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Research report

Psychotherapy for depression: A randomized clinical trial comparing schema therapy and cognitive behavior therapy

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ABSTRACT

Background: The efficacy of Cognitive Behavior Therapy (CBT) for depression has been robustly supported, however, up to fifty percent of individuals do not respond fully. A growing body of research indicates Schema Therapy (ST) is an effective treatment for difficult and entrenched problems, and as such, may be an effective therapy for depression.

Methods: In this randomized clinical trial the comparative efficacy of CBT and ST for depression was examined. 100 participants with major depression received *weekly* cognitive behavioral therapy or schema therapy sessions for 6 months, followed by *monthly* therapy sessions for 6 months. Key outcomes were comparisons over the weekly and monthly sessions of therapy along with remission and recovery rates. Additional analyses examined outcome for those with chronic depression and comorbid personality disorders.

Results: ST was not significantly better (nor worse) than CBT for the treatment of depression. The therapies were of comparable efficacy on all key outcomes. There were no differential treatment effects for those with chronic depression or comorbid personality disorders. Limitations: This study needs replication.

Conclusions: This preliminary research indicates that ST may provide an effective alternative therapy for depression.

1. Introduction

Cognitive behavior therapy (CBT) is recommended as one of the first-line treatments for individuals with major depression (Ellis et al., 2003; National Institute for Clinical Excellence (NICE), 2004). Despite the proven effectiveness of CBT only 40–50% with depression will make a full recovery with their first course of treatment, and some are likely to have a poor outcome despite completing treatment. Moreover, 3–5% may develop a chronic clinical course of depression which is resistant to treatment (Fournier et al., 2009; Hollon et al., 2005; Kessler et al., 1994). Other than chronicity, a number of other factors have been proposed to limit the effectiveness of CBT. Perhaps with the most contradictory evidence, is the treatment outcome when personality disorders are comorbid. A number of studies indicate that treatments are less effective when a comorbid personality disorder is present (e.g. Bagby et al., 2008; Gorwood et al., 2010), with a recent meta analysis reporting the risk of poor outcome doubles (Newton-Howes et al., 2006). Other studies and reviews report no difference in outcome between depressed individuals with and without personality disorders (Kelly et al., 2009; Kool et al., 2005; Niemeyer and Musch, 2013; van den Hout et al., 2006).

Limitations in the effectiveness of traditional CBT for depression, and growing recognition that depression is a chronic and/or recurrent disorder for many people often associated with other comorbid axis I and II problems, has led to increased use by clinicians of Schema Therapy (ST) in the treatment of depression. Schema Therapy was initially developed by Young (1990) for the treatment of personality dysfunction. In contrast to traditional CBT, ST concentrates immediately and specifically on the schema and related developmental processes that prevent individuals having their core needs met in an adaptive manner. It has been proposed that these schema *must* be modified in order to bring about lasting change, particularly for individuals with more difficult or entrenched problems such as chronic or recurrent depression (Overholser, 1997; Riso et al., 2003; Safran and Segal, 1990; Young, 1990). Further, it has been proposed that any treatment that fails to reorganize or disrupt these fundamental assumptions leaves people cognitively at risk for the reactivation of maladaptive schemas during times of personal stress (Segal et al., 1988), and therefore at increased risk of depression reoccurring. These propositions are supported by research indicating that therapy that focuses more on interpersonal and developmental issues promotes long lasting recovery from depression and, importantly, reduces the risk of relapse (Hayes et al., 1996). Schema change has been

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associated with the resolution of symptomatic distress (Nordahl and Nysaeter, 2005).

Despite the widespread application of ST, there is still limited research investigating the efficacy of this therapy. Existing research indicates that ST is an effective treatment for borderline personality disorder (Farrell et al., 2009; Giesen-Bloo et al., 2006; Nadort et al., 2009; Nordahl et al., 2005; Nordahl and Nysaeter, 2005), substance dependence (Ball, 1998), chronic agoraphobia (Bamber, 2004) and borderline personality disorder and post-traumatic stress disorder in war veterans (Young, 2005). In the recent randomized clinical trial comparing ST and transference focused psychotherapy, ST also had a significantly lower rate of drop out from treatment than transference focused therapy (Giesen-Bloo et al., 2006). To date the efficacy of ST in treating depression has not been examined, however, specific schemas identified by Young have been shown to be a risk factor for depression (Halvorsen et al., 2010) and preliminary evidence suggests that ST may be effective for depression (Hawke and Provencher, 2011).

