Counselling and psychotherapy for the prevention of suicide: a systematic review of the evidence

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Section 1: Summary

Introduction

Suicide is the cause of death for nearly 900,000 people every year. Non-fatal acts of self-harm are also very frequent, occurring in about 300 of every 100,000 people per year. Although such acts may or may not involve suicidal intent, deliberate self-harm is a significant risk factor for eventual suicide. Accordingly, this review, as well as covering research on counselling and psychotherapy explicitly focused upon the prevention of suicide, considers studies of counselling and psychotherapy for people who deliberately self-harm.

The review does not limit itself to the consideration of randomised controlled trials, but also includes non-randomised trials, and other quasi-experimental and non-experimental studies, including qualitative research. It also considers not only the effectiveness but also the process of counselling and psychotherapy with people at risk of suicide.

Method

Extensive literature searches on counselling and psychotherapy in relation to suicide and self-harm identified nearly 8,000 publications. Critical appraisal led to the exclusion of most of these, and our final review focused on 12 previous systematic reviews, 71 reports of quantitative studies of therapeutic outcome, 17 reports of quantitative studies of therapeutic process, and 13 reports of qualitative studies.

Results are based upon a narrative review of previous systematic reviews; meta-analysis of quantitative outcome studies; a narrative review of quantitative studies of therapeutic process; and a meta-synthesis of qualitative studies.

Results

Several of the previous systematic reviews were limited in such features as critical appraisal of the studies that they considered; completeness of information provided; and the use of appropriate outcome measures in meta-analysis. Variations in these areas may have accounted for differences in the conclusions of some of the reviews. There was a certain amount of evidence for the effectiveness of some, primarily cognitive-behavioural, therapies.

Our meta-analysis of controlled studies of psychotherapy or counselling indicated effect sizes of >0.4, ie approaching a medium level. Most of the studies considered cognitive-behavioural, problem-solving, or dialectical behaviour therapy, all of which showed significant effects. While individual therapy was found to be effective, this was not the case for group therapy. Effects were largest in shorter-term treatments; in inpatient treatment; in studies with shorter follow-up; and in those of lower quality.

Meta-analysis of studies examining change from pre- to post-therapy indicated a medium to large effect size (>0.7).

Quantitative studies of the therapeutic process indicated the importance of therapist attitudes and experience in working with suicidal clients; the views of young people, for example concerning the therapeutic relationship; and factors that may be generally predictive of successful therapeutic outcome or are relevant to specific types of treatment.

Meta-synthesis of qualitative studies of the therapeutic process indicated a consensus among clients and therapists concerning the importance of the therapeutic relationship, and in particular a respectful, understanding and non-judgmental therapist. Other issues considered were components of therapy, specifically the importance of sufficient time in therapy and negative views concerning 'no self-harm' contracts; the theoretical framework; and therapy techniques (both of the latter particularly in regard to dialectical behaviour therapy).

Qualitative studies of the effectiveness of counselling and psychotherapy primarily concerned dialectical behaviour therapy, and indicated perceptions of decreases in self-destructive behaviour, and improvement in quality of life and in others' views of the client.

Qualitative studies of barriers to counselling and psychotherapy focused, from clients' perspectives, on therapist characteristics; components of therapy; secrecy; and difficulties in transferring therapeutic gains to the real-life situation. Barriers identified by therapists concerned responsibilities of the profession; lack of training in working with suicidal clients; and the nature of suicide and self-harm. Facilitators to counselling and psychotherapy identified by clients concerned responsibility; support; and teaching therapy skills to family members, the latter also being identified by therapists.

Conclusions

Quantitative studies provide evidence of the effectiveness of psychological interventions for clients at risk of suicide. Most studies concern variants of cognitive-behavioural therapy and, while there are some promising findings concerning other forms of therapy, further research concerning these is a priority. The effectiveness of therapy was also indicated by qualitative studies, which particularly concerned dialectical behaviour therapy.

Qualitative and quantitative studies of the therapeutic process indicate a clear consensus concerning the importance of the therapeutic relationship and, in particular, therapist qualities. Lack of adequate training and support in working with suicidal clients was highlighted by therapists and counsellors as a barrier to successful therapy.

Section 2: Introduction

Statistics

Suicide is the cause of death for some 873,000 people every year according to World Health Organization estimates (Comtois and Linehan, 2006). There are, of course, many pathways to suicide, and these have been explored from a range of perspectives, including the consideration of psychological, sociological and biological factors. Examination of these different explanations of suicide is beyond the scope of this review, but broadly suicide may be viewed in terms of an interaction between an individual vulnerability and environmental characteristics (eg van Heeringen, 2001). However suicide is explained, it is apparent that its prevention should be a major priority, and the World Health Organization launched an international initiative to this end in 1999 (World Health Organization, 2000).

Non-fatal acts of self-harm are also very frequent, occurring in about 300 of every 100,000 people per year (Favazza, 1987; Walsh and Rosen, 1988) and in as many as 400 per 100,000 people in the United Kingdom (NHS Centre for Reviews and Dissemination, 1998), with considerably higher rates among young people (Hawton et al., 2002; Meltzer et al., 2002). They are also one of the most common reasons for medical admission to hospital (Sinclair and Green, 2005). While deliberate self-harm may or may not involve suicidal intent, among known risk factors such acts are the best predictor of eventual suicide (NHS Centre for Reviews and Dissemination, 1998), the rate of which following an act of self-harm is 50 to 100 times higher than that in the general population (Hawton et al., 2003; Owens, Horrocks and House, 2002). At least one per cent of people who harm themselves go on to kill themselves within a year and around five per cent within 10 years (NHS Centre for Reviews and Dissemination, 1998). Other factors indicative of a high risk of suicide are depression; alcoholism; drug addiction; psychosis, hopelessness or helplessness; social isolation; life-threatening, chronic or debilitating physical illness; family history of affective disorder, alcoholism or suicide; recent bereavement or loss or preoccupation with anniversary of traumatic loss; family destabilisation due to loss, abuse or violence; recent trauma; formulation of a specific suicide plan; giving away prized possessions and/or putting personal affairs in order; radical changes in characteristic behaviours or moods; display of one or more uncharacteristic intense negative emotions (Gilliland and James, 1997).

Deliberate self-harm and suicide prevention

It is apparent, therefore, that in attempting to meet targets for the reduction of suicide rates (eg Department of Health, 1999), people who deliberately self-harm, although they are not the only group at risk, clearly constitute a population on which attention should focus. However, the response of health services to these individuals may be less than helpful. For example, in the United Kingdom, despite a Department of Health and Social Security (1984) recommendation, repeated in subsequent clinical practice guidelines (National Collaborating Centre for Mental Health, 2004), that every self-harm episode should be followed by a psychosocial assessment, this only occurs in about half of these cases. Fewer than half are offered any follow-up, and of these up to 70 per cent fail to attend or drop out after one appointment (NHS Centre for Reviews and Dissemination, 1998). A distinction has also been made between different types of self-harm, with patients who self-poison being more likely to receive a psychosocial assessment and given more access to specialist care (Horrocks et al., 2003). Furthermore, people who harm themselves are often faced with negative attitudes by health professionals (NHS Centre for Reviews and Dissemination, 1998), with one study reporting how nurses respond to acts of self-mutilation with something akin to scorn and derision (Clarke and Whittaker, 1998). Despite recommendations that appropriate training should be provided in the understanding and care of such clients (National Collaborating Centre for Mental Health, 2004), there is little available training in therapy with suicidal individuals (Comtois and Linehan, 2006).

Psychopathology

Various types of psychopathology are particularly associated with suicide and self-harm. For example, mortality from suicide in people diagnosed as schizophrenic is two to three times higher than that of the general population (Auquier et al., 2006). In depression it is estimated that there is a 10.8 per cent mortality rate from suicide (Wulsin, Valliant and Wells, 1999). For people diagnosed with borderline personality disorder, figures suggest that approximately one out of 10 will eventually commit suicide (Paris, Brown and Nowlis, 1987). Studies of self-harm alone have found that more than 90 per cent of the individuals were diagnosed with one of 10 psychiatric disorders, the most common being borderline personality disorder (Haw et al., 2001). There is also evidence that 83 per cent of people with a DSM-IV diagnosis of a major mental health disorder who kill themselves have had contact with a primary care service provider within one year of their completed suicide, suggesting that prevention may be possible for these individuals (Luoma, Martin and Pearson, 2002).

Therapeutic approaches to prevention of suicide and self-harm

Despite the somewhat dismal picture of service provision for people at risk of suicide, various forms of therapy focusing on the prevention of suicide and self-harm have been employed and evaluated. Early reviews and meta-analyses of the research on these therapies indicated a 'not proven' verdict. For example, House, Owens and Storer (1992) stated that 'none of the studies has shown the benefit of reducing repetition rates' but that 'it would be wrong to say that they had proved that intervention was ineffective' (p16). Hawton et al. (1998, 2005), although noting promising results for problem-solving therapy and for dialectical behaviour therapy (DBT) for women diagnosed with borderline personality disorder, concluded that 'there still remains considerable uncertainty about which forms of psychosocial and physical treatments of self-harm patients are most effective' (Hawton et al., 1998, p2). Similar conclusions were reached by a review commissioned by the National Institute for Health and Clinical Excellence (NICE) for the purpose of developing clinical practice guidelines, namely that:

'The evidence reviewed here suggests that there are surprisingly few specific interventions for people who have self-harmed that have any positive effect… at the present time, there was insufficient evidence to support any recommendation for interventions specifically designed for people who self-harm. While there may be some evidence for the treatment of subgroups of service users, such as those diagnosed with borderline personality disorder, the studies were too small to make recommendations. However, the positive outcome for adolescents who have repeatedly self-harmed receiving group therapy is encouraging; although, because of the rather selective group this was applied to,

this approach is in need of further investigation.' (National Collaborating Centre for Mental Health, 2004, pp177–8)

The above reviews did not consider studies that have now provided evidence of the effectiveness of brief psychodynamic interpersonal therapy (Guthrie et al., 2001), cognitive therapy (Brown et al., 2005), and personal construct psychotherapy (Winter et al., 2007) with people who self-harm. A review that did include the first two of these studies was very much more optimistic than the previous reviews, concluding that:

'The success of psychotherapy trials for high-risk suicidal behavior highlights the importance of psychotherapy's role in the prevention of suicide.' (Comtois and Linehan, 2006, p167)

This conclusion was reached despite the fact that, apart from an evaluation of the effects of communication by letter with clients discharged from hospital (Motto and Bostrom, 2001), no study has found a significant effect of a psychological intervention on suicide rates. This itself is hardly surprising as, for a randomised controlled trial to demonstrate such an effect, more than 40,000 participants would be required (Gunnell and Frankel, 1994).

The present review

Since there are now several reviews of the research literature concerning the effectiveness of counselling and psychotherapy for people at risk of suicide, such as those who have deliberately self-harmed, it would not be useful to cover exactly the same ground in the current review. The primary concern of this review is to incorporate a broader evidence base than that considered by previous reviews. For example, while the review on which the NICE guidelines for management and prevention of self-harm was employed used a hierarchy of evidence, it is made clear in that review that, 'For clinical questions concerning interventions, the evidence base was formed from high quality randomised controlled trials' (National Collaborating Centre for Mental Health, 2004, p38). This is, of course, consistent with the features of research design included in criteria for acceptance of an approach as an empirically supported therapy (Chambless et al., 1998). However, it has been argued that these criteria, and the epistemological assumptions upon which they are based, favour particular, primarily cognitive-behavioural, treatment approaches (Slife, 2004), and may lead to the disenfranchisement and 'empirical violation' of therapies that do not share the assumptions concerned (Bohart, O'Hara and Leitner, 1998). While not denying the crucial role played by randomised controlled trials in psychotherapy, the present review considers not only such trials but also non-randomised controlled trials, and (particularly in relation to issues concerning the therapeutic process and barriers and facilitators to service development and delivery) other quasi-experimental and non-experimental studies, including qualitative research. Such evidence will help address many of the problems that clinicians face when attempting to utilise the recommendations of empirical randomised controlled trials. For example, when empirically supported protocols do exist they often provide little practical support in assisting with issues such as non-compliance, flexibility in the treatment programme and the establishment of a therapeutic alliance (Persons and Silberschatz, 1998). Therefore, by examining research on the therapeutic process, evidence of the relative contribution to therapeutic outcome of 'non-specific' factors, such as aspects of the therapeutic relationship and therapist variables, will be identified, as compared to the supposed 'active ingredients' of particular therapeutic models (Wampold, 2001).

Research questions

1. What conclusions may be drawn from current reviews of the literature on psychotherapy and counselling in relation to the prevention of suicide, and how may any discrepancies between these reviews be explained?
2. What does the research evidence, both quantitative and qualitative, indicate concerning the effectiveness of counselling and psychotherapy with clients who are at risk of suicide?
3. What does the research evidence, both quantitative and qualitative, indicate concerning the process of counselling and psychotherapy with clients who are at risk of suicide?
4. How might the research evidence inform clinical practice, and training programmes, for counsellors and psychotherapists working with clients who are at risk of suicide?
5. What are the implications of this review for further research?

Scope of the report

This report describes the methods and findings of a systematic review of research relevant to the prevention of suicide through counselling or psychotherapy. As this review is *systematic* it uses explicit and rigorous methods to synthesise the evidence in this topic area and so the report is necessarily detailed.

Four main bodies of evidence will be considered in the review:

1. a meta-review of previous systematic reviews
2. a statistical meta-analysis of studies that evaluate a form of counselling or psychotherapy in the prevention of suicide
3. a narrative review of process studies that identify any other variables of interest that may be important in the prevention of suicide but cannot be included in the meta-analysis or qualitative synthesis
4. a thematic qualitative synthesis of studies focused on clients' or therapists' views concerning counselling or psychotherapy for the prevention of suicide.

The policy and practice implications of the findings of the review will be discussed and recommendations for future interventions, development and research will be made.

Table 1 displays a brief description of each of the methods (1, 2 and 4 above) used using detail from NHS Centre for Reviews and Dissemination (2001).

The review will consider literature not only on counselling and psychotherapy directly in relation to the prevention of suicide but also in relation to the prevention of self-harm. This is because, as indicated in the Introduction, self-harmers are a group at high risk of eventual suicide. It is beyond the scope of the review to consider the literature on other high-risk groups.

Table 1: Review of methods used in this review

Method	Aims	Methods	Results
Meta-review	To summarise the highest-quality research evidence in a field.	Assess for quality defined as the confidence that the design, conduct and analysis of the review minimised bias.	Identify gaps in the research literature and explain the reasons for discordant conclusions between systematic reviews.
Meta-analysis	To combine the results of quantitative studies addressing the same question into a summary measure via the use of statistical techniques.	A meta-analysis makes comparisons between studies using an appropriate effect size and outcome measures so that an average value of effect can be computed across the studies. The pooling of results can be carried out using a fixed effect or a random effects meta-analysis.	The pooled effect estimate represents a weighted average of all studies included in the meta-analysis. A fixed effect model estimates the treatment effects if there were a single 'true' value underlying all results, a random effect assumes that there is no single underlying value of effectiveness, but a distribution of values depending on known and unknown characteristics of the studies.
Meta-synthesis	To produce an integrative interpretation of qualitative findings that is more substantive than those resulting from individual investigations.	There are no formal procedures available to aid narrative synthesis of findings from qualitative studies. However, one approach is a thematic analysis, which involves an examination of the themes found in studies and then integrating them across studies taking account of setting, participants and methodological techniques used in the studies as well as quality assessment of studies.	The synthesis of qualitative data can be a useful aid to clinicians, researchers and policy makers if the research is summarised in such a way as to make it more accessible to understand and apply in practice.

Section 3: Procedure

Definitions

As a starting point for the review, it is necessary to define key concepts, the first of which is psychotherapy. There are many different schools of psychotherapy (approximately 500 according to Karasu (1986)), which have their own theoretical orientations that provide different ways of interpreting the same events (Overholser, 2002). For this reason psychotherapy is defined as, 'primarily interpersonal treatment that is based on psychological principles and involves a trained therapist and a client who has a mental disorder, problem, or complaint; and it is adapted or individualised for the particular client and his or her disorder, problem or complaint' (Wampold, 2001, p3). It does not necessarily have to be face to face, eg it could be over the telephone, but it has to have associated with it the intention to alleviate any problems or symptoms the client is facing by using psychological theory.

Counselling as defined by BACP is, 'when a counsellor sees a client in a private and confidential setting to explore a difficulty the client is having, distress they may be experiencing or perhaps their dissatisfaction with life, or loss of a sense of direction and purpose. By listening attentively and patiently the counsellor can begin to perceive the difficulties from the client's point of view and can help them to see things more clearly, possibly from a different perspective. Counselling is a way of enabling choice or change or of reducing confusion. It does not involve giving advice or directing a client to take a particular course of action. Counsellors do not judge or exploit their clients in any way.' (www.bacp.co.uk/education/whatiscounselling.html)

In this review studies that concern activities falling within these definitions of either psychotherapy or counselling will be examined.

Defining suicidal behaviour poses a more difficult problem due to the inherent difficulty of ascribing suicidal intent to self-injurious behaviours (Linehan, 1997). In this review we included any study where the participants had committed any act of self-injurious behaviour or were showing any signs of suicidal intent. Relevant definitions are as follows:

'Suicide is an act with fatal outcome, which the deceased, knowing or expecting a potentially fatal outcome, has initiated and carried out with the purpose of bringing about wanted changes.' (De Leo et al., 2006, p12)

'Non-fatal suicidal behaviour, with or without injuries' is 'a nonhabitual act with nonfatal outcome that the individual, expecting to, or taking the risk to die or to inflict bodily harm, initiated and carried out with the purpose of bringing about wanted changes.' (De Leo et al., 2006, p14)

Suicidal intent is 'subjective expectation and desire for a self-destructive act to end in death.' (American Psychiatric Association, 2003)

Search strategy

Previous systematic reviews

The researchers started by identifying previously published meta-analyses and systematic reviews concerning the evaluation of any form of counselling or psychotherapy in relation to self-harm or suicide attempts. The Cochrane Database of Systematic Reviews and Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects (DARE) and PubMed were all searched to find existing systematic reviews. Google Scholar was used and the reference lists were searched. Table 2 shows the search terms used in each database and number of hits found. The criteria upon which we classified reviews to be systematic and details concerning the quality appraisal of reviews are included in the section on the meta-review.

Primary studies

The main search for primary studies was conducted to ensure that studies of any methodological type were identified, and therefore no methodological filters were added to the search (Mays et al., 2005). With regard to the search terms, both thesaurus and free text searching were conducted to obtain the most comprehensive search. Search terms for psychotherapy and counselling were exploded and narrower terms examined to see whether any potential therapies were omitted. Regarding search terms for suicide and self-harm, the NICE guidelines on self-harm were examined and terms were then entered into the database searches as free text. Search terms can be found in Appendix A.

The following databases were searched: Cinahl-Cumulative Index to Nursing & Allied Health Literature (from 1982 to February week three, 2008), PsycINFO (from 1806 to

Table 2: Search results for previous systematic reviews

Database	Hits	Relevant studies for inclusion
Cochrane (self-harm)	Cochrane (6)	Cochrane (6)
	Other reviews (3)	Other reviews (3)
Cochrane (attempted suicide)	Cochrane (7)	Other reviews (2)
	Other reviews (8)	
Cochrane (suicide prevention)	Cochrane (5)	Other reviews (2)
	Other reviews (13)	
DARE (suicide prevention)	Reviews (54)	Reviews (1)
PubMed		
(suicide prevention psychosocial)	Reviews (21)	Reviews (2)
Reference, hand searching and internet		Total (3)

February week two, 2008), EMBASE (from 1980 to 2008 week 07), The Cochrane Library Database (2008-02-07), and PubMed (2008-02-09). Grey literature resources included Index to Theses (2008-02-22) and The British Library (2008-02-26). Authors were contacted where necessary and reference lists were also searched to ensure that no possible publications were missed. Papers published in any language were included although interpretation was limited to resources within the School of Psychology at the University of Hertfordshire. All citations identified by the above searches were downloaded into the EPPI-Centre (Institute of Education, University of London) website database and scanned for relevance against the review's exclusion criteria. Some studies were not accepted for the review due to the following factors:

Exclude on participants: The study does not report on clients, of whatever age, regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or are at risk of suicide due to factors such as suicidal ideation or previous suicide attempts.

Exclude on intervention: The study report is not related to an intervention that has a counselling or psychotherapy component to it.

Exclude on evidence: The 'evidence' is not a report of an evaluation with data or outcomes (of any kind).

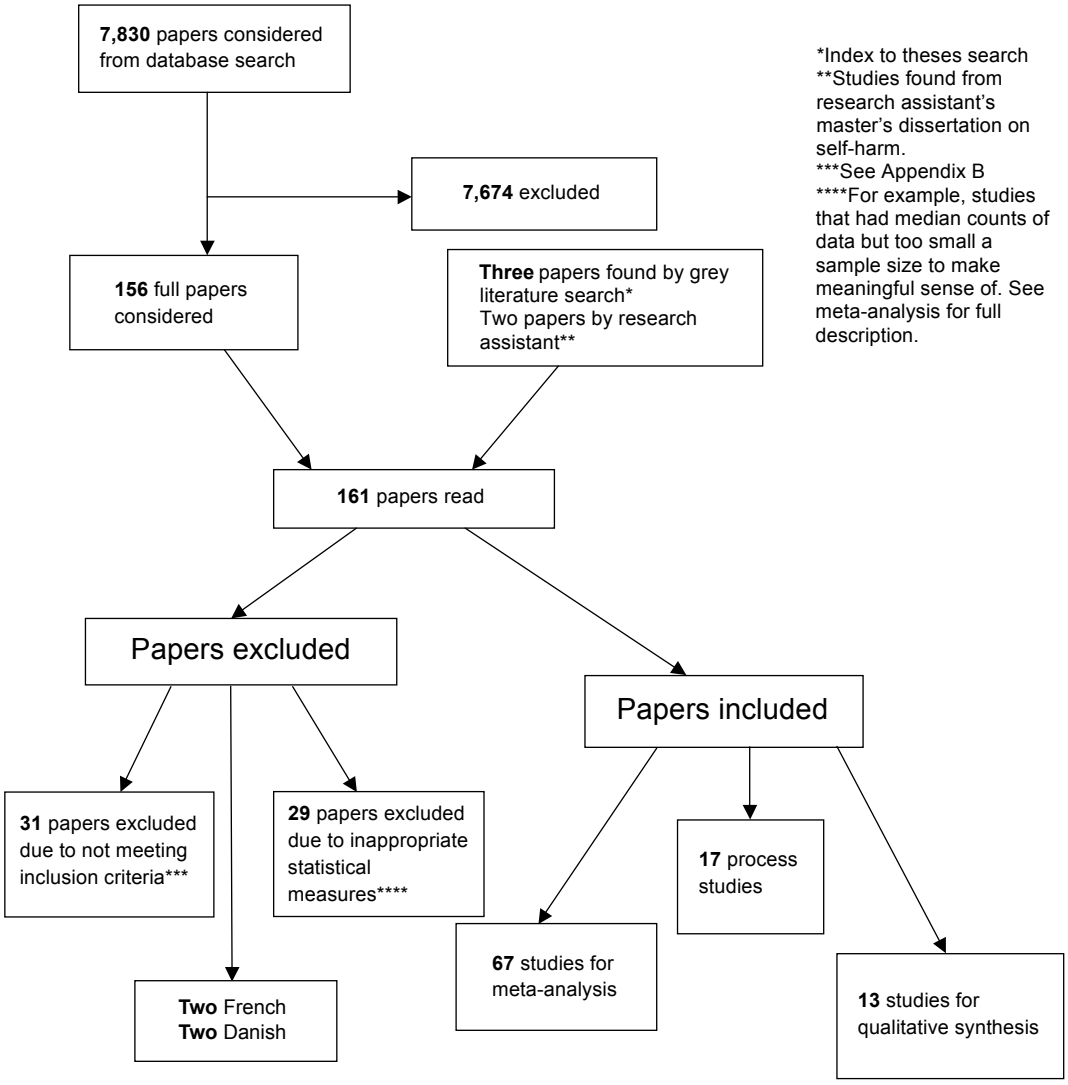
Exclude on outcome: The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, measures of suicidal ideation and hopelessness, or measures relevant to the focus of the approaches to psychotherapy and counselling studied (for example where clients were recruited on the basis of suicide and self-harm risk but the only measure used was one of depression).

Selection of studies

The research assistant independently screened all the abstracts of papers for possible inclusion in the review. Where there was insufficient information in the abstract to make a decision, the full paper was obtained. To reduce bias, the research assistant and the principal investigator conducted a consistency check of the first 50 studies in the original search and 100 per cent agreement was achieved on studies in meeting the inclusion criteria. Where there was ambiguity for inclusion of a paper, this paper was put to one side and consultation was sought with the principal investigator.

From the initial search, 7,830 articles were identified. Of these, 7,674 were excluded due to not meeting the initial screening criteria. From the remaining articles (with the addition of five that were subsequently identified), 97 were found to satisfy the further criteria for inclusion in the review of primary studies. Figure 1 provides details of the number of studies identified and the number excluded at each stage.

Figure 1: Flow diagram for selection of studies



Section 4: Meta-review

Method

A total of 117 reviews were identified, of which 12 were found to be relevant. Three other reviews were also found from reference searching and searching on Google. When searching for systematic reviews it soon became clear that there needed to be clear guidelines in place to distinguish systematic reviews from non-systematic reviews. Reference was made to a paper commissioned by NICE to identify the key components from existing guidelines and checklists for evaluating systematic reviews (Sander and Kitcher, 2006). One of the main conclusions of this review was that the authors of systematic reviews should report their search strategy used for identifying potentially relevant literature (out of 191 articles identified, 97 per cent cited this most frequently). Therefore, in deciding what previous reviews should be reviewed this was the primary inclusion criterion that had to be met. Additional factors considered were issues to do with study quality, blinding, publication bias, number of reviewers, assessment of outcome, and allegiance. Details concerning these factors can be found in Appendix C. Table 3 shows the key dimensions of the review in terms of participants, types of studies included, interventions, outcomes and results.

Results

Participants in the reviews

Three systematic reviews dealt specifically with adolescent/youth populations and suicide. Burns et al. (2005) looked at those who had presented at hospital with self-harm or who had been identified as engaging in self-harm, and found that only one study, incorporating group therapy, produced evidence of significant reduction of repetition of self-harm. In comparison, the Macgowan et al. (2004) review, the criteria for which included outcomes directly related to suicidality, such as suicide ideation and suicide attempts, found two such studies. The reason for this was that the other study, which looked at systemic crisis intervention, used a single-group, pre-test/post-test design. Without controls or a comparison group the specific cause of the change remains unclear. The third review, by Guo and Harstall (2002), looked at suicide prevention programmes only and the studies were not included if the focus was on the treatment process rather than the prevention strategy. All the studies in this review evaluated school-based suicide prevention programmes, examination of which revealed that two of the studies used counselling components, which made this review relevant. However, as the review was looking at preventive programmes and not interventions specifically, it cannot be directly compared with the other two in this category. Tarrier et al. (2008) included any age group and found that CBT appears effective with adult populations but not with adolescents. One problem with accepting this conclusion is that the definitions of adult and adolescent were specific to the articles rather than any consistent age cut-off being used, and so there was a potential overlap between study populations described as adolescent or adult.

Two studies looked at interventions for people with borderline personality disorder (Binks et al., 2006; McMain, 2007). Both these studies demonstrated the efficacy of DBT in treating self-harm in this population. The remaining reviews included participants based on their suicide behaviour.

Types of studies included and quality assessment

Nine out of the 15 systematic reviews considered randomised controlled trials. Three considered any type of study design (Gunnell and Frankel, 1994; Mann et al., 2005; McMain, 2007), two considered controlled studies (Guo and Harstall, 2002; Macgowan et al., 2004), and one review considered either randomised controlled trials, controlled trials or quasi-experimental studies (Burns et al., 2005). The inclusion of certain types of studies will affect the conclusions found. Of the nine systematic reviews that considered randomised controlled trials, four did not report any methods on how they assessed quality in the trials (Comtois and Linehan, 2006; Hepp et al., 2004; Linehan, 1997; van der Sande et al., 1997). One review reported no methods to assess quality but conducted a funnel plot looking at trial size, which is an important component in assessing effect sizes in trials (Crawford et al., 2007). Two studies assessed quality by looking at allocation concealment (Hawton et al., 1999; Townsend et al., 2001), which can affect results by reducing selection bias and potential subversion (Schulz et al., 1995). One study (Binks et al., 2006) gave an exhaustive list of quality assessment criteria, which lends credibility to their conclusion that for people with borderline personality disorder some of their problems may be amenable to talking/behavioural treatments. The final review that considered randomised controlled trials (Tarrier, Taylor and Gooding, 2008) assessed quality by using the Clinical Trials Assessment Measure, where relevant design and methodological features were taken from Consort, expert opinion and a review of 25 trial assessment scales.

Interventions

Ten reviews looked specifically at psychological interventions to reduce suicidal behaviour although the definitions of such behaviour differed dramatically among these. Two reviews considered any type of prevention measure (Gunnell and Frankel, 1994; Mann et al., 2005) and two reviews included both psychological and pharmacological interventions to reduce suicide (Linehan, 1997; Hawton et al., 1999). The last review looked at school-based interventions to prevent suicide (Guo and Harstall, 2002).

Outcomes

The outcome measures used by reviews were heterogeneous in nature, which makes it difficult to compare results among the reviews. Two reviews looked at suicide rates only (Gunnell and Frankel, 1994; Crawford et al., 2007). However, due to the time span between the two reviews, these are not comparable as the recommendations made by Gunnell and Frankel (1994) have been put in place – specifically, limits on over-the-counter prescriptions and the introduction of a catalytic converter. Crawford et al. (2007) found no evidence from their meta-analysis that additional psychosocial interventions following self-harm have a marked effect on the likelihood of subsequent suicide. The remaining studies looked at different measures of suicidal behaviour, with the definitions decided upon by the reviewers. This has implications for the conclusions made by reviews.

Out of the 15 reviews, Tarrier et al. (2008) make the strongest claim of the effect of an intervention (CBT) on reducing suicide behaviour. This stands in stark contrast to Crawford et al. (2007). One of the most likely explanations for this is the use of different outcome measures in the meta-analysis. Tarrier et al. (2008) looked at outcome variables that were most proximal to suicidal behaviours while Crawford et al. (2007) looked at rates of suicide. However, only 11 of the 18 studies included in their review reported suicide rates and none of the studies in their

Table 3: Details of review contents

Review	Participants	Type of studies included	Interventions	Outcomes	Results
Gunnell and Frankel (1994)	There are no details given on participants.	Two RCTs and the other studies are ecological or make geographical comparisons.	A wide variety of interventions – eg group treatment, drug treatment and electroconvulsive therapy, Samaritans and suicide prevention centres, school-based suicide prevention programmes.	Suicide rates were used although there is no indication of how these were measured across studies nor is any actual data given.	Strategies to reduce suicide among those recently discharged from psychiatric care, the effectiveness of GPs' postgraduate education, limiting quantities of over-the-counter medicines and prescription quantities of particularly toxic drugs, and long-term prophylaxis with lithium or antidepressants.
van der Sande et al. (1997)	There are no individual details on participants in terms of age, gender, psychiatric morbidity etc.	Prospective randomised trials.	Psychosocial/ psychotherapeutic treatment (psychiatric management of poor compliance, guaranteed inpatient shelter, psychosocial crisis intervention, CBT).	Studies using repeated suicide attempts, defined as deliberate self-poisoning and deliberate self-harm, as the main outcome.	Findings indicate that CBT appears to establish a significant reduction in repeated suicide attempts.
Linehan (1997)	Subjects who were suicidal – no consistent details given on age, gender etc.	Randomised clinical trials. Studies were classified as including/ excluding those at high risk for suicide.	The treatment had to target suicidal behaviour directly and apply a treatment designed specifically to reduce suicide.	Outcomes on suicide ideation, parasuicidal acts, including suicide attempts and/or suicide.	The author states that the most important conclusion to be drawn is that treatment studies have not shown how to reduce the incidence of death by suicide. Studies of DBT, problem solving and treatment enhancing compliance have promising results.
Hawton et al. (1999)	Participants aged >16, who had engaged in any type of deliberate self-harm. Excluded suicide ideators.	All randomised controlled trials of specific psychosocial and physical treatments versus any control in the treatment of DSH.	All psychosocial and/or psychopharmacological treatment versus standard or less intensive types of aftercare.	The main outcome measure used was the rate of repeated self-harm (fatal and non-fatal) within a follow-up period of up to two years.	The results indicated a trend towards reduced repetition of deliberate self-harm for problem-solving therapy compared with standard aftercare.
Townsend et al. (2001)	Data was used from Hawton et al. (1999). Participants were aged between 16–65 and >50% in each study were female.	Randomised controlled trials.	Problem-solving therapy.	Data concerning depression, hopelessness and improvement in problems.	Problem-solving therapy appears effective for depression, hopelessness and problems among deliberate self-harm patients.
Guo and Harstall (2002)	Children (5–14) and young people (15–19).	Primary controlled quantitative studies	Interventions aimed at suicide prevention with immediate management of the suicidal crisis and the longer-term care, treatment and support of people at risk.	Suicide-related outcomes – reduction in suicidal ideation, attempt rates, suicide rates, change in awareness of suicide-related knowledge.	There is insufficient evidence to support curriculum-based suicide prevention programmes in schools due to most of the significant findings of change being within groups rather than differences between the control and experimental groups.
Macgowan (2004)	Adolescents aged 10–17.	Controlled studies meeting criteria by American Psychological Association's Division 12 Task Force.	Only non-pharmacological psychosocial treatments were included.	Outcomes directly related to suicidality, such as suicide ideation or suicide attempts and treatment retention.	Two studies looking at systemic crisis intervention and group therapy that assessed suicide attempts reported successful outcomes. Other interventions reported unqualified success with CBT, and family involvement highlighted.

Review	Participants	Type of studies included	Interventions	Outcomes	Results
Mann et al. (2005)	Participants included adults and adolescents; no details given on inclusion/ exclusion criteria.	Systematic reviews and meta-analyses, quantitative studies, either randomised controlled trials or cohort studies and ecological or population-based studies.	Any intervention was included that was classed as a preventive strategy for suicide examining the outcome measures.	Suicide behaviour (completion, attempt, ideation) or secondary outcomes (treatment seeking, identification of at-risk individuals, antidepressant rates, referrals) or both.	Education of physicians and restricting access to lethal means were found to prevent suicide. Other interventions need more evidence of efficacy.
Burns et al. (2005)	Adolescents and young adults identified via presentation to hospital or otherwise identified as engaging in self-harm.	Randomised controlled trials, clinical controlled trials and quasi-experimental studies.	Interventions designed to reduce the repetition of DSH.	Repetition of self-harm, adherence to treatment, and reduction in suicidal ideation.	Group therapy (RCT) led to a significant reduction in rates of repetition of self-harm. Family therapy (quasi-experimental study) resulted in a significant reduction in suicidal ideation. Intensive aftercare offers no clear benefit over routine aftercare.
Hepp et al. (2004)	Patients were included after a suicide attempt, DSH or self-poisoning.	Subjects had to be randomly allocated to either intervention or control/ comparative group.	Psychosocial/ psychological (ie pharmacological trials were excluded).	Recurrence of attempted suicide or completed suicide, DSH or self-poisoning.	None of the intervention studies was successful in significantly reducing the incidence of completed suicide. Psychoanalytically oriented treatment was successful in the reduction of DSH and suicide attempts. CBT, including DBT, on the whole was not effective in the reduction of repeated DSH.
Comtois and Linehan (2006)	Participants who had made a self-inflicted injury or had high suicide risk.	Randomised controlled trials or closely approximating a randomised design.	Psychosocial intervention.	Outcomes on suicide ideation or self-inflicted injury, including suicide attempts and/or suicide.	Psychosocial treatments, particularly CBT, hold promise as strategies to reduce risk of future self-inflicted injury in patients identified at high risk for subsequent suicidal behaviour.
Binks et al. (2006)	Adults (18 years or over) with a diagnosis of borderline personality disorder.	All relevant randomised controlled trials with or without blinding.	Psychologically based therapeutic interventions.	A wide range among which are self-harm, including suicide.	DBT offers a small benefit over treatment as usual in self-harm rates, but the studies are too few to inspire full confidence in their results.
Crawford et al. (2007)	Patients who had harmed themselves prior to entry in the study.	Randomised controlled trials.	Psychosocial interventions that compared additional or enhanced care with a control or standard care.	Mortality data (suicide rates).	No evidence from the meta-analysis that additional psychosocial interventions following self-harm have a marked effect on the likelihood of subsequent suicide.
McMain (2007)	Adults (18 years or over) with a diagnosis of personality disorder.	Randomised controlled studies, uncontrolled studies and quasi-experimental studies.	Psychosocial treatments.	Suicidal behaviour and self-harm.	DBT, mentalisation-based day treatment, CBT and schema-focused therapy have been shown to lower the rates of parasuicidal behaviours in patients with BPD.
Tarrier et al. (2008)	Any age group was included and studies targeted different diagnostic groups.	Randomised controlled trials.	Cognitive behavioural therapies.	Suicide behaviour including completed suicides, suicide attempts, suicide intent and/or plans, and suicide ideation.	There was a highly significant effect for CBT in reducing suicide behaviour. CBT was broadly defined as DBT, problem solving, family therapy or cognitive therapy.

review investigated whether the intervention would lead to a reduction in the rate of suicide.

Six out of the 15 reviews conducted a meta-analysis (Binks et al., 2006; Crawford et al., 2007; Hawton et al., 1998; Tarrier et al., 2008; Townsend et al., 2001; van der Sande et al., 1997). The six meta-analyses differ in terms of participants used (eg Binks et al. (2006) looked at treatment for people with borderline personality only), outcome measures (as previously mentioned, Crawford et al. (2007) looked at suicide rates whereas Townsend et al. (2001) looked at measures of hopelessness, depression and improvement in problems), and interventions (Hawton et al. (1999) looked at psychosocial and pharmacological, while Townsend et al. (2001) looked at problem solving only). With regard to interventions, the way reviewers grouped their studies could have had a significant impact on the results. For example, Crawford et al. (2007) combined data from a variety of different forms of treatment, and so the specific impact of the various forms of treatment might have been lost. Townsend et al. (2001) found significantly lower hopelessness scores at follow-up for those who had been offered problem-solving therapy compared to treatment as usual. This effect concurs with the finding of Hawton et al. (1999) that problem-solving therapy indicated a trend towards reduced repetition of deliberate self-harm. Thus, there is the suggestion that the effect of specific types of therapy in a meta-analysis for people who self-harm/attempt suicide is an area worthy of examination and subject to subgroup sensitivity analyses, although caution would be needed in interpreting results with small sample sizes. For example, in Tarrier et al. (2008), 12 out of 28 studies used standard, modified or aspects of dialectical behaviour therapy (DBT) as a subcategory of CBT. However, Tarrier et al. (2008) do state that, 'DBT in its conventional form is of longest duration and greatest intensity and, by implication, the most costly' (p102). Without taking factors like this into consideration in reviews it is difficult to confirm the robustness of conclusions.

Summary

The NHS Centre for Reviews and Dissemination (2001) has defined a systematic review as:

> 'A review of the evidence of clearly formulated questions that uses systematic and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used.' (Stage I, Phase 0, p4)

From this quote it is evident that several of the reviews appraised were lacking:

- a substantial effort to critically appraise relevant primary research in their review.
- explicit details on data extraction (nine out of 12 did not include any details).
- complete information with regard to participants, interventions, comparisons and outcome assessments in regard to their inclusion and exclusion criteria for study selection.
- a substantial effort to examine the similarity of the studies.
- appropriate outcome measures for the meta-analysis.

In this systematic review, we have attempted to address the above problems, and also to take a broader view than those previous reviews that, while systematic, either focused on only one type of therapy (eg Tarrier et al., 2008) or a specific type of outcome (Crawford et al., 2007), thus limiting the scope for generalising their findings.

Section 5: Quantitative outcome studies

Method

Data extraction and quality assessment

With regard to quantitative studies, the research assistant extracted data concerning characteristics of the participants, both in intervention and control groups, including their target problem and sample selection, as well as the time period and delivery of the intervention, and length of follow-up. Information on the generalisability of findings, the level of experience of primary staff, and attrition rate were also included. Quality assessment for randomised controlled trials was based upon criteria set out in the Cochrane Handbook for Systematic Reviews of Intervention (Higgins and Green, 2006) and the NHS Centre for Reviews and Dissemination Report (2001). Eight quality criteria had to be met. The assessment for non-randomised controlled studies was taken from the Cochrane Group in a report by Ryan et al. (2007). The criteria are very similar to those used in assessing the randomised controlled trials, with the omission of two factors: whether a power calculation was used, and whether participants were assigned to groups randomly. The use of allocation, blinding, baseline comparability, follow-up, and intention to treat were all still investigated. For studies that looked at a cohort sample and measured outcome before and after treatment without comparison to a control, the quality criteria were taken from the Critical Appraisal Skills Programme (CASP), accessed at http://www.phru.nhs.uk/index.htm. They involved issues to do with a clearly focused question, how participants were recruited, how outcome was measured, follow-up and drop-outs, and appropriate reporting of results. The main focus with regard to quality assessment of all studies, where appropriate, was the need to reduce selection bias. Tables displaying quality criteria are in Appendix D.

Meta-analysis

Meta-analyses were conducted for two groups of studies using data extracted by the research assistant. One meta-analysis was conducted with studies that compared outcome with treatment against a form of control, which could be standard care, enhanced standard care, a waiting list or another active treatment. The second meta-analysis was conducted on studies that looked at change on outcome measures pre- to post-psychotherapy or counselling. The outcome measure that was most proximal to suicide behaviour was used, namely attempted suicide, self-harm, and scores on the Beck Suicidal Ideation, Hopelessness and Depression Inventories respectively.

Statistics

For each experimental study an effect size was calculated for the effect of psychotherapy or counselling relative to the comparison group. The effect size was calculated using the post-treatment means, standard deviations and sample sizes where the difference between the means was divided by the pooled standard deviation:

$$S_p = \sqrt{\frac{\sum_{i=1}^{k} ((n_i - 1)s_i^2)}{\sum_{i=1}^{k} (n_i - 1)}}$$

The standard error of the difference between two independent means was calculated as s:

square root [se1-squared+ se2-squared].

Once the effect size was calculated the corresponding standard error was calculated as:

square root [variance of effect size]/square-root of total N.

When the outcome was measured as a proportion, this was transformed into an appropriate continuous effect size and standard error (Chinn, 2000). The confidence intervals for the odds ratio were derived by calculating a standard error for the log odds ratio (Bland and Altman, 2000).

For multiple armed studies, where there were two forms of treatment compared against a form of control, to ensure that each participant was represented only once in the meta-analysis the following measures were taken:

1. For dichotomous outcomes both the number of events and the total number of participants were halved.
2. For continuous outcomes only the total number of participants was halved.

With regard to before and after studies, the effect size was calculated as the difference in means divided by the standard deviation of the pre-treatment mean (Becker, 1988). In order to derive the standard error from the effect size, the effect size was adjusted as follows and the standard error calculated using equation 9 in Morris (2000):

- Calculate unbiased ES
  d= (1-(3/((4*df)-1)))*ES.
- Calculate se (d)
  Sed=SQRT(((1-(3/((4*df)-1)))^2)*(0.7/n0)*((n0-1)/(n0-3))*(1+(n0/0/7)*(d^2))-(d^2))

Before and after studies that compared binary outcomes were excluded due to a lack of appropriate conversion to effect size and standard error. Papers that included case studies (n=3) were also excluded from meta-analysis for the same reason.

Period of analyses

Analyses were carried out on data reported at follow-up. If studies included no follow-up then data taken post-treatment was used. Where studies used a variety of assessment points, those that were longer in time were included, for example 12 months over six months. In one study (Rudd et al., 1996) data was taken at 12 months due to the fact that attrition rates were inordinately high for 18 and 24 months. A meta-analysis was also conducted for studies that reported immediate post-treatment data.

Results

Twenty-nine studies were excluded from the meta-analysis due to insufficient information being available to derive an appropriate effect size (see Appendix E for exclusion tables and characteristics of excluded studies from the meta-analysis). Most of the studies excluded either did not have the standard deviations reported with the means, or they reported statistics such as individual growth curve analyses or median number of events of self-harm. While there are methods available for converting medians into effect sizes the studies in this review included too little data to be able to do so. For example, Bohus et al. (2000) used median frequency of self-injury before and after treatment, but because six participants scored 0 pre-treatment the change reported cannot be meaningfully interpreted. Attempts were made to contact

the primary authors where there was insufficient evidence for inclusion of the study in the review, but unfortunately many of the authors could not be contacted or no longer had access to the data.

Sixty-seven studies met the inclusion criteria for the meta-analyses. Each contributed one effect size, except for four papers that were multiple armed and so included two outcome measures for each intervention against control (Brent, 1997; Chiesa, 2004, 2006; Patsiokas, 1985). Fifty-four studies compared outcome of treatment against a form of control, and 38 evaluated change on outcome measures pre- to post-psychotherapy or counselling. Of the latter, 17 studies considered only before and after therapy data and are defined here as observational studies. The other 21 studies reported before and after data as well as comparing treatment against a form of control, and were thus included in both meta-analyses. Four studies were follow-up studies (Bateman, 2001; Chiesa, 2006; Linehan, 1993; Van Den Bosch, 2005 (which was a follow-up of Verheul, 2003)).

Study characteristics

Twenty-eight studies were conducted in the USA, 17 in the UK, five in Germany, three in The Netherlands, three in Australia, two in Denmark, and one each in Canada, Finland, India, Ireland and Sri Lanka.

Three of the studies were unpublished dissertations (Amish, 1991; Ivanoff, 1984; Leerer, 1996). The principal aspects of three German studies were translated into English, but some specific details such as hours in therapy were not translated due to time and cost constraints (Fleischaker, 2006; Friedrich, 2003; Hoschel, 2006).

The categorisation of the age groups was into studies that considered young people under the age of 18 (n=11) and those that involved participants over the age of 18 (n=49), with one study looking specifically at participants over the age of 60. Patsiokas (1985) did not include any data on the age of participants. Unfortunately, there was some overlap in several studies that included both adults and participants under the age of 18. One study (Aoun, 1999) looked at participants aged between 12 and 66 years. Three studies involved participants aged 15 to adult age (McLeavey, 1994; Samaraweera, 2007; van der Sande, 1999) and six studies involved participants aged 16 to adult age (Bateman, 1999; Biggam, 2002; Evans, 1999; Nordentoft, 2005; Raj, 2001; Salkovskis, 1990).

There were 18 studies that considered DBT (two follow-up studies: Linehan, 1993; Van Den Bosch, 2005), eight studies that considered CBT, and eight studies that described their treatment as problem-solving therapy.

In terms of the outcome measures included in the meta-analyses, 21 studies used suicide attempts, 16 used self-harm measures, 15 considered suicide ideation, five used the Beck Hopelessness Scale, and six studies used the Beck Depression Inventory. Eight studies included a measure of suicide behaviour that was not grouped into any of these categories due to not being able to ascertain the face validity of the scale. A full description of the grouping of outcomes will be discussed in the subgroup analysis section.

Thirty-two studies described their control as standard care, which included GP care and no other treatment. Two studies described their control as enhanced standard care (Brown, 2005; Rudd, 1996), two studies used a supportive stance as control (Brent, 1997; Donaldson, 2005), and two studies described their control as being non-directive (Leerer, 1996; Patsiokas, 1985). Two studies described their control arm as outpatient therapy (Hawton, 1981; Gratz, 2006) and one study used standard care in conjunction with selective serotonin reuptake inhibitors (Goodyer, 2007). Six studies compared their intervention with another form of therapy (Amish, 1991; Ivanoff, 1984; Liberman, 1981; Linehan, 2006; McLeavey, 1994; Turner, 2000).

Thirty-eight outcomes were reported from randomised controlled trials. Of these trials, three had follow-up data reported in a different paper and two papers had multiple arms. Thus, 33 studies are included in rating the quality of these papers. Sixteen outcomes were reported from non-randomised controlled trials. Of the non-randomised studies, one (Chiesa, 2004) had multiple arms and follow-up (Chiesa, 2006), and thus 13 studies are included in rating the quality of these papers. The quality of the trials differed considerably, with only two randomised controlled trials meeting all eight quality criteria (Davidson, 2006; Grawe, 2006). Twelve randomised studies met six or more criteria and 19 studies met fewer than six. With regard to non-randomised controlled trials, none of the trials scored full marks on quality criteria. The study that scored highest was Winter et al. (2007), with four out of six criteria fully met, and the remainder of the studies met fewer than four criteria. See Appendix F for full details.

Table 4 provides a glossary of terms used in the meta-analysis.

Controlled studies meta-analysis

Random effects meta-analyses were conducted using the Stata Program (Stata Corporation, 2005). In the meta-analysis that compared outcome of treatment against a form of control, 44 of the 54 studies are in the direction of a benefit of psychotherapy/counselling over the control (see Figure 2). Looking at the random effects model, the combined estimate of the effect size for psychotherapy/counselling against a control was close to a medium effect: -0.45 (95% CI: -0.57 to -0.32, $p<0.001$). The test for heterogeneity (I^2=91%; $p< 0.001$) was statistically significant. A negative effect size indicated greater improvement in the treatment than in the control group. The 54 comparisons are described in Table 5.

Out of the 54 studies, 38 were described as randomised and 16 as non-randomised. For the randomised controlled trials, the combined estimate of the effect size for psychotherapy/counselling against a control was close to a medium effect: -0.46 (95% CI: -0.60 to -0.32, $p<0.001$). The test for heterogeneity (I^2=91%; $p< 0.001$) was statistically significant. Looking at the non-randomised studies, the combined estimate of the effect size for psychotherapy/counselling against a control was again close to a medium effect: -0.42 (95% CI -0.70 to -0.13, $p<0.001$). The test for heterogeneity (I^2=94%; $p< 0.001$) was statistically significant. (See Appendix G for forest plots and tables.)

Due to the considerable heterogeneity present in the above analyses, several subgroup analyses were done to explore the potential sources of variability, both clinical and methodological, in the results.

A meta-analysis was also conducted for studies that gave outcome data immediately post-treatment, which included 14 studies in the meta-analysis having a different outcome to that used in the meta-analysis above. However, there was little difference in the pooled effect size: -0.41 (95% CI: -0.53 to -0.29). The test for heterogeneity was statistically significant (I^2=92%; $p<0.001$). (See Appendix H for forest plot.)

