained over time. Unfortunately, many previous studies on short-term interventions for DSH have not provided follow-up data. Notable exceptions are the LTD study (Booth et al., 2014) and the Slee, Garnefski, Van der Leeden, et al. (2008) study examining individual CBT. In the current study we found reductions in DSH were maintained at 3 months follow-up, consistent with previous research on the LTD programme (Booth et al., 2014). This indicates that a brief DBT-informed skills group may contribute to sustained reductions in DSH. However, the attrition rate between post-intervention and follow-up was quite high which limits the conclusions that can be drawn about this data. Of note, there were no significant differences between those who completed the follow-up and those who did not in terms of socio-demographic characteristics or baseline scores on any study measures, including frequency of DSH. There was also no difference between follow-up completers and non-completers as regards frequency of DSH at post-intervention. The high attrition rate likely resulted, at least in part, from the change in data collection procedure (i.e. use of postal survey rather than individual appointments). Future studies on DSH interventions should continue to include follow-up assessments.

Most studies on interventions for DSH have typically excluded individuals who require inpatient care (e.g. Slee, Garnefski, Van der Leeden, et al., 2008). Our findings suggest intensive short-term interventions for DSH may also be useful for those who require inpatient care, often as a result of severe mental health difficulties or acute risk of DSH or suicide. Another criticism of some previous studies on DSH interventions is the failure to include a measure of DSH or to provide sufficient information about how it was assessed (e.g. Sambrook et al., 2006; Soler et al., 2009). The DSH measure used in the current study has been identified as one of the better measures currently available (Fliege et al., 2009).

Previous research on skills groups has reported more substantial improvements in emotion regulation than those found in the current study (e.g. Gratz & Gunderson, 2006; Slee, Garnefski, Van der Leeden, et al., 2008). However, the treatment programmes provided in these studies were notably longer (i.e. 14 weeks and 36 weeks) than the current study (6 weeks). Future studies could incorporate multiple mid-treatment assessments to directly explore relationships between treatment outcomes and potential mechanisms of change, such as emotion regulation. Furthermore, inclusion of regular follow-up assessments would enable possible changes in emotion regulation to be examined over time.

For clinicians reasons a randomised design was not possible in the treatment setting. Therefore it cannot be determined with certainty that there were no systematic differences between the groups that may have biased the results. It is of note that the groups were shown to be equivalent on several social-demographic and clinical variables at baseline.

In summary, the results from the present study show greater reductions in DSH for individuals who completed the LTD programme in addition to TAU as compared to those receiving TAU. Furthermore, reductions in DSH were maintained at 3 month follow-up. These positive outcomes were achieved with a client group presenting with complex mental health difficulties within an inpatient setting. The current study also found greater improvements in emotion regulation for those who completed the LTD programme as compared to TAU only. This highlights an avenue for further research, exploring potential mechanisms of change within DBT-informed interventions. These findings suggest that adapting the standard DBT protocol to provide a brief intensive skills-based intervention seems to be a clinically useful model for DSH treatment within inpatient services.

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