The primary aim of the current study was to compare the efficacy of ST with that of traditional CBT for individuals with a current major depressive episode. It was hypothesized that ST would be superior to CBT in achieving sustained change (percentage improvement on the Mongomery Asberg Depression Rating Scale (MADRS)) in depression. Secondary aims were to compare sustained change on self-report (percentage improvement on Beck Depression Inventory-II (BDI-II)) between ST and CBT and to compare the rates of remission and recovery.

Given the proposition that ST may be more effective for chronic problems and/or entrenched problems, we also examined whether or not ST would be more effective in those with chronic depression. Similarly, given that ST was initially developed for those with personality disorders, and given the equivocal treatment outcome findings when depression is comorbid with personality disorders, we examined whether or not ST would produce better outcomes for those depressed patients with a personality disorder.

2. Method

2.1. Participants

Participants (males $n=31$; females $n=69$) recruited for this study had a principal current diagnosis of major depressive disorder (DSM-IV American Psychiatric Association, 1994) and were over the age of 18 years. Participants were assessed and treated in an outpatient clinical research unit in the Department of Psychological Medicine, University of Otago, Christchurch, New Zealand. Participants were required to be free of any centrally active drug, other than an occasional hypnotic and the oral contraceptive pill for a minimum of two weeks. Exclusion criteria were a history of mania (bipolar I disorder), schizophrenia, major physical illness which would interfere with treatment, moderate or severe alcohol or drug dependence, and failure to respond to a recent (past year) adequate trial of CBT or ST. Participants were referred from general practitioners and mental health services or could self-refer. Recruitment occurred between 2004 and 2008.

2.2. Procedure

After an initial telephone screen for inclusion and exclusion criteria by a research nurse all potentially suitable participants were seen by a clinical psychologist for an initial assessment, and if suitability was confirmed, written informed consent was obtained and a baseline research assessment was scheduled.

The baseline assessment consisted of a structured clinical interview for DSM-IV Axis I disorders (SCID, Spitzer et al., 1992) conducted by a clinician and completion of self-report measures, and a neuropsychological assessment conducted by a research assistant. Following completion of the baseline assessment, participants were randomized to weekly therapy sessions of ST or CBT for six months, followed by monthly sessions for six months. The shift from weekly to monthly sessions was to continue the focus on factors maintaining the depression and/or to assist patients to maintain gains made after the weekly sessions.

This study had a parallel group design with participants being randomized in a 1:1 ratio based on computerized randomization sequence of permutated blocks of 20. The randomization procedure and allocation to treatment type was performed by a person independent from the study and was made available to the therapist and patient once the baseline assessment had been completed. While some flexibility in the number of therapy sessions was permitted to mimic usual clinical practice, the length of time treatment was available for participants in CBT and ST was matched (one year) for the comparison of outcome. An adequate dose of therapy was defined a priori as at least 15 weekly sessions and at least 3 monthly sessions.

Therapists (six clinical psychologists) provided both ST and CBT. Therapists were competent in CBT, which is a key component of professional training as a clinical psychologist in NZ. In addition, as required by their professional body, all therapists had attended CBT training to maintain competency. CBT was delivered according to Beck and Beck and colleagues' manuals (Beck et al., 1979; Beck, 1995). ST was delivered according to Young's published manuals (Young, 1990; Young and Klosko 1993; Young et al., 2003) and the week-long training workshops (involving lectures, videotape and experiential exercises) conducted by Young in NZ. Therapists were all female, had at least two years prior experience treating depressed patients, and were required to treat two patients in each modality to a satisfactory level of competence before commencing treatment of patients in the clinical trial. To ensure continued treatment fidelity, both therapist competence in delivering the two therapies and adherence to the treatment manuals, close individual and group supervision was provided. In addition, all therapy sessions were recorded, and randomly selected sessions were reviewed by the clinical supervisor using the Cognitive Therapy Rating Scale for CBT (Dobson et al. 1985) and a modified form of the CTS for ST. An adequate level of competency on the CTS is defined as a score of 40 or more. Therapists had fortnightly clinical supervision, which included close attention to treatment fidelity. During supervision particular attention was focused on any therapy session rating approaching the cutoff of 40, so overall considerable effort was made to maintain high CTS ratings for both therapies. The average CTS rating over the course of the study for CT was 47.12 (SD=7.65) and for ST was 54.4 (9.1) from the randomly selected sessions.