Table 4: Glossary of terms in the meta-analysis

Confidence interval	The range within which the 'true' value of the effect of an intervention is expected to lie with a given degree of certainty. Confidence intervals represent the distribution probability of random errors but not systematic errors (bias).
Effect size	The observed relationship between an intervention and an outcome.
Forest plot	This presents the individual study effects with their confidence intervals as horizontal lines, the box in the middle of the horizontal line representing the mean effect. A vertical line at zero represents no effect.
Funnel plots	Funnel plots show the distribution of effect sizes according to sample size (or inverse of variance): it is expected that the points will fill a funnel shape, there being more variability in reported effect sizes for smaller studies. Large gaps in the funnel indicate a group of possible 'missing' publications.
Heterogeneity	The variability or differences between studies in terms of key characteristics (clinical heterogeneity), quality (methodological heterogeneity) and effects (heterogeneity of results). Statistical tests of heterogeneity may be used to assess whether the observed variability in study results (effect sizes) is greater than that expected to occur by chance.
Meta-regression	A generalisation of subgroup analyses that can be used to investigate heterogeneity of effects across studies. It examines the relationship between one or more study-level characteristics and the sizes of effect observed in the studies. Characteristics of studies might be, for example, aspects of the interventions, the settings or the designs (such as length of treatment).
Publication bias	A bias in the research literature where the likelihood of publication of a study is influenced by the significance of its results. For example, studies in which an intervention is not found to be effective may be less likely to be published.
Random effects model	A mathematical model for combining the results of studies that allows for variation in the effect among the populations studied. Thus, both within-study variation and between-studies variation are included in the assessment of the uncertainty of results.

Subgroup analyses for controlled studies

Outcome measures

Outcome measures were decided upon in terms of their proximity to suicide. For both the controlled analyses and the before and after analyses the following measures were taken. Where studies looked at repeat suicide attempts this was taken as the first measure. Self-harm measures were taken as the next proximal measure. Suicidal ideation was taken as the next, and hopelessness and BDI followed on respectively.

Suicide attempts

In the meta-analyses, it was necessary to group the studies according to the type of outcome measure they used to perform subgroup analyses to try to explain the apparent heterogeneity. The two most frequent measures were repeat suicide attempts and self-harm measures. The studies were extremely disparate in the way they assessed outcome. With regard to repeat suicide attempts (n=21), the majority of studies relied on participants' self-report through interview (n=10), although many different types of interview were used. Verheul (2003; follow-up Van Den Bosch, 2005) used the Borderline Personality Disorder Severity Index, a semi-structured interview that assesses frequency and severity of DSM-IV BPD symptom manifestations. Nordentoft (2002, 2005) used the European Parasuicide Study Interview Schedule (EPSIS). Evans (1999) and Linehan (1991; follow-up Linehan, 1993) used the Parasuicidal History Interview (PHI), Bateman (1999) used an interview that he devised himself, the Suicide and Self-Harm Inventory, and Donaldson (1997) used telephone interviewing. Studies that used the PHI had to explicitly include data on suicidal acts, but this was not the case in Koons (2001). Linehan (2006) used the Suicide Attempt Self-Injury Interview, which measures the topography, suicide intent, and medical severity of each suicide attempt and non-suicidal self-injury. Neither of these studies was grouped in any of the subgroup analyses for outcome measures.

Three studies (Allard, 1992; Aoun, 1999; Salkovskis, 1990) used readmission to hospital as a measure for repeat suicide attempts, and two studies did not explicitly state how they recorded attempted suicide (Grawe, 2006; Torhorst, 1987). Four studies used a psychometric test, although this too differed between studies (Davidson, 2006; Goodyer, 2007; Turner, 2000; Warren, 2004). Three studies had participants report their own suicide attempts without using any standardised form of interview (Brown, 2005; Liberman, 1981; Rathus, 2002)

Self-harm

When grouping the self-harm studies (n=16) the outcome measures used were in some cases the same as those used for clarifying suicide attempts. Bateman (2001) and Chiesa (2004; follow-up Chiesa, 2006) used the Suicide and Self-Harm Inventory devised by Bateman (1999). Weinberg (2006) and Tyrer (2003) used the PHI. Both studies by Gratz (2006) used the Deliberate Self-Harm Inventory, and Wood (2001) and Hawton (1987) used an interview, with the latter also consulting GPs and using the hospital's record monitoring service.

Winter et al. (2007) also consulted hospital records for the occurrence of self-harm. Hawton (1981) and McLeavey (1994) used incidents of self-poisoning as a measure of self-harm, although the degree of suicidal intent in such incidents was not assessed. One study (Stevenson, 1992) stated that information was obtained from the patient, friends or relatives, medical records and referral sources, although there is no mention of how it was obtained. The last study (Prendergast, 2007) stated that principal service providers were asked questions on the frequency of parasuicidal and suicidal behaviours of participants.

Suicide ideation

With regard to the outcome measure of suicide ideation (n=15), most of the studies used the Beck Scale for Suicide Ideation (Brown, 2004; Guthrie, 2001; Ivanoff; 1984;

Table 5: Details and results for studies comparing the efficacy of psychotherapy or counselling against a form of control

Study	Allocation	Outcome	Subtype	Number in intervention condition	Number in control condition	Effect	SE
Allard (1992)	Randomised	SA	Mixed	63	63	0.12	0.21
Amish (1991)	Non-randomised	SI	Coping skills	15	15	-0.46	0.15
Aoun (1999)	Non-randomised	SA	Counselling	84	87	-0.75	0.37
Bateman (1999)	Randomised	SA	Partial hospitalisation	19	19	-1.90	0.63
Bateman (2001)	Randomised	SH	Partial hospitalisation	22	19	-1.27	0.11
Biggam (2002)	Non-randomised	BHS	Problem solving	23	23	-0.70	0.11
Brent (1997)	Randomised	BDI	CBT	35	14	-0.25	0.18
Brent (1997)	Randomised	BDI	Systemic behaviour family therapy	30	15	0.03	0.12
Brown (2005)	Randomised	SA	CBT	60	60	-0.48	0.23
Chiesa (2004)	Non-randomised	SH	Long-term psychoanalytically oriented programme	47	25	0.55	0.29
Chiesa (2004)	Non-randomised	SH	SDR*	45	24	-0.34	0.29
Chiesa (2006)	Non-randomised	SH	Long-term psychoanalytically oriented programme	39	19	-0.44	0.32
Chiesa (2006)	Non-randomised	SH	SDR	34	19	-0.74	0.34
Davidson (2006)	Randomised	SA	CBT	53	48	-0.23	0.23
Donaldson (1997)	Non-randomised	SA	Psychotherapy	23	78	-0.76	0.51
Donaldson (2005)	Randomised	SI	Problem solving	15	16	-0.29	0.15
Evans (1999)	Randomised	SA	Manual assisted cognitive therapy	18	14	-0.38	0.42
Goodyer (2007)	Randomised	SA	CBT+SSRI	98	94	0.07	0.32
Gratz (2006)	Randomised	SH	Acceptance-based emotion regulation	12	10	-1.06	0.18
Grawe (2006)	Randomised	SA	Integrated treatment	30	20	0.60	0.64
Guthrie (2001)	Randomised	SI	Psychodynamic interpersonal therapy	47	48	-0.51	0.06
Harrington (1998)	Randomised	SI	Family therapy	74	75	-0.13	0.05
Hawton (1981)	Randomised	SH	Brief domiciliary problem-oriented counselling	48	48	-0.21	0.35
Hawton (1987)	Randomised	SH	Counselling	41	39	-0.46	0.41
Ivanoff (1984)	Randomised	SI	Systematic desensitisation	4	3	-1.05	0.41
Katz (2004)	Non-randomised	SI	DBT	26	27	-0.08	0.10
Koons (2001)	Randomised	PHI**	DBT	10	10	-0.33	0.21
Leerer (1996)	Non-randomised	BHS	DBT	10	4	0.71	0.32
Liberman (1981)	Randomised	SA	CBT	12	12	-0.28	0.57
Linehan (1991)	Randomised	SA	DBT	22	22	-0.53	0.11
Linehan (1993)	Randomised	SA	DBT	18	18	-0.22	0.14
Linehan (2006)	Randomised	SASII***	DBT	52	49	-0.33	0.06
McLeavey (1994)	Randomised	SH	Problem solving	17	16	-0.51	0.52
Nordentoft (2002)	Randomised	SA	Assertive community treatment	150	125	0.09	0.21
Nordentoft (2005)	Non-randomised	SA	Suicide prevention centre	213	21	-1.04	0.30

Study	Allocation	Outcome	Subtype	Number in intervention condition	Number in control condition	Effect	SE
Patsiokas (1985)	Randomised	SI	Beck cognitive restructuring	5	5	-0.13	0.35
Patsiokas (1985)	Randomised	SI	Problem solving	5	5	-0.86	0.33
Raj (2001)	Non-randomised	SA	CBT	20	20	-1.63	0.11
Rathus (2002)	Non-randomised	SI	DBT	29	82	-0.53	0.60
Roth-Borus (1996)	Non-randomised	HASS****	Specialised ER programme	65	75	-0.26	0.05
Rudd (1996)	Randomised	BHS	Problem solving	32	21	0.17	0.11
Salkovskis (1990)	Randomised	SA	Problem solving	1.75	8	-0.95	0.80
Samaraweera (2007)	Randomised	SI	CBT	5	4	-3.12	0.23
Torhorst (1987)	Randomised	SA	COV*****	64	66	0.86	0.30
Turner (2000)	Randomised	SA	DBT	12	12	-1.24	0.17
Tyrer (2003)	Randomised	SH	Manual assisted cognitive therapy	213	217	-0.15	0.11
Unutzer (2006)	Randomised	HSCL******	Problem solving	906	895	-0.29	0.08
VanDenBosch (2005)	Randomised	SA	DBT	24	23	-1.16	0.62
van der Sande (1997)	Randomised	BHS	Problem solving	140	134	-0.26	0.03
Verheul (2003)	Randomised	SA	DBT	24	23	-0.98	0.47
Warren (2004)	Non-randomised	SA	Democratic therapeutic community	74	60	0.12	0.05
Weinberg (2006)	Randomised	SH	Manual assisted cognitive therapy	15	15	-0.53	0.15
Winter (2007)	Non-randomised	SH	Personal construct psychotherapy	23	36	-0.43	0.30
Wood (2001)	Randomised	SH	Group therapy	32	31	-1.09	0.46

* SDR – Step-Down Residential Programme
** PHI – The Parasuicide History Interview
*** SASII – The Suicide Attempt Self-Injury Interview
**** HASS – Harkavy Asnis Suicide Survey
***** COV – Change of venue: seeing the same therapist or a different therapist in a different setting
****** HSCL – Hopkins Symptoms Checklist (suicide ideation)

Low, 2001; Patsiokas, 1985; Raj, 2001; Samaraweera, 2007). Four studies used variations of the Reynolds Suicide Ideation Questionnaire (Amish, 1991; Donaldson, 2005; Harrington, 1998; Katz, 2004). One study did not state how they assessed suicide ideation (Stanley, 2007), and another (Harely, 2007) used the Personality Assessment Inventory (Morey, 1991) to assess suicide ideation from the Suicide Scale (SUI). One study (Houck, 2002) used the High School Questionnaire: Profile of Experiences, which was designed for the 'Reconnecting Youth' programme developed at the University of Washington in Seattle.

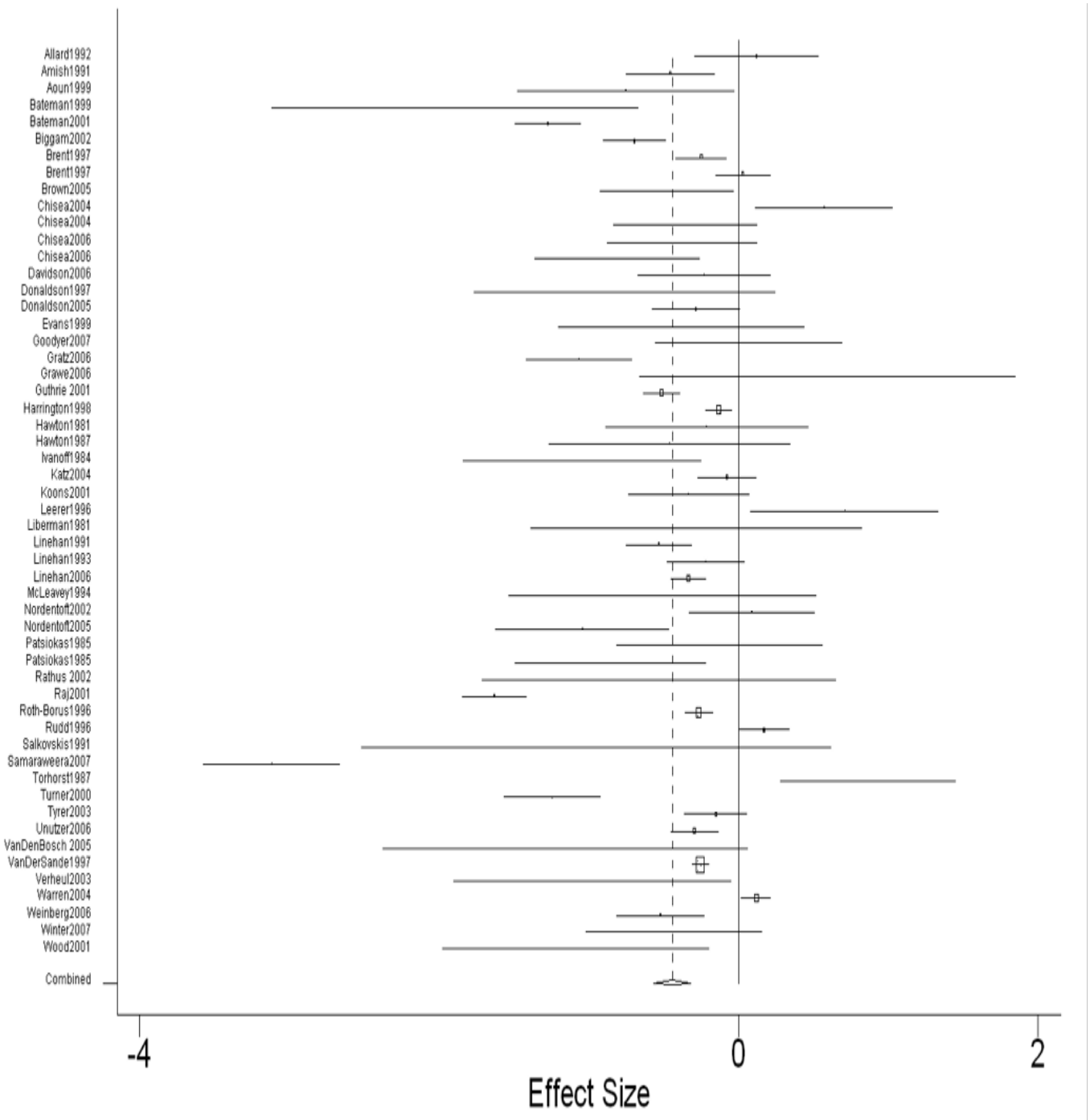
Unutzer (2006) used the Hopkins Symptoms Checklist, from which a measure of suicide ideation was taken from one single question asked. This study was not included in the subgroup analyses of outcome measure as its assessment of suicide ideation was limited. Rotherram-Borus (1996) used the Harkavay Asnis Suicide Survey, which assesses three factors: suicidal ideation, suicide behaviours and substance misuse. As it used a composite measure, it was not included in this subgroup analysis.

Table 6 gives the effect size, confidence intervals and p value for each of the subgroup outcome measure analyses.

Type of psychological therapy

Three types of therapy were most frequent throughout this review in studies that compared psychotherapy/counselling against a form of control: CBT, DBT and problem-solving therapy (PS). These studies were grouped according to the criterion that the aspects of therapy mentioned were the foremost therapy used. For example, Amish (1991) stated that she used coping skills training, which involved various components of therapy including both CBT and PS, and for that reason this therapy was not grouped with any others. Studies that looked at manual-assisted cognitive therapy (Evans, 1999; Tyrer, 2003; Weinberg, 2006) were excluded

Figure 2: Forest plot of effectiveness of psychotherapy/counselling versus a form of control



from the grouping of CBT studies as the primary aim of the research was to examine the effect of a self-help manual and not necessarily the effect of separate sessions of CBT with a therapist. For example, in Tyrer's study (2003), 38 per cent (n=90) of patients attended none of the treatment sessions, with their treatment consisting of the manual alone.

Table 7 gives the effect size, confidence intervals and p value for each of the subgroups of types of therapy.

Table 5 also indicates that partial hospitalisation for people with borderline personality disorder (Bateman and Fonagy, 1999, 2001), review of expectations and confrontation of treatment misconceptions to increase compliance in psychotherapy sessions (Donaldson, 1997), acceptance-based emotion regulation (Gratz, 2006), systematic desensitisation (Ivanoff, 1984), the use of a suicide prevention centre (Nordentoft, 2005), and group therapy (Wood, 2001), all gave large treatment effects (d>-0.70).

Modality of treatment

Treatment was coded according to whether it was conducted on an individual basis, a group basis, or a mixed treatment mode. Table 8 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Age

Subgroup analyses were conducted on two age group samples, those under 18 and those over 18 (termed as an adult sample). The studies by Patsiokas (1985) and Torhorst (1987) did not

Table 6: Subgroup analyses for outcome measures

Outcome measure (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Suicide attempt (n=21)	-0.39	-0.64	-0.13	<0.01
Self-harm (n=13)	-0.51	-0.84	-0.19	<0.01
Suicidal ideation (n=10)	-0.81	-1.23	-0.39	<0.01
Beck Hopelessness Scale (n=4)	0.10	0.47	0.25	>0.57

Table 7: Subgroup analyses for type of therapy

Type of therapy (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
CBT (n=6)	-1.02	-1.88	-0.15	<0.01
DBT (n=10)	-0.41	-0.66	-0.15	<0.01
PS (n=8)	-0.33	-0.53	-0.12	<0.01

Table 8: Subgroup analyses for treatment modality

Modality (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Individual (n=26)	-0.39	-0.64	-0.13	<0.01
Group (n=3)	-0.51	-0.84	-0.19	<0.01
Mixed (n=10)	-0.81	-1.23	-0.39	<0.01

include any data on age, and one study had an age group of over 60 years (Unutzer, 2006). Table 9 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Quality of studies

Controlled studies were described as either randomised or not randomised. Since randomised studies were judged on eight quality criteria and non-randomised studies on five criteria, quality scores for these studies were divided by eight and five respectively to give a score out of one. In the subgroup analyses, quality was examined for those studies that had less than 50 per cent of quality criteria met, those that had 50 per cent of quality criteria met, and those that had more than 50 per cent of quality criteria met. Table 10 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Hours in therapy

Where studies reported the amount of time spent in therapy this was recorded, but unfortunately in seven studies (Aoun, 1999; Evans, 1999; Hawton 1981, 1987; Norderntoft, 2005; Rudd, 1996; Warren, 2004) no data were reported. Subgroup analyses were performed for studies where participants spent less than six hours in therapy, between six to 20 hours in therapy, and more than 20 hours in therapy. Table 11 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Setting of treatment

Studies were described as either providing treatment in an inpatient setting, outpatient setting, or in another setting, with one study (Donaldson, 2005) not stating what setting the treatment was delivered in. Of the seven studies where treatment was conducted in another setting, in five this was conducted in the home (Grawe, 2006; Guthrie, 2001; Harrington, 1998; Hawton, 1982; Salkovskis, 1990), and so a subgroup analysis was performed with these also. In one study, treatment was conducted in a prison setting (Biggam, 2002), and in one it was conducted at a place of choosing by the participant, which, while home visiting was preferred, could also be the hospital or in the community (Nordentoft, 2002). Table 12 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Assessment times

Subgroup analyses were conducted on studies that had less than 12 months' follow-up, those that had more than 12 months' follow-up and studies that had more than 24 months' follow-up. Table 13 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Table 9: Subgroup analyses for age groups

Age (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Less than 18 (n=10)	-0.19	-0.28	-0.10	<0.01
Adult (n=40)	-0.55	-0.72	-0.38	<0.01

Table 10: Subgroup analyses for quality

Quality (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Less than 50% quality met (n=21)	-0.49	-0.79	-0.20	<0.01
50% quality criteria met (n=11)	-0.46	-0.69	-0.24	<0.01
More than 50% quality criteria met (n=22)	-0.38	-0.53	-0.23	<0.01

Table 11: Subgroup analyses for time in therapy

Hours in therapy (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Less than 6 (n=5)	-1.09	-1.73	-0.45	<0.01
Between 6 and 20 (n=22)	-0.39	-0.58	-0.19	<0.01
More than 20 (n=20)	-0.43	-0.64	-0.23	<0.01

Meta-regression investigating variations in effect across controlled studies

The results of several subgroup analyses did not demonstrate any homogeneity in treatment effects except for those that were conducted in a different setting to inpatient or outpatient and those studies that used the BHS. This highlights that caution is needed in accounting for the reasons for the effectiveness of psychotherapy/counselling in the prevention of suicide as compared to a form of control. In this review the focus needs to be on what particular aspects of therapy are effective, in what particular setting and with what types of clients. In order to investigate this further a meta-regression was conducted, using Stata. Meta-regression is an extension to subgroup analyses and allows the effect of continuous and categorical characteristics to be investigated. The effects of multiple factors can be investigated simultaneously to explain any of the potential heterogeneity of treatment effects between the studies.

The effect modifiers under investigation were all coded on a continuous basis and included those for which subgroup analyses have been done, with the added potential modifier of gender, which was coded as percentage female. In meta-regression each characteristic is compared against the baseline. Thus, studies were coded 0, 1, 2, 3 etc and for each line the characteristic was compared against 0. Missing variables, where studies have not reported the data, were also coded automatically in Stata. For example, in terms of setting there were four codes given:

Setting	Numerical Code
Inpatient	0
Outpatient	1
Other Setting	2
Missing	3

The meta-regression uses a restricted maximum likelihood estimate for the regression parameters and the model is said to account for 20 per cent of between study variance. Table 14 displays the statistics from the meta-regression. The following factors are suggestive of reasons for the differences in treatment effects and in explaining the heterogeneity among studies:

- There was a difference between those studies that offered less than six hours of therapy and those that offered between six and 20 hours of therapy ($p<0.05$), with a larger effect on the variance being found for studies that gave less than six hours of therapy.
- There was a difference between those studies that conducted treatment in an inpatient setting and another

Table 12: Subgroup analyses for setting of treatment

Setting (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Inpatient (n=18)	-0.69	-0.97	-0.40	<0.01
Outpatient (n=28)	-0.35	-0.52	-0.18	<0.01
Other (n=7)	-0.28	-0.59	0.04	>0.08

Table 13: Subgroup analyses for length of follow-up

Assessment time (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Less than 12 months (n=21)	-0.64	-0.87	-0.40	<0.01
More than 12 months (n=21)	-0.31	-0.48	-0.15	<0.01
More than 24 months (n=12)	-0.34	-0.66	-0.03	<0.01

Table 14: Meta-regression analysis

Fit of model without heterogeneity (t 2=0) Q (19 df)=95.7405
Proportion of variation due to heterogeneity I-squared=0.802
REML estimate of between-study variance t 2=0.2026

Effect	Coef	Std. Err	T	P> (t)	95% confidence interval	
					LL	UL
Gender (%female)	0.01	0.01	1.2	0.24	-0.01	0.03
Aged <18 vs >18	-0.38	0.33	-1.14	0.27	-1.07	0.32
Aged <18 >60	-0.61	0.76	-0.81	0.43	-2.21	0.98
Therapy <six hours vs six–20 hours	0.88	0.36	2.47	0.02	0.14	1.63
Therapy <six hours vs >20 hours	0.61	0.47	1.28	0.22	-0.39	1.60
Inpatient vs outpatient	-0.03	0.28	-0.09	0.93	-0.62	0.57
Inpatient vs another setting	1.63	0.48	3.42	0.00	0.63	2.62
Inpatient vs missing	1.07	0.82	1.3	0.21	-0.65	2.79
Quality criteria met <50% vs >50%	-0.27	0.34	-0.79	0.44	-0.99	0.45
Assessment <12 months vs assessment >12 months	0.79	0.56	1.42	0.17	-0.38	1.96
Assessment at <12 months vs assessment at 24 months	0.92	0.37	2.49	0.02	0.15	1.68
Assessment at <12 months vs missing	1.13	0.43	2.61	0.02	0.22	2.04
CBT vs DBT	0.03	0.43	0.07	0.95	-0.87	0.93
CBT vs PS	-0.18	0.56	-0.32	0.75	-1.37	1.00
CBT vs other type of therapy	0.36	0.35	1.05	0.31	-0.36	1.09
Suicide attempt vs self-harm	-0.18	0.39	-0.46	0.65	-1.00	0.64
Suicide attempt vs suicide ideation	-0.55	0.36	-1.55	0.14	-1.30	0.20
Suicide attempt vs other outcome	0.69	0.35	1.98	0.06	-0.04	1.41
Randomised vs non-randomised	-0.52	0.31	-1.66	0.11	-1.18	0.14
Individual treatment versus group	0.02	0.64	0.03	0.98	-1.32	1.35
Individual treatment vs mixed treatment	-0.51	0.32	-1.56	0.14	-1.18	0.17
_cons |	-1.94	0.75	-2.58	0.02	-3.52	-0.37

setting (p<0.005), with a larger effect on the variance being found for treatment in an inpatient setting.

- Having assessment times at longer follow-up periods accounts for treatment variability (p<0.05) in that those treatments that appear to perform better are the ones with shorter follow-up points.
- Having an outcome measure (eg Harkavy Asnis Suicide Survey, Hopkins Symptoms Checklist (suicide ideation) etc) that was not grouped in the outcomes of suicide attempt, self-harm or suicidal ideation showed a trend for association with variability in effect sizes (p<0.063).

Publication bias

Publication bias was examined by conducting a funnel plot, and there was near evidence of publication bias in studies comparing effect of treatment against a form of control (p for bias 0.064) using Egger (weighted regression method). (Please see Egger's test table 1 & Begg's funnel plot 1 below).

As the standard error becomes larger, more of the smaller studies show effects of treatment in favour of psychotherapy/ counselling, with only one small study giving an effect in favour of the control. This could be evidence of publication bias in that smaller studies that give large effects are more likely to be published.

Before and after studies meta-analysis

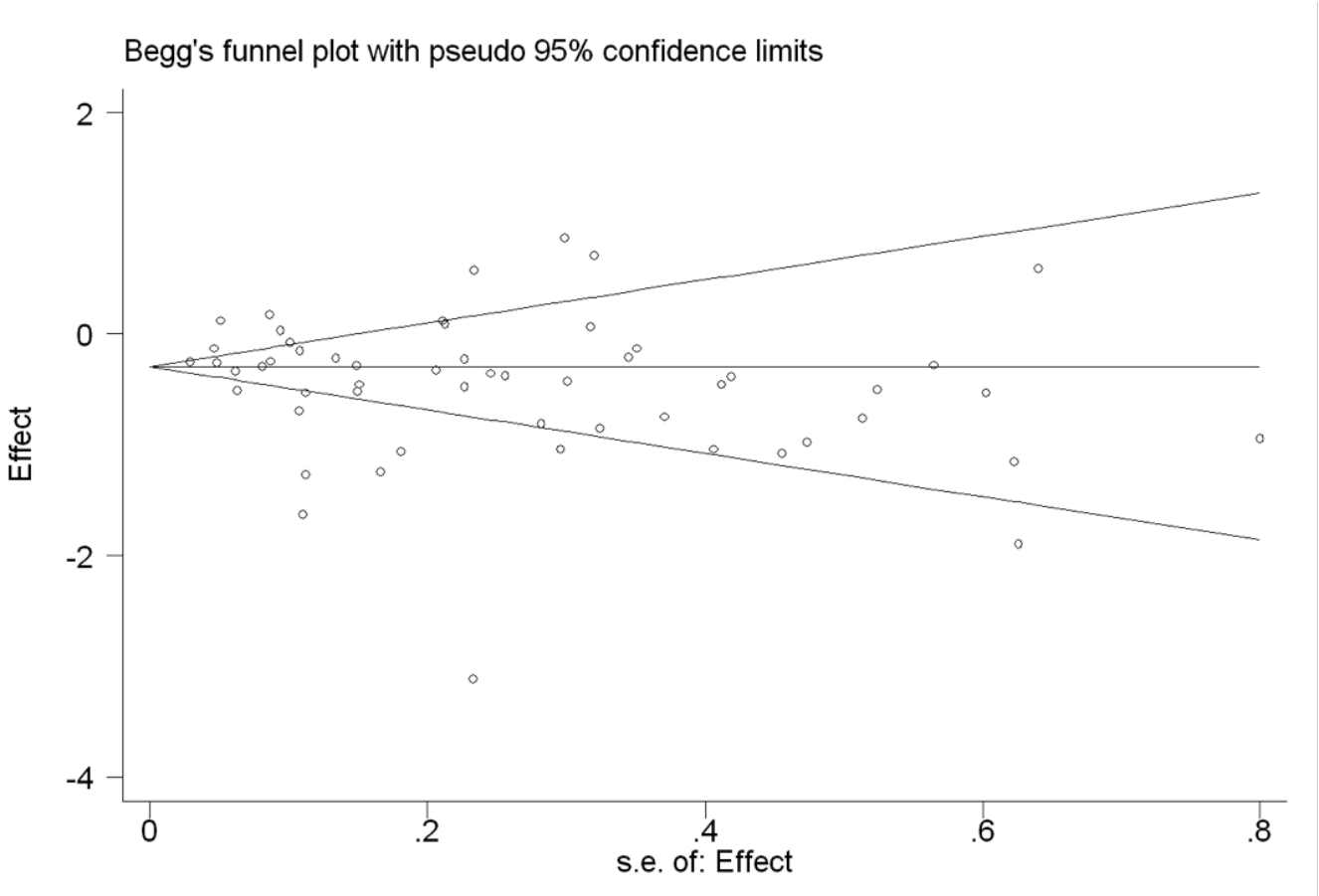
There were 17 observational studies that looked at treatment outcome before and after therapy and 21 controlled studies that included pre- and post-therapy measurements (see Table 15).

In the meta-analysis the results of all 38 studies were in the direction of a decrease in outcome measures proximal to suicide after psychotherapy or counselling. Looking at the random effects model, the combined estimate of the effect size for outcome measures before and after psychotherapy/ counselling was -0.72 (95% CI: -0.853 to -0.579, p<0.001) (see Figure 3). The test for heterogeneity (I^2=76%; p< 0.001) was statistically significant. A negative effect size indicated a reduction in suicidal behaviour during treatment.

Subgroup analyses examining differences in the characteristics of the studies and other factors were conducted to examine possible reasons to account for the

Egger's test table 1: studies comparing effect of treatment against a form of control

Std_Eff	Coef.	Std. Err.	T	P>|t|	95% confidence interval	
					Lower	Upper
Slope	-1.88	.075	-2.51	0.02	-.34	-.038
Bias	1.30	-.69	-1.89	0.06	-2.69	.079

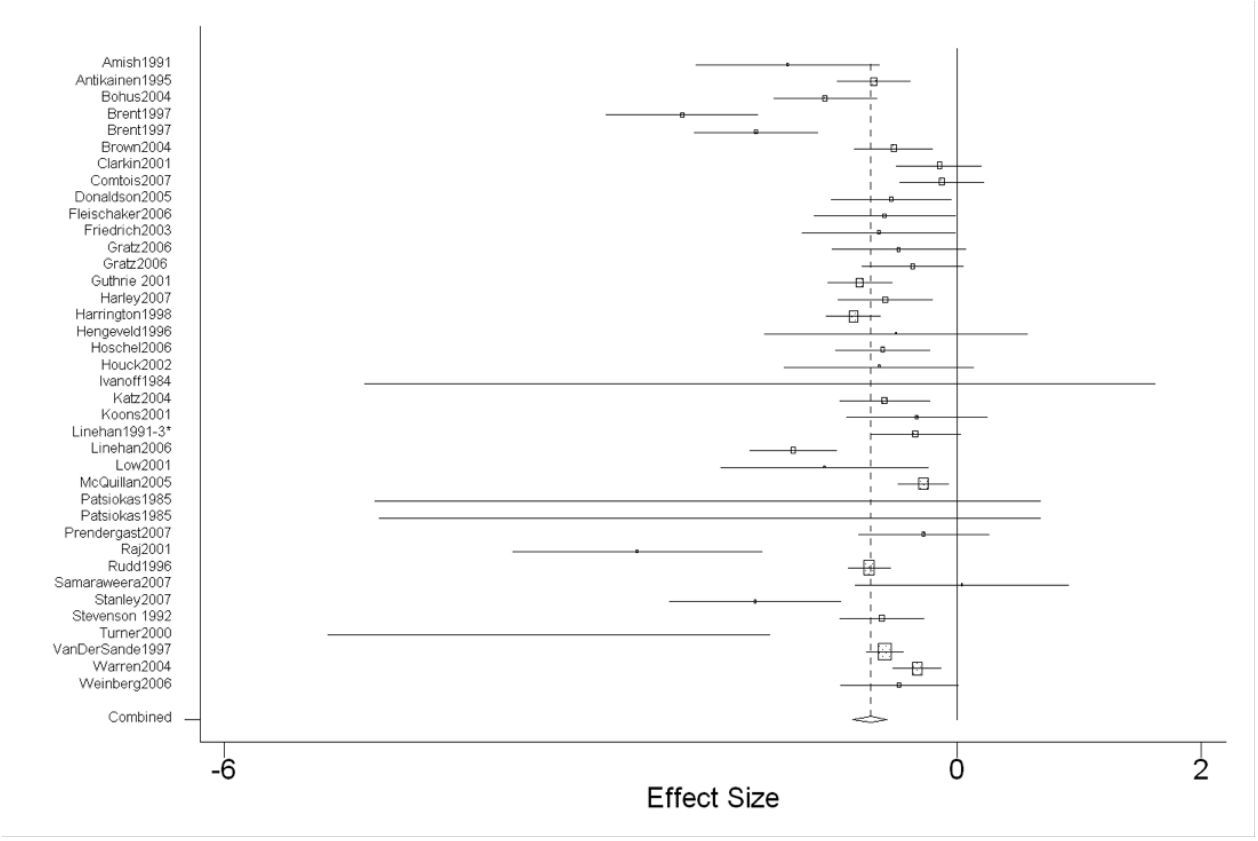


Begg's funnel plot 1

Table 15: Summary statistics and effect sizes for the studies included in this before and after meta-analysis

Study	Outcome	Subtype	N	M after	M before	SD before	Effect	SE
Amish (1991)	SI	Coping skills	15	53.33	107.53	37.05	-1.39	0.38
Antikainen (1995)	BDI	Group therapy	42	10.3	15.3	7.2	-0.68	0.15
Bohus (2004)	BDI	DBT	31	20.9	31.3	9.4	-1.08	0.21
Brent (1997)	BDI	CBT	37	5.7	24.3	8.1	-2.25	0.32
Brent (1997)	BDI	Systemic behaviour family therapy	35	9.1	22.6	8.2	-1.65	0.26
Brown (2004)	SI	SI	32	4	8.2	7.9	-0.52	0.17
Clarkin (2001)	SH	Transference focused psychotherapy	23	3.44	4.39	6.34	-0.14	0.18
Comtois (2007)	SH	DBT	23	2.09	2.91	6.25	-0.13	0.18
Donaldson (2005)	SI	Problem solving	15	24.89	52.47	48.59	-0.54	0.25
Fleischaker (2006)	LPC	DBT	12	0.3	4.3	6.3	-0.59	0.30
Friedrich (2003)	BDI	DBT	11	10.2	26.6	23.7	-0.64	0.32
Gratz (2006)	SH	Acceptance-based emotion regulation therapy	12	5	18.58	26.63	-0.48	0.28
Gratz (2006)	SH	Mixed	18	8.59	28.53	52.24	-0.37	0.21
Guthrie (2001)	SI	Psychodynamic interpersonal therapy	58	7.9	15.9	9.9	-0.80	0.14
Harley (2007)	SI	DBT	24	75	87	19.8	-0.59	0.20
Harrington (1998)	SI	Family therapy	85	23.6	63.6	46.7	-0.85	0.11
Hengeveld (1996)	BDI	CBT	5	16.4	23.8	12.3	-0.50	0.55
Hoschel (2006)	LPC	DBT	24	0.8	6.5	9.1	-0.61	0.20
Houck (2002)	SI	Support group	8	1.63	3	1.93	-0.64	0.40
Ivanoff (1984)	SI	Systematic desensitisation	4	4.66	27	10.89	-1.61	1.65
Katz (2004)	SI	DBT	26	40.9	52.71	19.38	-0.59	0.19
Koons (2001)	PHI	DBT	10	0.4	5.1	13.2	-0.33	0.29
Linehan (1991–3)	SA	DBT	22	0.72	3.5	7.88	-0.34	0.19
Linehan (2006)	SASII	DBT	52	24.1	51.7	20.3	-1.34	0.18
Low (2001)	SI	DBT	10	4.2	13.5	7.9	-1.08	0.43
McQuillan (2005)	BHS	DBT	65	9.7	11	4.7	-0.27	0.11
Patsiokas (1985)	SI	Beck cognitive restructuring	5	7.6	21.8	5.8	-2.04	1.39
Patsiokas (1985)	SI	Problem solving	5	3.7	15.6	4.9	-2.02	1.38
Prendergast (2007)	SH	DBT	11	1.09	1.95	2.91	-0.28	0.27
Raj (2001)	BHS	CBT	20	4.05	19.05	5.51	-2.62	0.52
Rudd (1996)	SI	BHS	120	4.2	8.9	6.5	-0.72	0.09
Samaraweera (2007)	SI	CBT	5	0.2	11.2	9.7	0.04	0.45
Stanley (2007)	SH	DBT	20	1.27	3.52	1.31	-1.65	0.36
Stevenson (1992)	SH	Psychology of self	30	0.83	3.77	4.66	-0.61	0.18
Turner (2000)	BHS	DBT	12	0.75	14.08	3.73	-3.34	0.93
van der Sande (1997)	SA	Problem solving	140	6.1	9.6	5.9	-0.59	0.08
Warren (2004)	SH	Democratic therapeutic community	74	1.34	1.78	1.35	-0.33	0.10
Weinberg (2006)	SH	Manual-assisted cognitive therapy	15	1.98	9.33	14.78	-0.47	0.25

Figure 3: Forest plot of therapy outcome before and after an intervention



statistically significant heterogeneity detected (see Appendix I for forest plots).

Subgroup analyses for before and after studies

Outcome measures

The three most frequent outcome measures were BDI, self-harm and suicidal ideation. For the studies that used the PHI, they had to explicitly include data on suicidal acts. Since this was not clear in two studies (Clarkin, 2001; Comtois, 2007), these were not included in any subgroup analyses. Fleishaker (2006) and Hoschel (2006) both looked at the LPC, but due to translation restraints it was not possible to ascertain whether the measure may have been included in any subgroup analyses. Table 16 gives the effect size, confidence intervals and p value for each of the subgroup outcome measure analyses. For the outcome measure of self-harm there was evidence of homogeneity (I^2=0%; p= 0.843).

Type of psychological therapy

The three therapies grouped were CBT, DBT and PS. Table 17 gives the effect size, confidence intervals and p value for each of the subgroup analyses. For the studies that looked at CBT (*d*=-0.84, 95% CI: -1.828 to 0.159 P=0.100), there was no convincing evidence that the pooled effect size differed from zero. There was evidence of homogeneity in the PS subgroup analysis (I^2=0%; p=0.510).

Modality of treatment

The most frequent modes of treatment were on an individual basis or a mixed treatment mode. Table 18 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Age

Subgroup analyses were conducted on two age group samples, those under 18 and those over 18, termed as an adult sample. Table 19 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Hours in therapy

Subgroup analyses were conducted for studies where participants received between six and 20 hours of therapy and for studies where participants spent more than 20 hours in therapy. There were six studies where details for hours in therapy were either not stated or unknown (Antikainen, 1995; Gratz, 2006; Fleischaker, 2006; Hoschel, 2006; Rudd, 1996; Warren, 2004). Table 20 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Setting of treatment

Subgroup analyses were conducted for studies conducted in inpatient and outpatient settings. Table 21 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Assessment times

Subgroup analyses were conducted for studies that had six months' and less follow-up and for studies that had between six and 12 months' follow-up. Table 22 gives the effect size, confidence intervals and p value for each of the subgroup analyses.

Meta-regression investigating variations in effect across before and after studies

Unlike the main meta-analysis, several of the subgroup analyses showed evidence of homogeneity in the treatment

Table 16: Subgroup analyses for outcome measures

Outcome measure (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
BDI (n=6)	-1.16	-1.66	-0.65	<0.01
Self-harm (n=5)	-0.47	-0.67	-0.27	<0.01
Suicidal ideation (n=15)	-0.84	-1.06	-0.62	<0.01

Table 17: Subgroup analyses for subtypes of therapy

Outcome measure (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
CBT (n=4)	-0.84	-1.83	0.16	<0.10
DBT (n=15)	-0.69	-0.93	-0.45	<0.01
PS (n=4)	-0.64	-0.76	-0.53	<0.01

Table 18: Subgroup analyses for treatment modality

Modality (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Individual (n=13)	-0.80	-1.10	-0.50	<0.01
Mixed (n=22)	-0.68	-0.84	-0.52	<0.01

Table 19: Subgroup analyses for age groups

Age (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Under 18 (n=8)	-1.04	-1.42	-0.66	<0.01
Adult (n=28)	-0.61	-0.75	-0.48	<0.01

Table 20: Subgroup analyses for hours in therapy

Hours in therapy (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Between 6 and 20 (n=15)	-0.98	-1.32	-0.65	<0.01
More than 20 (n=3)	-0.67	-0.88	-0.46	<0.01

Table 21: Subgroup analyses for setting of treatment

Setting value (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
Inpatient (n=14)	-0.66	-0.87	-0.45	<0.01
Outpatient (n=19)	-0.76	-0.84	-0.19	<0.01

Table 22: Subgroup analyses for assessment time

Assessment times (number of studies)	Effect size (Cohen's d)	95% CI		*p* value
		LL	UL	
6 months and less (n=21)	-0.88	-1.13	-0.63	<0.01
Between 6 and 12 months (n=13)	-0.55	-0.66	-0.37	<0.01

effect in favour of psychotherapy/counselling in reducing suicidal behaviour, namely those studies that looked at problem-solving therapy (n=4) and those that looked at the outcome measure of self-harm (n=5). However, these are to be treated with caution due to inherent biases that may be present in the absence, for example, of lack of control for spontaneous remission. Like the main meta-analysis, a meta-regression was performed examining the same potential effect modifiers in explaining the heterogeneity of results and to examine the relationship between one or more study-level characteristics and the associated effect sizes.

The meta-regression uses a restricted maximum likelihood estimate for the regression parameters and the model is said to account for 22 per cent of between-study variance. Table 23 shows the statistics for the meta-regression. The following factors are suggestive of reasons for the differences in treatment effects and in explaining the heterogeneity among studies:

- There was a significant effect for gender (p<0.01) (only three studies had less than 50 per cent female participants, with nearly a third of studies (n=11) having all female participants). Examination of the results does not seem to suggest any increased effect with increase in the percentage of women, and two out of the three studies with less than 50 per cent of women gave effect sizes larger than -0.6. Explanations for this finding could include considerably inflated false positive rates when heterogeneity is present and when there are many covariates (Higgins and Thompson, 2004).
- There was a significant effect for number of hours in therapy in contributing to explaining heterogeneity, with a larger effect on variance being found for studies that gave less than six hours of therapy (p<0.05).

Publication bias

Publication bias was examined by conducting a funnel plot of studies and there was evidence of publication bias using the Egger (weighted regression) method in the before and after analysis (p for bias 0.031). (Please see Egger's test table 2 & Begg's funnel plot 2 overpage).

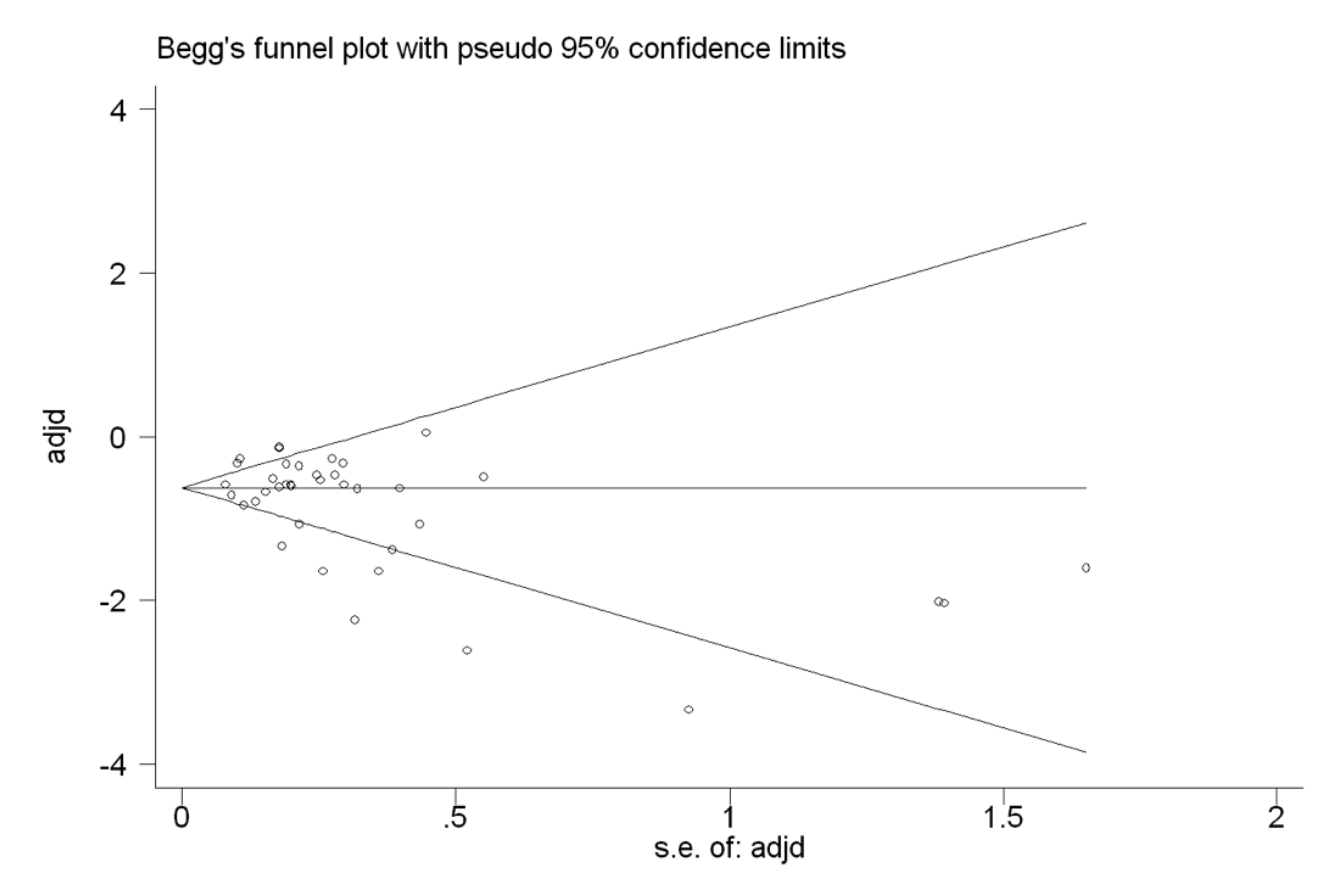
Table 23: Meta-regression analysis

Fit of model without heterogeneity (ti2=0)	Q (11 df) =42.47
Proportion of variation due to heterogeneity	I-squared =0.74
REML estimate of between-study variance	tE2 =0.22

Effect	Coef	Std. Err	T	P> (t)	95% confidence interval	
					LL	UL
Gender	0.036	0.012	3.08	0.01	0.010	0.06
Under 18 years of age vs adult	0.00	0.53	0.01	0.99	-1.16	1.17
Between 6 and 20 hours vs more than 20 hours	-1.59	0.74	-2.14	0.05	-3.23	0.05
Between 6 and 20 hours vs other	-1.62	0.77	-2.12	0.06	-3.30	0.06
Inpatient vs outpatient	0.145	0.37	0.4	0.70	-0.67	0.97
Inpatient vs other	0.37	0.66	0.55	0.59	-1.09	1.83
6 months and less vs 6–12 months	0.37	0.40	0.92	0.37	-0.52	1.26
6 months and less vs more than 12 months	0.069	0.62	0.11	0.91	-1.30	1.44
BDI vs SH	0.22	0.94	0.23	0.82	-1.86	2.30
BDI vs SI	0.17	0.45	0.37	0.72	-0.82	1.16
BDI vs other	0.73	0.55	1.34	0.21	-0.47	1.94
CBT vs DBT	-0.79	0.48	-1.64	0.13	-1.84	0.27
CBT vs PS	0.29	0.68	0.42	0.68	-1.22	1.79
CBT vs other	-0.39	0.50	-0.78	0.45	-1.49	0.71
cons	-2.38	1.20	-1.98	0.07	-5.01	0.26

Egger's test table 2: studies comparing measures before and after psychotherapy/counselling

Std_Eff	Coef.	Std. Err.	T	P>|t|	95% confidence interval	
					Lower	Upper
Slope	-.41	.11	-3.67	0.01	-.63	-.18
Bias	-1.35	.60	-2.25	0.03	-2.57	-.13



Begg's funnel plot 2

While this funnel plot may appear broadly symmetrical at the top of the graph, the presence of smaller sample size studies towards the base of the graph indicates evidence of bias especially as there are no smaller studies to the left of the effect line (negative).