Personality was assessed by independent non-treating clinicians using the Structured Clinical Interview for DSM-IV personality disorders symptoms (SCID-II, First et al., 1997). Assessment using the SCID-II was guided by items previously affirmed by the patient on the Structured Clinical Interview for DSM-IV Personality Questionnaire (SCID-PQ, First et al., 1997), which was completed at baseline. Items not affirmed on the SCID-PQ were assumed to be true negatives, however if a clinician had reason to believe these were false negatives further items were assessed. This method is in accordance with instructions for using the SCID-II and enabled the assessment of personality disorder symptoms to be based upon self-report combined with a structured clinical interview. Inter-rater reliability was examined in a previous study, not this study, with the same raters assessing the presence of any personality disorder was 0.78.

2.3. Outcome

Sustained change was defined *a priori* as percentage improvement on the clinician-rated MADRS and the self-report Beck

Depression Inventory II (Beck et al., 1987). The MADRS has been shown to be sensitive to change in depressive severity over time. The MADRS was conducted with the participant by an independent clinician (i.e. not the therapist), with prior training and experience using the MADRS, who was blind to the therapy type participants were receiving. Percentage improvement scores (i.e. change over baseline expressed as a percentage) take account of initial depression severity and represent improvement from baseline to the end of weekly therapy sessions and from baseline to the end of monthly therapy sessions (i.e. end of therapy).

Ethical approval for this study was obtained from the Upper South Canterbury Ethics Committee of NZ. This trial was registered with the Australian and New Zealand Clinical Trials Registry (ACTRN12605000723684).

2.4. Statistical analyses

Analyses were undertaken on an intention-to-treat basis and a p-value <0.05 was taken to indicate statistical significance. Baseline demographic and clinical features were summarized as means and standard deviations or frequencies and percentages. Based upon our previously completed trial (Joyce et al., 2007) of CBT (last observation carried forward), the mean MADRS score is likely to be approximately 10–12 (SD=5–7). We planned to recruit 150 for this study however recruitment was slower than expected. With 100 participants we have 80% power ($\alpha=0.05$) to show an effect size of 0.56 (which approximately equates to a difference in the mean change of 3 on the MADRS). Any differences in change over the last 6 weeks and over the last 6 months of therapy between the therapies were examined using ANCOVA with the baseline depression severity level as the covariate. Remission was defined as a MADRS <10 *and* a BDI-II <13 for two weeks. Recovery was defined as MADRS <10 *and* BDI-II <13 for 8 weeks. Pearson's correlation coefficient was used to test the association between end of weekly and end of monthly outcome.

2.5. Additional analyses

In order to compare the outcomes of this study with our previous RCT of IPT and CBT we examined rates of response to therapy (Luty et al., 2007). As previously defined, response was a 60% or greater improvement on the MADRS. To explore the differential effects of baseline depression, chronicity (depressed for 50 percent or more of the last five years) and the presence (yes or no) of a personality disorder diagnosis on the relative effects of the therapies relevant interaction of the baseline feature with randomized therapy was used. These were tested within the ANCOVA model outlined above.

3. Results

Fig. 1 shows the flow of participants through the study. 192 depressed individuals were screened for the study, 100 were randomized to therapy; 50 to CBT and 50 to ST. Seventy eight percent of participants randomized to ST completed (minimum 15 sessions) weekly sessions and 60% completed monthly sessions (minimum 3), and 68% of participants randomized to CBT completed the weekly sessions and 50% completed the monthly sessions. There was no significant difference between ST and CBT in the number of participants completing weekly ($X^2=1.268$, $p=0.26$) or monthly sessions ($X^2=1.010$, $p=0.32$).

There was a non-significant trend for the number of weekly and monthly sessions to be slightly higher for ST compared with CBT. The average number of weekly sessions for ST was 18.0 (SD=5.3) and for CBT was 15.9 (SD=5.7) $t(98)=0.967$, $p=0$ 0.05. The average number of monthly sessions for ST was 4.3 (SD=2.9) and for CBT was 3.3 (SD=3.0) $t(98)=1.878$, $p=0.06$.

Table 1 shows the demographic and clinical characteristics of the sample. Sixty-nine percent of the sample was female, 50% were married, and the average age was 38 years. The majority of participants had recurrent (74%) and/or chronic (67%) depression. Those randomized to ST had higher levels of comorbid personality disorder symptoms ($t(95)=2.224$, $p=0.03$) and more comorbid personality disorder diagnoses ($X^2=3.917$, $p=0$ 03) than those randomized to CBT. The most frequent personality disorder diagnosis was avoidant (20%), followed by paranoid (11%), obsessive compulsive (13%) borderline (10%), antisocial (4%) and dependent and schizotypal (both 2%).

3.1. Comparison of change at the end of weekly and at the end of monthly therapy sessions for CBT and ST

MADRS: analyses of covariance, covarying for initial depression severity (MADRS at baseline), indicated no significant differences between the two therapy modalities at the end of weekly therapy sessions or at the end of therapy (i.e. end of monthly sessions). The average percentage change at the end of the weekly sessions for ST was 41.3 ($SE=5.9$, CI 29.6–53.1) and for CBT was 41.1 ($SE=5.9$, CI= 29.3–53.9) F(1,97)=0.001, $p=0.99$. The average percentage change at the end of monthly sessions for ST was 51.4% (SE=5.8, CI=39.6–63.2) and for CBT was 48.7% ($SE=36.9$, CI=36.9–60.5) F(1,97)= 0.100, $p=0.75$. The correlation between MADRS percentage change at the end of weekly sessions and at the end of therapy was 0.82 ($p<0.001$). The between treatment (end of therapy) effect size was 0.064, confirming no difference in mean scores between the two treatment groups (ST mean =12.9 (SD=12.3); CBT mean =11.4 (SD=9.5)). Fifty two percent ($n=26$) of those who received CBT and 46% ($n=23$) of those who received ST were defined as responders (response was 60% or greater) to therapy at the end of therapy.

BDI-II: Analyses of covariance, covarying for initial depression severity, with percentage change on the BDI-II showed no significant difference in outcome between ST and CBT at the end of weekly sessions F(1,97)=0.571, $p=0.45$, nor at the end of therapy F (1,97)=0.159, $p=0.69$. The average percentage change on the BDI-II at the end of weekly sessions was 40.6% (SE=7.5, CI=25.8–55.5) for ST and 32.6% (SE=7.5, CI=17.7–47.5) for CBT. The average percentage change on the BDI-II at the end of monthly sessions was 45.3% (SE=6.9, CI=31.6–58.9) for ST and 41.4% (SE=6.9, CI=27.9–55.0) for CBT. The between treatment effect size of 0.08, based on self-report percentage change at the end of treatment, indicated no clinically significant treatment effect (ST mean=16.6 (SD=17.4); CBT mean=14.6 (SD=12.7)). The correlation between the percentage change at the end of weekly sessions and at the end of therapy was 0.67 ($p<0.001$). Fig. 2 shows that the BDI-II scores decline in a similar pattern over the course of CBT and ST (weekly until 26 weeks, then monthly until 52 weeks).

3.1.1. Remission

There was no significant difference between the therapies in the number of participants who reached remission at the end of weekly (34.0% $n=17$ ST; 28% $n=14$ CBT, X^2 517=0.42, $p=0.67$) or the end of monthly (50% $n=25$ ST; 40% $n=20$ CBT, $X^2=1.010$, $p=0.32$) therapy sessions.

3.1.2. Recovery

Similarly there was no significant difference between the therapies in the number of participants who reached recovery at the end of the weekly (34% $n=17$, ST; 38% $n=19$ CBT, $X^2=0.174$, $p=0.68$) or the monthly (56% $n=28$ ST; 50% $n=25$ CBT, $X^2=0.361$, $p=0.55$) therapy sessions.