Summary

- Both meta-analyses provided a pooled estimate of effect that was indicative of the effectiveness of counselling and psychotherapy in the prevention of suicide. In the meta-analyses, the outcome measures that provided the largest treatment effect were suicidal ideation in the analysis against a form of control and BDI and suicide ideation (12 out of the 14 measures that used a standardised scale) in the before and after analyses.
- In both analyses, CBT subgroups provided the largest effects in favour of psychotherapy/counselling, but heterogeneity was still significantly present in both.
- With regard to the modality of treatment (individual and mixed), only small effect sizes were found in the meta-analysis that compared treatment against a form of control, but the large number of studies in each of these subgroups adds considerably more types of heterogeneous variables.
- In the meta-analysis comparing treatment against a control, a moderate effect was found for studies of adults in comparison to those of adolescents. This echoes the findings in the systematic review conducted by Tarrier et al. (2008). However, as in this review, a small number of studies were described as adolescent (n=10) compared to adult (n=40).
- In terms of quality criteria, studies that had lower scores produced the largest effect, which was in itself only moderate. Of the randomised controlled trials, only two studies (Davidson et al., 2006; Grawe et al., 2006) met all eight quality criteria. Thus, it is likely that factors such as allocation concealment (Schulz et al., 1995) and the use of intention-to-treat analysis (Lee et al., 1991) resulted in smaller effect sizes.
- In terms of hours in therapy, the subgroup to give the largest treatment effect in the meta-analysis comparing treatment against a form of control was those studies involving less than six hours of therapy (n=5). This effect could be

explained by the fact that there were many more studies and therefore sources of heterogeneity.

- With regard to the treatment setting, there was a medium to large effect found for studies conducted in an inpatient setting for the meta-analysis comparing treatment against a form of control and for the before and after analyses.
- In both meta-analyses there was a large treatment effect found for studies that used less than 12 months' assessment periods. While this is important in displaying short-term treatment effects in reducing suicidal behaviour there is little evidence that such treatments are able to reduce suicide risk over time.

Meta-regression

In the meta-regression, there was a trend for having a different type of outcome to those in the principal groupings to explain the variance in results (n=6) when compared to suicide outcome data. This could be accounted for by the small number of studies in this group. Variance was also explained by the studies in the inpatient setting. There are various reasons that could account for this. Inpatient treatment is often a response to the acute nature of the client's needs (as was evident in Bateman, 1999, 2001 and could account for the large treatment effects found). Treatment in inpatient settings may offer a high level of therapeutic involvement that cannot always be controlled for. Likewise, for studies that are conducted in outpatient settings there is often a high level of attrition, with only the most motivated clients making it through to the final stages.

In the before and after meta-regression, gender explained some of the variance in the results, but this finding could result from considerably inflated false positive rates when heterogeneity is present and when there are many covariates due to a large number of studies and investigative characteristics (Higgins and Thompson, 2004). Like the subgroup analyses, variance was also explained by having therapy for up to 20 hours.

Section 6: Process studies

In defining this categorisation the studies included reported on variables of interest in the prevention of suicide but had no data that could be used in the formal analyses. Studies were broadly defined as quantitative (n=8), qualitative (n=7), and retrospective (n=2). For the qualitative studies, they were not included in the qualitative synthesis due to the fact that the methods used did not coincide with our definition of qualitative data. Thus, these included studies using questionnaire data or surveys without any formal qualitative methods used to analyse the data. The papers have been grouped according to variables of interest. Table 24 displays basic details of each of the studies according to participants, recruitment methods, methodology and results.

Therapist variables

Four studies (Davidson et al., 2004; Gurrister and Kane, 1978; Modestin, Schwarzenbach and Wurmle, 1992; Neimeyer, Fortner and Melby, 2001) looked at the influence of therapist factors in the prevention of suicide. Davidson et al. (2004) was in conjunction with Tyrer et al. (2003), a study that was included in the meta-analysis.

Of these studies, two (Gurrister and Kane, 1978; Neimeyer et al., 2001) looked at the influence of therapists' opinions of suicide as a factor influencing therapy outcomes in suicidal clients. In Gurrister and Kane (1978), 27 therapists were interviewed concerning their therapeutic preferences in working with suicidal clients. It was found that working with a suicidal client invoked a wide range of feelings, from anxiety, anger and frustration to concern and protectiveness. The therapists' opinions of suicide fell into three categories: helping the client choose an alternative to dying, helping the client understand the finality of 'not being', and uncertain opinions. In Neimeyer et al. (2001), it was found that death acceptance – that is, viewing death as a natural part of life rather than something to be feared – was positively related to suicide intervention competencies by the therapist, as was considering suicide an unacceptable option. These findings together suggest that personal attitudes of counsellors and therapists surrounding suicide may be important in the approach taken with suicidal clients, and there is clearly a need for suicide intervention training to incorporate this aspect.

Therapist experience and competence were investigated by Davidson et al. (2004) and Modestin et al. (1992). In Davidson et al. (2004), therapist competence was measured in terms of adherence to the therapeutic model, level of skill and interpersonal effectiveness. Although there were methodological issues with this study in terms of statistical power and not all of the therapy sessions being available for rating, it was found that therapist competence was not significantly associated with lower levels of self-harm during the 12 months of treatment. However, it was significantly associated with other clinical outcomes, such as reduction in depression, which has important implications due to the association between suicidality and depression (Barbe et al., 2004). It is also interesting to note that competence was not related to characteristics such as age, gender or professional qualifications, which suggests that effective interventions in this area can be delivered with appropriate training in the specific intervention.

In Modestin et al. (1992), a retrospective examination of therapy factors in treating suicidal clients was conducted. In attempting to identify variables that explained the suicide of clients, it was found that the therapists of clients in the control group (those who did not commit suicide) had substantially longer professional experience. The implication of this study is a tentative one, namely that with more experience comes more understanding and thus, possibly, an easier ability to maintain a therapeutic relationship with the client that is based on mutual respect and trust.

Helping young people

Four studies (Coggan, Patterson and Fill, 1997; Paulson and Everall, 2003; Storey et al., 2005; Warm, Murray and Fox, 2002) used broadly qualitative methods in investigating how to support young people who self-harm. The one study that did use formal qualitative methods (Coggan, Patterson and Fill, 1997) was excluded from the qualitative synthesis in this review because the participants were not formally assessed as having suicidal notions or behaviour and were volunteers.

In a survey asking about level of satisfaction with professional help from 243 participants, there was evidence that psychologists and counsellors are viewed in a more positive light than psychiatrists and nurses (Warm et al., 2002). In Coggan et al. (1997), confidentiality from school counsellors in dealing with suicidal clients was viewed negatively due to the lack of confidence that the counsellors will abide by the confidentiality clause, which suggests that to a young person trust is integral to maintenance of the therapeutic relationship and for the client to feel safe in confiding how they truly feel. Another central theme that was highlighted in this study was dealing with the external problems rather than the underlying causes, eg:

> 'They're diagnosing the behaviour and aren't looking at the underlying cause, to them, you're not a person who is in danger, you're a statistic.' (Coggan et al., 1997, p1567)

Storey et al. (2005) examined the views of 38 young people (it is not stated how) who repeatedly self-harmed and found concerns about not being listened to and the needs of the client being ignored, eg:

> 'I'd go to talk about (current problem) and then he'd stop me. And he'd go, "Yes, blabla, very interesting. Now let's talk about your childhood…" he just wouldn't listen. And it got me so much that every time I just walked out of the office, I'd just cry.' (p73)

This view demonstrates a perception by some clients of a fundamental failure in the process of therapy, and the lack of an establishment of trust.

This study also touched on family therapy. None of the participants found it helpful: they felt it increased their stress levels as they had to listen to 'confessions' from their parents and to their parents' problems. They felt the focus of therapy was lost or took a direction that was not identified by the client. For example, one client stated that she felt none of her problems was attributable to her parents and that being in therapy with them made her feel uncomfortable. Another process study that has an impact in this grouping of the literature of 'helping young people' is Esposito-Smythers et al. (2006). This study looked at CBT for suicidal, alcohol-abusing adolescents and found that CBT is effective in treating this group as long as they have the support of a parent/guardian. A paradox emerged in this study, which reported these clients as engaging in such behaviour as a means to cope with family conflict and as a way to manipulate their home environment. Research is needed to address how CBT can be used with this subgroup if they do not have the support of their family. There is little research on the effectiveness of family interventions for suicidal clients, as evidenced in this review. This is an area that needs addressing, particularly as there appears to be ambivalence about such interventions.

The final study (Paulson and Everall, 2003) used concept mapping to generate what suicidal adolescents found helpful in the therapy experience. Several components were identified, with the theme of the therapeutic relationship being maintained

Table 24: Details of process studies

Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Aoun (2001)	SIC	Focusing on consumers' experiences and their views of the impact of the programme on their problems.	Questionnaires were mailed to those who had received treatment following self-harm. Gender: 65.5% female Age range: <15–54 N=35	Postal consumer perspective survey – it is not stated how data was analysed.	NA	Country of study: Australia. 3/4 of respondents were positive about their experience. Dissatisfaction stemmed from the history of their treatment and 'the hassle created by many systems for them to access care'.
Barbe (2004)	CBT, SBFT or NST	Investigate the impact of suicidality on treatment outcome in depressed adolescents.	Participants met criteria for major depressive disorder. 1/3 came via advertisement, rest were recruited from a child psychiatry outpatient clinic. Gender: 75.7% female Age range: 13–18 N=107	Participants were randomised to one of the three intervention groups balancing on sex, number of parents in the household and clinically significant suicidality.	Treatment was conducted in an outpatient setting.	Country of study: USA. The relationship between suicidality and treatment response was mediated by severity of depression and hopelessness at intake. Hopelessness should be specifically targeted early in treatment. Suicidal depressed adolescents should not receive NST but a treatment like CBT.
Coggan (1997)	NA	To enhance knowledge of ways to address youth suicide.	Secondary schools, technical institutes, universities and youth groups were targeted for volunteers. Gender: 48% female Age range: 16–24 N=140	Twelve focus groups were conducted. Thematic analysis was conducted to identify the relevant themes within the category headings of the interview schedule.	Sessions were held at a time and place convenient to the individual participants.	Country of study: Australia. Young people would either cope alone or turn to a friend if they were feeling suicidal. A lack of knowledge was identified as the major barrier to youth using existing services/ resources.
Comstock (1975)	Group therapy	Examine group therapy for crisis intervention and longer-term therapeutic intervention in patients who have made a suicide attempt.	Participants were those referred from the emergency room of a city-county hospital. Gender: unknown Age Range: unknown N= 105	Narrative explanations are given of introductory groups and long-term groups and their effect on patients.	Most were managed without any form of inpatient treatment.	Country of study: USA. Group therapy was found to be beneficial. Therapy should be done with a co-therapist and possible suicidal preoccupation needs to be explored repeatedly and depressive affect needs to be contained within limits imposed by interpretation of its resistance component.
Dahlsgaard (1998)	Cognitive therapy (CT)	Investigate the role of response to cognitive therapy as a predictor of suicide.	Outpatients treated with CT who had committed suicide were compared with controls also treated with CT who did not commit suicide. Gender: 41% female Age range: NA N=34	Case control study.	Patients had been treated on an outpatient basis.	Country of study: USA. Those who committed suicide attended fewer sessions, prematurely ending therapy, were more likely to enter therapy having previously used medication, to have been previously hospitalised for psychiatric reasons, to have previously attempted suicide and to have been unemployed when they entered therapy.

Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Davidson (2004)	MACT	To examine whether higher levels of therapist competence would lead to better clinical outcomes.	Patients were recruited from nine A&E departments at five UK study centres after an episode of self-harm. Mean age of therapists was 38.2; 28 female and nine male. 49 audiotapes were transcribed.	Participants were randomly allocated to TAU or MACT. Those in MACT received up to five sessions of therapy. Sessions were rated according to the MACT rating scale developed to assess competence.	MACT was conducted on an outpatient setting.	Country of study: UK. At six-month follow-up there was a statistically significant association between therapist level of competence and observer rated depression only. There was no association between therapist competence and the number of self-harm episodes during follow-up.
Davidson (2007)	CBT	Integrative complexity (IC), which represents a cognitive style that reflects information processing, was assessed to analyse therapy.	Patients were those who formed part of the BOSCOT trial (Davidson, 2006) for borderline personality disorder. Gender: 85% female Age range: 18–50 N=106	Participants were classed as having good or poor clinical outcomes after therapy in terms of number of suicide attempts and the BDI. The transcripts of sessions were coded for integrative complexity.	Therapy was initially conducted on an outpatient basis.	Country of study: UK. Therapists may overcompensate for patients' poor outcomes by giving more complex explanations to patients. Higher complexity does not necessarily lead to better outcomes. Good outcome was not associated with a change in the level of IC between earlier and later CBT sessions.
Douglass (1988)	DBT	To assess the problem-solving ability and associated clinical factors of a sample of parasuicidal women with BPD.	Participants were recruited from a hospital DBT unit. Gender: female Age range: 18–58 N=70	The DBT is comprised of two components – a five-day programme and the aftercare programme. Upon completion participants were asked to fill out various measures including the SPSI-R, BDI and BHS.	The treatment was on an outpatient basis.	Country of study: USA. High scores on measures of depression, suicidal ideation, hopelessness and dissociation were all associated with poorer problem-solving scores. Neither measure of problem solving was predictive of self-injury or suicide attempts.
Esposito-Smythers (2006)	CBT	To pilot a CBT protocol for adolescents with co-occurring alcohol use disorder and suicidality, examine its association with symptomatic improvement, determine its feasibility and acceptability.	Participants were suicidal, alcohol-abusing adolescents recruited from an adolescent psychiatric inpatient unit and through referral from a study participant. Gender: 83% female. Mean age: 15 N=6	Before-and-after study and the full treatment protocol included acute, maintenance and booster treatment phases delivered over the course of one year.	The study was conducted in an outpatient setting.	Country of study: USA. A high retention rate, strong therapeutic alliance ratings, and low perceived treatment obstacles provide support for the feasibility and acceptability of this intervention. Preliminary results suggest that treatment is effective in reductions in suicidal ideation.

Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Gurrister (1978)	NA	To examine therapists' theoretical formulations regarding suicide and their therapeutic preferences in working with suicidal clients.	All members of clinical staff at a community health centre were contacted for voluntary participation in the study. Gender: unknown Age: unknown N=27 Treatment orientation described as eclectic, dynamic or analytically oriented, Jungian, transactional analysis and a communications model.	All participants were interviewed regarding pre-set questions.	It is not clear where the study was undertaken.	Country of study: USA. The actual experience of a suicide rendered the therapist most sensitive to the life-threatening nature of the problem. It also seemed to make the therapist less judgmental. Consultation was sought freely. Therapists who viewed patients as manipulative were less likely to feel concerned about the number of previous suicide attempts, which may indicate an unwillingness to recognise the seriousness of suicidal acts.
Harrington (2006)	Brief family intervention	To describe the early adult psychopathological and social outcomes of adolescents who deliberately self-poisoned.	Participants were those who had participated in previous RCT as adolescents. Gender: 92% female Age range: unknown N=158	Case control study. Those who had participated in the trial (Harrington, 1998) were compared to people who had not harmed themselves as adolescents in a six-year follow-up.	The original RCT was conducted in the home.	Country of study: UK. In most cases self-harm had stopped within three years. There was a strong association between childhood adversity and self-harming risk in adults. Psychiatric disorders, particularly depression, were prevalent and self-harm in adulthood was restricted to this subgroup.
Modestin (1992)	NA	To examine therapeutic factors influencing suicide during outpatient treatment in severely ill discharged inpatients.	Data was examined on former inpatients who had committed suicide within one year of discharge. Gender: unknown Median age: 35 N=25	Records of patients who had committed suicide were compared to a control group.	Clinical notes on comparison of discharge diagnosis, therapeutic arrangement, last session and suicidal activity were examined.	Country of study: Switzerland. After discharge the patients of the control group were treated by psychiatrists with substantially longer professional training and experience, the therapist's experience being the most important therapy factor contributing to the different outcomes.
Nee (2005)	DBT	To examine the viability of delivering DBT in a prison setting.	Participants were referred from within their own establishment by prison psychologists and other prison staff for assessment. Gender: female Age range: 19–49 N=30	Pilot studies were undertaken in three British prisons for women with BPD. Measures included psychometric tests, behavioural data, and interviews with participants and key personnel.	The study was conducted in the prison setting.	Country of study: UK. Very few incidents of self-harm were recorded but a reduction could be seen from pre-DBT to during the programme when almost no incidents were recorded.
Neimeyer (2001)	NA	Investigate the relationship of professional and personal factors to the ability of counsellors to respond appropriately to suicidal verbalizations.	Participants were volunteers of undergraduate psychology students, suicide hotline volunteers and graduate students in clinical/counselling psychology programmes. Gender: 67.2% Age range: 19–76 N=131	Participants were given questionnaires consisting of demographic information, DAP-R, SBQ SOQ AND SIRI.	Correlational analyses were conducted to show what variables were related to suicide intervention skills.	Country of study: USA. Level of training, experience with suicidal clients, and death acceptance were positively related to suicide intervention competencies. A personal history of suicidality and a belief that suicide is a personal right were negatively related to such skills.

Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Paulson (2003)	NA	Investigate suicidal adolescents' perceptions of helpful experiences in psychotherapy.	It is not stated how participants were recruited. Gender: 83% female Mean age: 20.7 N=17	A sample of individuals who had received psychotherapy was interviewed and then a second sample identified categories of experience using concept mapping.	Not stated where interviews took place or details of therapy.	Country of study: Canada. Participants found the following concepts helpful in therapy: enhanced self-understanding, communication, creative expression, therapeutic relationship, and therapeutic strategies.
Storey (2005)	NA	Explore the views and experiences of people following presentation in A&E after intentionally harming themselves.	Participants were recruited at four A&E clinics, two in south-west England and two in the north of England. Gender: unknown Age range: unknown but said to be young people. N=74	Participants were interviewed; no information given on how data was analysed.	Presumably in the community as no details given.	Country of study: UK. Some had kept their self-harming hidden and had not received any professional intervention until they reached adulthood. Others had been in touch with services, although their treatment had not prevented self-harming. Some counsellors were described as not being able to understand or listen to their perspective.
Warm (2002)	NA	Aims to understand how self-harmers perceive their treatment to help improve service provision.	Participants were recruited via postings to eight internet discussion groups. Gender: 85% Mean age: 22 N= 243	Questionnaires had 12 sections and were largely limited to forced-choice responses. Data was presented in percentage form for each question.	Community.	Country of study: UK. Front line specialists in A&E clinics would be better equipped to provide appropriate services to self-harmers if they were more accurately informed about the phenomenon of self-harm.
Wingate (2005)	Problem-solving treatment	Compensation (remediating weaknesses) and capitalisation (enhancing strengths) treatment models, with specific reference to problem-solving appraisal and problem-solving treatment of suicidal behaviour, were examined.	Participants were referred from two outpatient clinics, an inpatient facility, and an emergency room all affiliated to a major US army medical centre. Approximately one third were suicide attempters and two-thirds were suicide ideators. Gender: 18% female Mean age: 22 N= 98	Participants were randomly assigned to the problem-solving treatment or TAU. The PSI was the primary outcome measure.	Outpatient, structured, time-limited group treatment using a day hospital format.	Country of study: USA. Participants with poorer problem-solving appraisal at baseline responded better than did participants with greater problem-solving appraisal to problem-solving treatment, as would be predicted by the compensation model. Treatment for suicidality for individuals with problem-solving skill deficits may be most effective by targeting these deficits rather than capitalising on strengths.

as the most important component, specifically where individuals are treated with respect, understanding and acceptance, and as individuals first and foremost to the exclusion of their suicidal behaviour. Other factors deemed important were the use of an indirect approach in therapeutic intervention rather than a directive approach, where the use of constant questioning can often be viewed as confrontational.

Variables to be considered when treating suicidal people

Six studies looked at the contribution of client variables in explaining differential treatment outcome in suicidal participants (Barbe et al., 2004; Dahlsgaard, Beck and Brown, 1998; Davidson et al., 2007; Douglass, 2000; Harrington et al., 2006; Wingate et al., 2005). These studies are important in contributing to knowledge of risk factors that can significantly impact upon treatment outcome.

Dahlsgaard et al. (1998) looked at the response to cognitive therapy as a predictor of suicide by comparing 17 outpatients with mood disorders who committed suicide with 17 matched controls who did not. This study found that early termination of therapy, level of hopelessness and lack of attendance at sessions are important predictors of completed suicide. In Barbe et al. (2004), the relationship between suicidality and treatment outcome was examined in depressed adolescents. It was found that greater levels of hopelessness were related to a greater likelihood to drop out of treatment early. These two studies together demonstrate the importance of attending to hopelessness early in treatment and for clinicians to emphasise the importance of staying in therapy to reduce the suicide potential of clients. This is particularly apparent in participants who are diagnosed with depression as evidenced by Harrington et al. (2006). In this longitudinal study looking at early adult outcomes of adolescents who had deliberately poisoned themselves, those who were still self-harming as adults were those who experienced depression in adulthood.

Two studies (Douglass, 2000; Wingate et al., 2005) looked specifically at problem-solving ability in suicidal people, with the specific claim that those with problem-solving deficits report more suicidal symptoms. In Douglass (2000), this claim was investigated with regard to borderline traits in women, with specific reference to Linehan's 'biosocial theory', where the belief is that for this subgroup parasuicide is a maladaptive, learned, problem-solving strategy. This study found that problem-solving deficits in this sample were significantly related to higher levels of depression, hopelessness and suicidal ideation. Wingate et al. (2005) found that individuals with poorer problem-solving abilities benefited most in terms of suicide prevention when given problem-solving treatment, unlike individuals who had high levels of problem-solving ability, who did not need this focus on problem-solving skills. These studies highlight that suicidal individuals do not necessarily need problem-solving treatment *per se* to reduce their suicidal behaviour; the necessity for such treatment may be dependent on individual characteristics and screening using problem-solving tests can be a useful component of the treatment selection process.

The final study in this group is by Davidson et al. (2007), who conducted an integrative complexity analysis of CBT sessions for people with BPD in relation to reduction in self-harm episodes. Integrative complexity (IC) was defined as: '(a) differentiation, the recognition of more than one perspective on a problem or situation and (b) integration, the recognition of relations among differentiated components or perspectives' (p514).

Looking at therapy sessions early and later in treatment, there was no significant change in IC across the sessions when outcome was good. However, when the outcome was poor, therapists appeared to use higher levels of IC in later sessions. There is the suggestion that therapists may feel they have to work harder to provide more psychologically sound reasons as to why their clients are not improving after treatment, and there is even the possibility that the therapist is trying to alleviate some of the potential guilt they may feel, although this is not mentioned in the study. The analysis of therapy discourse may provide further insight into differences between 'good' and 'poor' outcome in the treatment of suicidal individuals.

Different therapies

There were three studies in this group (Aoun and Johnson, 2001; Comstock and McDemott, 1975; Nee and Farman, 2005). Aoun and Johnson (2001) offered a consumers' perspective on a suicide counsellor, the quantitative results of which are included in the meta-analysis (Aoun et al., 1999). This study used questionnaires and 35 out of 160 individuals responded. Respondents felt it was important to be able to talk and be listened to, and to be given support, understanding and encouragement, as was experienced from the suicide intervention counsellor in this study. These findings can account for the large effect size that is seen in the meta-analysis for this study (d= -0.753).

In Comstock and McDermott's study (1975), group therapy for patients who attempt suicide was analysed. This study addresses some of the issues that can interfere with effective group therapy and can possibly help to explain why there was no evidence that group therapy significantly differed from standard care in the meta-analysis results of this review. Their primary finding was that the communication of depressive affect in a group setting may act in a manner consistent with transmission of suicidal feelings and hopelessness. However, there was evidence that this can be interrupted, especially when the group leader is able to lead the group away from the notion that things are 'destined to be awful'. This is not to say, however, that this is an easy task. The demands that the therapists felt were placed on them in group therapy were considerable, and therapists felt strongly that group therapy cannot be conducted without a co-therapist.

The final study that looked at process of therapy for the prevention of suicide was Nee and Farman (2005), investigating DBT for prisoners with BPD. This study was not included in the formal analysis as it did not include any numerical data regarding self-harm, but its importance lies in the fact that it is the only study retrieved that has looked at this particular population. Female prisoners are significantly over-represented in the prison population in England and Wales (Singleton et al., 1998) and report high rates of suicidal thoughts and suicide attempts, especially in comparison to their male counterparts. Nee and Farman (2005) found that after DBT, there was a downturn in overall self-harm in prisoners but that, unfortunately, a lack of resources by delivery staff and the national staffing shortage in the prison service can make this a difficult treatment to implement effectively.

Summary

The studies included in this section offer a wealth of information pertaining to treatment for the prevention of suicide. While their discussion is limited to a narrative examination of the findings of the studies, several recommendations can be put forward as important, although it should be borne in mind that no formal quality assessment of studies was carried out.

- Therapists and counsellors experience a range of emotions, some negative, in treating suicidal clients, which may adversely impact on therapy and communicate to the client a lack of empathy and understanding, and a sense of professional incompetence.
- Focusing too much on the self-harming behaviour and ignoring the needs of the client is viewed negatively.
- The therapeutic relationship is viewed positively when respect, understanding and acceptance are emphasised.
- Group therapy may carry the risk of depression transmission, which may contribute to hopelessness.
- The family is seen as playing an influential role in suicidal behaviour for adolescents, either directly or indirectly. Adolescents may feel that family therapy loses the focus on their treatment due to family problems interfering.
- Enhancing treatment attendance in sessions and completion of therapy can help to prevent suicide by reducing effects of hopelessness.
- Problem-solving ability may be an effective screening tool in the selection of problem-solving therapy for the prevention of suicidal behaviour.

Section 7: Qualitative studies

Method

Data quality

Following King et al. (2007), qualitative research was defined as:

> 'a method that uses narrative, observation or examination of texts to address a specific question or questions; that selects participants or sources in order to include the widest possible range of views, behaviour or sources of information; and that examines the data mainly in non-quantitative ways using thematic, grounded theory and other approaches' (p5).

To assess the quality of qualitative studies, several key papers were examined (Dixon-Woods et al., 2004; Elliott, Fischer and Rennie, 1999; Harden et al., 2003; Mays and Pope, 2000; Sandelowski, Docherty and Emden, 1997; Spencer et al., 2003). It is widely acknowledged that there is no generally defined gold standard for assessing quality in qualitative studies due to issues relating to insight and interpretation, which will rely largely on the subjective judgment of the reader (Dixon-Woods et al., 2004). However, the following guidelines were used: description of an explicit framework and/or literature review, clear aims and objectives, description of context and sample, description of methods to analyse data, repeatability of analysis in terms of validity and reliability, and inclusion of sufficient original data to mediate between evidence and interpretation. We did not exclude any of the studies in the synthesis due to the fact that there are no empirically tested methods for excluding qualitative studies (Dixon-Woods, 2006) and that poor reporting of methods does not necessarily imply poorly conducted research (Atkins et al., 2008). The most important aspects in critically appraising qualitative studies are the credibility and validity of the data in allowing the reader to see the understanding the author has come to and to make their own interpretation. See Appendix I for criteria.

Data synthesis

In the analysis of qualitative research studies, three questions were of interest:

1. How do clients and therapists view the process of counselling or psychotherapy for clients at risk of suicide?
2. What views do clients and therapists hold concerning the effectiveness of counselling or psychotherapy for clients at risk of suicide?
3. What do clients and therapists consider barriers to and facilitators of effective counselling or psychotherapy for clients at risk of suicide?

The synthesis of qualitative research will broadly follow the outline of thematic analysis as described in Thomas and Harden (2007), which has been subsequently used in several systematic reviews (Harden et al., 2006; Thomas et al., 2003). Thematic analysis seeks to identify and collate the main themes that arise from a body of literature, which are often, but not always, identified by a pre-existing research question or framework (Mays, Pope and Popay, 2005). It is said to take an essentialist or realist approach as it explicitly reports experiences, views, meanings and reality as stated by participants (Braun and Clarke, 2006). The coding of data can be done with either a specific research question in mind or the research question can evolve through the coding, which is referred to as the inductive approach where the themes identified are strongly linked and derived from the data (Braun and Clarke, 2006). We took the approach given by Thomas and Harden (2007); that is, where the study findings did not directly answer our specific research question, we used a more inductive approach. However, given that we were evaluating counselling and psychotherapy, the studies that were retrieved involved at least some evaluation of the barriers and facilitators for the prevention of suicide, which was acknowledged through screening and the inclusion criteria. All qualitative papers were read and coded by two raters to allow for a process of triangulation, which would allow negotiation and reflection of the paper's content to reduce any potential effects of bias.

The qualitative synthesis went through many different stages. The studies were coded according to 'the most basic segment, or element, of the raw data that can be assessed in a meaningful way regarding the phenomena' (Boyatzis, 1998, p63).

This was done, where possible, on a line-by-line coding of the participants' data (Thomas and Harden, 2007). However, this depended upon the amount of data that researchers chose to give in their studies. Codes were then listed in Microsoft Excel and quotes written alongside them from each study. Reviewers then looked for similarities and differences between codes in order to group them into themes, which had sub-themes where appropriate and also contained all extracts of data that had been coded in relation to them (Braun and Clarke, 2006). The themes were identified and grouped in such a way as to answer our predefined questions. In accordance with Braun and Clarke (2006), the themes were concise, to give the reader a sense of what the theme is about, and contained enough data extracts adequately to support the contention for the given theme, taking into account the audience of the synthesis (Noblit and Hare, 1988). The next step in the data synthesis was to go beyond the content of the data and the themes identified and analyse the data in a way that offers an 'interpretive explanation through which the meanings of social phenomena are revealed' (Noblit and Hare, 1988, p18).

Borrowing from Noblit and Hare (1988), as do Thomas and Harden (2007), we sought to reveal the analogies between the studies, indicating those that may be reciprocal, stand in opposition to one another, or taken together may represent a cohesive argument that accurately answers the questions we were posing. Thus, where there was disagreement present in studies (eg opposing views on the efficacy of a given process in counselling or psychotherapy), the potential underlying meanings for this were *inferred* by the researchers, taking into account the client sample, setting, type of research conducted and type of therapy.

An example of the inferential process is provided by consideration of the following quote:

> 'I was ready to quit because I couldn't get these big words and I didn't know some of the language.' (Cunningham, 2004)

There is the inference here that language used in therapy can be seen as another hurdle that clients have to face in dealing with their emotional problems. The client may have low self-efficacy, which is also inferred here although not mentioned in the paper.

The qualitative papers all differed in terms of the type of therapy evaluated, participants used, setting and methodology. There are many who argue that synthesis of qualitative research is not possible due to the very different contexts in which studies are set. However, to claim that generalisations cannot be made across studies would be to deny individual studies a richer, more vivid and coherent meaning set in a bigger picture (Britten et al., 2002). Like Thomas and Harden (2007), we sought to check that the translation of themes and concepts across studies was valid, examining the context of each study to see whether the

understanding could be transferred according to the context in which the study is set. We made a deliberate attempt to include studies set across diverse contexts to achieve a higher level of understanding and knowledge, consistent with the aim of a meta-ethnography (Britten et al., 2002).

Results

Study characteristics

The synthesis of findings presented here is generated from 13 studies involving 94 participants and 53 therapists/counsellors. Of these 13 studies, eight were published (Crockwell and Gale, 1995; Crouch and Wright, 2004; Cunningham, Wolber and Lillie, 2004; Huband and Tantam, 2004; Perseius et al., 2003; Reeves and Mintz, 2001; Reeves et al., 2004; Sinclair and Green, 2005). Four of the studies were conducted in the USA, seven were conducted in the UK, one was conducted in Canada, and one was conducted in Sweden. All the studies used female participants with the exception of Crouch and Wright (2004), who included two male participants and four female participants, and Sinclair and Green (2005), who included eight male participants and 12 female participants. Four of the studies (Craigen, 2006; Crockwell and Gale, 1995; Crouch and Wright, 2004; Ross, 2000) evaluated views from young people whose age range was from 12 to 23 years. The findings from these studies have important implications: adolescents will not only be struggling with pressures due to their age but, for them, seeing a counsellor or psychotherapist for the first time can be a frightening experience and can shape their future life decisions (Craigen, 2006).

Four of the studies evaluated dialectical behaviour therapy (DBT), five evaluated some form of counselling, one evaluated psychodynamic interpersonal therapy (PIT), and one evaluated psychoanalytic therapy. DBT is a manualised behavioural treatment that includes concomitant, weekly individual psychotherapy and group skills training. It focuses on motivational issues and skill strengthening and balances behavioural strategies aimed at change with supportive, validating strategies aimed at providing acceptance (Linehan, Heard and Armstrong, 1993). Six studies interviewed therapists/counsellors concerning their experiences of working with suicidal clients (Araminta, 2000; Colbert, 2002; Perseius et al., 2003; Reeves and Mintz, 2001; Reeves et al., 2004; Rubenstein, 2000). Two studies considered DBT (Araminta, 2000; Perseius et al., 2003), two concerned counselling (Reeves and Mintz, 2001; Reeves et al., 2004), one focused on psychodynamic interpersonal therapy (Colbert, 2002), and the other considered psychoanalytical therapy (Rubenstein, 2000).

The degree to which the findings can be generalised across studies is limited somewhat due to the specific nature of the interventions. For example, dialectical behaviour therapy is based upon a biosocial theory of personality functioning and is primarily used as a treatment for borderline personality disorder. These factors will be taken into account when discussing the transferability of findings. Table 25 shows the basic details of each study in terms of aims, interventions, participants and recruitment, and results.

As mentioned, we did not exclude any of the studies in the synthesis due to the fact that there are no empirically tested methods for excluding qualitative studies (Dixon-Woods, 2006). Out of the 13 studies only one (Craigen, 2006) met all seven of our quality criteria, but unfortunately this study is not published. Four studies were of poor quality (Huband and Tantam, 2004; Reeves and Mintz, 2001; Reeves et al., 2004; Sinclair and Green, 2005) in terms of the reliability and validity of the data analysis conducted and the inclusion of sufficient original data to mediate between evidence and interpretation, which were the main criteria we stated were important prior to starting the synthesis. Examination of the four studies showed that their contribution to the overall synthesis was very small but that they were important to include because they highlighted certain areas that were not addressed in the other studies. For example, the studies by Reeves and Mintz (2001) and Reeves et al. (2004), despite their poor methodological quality, offered some important insight into problems perceived by counsellors when treating suicidal patients in that they did not feel adequately supported or trained. This is in contradiction to therapists trained in DBT, which requires supervision, team meetings where therapists can discuss difficult situations, and the use of a manual, which allows for constant reference throughout treatment. (See Appendix E for Quality table.)

Findings of meta-synthesis

Diagram 1 shows the themes and sub-themes found from this synthesis. Table 26 shows the occurrence of themes and sub-themes across each of the studies.

How is the process of counselling or psychotherapy viewed with regard to the prevention of suicide?

Theme 1: Therapist qualities: i) as viewed by clients

Respect

Respect was identified across six studies as being an important component in the process of counselling and psychotherapy in terms of receptiveness to therapy, eg:

> 'I think they treat me with respect and compassion. And an expectation that I am able to and will do things that I need to, to succeed in the program.' (Araminta, 2000)

Respect from the therapist showed the clients that they were working together to achieve the same goal and that the relationship was based on taking the client seriously.

Understanding

The ability of the therapist/counsellor to understand the client was seen as extremely important in the process of counselling/psychotherapy due to the negative connotations that are often associated with self-harm/attempted suicide. It was identified across five studies, eg:

> 'You have to know the person you are working with. And like listen to them, rather than applying what you think you know or what you are expecting from the person.' (Craigen, 2006)

One client who had received counselling talked about the dangers of not understanding clients:

> 'They would categorise you and then try to treat you based on your category … I think she tried to make me fit a mould so that she could understand me because she only understood the mould.' (Craigen, 2006)

Non-judgmental

The ability to be non-judgmental in therapy was identified across four studies. Clients in these studies emphasised the problems that arise when a therapist becomes judgmental in terms of the fear of reprisal, or of saying the wrong thing, which leads, ultimately, to lack of disclosure, eg:

> '… you can definitely not judge because I think that was one of the hardest things for me. Just feeling I would be judged if I tell them about this.' (Craigen, 2006)

Two of the studies (Araminta, 2000; Cunningham et al., 2004) iterated the importance of a non-judgmental attitude by therapists in the delivery and effectiveness of DBT, eg:

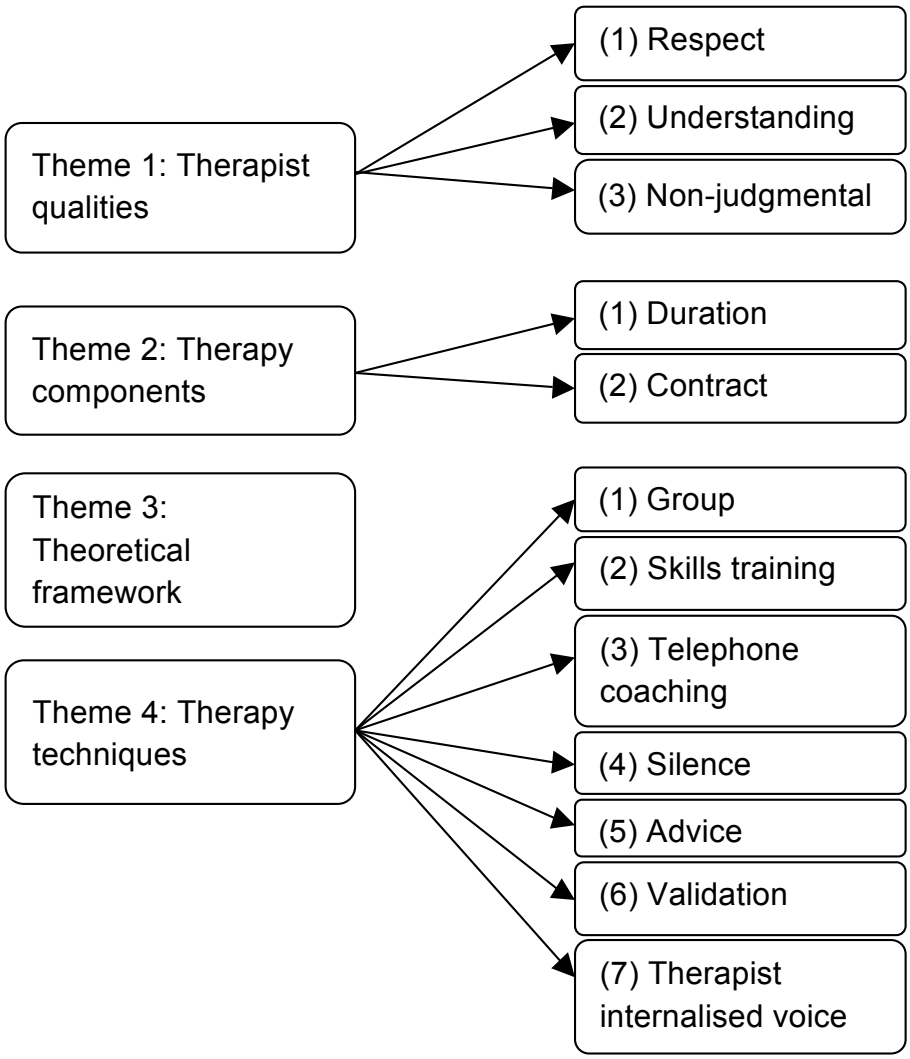
Table 25: Details of qualitative studies

Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Araminta (2000)	Dialectical behaviour therapy (DBT)	To explore, describe and interpret the experiences of clients and therapists involved in a DBT programme.	All client participants were in ongoing therapy at the time of interview. 10 client participants and 12 therapists. Gender: female Age range: 21–55	The constant comparative method.	Interviews were conducted at sites made available by participants.	Country of study: USA. Participants described the structure and guidelines of DBT as helpful and self-disclosure by the therapist as helpful.
Colbert (2002)	Psychodynamic interpersonal therapy (PIT)	To gain a deeper insight into the experience of individuals who have undergone a period of PIT following DSH.	Participants had been discharged from the DSH services and had participated in the RCT. Seven clients and three therapists. Gender: female Age range: 18–65	Grounded theory.	The therapy was originally conducted in clients' homes. The basis of the RCT formed the context of this study (Guthrie, 2001).	Country of study: UK. Respect between client and therapist was denoted as the most important aspect in therapy.
Craigen (2006)	Counselling	Investigate the counselling experiences of college-aged women with a history of self-injurious behaviour.	10 participants were recruited from a small college. Gender: female Age range: 18–23 Clients received more than five sessions of outpatient counselling.	This study utilised an interpretive paradigm and a phenomenological strategy.	The setting was non-clinical and nature of the study was voluntary.	Country of study: USA. Counsellors who showed understanding, respect and were non-judgmental were perceived as helpful.
Crockwell (1997)	Counselling	Discovering the young person's views about suicide and self-harm to dispel difficulties in therapy about how to approach treatment.	The clients were invited by their counsellors from their respective agencies to participate in the research. There were three clients. Gender: female Age range: 16–23	Phenomenological approach was taken using the constant comparative method.	The women were all in some form of counselling/ group care programme.	Country of study: Canada. People who work with adolescents who self-harm need to be aware of the developmental issues that they face as well as the consequences of abuse they might have faced.
Crouch (2004)	In-patient unit, therapeutic community	Identify some of the personal and interpersonal processes involved in DSH at a residential setting.	Inpatients with more than two years of DSH. There were six clients. Gender: two males, four females Age range: 12–16	The interviews were analysed using interpretive phenomenological analysis.	In-patient unit, therapeutic community.	Country of study: UK. Seeking help is difficult for adolescents who self-harm, when the nature of their self-harm is shrouded in either secrecy or the idea of attention seeking.

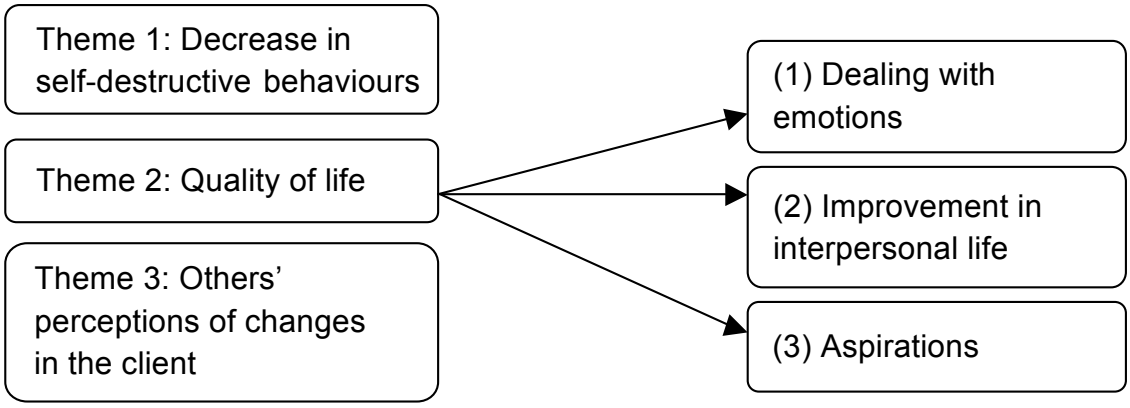
Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Cunningham (2004)	DBT	The goal of understanding, from the perspective of the client, what is effective about DBT and why.	Clients were those involved in an inpatient DBT programme, duration ranging from six months to three years. There were 14 clients. Gender: female Age range: 23–61	The design was grounded in ethnographic methods, due to examining the phenomena with clients in their natural setting.	The interviews were conducted at the interviewees' convenience at a place of their choosing.	Country of study: USA. DBT was described as having a positive impact on clients and suggestions are made to improve the efficacy of the programme.
Huband (2004)	Counselling or psychotherapy	Exploring the relationship between perceived management style and the consequent emotional response in patients predisposed to self-harm.	Volunteer sample. There were 10 participants. Gender: female Age range: 21–48.	Grounded theory and the constant comparative method.	It is not stated where interviews were held.	Country of study: UK. Having a long-term relationship with a key worker was viewed as most helpful. Therapists who were under-concerned, overprotective or incompetent were viewed in a negative light.
Perseius (2003)	DBT	To describe patients' and therapists' perception of receiving and giving DBT treatment.	Purposeful sampling. There were 10 clients and four therapists. Gender: 10 female clients, two male and two female therapists Age range: 22–49.	Qualitative content analysis.	The interviews took place in the premises of the DBT team.	Country of study: Sweden. Patients regard DBT as life saving. Both therapist and client agreed on the individual aspects of understanding, respect and confirmation with the use of DBT skills as being effective.
Reeves and Mintz (2001)	Counselling	To identify the issues and dilemmas experienced by counsellors when treating suicidal clients.	Counsellors from a voluntary health sector, private practice and local authority. All had a person-centred orientation. There were four counsellors. Gender: female Age range: 40–50.	The constant comparative method was used.	It is not clear where the study was undertaken.	Country of study: UK. Counsellors expressed a range of emotions in treating suicidal clients: fear, anxiety, anger and professional impotence; also self-doubts about their professional competence.
Reeves et al. (2004)	Counselling	To explore the form and nature of the dialogue between suicidal clients and counsellors to ascertain whether there were aspects of the dialogue that might inhibit or facilitate an exploration and assessment of risk.	There are no details of how the counsellors were recruited or any specific details about their age or gender. There were 20 counsellors.	A discourse analysis was used to analyse counselling transcripts generated from assessment interviews with suicidal 'client actors'.	It is not clear where the study was undertaken.	Country of study: UK. Counsellors generally only referred to suicide through metaphor. The use of reflective responses is discussed. Suggestion of ambiguity in how to treat suicidal clients.

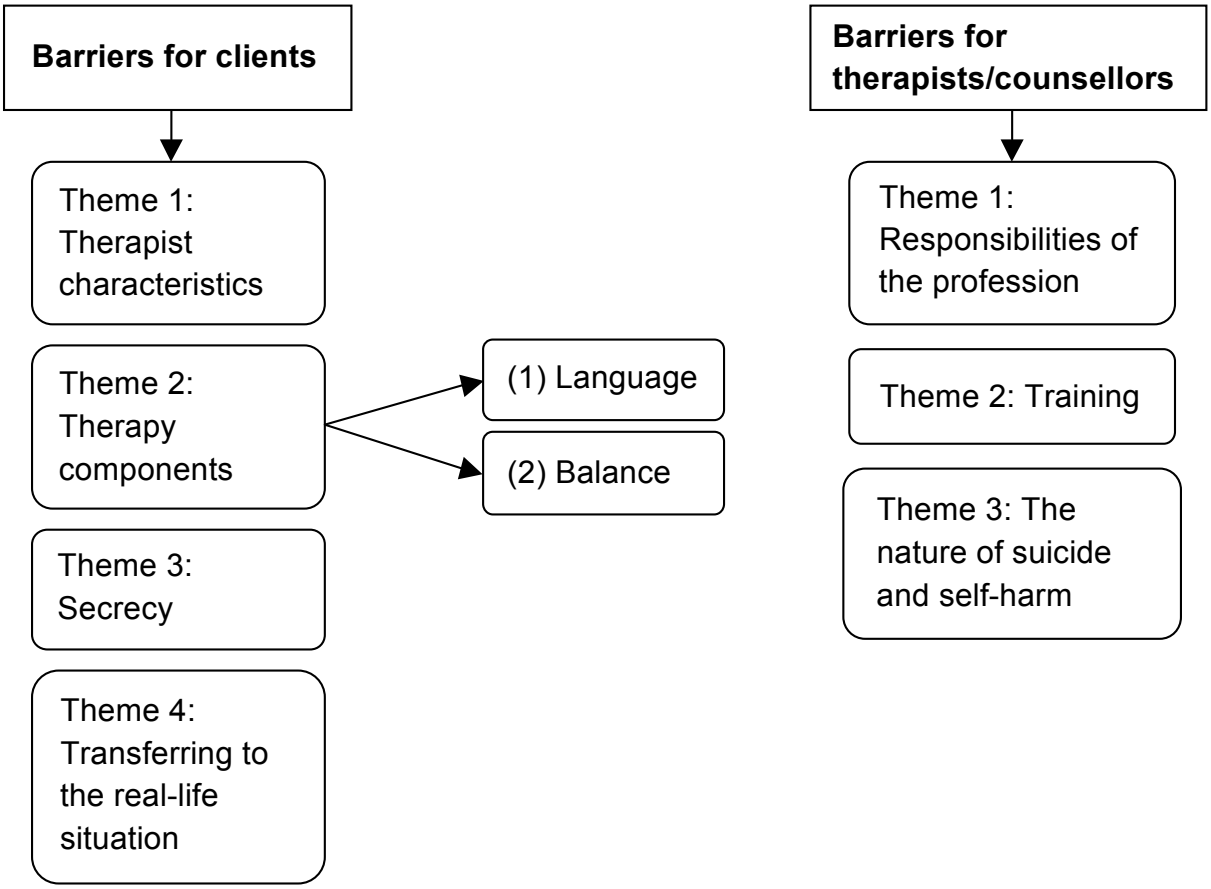
Study	Intervention	Aims	Participants and recruitment	Methods used to collect and analyse data	Setting	Notes and results
Ross (2000)	DBT	To examine how DBT affected participants during and after treatment.	All young people who had participated in the DBT programme and had been discharged or changed to outpatient status in the previous 18 months. There were four clients. Gender: female Age range: <16	Thematic analysis of interviews.	Adolescents were interviewed in an outpatient setting as they had all completed therapy.	Country of study: UK. The unit was likened to a close-knit family where group therapy provided a means of sharing experiences. The use of skills was highly endorsed. The extension of DBT was suggested by clients.
Sinclair (2005)	Any psychotherapy or counselling	To explore the accounts of those with a history of DSH but who no longer do so, to understand how they perceive this resolution and to identify potential implications for provision of health services.	Participants were selected from a representative cohort of those admitted to hospital for deliberate self-poisoning. There were 20 participants. Gender: 12 female and eight male Age range: >20	Analysis was thematic and narrative.	Interviews in a community setting (usually their own home).	Country of study: UK. Admission to hospital was seen as part of the recovery process with the recognition of suicidal behaviour a form of coping and a symptom of the depression. Importance of genuine relationships with health practitioners.
Rubenstein (2006)	Psychoanalysis	To gain a deeper understanding of what happens in cases of suicide as viewed by psychoanalysts.	Subjects were referred through word of mouth, through colleagues, email lists and a notice circulated to the members' mailing lists of several psychoanalytic institutes. There were 10 participants. Gender: five male and five female Age range: 36–68	Thematic analysis of interviews with the participants.	Interviews took place at the private office of the participant.	Country of study: USA. The majority of therapists felt hopeless about the treatment as it progressed with the clients. There was an indication that therapists were unable to experience any negative transference projected from the clients.

How is the process of counselling or psychotherapy viewed with regard to the prevention of suicide?



What views are held concerning the effectiveness of counselling or psychotherapy for clients at risk of suicide?





What are the barriers and facilitators of effective counselling or psychotherapy for the prevention of suicide?