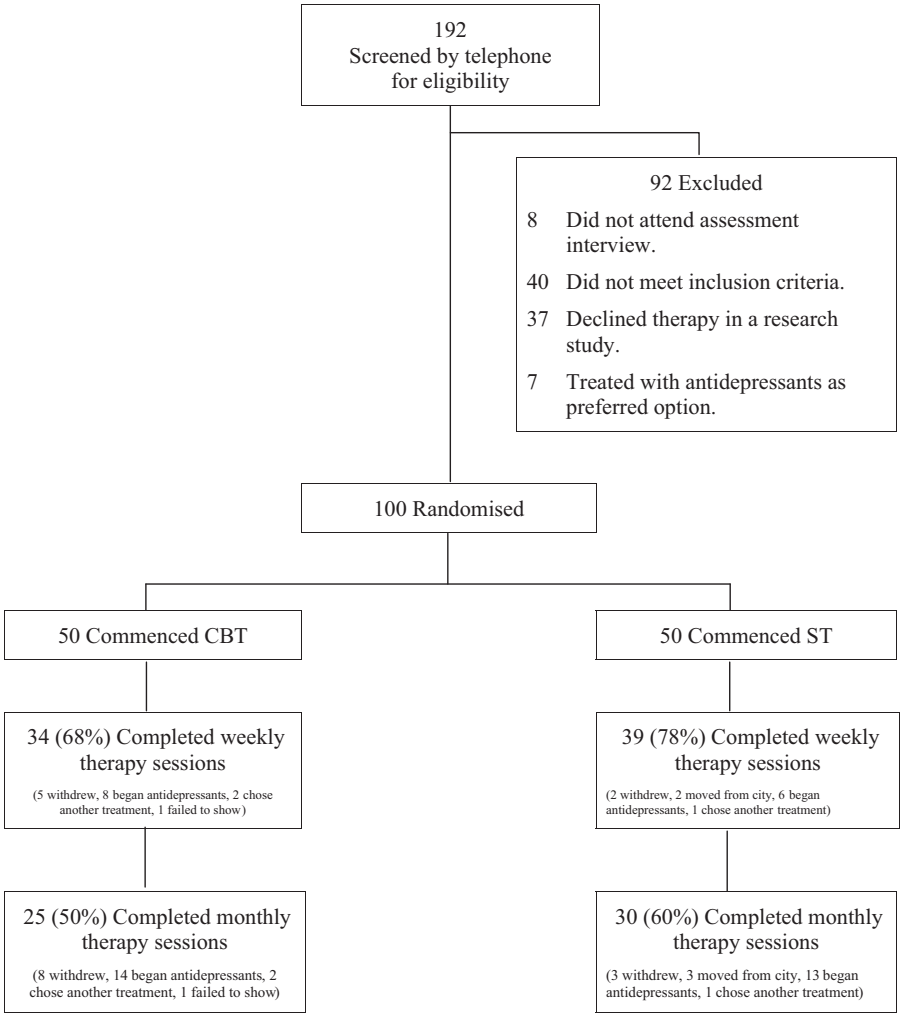

Fig. 1. Flow chart showing participants screened, eligible, randomised and treated with CBT and ST.

Table 1
Demographic and clinical variables at baseline ($N=100$).

	CBT ($n=50$) mean (SD) or %(n)	ST ($n=50$) mean (SD) or %(n)
Female	66 (33)	72 (36)
Age	38.2 (12.0)	38.5 (11.4)
Married	48 (24)	50 (25)
Ethnicity		
NZ European	80 (40)	88 (44)
Maori	4 (2)	2 (1)
Other	16 (8)	10 (5)
Chronic depression	68 (34)	66 (33)
MADRS baseline	22.0 (6.6)	24.0 (6.1)
BDI-II baseline	25.2 (10.6)	27.0 (8.6)
Personality disorder diagnoses	27 (13)	46 (22)
Personality disorder symptoms	7.0 (7.2)	10.5 (8.2)
Current anxiety disorder	68 (34)	58 (29)
Current eating disorder	10 (5)	6 (3)
Current Alcohol abuse/dependence	10 (5)	16 (8)
Current drug abuse/dependence (cannabis)	2 (1)	4 (2)

3.1.3. Effect of chronic depression and comorbid personality disorder

Analyses examining whether a comorbid personality disorder impacted differentially on treatment outcome at the end of ST and CBT showed no significant treatment differences in percentage change on the MADRS between those with and without personality disorder diagnoses, ($F=0.578$ $p=0.45$).

Analyses examining whether chronic depression differentially impacted on outcome at the end of treatment showed no significant treatment type *x* outcome interaction ($F=2.789$, $p=0.98$).

4. Discussion

The present study found no difference between ST and CBT outcomes for depression when outcome was assessed with the MADRS and the BDI-II at the end of weekly and monthly (end treatment) therapy sessions. Rates of remission and recovery were also similar between the therapies. At the end of treatment the average percentage change on the clinician-rated MADRS was 50%, with 53 percent of the sample defined as recovered, finding that are consistent with previous treatment studies despite methodological differences across studies in how recovery is defined (Craighead et al., 2007; Jarrett and Rush, 1994). The 52% response rate (response was 60% or greater) was also similar to that in our previous in a trial comparing CBT (59%) and IPT (45%) for depression (Luty et al., 2007). Results of the current study are consistent with other studies that have found comparability in outcome between two or more active treatments for depression (e.g. Elkin et al., 1989; Shapiro et al., 1994), including two meta-analyses (Craighead et al., 2007; Wampold et al., 2002). The finding that ST was not more effective than CBT is consistent with the "Dodo bird" verdict, that all bona fide therapies have