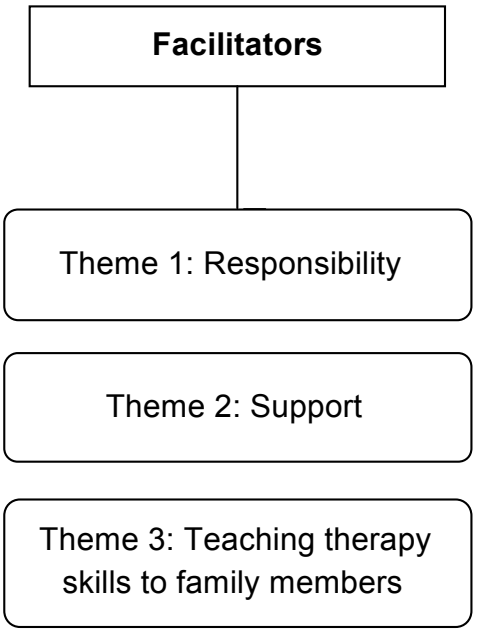


Table 26: Themes and sub-themes across the studies

Themes for: process	Araminta	Colbert	Craigen	Crockwell	Crouch	Huband	Perseius	Reeves and Mintz	Reeves et al	Ross	Rubenstein	Sinclair
Therapist qualities	1, 2, 3 (T)	1, 2, 3,	1, 2, 3	2, 3	1	1	1					2
Therapy components	✓	1	1, 2		1	1	2 (T)	2 (T)			1 (T)	
Theoretical framework	✓ (T)		✓		✓ (T)		✓ (T)					✓
Therapy techniques	1, 2, 3, 4, 5, 6, 7 (T)	5	4, 5, 6	5, 6	1, 2, 3	4	1, 2, 3			1, 2, 6		1,6
Effectiveness												
Decrease in SDB	✓ (T)				✓		✓ (T)			✓		
Quality of life	1, 2, 3	1	1		1, 2, 3				2			
Others' perceptions										✓		
Barriers (C)												
Therapist characteristics			✓	✓								
Therapy components	2	2	1, 2		1, 2							
Secrecy			✓				✓					
Transferring to real life	✓				✓							
Barriers (T)												
Responsibility of profession	✓						✓	✓	✓			
Training								✓	✓			✓
Nature of suicide and self-harm								✓	✓		✓	
Facilitators												
Responsibility	✓		✓	✓			✓					
Support	✓	✓		✓			✓	✓		✓		
Teaching family skills	✓									✓		

'It offers concrete solutions. The non-judgmental thing is really nice and I think is a major reason as to why it works, both in teaching us that we need to be non-judgmental and then it is non-judgmental and I appreciate that.' (Araminta, 2000)

Theme 1: Therapist qualities: ii) as viewed by therapists

The above subcategories were also endorsed by therapists but only in connection to the philosophy of DBT and the implicit emphasis it places on these elements in training as a DBT therapist.

Respect

'The method is strongly emphasising that you be respectful and take the suffering of the patients seriously.' (Persius et al., 2003)

Understanding

'More understanding at least, sort of giving the person the benefit of the doubt and seeing what is going on instead of assuming that you know what's going on, and that it comes from some malicious source.' (Araminta, 2000)

Non-judgmental

'It's a very kind of non-judgmental way to be self-aware and give yourself alternatives for change.' (Araminta, 2000)

Theme 2: Therapy components: i) as viewed by clients

Duration

The length of sessions and amount of sessions were mentioned in four studies. The general feeling was that the sessions were not long enough or frequent enough, eg:

'I was just getting into it and sort of feeling more comfortable and then it would be like time's up.' (Colbert, 2002)

In one study the participants were American college students who, if they were showing any signs of suicide risk, had to go to counselling to be allowed to remain on campus. However, seeing a counsellor once every two weeks was not perceived as enough and reinforced the opinion that,

'It was mostly people taking notes and nodding their heads, because frankly they had so many people to deal with.' (Craigen, 2006)

Therapy contract

Many forms of therapy involved contracts with clients at risk from suicide, and this was considered in three studies. The use of a contract was discussed by both clients and therapists. An important distinction was observed by people using DBT and other forms of therapy/counselling in that the use of a contract was endorsed in DBT.

One client who had received counselling shared how it would have been a 'joke' if her counsellor had tried to make her sign a contract:

'It would have made me just disrespect the therapist into thinking that this is going to stop me and that they were delusional enough to think that this was somehow going to be beneficial.' (Craigen, 2006)

Another stated that if they had signed a contract it would have, 'only impacted their guilt later when they did hurt themselves'. (Craigen, 2006)

In contrast, those in DBT endorsed the use of a contract:

'And if I've signed a paper it feels like more of a commitment not to let myself or the therapist down.' (Perseius et al., 2003)

Theme 2: Therapy components: ii) as viewed by therapists

Duration

With regard to length of time in therapy, this was mentioned by one study that considered psychoanalysts who treat suicidal clients, and the emphasis was placed upon the difficulty of treating clients whose impulse to self-harm/attempt suicide was viewed as requiring more than one session a week:

'Yeah, because what was she going to do coming in once a week? How could I do anything else but caretake? To kind of open it up and start to get into it and then leave her? And she doesn't have access to me until a week later.' (Rubenstein, 2000)

Therapy contract

Counsellors in particular seemed to endorse the view of clients concerning the inappropriateness of introducing a no self-harm contract:

'I don't think that [suicidal clients] would take on board contracting at all – I don't feel they are in a position to do that.' (Reeves and Mintz, 2001)

In contrast, DBT emphasises the need for a client to be willing to commit to therapy and want to change, and the contract serves to reiterate this, eg:

'You can rest on the therapy contract. If you have an agreement with the patient you are not burdened in the same way.' (Perseius et al., 2003)

It appears that the use of a contract has a very different meaning with regard to the type of therapy used. In counselling, where the focus is on guiding the client to come to their own insight, the use of a contract interferes with this process, with the suggestion that a contract may be too much responsibility for them to bear. In DBT, considering the client group that it focuses on, the contract may be viewed as an effective way of reducing the therapist's anxiety to allow them to focus on teaching the skills to alleviate self-harming behaviour.

Theme 3: Theoretical framework: i) as viewed by clients

The theoretical underpinnings of therapy were commented upon in two studies (Araminta, 2000; Perseius et al., 2003) that looked specifically at DBT:

'It's not like usual psychotherapy, which I have been going to for 12 years and just talked, here you have to work focused with your problems, trying to change things.' (Perseius et al., 2003)

In another study that did not specifically highlight any particular therapy, a client talks about the lack of enthusiasm they had when the therapist worked from their theories:

'So I went to see this counsellor and she just took me through this cognitive whatever … she spent an hour going through all this rubbish, and I just wanted to talk and she just wanted to go through her theories.' (Sinclair and Green, 2005)

In counselling the theoretical framework was criticised by some clients, who felt that their counsellors did not understand what they were going through with regard to the underlying problems of a self-harmer:

'One counsellor would just always make it [SI] a big issue. She would ask how my last week had gone and acted like the most important indicator about how my week had gone was whether I had cut myself or not.' (Craigen, 2006)

This study also highlights that where counsellors focus too much on one problem they are allowing themselves to be

blinded by the fact that clients may become disillusioned and that they may even manipulate the counsellor in an attempt to discontinue counselling, eg:

> 'I kind of figured out that when I told them [the counsellors] that I mostly stopped, I didn't have to go as often … I had one counsellor convinced that I was fine... except for I was getting worse.' (Craigen, 2006)

Theme 3: Theoretical framework: ii) as viewed by therapists

What is particularly noteworthy about these opinions is the distinction that DBT therapists draw between their approach and other traditions, eg:

> 'In a general way it's really been useful to provide a theoretical framework to understand better how it is that people that have real emotional distress, get to where they're at and it also provides a … path for the patient out of this quagmire and the therapist as well, theoretically.' (Araminta, 2000)

Some therapists saw DBT as offering a more thorough understanding of the client, and as changing the way they perceived people diagnosed with borderline personality disorder, a factor that could have previously interfered with how they treated their clients, eg:

> 'I have another view of them, both as individuals and their problems, and I don't think they are especially troublesome any more.' (Cunningham et al., 2004)

Theme 4: Therapy techniques: i) as viewed by clients

This theme refers to the individual aspects of a therapist's/counsellor's practice that impact upon successful therapeutic outcomes for clients at risk from suicide.

Group therapy

Group therapy was most often referred to in the studies that looked at DBT for clients at risk of suicide and was viewed in a positive way as promoting peer relations, support and being practical in terms of the difficulties BPD clients face. It was referred to in five studies, eg:

> 'I liked … listening to what other people had to say because … if they said something I'd think oh, I'd feel like that... and it was nice to know that other people felt the same way.' (Ross, 2000)

Group therapy also allows for the recognition that for those who self-harm it is a constant battle and they are not the only ones fighting against it, eg:

> 'I felt very lonely in my suffering, but in the group I felt – my God, here's a bunch of people that all struggle like I do just to survive another day.' (Perseius et al., 2003)

The one study that did not consider DBT also found the process useful in terms of group therapy being a place where one can safely simulate fears, opinions and even delusions about the outside world, eg:

> 'About three years, two to three years [in group therapy] and I've suddenly been put in touch with ... the wounded side of myself with painful memories and I find that my delusions about people I have in the outside world have transferred to members of the group so everything's reproduced here so that's quite helpful really.' (Sinclair and Green, 2005)

Skills training

The practical use of DBT skills appears to have had an immense impact on the process of therapy for suicidal clients and was praised in four studies that specifically considered DBT, eg:

> 'It's kind of like, um, a tool box, learning DBT. Um, you can carry it round with you all day and no one will know because it's a tool box in your brain, and you can just pick out which skill you're gonna use.' (Ross, 2000)

> 'I was in therapy for seven years before I even started in DBT and we always talked about my past, but I never knew what to do with my feelings. And DBT is very practical, it teaches you what to do with your feelings.' (Cunningham, 2004)

Skills were seen as a practical and applicable way of dealing with situations that before would have ultimately caused a client to self-harm/attempt suicide, eg:

> 'I used to slice on my arms and burn myself and put my fists through walls. I don't do that any more, I just stop and say, 'well I don't think I am in wise mind any more,' and I can get myself into wise mind and use the skills.' (Cunningham, 2004)

One of the skills that was referred to in two of the studies was mindfulness, which was seen as useful by clients and a practical way of thinking clearly, eg:

> '[Mindfulness] is great … in those moments of anxiety or … fear, I can distract myself.' (Araminta, 2000)

Telephone coaching

Another component specific to DBT was phoning a therapist when clients felt it necessary. This was commented on in three studies and was seen to be effective because clients seemed to understand the need for it to be used only when nothing else worked (ie skills) and they were in 'crisis', eg:

> 'Just talking to them helps me a lot. In addition to that, we go over the skills that can get me through the night.' (Cunningham, 2004)

> 'One of the things that is amazing is that she lets me call her at home, which is incredible. No one has ever let me do that before. It helped so much.' (Araminta, 2000)

Silence

This sub-theme was identified in two studies (Craigen, 2006; Huband and Tantam, 2004) and highlighted that for some the use of silence was not recognised by the therapist as an area of discomfort for the client, eg:

> 'It always bothered me when they would sit there and at some point, I really didn't have any more to say and I saw them as helpers, and so, me talking, only helps so much.' (Craigen, 2006)

Huband and Tantam (2004) highlighted how clients found it hard to stay focused when therapists were silent, and that they found themselves 'drifting off' and 'losing the plot'.

Advice

Giving advice was discussed in four studies (Araminta, 2000; Colbert, 2002; Craigen, 2006; Crockwell and Gale, 1997), eg:

> 'He'd give me advice like he'd tell me like the sort of things he thought I should do in situations.'

> 'He said count to 10... Just like breathe in and out.' (Colbert, 2002)

In the counselling studies advice was something that the clients sought, eg:

> '[They should tell me[what I should do when I get suicidal tendencies, what I should do when I get flashbacks, how I'm supposed to get over the abuse.' (Crockwell and Gale, 2006)

One client stated that counsellors should give clients activities they can do:

'Something that ensures … you won't be alone because that is the biggest problem. When you are alone, you don't care.' (Craigen, 2006)

Validation
Validation was mentioned in five studies (Araminta, 2000; Craigen, 2006; Crockwell and Gale, 1997; Cunningham et al., 2004; Ross, 2000), and refers to the therapist's/counsellor's ability to let the client know that it is perfectly acceptable for them to feel how they feel and that they understand and are there to help them, eg:

'She would say, "don't worry about being upset, just cry if you want to. You have every right to cry, you've been through hell" and just validation of your feelings.' (Crockwell and Gale, 1997)

For these clients, especially adolescents, they often considered that they just needed to be told that things would get better for them, eg:

'Something I wish that they would do, that they don't usually do, is tell me that things are going to be okay. And it's okay to know that I need to take control of the situation myself, but it does also help to be soothed by somebody else.' (Cunningham et al., 2004)

Theme 4: Therapy techniques: i) as viewed by therapists

Group therapy
With regard to group therapy, only one study dealt with therapist opinions, which paralleled clients' views in emphasising support from peers:

'I think it is actually probably pretty useful for them to have a place that's really billed more as a class. Where, like the more they participate, the more they get out of it, but they don't have to reveal all their deepest fears.' (Araminta, 2000)

Skills training
With regard to skills, therapists saw DBT as an applicable and practical approach that allows the therapist to learn as the therapy with the client progresses:

'I think that the skills, I think they're very comprehensive and I think that they, a few of them work for a particular person... you don't have to do the ones that don't work for you. This is all about finding out what works for you.' (Araminta, 2000)

Therapist internalised voice
Implicit changes can arise from the therapist acting as an 'internal voice' urging the client not to self-harm, eg:

'They know I'll get upset about this, when it really is true that they're hurting themselves, they'll see that I'm not happy about this.... When they get out in the world and they're thinking about wanting to hurt themselves, paired to it now is my voice saying "don't do this. I don't want you to do this." That often functions to shut it down.' (Araminta, 2000)

What views are held concerning the effectiveness of counselling or psychotherapy for clients at risk of suicide?

Theme 1: Decrease in self-destructive behaviour: i) as viewed by clients

This sub-theme was addressed in four studies (Araminta, 2000; Cunningham, 2004; Persius, 2003; Ross, 2000), all of which dealt with DBT. It highlighted how therapy helped clients to find more effective ways to cope with situations that they previously dealt with by self-harm, eg:

'It hasn't been the same experience. I stayed sick and got sicker with regular, non-DBT psychiatrist. My self-harming was a lot higher... But I can say that since beginning DBT I have only been in the hospital once.' (Araminta, 2000)

'I used to slice on my arms and burn myself and put my fists through walls. I don't do that any more.' (Cunningham, 2004)

Theme 1: Decrease in self-destructive behaviour: ii as viewed by therapists

'I have had several folks who have had chronic SI that was almost constant from some time in their teens who actually became free of it… these are people who have had previous therapy and sometimes previous extensive therapy... their interpretation of that is that it is from the DBT programme.' (Perseius, 2003)

'One person I'm working with... Probably over 30 suicide attempts, history of cutting. Since I've been working with her, she's only been hospitalised once, no suicide attempts, one cutting.' (Araminta, 2000)

Theme 2: Quality of life: i) as viewed by clients

Dealing with emotions
Linked to this ability to cope more effectively is the acknowledgement that clients felt better equipped to deal with emotions that previously could have caused them to self-harm or to aggravate situations because they did not know how to respond in a non-reactive manner. This sub-theme was identified in four studies, eg:

'Counselling allowed me to get a better grip on control, when I needed to take control, when I need to let go. That has helped me enormously.' (Craigen, 2006)

'It's helped me more than anyone's helped me before. It's sort of like sorted my head out a bit.' (Colbert, 2002)

'I can go on vacation or go on an outing and enjoy it, not be angry at the way every single person in the place looked at me or … bumped into me.' (Cunningham, 2004)

While three of the studies considered the effects of DBT, counselling was also seen as helping clients to take control.

Improvement in interpersonal life
Many clients felt that their ability to interact with other people had greatly improved, in particular people who were receiving DBT for personality disorder, eg:

'How to deal with people I know, that it's okay to have limits... I've always tried and put everybody else's needs ahead of my own. Just learning that my needs and wants are just as important as other people's.'(Araminta, 2000)

For clients, the ability to interact effectively with people and deal with emotions appropriately had appeared to change their lives dramatically, eg:

'I can deal with things now, I can experience happiness. I can experience anger without letting it get overbearing and not holding grudges for a long time usually … I can enjoy my children now. Now I can just be happy and smile.' (Cunningham, 20004)

Aspiration
This final sub-theme arose from the belief that clients felt more confident and hoped to carry on in life armed with the skills and guidance that they had received in therapy. They felt more confident in their ability to aspire to be different people in terms of how they deal with situations and lose the constraints that held them back before, eg:

'I think that I'm learning how to change really, really destructive behaviour that I have. And I cannot stress how

important that is to me. It has given me a second chance. And hope.' (Araminta, 2000)

'It's given me some confidence, some self-esteem. I think it has given me some other avenue than hurting myself when I feel hopeless. It's hanging in there, trying to find other avenues.' (Cunningham, 2004)

Theme 3: Others' perceptions of changes in the client: i) as viewed by clients

This theme refers to the changes that other people have noticed in clients over the course of therapy:

'It's definitely nice when other people say, "oh you're much happier than you used to be and you're much more like outgoing".' (Ross, 2000)

However, in this same study there is an apparent discrepancy in others' perceived views and how clients themselves feel, which could in part be due to the inherent difficulties that adolescents face in accepting change at such a crucial period in their lives:

'I feel that [DBT] is benefiting me, but I can't see that, but other people can. And it's quite difficult because I think I'm going round in circles.' (Ross, 2000)

What are the barriers to effective counselling or psychotherapy for the prevention of suicide?

Barriers: i) as viewed by clients

There were many studies that inferred from participants' responses potential barriers that may impact on effective counselling and psychotherapy. The barriers as interpreted by clients were mainly found to be specific to the individuals concerned and were generally not commonly endorsed across the studies. However, a few themes were apparent across studies.

Theme 1: Therapist characteristics

There are no potential sub-themes within this theme due to the subjective nature of the individuals' responses. In one study (Craigen, 2006), clients felt that the gender of the therapist could be a potential barrier:

'I think that gender is a dynamic that when you are in counselling, isn't explored a lot. It may be that you feel the way that you are partly because of socio-cultural constructions of what gender is, and I think that is probably something that isn't explored to the extent that it should be. And could be very helpful to a lot of people.'

In this study practically all of the women participants expressed the view that there were many pressures within college life that they did not know how to handle, and that this should be recognised within counselling. With regard to gender, this seemed particularly apparent, eg:

'Being a college girl you are supposed to be attractive and thin and have a great, you know, romantic or sexual life, in addition to all your studies.' (Craigen, 2006)

Gender was also touched upon in another study when discussing aftercare for immediate self-harm. The issues concerned may also be relevant to effective counselling and psychotherapy, eg:

'… just two males and that made me feel uncomfortable because I would have preferred to have a female around. I think you should have the option to have someone stay even though they were psychiatrists.' (Crockwell, 1997)

The responses of the therapist were in some cases deemed inappropriate and are worthy of comment here because they were referring to the person's self-harming behaviour, eg:

'What did you do this for? You've got lots to live for. Oh, you're a beautiful girl, there's lots to live for.' (Crockwell, 1997)

This stands in stark contrast to the idea of validation, which was endorsed by clients.

Theme 2: Therapy components

Language

Another potential barrier identified was the language used by therapists, eg

'I feel like a lot of the times, the language they use is a big barrier. What they were saying was just so abstract and so empty. Language became a means of asserting power.' (Craigen, 2006)

This view about language is also highlighted in DBT studies. The ability to learn the language used in DBT is central to the concept of being able to use the skills appropriately in life situations, eg:

'I was ready to quit because I couldn't get these big words and I didn't know some of the language.' (Cunningham, 2004)

There is the inference here that language used in therapy can be seen as another hurdle that clients have to face in dealing with their emotional problems. The use of technical terms in therapy may confuse or even frighten the client and communicate a lack of empathy by the therapist. In DBT there is a distinct connection between skills language, comprehension of the skills, and the use of the skills by the client. The understanding of the language should help facilitate this transition.

Balance

Another component of therapy, which is mediated by the therapist in conjunction with the type of therapy, is the speed at which issues are considered. This was generally praised by clients but it was also apparent that it could become a barrier, eg:

'I mean she's really pushed to force me to consider the issues that are, have been preventing me from doing things in the past. Which is good. Because I simply won't do things if I'm not pushed in some regards. It's too painful, I don't want to do it.' (Araminta, 2000)

Clients indicated that there needs to be a balance, and that otherwise therapy becomes ineffective, eg:

'He pushes and he will get me to the point where I start to cry. He is trying to push me to achieve more but I am not really ready yet.' (Cunningham, 2004)

'She may have wanted me to take the first step to talk about it. But people who go to counselling don't usually take the first steps to talk. They need someone to push them, and that was one of the problems with this particular counsellor.' (Craigen, 2006)

Theme 3: Secrecy

Several clients remarked on the secrecy that surrounds self-harm, in that for self-harmers there is often the need to hide what they are doing.

'Most self-harmers don't actually tell anyone they're going to do it, they just go and do it, and that's what self-harmers do.' (Crouch, 2004)

This secrecy is at odds with the opinion, held not only by some members of the general public but also some health professionals, that those who self-harm do so for attention. Some clients in the research studies expressed awareness of this opinion, eg:

> 'Everybody [psychiatric personnel] thinks that we are harming ourselves to get attention, but we are not, we are harming ourselves because life hurts so damned much.' (Perseius, 2003)

One study highlighted the need for therapists to understand not only the negative attitudes that self-harmers face but also the lack of trust that arises from such attitudes:

> 'If someone goes into it's attention seeking, you know it's manipulative behaviour they are all very negative connotations... part of them really wants the support and help but they find it really difficult to ask for that or they really want to move forward but they just don't trust people because of their experience they will struggle with that with you, which may affect whether or not they fully engage in the therapy.' (Colbert, 2002)

Theme 4: Transferring to the real-life situation

This theme, identified in two studies, concerned the difficulties of practising DBT in real-life situations and the external factors that may influence this, for example age or one's social environment. In one study (Ross, 2000), one participant talked about the impact of no longer receiving DBT and how this resulted in a lack of motivation to apply the skills, and consequently resorting to old coping strategies:

> 'It didn't help me when I wasn't in [the unit] ... when I was at home I didn't think about it and just didn't think of doing it because there wasn't an incentive to do it, 'cos there wasn't like a homework group to go to and things like that.'

Barriers ii) as viewed by therapists

Theme 1: Responsibilities of the profession

In the two counselling studies (Reeves and Mintz, 2001; Reeves et al., 2004) there was an agreement on the difficulties counsellors faced in treating suicidal clients due to the boundaries that are set within their profession that often came into conflict with their own personal views, eg:

> 'Just by knowing that I need my job and that if I don't abide by them I am likely to be looked at very closely, for using my own personal view as opposed to what their wishes are.' (Reeves and Mintz, 2001)

In this respect personal views ultimately refer to a person's individual right to take their own life.

The inner conflict that a counsellor may have in this situation may infringe upon effective treatment of the client. Unfortunately, this does not seem to be an issue that counsellors felt was dealt with in supervision, eg:

> 'Some sort of clarification that my practice has been correct… support, somebody who can give me guarantees, although I know that is impossible.' (Reeves and Mintz, 2001)

Lack of appropriate supervision with regard to treating suicidal clients was also endorsed in Colbert (2002) by a psychodynamic interpersonal therapist:

> 'The planned clinical supervision that we have … doesn't fulfil a need … very much focuses on therapy, the model and sticking to that.'

This is in sharp contrast to the views of DBT therapists, who considered that the components of DBT allow for intrinsic support from the whole team, where the skills involved can be accessed and used by therapists themselves, eg:

> 'I find out from my team whether I'm seeing things in a way that makes sense, and whether letting the patient know that they've done something that is either annoying, or hurt my feelings, or hurt me in some way – whether that will, the question for the team is, will this move the patient? And if it won't, then there's no reason, no good reason, to share it.' (Araminta, 2000)

Theme 2: Training

In one study, counsellors considered that they did not have enough training or adequate resources to treat suicidal clients, some to the extent that they felt anxious when dealing with a suicidal client:

> 'I don't think that we did enough on suicide and I don't think that it prepared me for working with people who are suicidal.' (Reeves and Mintz, 2001)

> 'I was desperately anxious, I was imagining – I was thinking was she doing it now, really never been affected like that before.' (Reeves and Mintz, 2001)

Theme 3: The nature of suicide and self-harm

Barriers that affect therapists due to the self-destructive behaviour of the client were particularly apparent in Rubenstein's (2000) study of the experiences of psychoanalytic therapists who had treated clients who later committed suicide. In this study, many of the therapists said they had a problem maintaining a psychoanalytic stance due to the consequences that would have ensued from possibly rupturing the relationship by focusing on negative transference and idealisation. These therapists expressed anxiety and/or guilt about perceived abandonment of their clients, eg:

> 'She began to really fall apart. I spent most of the time either getting her medicated, or trying to help her deal with the reality that was preventing her by becoming more and more of a supportive psychotherapist, not a psychoanalyst.'

> 'If I had not been that available I would have felt guilty, I think.'

These quotes show how therapists went out of their way to accommodate their clients, even altering their usual role due to the fear of potential suicide. This suggests that for psychoanalysts the threat of suicide interrupts the normal process of psychoanalysis so much that the client may actually end up protecting the therapist by not sharing the enormity of how they are feeling. One therapist discussed how he failed completely to address the delusion one of his clients had about being spied upon:

> 'But I was aware that I was finessing... And I think that there became a kind of collusion between us where he protected our relationship by not keeping on pressing that issue.'

While this study is distinctive in considering the therapy of clients who went on to commit suicide, some parallels can be drawn with other studies. In Reeves et al. (2004), throughout the entire discourse between counsellor and client that was presented not once did the counsellor mention the word suicide. Several possible reasons are offered for this, one being that the counsellor might not be able to 'tolerate' the idea of suicide on a moral level (cf Reeves and Mintz, 2001). The other reason suggested in this study is that the counsellor may not have felt that they were competent enough to deal with the expression

of suicidal ideas by their client, perhaps because of a perceived lack of training and supervision (Reeves and Mintz, 2001).

What are the facilitators for effective counselling or psychotherapy for the prevention of suicide?

Facilitators: i) as viewed by clients

Theme 1: Responsibility

A facilitator for effective therapy or counselling that was endorsed by clients in several studies was being ready for counselling, and taking the responsibility to want to change, eg:

> 'Counselling is only helpful if you actually want to change or get help.' (Craigen, 2006)

> 'That's the greatest thing about DBT. DBT is about me solving my problems. It's about me getting off my ass and getting my shit together, not a counsellor doing it for me, and that's why it works. How I progress is up to me... they do their damnedest to keep you on the right track, but where you go with it is up to you.' (Cunningham et al., 2004)

> 'I don't believe in forced commitment to psychiatric care, I don't think it leads anywhere, and it was really devastating for me.' (Perseius et al., 2003)

It seems to be apparent that in DBT, specifically, the client has to want to change and want to take responsibility for the way they shape their therapy and thus what they get out of it. This idea of taking responsibility is also closely linked to the client making a commitment to the therapy, eg:

> 'The real turnaround for me was one day, when I felt that I had let my therapist down. Being late for my sessions with her. And we talked about that, and her really needing a commitment from me. It really dawned on me that I really needed this.' (Araminta, 2000)

Theme 2: Support

One of the most endorsed themes was that support is a major facilitator of therapy. In one study (Crockwell, 1997), the three women interviewed all highlighted the distinct lack of support in their lives, eg:

> 'I think the biggest problem and why I've gone through periods of being suicidal is because I have no ties. Other people have friends, relatives etc.'

In general, when support was apparent in therapy it became linked to not only quality of life of the client but a renewed sense of hope, coupled with a belief that there are others around to help them when the client is in difficulty, eg:

> 'It's great (DBT) because if anything ever comes up, I know I have a contact. I feel very supported, very safe, very supported like I have a lot under me holding me up.' (Araminta, 2000)

Theme 3: Teaching therapy skills to family members

In Ross (2000), one participant described how teaching her mother the skills learnt in DBT acted as a reinforcer for when she was not at the unit:

> 'My mum's really got the hang of it, which helps 'cos now if I'm down, my mum knows what to say when I'm home. That'll help me.'

Facilitators: ii) as viewed by therapists

Theme 1: Teaching therapy skills to family members

Therapists highlighted the involvement of family members as a facilitator of effective therapy, eg:

> 'I think looking at how we can teach families more about how to validate, and learn how to do that. Because that's part of the model, the lack of validation in families sets up conditions where people that have intense experiences of emotion or other things – that sets up conditions to make them feel poorly about themselves, [and] not have … a sense of self that is functional.' (Araminta, 2000)

The possible extension of DBT to family members may therefore facilitate its effectiveness in reducing self-harm.

Inference of themes

The process of counselling/psychotherapy

This thematic analysis has identified many components of counselling and psychotherapy that are perceived to be necessary in helping clients at risk from suicide. Perhaps one of the most salient issues is the importance of the therapeutic relationship. Across all of the studies that looked at clients' views (Araminta, 2000; Craigen, 2006; Colbert, 2002; Crockwell and Gale, 1995; Crouch and Wright, 2004; Cunningham et al., 2004; Huband and Tantam, 2004; Perseius et al., 2003; Ross, 2000; Sinclair and Green, 2005) there was an overwhelming consensus that when the therapy was delivered by someone who was understanding, empathic and non-judgmental, it was seen as an effective vehicle to promote change within the client. These specific components are the same conditions that Carl Rogers (1957) identified as sufficient for personality change, namely:

> 'That the therapist is congruent or integrated in the relationship, that they experience unconditional positive regard for the client, that they experience an empathic understanding of the client's internal frame of reference and that they endeavour to communicate this experience to the client and that the client actively experiences the therapist's empathy and positive regard.' (p96)

When this was not the case, clients were quick to pick up on it and subsequently experience negative regard in the therapeutic relationship.

Validation and acceptability may be especially relevant to people who self-harm/attempt suicide as evidence from the studies reviewed emphasises that some of these clients have had very few validating experiences in their lives.

Another theme that was identified as important in this review, regarding process, was the theoretical framework in which the therapy was set, in particular in DBT. This was a view that was endorsed by both clients and therapists, and suggested that the theoretical framework of DBT was particularly well suited to addressing the difficulties faced by clients diagnosed with borderline personality disorder.

The other two themes that were identified were therapy components and therapy techniques. In terms of therapy components, clients generally felt they did not have enough time in their sessions and this was also highlighted by therapists. The provision of sufficient time to develop a relationship of trust with the therapist is perhaps particularly important in suicidal clients. Likewise, a self-harm contract was not viewed positively by either clients or counsellors as when clients first seek help they may not be in a position to make promises to their therapist, and may need time to develop the skills needed to reduce their self-harm. In contrast, in DBT both clients and therapists felt contracts were appropriate as the client was in a position where they felt ready to make a commitment to change.

Therapy techniques generally referred to those in DBT, namely group therapy, skills training and telephone coaching. Group therapy was seen as a place where clients were able to discuss

their lives openly, without judgment, and they perceived the support from other members as validating of their life experiences. In skills training, clients and therapists highlighted the practicality and applicability of the skills in teaching clients how to deal with life stresses. A negative aspect of therapy techniques was when the therapist or counsellor remained silent for too long. Some clients also expressed a wish for more advice from their therapists.

Another factor that seemed to be identified as integral to effective treatment in the prevention of suicide is practical advice. Some counsellors may be reluctant to give advice or practical ways of coping instead of self-harming (Nafisi, 2007). However, there does seem to be a request, as indicated in this synthesis, for counsellors and therapists to be more proactive in their guidance, and this may be particularly important in view of the risk of suicide in clients. There also needs to be recognition that too much focus on the alleviation of self-harming behaviours may be viewed negatively when it appears to clients that this is all the counsellor/therapist wants to do. There needs to be an implicit understanding of what self-harm means to the client and why they do it, with due care to help them find alternatives, if they are ready to do so.

The effectiveness of counselling/psychotherapy

It is evident that this qualitative synthesis particularly identified evidence concerning the effectiveness of DBT. Four studies looked at DBT and clients' experiences of it (Araminta, 2000; Cunningham et al., 2004; Perseius et al., 2003; Ross, 2000). Two of these were dissertations and contributed much of the original data that has been presented in this review, in particular Araminta (2000). When interpreting the results of this meta-synthesis, readers should bear in mind the vast details (in the dissertations especially) that were given in these DBT studies, which account for several themes found in this review.

Specifically looking at the DBT studies, the effectiveness of DBT was demonstrated strongly in reducing urges and acts of self-harming behaviour, commented on by both clients and therapists. As self-harm is a risk factor for suicide this is one of the most direct ways of suicide prevention. The fact that several of the clients commented upon DBT as 'life saving' emphasises the tremendous power this therapy was seen to have to help clients gain a sense of control over their lives, where they no longer have to self-harm to regulate how they feel. Quality of life was also seen to improve following therapy, including being able to deal with emotions more effectively and being able to deal with people in a more appropriate way where clients' own needs were taken into consideration. Clients had been given the aspiration to want to change their lives following therapy, and were given a sense of empowerment, 'a second chance' (Araminta, 2000).

Barriers associated with effective counselling or psychotherapy for the prevention of suicide

As mentioned in the introduction to this review, the responses of health services and others to people who self-harm have often been reported as negative and there is evidence from the literature reviewed here that this is still perceived to be the case.

Some clients who self-injure indicate that they do so because it is a useful coping strategy that helps them to feel 'better' without having to confront the emotions that they are experiencing and cannot deal with (Klonsky, 2007). This view is further emphasised by the secrecy acknowledged in some of the reports by self-harming individuals, and it has been noted that clients may not bring significant material to therapy for fear of rejection, disapproval and criticism (Nafisi, 2007).

DBT appears to ensure that such preconceptions of blame are dealt with and the therapy is well placed to show acceptance of the client as endorsed through group therapy, the practical use of skills by both client and therapist, and the use of self-disclosure from the therapist to the client. Other barriers noted by clients included gender issues, which may need to be given particular consideration when treating vulnerable young women, especially as childhood sexual abuse has been reported to be a risk factor for suicide and self-harm (Romans et al., 1995).

For counsellors and therapists, the barriers identified concerned conflict in relation to professional guidelines, and a perceived lack of support and training within their profession in relation to the treatment of clients with suicidal behaviour. These latter views seem solely applicable to counsellors.

Facilitators for effective therapy in the prevention of suicide

One underlying theme that became apparent throughout the synthesis was that self-harm may be associated with a lack of perceived support, and that support is integral to effective therapy. Adequate support may be difficult to provide in systems that do not have the capacity to meet demands, as Craigen (2006) found to be the case in college counselling centres.

A further facilitator of therapy, identified in several studies, was the client wanting to be in therapy and to change. It was reported, for example, that when clients felt that they were forced into therapy, this was ineffective and could be detrimental to the person's mental wellbeing.

While suicidal behaviour is clearly something that a therapist should try to eliminate, to regard suicide very negatively can communicate to an individual a sense of isolation and lack of understanding and empathy (Barry, 1984).

Limitations

There are several limitations to this qualitative synthesis, the first of which concerns the generalisability of the findings. The study that contributed to the majority of the findings concerning the effectiveness of counselling was Craigen (2006). The participants were recruited from an extremely competitive college in America, which consisted of a large majority of middle to upper class students. There is every possibility that due to their social background the participants were more able to articulate their experiences and what they felt they needed from therapy. However, the one study of participants of the same age but not from a college background, while differing in the importance placed on certain aspects of treatment, was similar in its emphasis on the characteristics of the therapist.

The majority of participants in studies included in the synthesis were women, and only two studies included any men (Crouch, 2004; Sinclair and Green, 2005). The applicability of the findings to men is therefore questionable. However, this is not an easy hurdle to overcome when trying to ascertain clients' opinions concerning what they find helpful in therapy. There is evidence that men who attempt suicide are more likely to succeed; they tend to use more lethal methods and to die on their first attempt (Beautrais, 2001).

Another limitation in generalisability is that the majority of the studies were conducted with Caucasian participants, with four studies not giving any details on ethnicity (Cunningham et al., 2004; Huband and Tantam, 2004; Perseius et al., 2003; Sinclair and Green, 2005). There is evidence that ethnic minority clients do not disclose suicidal ideation as readily as their non-ethnic minority peers (Morrison and Downey, 2000).

The age groups in this synthesis can be broadly divided into adolescents and adults, with no studies contributing data from

older people. Studies that have examined the epidemiology of suicide in older people have found that they have a higher risk of suicide compared with any other age group but that there is less readily available treatment for this age group as GPs are less willing to treat their suicidal ideation (Uncapher and Arean, 2000). The fact that older people are also known to admit less readily to experiencing suicidal ideation makes suicide prevention in this age group difficult (Gunnell and Frankell, 1994). Further research is needed to hear older people's views as to how they feel suicide can be prevented.

Another limitation of this synthesis is the non-random and naturalistic nature of qualitative research in general, one of the effects of which in the studies reviewed here may have been bias in the views of participants towards the therapy they received. For example, in the DBT studies the participants were those who had participated in the programme and had either completed it or were in the process of completing it. Further research should incorporate individuals who had perhaps considered DBT but rejected treatment or had actually dropped out of treatment.

This meta-synthesis acknowledges that while only four out of the 13 studies examined DBT, the findings from these studies may seem to have dominated the themes found in this review. As mentioned, this is due to the fact that two of the DBT studies were dissertations and the aims of the DBT studies were specifically to evaluate DBT for people with personality disorder and self-harming behaviour.

Summary

The studies synthesised here offer an insight into the opinions of therapists and clients with regard to effective treatment for the prevention of suicide. The following points are highlighted as important:

- The therapeutic relationship is one of the most important aspects of treatment for the prevention of suicide. The studies suggest that without a trusting relationship, it may be more likely that clients will continue to self-harm and be less likely to communicate their distress in future.
- For those who self-harm, there has often been contact with psychiatric services for some time. It is important that the therapist takes the time to clarify a person's previous experiences with these services in terms of the effect they have had on receptiveness to therapy. As many of the studies in this synthesis have indicated, when a client is not ready for therapy or feels forced into it, it may do more harm than good.
- Therapists need to examine the way in which their clients make sense of their internal and external worlds. Focusing too much on the behaviour that brings them into therapy initially can isolate clients and communicate a belief that the therapist is not interested in helping the whole person.
- For therapists there is, perhaps, a lack of training in how to help suicidal clients, as was particularly evident in counselling studies and was inferred in Rubenstein's (2000) study of psychoanalytic therapy. There are many aspects of training that potentially need to be covered, for example maintaining a balance between realising when a client wants to talk and confronting their behaviour about self-harming, which can be a process that takes not only time but also knowledge about what self-harm means to an individual. In regard to therapist training and supervision, it was notable in the DBT studies that an aspect of the framework of DBT that therapists valued was that support of therapists was an integral component of this.

Section 8: Discussion

Overview of results

This systematic review and meta-analysis have summarised the evidence for the effectiveness of psychotherapy and counselling in the prevention of suicide through the examination of 63 quantitative studies and 13 qualitative studies. Evidence from 17 studies that differed in methodology used to contribute further to the understanding of the process of psychotherapy and counselling has also been included.

Quantitative findings

Strong evidence was found from the meta-analyses of the effectiveness of psychotherapy and counselling when compared to a form of control. When studies were compared with an active form of therapy (n=6), the effect was still found in favour of the treatment proposed by the authors of the studies. This effect was found in favour of psychotherapy and counselling despite significant variability in the population, intervention and the outcome measures used. However, the considerable heterogeneity present is also a cause for caution in the interpretation of results. In the before and after analyses, all the treatments studied proved effective as evidenced by the pooled effect size.

Process studies

Difficulties in treating the suicidal client were indicated by the therapists' and counsellors' feelings of ambivalence in the process studies. These feelings may override aspects such as the therapist's level of competence, and it may be that only with experience will such feelings subside.

The studies that addressed young people's views (in the form of questionnaires, surveys etc) produced many of the same findings as the qualitative synthesis, namely that clients want to be listened to, treated with respect and understanding, and accepted, and they want the focus of treatment to be on both internal and external problems, that is treatment of the whole person and not just the symptoms.

Family therapy was not viewed positively due to either the young person not being able to handle the family 'truths' that may be revealed, or the young person not wanting to be involved in therapy with their entire family. Findings concerning group therapy highlighted the potential problems that may arise due to transmission effects, for example in adolescent units where there is a competitive ethos (Crouch, 2004). Transmission of self-harming behaviours, hopelessness and depression is difficult to control but needs to be considered if treatment is to occur in a group environment.

Qualitative findings

Therapists who show respect, understanding, validation of feelings and a non-judgmental attitude are viewed most positively by clients at risk from suicide. The ability to demonstrate understanding of when to 'push' a client to confront painful issues was seen as important, and likewise when the therapist remained silent for too long this was reported as making the client feel uncomfortable.

Duration of therapy was often deemed not long enough and the use of a self-harm contract was viewed particularly negatively in the counselling studies only. There were indications that the language the therapist uses can sometimes be seen as an indication of power being asserted by the therapist, although Davidson et al. (2007) showed that the use of certain language can indicate the therapist's feeling of hopelessness that they are unable to help their client. This is an area worthy of further research.

DBT was viewed positively by clients and therapists, and received much support for being responsible for a client's increased quality of life and reduction in suicidal behaviours. Group therapy, skills training and telephone coaching were all highlighted as effective components of DBT, where clients felt they were respected and supported.

One of the most prominent aspects identified in this synthesis was the nature of suicide and self-harm and the connotations associated with this behaviour that can impact on effective therapy. Counsellors in particular identify that they would like to receive more training and support in working with suicidal clients.

Comparing the meta-analysis with previous studies

The meta-analysis identified six reviews that conducted a meta-analysis (Binks et al., 2006; Crawford et al., 2007; Hawton et al., 1998; Tarrier et al., 2008; Townsend et al., 2001; van der Sande et al., 1997). This meta-analysis attempted to aggregate all the studies included in previous reviews to test the efficacy of counselling/psychotherapy in the prevention of suicide. As in Tarrier et al. (2008), CBT studies were found to provide the strongest effect with regard to the prevention of suicidal behaviour. Hawton et al. (1998) and Townsend et al. (2001) both emphasised problem-solving behaviour, with the former review finding a trend for support for problem solving in the reduction of self-harm. The current findings suggest that problem-solving therapy provided a small effect in the prevention of suicide. However, in comparison to the examination by Townsend et al. (2001) of problem solving in relation to reduction of hopelessness, mixed evidence was found for the efficacy of problem solving: Biggam et al. (2002) found a large effect, Rudd et al. (1996) found no effect, and van der Sande (1997) found a small effect. Binks et al. (2006) examined DBT in relation to specific outcomes and found that self-harm or parasuicide rates may decrease at six to 12 months. Similarly, the current review found a medium to large effect of -0.68 in favour of DBT in the prevention of suicide.

It is not possible to compare this meta-analysis with that of Crawford et al. (2007) as the latter examined actual suicide rates.

Implications for service provision

Looking at the meta-analyses in this review, it is particularly evident that mental health services should include talking therapies in their treatment of suicidal individuals. From the qualitative and process findings, any approach towards treating a suicidal client should emphasise the establishment of the therapeutic alliance. This seems to be more important than the technical skills and professional qualifications of therapists as evidenced in these two categories of studies. The emphasis on the therapeutic relationship in these studies reinforces the NICE (2004) clinical guideline that 'People who have self-harmed should be treated with the same care, respect and privacy as any patient' (p6).

It appears from the subgroup analyses that certain therapies may be more effective than others, for example DBT, CBT and problem-solving therapy. However, other studies provided evidence of effect, in particular Bateman and Fonagy (1999, 2001) and Gratz et al. (2006), both of which looked at treating clients with BPD using components of DBT (although the therapy of Bateman and Fonagy is psychoanalytically oriented). Other relatively under-researched therapies for which studies have indicated somewhat smaller, but promising, effects include

psychodynamic interpersonal therapy (Guthrie et al., 2001) and personal construct psychotherapy (Winter et al., 2007). Group therapy was not found to be effective from the pooled subgroup analyses, although one study (Wood, 2001) did give large treatment effects for group therapy. Group therapy should not be recommended without consideration of the client having individual therapy as well and also acknowledgement of the potential transmission effects that may be present, as was shown in the process and qualitative studies.

In terms of problem-solving therapy, a screening process may be effective in determining a person's level of problem-solving ability as evidence from the process studies (Wingate et al., 2005) showed that this therapy is effective for suicide prevention but only when the client has poor problem-solving ability. It should not be assumed that people who self-harm do so because of a lack of cognitive ability to solve problems. The process studies also highlighted that services need to maintain a way of reducing drop-out rates in treatment, perhaps by ensuring that hopelessness is targeted in treatment. This is an area worthy of further research.

A further implication of the studies reviewed is that psychotherapy services should routinely audit outcomes for people who self-harm and attempt suicide, as well as satisfaction with treatment and therapist, and perceived discrimination or stigma.

Implications for training

From the qualitative studies, it was particularly evident that counsellors feel a distinct lack of support and training in how to treat suicidal clients. They suffer from feelings of incompetence, anxiety, threats of negligence, and ambivalence concerning suicide, a finding that was also apparent from the process studies. There is clearly a need for training in counselling and psychotherapy to incorporate specific input on the treatment of suicidal clients. Interestingly, this finding was not endorsed by DBT studies, which could be due to that fact that one of the specific components of DBT is the support system for therapists.

It is recommended that all psychotherapy and counselling institutes should incorporate into their training, issues surrounding personal feelings concerning suicide and how these may inadvertently come across in therapy. Specific training programmes should also be implemented that allow counsellors to feel more confident when dealing with a suicidal client and help them become aware of the mechanisms of self-harm and what they may represent to a client. This recommendation is consistent with the NICE (2004) clinical guideline that appropriate training should be provided for staff who have contact with people who self-harm to equip them to understand and care for these people.

Implications for further research

Both the quantitative and qualitative research considered in this review was dominated by studies of therapies broadly within the cognitive-behavioural spectrum (ranging from more traditional to 'third wave' cognitive-behavioural approaches). While these studies have, in general, provided evidence for the effectiveness of such approaches with clients at risk of suicide, it should also be noted that there is promising initial evidence for the effectiveness of other approaches, including those informed by a psychodynamic perspective (eg Bateman and Fonagy, 1999, 2001; Chiesa et al., 2004; Guthrie et al., 2001) and personal construct psychotherapy (Winter et al., 2007). Further investigation of these under-researched approaches, and of factors that may predict clients' responses to particular approaches, should be a research priority. This should also be the case for approaches such as family therapy, for which there is a dearth of quantitative research in relation to this client group but for which qualitative research has indicated issues that may merit further investigation.

The studies in this review were extremely heterogeneous in terms of whether participants had a history of self-harm or repeated suicide attempts. If a person has repeatedly attempted to self-harm there is evidence that they are more difficult to treat (Safinofsky, 2000). This meta-analysis did not investigate whether previous episodes of suicidal behaviour had an effect on treatment outcome, and there is clearly a need to investigate specifically treatment of individuals at high risk for suicide. It was also not investigated whether psychiatric morbidity affects outcome. These analyses were not conducted because this information was not extracted from the studies in the initial stages of the review. There is some evidence that in studies treating borderline personality disorders where patients exhibited a history of self-mutilation, addictive problems and severe levels of psychiatric disturbance, there was a large treatment effect found in favour of therapy over treatment as usual (Bateman, 1999; Verheul, 2003), and these effects were maintained at follow-up for both studies.

Another factor that was not investigated in the meta-analyses was attrition rates. Whether loss to follow-up was addressed when assessing quality criteria was looked at, and over a third (n=23) did not investigate this factor or omitted to comment upon it. Drop-out from treatment and drop-out from research have very different implications. Future research might usefully focus on what specific components of therapy are necessary to prevent drop-outs and also on the pooled effect sizes in subgroups of studies where drop-out was small or large.

One of the difficulties in creating services for the prevention of suicide is the definition of what constitutes a suicide attempt. Throughout this review, outcome measures that were most proximal to suicide behaviour were included, but it was not ascertained from the studies whether there was any consideration of whether clients saw themselves as suicidal. Parasuicide can refer to behaviour with intent to die and behaviour without intent to die, but without an operational definition of intent, research findings are potentially confounded and the results can be difficult to interpret and apply (Linehan, 1997). The studies included in this review had participants that were diagnosed with many different psychiatric disorders, which can act as confounders. As Liberman and Eckman (1981, p1126) point out, 'many patients are not, in fact, attempting to kill themselves. The suicide attempt is an event that occurs in conjunction with a variety of psychiatric disorders and situational stressors that complicate treatment planning.' Services therefore need to ascertain suicidal intent before referring clients to specific treatment, a point that is reiterated in the NICE guidelines.

It has to be acknowledged that the measures of suicidal behaviour included in this review are only proximal and there is no evidence that concerns the reduction of actual suicide rates. Even when studies are based on suicide outcome they lack statistical power to show any meaningful result (Crawford et al., 2007). The risk for repeated suicide attempts and suicides is known to remain elevated years after an index attempt (Jenkins et al., 2002). Therefore, future research needs to have longer follow-up and include measures that are most pertinent to the prevention of suicide.

Treatment cost was not investigated in this systematic review, and this is an area worthy of attention considering the considerable burden in healthcare costs that the suicide attempter incurs (Kapur et al., 2003). However, it is of interest that studies that gave less than six hours of therapy all produced

an effect of differing strengths in favour of psychotherapy/ counselling over treatment as usual for the prevention of suicide.

Conclusion

The quantitative studies reviewed provide evidence of the effectiveness of psychological interventions for clients at risk of suicide. Most studies concern variants of cognitive-behavioural therapy, although there are some promising findings concerning other forms of therapy. The heterogeneity of the studies requires caution in interpreting the results. The effectiveness of therapy was also indicated by qualitative studies, which particularly concerned dialectical behaviour therapy.

Qualitative and quantitative studies of the therapeutic process indicate a clear consensus concerning the importance of the therapeutic relationship, and in particular therapist qualities. Therapists and counsellors highlighted lack of adequate training and support in working with suicidal clients as a barrier to successful therapy.

The principal recommendations of the review are that:

- People at risk of suicide should have access to psychological interventions, including those within the cognitive-behavioural spectrum.
- Therapies for which there have been promising findings, but which are under-researched, should be a research priority.
- Psychotherapists, counsellors and other staff working with clients at risk of suicide should be provided with specific training and support systems in relation to this work.

References

Allard, R., Marshall, M., & Plante, M.C. (1992) Intensive follow-up does not decrease the risk of repeat suicide attempts. *Suicide and Life-Threatening Behavior,* 22(3): 303–314.

Alper, G., & Peterson, S.J. (2001) Dialectical behavior therapy for patients with borderline personality disorder. *Journal of Psychosocial Nursing and Mental Health Services,* 39(10): 38–45.

Amish, P.L. (1991) A treatment outcome study for suicidal adolescents: Coping skills training vs. insight-oriented therapy. *Dissertation Abstracts International,* 52(6-B): 3282.

Antikainen, R., Hintikka, J., Lehtonen, J., Koponen, H., & Arstila, A. (1995) A prospective three-year follow-up study of borderline personality disorder inpatients. *Acta Psychiatrica Scandinavica,* 92(5): 327–335.

Aoun, S., & Johnson, L. (2001) A consumer's perspective of a suicide intervention programme. *Australian and New Zealand Journal of Mental Health Nursing,* 10: 97–104.

Aoun, S. (1999 Jun) Deliberate self-harm in rural Western Australia: results of an intervention study. *Australian and New Zealand Journal of Mental Health Nursing,* 8(2): 65–73.

Araminta, T. (2000) Dialectical behavior therapy: A qualitative study of therapist and client experience. *Dissertation Abstracts International: Section B: The Sciences and Engineering,* 61(1-B): 520.

Atkins, S., Lewin, S., Smith, H., Engel, M., Fretheim, A., & Volmink, J. (2008) Conducting a meta-ethnography of qualitative literature: Lessons learnt. *BMC Medical Research Methodology*, 8: 21.

Auquier, P., Lancon, C., Rouillon, F., Lader, M., & Holmes, C. (2006) Mortality in schizophrenia. *Pharmacoepidemiology and Drug Safety,* 15: 873–879.

Author not found. (2004 Aug 18) Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents With Depression Study (TADS) randomised controlled trial. *Journal of the American Medical Association, 292*(7): 807–820.

Barry, B. (1984) Perceptions of suicide. *Death Studies*, 8(s1): 17–25.

Barbe, R.P., Bridge, J., Birmaher, B., Kolko, D., & Brent, D.A. (2004) Suicidality and its relationship to treatment outcome in depressed adolescents. *Suicide and Life-Threatening Behavior,* 34(1): 44–55.

Barley, W.D., Buie, S.E., Peterson, E.W., Hollingsworth, A.S., Griva, M., Hickerson, S.C., Lawson, J.E., & Bailey, B.J. (1993) Development of an inpatient cognitive-behavioral treatment program for borderline personality disorder. *Journal of Personality Disorder,* 7(3): 232–240.

Bateman, K. Hansen, L. Turkington, D., & Kingdon, D. (2007) Cognitive behavioral therapy reduces suicidal ideation in schizophrenia: results from a randomised controlled trial. *Suicide & Life-Threatening Behavior,* 37(3): 284–290.

Bateman, A., & Fonagy, P. (1999) Effectiveness of partial hospitalization in the treatment of borderline personality disorder: a randomised controlled trial. *American Journal of Psychiatry,* 156(10): 1563–1569.

Bateman, A., & Fonagy, P. (2001) Treatment of borderline personality disorder with psychoanalytically oriented partial hospitalization: an 18-month follow-up. *American Journal of Psychiatry*, 158(1): 36–42.

Beautrais, A.L. (2001) Suicides and serious suicide attempts: two populations or one? *Psychological Medicine,* 31: 837–845.

Becker, B.J. (1988) Synthesizing standardized mean-change measures. *British Journal of Mathematical and Statistical Psychology,* 41: 257–278.

Biggam, F.H., & Power, K.G. (2002) A controlled, problem-solving, group-based intervention with vulnerable incarcerated young offenders. *International Journal of Offender Therapy and Comparative Criminology,* 46(6): 678–698.

Binks, C.A., Fenton, M., McCarthy, L., Lee, T., Adams, C.E., & Duggan, C. (2006) Psychological therapies for people with borderline personality disorder. *Cochrane Database of Systematic Reviews,* Issue 1. Art. No.: CD005652.DO: 10.1002/14651858.CD005652.

Bland, J.M., & Altman, D.G. (2000) The odds ratio. *British Medical Journal,* 320: 1468.

Bohart, A.C., O'Hara, M., & Leitner, L.M. (1998). Empirically violated treatments: disenfranchisement of humanistic and other psychotherapies. *Psychotherapy Research*, 8: 1–57.

Bohus, M., Haaf, B., Simms, T., Limberger, M.F., Schmahl, C., Unckel, C., Lieb, K., & Linehan, M.M. (2004) Effectiveness of inpatient dialectical behavioral therapy for borderline personality disorder: a controlled trial. *Behaviour Research and Therapy* 42(5): 487–499.

Bohus, M., Haaf, B., Stiglmayr, C., Pohl, U., Bohme, R., & Linehan, M. (2000) Evaluation of inpatient dialectical-behavioral therapy for borderline personality disorder – a prospective study. *Behaviour Research and Therapy,* 38(9): 875–887.

Boyatzis, R.E. (1998) *Transforming Qualitative Information*. Sage: Cleveland.

Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3: 77–101.

Brent, D.A., Holder, D., Kolko, D., Birmaher, B., Baugher, M., Roth, C., Iyengar, S., & Johnson, B.A. (1997) A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive therapy. *Archives of General Psychiatry* 54(9): 877–885.

Britten, N., Campbell, R., Pope, C., Donovan, J., Morgan, M., & Pill, R. (2002) Using meta ethnography to synthesise qualitative research: a worked example. *Journal of Health Service Research and Policy*, 7(4): 209–215.

Brown, G.K., Newman, C.F., Charlesworth, S.E., Crits-Christoph, P., & Beck, A.T. (2004) An open clinical trial of cognitive therapy for borderline personality disorder. *Journal of Personality Disorders,* 18(3): 257–271.

Brown, G.K., Ten Have, T., Henriques, G.R., Xie, S.X., Hollander, J.E., & Beck, A.T. (2005) Cognitive therapy for the prevention of suicide attempts: a randomised controlled trial. *JAMA: the Journal of the American Medical Association,* 294(5): 563–570.

Burns, J., Dudley, M., Hazell, P., & Patton, G. (2005) Clinical management of deliberate self-harm in young people: the need for evidence-based approaches to reduce repetition. *Australian and New Zealand Journal of Psychiatry,* 39: 121–128.

Chambless, D.L., Baker, M.J., Baucom, D.H., Beutler, L.E., Calhoun, K.S., Crits-Christoph, P., Daiuto, A., DeRubeis, R., Detweiler, J., Haaga, D.A.F., Johnson, S.B., McCurry, S., Mueser, K.T., Pope, K.S., Sanderson, W.C., Shoham, V., Stickle, T., Williams, D.A., & Woody, S.R. (1998). Update on empirically validated therapies, II. *The Clinical Psychologist*, 51: 3–16.

Chiesa, M., Fonagy, P., & Holmes, J. (2006) Six-year follow-up of three treatment programs to personality disorder. *Journal of Personal Disorders.* 20(5), 493–509.

Chiesa, M., Fonagy, P., Holmes, J., & Drahorad, C. (2004) Residential versus community treatment of personality disorders: a comparative study of three treatment programs. *American Journal of Psychiatry,* 161(8): 1463–1470.

Chinn, S. (2000) A simple method for converting an odds ratio to effect size for use in meta-analysis. *Statistics in Medicine,* 19: 3127–3131.

Clarke, L., & Whittaker, M. (1998) Self-mutilation: culture, contexts and nursing responses. *Journal of Clinical Nursing,* 7: 129–137.

Clarkin, J.F., Foelsch, P.A., Levy, K.N., Hull, J.W., Delaney, J.C., & Kernberg, O.F. (2001) The development of a psychodynamic treatment for patients with borderline personality disorder: A preliminary study of behavioral change. *Journal of Personality Disorders,* 15(6): 487–495.

Clarkin, J.F., Levy, K.N., Lenzenweger, M.F., & Kernberg, O.F. (2007) Evaluating three treatments for borderline personality disorder: a multiwave study. *American Journal of Psychiatry,* 164(6): 922–928.

Coggan, C., Patterson, P., & Fill, J. (1997) Suicide: Qualitative Data from focus group interviews with youth. *Social Science and Medicine,* 45(10): 1563–1570.

Cohen, J. (1992) A power primer. *Psychological Bulletin,* 112(1): 155–159.

Comstock, B., & McDermott, M. (1975) Group therapy for patients who attempt suicide. *International Journal of Group Psychotherapy,* 25(1): 44–49.

Comtois, K.A., Elwood, L., Holdcraft, L.C., Smith, W.R., & Simpson, T.L. (2007) Effectiveness of Dialectical Behavior Therapy in a Community Mental Health Center. *Cognitive and Behavioral Practice,* 14(4): 406–414.

Comtois, K.A., & Linehan, M.M. (2006) Psychosocial treatments of suicidal behaviors: A practice-friendly review. *Journal of Clinical Psychology: In Session,* 62(2): 161–170.

Craigen, L.M. (2006) A qualitative investigation of the counselling experiences of college-aged women with a history of self-injury. *Dissertation Abstracts International Section A: Humanities and Social Sciences,* 67(3-A): 845.

Crawford, M.E., Thomas, O., Khan, N., & Kulinskaya, E. (2007) Psychosocial interventions following self harm. Systematic review of their efficacy in prevention of suicide. *British Journal of Psychiatry,* 190: 11–17.

Crockwell, L., & Burford, G. (1995) What makes the difference? Adolescent females' stories about their suicide attempts. *Journal of Child & Youth Care,* 10(1): 1–14.

Crouch, W., & Wright, J. (2004) Deliberate self-harm at an adolescent unit: A qualitative investigation. *Clinical Child Psychology and Psychiatry,* 9(2): 185–204.

Cunningham, K., Wolbert, R., & Lillie, B. (2004) It's about me solving my problems: Clients' assessments of dialectical behavior therapy. *Cognitive and Behavioral Practice,* 11(2): 248–256.

Dahlsgaard, K.K., Beck, A.T., & Brown, G.K. (1998) Inadequate response to therapy as a predictor of suicide. *Suicide and Life-Threatening Behavior,* 28(2): 197–204.

Davidson, K., Livingstone, S., McArthur, K., Dickson, L., & Gumley, A. (2007) An integrative complexity analysis of cognitive behaviour therapy sessions for borderline personality disorder. *Psychology and Psychotherapy: Theory, Research and Practice,* 80: 513–523.

Davidson, K., Norrie, J., Tyrer, P., Gumley, A., Tata, P., Murray, H., & Palmer, S. (2006) The effectiveness of cognitive behavior therapy for borderline personality disorder: results from the borderline personality disorder study of cognitive therapy (BOSCOT) trial. *Journal of Personality Disorders,* 20(5): 450–465.

Davidson, K., Scott, J., Schmidt, U., Tata, P., Thornton, S., & Tyrer, P. (2004) Therapist competence and clinical outcome in the Prevention of Parasuicide by Manual Assisted Cognitive Behaviour Therapy Trial: the POPMACT study. *Psychological Medicine,* 34: 855–863.

De Leo, D., Burgis, S., Bertolote, J.M., Kerkhof, A.J.F.M., & Bille-Brahe, U. (2006) Definitions of suicidal behavior: lessons learned from the WHO/EURO Multicentre Study. *Crisis,* 27(1): 4–15.

De Man, A., & Labreche-Gauthier, L. (1991) Suicide ideation and community support: an evaluation of two programs. *Journal of Clinical Psychology,* 47(1): 57–60.

Department of Health. (1999). *Saving Lives: Our Healthier Nation*. London: The Stationery Office.

Dixon-Woods, M., Bonas, S., Booth, A., Jones, D.R., Miller, T., Sutton, A.J., Shaw, R.L., Smith, J.A., & Young, B. (2006) How can systematic reviews incorporate qualitative research? A critical perspective. *Qualitative Research,* 6(1): 27–44.

Dixon-Woods, M., Shaw, R.L., Agarwal, S., & Smith, J.A. (2004) The problem of appraising qualitative research. *Quality and Safety in Health Care,* 13: 223–225.

Donaldson, D., Spirito, A., Arrigan, M., & Aspel, J.W. (1997) Structured disposition planning for adolescent suicide attempters in a general hospital: Preliminary findings on short-term outcome. *Archives of Suicide Research,* 3(4): 271–282.

Donaldson, D., Spirito, A., & Esposito-Smythers, C. (2005) Treatment for adolescents following a suicide attempt: results of a pilot trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* 44(2): 113–120.

Douglass, H.M. (2000) Problem solving ability, parasuicidal behaviour and borderline traits in women receiving skills based therapy. *Dissertation Abstracts International: Section B: The Sciences and Engineering,* 61(4-B): 2197.

Eggert, L.L., Thompson, E.A., Randell, B.P., & Pike, K.C. (2002) Preliminary effects of brief school-based prevention approaches for reducing youth suicide--risk behaviors, depression, and drug involvement. *Journal of Child and Adolescent Psychiatric Nursing,* 15(2): 48–64.

Elliott, R., Fischer, C.T., & Rennie, D.L. (1999) Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology,* 38: 215–229.

Espositio-Smyhters, C., Spirito, A., Uth, R., & LaChance, H. (2006) Cognitive behavioral treatment for suicidal alcohol abusing adolescents: development and pilot testing. *American Journal on Addiction,* 15: 126–130.

Evans, K., Tyrer, P., Catalan, J., Schmidt, U., Davidson, K., Dent, J., Tata, P., Thornton, S., Barber, J., & Thompson, S. (1999) Manual-assisted cognitive-behaviour therapy (MACT): a randomised controlled trial of a brief intervention with bibliotherapy in the treatment of recurrent deliberate self-harm. *Psychological Meicine,* 29(1): 19–25.

Favazza, A.R. (1987). *Bodies Under Siege: Self-Mutilation in Culture and Psychiatry*. Baltimore: Johns Hopkins University Press.

Fitzpatrick, K.K., Witte, T.K., & Schmidt, N.B. (2005) Randomised controlled trial of a brief problem-orientation intervention for suicidal ideation. *Behavior Therapy,* 36(4): 323–333.

Fleischhaker, C., Munz, M., Bohme, R., Sixt, B., & Schulz, E. (2006) Dialectical Behaviour Therapy for adolescents (DBT-A) – A pilot study on the therapy of suicidal, parasuicidal, and self-injurious behaviour in female patients with a borderline disorder. Original Title, Dialektisch-Behaviorale Therapie fur adoleszente (DBT-A) - Eine pilotstudie zur therapie von suizidalitat, parasuizidalitat und selbstverletzenden verhaltensweisen bei patientinnen mit symptomen einer borderlinestorung. *Zeitschrift fur Kinder- und Jugendpsychiatrie und Psychotherapie,* 34(1): 15–27.

Frey, D.H., Motto, J.A., & Ritholz, M.D. (1983) Group therapy for persons at risk for suicide: An evaluation using the intensive design. *Psychotherapy: Theory, Research & Practice,* 20(3): 281–293.

Friedrich, J., Gunia, H., & Huppertz, M. (2003) Evaluation of an outpatient DBT network. *Verhaltenstherapie & Verhaltensmedizin,* 24(3): 289–306.

Gilliland, B.E., & James, R.K. (1997) *Crisis Intervention Strategies*. New York: Brooks Cole.

Goldstein, T.R., Axelson, D.A., Birmaher, B., & Brent, D.A. (2007) Dialectical behavior therapy for adolescents with bipolar disorder: A 1-year open trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* 46(7): 820–830.

Goodyer, I., Dubicka, B., Wilkinson, P., Kelvin, R., Roberts, C., Byford, S., Breen, S., Ford, C., Barrett, B., Leech, A., Rothwell, J., White, L., & Harrington, R. (2007) Selective serotonin reuptake inhibitors (SSRIs) and routine specialist care with and without cognitive behaviour therapy in adolescents with major depression: randomised controlled trial. *British Medical Journal (Clinical Research ed.),* 335(7611): 142.

Gratz, K.L., & Gunderson, J.G., (2006) Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. *Behavior Therapy,* 37(1): 25–35.

Gratz, K.L., Lacroce, D.M., & Gunderson, J.G. (2006) Measuring changes in symptoms relevant to borderline personality disorder following short-term treatment across partial hospital and intensive outpatient levels of care. *Journal of Psychiatric Practice,* 12(3): 153–159.

Grawe, R.W., Falloon, I.R., Widen, J.H., & Skogvoll, E. (2006) Two years of continued early treatment for recent-onset schizophrenia: a randomised controlled study. *Acta Psychiatrica Scandinavica,* 114(5): 328–336.

Gunnell, D., & Frankel, S. (1994) Prevention of suicide: aspirations and evidence. *British Medical Journal,* 308: 1227–1233.

Guo, B., & Harstall, C. (2002) Efficacy of Suicide Prevention Programs for Children and Youth. Alberta Heritage Foundation for Medical Research (AHFMR), 2002; HTA 26: Series A: 71. Accessed at: http://www.ihe.ca/hta/hta_unit.html

Gurrister, L., & Kane, R.A. (1978) How therapists perceive and treat suicidal patients. *Community Mental Health Journal,* 14(1): 3–13.

Guthrie, E., Kapur, N., Mackway-Jones, K., Chew-Graham, C., Moorey, J., Mendel, E., Marino-Francis, F., Sanderson, S., Turpin, C., Boddy, G., & Tomenson, B. (2001) Randomised controlled trial of brief psychological intervention after deliberate self poisoning. *British Medical Journal (Clinical Research ed.),* 323(7305): 135–138.

Gutstein, S.E., Rudd, M.D., Graham, J.C., & Rayha, L.L. (1988) Systemic crisis intervention as a response to adolescent crises: an outcome study. *Family Process,* 27(2): 201–211.

Harden, A., Garcia, J., Oliver, S., Rees, R., Shepherd, J., Brunton, G., & Oakley, A. (2003) Applying systematic review methods to studies of people's views: an example from public health research. *Journal of Epidemioogy and Community Health*, 58: 794–800.

Harden, A., Brunton, G., Fletcher, A., & Oakley, A. (2006) *Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Harley, R.M., Baity, M.R., Blais, M.A., & Jacobo, M.C. (2007) Use of dialectical behavior therapy skills training for borderline personality disorder in a naturalistic setting. *Psychotherapy Research,* 17(3): 362–370.

Harrington, R., Kerfoot, M., Dyer, E., McNiven, F., Gill, J., Harrington, V., Woodham, A., & Byford, S. (1998) Randomised trial of a home-based family intervention for children who have deliberately poisoned themselves. *Journal of the American Academy of Child and Adolescent Psychiatry,* 37(5): 512–518.

Harrington, R., Pickles, A., Aglan, A., Harrington, V., Burrough, H., & Kerfoot, M. (2006) Early adult outcomes of adolescents who deliberately poisoned themselves. *Journal of the American Academy of Child and Adolescent Psychiatry,* 45(3): 337–345.

Haw, C., Hawton, K., Houston, K., & Townsend, E. (2001) Psychiatric and personality disorders in deliberate self-harm patients. *British Journal of Psychiatry,* 178: 48–54.

Hawton, K., Arensman, E., Townsend, E., Bremner, S., Feldman, E., Goldney, R., Gunnell, D., Hazell, P., Van Heeringen, K., House, K., Owens, D., Sakinofsky, I., & Traskman-Bendz, L. (1998). Deliberate self harm: systematic review of efficacy of psychosocial and pharmacological treatments in preventing repetition. *British Medical Journal*, 3171: 441–447.

Hawton, K., Bancroft, J., Catalan, J., Kingston, B., Stedeford, A., & Welch, N. (1981) Domiciliary and out-patient treatment of self-poisoning patients by medical and non-medical staff. *Psychological Medicine,* 11(1): 169–177.

Hawton, K., McKeown, S., Day, A., Martin, P., O'Connor, M., & Yule, J. (1987) Evaluation of out-patient counselling compared with general practitioner care following overdoses. *Psychological Medicine,* 17(3): 751–761.

Hawton, K., Rodham, K., Evans, E., & Weatherall R. (2002). Deliberate self-harm in adolescents: self report survey in schools in England. *British Medical Journal*, 325: 1207–1211.

Hawton, K., Townsend, E., Arensman, E., Gunnell, D., Hazell, P., House, A., & van Heeringen, K. (1999) Psychosocial and pharmacological treatments for deliberate self-harm. *Cochrane Database of Systematic Reviews,* Issue 4. Art No.: CD001764. DOI: 10.1002/14651858.CD0011764.

Hawton, K., Townsend, E., Arensman, E., Gunnell, D., Hazell, P., House, A., & van Heeringen, K. (2005). Psychosocial and pharmacological treatments for deliberate self harm. *The Cochrane Database of Systematic Reviews*, Issue 4. Hoboken, NJ: Wiley.

Hawton, K., Zahl, D., & Weatherall, R. (2003) Suicide following deliberate self-harm: long-term follow-up of patients who presented to a general hospital. *British Journal of Psychiatry*, 182: 537–542.

Hengeveld, M.W., Jonker, D.J., & Rooijmans, H.G. (1996) A pilot study of a short cognitive-behavioral group treatment for female recurrent suicide attempters. *International Journal of Psychiatry and Medicine,* 26(1): 83–91.

Hepp, U., Wittmann, L., Schnyder, U., & Michel, K. (2004) Psychological and psychosocial interventions after attempted suicide. *Crisis,* 25(3): 108–117.

Higgins, J.P.T., & Green, S, (eds.) (2006) *Cochrane Handbook for Systematic Reviews of Interventions 4.2.6* [updated September 2006]. In: The Cochrane Library, Issue 4, 2006. Chichester, UK: John Wiley, Ltd.

Higgins, J.P.T., & Thompson, S.G. (2004) Controlling the risk of spurious findings from meta-regression. *Statistics in Medicine,* 23: 1663–1682.

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

Hoschel, K. (2006) Dialectic behavioral therapy for borderline personality disorder in standard medical care – The Saarbrucken treatment program. Original Title, Dialektisch-behaviorale therapie der borderline-personlichkeitsstorung in der regelversorgung – Das Saarbrucker modell. *Verhaltenstherapie,* 16(1): 17–24.

Houck, G.M., Darnell, S., & Lussman, S. (2002) A support group intervention for at-risk female high school students. *Journal of School Nursing,* 18(4): 212–218.

House, A., Owens, D., & Storer, D. (1992). Psycho-social intervention following attempted suicide: Is there a case for better services? *International Review of Psychiatry*, 4: 15–22.

Huband, N., & Tantam, D. (2004) Repeated self-wounding: women's recollection of pathways to cutting and of the value of different interventions.. *Psychology and Psychotherapy,* 77(4): 413–428.

Ivanoff, A.M. (1985) Inpatient treatment for suicide attempters. *Dissertation Abstracts International,* 46(2-B): 470–471.

Jenkins, G.R., Hale, R., Papanastassiou, M., Crawford, M.J., & Tyrer, P. (2002) Suicide rate 22 years after parasuicide: Cohort study. *British Medical Journal,* 325(7373): 1155.

Kapur, N., House, A., May, C., & Creed, F. (2003) Service provision and outcome for deliberate self-poisoning in adults-results from a six centre descriptive study. *Social Psychiatry and Epidemiology,* 38(7): 390–395.

Karasu, T.B. (1986). The psychotherapies: benefits and limitations. *American Journal of Psychotherapy*, 40: 324–343.

Katz, L.Y., Cox, B.J., Gunasekara, S., & Miller, A.L. (2004) Feasibility of dialectical behavior therapy for suicidal adolescent inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry,* 43(3): 276–282.

King, M., Semylen, J., Killaspy, H., Nazareth, I., & Osborn, D. (2007). A systematic review of research on counselling and psychotherapy for lesbian, gay, bisexual & transgender people. *British Association of Counselling and Psychotherapy*.

King, R., Nurcombe, B., Bickman, L., Hides, L., & Reid, W. (2003) Telephone counselling for adolescent suicide prevention: changes in suicidality and mental state from beginning to end of a counselling session. *Suicide and Life-Threatening Behavior,* 33(4): 400–411.

Klonsky, D.E. (2007) The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review,* 27: 226–239.

Koons, C.R., Robins, C.J., Tweed, J.L., Lynch, T.R., Gonzalez, A.M., Morse, J.Q., Bishop, G.K., Butterfield, M.I., & Bastian, L.A. (2001) Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. *Behavior Therapy,* 32(2): 371–390.

Korner, A., Gerull, F., Meares, R., & Stevenson, J. (2006) Borderline personality disorder treated with the conversational model: a replication study. *Comprehensive Psychiatry,* 47(5): 406–411.

Lamprecht, H., Laydon, C., McQuillan, C., Wiseman, S., Williams, L., Gash, A., & Reilly, J. (2007) Single-session solution-focused brief therapy and self-harm: a pilot study. *Journal of Psychiatry and Mental Health Nursing,* 14(6): 601–602.

Lee, Y.J., Ellenber, J.H., Hirtz, D.G., & Nelson, K.B. (1991) Analysis of clinical trials by treatment actually received: Is it really an option? *Statistics in Medicine,* 10: 1595–1605.

Liberman, R.P., & Eckman, T. (1981 Oct) Behavior therapy vs insight-oriented therapy for repeated suicide attempters. *Archives of General Psychiatry,* 38(10): 1126–1130.

Linehan, M.M. (1993). *Cognitive Behavioral Treatment of Borderline Personality Disorder*. New York: Guilford Press.

Linehan, M.M. (1997) Behavioral treatments of suicidal behavior: Definitional obfuscation and treatment outcomes. In Stoff, D.M., Mann, J.J et al. (eds.) (1997). *The Neurobiology of Suicide: From the Bench to the Clinic*, (pp. 302–328). New York: New York Academy of Sciences.

Linehan, M.M. (1997) Behavioral treatments of suicidal behaviors: definitional obfuscation and treatment outcomes. *Annals of the New York Academy of Sciences,* 836: 302–328.

Linehan, M.M., Armstrong, H.E., Suarez, A., Allmon, D., & Heard, H.L. (1991) Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry,* 48(12): 1060–1064.

Linehan, M.M., Comtois, K.A., Murray, A.M., Brown, M.Z., Gallop, R.J., Heard, H.L., Korslund, K.E., Tutek, D.A., Reynolds, S.K., & Lindenboim, N. (2006) Two-year randomised controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of General Psychiatry,* 63(7): 757–766.

Linehan, M.M., Heard, H.L., &, Armstrong, H.E. (1993 Dec) Naturalistic follow-up of a behavioral treatment for chronically parasuicidal borderline patients. *Archives of General Psychiatry,* 50(12): 971–974.

Low, G., Jones, D., Duggan, C., Power, M., & MacLeod, A. (2001) The treatment of deliberate self-harm in borderline personality disorder using dialectical behaviour therapy: A pilot study in a high security hospital. *Behavioural and Cognitive Psychotherapy,* 29(1): 85–92.

Luoma, J.B., Martin, C.E., & Pearson, J.L., (2002) Contact with mental health and primary care providers before suicide: a review of the evidence. *American Journal of Psychiatry,* 159: 909–916.

Macgowan, M.J. (2004) Psychosocial treatment of youth suicide: A systematic review of the research. *Research on Social Work Practice,* 14(3): 147–162.

Mann, J.J., Apter, A., Bertolote, J., Beautrais, A., Currier, D., Haas, A., Hegerl, U., Lonnqvist, J., Malone, K., Marusic, A., Mehlum, L., Patton, G., Phillips, M., Rutz, W., Rihmer,

Z., Schmidtke, A., Shaffer, D., Silverman, M., Takahashi, Y., Varnik, A., Wasserman, D., Yip, P., & Hendin, H. (2005). Suicide prevention strategies: A systematic review. *Journal of the American Medical Association,* 294: 2064–2074.

Manning, S.Y. (1986) The effects of a cognitive-behavioral treatment on females with borderline personality disorder. *Dissertation Abstracts International Section A: Humanities and Social Sciences,* 57(7-A): 2880.

Mays N., & Pope C. (2000) Assessing quality in qualitative research. *British Medical Journal,* 320: 50–52.

Mays, N., Pope, C., & Popay, J. (2005) Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *Journal of Health Services Research and Policy* 2005, 10(Suppl 1): 6–20.

McLeavey, B.C., Daly, R.J., Ludgate, J.W., & Murray, C.M. (1994) Interpersonal problem-solving skills training in the treatment of self-poisoning patients. *Suicide and Life Threatening Behavior,* 24(4): 382–394.

McMain, S. (2007) Effectiveness of psychosocial treatments on suicidality in personality disorders. *Canadian Journal of Psychiatry,* 52(6 Suppl 1): 103s–114s.

McQuillan, A., Nicastro, R., Guenot, F., Girard, M., Lissner, C., & Ferrero, F. (2005) Intensive dialectical behavior therapy for outpatients with borderline personality disorder who are in crisis. *Psychiatric Services,* 56(2): 193–197.

Meltzer, H., Harrington, R., Goodman, R., & Jenkins, R.. (2002). *Children and Adolescents Who Try to Harm, Hurt or Kill Themselves. A Report of Further Analysis from the National Survey of the Mental Health of Children and Adolescents in Great Britain in 1999*. London: Office for National Statistics.

Melvin, G.A., Tonge, B.J., King, N.J., Heyne, D., Gordon, M.S., & Klimkeit, E. (2006) A comparison of cognitive-behavioral therapy, sertraline, and their combination for adolescent depression. *Journal of the American Academy of Child and Adolescent Psychiatry,* 45(10): 1151–1161.

Modestin, J., Schwarzenbach, F.A., & Wurmle, O. (1992) Therapy factors in treating severely ill psychiatric patients. *British Journal of Medical Psychology,* 65: 147–156.

Morris, S.B. (2000) Distribution of the standardized mean change effect size for meta-analysis on repeated measures. *British Journal of Mathematical and Statistical Psychology,* 53: 17–29.

Morrison, L.L., & Downey, D.L. (2000) Racial differences in self-disclosure of suicidal ideation and reasons for living: Implications for training. *Cultural Diversity and Ethnic Minority Psychology,* 6(4): 374–386.

Motto, J.A., & Bostrom, A.G. (2001). A randomised controlled trial of postcrisis suicide prevention. *Psychiatric Services*, 52: 828–833.

Mueller, T., & Marci, M. (2007) Dialectical behavior therapy: A community-based outcome study. *Dissertation Abstracts International: Section B: The Sciences and Engineering,* 68(1-B): 630.

Nafisi, N. (2007) Developing and maintaining the therapeutic alliance with self-injuring patients. *Journal of Clinical Psychology,* 63(11): 1069–1079.

National Collaborating Centre for Mental Health. (2004). *Self-Harm: The Short-Term Physical and Psychological Management and Secondary Prevention of Self-Harm in Primary and Secondary Care*. Leicester: British Psychological Society.

Nee, C., & Farman, S. (2005) Female prisoners with borderline personality disorder: some promising treatment developments. *Criminal Behaviour and Mental Health,* 15: 2–16.

Nee, C., & Farman, S. (2007) Dialectical behaviour therapy as a treatment for borderline personality disorder in prisons: Three illustrative case studies. *Journal of Forensic Psychiatry and Psychology,* 18(2): 160–180.

Neimeyer, R., Firtner, B., & Melby, D. (2001) Personal and professional factors and suicide intervention skills. *Suicide and Life-Threatening Behavior,* 31(1): 71–82.

NHS Centre for Reviews and Dissemination. (1998). Deliberate self-harm. *Effective Health Care,* 4: 1–12.

NHS Centre for Reviews and Dissemination. (2001). *Undertaking Systematic Reviews of Research on Effectiveness*. CRD Report Number 4 (2nd Edition). York.

Noblit, G.W., & Hare, R.D. (1988) *Meta-Ethnography: Synthesizing Qualitative Studies*. Newbury Park: Sage.

Nordentoft, M., Jeppersen, P., Abel, M., Kassow, P., Petersen, L., Thorup, A., Krarup, G., Hemmingsen, R., & Jørgensen, P. (2002) OPUS study: suicidal behavior, suicidal ideation and hopelessness among patients with first episode psychosis. *British Journal of Psychiatry,* 181(suppl. 43): 98–106.

Nordentoft, M., Branner, J., Derjer, K., Mejsholm, B., Hansen, H., & Petersson, B. (2005) Effect of a Suicide Prevention Centre for young people with suicidal behavior in Copenhagen. *European Psychiatry,* 20: 121–128.

Overholser, J.C. (2002) Contemporary psychotherapy: gold mines and land mines. *Journal of Contemporary Psychotherapy,* 32(4): 249–258.

Owens, D., Horrocks, J., & House, A. (2002). Fatal and non-fatal repetition of self-harm. Systematic review. *British Journal of Psychiatry,* 181: 193–199.

Paris, J., Brown, R., & Nowlis, D. (1987) Long-term follow up of borderline patients in a general hospital. *Comprehensive Psychiatry,* 28(6): 530–535.

Patsiokas, A.T., & Clum, G.A. (1985) Effects of psychotherapeutic strategies in the treatment of suicide attempters. *Psychotherapy: Theory, Research, Practice, Training,* 22(2): 281–290.

Paulson, B., & Everall, R.D. (2003) Suicidal adolescents: helpful aspects of psychotherapy. *Archives of Suicide Research,* 7(4): 309–321.

Perseius, K.I., Ojehagen, A., Ekdahl, S., Asberg, M., & Samuelsson, M. (2003) Treatment of suicidal and deliberate self-harming patients with borderline personality disorder using dialectical behavioral therapy: the patients' and the therapists' perceptions. *Archives of Psychiatric Nursing,* 17(5): 218–227.

Persons, J.B., & Silberchatz, G. (1998) Are results of randomised controlled trials useful to psychotherapists? *Journal of Consulting and Clinical Psychology,* 66(1): 126–135.

Power, P.J., Bell, R.J., Mills, R., Herrman-Doig, T., Davern, M., Henry, L., Yuen, H.P., Khademy-Deljo, A., & McGorry, P.D. (2003) Suicide prevention in first episode psychosis: the development of a randomised controlled trial of cognitive therapy for acutely suicidal patients. *The Australian and New Zealand Journal of Psychiatry,* 37(4): 414–420.

Prendergast, N., & McCausland, J. (2007) Dialectical Behaviour Therapy: a 12 month collaborative program in a local community. *Behaviour Change,* 24(1): 25–35.

Raj, M.A.J., Kumaraiah, V., & Bhide, A.V. (2001) Cognitive-behavioural intervention in deliberate self-harm. *Acta Psychiatrica Scandinavica,* 104(5): 130–135.

Rathus, J.H., & Miller, A.L. (2002) Dialectical behavior therapy adapted for suicidal adolescents. *Suicide & Life-Threatening Behavior,* 32(2): 146–157.

Reeves, A., Bowl, R., Wheeler, S., & Guthrie, E. (2004) The hardest words: Exploring the dialogue of suicide in the counselling process-A discourse analysis. *Counselling & Psychotherapy Research,* 4(1): 62–71.

Reeves, A., & Mintz, R. (2001) Counsellors' experiences of working with suicidal clients: An exploratory study. *Counselling & Psychotherapy Research*, 1(3): 172–176.

Rogers, C. (1957) The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology,* 21(2): 95–103.

Romans, S.E., Martin, J.L., Anderson, J.C., Herbison, G.P., & Mullen, P.E. (1995) Sexual abuse in childhood and deliberate self-harm. *American Journal of Psychiatry,* 152: 1336–1342.

Rotheram-Borus, M.J., Piacentini, J., Van Rossem, R., Graae, F., Cantwell, C., Castro-Blanco, D., Miller, S., & Feldman, J. (1996) Enhancing treatment adherence with a specialized emergency room program for adolescent suicide attempters. *Journal of the American Academy of Child and Adolescent Psychiatry,* 35(5): 654–663.

Rubenstein, H.J. (2003) Psychotherapists' experiences of patient suicide. *Dissertation Abstracts International: Section B: The Sciences and Engineering,* 63(9-B): 4385.

Rucci, P., Frank, E., Kostelnik, B., Fagiolini, A., Mallinger, A.G., Swartz, H.A., Thase, M.E., Siegel, L., Wilson, D., & Kupfer, D.J. (2002) Suicide attempts in patients with bipolar I disorder during acute and maintenance phases of intensive treatment with pharmacotherapy and adjunctive psychotherapy. *American Journal of Psychiatry,* 159(7): 1160–1164.

Rudd, M.D., Rajab, M.H., Orman, D.T., Joiner, T., Stulman, D.A., & Dixon, W. (1996) Effectiveness of an outpatient intervention targeting suicidal young adults: preliminary results. *Journal of Consulting and Clinical Psychology,* 64(1): 179–190.

Ryan, R., Hill, S., Broclain, D., Horey, D., Oliver, S., & Prictor, M. (2007) *Cochrane Consumers and Communication Review Group*. Study Quality Guide.

Sachsse, U., Vogel, C., & Leichsenring, F. (2006) Results of psychodynamically oriented trauma-focused inpatient treatment for women with complex posttraumatic stress disorder (PTSD) and borderline personality disorder (BPD). *Bulletin of the Menninger Clinic,* 70(2): 125–144.

Salkovskis, P.M., Atha, C., & Storer, D. (1990) Cognitive-behavioural problem solving in the treatment of patients who repeatedly attempt suicide. A controlled trial. *British Journal of Psychiatry,* 157: 871–876.

Samaraweera, S., Sivayogan, S., Sumathipala, A., Bhugra, D., & Siribaddana, S. (2007) RCT of Cognitive Behaviour Therapy in active suicidal ideation-as feasibility study in Sri Lanka. *European Journal of Psychiatry,* 21(3): 175–178.

Sandelowski, M., Docherty, S., & Emden, C. (1997) Qualitative metasynthesis: issues and techniques. *Research in Nursing and Health,* 20: 365–371.

Sander, L., & Kitcher, H. (2006). *Systematic and other reviews: terms and definitions used by UK organisations and selected databases. Systematic review and Delphi survey*. National Institute for Health and Clinical Excellence.

Schulz, K., Chalmer, I., Hayes, R.J., & Altamn, D.G. (1995) Empirical evidence of bias. Dimensions of methodological quality associated with estimates of treatment effects in controlled clinical trials. *Journal of the American Medical Association,* 273: 408–412.

Sinclair, J., Gray, A., & Hawton, K. (2006) Systematic review of resource utilization in the hospital management of deliberate self-harm. *Psychological Medicine,* 36: 1681–1693.

Sinclair, J., & Green, J. (2005) Understanding resolution of deliberate self harm: qualitative interview study of patients' experiences. *British Medical Journal,* 330(7500): 1112–1115.

Singleton, N., Meltzer, H., Gatward, R., Cold, J., & Deasy, D. (1998) *Psychiatric morbidity among prisoners: summary report*. Office for National Statistics.

Slife, B.D. (2004) Theoretical challenges to therapy practice and research: the constraint of naturalism. In M.J. Lambert (ed.), *Bergin and Garfield's Handbook of Psychotherapy and Behavior Change,* (pp. 44–83). New York: Wiley.

Spencer, L., Ritchie, J., Lewis, J., & Dillon, L. (2003) *Quality in qualitative evaluation: A framework for assessing research evidence. A Quality Framework*. London: National Centre for Social Research.

Springer, T., Lohr, N.E., Buchtel, H.A., & Silk, K.R. (1996) A preliminary report of short-term cognitive-behavioral group therapy for inpatients with personality disorders. *Journal of Psychotherapy Practice and Research,* 5(1): 57–71.

Stanley, B., Brodsky, B., Nelson, J.D., & Dulit, R. (2007) Brief dialectical behavior therapy (DBT-B) for suicidal behavior and non-suicidal self injury. *Archives of Suicide Research,* 11(4): 337–341.

Stata Corporation. (2005) *Stata statistical software: Release 9.0.* College Station, TX: Author.

Stevenson, J., Meares, R., & D'Angelo, R. (2005) Five-year outcome of outpatient psychotherapy with borderline patients. *Psychological Medicine,* 35(1): 79–87.

Stevenson, J., & Meares, R. (1992) An outcome study of psychotherapy for patients with borderline personality disorder. *American Journal of Psychiatry,* 149(3): 358–362.

Storey, P., Hurry, J., Jowitt, S., Owens, D., & House, A. (2005) Supporting young people who repeatedly self-harm. *Journal of the Royal Society for the Promotion of Health,* 125: 71–75.

Tarrier, N., Haddock, G., Lewis, S., Drake, R., & Gregg, L. (2006) Suicide behaviour over 18 months in recent onset schizophrenic patients: the effects of CBT. *Schizophrenia Research,* 83(1): 15–27.

Tarrier, N., Tayplor, K., & Gooding, P. (2008) Cognitive-behavioral interventions to reduce suicide behavior. A systematic review and meta-analysis. *Behavior Modification,* 32(1): 77–108.

Thomas, J., & Harden, A. (2007) *Methods of the thematic synthesis of qualitative research in systematic reviews*. London: Eppi-Centre, Social Science Research Unit, Institute of Education, University of London.

Thomas, J., Sutcliffe, K., Harden, A., Oakley, A., Oliver, S., Rees, R., Brunton, G., & Kavanagh, J. (2003) *Children and Healthy Eating: A Systematic Review of Barriers and Facilitators*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London

Torhorst, A., Moller, H.J., Burk, F., Kurz, A., Wachtler, C., & Lauter, H. (1987) The psychiatric management of parasuicide patients: a controlled clinical study comparing different strategies of outpatient treatment. *Crisis,* 8(1): 53–61.

Townsend, E., Hawton, K., Altamn, D.G., Arensman, E., Gunnel, D., Hazell, P., House, A., & van Heeringe, K. (2001) The efficacy of problem-solving treatments after deliberate self-harm: meta-analysis of randomised controlled trials with respect to depression, hopelessness and improvement in problems. *Psychological Medicine,* 31: 979–988.

Turner, R.M. (2000) Naturalistic evaluation of dialectical behavior therapy-oriented treatment for borderline personality disorder. *Cognitive & Behavioral Practice,* 7(4): 413–419.

Tyrer, P., Thompson, S., Schmidt, U., Jones, V., Knapp, M., Davidson, K., Catalan, J., Airlie, J., Baxter, S., Byford, S., Byrne, G., Cameron, S., Caplan, R., Cooper, S., Ferguson, B., Freeman, C., Frost, S., Godley, J., Greenshields, J., Henderson, J., Holden, N., Keech, P., Kim, L., Logan, K., & Manley, C., MacLeod, A., Murphy, R., Patience, L., Ramsay, L., De Munroz, S., Scott, J., Seivewright, H., Sivakumar, K., Tata, P., Thornton, S., Ukoumunne, O., & Wessely, S. (2003) Randomised controlled trial of brief cognitive behaviour therapy versus treatment as usual in recurrent deliberate self-harm: the POPMACT study. *Psychological Medicine,* 33(6): 969–976.

Uncapher, H., & Arean, P.A. (2000) Physicians are less willing to treat suicidal ideation in older patients. *Journal of American Geriatric Society*, 48: 188–192.

Unutzer, J., Tang, L., Oishi, S., Katon, W., Williams, J.W. Jr., Hunkeler, E., Hendrie, H., Lin, E.H., Levine, S., Grypma, L., Steffens, D.C., Fields, J., & Langston, C. (2006) Reducing suicidal ideation in depressed older primary care patients. *Journal of American Geriatric Society,* 54(10): 1550–1556.

van den Bosch, L.M., Koeter, M.W., Stijnen, T., Verheul, R., & van den Brink, W. (2005) Sustained efficacy of dialectical behaviour therapy for borderline personality disorder. *Behaviour Research and Therapy,* 43(9): 1231–1241.

van der Sande, R., Buskens, E., Allart, E., van der Graaf, Y. and van Engeland, H. (1997) Psychosocial intervention following suicide attempt: a systematic review of treatment interventions. *Acta Psychiatrica Scandinavica,* 96: 43–50.

van der Sande, R., van Rooijen, L., Buskens, E., Allart, E., Hawton, K., van der Graaf, Y., & van Engeland, H. (1997) Intensive in-patient and community intervention versus routine care after attempted suicide. A randomised controlled intervention study. *British Journal of Psychiatry,* 171: 35–41.

Verheul, R., Van Den Bosch, L.M., Koeter, M.W., De Ridder, M.A., Stijnen, T., & Van Den Brink, W. (2003) Dialectical behaviour therapy for women with borderline personality disorder: 12-month, randomised clinical trial in The Netherlands. *British Journal of Psychiatry,* 182: 135–140.

Walsh, B.W., & Rosen, P.M. (1988). *Self-Mutilation: Theory, Research and Treatment*. New York: Guilford.

Wampold, B.E. (2001). *The Great Psychotherapy Debate: Models, Methods, and Findings*. Mahwah, NJ: Erlbaum. Lawrence Erlbaum Assoicates.

Warm, A., Murray, C., & Fox, J. (2002) Who helps? Supporting people who self-harm. *Journal of Mental Health,* 11(2): 121–130.

Warren, F., Evans, C., Dolan, B., & Norton, K. (2004) Impulsivity and self-damaging behaviour in severe personality disorder: The impact of democratic therapeutic community treatment. *Therapeutic Communities: International Journal for Therapeutic and Supportive Organizations,* 25(1): 55–71.

Weinberg, I., Gunderson, J.G., Hennen, J., & Cutter, C.J. (2006) Manual assisted cognitive treatment for deliberate self-harm in borderline personality disorder patients. *Journal of Personality Disorders,* 20(5): 482–492.

Wheatley, M. (2000) *An evaluation of the efficacy of promoting the use of problem focused coping skills in repetitive deliberately self-harming adolescents*. Unpublished, D.Clin.Psych. thesis, University of Leicester, 53–15019.

Wheatley, M., & Hollin, C. (2005) The development of behavioural coping skills in a repetitive and deliberately self-harming young woman. *Behavioural and Cognitive Psychotherapy,* 33(2): 237–242.

Wholey, J.S., Hatry, J.S., & Newcomer, K.E. (2004) *Handbook of Practical Program Evaluation (2nd Ed)*. Washington: Wiley.

Wilberg, T., Friis, S., Karterud, S., Mehlum, L., Urnes, O., & Vaglum, P. (1998) Outpatient group psychotherapy: A valuable continuation treatment for patients with borderline personality disorder treated in a day hospital? A 3-year follow-up study. *Nordic Journal of Psychiatry,* 52(3): 213–221.

Wingate, L.R., Van Order, K.A., Joiner, T.E., Williams, F.M., & Rudd, D. (2005) Comparison of compensation and capitalization models when treating suicidality in young adults. *Journal of Consulting and Clinical Psychology,* 73(4): 756–762.

Winter, D., Sireling, L., Riley, T., Metcalfe, C., Quaite, A., & Bhandari, S. (2007) A controlled trial of personal construct psychotherapy for deliberate self-harm. *Psychology and Psychotherapy,* 80(1): 23–37.

Wood, A., Trainor, G., Rothwell, J., Moore, A., & Harrington, R. (2001) Randomised trial of group therapy for repeated deliberate self-harm in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry,* 40(11): 1246–1253.

Wulsin, L., Valliant, G.E., & Wells, V.E. (1999) A systematic review of the mortality of depression. *Psychosomatic Medicine,* 61: 6–17.

www.latrobe.edu.au/cochrane/resources.html (accessed 08/06/2008).

Zinkler, M., Gaglia, A., Arokiadass, S.M.R., & Farhy, E. (2007) Dialectal behaviour treatment: Implementation and outcomes. *Psychiatric Bulletin,* 31(7): 249–252.

Appendices

Appendix A: Search strategies for databases

Cochrane

Search name: Cochrane prevention suicide
Comments: 07/02/08
Save date: 2008-02-07 09:29:30

ID	Search
#1	(self harm):ti,ab,kw
#2	(self-harm):ti,ab,kw
#3	(deliberate self harm):ti,ab,kw
#4	(self-injurious behaviour):ti,ab,kw
#5	(self mutilation):ti,ab,kw
#6	(self destructive behaviour):ti,ab,kw
#7	(suicid*):ti,ab,kw
#8	(attempted suicide):ti,ab,kw
#9	(parasuicide):ti,ab,kw
#10	(suicid* ideation):ti,ab,kw
#11	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10)
#12	MeSH descriptor Psychotherapy explode all trees
#13	(counsel*):ti,ab,kw
#14	(psychodynamic therapy):ti,ab,kw
#15	(dialectical behavioural therapy):ti,ab,kw
#16	(#12 OR #13 OR #14 OR #15)
#17	(#16 AND #11)

CINAHL

Database: CINAHL – Cumulative Index to Nursing & Allied Health Literature <1982 to February Week 3 2008>

Search strategy:

1. exp SUICIDE/ (6397)
2. parasuicid$2.mp. [mp<title, subject heading word, abstract, instrumentation] (72)
3. self harm.mp. or Injuries, Self-Inflicted/ (981)
4. deliberat* self harm.mp. [mp<title, subject heading word, abstract, instrumentation] (150)
5. (self adj2 poisoning).mp. [mp<title, subject heading word, abstract, instrumentation] (100)
6. self mutilation.mp. (83)
7. 1 or 2 or 3 or 4 or 5 or 6 (7232)
8. exp PSYCHOTHERAPY/ (43933)
9. PSYCHOANALYSIS/ (257)
10. cognitive behavio?r therapy.mp. (774)
11. dialectical behavio?r therapy.mp. (58)
12. exp COUNSELING/ (8136)
13. group counsel*.mp. (301)
14. problem solving therapy.mp. (259)
15. 8 or 9 or 10 or 11 or 12 or 13 or 14 (50761)
16. 7 and 15 (721)
17. from 16 keep 1-721 (721)

PsycINFO

Database: PsycINFO <1806 to February Week 2 2008>

Search strategy:

1. exp SUICIDE/ (15081)
2. parasuicid*.mp. [mp<title, abstract, heading word, table of contents, key concepts] (665)
3. self-poisoning.mp. (351)
4. self-harm.mp. (1469)
5. deliberat* self harm.mp. [mp<title, abstract, heading word, table of contents, key concepts] (558)
6. auto aggression.mp. [mp<title, abstract, heading word, table of contents, key concepts] (11)
7. exp Self Destructive Behavior/ (22594)
8. 1 or 2 or 3 or 4 or 5 or 6 or 7 (23160)
9. exp PSYCHOTHERAPY/ (140281)
10. exp COUNSELING/ (56065)
11. dialectical behavio?r therapy.mp. (435)
12. exp Psychotherapeutic Processes/ (37256)
13. 9 or 10 or 11 or 12 (187380)
14. 8 and 13 (1672)
15. from 14 keep 1-1672 (1672)

Embase

Database: EMBASE <1980 to 2008 Week 07>

Search strategy:

1. exp Suicidal Behavior/ (27752)
2. parasuicid$2.mp. [mp<title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer name] (468)
3. exp Automutilation/ or self harm.mp. (4826)
4. (deliberate adj self adj harm).mp. [mp<title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer name] (460)
5. (self adj2 injuries).mp. [mp<title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer name] (249)
6. 1 or 2 or 3 or 4 or 5 (31290)
7. exp PSYCHOTHERAPY/ (73128)
8. exp PSYCHOANALYSIS/ (15216)

PUBMED

#6 Search “Self-Injurious Behavior”[Mesh] OR “Self Mutilation”[Mesh] OR (“Suicide”[Mesh] OR “Suicide, Attempted”[Mesh]) 10:17:30 39853

#9 Search self-harm 10:19:22 1156

#10 Search suicid* ideation 10:19:36 2510

#11 Search self inflicted wounds 10:19:49 757

#12 Search auto aggression 10:19:59 99

#18 Search (“Psychotherapy”[Mesh] OR “Psychotherapy, Rational-Emotive”[Mesh] OR “Psychotherapy, Brief”[Mesh] OR “Imagery (Psychotherapy)”[Mesh] OR “Psychotherapy, Multiple”[Mesh] OR “Psychotherapy, Group”[Mesh] OR “Cognitive Therapy”[Mesh] OR “Electroconvulsive Therapy”[Mesh]) OR (“Counseling”[Mesh] OR “Directive Counseling”[Mesh]) 10:23:08 144575

#21 Search problem solving therapy 10:24:21 5231

#22 Search dialectical behavior therapy 10:24:33 139

#24 Search group counseling 10:25:37 9522

#25 Search (((#6) OR (#9)) OR (#10)) OR (#11) 10:26:50 41111

#26 Search (((#18) OR (#21)) OR (#22)) OR (#24) 10:27:20 153803

#27 Search (#25) AND (#26) 10:30:30 3490

For Index to Theses (searched February Week 2, 2008) search terms self-harm and attempted suicide were used. A total of 79 papers were identified and three were used in the review that were not identified in the other database searches listed above.