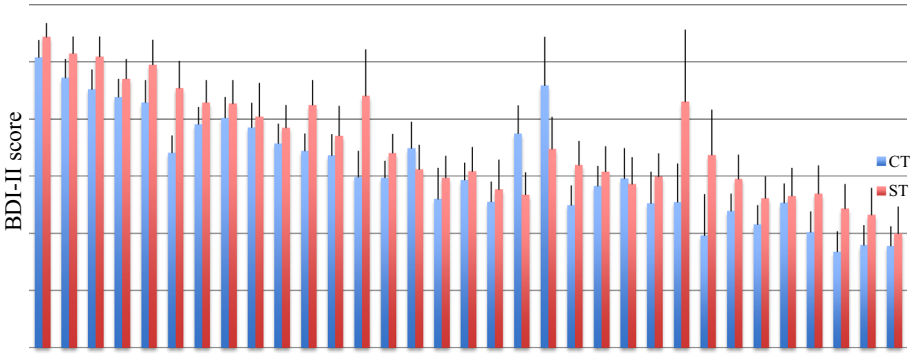

Fig. 2. BDI-II scores during weekly (0–26 weeks) and monthly (26–52 weeks) sessions of CBT and ST.

approximately equivalent efficacy. The findings here are also consistent with the proposition that it may not be the supposed underlying mechanisms or specific ingredients prescribed in different therapies such as ST and CBT that are most associated with outcome but factors that are common to both. Future research will need to clarify this.

Overall, these results suggest that ST for depression maybe as effective as CBT and may be a viable alternative to CBT that may be preferred by some people. While there is some overlap between CBT and ST there are considerable differences in the approach. Broadly, the focus of CBT is on the contribution of core beliefs and automatic thoughts in the here and now, while ST focuses much more on early childhood experiences, unmet emotional needs, and the development of maladaptive schemas. Offering depressed individuals a variety of effective treatment models and allowing them to choose a treatment that is logical to them and that they therefore expect to be effective has been shown to improve outcome (Carter et al., 2011; Joyce and Piper, 1998; Nobel et al., 2001). The benefits of offering a choice of treatments have been demonstrated in a number of diverse areas including pain tolerance (Rokke and Lall, 1992), relaxation training (Gordon, 1976), speed reading (Kanfer and Grimm., 1978) and snake phobia (Devine and Fermald, 1973).

This is the first randomized clinical trial comparing the effectiveness of CBT and ST for depression and as such requires replication before firm conclusions can be made. A number of factors may limit generalization of this study's findings. Participants were outpatients in a clinical research unit, and although exclusion criteria were kept to a minimum, participants may not be representative of clinical patients in general. This was a single site study conducted by a team experienced in randomized psychotherapy trials, and while treatment integrity was closely monitored it is possible idiosyncrasies in our approach to ST and CBT could limit generalization. Conversely, this study attests to the applicability of ST and CBT to depression in the Australasian context. The baseline differences in comorbid personality disorders, with higher rates of comorbid PD symptoms evident in the ST group has the potential to influence the relative effectiveness of treatments. If this was to have any impact on outcome it is most likely to have had negative effects for ST, however, as the results indicate personality disorder did not impact on outcome for either treatment despite higher rates in ST. Although not statistically significant there was a trend for the number of sessions to be slightly higher in ST than CBT which may have had clinically meaningful effects. The analyses conducted here were intention to treat rather than for completers which may attenuate the effects. Forty-five percent of participants did not complete therapy in this study, which is consistent with the mean drop-out rate found in meta-analyses of therapy studies (Hans and Hiller, 2013; Wierzbicki and Pekarik, 1993). Of note, the rate of non completion was the same across ST and CBT so this is not likely to have had a differential effect on outcome. Although relatively few studies have investigated those who do not complete treatment, typical findings suggest a poorer outcome than for those who complete therapy (Saatsi et al., 2007).

In this RCT there were no significant differences in outcome between ST and CBT for depression. The therapies produced similar rates of response, remission and recovery. Further, ST and CBT were similarly effective for depressed patients with chronic depression or comorbid personality disorders. Schema therapy is increasingly being used by clinicians for a variety of mental health problems including depression. The findings from this study begin to address the gap in the empirical investigation of ST for depression.

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Conflict of interest

There are no conflicts of interest.

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