Appendix B: Excluded, omitted and inaccessible studies

Table 1: Studies excluded for not meeting inclusion criteria after retrieval of full paper

Study	Reason for exclusion
Althaus (2003)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.
Atha C (1992)	The study does not report on clients, of whatever age regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or at risk of suicide.
Aviram (2004)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Barash (1986)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied.
Bergman (1975)	The study does not report on clients, of whatever age regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or at risk of suicide.
Bergmans (2002)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Billings (1974)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied
Bruce (2004)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.
Fleischhaker (2005)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Franke (2007)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Goldston (2001)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.
Kaminer (1987)	The study does not report on clients, of whatever age regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or at risk of suicide.
Kern (1997)	The study does not report on clients, of whatever age regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or at risk of suicide.
Korner (2007)	The study report is not related to an intervention that has a counselling or psychotherapy component to it
Kurz (1982)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.
Lohner (2006)	The study evaluates a multi-modal treatment including pharmacological treatment.
Maultsby (1975)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Miller (1997)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied.
Milnes (2002)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied.
Nidiffer (1980)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied.
Rangaraj (2007)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied
Rhee (2005)	The inclusion criteria for this study was participants at no or low risk of suicide.
Roberts-Dobie (2007)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Rucci (2002)	The study evaluates a multi-modal treatment including pharmacological treatment.
Schwarzenbach (1993)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.
Shapiro (1991)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Shearin (1994)	The study reports the results of several other studies.
Turkington (2002)	The study does not report on clients, of whatever age regardless of psychiatric diagnosis, who are engaging in suicidal behaviour or at risk of suicide.
Walsh (2001)	The study report is not related to an intervention that has a counselling or psychotherapy component to it.

Walters (1983)	The 'evidence' is not a report or an evaluation with data or outcomes (of any kind).
Wassenaar (1987)	The study does not have an outcome measure of frequency of repetition of self-harm or suicidal behaviour, which in many cases is synonymous with self-harm, symptom measures, measures of suicidal ideation and hopelessness, and measures relevant to the focus of the approaches to psychotherapy and counselling studied.

Studies omitted due to difficulty in finding a translator

Christensen NB, Toft J, Petersen B et al. Psychotherapeutic day treatment of patients with severe personality disorders – results from the first 2 years. Original title: Psykoterapeutisk dagbehandling af svaert personlighedsforstyrrede patiente. Ugeskrift for Laeger. 2007; 169(1): 55–58. (Danish)

Dubois L, Walter M, Bleton L et al. Comparative and prospective study of a specific therapeutic protocol for young suicidal subjects: initial analysis of the psychiatric diagnosis, the therapeutic observance and the repetition rate at one year. Annales Medico-Psychologiques. 1999; 157(8): 557–561. (French)

Elsass P, Mathiasen EM, Dittman H et al. Context-sensitive psychotherapy. Nordisk Psykologi. 2000; 52(1): 19–36. (Danish)

Wulliemier F, Bovet J, Meylan D. The future of suicidal patients admitted to a general hospital. Comparative study of 2 methods of prevention recurrence and of suicides. Soz Praventivmed. 1979; 24(1): 73–88. (French)

Studies that are inaccessible due to scope of British Library

Bierdrager CN. The experience of providing psychotherapy to the self-mutilating patient: a phenomenological investigation. Dissertation Abstracts International: Section B: The Sciences and Engineering. 1997; 57(11-B): 7220. The reasons given for lack of retrieval is that the loan status of the item has changed to reference or short loan or the item is missing.

Billings J. The efficacy of group treatment with depressed and suicidal individuals in comparison with other treatment settings as regards the prevention of suicide. Dissertation Abstracts International. 1976; 36(12-B, Pt 1): 6369. This item has been lost from British Library stock and no alternative sources identified.

Gaynor EA. An exploratory evaluation of the treatment for women with borderline personality disorder using a short-term, time-limited, homogeneous group approach: a modification and application of dialectical behavior therapy. Dissertation Abstracts International: Section B: The Sciences and Engineering. 1999; 59(10-B): 5576. British Library unable to fulfil request.

Linehan MM. Therapy for borderline personality and drug abuse. 151st annual meeting of the American Psychiatric Association. 1998. Abstract only available.

Kononchuk NV. Individual psychotherapy for long-maladjusted persons with affective disorders who had attempted suicide. Trudy Leningradskogo Nauchno-Issledovatel'skogo Psikhonevrologicheskogo Instituta im V M Bekhtereva. 1988; 119:129–132. Could not be traced.

Tully L. The development and pilot testing of a cognitive-behavioural group psychotherapy intervention for women with a history of childhood sexual abuse who engage in self-injury. University of Toronto (Canada) PhD; 2005. Out of British Library's scope.

Appendix C: Extended details of data extracted for reviewing previous systematic reviews

Table 1: Extended details of data extracted for reviewing previous systematic reviews

Study	Gunnell and Frankel (1994)
Search strategy	Medline and Trial under search heading suicide prevention AND control AND published since 1975. British Library's BLAISE-line database. Hand searches of main psychiatric journals and references lists scanned.
Study selection assessment	Studies were included if they were targeting **suicide prevention with data on suicide rates**. **No restriction on type of study.** No details on inclusion or exclusion criteria. There are no individual data given for study details in terms of participants but some details on intervention. It is not stated how many reviewers selected the publications.
Data extraction	No information is given on data extraction
Study quality	There were only two RCTs and the authors state that the methodology used to assess these interventions contained potential biases. The other studies are ecological or make geographical comparisons.
Data synthesis	A narrative review was given on the individual studies. No attempts were made to draw comparisons due to the diverse nature of interventions. Sources of bias were not addressed although it was mentioned that over 40,000 participants would be needed to find a significant effect of a psychological intervention on suicide rates.
Conclusions	The catalytic convertor will lead to reduced lethality of car exhausts and reductions in suicides using this method. GP education programmes, the effectiveness of lithium and maintenance antidepressants, and limits on the quantity of medicines available over the counter or on prescription should all be evaluated. However the evidence from which this is obtained is from 'opinions of respected authorities based on clinical experience, descriptive studies, and reports of expert committees'. It is difficult to ascertain the study selection process considering they seemed to have omitted several randomised controlled trials on the reduction of suicidal behaviour. If **suicide rates** were all they based their findings on then the results are limited due to the large numbers needed and the considerable heterogeneity between studies that have no control group, poor methodology and no scientific rigor.
Allegiance effects	Department of Social Medicine (Gunnell), University of Bristol. No affiliation was mentioned or source of funding.
Study	**van der Sande, Buskens et al. (1997)**
Search strategy	Medline, Psyclit, Reference search- no grey lit or language. Search terms were given and searches were conducted from 1966 to present.
Study selection assessment	Included in the study were prospective randomised trials of psychosocial/psychotherapeutic treatment for suicide attempters and **prospective randomised trials** of interventions for suicide attempters aimed at improving compliance with aftercare. Only studies using **repeated suicide attempts** as the main outcome were included. There is no mention of how many reviewers did the initial selection of publications although from the final 31 papers these were examined by two of the authors separately.
Data extraction	Information on the outcome of treatment, type of intervention, study population and study methodology was retrieved. With regards to outcome, the actual numbers of patients who made repeated suicide attempts and the numbers in each treatment condition were retrieved. It is not stated how many did the data extraction or how any disagreement about the inclusion of a paper was resolved.
Study quality	Study quality did not seem to be assessed formally although attempts were made at discussing methodological flaws with regards to number of sessions in treatment – factors that may have influenced outcome and should have been accounted for.
Data synthesis	Meta analysis was conducted according to intervention type. Heterogeneity is assessed using chi-square. Statistical models were stated and sensitivity analyses were conducted on one intervention type- produced no significant result. Publication bias was addressed but no funnel plot. Ascertainment method was reported and all raw data to allow replicability.
Conclusions	Combined results of CBT appear to establish a significant reduction in repeated suicide attempts. However publication bias likely to have been present, only one trial of CBT was analysed on an intention to treat therefore the RR overall may well be an over-optimistic estimate of effect. Little evidence to suggest whether results can be extrapolated to other (sub) groups of patients. The quality of the review merited some elimination of bias. However by not addressing methodological flaws of the studies difficult to accept conclusions.
Allegiance effects	None mentioned.
Study	**Linehan (1997)**

Search strategy	Psychological Abstracts, Medline, Archives of the Suicide Information and Education Centre. No additional data reported on dates searched, terms used or any restrictions put in place.
Study selection assessment	The treatment under investigation had to target suicidal behaviour directly and apply a treatment designed specifically to reduce suicide. Studies without random assignment to condition, or a close approximation to randomisation, are not included. The treatment study had to select subjects because they were suicidal and **report outcomes on suicide ideation, parasuicidal acts, including suicide attempts and/or suicide**. There was only the primary reviewer.
Data extraction	There is no mention on how data was extracted or whether a second reviewer was involved to resolve disagreements.
Study quality	It is said that the quality of the studies and focus of the treatments were extremely variable, and no attempt is made to provide further insight. There is no formal quality appraisal instrument used which is unusual as all the studies are randomised controlled trials so allocation concealment could have been looked at.
Data synthesis	The studies were not combined for meta-analysis. Heterogeneity was discussed with regards to definition of suicide attempt – where in many cases none was given, and whether outcomes were measured blind. The results were calculated by the authors of the studies and were included when the value is ≥ 1.57, which is $p<.05$. No statistical analysis by the author is inferred. Publication bias was not addressed. Results were examined with relevance to high suicide risk groups.
Conclusions	The author states that the most important conclusion to be drawn is that treatment studies have not shown how to reduce the incidence of death by suicide among individuals going for help with suicidal behaviour or disorders associated with suicidal behaviour. The focus on high-risk suicidal individuals is warranted due to lack of treatment for these individuals to date. The author states how Linehan, Salkovskis and van Heeringen outpatient behavioural interventions are well designed and have promising results. These three studies included high suicide risk, which merits further replication. However without explicit mention of design we cannot be sure that the studies are free from bias and systematic error especially as one of the trials was conducted by the primary author of this review.
Allegiance effects	The author M Linehan is the forefront expert on DBT for BPD, a behavioural intervention that specifically targets parasuicidal acts.
Study	**Hawton, Townsend et al. (1999)**
Search strategy	Medline, Psyclit, Embase, CCTR- from 1966 to present and search terms used were included. Hand searching used, reference lists were checked and personal communication occurred. No mention of language restriction.
Study selection assessment	**Randomised controlled trials** that have examined the effectiveness of treatments of patients who have deliberately harmed themselves. The outcome measure used to assess the efficacy of treatment interventions was the **rate of repeated suicidal behaviour**. They did not include trials in which the participants were suicide ideators (without self-harm). One reviewer screened the abstract of all publications from original search strategy.
Data extraction	Data extraction was carried out independently by two reviewers. Disagreement was resolved through consensus discussions with a third reviewer. Data was sought out on allocation concealment and where repetition of self-harm data was missing.
Study quality	Quality of papers was rated by two independent reviewers blind to authorship, according to the quality of concealment of allocation. Where concealment not agreed a third reviewer intervened.
Data synthesis	Data was grouped according to type of intervention or where not possible they were reported singly. Data was analysed with Peto Odds ratio, heterogeneity was examined with chi-square. Sensitivity analyses were conducted by the exclusion of poor allocation concealment trials. Raw data was given in meta analysis and ascertainment records were given. Repetition of self-harm was not consistently measured across the studies, an idea that Linehan (1997) raised in her review about the lack of a consensus on what constitutes a suicide attempt versus an act of self-harm without suicide ideation. Publication bias was not addressed in a funnel plot although small sample size was acknowledged as inherent in trials and likely to cause publication bias.
Conclusions	Insufficient evidence remains on which to make firm recommendations about the most effective forms of treatment for patients who have engaged in DSH. No evidence of prior power analyses conducted in the trials. Quality of studies lends support to conclusions. Where recommendations have been made these are to be interpreted with caution due to small sample size, lack of replication which author states. There is no attempt to analyse results in light of effects on suicide rates, despite the strong association between DSH and eventual suicide. This study was conducted in accordance with the guidelines by the Cochrane Collaboration.
Allegiance effects	In the first instance Keith Hawton, consultant psychiatrist. Source of support: NHS Executive Anglia and Oxford Research and Development Program UK. No potential causes of conflict were mentioned.
Study	**Townsend, Hawton et al. (2001)**
Search strategy	Medline, Psyclit, Embase, CCTR- dates given and search term used. Hand searching used, reference lists were checked and personal communication occurred. No mention of language restriction.
Study selection assessment	Problem-solving **randomised controlled trials** from the Hawton review were examined with regards to depression, **hopelessness** and improvement in problems. PICO details are obviously the same as Hawton et al. (1999). One reviewer screened the abstracts of all publications from the original search strategy.

Data extraction	Data extraction was carried out independently by two reviewers. Disagreement was resolved through consensus discussions with a third reviewer.
Study quality	Concealment of the allocation sequence was quality assessment. Two reviewers independently applied the inclusion criteria to the potential studies and they applied quality criteria while blind to the study authors. Any disagreements were resolved by consensus with the help of a third party. The number of studies (six) in the systematic review limits generalisability of results.
Data synthesis	The studies were combined in meta-analysis based on fixed effects but also some findings on random effects analysis. They were grouped according to outcome measure – hopelessness, depression or improvement in problems. Heterogeneity was measured using chi-square. Publication bias not assessed and sensitivity analyses not conducted. Outcome measures were based on patient self-reports or assessment ratings made by blind assessors – lends credibility.
Conclusions	Conclude that problem-solving therapy appears effective for depression, hopelessness and problems among deliberate self-harm patients. This conclusion reflects the strength of the evidence presented in the small number of studies and participants and the measures taken in the review to prevent bias.
Allegiance effects	In the first instance Keith Hawton, consultant psychiatrist. Source of support: NHS Executive Anglia and Oxford Research and Development Program UK. No potential causes of conflict were mentioned.
Study	**Guo and Harstall (2002)**
Search strategy	PubMed, EMBASE, HealthSTAR, CINAHL, PsycINFO, Eric, Sociological Abstracts, EBM Reviews, Best Evidence, Web of Science (includes Science Citation Index, Social Sciences Citation Index and Arts and Humanities Citation Index), Cochrane Library. Search terms were included and dates searched from 1991–2001. Studies in English, German and Chinese were included. No searches of grey literature were included.
Study selection assessment	Clear inclusion and exclusion criteria for study mentioned with regards to PICO. **Primary controlled quantitative studies** that evaluated efficacy/effectiveness of **suicide prevention programme** for children and youth. This search was restricted (where possible) to studies of children and adolescents under the age of 18, and to systematic reviews, overviews or reviews in this area. Outcomes of interest were that the study had to report on suicide-related outcomes such as change in the awareness of suicide-related knowledge, suicide protective factors (personal control, coping skill etc), suicide-risk factors (depression, hopelessness, stress etc), or reduction in suicidal ideation and attempt rates or, if there is any, suicide rates.
Data extraction	Specific details are given on what data was extracted from each study through the use of a data extraction form. Details included are extensive in terms of type of participants, intervention, intervention length, level of follow-up, compliance etc. It is not mentioned how many reviewers did the extraction or how any disagreements were solved.
Study quality	All of the primary studies on suicide prevention programmes for children and youth were critically analysed using a quality measurement tool described by Ploeg et al. (1999). This included selection bias (representativeness of the sample and percentage of selected individuals who agree to participate); study design; control for confounders; blinding (of outcome assessors and study participants); validity and reliability of data collection methods; and withdrawals and drop-outs. This was presented in tabular form and discussed in the review. Two reviewers completed an independent critical appraisal of the quality of the primary studies. Disagreement was resolved by consultation. All appropriate criteria to capture quality of the studies.
Data synthesis	A narrative analysis is given of every study where they present their outcome data results. Due to the heterogeneity of the studies it was not possible to perform any sort of meta-analysis (ie different target interventions, outcome measures, interventions). Bias was examined in the studies, for example a common limitation of all of the studies was their dependence on student self-report for the assessment of programme impact, thus they have addressed validity.
Conclusions	The suicide prevention programs varied considerably in content, frequency, duration, and delivery. Thus it is difficult to draw general conclusions across studies. There was a lack of testing for validity and reliability of the outcome measurement tools employed in the primary studies. The majority of the studies were done in USA, which limits generalisablity. Most often the significant finding of change due to the prevention programmes were within the groups (pre/post changes) rather than significant differences between the control and experimental groups. Thus, the overall findings of this review suggest that there is insufficient evidence to support or not support curriculum-based suicide prevention programmes in schools.
Allegiance effects	Alberta Heritage Foundation for Medical Research Health Technology Assessment
Study	**Macgowan (2004)**
Search strategy	Campbell Collaboration's Social, Psychological, Educational and Criminological Trials Register, the abstracts of Cochrane Reviews, Psychinfo, PubMed and Social Work Abstracts. Search terms included, review articles scanned. All available dates included up to 2002. No language restriction mentioned, or grey lit or contacting experts.
Study selection assessment	Studies must have included samples consisting exclusively of adolescents (10–17) and studies must have included **outcomes directly related to suicidality, such as suicide ideation or suicide attempts.** Studies had to have at least two good between-group design experiments demonstrating efficacy by being superior (statistically significantly so) to placebo or another treatment or equivalent to an already established treatment in experiments. There is no visual representation of the study design and characteristics in a tabular form. It is not stated how many reviewers selected the papers.

Data extraction	It is not stated how data was extracted and it is inferred that it is the main author who extracted the data. There is no mention of missing data or attempts to obtain it; however, this is a narrative review so no raw data is given.
Study quality	The study quality was assessed by American Psychological Association's Division 12 Task Force (Chambless et al., 1996, 1998) that defines well-established and probably efficacious treatments – ie must specify characteristics of the client samples, statistical significant results of a treatment versus TAU, intent to treat analyses etc. Researchers blind to treatment condition was assessed. No mention of how many reviewers there were.
Data synthesis	This was a narrative review and informed of the potential biases in each of the individual studies described with regards to methodological weaknesses and intervention weaknesses. The review did not report any raw data so it is difficult to see when they write near significance how far off it was. Blinding was examined in the studies to see whether outcomes measures free from bias.
Conclusions	The review states that most of the studies were successful in reducing suicidality, if this is read in context of the limitations that the authors clearly point out to the readers then the conclusions hold some promise – that is despite the limitations. The review would have benefited from including the raw data to gain an idea of the impact of reducing suicidality. However, the checklist for what makes a good scientific study was firmly imprinted in this review.
Allegiance effects	Mark J Macgowan – School of Social Work, Florida International University. No conflicts of interest declared.
Study	**Mann, Apter et al. (2005)**
Search strategy	Medline, the Cochrane Library, Psychinfo between 1966–2005. Search terms were given. No language restrictions reported, grey lit, hand searching or contacting of experts.
Study selection assessment	Studies were included in they reported on **completed and attempted suicide and suicidal ideation**. There were three major types of studies – **systematic reviews, quantitative studies either randomised controlled trials or cohort studies and ecological or population-based studies.** All reports were identified by at least two authors.
Data extraction	No mention of how data was extracted or by whom. There is no raw data included in any of the studies, no systematic way of knowing what information the author has decided to include.
Study quality	No study quality appraisal methods are described. In the author contributions it is said Dr Mann takes full responsibility for the integrity of data and accuracy of data analysis – but no indication of methods.
Data synthesis	Data is synthesised into many different categories; the reasons why are not explained. A narrative analysis was confirmed. None of the criteria are met in this category.
Conclusions	'Suicide prevention is possible because up to 83 per cent of suicides have contact with a primary care physician within a year of their death and up to 66 per cent within a month.' However we do not know whether individuals can actually be identified by depression screening and whether treating depression actually reduces the risk. They included four studies on psychotherapy – studies that all had positive outcomes in terms of promising results. No indication of why they chose those particular trials when there is evidence that there are several more that could also have been included. This systematic review has no scientific quality in terms of reducing bias or reporting of the methods of the systematic review. It appears to have included only studies that have promising results.
Allegiance effects	Dr J Mann, MD, Department of Neuroscience, New York State Psychiatric Institute. Funding for the International Strategies Workshop was provided by an unrestricted educational grant from Pfizer Inc who had, it is stated, no involvement at any stage.
Study	**Burns, Dudley et al. (2005)**
Search strategy	Medline, PsycINFO, Embase, Eric, Cinahl, Cochrane, CCTR – dates not given. Search terms available from the author. Contacts in the field were approached for details of published and unpublished studies. Reference lists were checked, only English language studies included.
Study selection assessment	Studies included were randomised controlled trials, clinical control trials or quasi-experimental trials comparing an intervention with standard aftercare directed to adolescents or young adults identified through presentation to hospital with self-harm or otherwise engaging in self-harm. **Outcomes of interest were repetition of self-harm, adherence to treatment and reduction in suicidal ideation.** The number of reviewers selecting the publications for inclusion is not mentioned.
Data extraction	There is no mention of how data were extracted or how many reviewers performed the data extraction and what the procedure was for dealing with disagreements about a paper's potential inclusion.
Study quality	There is no mention of how quality of trials was assessed although there are some methodological limitations mentioned in the text. For example, treatment groups not being comparable at baseline limits the findings.
Data synthesis	The studies were grouped by type of intervention; any differences between the studies were discussed in the text. Additional information was presented in tabular format. Raw data was presented in the table; it is not ascertained how outcome measures were derived and whether any potential bias ensued.
Conclusions	There is limited evidence about the effects of treatments designed to reduce recurrence of self-harm in adolescents and young adults. Intensive interventions appeared to be no more effective than standard care. Further good quality research is required. It is not known whether any measures were taken to reduce bias and errors in the review methods therefore it is difficult to accept the authors' conclusions although no firm recommendations were made on treatment.

Allegiance effects	J Burns, Harkness Fellow in Health Care Policy. Review Funding Body is the National Health and Medical Research Council; 'beyond blue: the national depression initiative'.
Study	**Hepp, Wittamnn et al. (2004)**
Search strategy	Trials published between January 1996 and February 2003 using search strategy by Arensman et al. (2001) on the electronic databases Medline, CCTR and Trial. They checked the reference lists of all identified publications. No language restrictions are mentioned or grey literature searches.
Study selection assessment	Patients were included into the study after a suicide attempt, DSH or self-poisoning, **allocated randomly** to either intervention or control/comparison treatment group. The evaluated interventions can be regarded as psychological or psychosocial and **recurrence of attempted suicide or completed suicide, DSH or self-poisoning was an outcome measure**. They have a definitive term for attempted suicide, which is deliberate self-harm except for cases where studies emphasise a difference between DSH and attempted suicide. It is not stated how many reviewers selected the studies.
Data extraction	There is no mention of a data extraction form or the number of reviewers extracting the data or any information regarding how data was obtained.
Study quality	There is no quality assessment tool specified although some limitations of studies are mentioned, eg in some publications information regarding inclusion and exclusions criteria was insufficient.
Data synthesis	Studies are presented according to the psychological and psychosocial approach chosen for the intervention. Raw data is given in the table describing the studies. There is some explanation at differences between studies, eg the sample sizes range from 19 to 1932 patients. Effect measures are in percentages and no explanation is given to statistical tests used where data is said to be 'significant'.
Conclusions	None of the intervention studies was successful in significantly reducing the incidence of completed suicide. They report five studies that could provide some insight as to what could prevent repeated DSH. The only aspect they seem to address in limitations of findings is small sample size; no other bias is mentioned. The therapeutic alliance is mentioned with regard to adherence to treatment – a shared understanding of the patient's suicidality might help to re-establish a sense of mastery and to achieve a better therapeutic relationship, perhaps highlighting the need for more qualitative research. While this review has clear criteria for the study selection and a focused question, it provides no assessment of the elimination of bias that might be present in the studies. Without an examination of such it cannot be trusted that the studies mentioned are effective especially where in some cases no data is even reported.
Allegiance effects	U Hepp is part of the Psychiatric Department, University Hospital, Zurich.
Study	**Comtois and Linehan (2006)**
Search strategy	Not reported
Study selection assessment	Studies included in the review selected participants because they had made a self-inflicted injury or had high suicide risk, **reported outcomes on suicide ideation or self-inflicted injury, including suicide attempts and/or suicide**, evaluated a psychosocial intervention and **randomly assigned participants to a control condition** or if without randomisation, closely approximated a randomised design. It is not stated how many reviewers selected the publication.
Data extraction	There is no information about data extraction. There is no mention of the number of reviewers or how any disagreement was resolved.
Study quality	Studies had to be randomised, although the authors gave no indication of how they measured this in study selection or how they assessed the quality in the individual studies.
Data synthesis	Studies are evaluated under broad headings, comparing each study in the category against each other. For example, studies are examined with regards to efficacy for prevention of self-inflicted injuries. They are examined under the headings: aftercare, clinical management, CBT and other psychotherapies.
Conclusions	Psychosocial treatments, particularly CBT, hold promise as strategies to reduce risk of future self-inflicted injury in patients identified at high risk for subsequent suicidal behaviour. Dissemination of effective treatments for suicide prevention is difficult due to the lack of treatment manuals and training opportunities. Addresses the apparent success of therapeutic process in the home and attempts at increasing compliance, as does Hepp (2004). This review is a practice-friendly review and offers no attempt at being systematic or pertaining to scientific quality.
Allegiance effects	No conflicts of interest were reported; correspondence addressed to M Linehan.
Study	**Binks, Fenton et al. (2006)**
Search strategy	A systematic search of 26 specialist and general bibliographic databases, including grey literature. All search terms used and dates searched were given, eg in Psychinfo studies from 1872 to present. No mention of language restrictions. Hand searching was conducted.
Study selection assessment	All relevant clinical randomised controlled trials involving psychological treatments for people with BPD, the definition of which included behavioural, cognitive-behavioural, psychodynamic and psychoanalytic. Outcome measures included a broad range of psychological, social and behavioural measures as well as economic measures. **The measure relevant for inclusion in this scope of reviews was self-harm, including suicide**. Two reviewers inspected all electronic reports.

Data extraction	Three reviewers worked independently extracting data from selected trials. When disputes arose they resolved this by discussion. Authors were contacted in all cases regarding allocation concealment or outcome data of any kind.
Study quality	Quality was assessed by allocation concealment according to Cochrane handbook. Reviewers worked independently and attempted resolution by discussion. Randomisation was examined in each study, as was blinding, follow-up and outcomes. The authors state, 'the overall reporting of methods within the seven studies was not good and leaves all results as moderate risk of bias'.
Data synthesis	The systematic review wished to report on numerous outcomes, one of which is self-harm, including suicide, which is why this review is of interest. Heterogeneity, sensitivity analyses and intention to treat were all conducted. Publication bias would have been addressed had there been more than seven studies. The appropriate outcome data were reported. In four out of the seven studies behaviour outcome data of parasuicidal acts/self-harm were not used due to the fact that the scales used to measure this were not validated or published in a peer-reviewed journal and in some cases not reported.
Conclusions	DBT does seem to offer a small benefit over treatment as usual in preventing people undertaking acts of self-harm or parasucide. This is a consistent finding although it is not always statistically significant in the small trials. The studies are too few to inspire full confidence in their results which is supported by the scientific rigor of this SR.
Allegiance effects	The reviewers all work in either academic departments or forensic psychiatric units and some have had psychodynamic training. External source of support were the NHS National R&D Programme on Forensic Mental Health UK.
Study	**Crawford, Thomas et al. (2007)**
Search strategy	Embase, PsycINFO and Medline were searched using a broad range of search terms developed by Hawton (2000). Search dates were given (1966 to present) and previously published MAs and SRs of interventions following self-harm were retrieved. No grey literature was covered or language restrictions mentioned.
Study selection assessment	Studies were eligible if they were **randomised controlled trials**, involved patients who had harmed themselves in the period prior to entry into the trial, and compared additional or enhanced intervention with a form of control or standard care. **Mortality data was the outcome measure.** Two raters independently assessed all papers for possible inclusion in the review.
Data extraction	Two reviewers extracted the data, where disagreement ensued this was discussed in detail with a third reviewer. Attempted to obtain all mortality data if not reported from the authors.
Study quality	This review did not state how it assessed quality.
Data synthesis	As the interest was in exploring whether additional psychosocial treatment interventions had an impact on the likelihood of suicide, data was combined from all psychosocial interventions based on suicide rates in the MA. Appropriate effect measures were stated and raw data presented. Heterogeneity was examined by using the chi-square, as was publication bias.
Conclusions	No evidence was found from the meta-analysis that additional psychosocial interventions following self-harm have a marked effect on the likelihood of subsequent suicide. However, it is likely that by pooling psychosocial interventions the impacts of specific forms of intervention have been minimised. Eighteen out of 27 trials provided data for suicide deaths although complete mortality data were available in only 12 studies. Study power would have been increased if they had been able to obtain suicide data from the other nine trials that included a combined population of 2,914 participants. This review is adequate in scientific rigor although it does not explain the contents of the study in terms of specific interventions or the quality of the trials which would have made the findings more robust.
Allegiance effects	This project was funded by a grant from Imperial College London, which it is stated played no role in design or conduct of the study.
Study	**McMain (2007)**
Search strategy	Medline, Embase, PsychLit, CCTR using a range of search terms. Studies are identified prior to 2006. Search results were limited to English and there is no mention of grey literature.
Study selection assessment	This paper aimed to **evaluate treatment of suicidality** in borderline personality disorders. **There was an emphasis on well-controlled studies: randomised controlled trials were of most interest but uncontrolled trials and research based on quasi-experimental design were included as well**. It is not stated how many reviewers there were selecting the publications.
Data extraction	It is not stated how data was extracted or by whom.
Study quality	It is not stated how quality of the trials was assessed.
Data synthesis	The review is organised according to treatment approach as most studies were concerned with BPD patients. No meta-analysis was conducted or raw data given according to the RCTs examined. There is some mention of statistical power in studies in terms of interpretation of findings and limitations.

Conclusions	This review states that several different types of psychosocial interventions are associated with reductions in suicidal behaviour. The review states that it emphasises well-controlled trials but there is no systematic attempt to address this and so uncertainty arises about the conclusions. Different outcome assessment measures were used for gauging 'significance'. For example, in Binks (2006) four out of the seven studies did not use behaviour outcome data – parasuicidal acts/self-harm – due to the fact that the scales used to measure this were not validated or published in a peer reviewed journal and in some cases not reported. In this review findings differ due to lack of 'criteria'. However one of the recommendations, which has been reiterated by others, is that when suicidal behaviour is present it should be a priority target in treatment.
Allegiance effects	Dr S McMain, Centre for Addiction and Mental Health.
Study	**Tarrier, Taylor and Gooding (2008)**
Search strategy	PsycINFO, WOS, reference lists and hand searches of relevant journals. Searches were undertaken from 1980 and search terms were reported. Language restrictions not mentioned, nor grey literature.
Study selection assessment	Studies were included if they were published in a refereed journal and if they included a treatment group that consisted of a form of cognitive, behavioural or CBT or a substantial component of cognitive-behavioural, cognitive or behavioural methods in the treatment; a control group as a comparison and **any kind of self-harm or suicide behaviour as an outcome measure – completed suicides, suicide attempts, suicide intent and/or plans and suicide ideation.** It is not stated how many reviewers were selecting the publications.
Data extraction	It is not stated how data was extracted or by how many reviewers. However, in cases where there was any doubt of inclusion of an article these were read by all three co-authors and a consensus decision reached. Most proximal measure of suicidal behaviour was stated so always had access to data although in some cases this differed dramatically, eg hopelessness versus suicide attempt.
Study quality	Study was assessed using the Clinical Trials Assessment Measure where relevant design and methodological features were taken from Consort, expert opinion and a review of 25 trial assessment scales. Resulting list had data on sample size, recruitment method, allocation to treatment, assessment of outcome, control groups, description of treatments and data analysis. It is interesting to note that the study with the highest CTAM score was Tarrier (2006). It is not mentioned how many evaluated the studies.
Data synthesis	Data was synthesised in a meta-analysis of cognitive behavioural therapy in the reduction of suicide behaviour. A random effects model was used to take account of variation in the outcomes. However, the outcomes differed dramatically, and caution is necessary in interpreting results. Subgroup analyses were conducted and publication bias was addressed and found to be present. The issue of blinding was not addressed.
Conclusions	There was a highly significant effect for CBT in reducing suicide behaviour, which was defined as completed suicides, suicide attempts, suicide intent and/or plans, and suicide ideation. Maintain that suicide behaviour lies on a continuum from ideation, through intent and planning. The nature of the treatment was incredibly diverse with regards to DBT, CT, problem solving, family therapy, indirect (ie reduction of psychotic symptoms in schizophrenic patients). The structure of the treatment showed considerable variation. Treatment was described as being delivered by a range of professionals with varying levels of training and experience. Studies varied in number of therapists used, with a range of one to 41. The quality of this review addressed some important methodological flaws of the studies. However, due to the tremendous variation in treatment, duration, client group and quality of study, this review needs to have more focus on what particular aspects of therapy are effective, in what setting and with what clients before the conclusions can be trusted.
Allegiance effects	Nicolas Tarrier is a clinical psychologist whose research interests are in the development and evaluation of CBT, especially in psychosis, and he is currently interested in understanding and developing ways of preventing suicide behaviour in psychosis.

Appendix D: Quality criteria assessment

Table 1: Quality criteria assessment for randomised controlled trials

Study	Were participants assigned to treatments randomly?	Was treatment allocation concealed?	Were groups similar in baseline characteristics?	Was assessment of outcome made unaware of assigned intervention?	Were results for outcome recorded appropriately?	Was a power calculation used?	Was intention to treat used?	Is loss to follow-up addressed?	Total
Allard (1992)	Partially	Partially	Yes	No	Yes	No	Yes	Yes	5.5
Bateman (1999)*	Yes	Yes	Yes	Unclear	Yes	Unclear	Yes	Yes	6
Brent (1997)**	Unclear	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	6
Brown (2005)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	7
Davidson (2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8
Donaldson (2005)	Unclear	Unclear	Yes	Unclear	Yes	No	Yes	Yes	4
Evans (1999)	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	7
Goodyer (2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	7
Gratz (2006)	Unclear	Unclear	Yes	Unclear	Yes	No	Yes	Yes	4
Grawe (2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8
Guthrie (2001)	Yes	Unclear	Yes	Yes	Yes	No	Yes	Yes	6
Harrington (1998)	Yes	Yes	Yes	Partially	Yes	Yes	Yes	Unclear	6.5
Hawton (1981)	Yes	Yes	Yes	Yes	Unclear	No	Unclear	Unclear	4
Hawton (1987)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	7
Ivanoff (1985)	Unclear	Unclear	Partially	Unclear	Yes	No	Unclear	Unclear	1.5
Leerer (1996)	No	No	Yes	No	Partially	No	Yes	Unclear	2.5
Liberman (1981)	Unclear	Unclear	Yes	Unclear	Yes	No	Unclear	Unclear	2
Linehan (2006)	Yes	Unclear	Yes	Yes	Yes	Yes	Unclear	Yes	6
Linehan (1991)*	Unclear	Unclear	Unclear	Yes	Unclear	No	Unclear	Unclear	1
McLeavey (1994)	Unclear	Unclear	Partially	Yes	Yes	No	No	Unclear	2.5
Nordentoft (2002)	Unclear	Unclear	Unclear	Unclear	Yes	Partially	Unclear	Partially	2
Patsiokas (1985)**	Unclear	Unclear	Yes	Unclear	Unclear	No	Unclear	Unclear	1
Rudd (1996)	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Partially	6.5
Salkovski's (1990)	Unclear	Unclear	Yes	Unclear	Yes	No	Unclear	Unclear	2

Study	Were participants assigned to treatments randomly?	Was treatment allocation concealed?	Were groups similar in baseline characteristics?	Was assessment of outcome made unaware of assigned intervention?	Were results for outcome recorded appropriately?	Was a power calculation used?	Was intention to treat used?	Is loss to follow-up addressed?	Total
Samaraweera (2007)	Unclear	Unclear	Partially	Yes	Partially	No	Unclear	Unclear	2
Torhorst (1987)	Unclear	Unclear	No	Unclear	Unclear	No	Unclear	Unclear	0
Turner (2000)	Unclear	Unclear	Yes	Yes	Yes	No	Yes	Yes	5
Tyrer (2003)	Yes	Yes	Yes	Partially	Yes	Yes	Yes	Unclear	6.5
Unutzer (2006)	Unclear	Unclear	Yes	Unclear	Yes	Unclear	Yes	Yes	4
van der Sande (1997)	Yes	Unclear	Yes	Unclear	Yes	No	Yes	Yes	5
Verheul (2003)*	Partially	Partially	Yes	Partially	Yes	No	Yes	Yes	5.5
Weinberg (2006)	Unclear	Unclear	Yes	Yes	Yes	No	Yes	Unclear	4
Wood (2001)	Yes	Yes	Yes	Yes	Yes	No	Yes	Unclear	6

*Studies had follow-up
**Multiple armed studies

Table 2: Quality criteria assessment for non-randomised clinical trials

Study	Was treatment allocation concealed?	Was assessment of outcome made unaware of assigned treatment condition?	Were groups similar in baseline characteristics?	Were results for outcome recorded appropriately?	Was intention to treat used?	Is loss to follow-up addressed?	Total
Amish (1991)	No	Unclear	Yes	Unclear	Unclear	Yes	2
Aoun (1999)	Unclear	Unclear	Partially	Yes	Unclear	Unclear	1.5
Biggam (2002)	No	No	Yes	Yes	Yes	Unclear	3
Chiesa (2004)*	No	No	Unclear	Yes	Yes	Yes	3
Donaldson (1997)	Unclear	Unclear	Yes	Unclear	No	Unclear	1
Katz (2004)	No	No	Yes	Yes	Unclear	Unclear	2
Koons (2001)	Unclear	Unclear	Partially	Yes	No	Unclear	1.5
Nordentoft (2005)	Partially	Unclear	Partially	Yes	No	Yes	3
Raj (2001)	No	Unclear	Yes	Yes	Unclear	Unclear	2
Rathus (2002)	Unclear	Unclear	Yes	Yes	Unclear	Unclear	2
Rotheram-Borus (1996)	No	Unclear	Yes	Yes	Unclear	Unclear	2
Warren (2004)	Unclear	Unclear	Partially	Yes	Unclear	Unclear	1
Winter (2007)	Unclear	Unclear	Yes	Yes	Yes	Yes	4

* Study with follow-up data and multiple arm treatment

Table 3: Quality criteria assessment for before and after studies

Study	Did the study address a clearly focused issue?	Were participants recruited so they were representative of defined population or free from selection bias?	Was the outcome measured in a way as to minimise bias?	Was the follow-up period appropriate and differences for those who dropped out of treatment examined?	Were the results meaningful and recorded appropriately?	Total
Antikainen et al. (1995)	Yes	Partially	Yes	Yes	Yes	4.5
Bohus* et al. (2004)	Yes	Yes	Yes	Partially	Partially	4
Brown et al. (2004)	Yes	Yes	Yes	Yes	Yes	5
Clarkin et al. (2001)	Yes	Yes	Yes	Partially	Yes	4.5
Comtois et al. (2007)	Yes	Yes	Yes	Partially	Yes	4.5
Gratz** et al. (2006)	Yes	Yes	Yes	Yes	Yes	5
Harley et al. (2007)	Yes	Yes	Yes	Partially	Yes	4.5
Hengeveld et al. (1996)	Yes	No	Unclear	No	Partially	1.5
Houck et al. (2002)	Yes	Unclear	Partially	Yes	Partially	3
Low et al. (2001)	Yes	Unclear	Yes	Yes	Partially	3.5
McQuillan et al. (2005)	Yes	Partially	Yes	Partially	Partially	3.5
Prendergast et al. (2007)	Yes	Unclear	Yes	Yes	Yes	4.5
Stanley et al. (2007)	Yes	Partially	Yes	Yes	Yes	4.5
Stevenson et al. (1992)	Yes	Yes	Unclear	Yes	Yes	4.5

Due to language and time restrictions it was not possible to data extract information pertaining to study quality for three German studies (Fleischaker, 2006; Friedrich, 2003; Hoschel, 2006).
**This was a controlled trial, however there was no control data for the relevant outcome measure and efforts to contact the author were unsuccessful.*
Where studies have conducted assessments at the end of treatment this is coded as partially meeting the requirement, due to the fact that assessments may be influenced by just having finished therapy. Due to the nature of suicidal behaviour it is necessary to have long follow-up for effectiveness.
*** This was a preliminary study and therefore assessments at one and three months into the study were acceptable.*

Appendix E: Studies excluded from meta-analysis

Table 1: Studies excluded from meta-analysis

Alper (2001)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Barley (1993)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Bateman (2007)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Bohus (2000)	This study did not include any standard deviations for the sample means.
Clarkin (2007)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
De Man (1991)	This study did not include any standard deviations for the sample means.
Eggert (2002)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Fitzpatrick (2005)	This study did not report how many participants were in each group.
Frey (1983)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Gutstein (1988)	This study did not include any pre-treatment data.
Goldstein (2007)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
King (2003)	This study evaluated an 'intervention' over too short a time span (two hours), inappropriate timescale.
Korner (2006)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Lamprecht (2007)	This study evaluated treatment against an inappropriate cohort sample.
Nee (2007)	This study is looking at individual case studies.
Manning (1986)	This thesis did not include any standard deviations for the sample means.
Melvin (2006)	This study was evaluating treatment against a pharmacological intervention.
Mueller-Theisen (2006)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Power (2003)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Rucci (2002)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Sachsse (2006)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Springer (1996)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Stevenson (2005)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
TADS (2004)	This study was evaluating treatment against a pharmacological intervention or placebo.
Tarrier (2006)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Wheatley (2000)	This study is looking at individual case studies.
Wheatley (2005)	This study is looking at one individual case study.
Wilberg (1998)	This study has insufficient information to derive an appropriate effect size for meta-analysis.
Zinkler (2007)	This study has insufficient information to derive an appropriate effect size for meta-analysis.

Table 2: Basic descriptive data of studies excluded from meta-analysis

Study	Characteristics
Alper (2001)	Retrospective before-and-after study In this study 15 women on a DBT unit for a four-week consecutive time period were assessed for incidents of self-injurious behaviour. Subjects were aged 22-42 and all had a diagnosis of borderline personality disorder (BPD). In the first week there were 15 incidents of self-injurious behaviour among the 15 patients, by week four there was a decrease to eight incidents.
Barley (1993)	Prospective study 130 patients were discharged from the inpatient unit of a personality treatment programme (PDTP) which emphasises dialectical behaviour therapy (DBT). Their median age was 30, with a range of 16-57 years. Most (79%) were female. Patients were largely severely parasuicidal borderline patients. Rates of parasuicide were obtained by dividing number of incidents per month by average daily consensus per month. Rates of parasuicide were compared 19 months prior to introduction of DBT, 10 months during and in the subsequent 14 month interval. A one-way analysis of variance yielded an overall significant effect for the PDTP, $F(2, 40)=5.71$, $p<.007$
Bateman (2007)	RCT 90 ambulatory patients with symptoms of schizophrenia resistant to conventional antipsychotic medication were randomised to CBT or befriending. They had a mean age of 39 (age range 37-42) and 59% were men. CBT provided significant reductions in suicidal ideation at the end of therapy, and sustained at the follow-up. The group in CBT experienced a mean 1.5 decrease in suicidal ideation from baseline to follow-up, compared to a mean decrease of less than 0.5 in the befriending group,
Bohus (2000)	Prospective study A treatment programme of inpatient therapy according to the guidelines of DBT was developed. 24 female patients with BPD were compared at admission and after discharge with regards to self-injurious behaviour. The patients had a mean age of 28.3 and they spent an average of 94 days on the ward. A highly significant decrease in the number of parasuicidal acts was reported, with results from Wilcoxon tests showing frequency of self-injury before treatment was a median of 2, and 0 after treatment.
Clarkin (2007)	RCT 90 patients who were diagnosed with BPD were randomly assigned to transference-focused psychotherapy, DBT or supportive treatment and received medication when indicated. The patients were men and women between the ages of 18 and 50 (mean age 30.9) who met criteria for BPD. Individual growth curve analyses indicated that both transference-focused psychotherapy and DBT were significantly associated with improvement in suicidality.
DeMan (1991)	Non-randomised trial 31 suicidal French-Canadian men and women were offered the opportunity to participate in either the centre's standard programme of assistance that consisted of social support by trained community volunteers, or a programme that, in addition to social support, provided help in improving self-esteem and stress management skills. The mean age of participants was around 30. The two social support approaches did not result in relative differences in suicide ideation.
Eggert (2002)	Randomised prevention trial School-based, suicide-prevention programme was evaluated looking at the efficacy of Counsellors-CARE (C-CAST) and Coping and Support Training (CAST) vs 'usual care' for reducing suicide risk. There were 341 students, aged between 14-19. Males and females were distributed equally in the three study conditions. There were significant reductions across all three conditions over time, analysed with trend analysis.
Fitzpatrick (2005)	RCT Nonclinical participants (N=110) with active suicidal ideation were assigned to receive a brief problem-orientation intervention or a control procedure. There were 60 females and 50 males, mean age 19.02, age range 18–24. Significant decreases in suicidal ideation were found in the experimental group.
Frey (1983)	Before and After Study 24 individuals at high risk from suicide were assigned to a special group therapy program. The majority of participants were females, and ages ranged from 19-58. A case fatality rate of 10.3% was obtained for all persons attending at least one session; however this dropped to 3.4% for persons under treatment.
Gutstein (1990)	Before-and-after study The systemic crisis intervention programme was evaluated for suicidal children and adolescents. There were 47 participants, 22 were male and 25 were female with a mean age of 14.4, age range 7–19. Only two of the 47 participants engaged in suicidal behaviour during the follow-up of 18 months; there was no baseline data to compare this with.
Goldstein (2007)	Open trial DBT was delivered over one year to 10 participants, mean age 15.8, age range 14–18, who were receiving treatment in an outpatient pediatric bipolar specialty clinic. Eight were female. Although 80% had a history of attempted suicide none reported attempting suicide during the year-long study.
King (2003)	Before-and-after study The effectiveness of telephone counselling for young people seeking help in the context of suicidal ideation was investigated. Independent raters measured callers' suicidality and mental state at the beginning and end of 100 taped counselling sessions. Significant decreases in suicidality were found to occur during the course of counselling sessions, suggesting positive immediate impact. Of those whose gender could be identified 79.5% were female and calls had a mean duration of 40 minutes with a range of 10–120 minutes.

Study	Characteristics
Korner (2006)	Case control study This study compared a cohort of participants (Stevenson, 1992) with a group of 31 wait-listed treatment-as-usual (TAU) controls using the conversational model. The participants were diagnosed with borderline personality disorder, the mean age of the one-year therapy group was 27.9 years (SD = 5.9) with 17 females and 12 males. In comparison, the TAU group had a mean age of 29.7 years (SD = 6.1) with 16 females and 15 males. There was a marked reduction in self-harm in the therapy group in contrast to worsening self-harm in the comparison group.
Lamprecht (2007)	Open pilot study 40 participants were invited to take part in single-session solution-focused brief therapy and were compared with the total group of patients who had presented with first time self-harm during the study period of a year. Of the 40 participants 32 presented with self-harm for the first time. Participants were aged between 18–65. In the study group, two had repeated self-harm after one year, compared with 40 in the total group of 302 patients presenting with first time self-harm (6.3% vs 13.2%)
Manning (1986)	Open trial 34 female clients with borderline personality disorder were given DBT for one year. The study was designed to examine the differences in treatment outcome for clients who have a singular diagnosis of BPD versus those who have concurrent BPD or MAD (major affective disorder). The participants' ages ranged from 24–53 with a mean age of around 39. All clients demonstrated significant changes in levels of suicide ideation, depression and hopelessness. There were no between-group differences on any of the measures.
Mueller-Theisen (2006)	Open trial 50 participants (49 females and one male) were given DBT. They had a mean age of 34.24 (SD=10.17) and 92% were Caucasian. There were two groups: individual DBT therapy, group skills training and case management ; and group skills training and case management without individual DBT therapy. No differences were found between groups for number of parasuicidal acts.
Nee (2007)	Case studies Three case studies were presented of women who had received DBT in a prison setting for a period of one year. Self-harm measures were taken at four points not specified. The participants were three women, age range 19-26. Notable improvements were made in suicidal ideation.
Power (2003)	RCT 42 patients with first episode psychosis were randomly assigned to standard care or standard care plus Life SPAN therapy – a cognitively-oriented therapy for 10 weeks. No details are given on gender, age etc. Benefits were noted in the treatment group on indirect measures of suicidality, eg hopelessness. The treatment group showed a greater average improvement (though not significant) on a measure of suicide ideation.
Rucci (2002)	RCT 98 women and 77 men participated in the study, treated with a combination of pharmacotherapy and one of two levels of psychosocial intervention – psychotherapy specific to bipolar disorder, which included help in regularising daily routines, or nonspecific, intensive clinical management involving regular visits with empathic clinicians. The mean age was 35.1 (SD=10.5). During the acute treatment phase, 92 patients were predominantly treated for depression, 40 for mania, and 43 for mixed or cycling episodes. The rate of suicide attempts was 1.05 per 100 person-months before the trial. Patients experienced a threefold reduction in the rate of suicide attempts during the acute treatment phase.
Sachsse (2006)	Naturalistic outcome study This study compared psychodynamically oriented trauma-focused inpatient treatment for women with complex posttraumatic stress disorder and BPD against a treatment as usual group. Treatment was assessed both at the end of treatment and at one-year follow-up. The sample was 153 participants with a mean age of 42.4 (SD=8.24); improvements were made in the frequency of self-mutilating behaviour.
Springer (1996)	RCT 31 subjects (21 female and 10 male) with a mean age of 31.4 (SD=9.24) were randomly assigned to the creative coping skills training group or to the wellness and lifestyle discussion control group for 10 sessions, 45 minutes each. At the end of treatment both groups demonstrated significant improvement in depression, hopelessness and suicidal ideation; no significant between-group differences were found.
Stevenson (2005)	Cohort study follow-up 30 subjects were originally treated with the conversational model (Stevenson, 19992) and followed up five years later. Their age ranged from 18 to 52 years, no other data given. Logistic regression analysis was utilised to calculate a similar odds ratio (OR) to reflect the reduction in the odds of self-harm as measured at one and five years post-psychotherapy compared with the odds at entry into the programme. The OR of self-harm at five years post-entry into the programme is very substantially less than predicted simply due to the ageing of the cohort. Data suggests that if an untreated borderline patient were followed up after five years, there is a 79% likelihood that they would still be engaging in self-harming behaviours.
TADS team (2004)	RCT This study evaluated the treatments effects of four different types of treatment for adolescents with depression over 12 weeks: fluoxetine alone, CBT alone, CBT with fluoxetine, or placebo. There were 439 participants randomised with a mean age of 14.6; 45.6% of the sample were male. Clinically significant suicidal thinking, which was present in 29% of the group at baseline, improved significantly in all four treatments; fluoxetine with CBT showed the greatest reduction.
Tarrier (2006)	Longitudinal follow-up This study utilised data from the SoCrates Trial of CBT in recent onset schizophrenia. There were 278 participants, 69% were male, with a mean age of 29. Treatment was CBT, supportive counselling and TAU and was delivered over a five-week period, with assessments carried out until 18 months. The rates of moderate to severe behaviour were 13% at admission, 4% at six weeks, 1.5% at three months and 6% at 18 months. There were no beneficial or adverse effects of psychological treatment on suicide behaviour that reduced significantly with clinical recovery. CBT may need to be modified to directly target suicide behaviour.

Study	Characteristics
Wheatley (2000)	Case studies This dissertation looked at the efficacy of promoting the use of problem-focused coping skills in repetitive deliberately self-harming adolescents (n=6).Three participants demonstrated a good response to the intervention as measured by frequency of self-harm. However, follow-up data on one of these participants suggests a relapse of self-harm after the end of the intervention.
Wheatley (2005)	Case study This study looked at the efficacy of a behavioural coping skills programme with a repetitively deliberately self-harming young woman, aged 18 and 11 months who had a formal diagnosis of BPD. A simple single case A-B design was used. At three-month follow-up there was a substantial decrease in the participant's deliberate self-harm.
Wilberg (1998)	Naturalistic prospective study 12 participants with BPD were treated with a combination of day treatment and subsequent outpatient group psychotherapy and compared with 31 patients in the same day hospital but without subsequent outpatient group therapy. Of this sample 23% were male and the mean age was 31. Follow-up was done at an average of 34 months after discharge. Whereas nine patients in the intervention and 13 in the non-intervention had made previous suicide attempts, one patient in the intervention and five in the non-intervention group had made one or more suicide attempts during the follow-up (non-significant).
Zinkler (2007)	Prospective study This study evaluated outpatient DBT for 49 patients over a 12-month period. 12% were male and the sample had a mean age of 33.21. Outcome data were obtained for 32 participants who stayed in treatment for more than three months. Compared with 12 months pre-treatment, self-harm reduced dramatically once people entered the programme, with incidents of self-harm per service per month reducing from 5.3 for pre-treatment to 1.2 in treatment.

Appendix F: Details of studies in the meta-analyses

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Allard (1992)	Allocation: partial randomisation. Subjects randomly assigned using sealed and numbered envelopes. Duration of study: two years, follow-up at end. Number of sessions: 18 Type of analysis: completer	Participants recruited after being seen in the emergency department of the study hospital after a suicide attempt and after extensive evaluation by a psychiatrist. N=150; mean age: unkown. Intensive intervention, 46%>30 years, TAU, 51% >30 years; 11% female. Diagnosis: NA	1. Intensive intervention. An explicit treatment plan where any combination of support or psychoanalytically oriented psychotherapy, psychosocial, drug or behavioural therapy was used. Attempts were made through telephone reminders/visits to increase compliance. 2. TAU – no details given.	1. Suicide attempts by examining hospital records, contact with relatives and coroner's office. There were no significant differences between groups on suicide attempts. INT: 22/63 (35%) TAU:19/63 (30%)	Country of study: Canada
Amish (1991)	Allocation: non-randomised treatment outcome study. Duration of study: not given, follow-up at six months. Number of sessions: five daily one and one half hour small group sessions. Type of analysis: completers	Adolescent inpatients admitted to the Children's Crisis Stabilization Unit (CCSU) with presenting problem of suicidal behaviour. A private, non-secure unit. N=30, age range 12-18, 66% female Diagnosis: NA	1.Coping skills training (CBT, suicide awareness, crisis intervention, identification, treatment of depression, social problem solving, anger management and relaxation training.) 2. Attention-control insight-oriented treatment-group sessions around relationships with families and with one another and the events leading up to their current hospitalization.	1. The lethality of Suicide Attempt Rating Scale 2. CDI 3. SIQ 4. Suicide Probability Scale 5. STPI 6. AX 7. SPSI 8. SAQ Pre-post changes in the predicted direction for both groups on each of the affective measures, but no condition by time interactions.	Country of study: USA In addition to participating in one of the experimental programmes, all subjects received standard hospital care which included: individual and family counselling, pharmacological treatment and milieu therapy (eg recreational activities, community meetings, hospital-based school programme etc). The same therapist was used for both – crossover effects.
Antikainen (1995)	Allocation: N/A Prospective long-term follow-up. Duration of study: a hospitalisation period of 91 days and three-year follow-up. Number of sessions: group therapy twice a week, therapeutic discussions twice a week. Type of analysis: completers	Patients residing on a specialised ward for BPD for a minimum of three weeks. N=62; mean age was 32 years, 40% female. Diagnosis: DSM-III-r. Borderline or other personality disorders constituted 32%, in addition 14% of the patients diagnosed as having these disorders as an additional disorder. 48% had major depression at intake.	1. Methods applicable for psychotherapeutic community treatment of BPD; group therapy, creative activities.	1. Changes in psychosocial status and use of mental health services. 2. Attempted suicide rates 3. Type of medication used. 4. Changes in subjective experience and objective assessment of symptoms. Results: 12/42 (28%) attempted suicide, three (75) of them once and nine (21%) of them at least twice.	Country of study: Finland
Aoun (1999)	Allocation: non-randomised. Duration of study: two years, follow-up at end. Number of sessions: Patients were seen by the SIC within 48 hours of admission and followed up intensively for six weeks after discharge. Type of analysis: completer	Information on all people at risk of harming themselves/attempted suicide collected from 1. People presenting to A&E who receive standard care, 2. People who are admitted but refuse counselling 3. People referred to the SIC. N=208 in SIC group, N=87 in group 1 and 2. Age range 12-66 years, mean of 31.1 years, 63% female. Diagnosis: no details	1. Employing a SIC, setting up a hospital protocol of best practice to produce a systems change in the hospital, and a component of professional and community education. 2. Standard approach, no details given (those in group 1 or 2).	1. Re-admissions for suicide attempts. Results: 3.6% re-admitted for attempts in high group (3/84) compared to 12.6% for standard (11/87).	Country of study: Australia. The majority of the re-admissions in the standard approach (7/11) were done as part of a management strategy to attend to the at-risk cases in order to prevent an attempt – difficult to tell whether made an attempt.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Bateman (1999)*	Allocation: randomised, performed off site using computer generated randomisation tables. Duration of study: 18 months, assessments taken at end. Number of sessions: participants had more than six hours a week in therapy. Type of analysis: ITT	All patients referred during 1993-1994 at the Halliwick Psychotherapy Unit. N=38, Ages 16-65 years, mean age 30. Three for intervention and 33.3 for control. 57% female. Diagnosis: the SCID and the Diagnostic Interview for Borderline Patients. A cutoff score of seven or more was used to determine a formal diagnosis of borderline personality disorder.	1. Psychoanalytically oriented partial hospitalisation. 2. Standard psychiatric care – regular psychiatric review with a senior psychiatrist when necessary, inpatient admission as appropriate, outpatient and community follow-up.	1. The Suicidal and Self-harm inventory. 2. SCL-90-R. 3. BDI. 4. SSTAI 5. Social Adjustment Scale. 6. Inventory of Interpersonal Problems. Results: clear reduction from 94.7% on admission for suicide attempts (mean=1.68) to 5.3% (mean=0.16) at 18 months for intervention group.	Country of study: UK.
Biggam (2002)	Allocation: random allocation was undertaken after balancing within three vulnerability categories. Duration of study: three months, follow-up at end. Number of sessions: Five 90-minute sessions. Type of analysis: ITT	All study participants took part on a voluntary basis within the prison. N= 46, Mean age 19.3 years (SD=1.3 years, range=16 to 21 years.) No mention of gender. Diagnosis: NA	1. Brief, social problem-solving therapy in a group format following D'Zurilla and Goldfried (1971) recommendations. 2. Nonintervention comparison group.	1. SPSI-R 2. HADS 3. BHS Results: comparison of the pre-intervention scores and 3-month follow-up scores revealed a significant reduction in hopelessness for the intervention group, $t(22)= 3.38$, $p<0.01$ but not for comparison, $t(22)=1.07$, $p>0.05$.	Country of study: UK participants were suicidal risk inmates who had already been identified by expression of suicidal ideation or acts of self-harm, those on formal protection indicating that they didn't possess adequate coping skills and those bullied in circulation.
Bohus (2004)**	Allocation: entry into the treated group followed in consecutive order. There was no randomisation. Duration of the study: three months, follow-up at end. Number of sessions: 12 hours per week. Type of analysis: completers	No mention of how patients were recruited. N= 60, mean age for DBT 29.1, for waiting list 29.5. Age range 18-44, 100% female. Diagnosis: SCID-II and the DIB-R for BPD.	1. DBT 2. Waiting list	1. LPC 2. SCL-90-R 3. HAMA 4. SSTAI 5. BDI. 6. HAMD 7. STAXI. 8. DES 9. GAF 10. IIP Results: significantly more patients in the DBT group compared to the WL group (62% and 31% for respectively) abstained from self-mutilation at post assessment ($\chi^2=3.11$ $p<0.039$).	Country of study: Germany Participating patients represented a group with severe borderline dysfunction with high lifetime and current comorbidity, frequent acts of self-mutilation and suicide attempts. In this paper there is no data for the waiting list on the outcome of BDI, therefore this study was included in the analyses for outcome before and after therapy alone.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Brent (1997)***	Allocation: the Begg and Iglewizc modification of the Efron biased coin toss was used, balancing on sex, number of parents in the household and clinically significant suicidality. Duration of the study: inferred that it is 16 weeks, when assessments also took place. Number of sessions: 12-16 sessions. Type of analysis: ITT.	Subjects were recruited from the Child and Adolescent Mood and Anxiety Disorder at Western Psychiatric Institute and Clinic, Pittsburgh. About one third were recruited by an advertisement; the remainder were self-referred or referred by parents or professionals. N=107, mean age 15, age range 13-18, 75% were female. Diagnosis: criteria for DSM-III-R major depressive disorder with an intake BDI score of 13 or more.	1. CBT 2. SBFT – first phase of treatment was drawn from functional family therapy, second phase adapted from a problem-solving model by Robin and Foster. 3. NST	1.BDI 2. K-SADS-P/E, the presence of suicidality was assessed by this. Results: No significant difference among three treatments for their effects on suicidality, although there were significant decreases in suicidality across all three groups.	Country of study: USA Patients who made a suicide attempt were removed from the protocol (6.5%). Patients who were still seriously symptomatic at midpoint were evaluated by a psychiatrist. A clinical decision for removal was based on a failure to achieve notable improvement.
Brown (2004)	Allocation: NA Duration of the study: 18 months, assessments at end. Number of sessions: weekly 50-minute sessions. Mean number of sessions 34 (SD=17.7, range= three to 63 visits. Type of analysis: ITT	Of the participants 32% were referred by mental health clinicians, 25% responded to an advert, 13% were referred by a friend or other unknown source. N=32, mean age was 29 (range- 20 to 55), 88% female. Diagnosis: SCID-II	Cognitive therapy using a detailed treatment manual (Brown and Newman, 1999).	1. Number of borderline criteria 2. SSI 3. HRSD 4. BDI-II 5. BHS 6. PHI 7. PBQ Results: baseline mean for SSI 8.2 and at 18 months 4.0, $p<<0.001$.	Country of study: USA. 25% participated in 20 sessions or fewer.
Brown (2005)	Allocation: a computerised randomisation sequence programmed to prohibit more than seven consecutive assignments in either treatment group was used. Duration of the study: 18 months, assessments at end Number of sessions: 10 Type of analysis: ITT	Individuals who attempted suicide and who received a medical or psychiatric evaluation within 48 hours of the attempt. N=120, age range 18-66, 61% female. Diagnosis: NA	1. Cognitive therapy 2. Enhanced usual care with tracking and referral services. Case managers offered referrals to community mental health treatment, addiction treatment and social services.	1. Occurrence of a suicide attempt. 2. HRSD 3. BDI-II 4. BHI 5. SSI Results: 13 (estimated proportions 24.1%) in intervention group and 23 (estimated proportions 41.6%) in usual care made at least one suicide attempt. (n.s)	Country of study: USA. Assessment of a suicide attempt was made by participant report.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Chiesa (2004)****	Allocation: followed established criteria of geographical accessibility to treatment; patients outside Greater London area were assigned to the inpatient programme. Duration of the study: two years, follow up at end and two years. Number of sessions: median duration of inpatient stay was 42 weeks (mean=36, SD=19.0) and 28 weeks (mean=27, SD=6.9) for the inpatient programme and step-down programme patients, respectively. Type of analysis: ITT	All patients consecutively admitted to The Cassel Hospital for specialist psychosocial treatment between 1993 and 1997 were considered for the study. N=143, age range- 19-55, 73% female. Diagnosis: criteria for at least one personality disorder.	1.Long-term psychoanalytically oriented residential specialist program. 2.A phased 'step-down' specialist psychosocial program that included a briefer residential stay and an outpatient component. 3. General Community Psychiatric model- psychotropic medication, supportive and outpatient contact and hospital admission if needed.	1. SCL-90-R 2. Social Adjustment Scale. 3. The Global Assessment Scale. 4. Suicide and Self-Harm Inventory. At 24 months patients in the step-down condition showed significant improvements on all measures, no achievements were made in the long-term residential in self-harm, attempted suicide. The general psychiatric group improved on self-harm.	Country of study: UK. The multicomponent nature of the treatment programmes under scrutiny complicates assessments of effectiveness due to the complexity of the intervention. It is not clear if mere hospitalisation, the nature of the hospital climate, or the treatments offered in the hospital or a combination of these was the effective component of the treatment.
Clarkin (2001)	Allocation: N/A Duration of the study: 12 months, assessment at end. Number of sessions: twice weekly. Type of analysis: ITT	Subjects were recruited from all treatment settings (inpatient, day hospital, and outpatient clinics) within a hospital. N=23, mean age of 32.7 years, range 19-48, 100% female. Diagnosis: DSM-IV BPD.	Transference focused psychotherapy	1. PHI 2. THI 3. GAF Looking at completer data in the prior year 9/17 (53%) made an attempt and during the one year treatment 3/17 (18%) made an attempt (McNemar's test (1)= 4.64, p<<.03).	Country of study: USA
Comtois (2007)	Allocation:N/A Duration of the study: 12 months Number of sessions: breakdown is given in frequency of the different components of treatment which over a course of a year is more than 40 hours. Type of analysis: completer	Clients were referred to the program from hospital inpatient units, therapists in the community, involuntary civil commitment proceedings, crisis intervention services and from other mental health agencies in the Seattle area. N=23, mean age 34 years, age range 19-54, 96% female. Diagnosis: BPD	1.DBT	1. PHI Showed a significant improvement in the number and severity of self-inflicted injuries.	Country of study: USA

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Davidson (2006)	Allocation: randomisation by centre and by high or low episodes of self-harm, using randomised permuted blocks of size four. Randomisation schedules kept secure and confidential, researcher remained blind to allocation. Duration of study: 12 months, assessments taken up to 12 months after. Number of sessions: 30 sessions of CBT over one year, each session lasting an hour Type of analysis: ITT	Participants were identified by clinicians from new and existing patients referred to community health teams, clinical psychology and liaison psychiatry services providing they were not receiving a specific psychological treatment for their personality disorder. N=106, Mean age-I= 32.4, C= 31.4, Age Range 18-65, 84% female. Diagnosis: Meet criteria for at least 5items of DSM-IV BPD.	1.CBT 2. TAU – access to community health teams and opportunity to be referred to specialist services.	1. The Acts of Deliberate Self-Harm Inventory 2. BSI 3. BDI 4. SSTAI 5. SFQ 6.I IP 7. Schema Questionnaire 8. EQ-5D 18/53 in CBT had an episode of self-harm compared to 21/48, OR=0.66	Country of study: UK
Donaldson (1997)	Allocation: N/A – quasi experimental study. Duration of study: eight weeks, follow-up taken at three months. Number of sessions: four sessions Type of analysis: unclear	Participants were adolescents who received medical treatment in an Emergency Department following a suicide attempt. N=101, Age range 12-18, 82% were female. Diagnosis: NA	1. Subjects and parents received a psychotherapy compliance enhancement. After discharge each received three phone interviews using a problem-solving approach around suicidal ideation and psychotherapy compliance and referral. 2. Standard medical care – interview regarding mental status, appointment to outpatient care, possible brief inpatient stay.	1.Number of psychotherapy sessions attended 2.Repeat Suicide Attempt. None of the participants made a repeat suicide attempt as compared to a 9% repeat attempt rate in the comparison group.	Country of study: USA The participants received varying types of intervention: 47% received individual therapy, 21% received family therapy, and 32% received a combination of both types after their referral, which would affect repeat rates.
Donaldson (2005)	Allocation: randomised Duration of study: six months, assessment taken at end. Number of sessions: six individual sessions and one adjunct family session. The maintenance phase included three monthly sessions. At the therapist's discretion, two additional family sessions and two crisis sessions were available. Type of analysis: ITT	Participants who presented to a general pediatric emergency department or inpatient unit of an affiliated child psychiatric hospital after a suicide attempt. N=39, mean age 15, age range 12-17, 82% female. Diagnosis: NA	1. Problem oriented therapy. Skills-based treatment: focused on problem solving and affect management skills. 2. Supportive relationship treatment.	1. DISC 2. SIQ 3. CES-D 4. STAXI 5. SPSI-R 6. MEPS Adolescents receiving SBT designed to address known skill deficits in this population did not differ from those receiving SRT on any study outcomes.	Country of study: USA The same seven therapists provided treatment in both SBT and SRT conditions in a cross-over treatment. Therapist allegiance and expectations may have contributed to lack of between group differences. All reattempters were taking an SSRI. However these particular adolescents may have been started on medication due to their more severe clinical presentations.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Evans (1999)	Allocation: randomised, Patients were allocated by opening opaque sealed envelopes sequentially at each centre. Duration of study: six months Number of sessions:NA Type of analysis: completer	Patients presenting at two centres in West London after an episode of self-harm. N=34, age range 16-50. No gender details. Diagnosis: had personality disturbance within the flamboyant personality cluster, histrionic or emotionally unstable assessed using the ICD-10 version of the Personality Assessment Schedule.	1. Manual-assisted cognitive behaviour therapy. 2. TAU – the TAU differed at the 2 centres. In Paddington all those allocated were referred to a psychiatrist or a community mental health team member. In the Chelsea and Westminister Hospital there is a special team of social workers with back-up from psychiatrists that provides psychoeducational help and support for people after deliberate self-harm.	1. PHI 10/18 in the treatment group had a suicidal act compared with 10/14 in the control, OR=0.5.	Country of study: UK
Fleischaker (2006)*****	Allocation: NA Duration of the study:two months Number of sessions: 54 days in therapy. Type of analysis: Unknown	N=12, described as adolescents, gender unknown.	DBT	LPC There was a reduction in the LPC score after treatment.	Country of study: Germany
Friedrich (2003)*****	Allocation: NA Duration of study: 12 months Number of sessions: Unknown Type of analysis: Unknown	N=11, Adult participants,	DBT	BDI There was a reduction in the BDI score after treatment	Country of study: Germany
Goodyer (2007)	Allocation: equal allocation ratio using stochastic minimisation balancing for severity, centre, sex, concurrent comorbidity conduct disorder, and age Duration of the study: 12 weeks followed by a 16-week maintenance phase. Follow-up at end of this stage. Number of sessions: CBT was offered weekly for 12 weeks then fortnightly for 12 weeks with a final session at 28 weeks. Type of analysis: ITT	Participants were recruited from six specialist CAMHS services in Manchester and Cambridge. N=208, Median age 14, range 11-17. 74% were female. Diagnosis: a moderate to severe major or probable depression.	1. SSRI and routine care 2. SSRI, routine care and CBT Routine care was an explanation of depression and attention to recent family or peer group conflicts, kept to a minimum (up to three sessions) in first 12 weeks.	1. The Health of the Nation Outcome Scale. 2. CDRS-R 3. CGAS 4. CGI 5. K-SADS-PL – which rated suicidality and number of self-harm acts. There was no difference between the groups in terms of self-harm.	Country of study: UK The study was powered to detect only superiority of one treatment over the other, and not equivalence, so although there is no difference in outcome they cannot say there is evidence that treatments are equally effective. In addition there was insufficient power to detect differences in suicidality and self-harm between the power arms.
Gratz, 2006	Allocation: NA Duration of the study: it was an 18 months study – average length of stay was eight weeks and assessment was done at three months. Number of sessions: no details are given. Type of analysis: completer	Patients are self-referred to the Borderline Center . N=36, Mean age=29, age range 18-60, 78% were female Diagnosis: borderline personality disorder	Treatment was partial hospitalization and outpatient which included individual, group, and family therapy, and combines psychoeducation, DBT, CBT, psychodynamic therapy, rehabilitative services and psychopharmacology.	1. DASS 2. ARS 3. DERS 4. SBQ-14 5. DSHI 6. BEST 7. BASIS-R 8. QOLI 9. GAF There were significant improvements in parasuicidality.	Country of study: US Although positive effects were found for mood and emotional dysregulation, parasuicidality and symptom severity, patients continued to report substantial impairment across multiple domains and neither global functioning nor quality of life dramatically improved.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Gratz (2006)	Allocation: random Duration of the study: 14 weeks. Follow-up done at end of study. Number of sessions: 14 1.5 hour sessions Type of analysis: completer	Participants were obtained through referrals as well as self-referrals. N=22, mean age 33, age range 18-57, all women. Diagnosis: borderline personality disorder.	1. Acceptance-based emotion regulation 2. TAU – current outpatient treatment, received on average 1 hour a week of individual therapy.	1. DSHI 2. DERS 3. AAQ 4. BEST 5. DASS 42% of participants in treatment group showed a reduction in self-harm of 75% or greater.	Country of study: US
Grawe (2006)	Allocation: random – pre-numbered envelopes with treatment group assignment according to random numbers provided by the central Optimal Treatment Project. Duration of study: two years, assessment done throughout study. Number of sessions: Weekly hour sessions during the first two months and then one session every third week for the first year then at least one session monthly in second year. Type of analysis: ITT	Sample comprised all consecutive new referrals to mental health services of the area. N=50, mean age 25, Age range 18-35, 38% were female. Diagnosis: DSM-IV schizophrenia	1. Integrated treatment – CB family treatment that incorporated skills training, CB strategies for residual psychotic and non-psychotic problems and home-based crisis management. 2. Standard treatment – regular clinic-based case management with antipsychotic drugs, supportive housing and day care, crisis inpatient treatment, brief psychoeducation and supportive psychotherapy.	1. Target psychotic symptoms 2. BPRS 3. GAF Continuous records were kept of hospital admissions and suicidal behaviour. More patients in the treatment group made a suicide attempt.	Country of study: US It was possible that the added benefits of the IT in reduction of negative symptoms and improved stability of residual psychotic features were associated with drug adherence and pharmacotherapy. Those cases that did not adhere continuously to their prescribed medication had half the rate of good outcome associated with that condition.
Guthrie (2001)	Allocation: random based on a computer-generated list of random numbers. Duration of study: there were 4 home visits, assessment was done at six months. Number of sessions: four sessions. Type of analysis: ITT	Participants were those who had presented to a university hospital following self-poisoning. N=119, mean age 31, age range 18-65, 55% were female. Diagnosis: NA	1. Psychodynamic interpersonal therapy 2. TAU – assessment by doctor, one third are referred for follow-up as outpatient, referral to addiction services or consult own GP.	1. BSSI 2. BDI 3. Self-report episodes of self-harm. There was a greater reduction in suicidal ideation and self-harm episodes at 6 months for those in the intervention group.	Country of study: UK
Harley (2007)	Allocation: nonrandomised, naturalistic study. Duration of the study: seven months, assessments at end Number of sessions: NA Type of analysis: completer	Patients with BPD who participated in an adult outpatient DBT programme. N=24, Mean age=40, age range unknown, 92% women. Diagnosis: 61% met Axis I for a depressive disorder.	Patients entering the DBT program contracted to participate for one full cycle of the skills group and to attend concurrent weekly individual therapy.	The Personality Assessment Inventory – a comprehensive 344-item self-report measure. Significant improvements were observed for suicidal ideation.	Country of study: US 51% of participants dropped out, not analysed on intention to treat.
Harrington (1998)	Allocation: randomisation by opaque and sealed envelopes. Duration of the study: four home visits, assessment at six months. Type of analysis: completer	Patients referred to the child mental health teams. N=162, age range 10-16, mean age 14. 90% were female. Diagnosis: approximately 70% had major depression and10% had conduct disorder.	1. Family problem solving plus routine care. 2. Routine care – visits to the clinic.	1.Suicidal Ideation Questionnaire 2. Hopelessness Questionnaire There were no significant differences between the groups on suicidal ideation.	Country of study: UK

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Hawton (1981)	Allocation: a random number method was used. Duration of study: three months, with assessments at 12 months. Number of sessions: in domicillary as many as therapist felt, in outpatient only once a week. Type of analysis: completer	Those referred to psychiatric service after admission following deliberate self-poisoning. N=96, mean age 25, age Range unknown, 65% were female. Diagnosis: NA	1. Brief problem-oriented in a domiciliary setting. 2. Brief problem-oriented in an outpatient setting	1. Lorr and McNair Mood Scale 2.Suicide Ideation Scale There was no significant difference in the rate of repetition of attempts between the domiciliary patients (10%) and the outpatients (15%).	Country of study: UK
Hawton (1987)	Allocation: randomised, no details given Duration of study: two month treatment and 12 month assessment time Number of sessions: range by participants one and eight sessions Type of analysis: ITT	Patients admitted to a general hospital for overdoses. N=80, mean age was 30, age range unknown approximately 66% were female. Diagnosis: NA	1. Outpatient counselling 2. GP care	1. BSSI 2. Risk of repetition Scale 3. SAS 4. BDI 5. GHQ No statistical differences in the rates of repeat attempts.	Country of study: UK
Hengeveld (1996)	Allocation: non-controlled design. Duration of study: five months. Assessments at end. Number of sessions: eight weekly and two booster sessions. Type of analysis: completer	Patients who presented consecutively to the hospital following deliberate self-harm, N=9, mean age was 31(sd=8), age range unknown. All female. Diagnosis: 7/9 had a personality disorder.	1. CBGT	1. The Hopkins Symptoms Checklist. 2. BDI 3. Suicidal behavior. No effects could be demonstrated on psychiatric symptomatology or recurrence of suicide behaviour.	Country of study: The Netherlands.
Hoschel (2006)*****	Allocation: NA Duration of study: four months Number of sessions: 84 days of treatment Type of analysis: unknown	N=24, mean age 28, Diagnosis: BPD	DBT	LPC Strong and sufficiently high effects in the reductions of self-mutilations.	Country of study: Germany.
Houck (2002)	Allocation: NA Duration of study: 14 weeks, assessment at end. Number of sessions: weekly for 45 minutes. Type of analysis: completer	Young women at an urban and a suburban high school were identified by counsellors or the school nurse according to signs, delineated by NIMH, that may be associated with depression. N=8, age range 15-18, all female. Diagnosis: NA	Results were combined for participants regardless of the different interventions; skills-building approach or the cognitive behavioural approach.	There was a significant decrease in suicidal ideation.	Country of study: US.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Ivanoff (1984)	Allocation: Random. Duration of the study: one week treatment, six week follow-up. Number of sessions: seven Type of analysis: completer	Patients admitted to hospital for a suicide attempt. N=9, age range 18-38, all female. Diagnosis: NA	1. SD 2. PS	Affective measures: BDI, HAS, CAS, CSD Suicidal behaviours; BHS, BSSI, SIS, suicidal thinking and behaviours. No significant difference was found on suicidal behaviour between groups. The SD group showed more improvement on suicidal behaviour.	Country of study: US.
Koons (2001)	Allocation: randomisation Duration of the study: six months, assessment at end. Number of sessions: weekly individual therapy, a separate group skills training and a therapist's consultation meeting. Type of analysis: completer	Patients were recruited primarily through the Woman Veterans Comprehensive Health Center. N=20, age range 21-46, mean age 35. All female. Diagnosis: BPD	1. DBT 2. TAU – 60 minutes per week of individual therapy and supportive and psychoeducational groups with treatment lasting 6 months.	1. PHI 2. BSSI 3. BHS 4. BDI 5. HAM-D 6. HARS 7. DES In the DBT group parasuicide dropped from 50% to 10% and from 30% to 10% in TAU although no significant group differences.	Country of study: US.
Katz (2004)	Allocation: bed availability had to determine location of admission of patients. Duration of the study: two weeks and one year follow-up. Number of sessions: 10 daily manualised DBT skills training sessions. Type of analysis: completer	Patients were those who were admitted to a psychiatric inpatient unit for a suicide attempt or severe suicide attempt. N=62, age range 14-17, mean age 15.4, gender unknown. Diagnosis: NA	1. DBT This study looked at completers versus non-completers of DBT.	1. BDI 2. SIQ 3. KHS 4. LPC With regards to number of incidents the DBT had significantly fewer incidents than the TAU group (T=1, 59)=1.98, P<.052).	Country of study: US.
Leerer (1996)	Allocation: NA Duration of the study: 12 months, assessments at end Sessions: applicable to DBT Type of analysis: completer.	Participants were inpatients at a large state hospital. N= 14, age range 24-45, mean age 31.85 (sd=6.66), 100% female. Diagnosis: BPD	1. DBT 2. TAU – comparisons were made between those who stayed in treatment and those who dropped out but continued to receive TAU – no details given.	1. OAS 2. Lethality of Suicide Attempt Rating Scale 3. GAF 4. SCL-90-R 5. BDI, BHS 6. SCB 7. HLP There was a trend for a reduction is parasuicidal behaviors with completers (p<.06)	Country of study: US.

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Liberman (1981)	Allocation: random. Duration of the study: Eight days, follow-up two years. Number of sessions: four hours of therapy per day (32 hours) Type of analysis: completer	Patients were referred to the programme either by the psychiatric emergency team or by hospital emergency room physician following immediate treatment for a suicide attempt. N=24, age range 18-47, mean age, 29.7) 66% female Diagnosis: Depressive neurosis.	1. Insight-oriented psychotherapy 2. Behaviour therapy	1. Suicide attempts 2. Suicide ideation 3. BDI 4. ZDI 5. MMPI D Scale 6. RSS 7. FSS 8. Assertiveness questionnaire There were no significant differences between the two groups on suicide attempts.	Country of study: US
Linehan (1991)*	Allocation: randomisation Duration of study: 12 months, assessment at end of treatment. Number of sessions: weekly individual and group therapy. Type of analysis: completer	Subjects were clinically referred – no details from where. N=41, age range 18-45. All female. Diagnosis: BPD	1. DBT 2. TAU – referrals to alternative therapy and 73% began individual therapy.	1.The PHI 2.THI 3.BSSI 4.BDI 5.BHS 6.The Reasons for Living Inventory, Survival and Coping Scale. There was a significant reduction in the frequency and medical risk of parasuicidal behavior among patients who received DBT.	Country of study: US
Linehan (2006)	Allocation: minimisation randomisation techniques. Duration of the study: 12 months, plus 12 months follow-up. Number of sessions: individual one hour a week, group 2.5 hours a week. Type of analysis: completer	Subjects were clinically referred – no details from where. N=101. Age range 18-45, all women. Diagnosis: BPD	1. DBT 2. Community therapy by experts	1.The PHI 2.THI 3.BSSI 4.BDI 5.BHS 6.The Reasons for Living Inventory, Survival and Coping Scale. DBT was superior to CTBE in preventing suicide attempts, with a hazard ratio suggesting that suicide attempts can be reduced by half.	Country of study: US
Low (2001)	Allocation: NA Duration of the study: 12 months plus six months follow-up. Number of sessions: one skills training session per week as well as individual sessions with her therapist. Type of analysis: completer	Participants were referred to the study by their Responsible Medical Officer. N=10, mean age 28.7, age range 20-44, 100% female. Diagnosis: BPD	DBT	1. IDAS 2. RFL 3. DES 4. BHS 5. BSSI 6. BDI 7. Impulsiveness Scale There was a reduction in rates of self-harm.	Country of study: UK

Study	Method	Participants	Interventions	Outcome	Country of study and notes
McQuillan (2005)	Allocation: NA Duration of the study: three weeks, assessed at end of study. Number of sessions: two – four hours each day for three weeks. Type of analysis: completer	The study was conducted with outpatients who were clinically referred. Patients who were considered the most suicidal were preferentially offered admission. N= 71. Mean age 30.7, age range 18-52, 87% female. Diagnosis: BPD.	DBT	1. BDI 2. BHS 3. SAS There was a statistically significant improvement in scores on the BDI and BHS.	Country of study: US
McLeavey (1994)	Allocation: randomisation Duration of the study: six weeks, follow-up at 6 and 12 months. Number of sessions: the treatment group had a mean of 5.3 (possible six sessions). Type of analysis: completer	The subjects were those admitted to hospital following self-poisoning. N= 39. Mean age 24, age range 15-45. 75% were female. Diagnosis: NA	1. IPSST 2. Brief problem-oriented approach (control, did not involve specific skills training.)	1. MEPS 2. The Optional Thinking Test 3. The Awareness of Consequences Test 4. SRPSS 5. Self-Perception Scale 6. BHS 7. Repetition of Self-Poisoning There was a greater reduction in repetition of self-poisoning at 12 months in the IPSST group.	Country of study: Republic of Ireland. Of the IPSST group 47%, and of the control group, 25% had a history of one or more previous attempts. Because a history of attempts increase the risk of future attempts the intervention group contained more subjects at higher risk of repetition than the control group.
Nordentoft (2002)	Allocation: randomised Duration of the study: two years, follow-up was done after a year. Number of sessions: more than 50 hours of treatment. Type of analysis: completer	Subjects were referred from all inpatient and outpatient mental health services in Copenhagen. N= 321, mean age 27, age range 18-45, 40% were female. Diagnosis: schizophrenia.	1. Assertive community treatment, psychoeducational family treatment and social skills training. 2. Usual care – the patient is usually offered treatment at a community mental health centre.	1. GAF 2. EPSIS II 3. SCAN There was no statistically significant difference between the two groups on number of suicide attempts.	Country of study: Denmark
Nordentoft (2005)	Allocation: non-randomised – people who formed the control were those who refused treatment in the centre. Duration of the study: two-week programme, 12 months post assessment. Number of sessions: daily for two weeks, no mention of number or duration. Type of analysis: completer	All patients treated in the Suicide Prevention Centre were asked to participate in Baseline Interviews. N=401, Mean age 27.7, Age Range 16-40, 70% were female. Diagnosis: NA	1. Treatment was based on cognitive behavioural principles. 2.TAU – admission to a psychiatric department, outpatient contact with community mental health centre, contact with GP, clinical psychologist or no contact.	1.EPSIS II 2.BHS 3.BDI 4.Rosenberg's Self-Esteem Scale The intervention group had a significantly lower repetition rate and greater improvement in all psychometric tests.	Country of study: Denmark
Patsiokas (1985) ***	Allocation: random Duration of study: three weeks, assessment taken at end of treatment. Number of sessions: 10 one-hour sessions over the three weeks. Type of analysis: completer	Subjects were recruited from the psychiatric inpatient wards of a hospital, admitted for suicide attempts. N=15, age and gender unknown. Diagnosis: NA	1. Cognitive Restructuring – methods suggested by Beck 2. Problem solving – package as adapted by D'Zurilla and Goldfried 3. Nondirective control – open discussion of their problems.	1. BHS 2. BSSI 3. Alternate uses 4. MEPS No significant differences were found on suicidal intention or ideation. Problem solving group were less hopeless than the control group.	Country of study: US

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Prendergast (2007)	Allocation: NA Duration of study: six months, assessments' taken at the end. Number of sessions: 24 sessions of weekly 60-90 minutes of individual psychotherapy and 24 sessions of weekly 150-minute group therapy. Type of analysis: completer	Clients were canvassed from the current client load as well as from alternative community services and GPs in the local area. Flyers for the DBT programme were also given to all clinicians in both centres. N=11, mean age 36, age range 23.1-47.2, all were female. Diagnosis: BPD	DBT	1. BDI 2. STAXI 3. Coping Scale for Adults 4. GAF 5. Parasuicidality and suicidality – service providers asked questions on frequency, medical severity and intent of behaviours 6.Service contact 7.Hospitalisations There was no difference in frequency of parasuicidal/ suicidal incidents before and after treatment.	Country of study: Australia
Raj (2001)	Allocation: sequential, based on their consecutive registration number given at admission. Duration of study: three months, assessments at end. Number of sessions: 10 sessions spread over three months Type of analysis: completer	Patients brought to the ICU at general hospital in Bangalore, who met criteria. N=40, mean age 34/40 within age range of 16-30, 57.5% females Diagnosis: NA	1. CBT 2. TAU – routine medical care and given the option to come for therapy, sent monthly letters for two months reminding them they could come to the facility in case of any problem.	1. SIS 2. HS 3. DAS 4. PSI 5. HADS 6. MMSE 7. SAP The experimental group showed improvements on all levels except impulsivity.	Country of study: India
Rathus (2002)	Allocation: quasi-experimental study – allocation not mentioned. Duration of study: 12 weeks, assessments taken at end. Number of sessions: twice weekly therapy of individual therapy and a multifamily skills training group. Type of analysis: completer	Participants were consecutive outpatient admissions to the Adolescent Depression and Suicide Program. N= 111, Mean age 16, Age Range unknown ,83% were female. Diagnosis: NA	1. DBT 2. TAU – 12 weeks of twice weekly individual and family sessions using either psychodynamic or supportive approaches.	1. HASS 2. BDI 3. LPI 4. BSSI 5. SCL-90 6. K-SADS 7. Hospitalisations 8. No of suicide attempts –self-report There were no significant differences in the number of suicide attempts made during treatment.	Country of study: US
Rotheram-Borus (1996)	Allocation: non-random; participants were allocated to treatment sequentially Duration of study: three months, assessment at three, six, 12 and 18 months. Number of sessions: NA Type of analysis: completer	Participants were those who consecutively presented to the ER after a suicide attempt. N=140, Mean age= 15, age range 12-18. All were female. Diagnosis: NA	1. Specialised emergency room programme – setting realistic treatment expectations, family therapy 2. Standard emergency room care – evaluation.	1. BDI 2. HASS 3. Junior Eysenck Questionnaire 4. Rosenberg Self-Esteem Scale Suicidal ideation was significantly reduced in the treatment group.	Country of study: US

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Rudd (1996)	Allocation: randomisation Duration of study: two weeks, assessments taken over 24 months. Number of sessions: Patients spent approximately nine hours each day at the treatment facility for two weeks. Number of sessions: more than 100 hours Type of analysis: completer	Referral sources included two outpatient mental health clinics, a 22-bed inpatient service and a hospital emergency room. N=264, mean age=22, age range unknown, 18% were female. Diagnosis: NA	1. Treatment structured within a problem-solving and social competence paradigm targeting skill development in addition to improved social functioning and adaptive coping. 2. TAU – inpatient and outpatient which involved a combination of individual and group treatment.	1. MSSI 2. LES 3. BHS 4. BDI 5. PSI Reductions in suicidal ideation were reported in treatment group.	Country of study: US
Salkovskis (1990)	Allocation: Pre-determined random allocation. Duration of study: one month, assessment at six and 12 months Number of sessions: Five sessions at least one hour each. Type of analysis: completer	Subjects were recruited from patients seen by the duty psychiatrist following a reported suicide attempt. N=20, Mean age 27, age range 16-65, 48% were female. Diagnosis: NA	1. Cognitive behavioural problem solving 2. TAU – not specified.	1. POMS 2. BDI 3. BHS There was a significant reduction of suicide attempts in the treatment group compared to the control.	Country of study: UK The selection of a more chronic and severe sample, as in this study, prevents treatment effects being masked by the substantial spontaneous improvements likely in the majority of patients after the passing of the crisis, which precipitated the index suicide attempt.
Samaraweera (2007)	Allocation: random using computer generated random numbers Duration of study: up to six weeks, assessment at end of treatment. Number of sessions: 45 minutes, 3-6. Type of analysis: completer	Using cluster sampling and random walks, households were identified. From each household randomly selected adults were approached for interview. N=9, age range 15-64, 60% were female. Diagnosis: NA	1. CBT 2. TAU – referral to the local psychiatrist and mental health team.	1. GHQ-30 2. BSSI The CBT group had a greater reduction in suicidal ideation.	Country of study: Sri Lanka
Stanley (2007)	Allocation: NA Duration of study: six months, assessment taken at the end of treatment. Number of sessions: Specific amount of sessions not known. Type of analysis: completer	Participants from major metropolitan area who were part of a larger research project investigating the biological and clinical factors associated with suicidal behaviour were offered open treatment. N=20, mean age 32.2, age range 18-49, 85% were female. Diagnosis: BPD	DBT	1. NSSI episodes 2. NSSI urges 3. HAM-D 4. BHS 5. BDI 6. Suicide ideation 7. Subjective distress Issues to do with self-harm/ suicide were self-reported. All variables except the Ham-D decreased significantly.	Country of study: US

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Stevenson (1992)	Allocation: NA Duration of study: 12 months, 12-month follow-up. Number of sessions: unknown Type of analysis: completer	Patients were referred by psychiatrists, allied health professionals, community clinics and inpatient units and some were self-referred. N=30, mean age 29.4, age range unknown , 63% were female. Diagnosis: BPD	Outpatient psychotherapy influenced by Robert Hobson and included elements from the work of Kohut and Winnicott.	1. Self-harm episodes per year 2. Hospital admissions 3. Medical visits Information was obtained from the patient, friends or relatives, medical records and referral sources. There was a significant reduction in suicidal behaviour	Country of study: Australia
Torhorst (1987)	Allocation: random Duration of study: three months, follow-up time not given. Number of sessions: up to 12 weekly sessions within three months of discharge. Type of analysis: completer	Participants were those who were hospitalised in the Toxicological Department of the Technical University Munich after a suicide attempt. N= 141, mean age is unknown, gender unknown. Diagnosis: NA	1. To continue therapy at the original hospital with the original therapist in an outpatient setting. 2. Control – therapy in a specialised suicide prevention centre meaning a change of therapist and institution. Two therapists were trained in psychoanalytical focal psychotherapy, one in client-centered psychotherapy and one began training in behaviour therapy.	1. Compliance 2. Suicide reattempts Patients in the control group showed the lowest rate of further suicidal behaviour.	Country of study: Germany
Turner (2000)	Allocation: random Duration of study: 12 months, follow-up taken at end of treatment. Number of sessions: patients received a minimum of 49 sessions and a maximum of 84 sessions during the study period. Type of analysis: ITT	Participants were initially treated for suicide attempts in the local hospital and then referred to community mental health outpatient clinic from where they were recruited. N=24, mean age 22, age range 18-27, 80% were female. Diagnosis: BPD	1. DBT 2. CCT	1. Rating of parasuicide 2. BSSI 3. No. of suicide/self-harm attempts. 4. Ratings of impulsiveness 5. Rating of anger 6. BDI 7. HDR 8. BAI 9. BPRS 10. Hospitalisation days Significant improvements were found for both treatments regarding suicide/self-harm behaviour.	Country of study: US
Tyrer, 2003	Allocation: a central independent telephone randomising system was used, with allocation using randomly permuted blocks of sizes two, four and six in a non-systematic sequence. Random allocation was stratified by participating hospital and parasuicide risk status. Duration of study: three months, follow-up 12 months. Number of sessions: up to five sessions within three months after a self-harm episode with the option of two additional booster sessions within six months. Type of analysis: ITT	The trial was carried out in nine A&E departments in five UK study centres, chosen because they are representative of many A&E departments in having an urban base but also cover large catchment areas that include rural settings. N=480, mean age= 31, age range 16-65, 68% were female. Diagnosis: a total of 202 (42%) had a personality disorder at baseline.	1. MACT 2. TAU – normally receive an initial psychiatric assessment followed by psychiatric outpatient care, occasional day-patient care or referral back to the GP depending on arrangements of the hospital.	1. Proportion having an episode of DSH. 2. PHI 3. HADS 4. SFQ 5. MADRS 6. GAF 7. BHI There was no significant differences in the proportion of those repeating DSH (OR 0.78, 95% CI 0.53 to 1.14, $p<0.20$.	Country of study: UK

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Unutzer, 2006	Allocation: random Duration of study: 12 months, follow-up done throughout study and 12 months later. Number of sessions: part of the treatment included problem solving, that was a brief behavioural intervention lasting between four and eight sessions. Type of analysis: ITT	Participants were identified using systematic depression screening or referred by primary care providers. N=1,801, mean age 71, age range 60+, 65% were female. Diagnosis: major depression or dysthymia.	1. IMPACT intervention. 2. TAU – patients could receive all treatments available, including antidepressant medications or counselling by their PCPs, as well as referral to speciality mental health care.	1. HSCL – suicidal ideation measured from a single item on this checklist. Intervention subjects had significantly lower rates of suicidal ideation than controls.	Country of study: US
Van Der Sande,	Allocation: randomised, using sealed and opaque envelopes generated from a list of random numbers generated by computer. Duration of study: not stated although assessments done at 12 months. Number of sessions: Treatment consisted of a short period of admission and problem-solving aftercare, no specifics. Type of analysis: ITT	Participants attending hospital for a suicide attempts were considered eligible. N=274, mean age 36, age range 15+, 65% were female. Diagnosis: NA	1. Short admission to an inpatient unit and problem solving therapy. 2. TAU – could consist of all currently available alternative treatments.	1. SCL-90 2. BHS 3. Repeat suicide attempt No differences in outcome were found.	Country of study: The Netherlands
Verheul, 2003*	Allocation: random: a minimisation method was used to ensure comparability. Duration of the study: 12 months of treatment, assessments taken at the end. Number of sessions: weekly individual and group sessions lasting two-2.5 hours per session. Type of analysis: ITT	Participants were recruited from those with a psychologist/ psychiatrist who was willing to deliver treatment as usual within the 12 months. Referrals originated from addiction treatment services, psychiatric hospitals, centers for mental health care, GP's, self-referrals and psychologists. N=58, mean age 35, age range 18-70, all were female. Diagnosis: BPD	1. DBT 2. TAU – clinical management from the original referral source.	1. BPDSI – to measure recurrent parasuicidal and self-damaging behaviours. 2. LPC DBT resulted in greater reduction of self-mutilating and self-damaging impulsive behaviours.	Country of study: The Netherlands The impact of DBT on patients in the low severity group was similar to that of treatment as usual suggesting that DBT should be the treatment of choice only for patients with BPD who are chronically parasuicidal.
Warren, 2004	Allocation: allocation to the treatment followed the clinical practice of the unit. Duration of study: the average length of stay was 6.7 months, assessments were taken at 12 months. Number of sessions: residents can stay for duration of a year. Type of analysis: completer	Participants were those referred to a hospital for treatment of personality disorder. N= 135, mean age 28, age range 17-45, 48% were women. Diagnosis: BPD	1. The Democratic Therapeutic Community – group psychotherapy and sociotherapy to facilitate personality change. 2. TAU – care responsibility of the referring clinician.	1. PDQ-R 2. MIS – which measured overdosing Significant reductions were found in the treated group for both total impulsive feelings and total actions.	Country of study: UK

Study	Method	Participants	Interventions	Outcome	Country of study and notes
Weinberg, 2006	Allocation: random. Duration of study: completion was after six-eight weeks, six month follow up assessments. Number of sessions: NA Type of analysis: ITT	The sample was recruited from the community through advertisements in the local newspapers, clinical services at McLean Hospital and from the sample ascertained from the Collaborative Longitudinal Study of Personality Disorders. N=30, mean age =28, age range 18-40, 100% were female. Diagnosis: NA	1. MACT 2. TAU – ongoing treatment, no details specified.	1. DIB-R 2. PHI 3. SBQ 4. TUI-FA MACT was significantly associated with less DSH and severity at six-month follow-up.	Country of study: UK
Winter, 2007	Allocation: participants were allocated to the psychotherapy condition if there was a vacancy or to the normal clinical practice condition if not. Duration of study: Repetition of self-harm was taken over three years and psychometric testing was conducted at six months follow-up. Unclear how long had treatment for. Number of sessions: ranged from two to 22 (mean 10.38 sessions) Type of analysis: ITT	The participants were those attending an A&E department following episodes of self-harm. N= 64, mean age 35.09, age range unknown , 53% were female. Diagnosis: NA	1. Personal construct psychotherapy 2. TAU – assessment and possible follow-up appointments with a mental health team. In one A&E department a psychiatric crisis intervention team visited the client while in the department, in the other an appointment was made to attend a psychiatric outpatient clinic.	1.BSSI 2.BHS 3.GSI 4. Repeat Episodes of Self-Harm. Participants in the intervention group showed significantly greater reduction in suicidal ideation, hopelessness and depression. There was some evidence of a lower frequency of repetition of self-harm in intervention.	Country of study: UK
Wood, 2001	Allocation: random, an independent statistician at a distant site assigned a trial number and then randomly allocated to treatment or routine. Duration of study: six months, assessments taken one month later. Number of sessions: a median of eight group sessions (range 0-19) and a median of 2.5 individual sessions. Type of analysis: ITT	Participants were those who were referred to the child and adolescent mental health service of a health district in South Manchester, England. N= 63, mean age 14.2, age range 12-16, 77% were female. Diagnosis: NA	1. Developmental group therapy – techniques were taken from a variety of therapies including problem-solving, CBT, DBT and psychodynamic group psychotherapy, sometimes augmented by individual sessions. 2. TAU – a variety of interventions given by community psychiatric nurses and psychologists, which included family sessions and non-specific counselling. It also included psychotropic medication, when clinically indicated.	1. Self-reported depressive symptoms, suicidal thinking (Reynolds) and repetition of self-harm assessed by portions of an interview-based assessment of suicidal behaviour. 2. K-SADS 3. HoNOSCA Adolescents who had group therapy were less likely to be repeaters at the end of the study.	Country of study: UK Adolescents in the experimental group were allocated individual cognitive-behavioral sessions as needed, making it unclear which component of treatment was most effective.

*This trial had follow-up data.
** This trial was a controlled trial, however there was no control data for the outcome measure of interest and so it was included in before-and-after analyses.
*** This trial was a multiple armed study.
**** This trial was a multiple armed study and had follow-up data.
***** These trials were German, interpretation limitations for data. acceptable.

Abbreviations

AAQ – Acceptance and Action Questionnaire
ARS – Anger Rumination Scale
BAI – Beck Anxiety Disorder
BASIS-R – The revised Behaviour and Symptom Identification Scale
BEST – The Borderline Evaluation of Severity over Time
BDI – Beck Depression Inventory
BHS – Beck Hopelessness Scale
BPD – Borderline Personality Disorder
BPDSI – Borderline Personality Severity Index
BPRS – Brief Psychiatric Rating Scale
CAS – Carroll Anxiety Scale
CBGT – Cognitive Behaviour Group Therapy
CBT – Cognitive Behavioural Therapy
CDRS-R – Children's Depression Rating Scale – Revised
CDI – Child Depression Inventory
CGAS – Children's Global Assessment Scale
CGI-I – Clinical Global Impression Improvement Scale
CTBE – Community Therapy by Experts
CSD – Carroll Scale for Depression
DASS – Depression Anxiety Stress Scales
DBT – Dialectical Behaviour Therapy
DERS – The Difficulties in Emotion Regulation Scale
DES – Dissociative Experiences Scale
DIB-R – The Revised Diagnostic Interview for Borderlines
DSHI – The Deliberate Self-Harm Inventory
EPSIS II – European Parasuicide Study Interview Schedule
FSS – Fear Survey Schedule
GAF – Global Assessment of Functioning
GHQ – General Health Questionnaire
HADS – Hospital Anxiety and Depression Scale
HAM-D – Hamilton Depression Rating Scale
HARS – Hamilton Anxiety Rating Scale
HoNOSCA – Health of the Nation Outcome Scales for Children and Adolescents
HSCL – Hopkins Symptoms Checklist
IDAS – Irritability Depression and Anxiety Scale
IIP – Inventory of Interpersonal Problems
IMPACT – Improving Mood: Promoting Access to Collaborative Treatment for Late Life Depression in Primary Care Programme
IPSST – Interpersonal Problem Solving Skills Training
ITT – Intention to Treat
KHS – Kazdin Hopelessness Scale for Children
K-SAD – Schedule for Affective Disorders and Schizophrenia, child version
LES – Life Experiences Survey
LPI – Life Problems Inventory
LPC – Lifetime Parasuicide Count
MACT – Manual Assisted Cognitive Treatment
MADRS – Montgomery and Asberg Depression Rating Scale
MEPS – Means-Ends Problem-Solving Procedure.
MIS – The Multi-Impulsivity Scale
MMPI D Scale – Minnesota Multiphasic Personality Inventory
MMSE – Mini Mental State Examination
MSSI – Modified Scale for Suicidal Ideation
NSSI – Non-Suicidal Self-Injury
NST – Nondirective Supportive Therapy
OAS – Overt Aggression Scale
PDQ-R – The Personality Diagnostic Questionnaire – Revised
PHI – Parasuicide History Interview
POMS – Profile of Mood Scales
PSI – Problem-Solving Inventory
PS – Problem Solving
QOLI – The Quality of Life Inventory
RADS – Reynolds Adolescent Depression Scale
RFL – Reasons for Living Inventory
RSS – Reinforcement Survey Schedule
SAS – Social Adjustment Scale
SBQ-14 – The Suicidal Behaviours Questionnaire
SBFT – Systemic Behaviour Family Therapy
SCAN – Schedules for Clinical Assessment in Neuropsychiatry
SCL-90-R – The Symptom Checklist-90-R
SCID – Structural Clinical Interview
SD – Systematic Desensitisation
SFQ – Social Functioning Questionnaire
SIC – Suicide Intervention Counsellor
SIQ-Jr – Suicidal Ideation Questionnaire – Junior High School version
SPSI-R – Social Problem-Solving Inventory
SRPS – Self-Rating Problem-Solving Scale
SSRI – Selective Serotonin Reuptake Inhibitors
SSTAI – State Trait Anxiety Inventory
SSI – Suicide Scale Ideation
STPI – State Trait Personality Inventory
TAU – Treatment as Usual
THI – Treatment History Interview
TUI-FA – Treatment Utilisation Interview, Follow-Along version
ZDI – Zung Depression Scale

Appendix G: Controlled trials

Figure 1: Forest plot of randomised controlled trials in the effectiveness of psychotherapy/ counselling versus a control

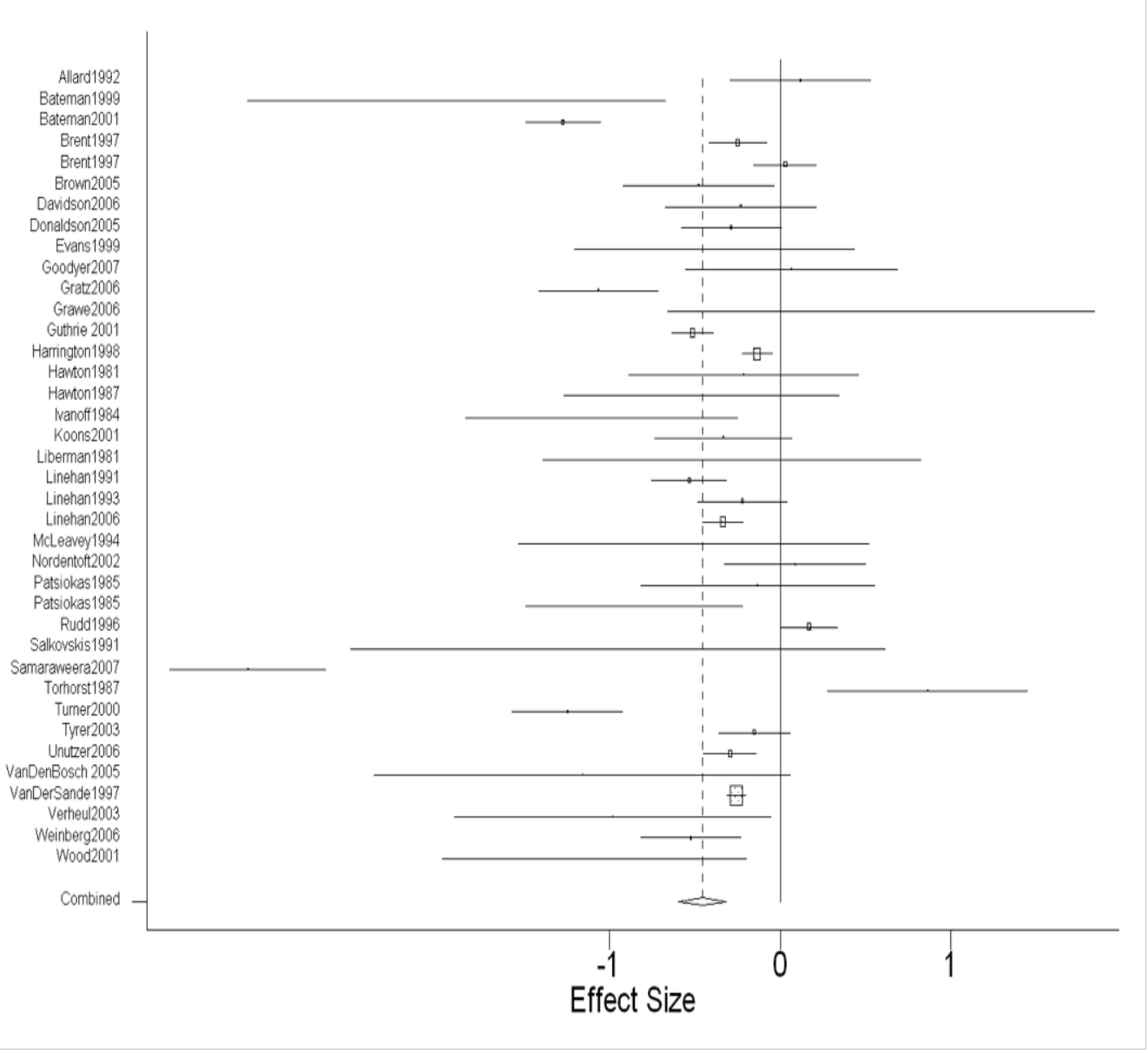


Table 1: Meta-analysis for randomised controlled trials

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.46	-0.57	-0.32	-6.42	0.001	38

Test for heterogeneity: I^2= 91% on 37 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.13

Figure 2: Forest plot of non-randomised trials in the effectiveness of psychotherapy/counselling versus a control

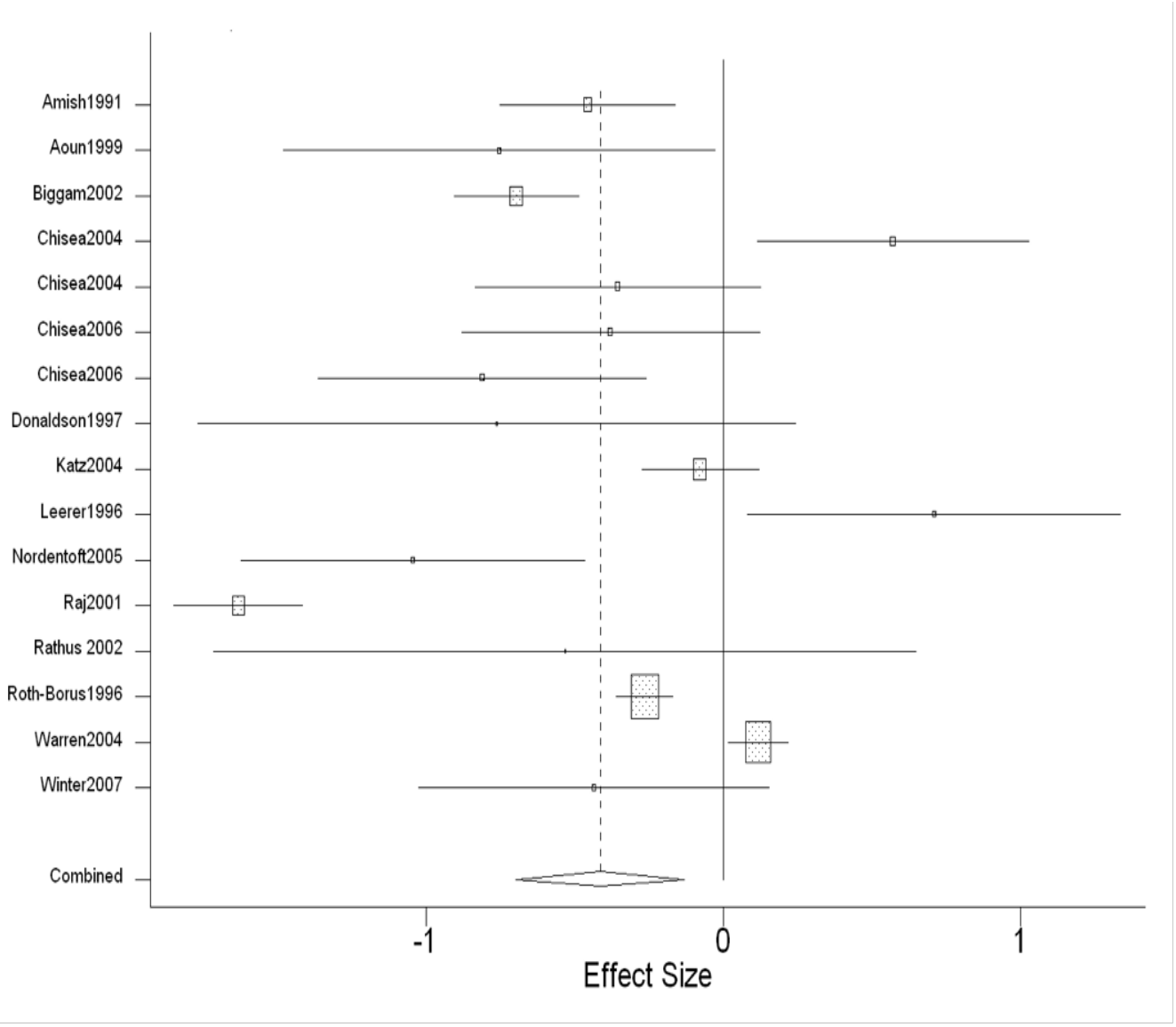


Table 2: Meta-analysis for non-randomised trials

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.42	-0.70	-0.13	-2.87	0.004	16

Test for heterogeneity: I^2= 94% on 15 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.27

Figure 3: Forest plot of studies looking at a form of treatment against a control with the outcome measure of suicide attempt

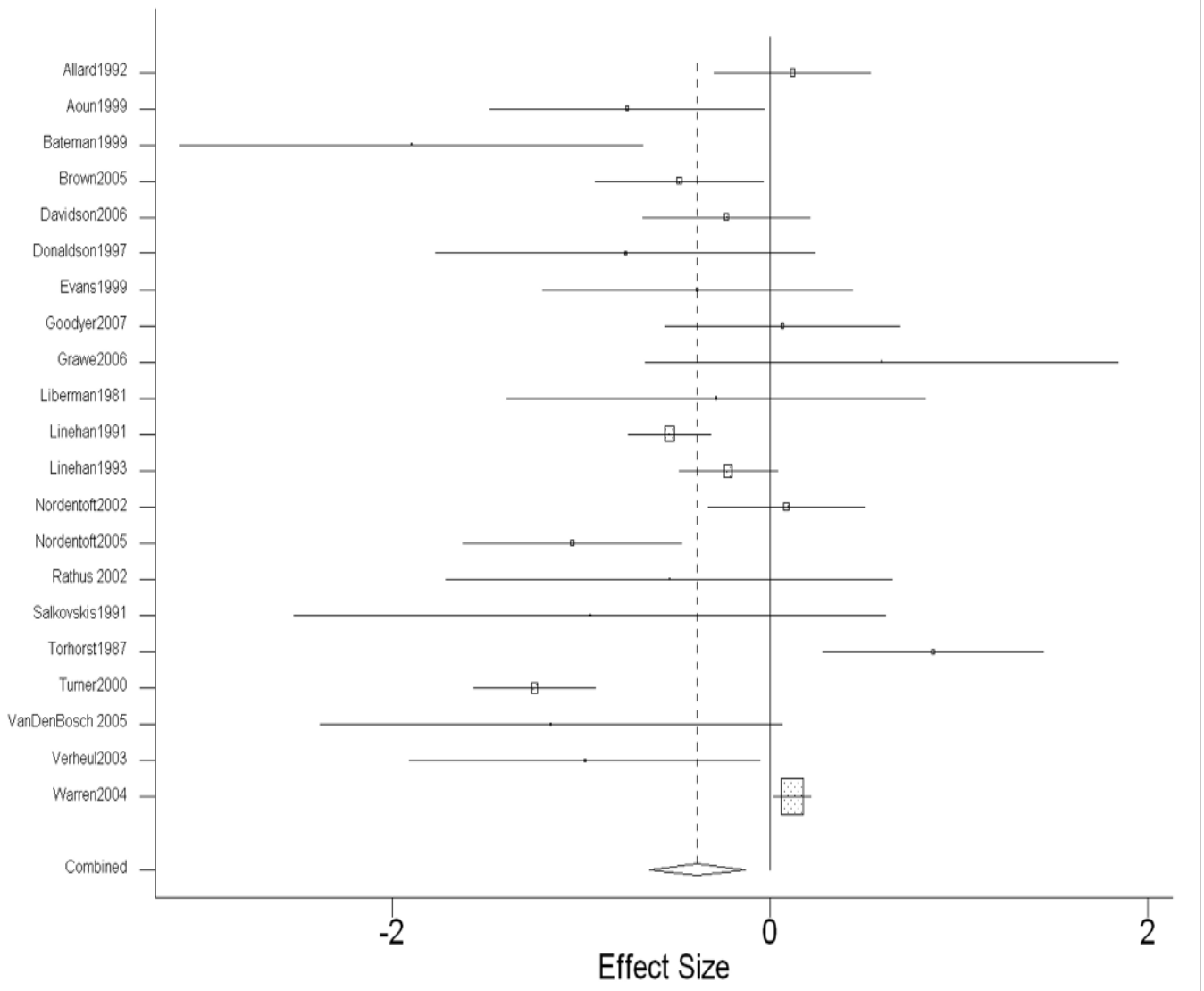


Table 3: Meta-analysis for studies looking at suicide attempt

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.385	-0.639	-0.131	-2.969	0.003	21

Test for heterogeneity: I^2= 84% on 20 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.23

Figure 4: Forest plot of studies looking at a form of treatment against a control with the outcome measure of self-harm

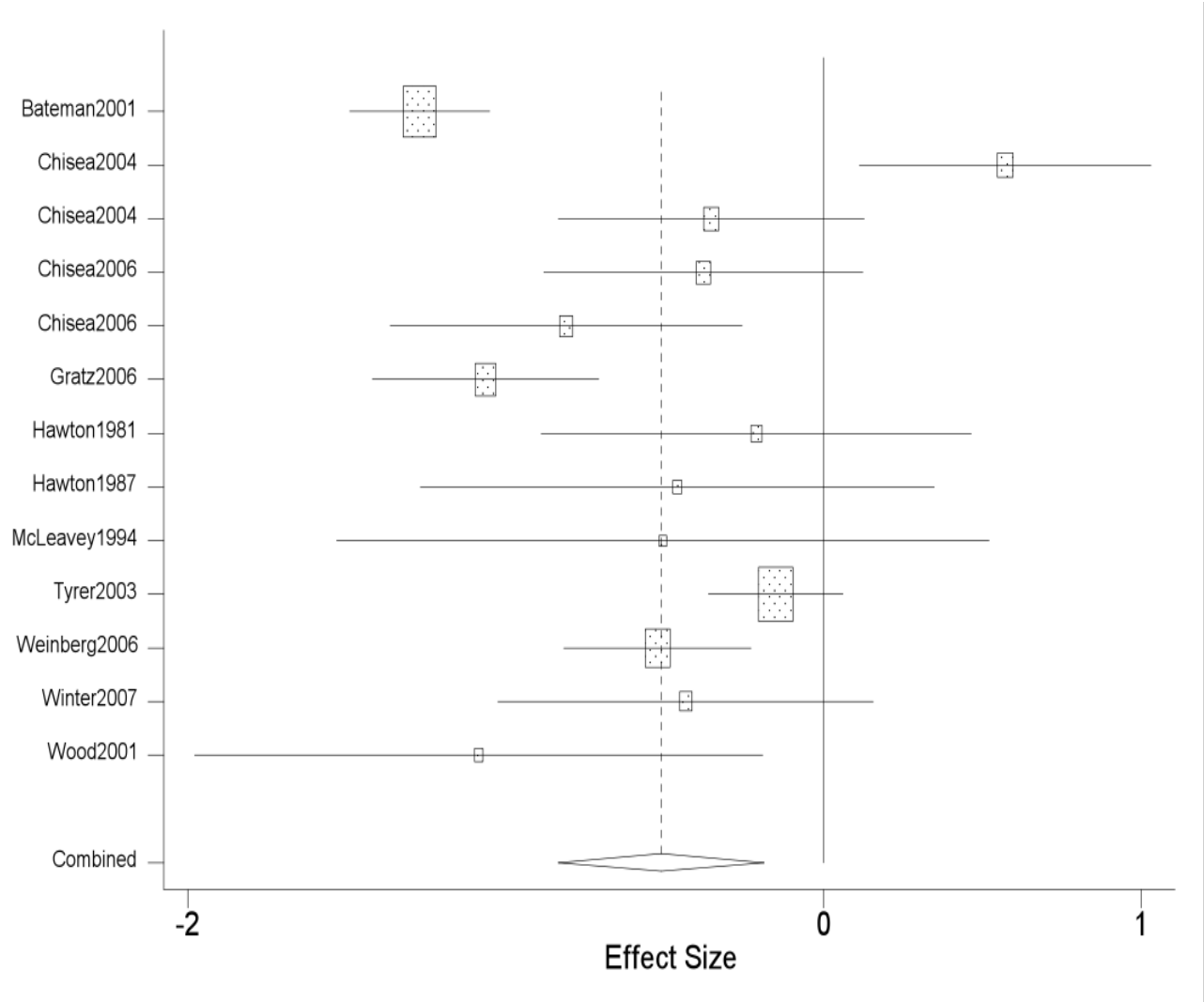


Table 4: Meta-analysis for studies looking at self-harm

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.51	-0.84	-0.19	-3.10	0.002	13

Test for heterogeneity: I^2= 87% on 12 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.28

Figure 5: Forest plot of studies looking at a form of treatment against a control with the outcome measure of suicidal ideation

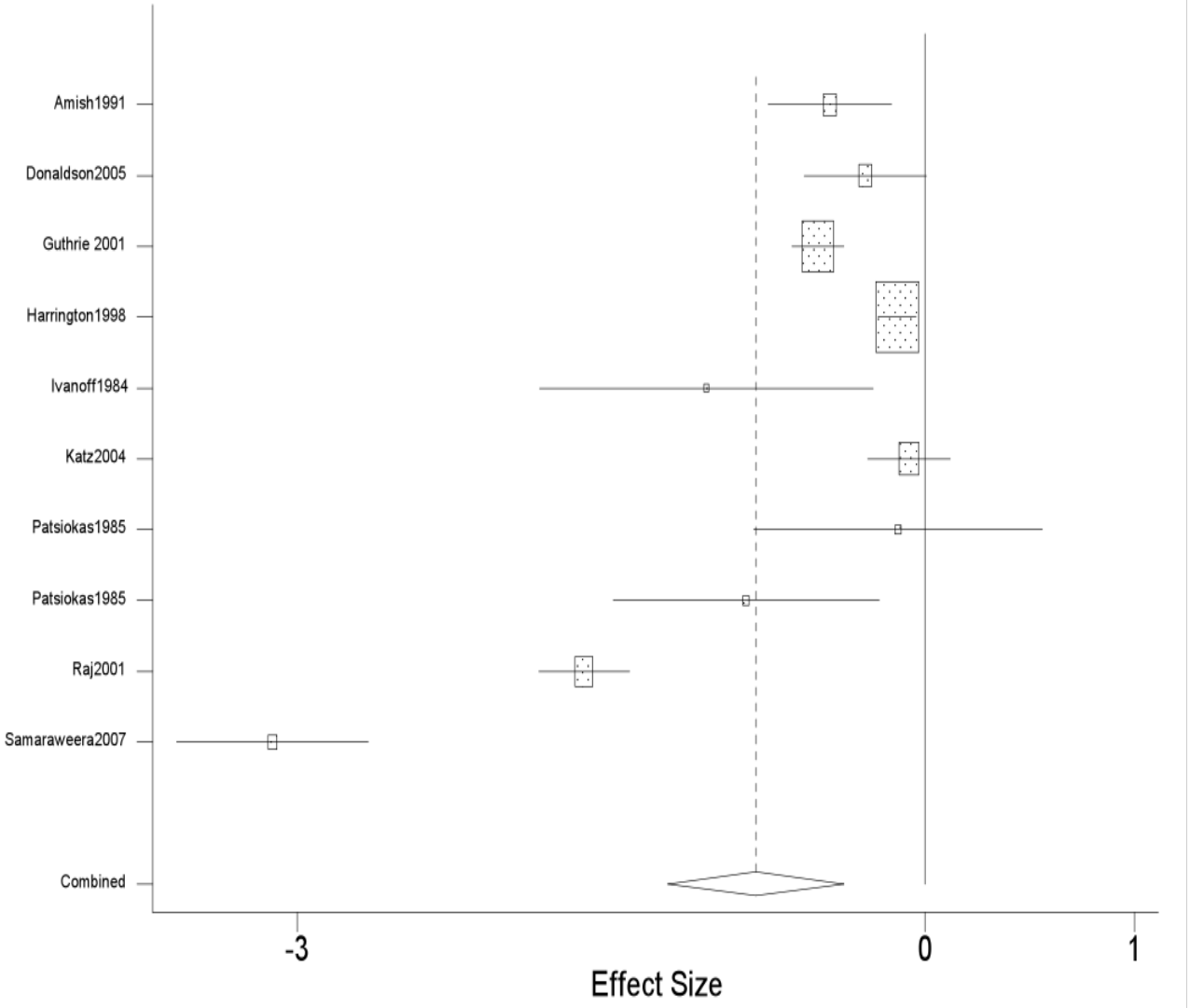


Table 5: Meta-analysis for studies looking at suicidal ideation

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.81	-1.23	-0.39	-3.78	0.000	10

Test for heterogeneity: I^2= 97% on 9 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.41

Figure 6: Forest plot of studies looking at a form of treatment against a control with the outcome measure of BHS

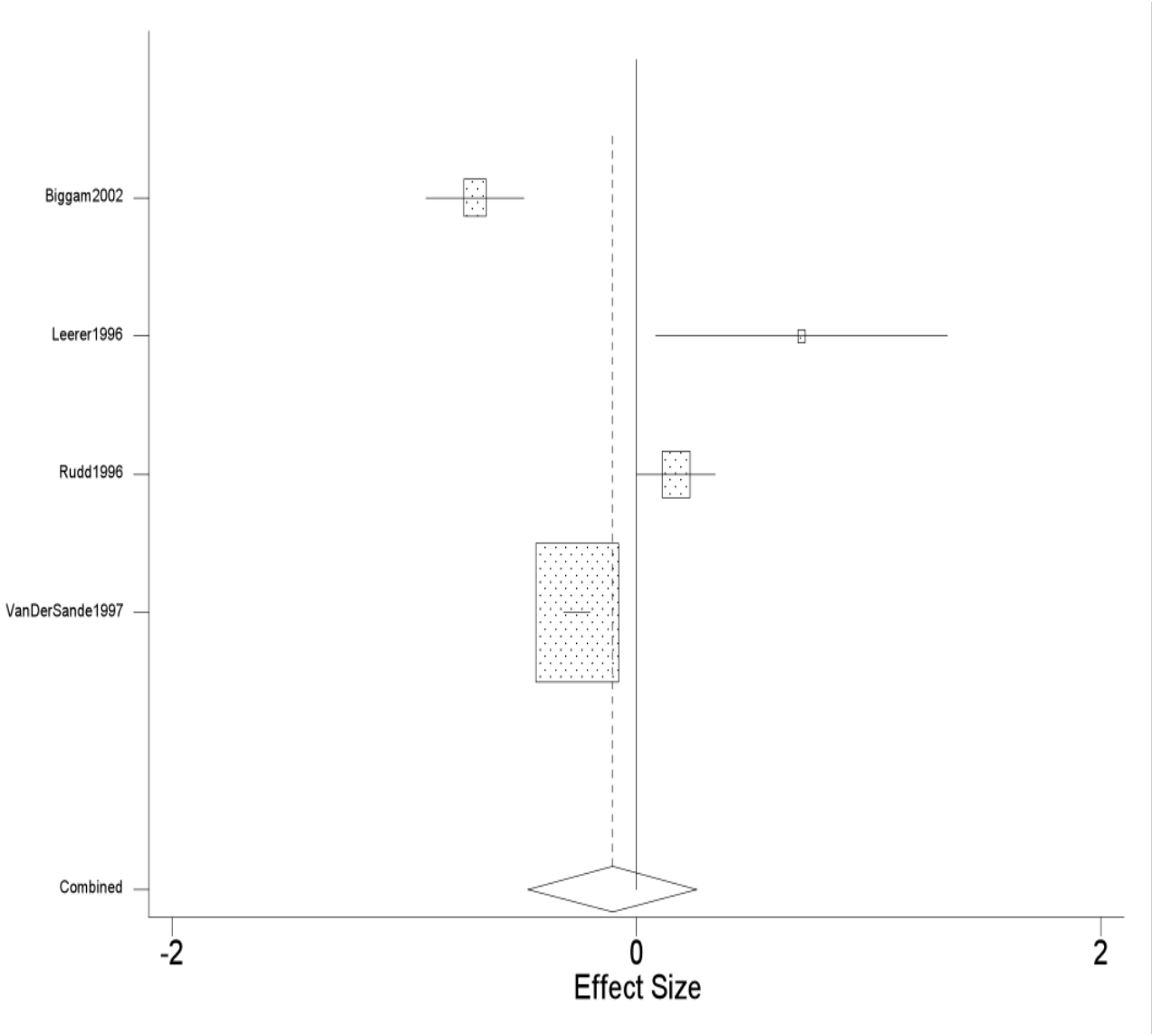


Table 6: Meta-analysis for studies looking at BHS

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.10	-0.47	0.26	-0.56	0.572	4

Test for heterogeneity: I^2= 94% on 3 degrees of freedom ($p< 0.001$)
Moment-based estimate of between studies variance = 0.12

Figure 7: Forest plot of studies looking at a form of treatment against a control with the subtype therapy of CBT

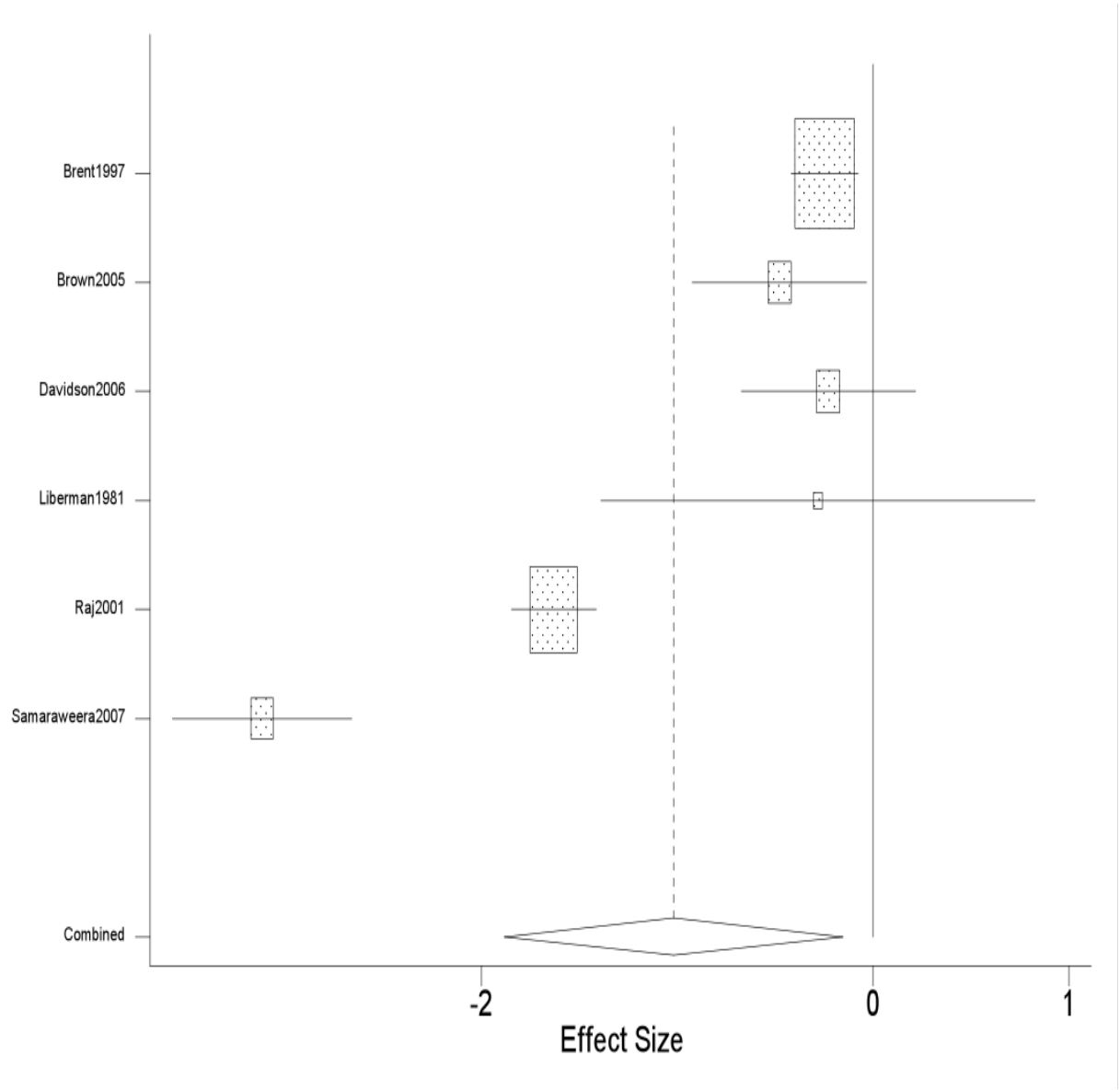


Table 7: Meta-analysis for studies looking at CBT

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-1.02	-1.88	-0.16	-2.31	0.021	6

Test for heterogeneity: I^2= 98% on 5 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 1.09

Figure 8: Forest plot of studies looking at a form of treatment against a control with the subtype therapy of DBT

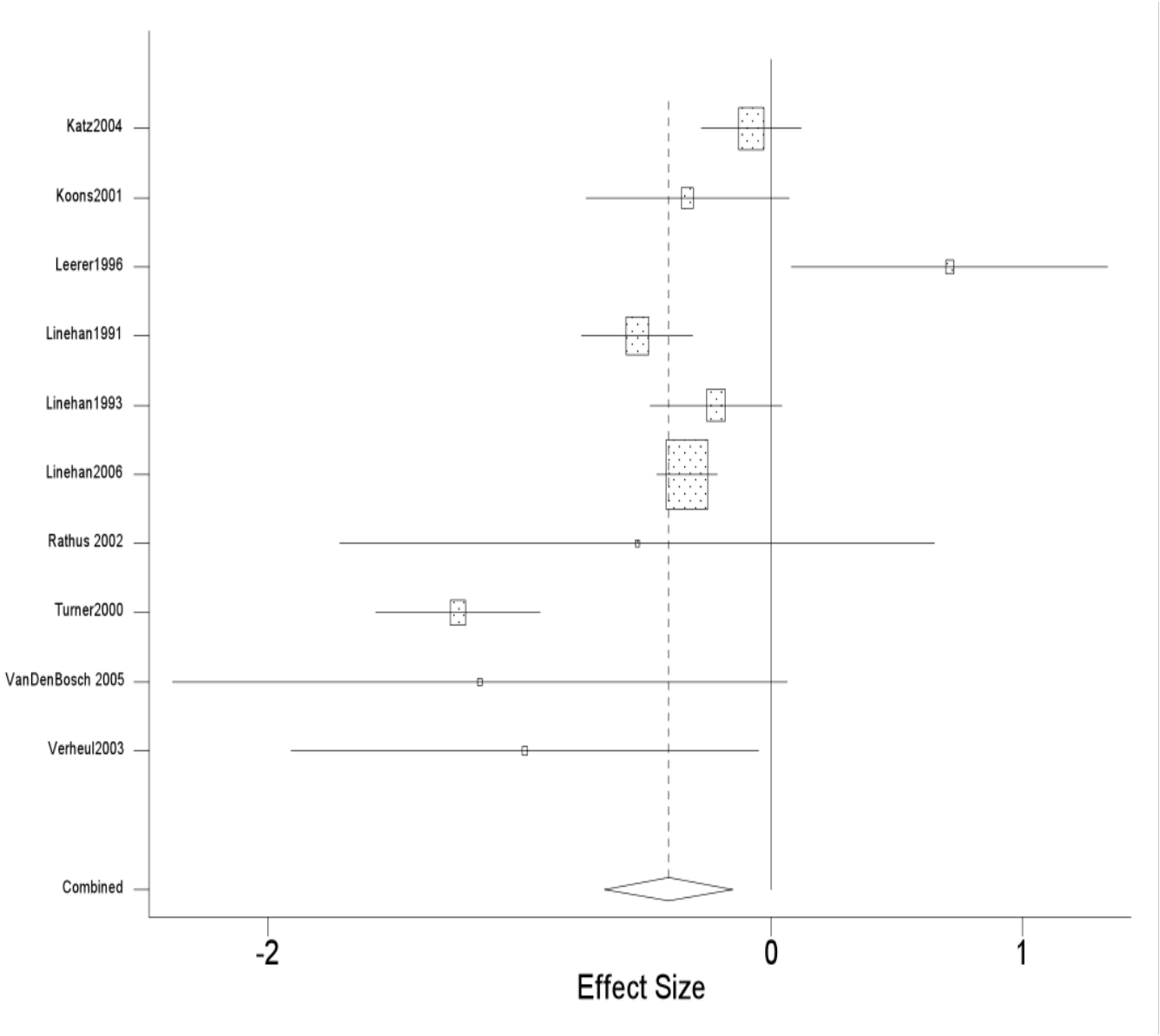


Table 8: Meta-analysis for studies looking at DBT

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.41	-0.66	-0.15	-3.13	0.002	10

Test for heterogeneity: I^2= 83%on 9 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.11

Figure 9: Forest plot of studies looking at a form of treatment against a control with the subtype therapy of PS

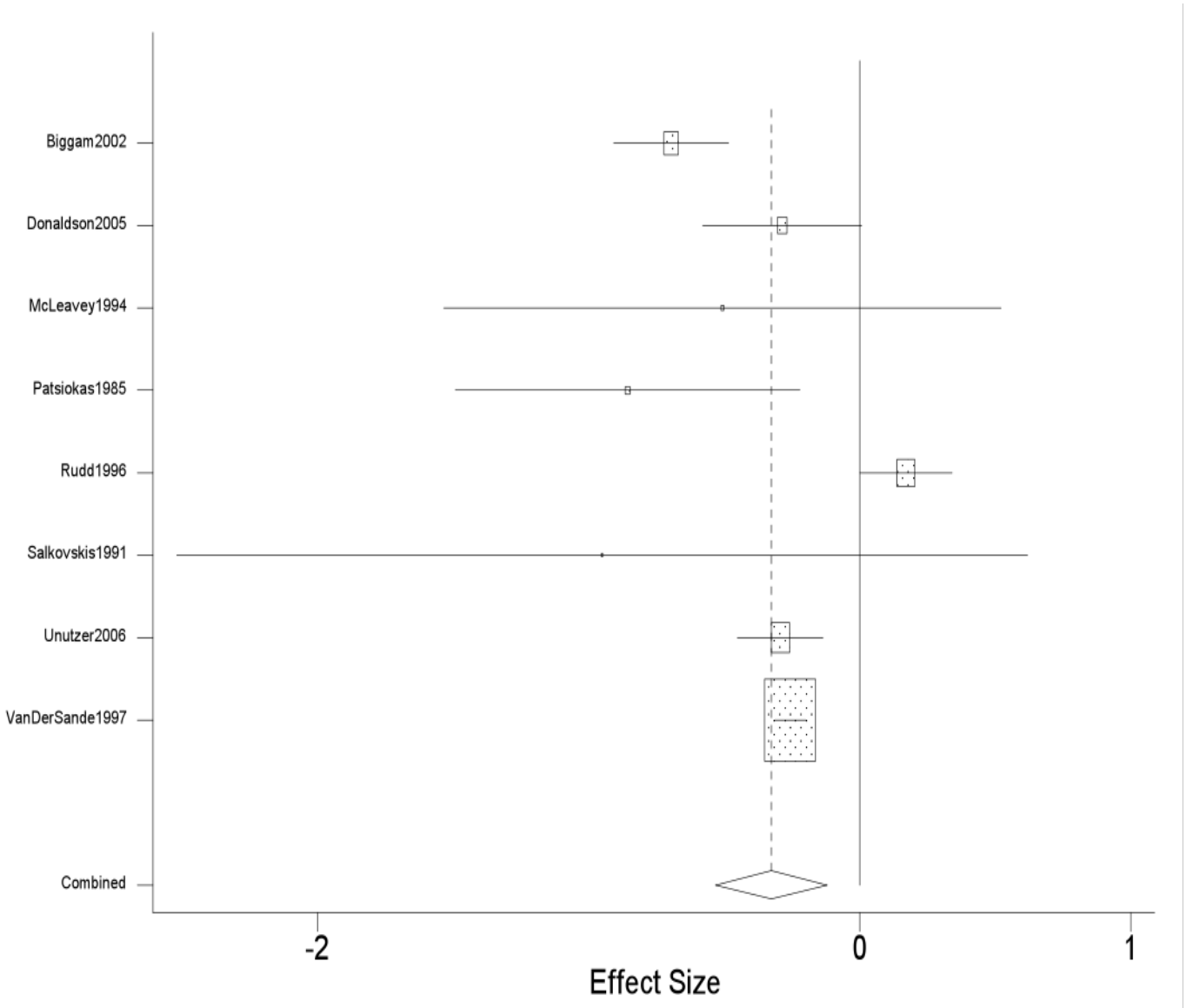


Table 9: Meta-analysis for studies looking at PS

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.33	-0.53	-0.12	-3.10	0.002	8

Test for heterogeneity: I^2= 85% on 7 degrees of freedom (p< 0.000)
Moment-based estimate of between studies variance = 0.05

Figure 10: Forest plot of studies looking at a form of treatment against a control for treatment on an individual basis

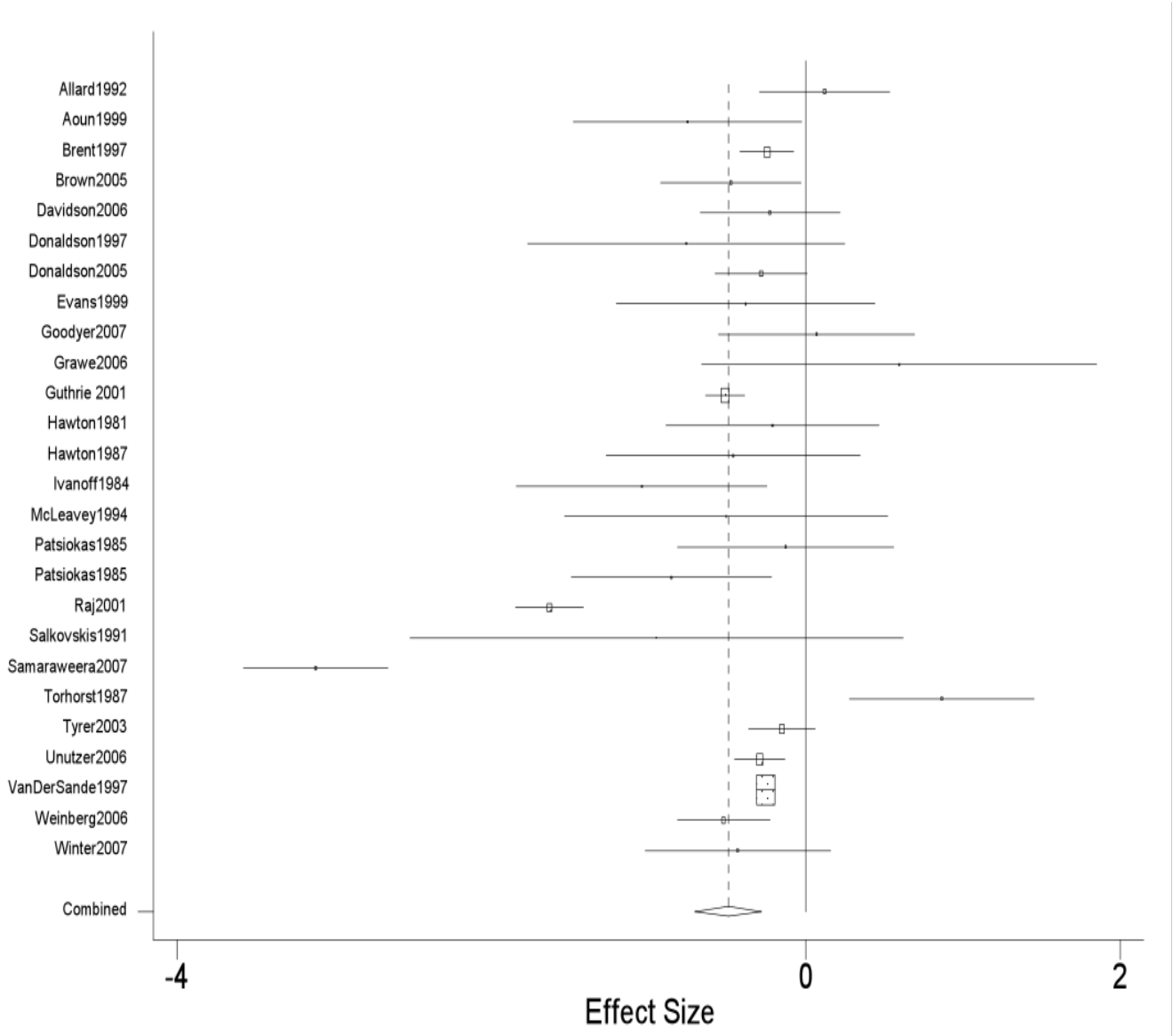


Table 10: Meta-analysis for studies looking at treatment on an individual basis

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.45	-0.70	-0.28	-4.61	0.000	26

Test for heterogeneity: I^2= 92% on 25 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.21

Figure 11: Forest plot of studies looking at a form of treatment against a control with group therapy

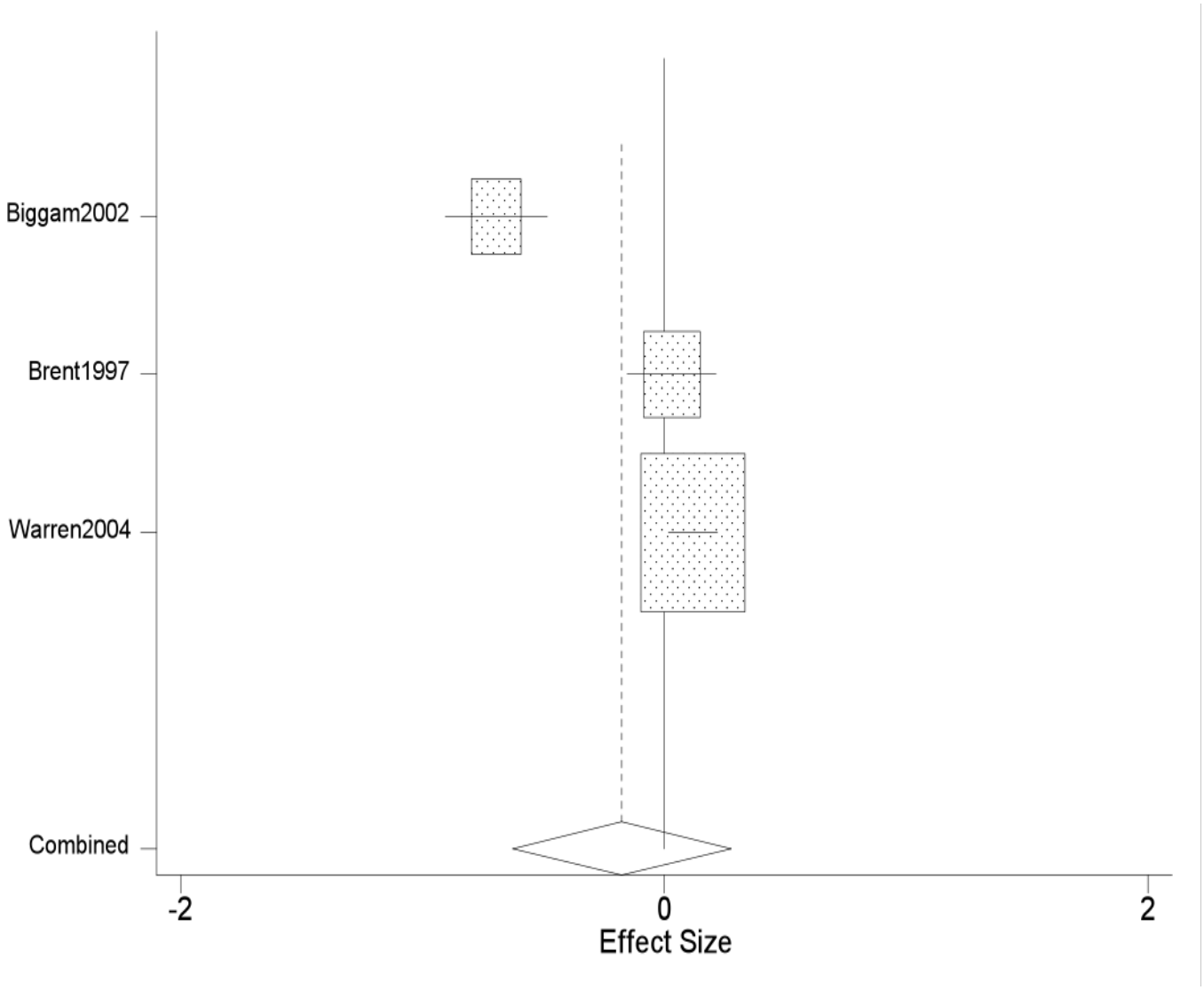


Table 11: Meta-analysis group

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.18	-0.63	0.28	-0.76	0.45	3

Test for heterogeneity: I^2= 96% on 2 degrees of freedom ($p< 0.001$)
Moment-based estimate of between studies variance = 0.15

Figure 12: Forest plot of studies looking at a form of treatment against a control with mixed therapy

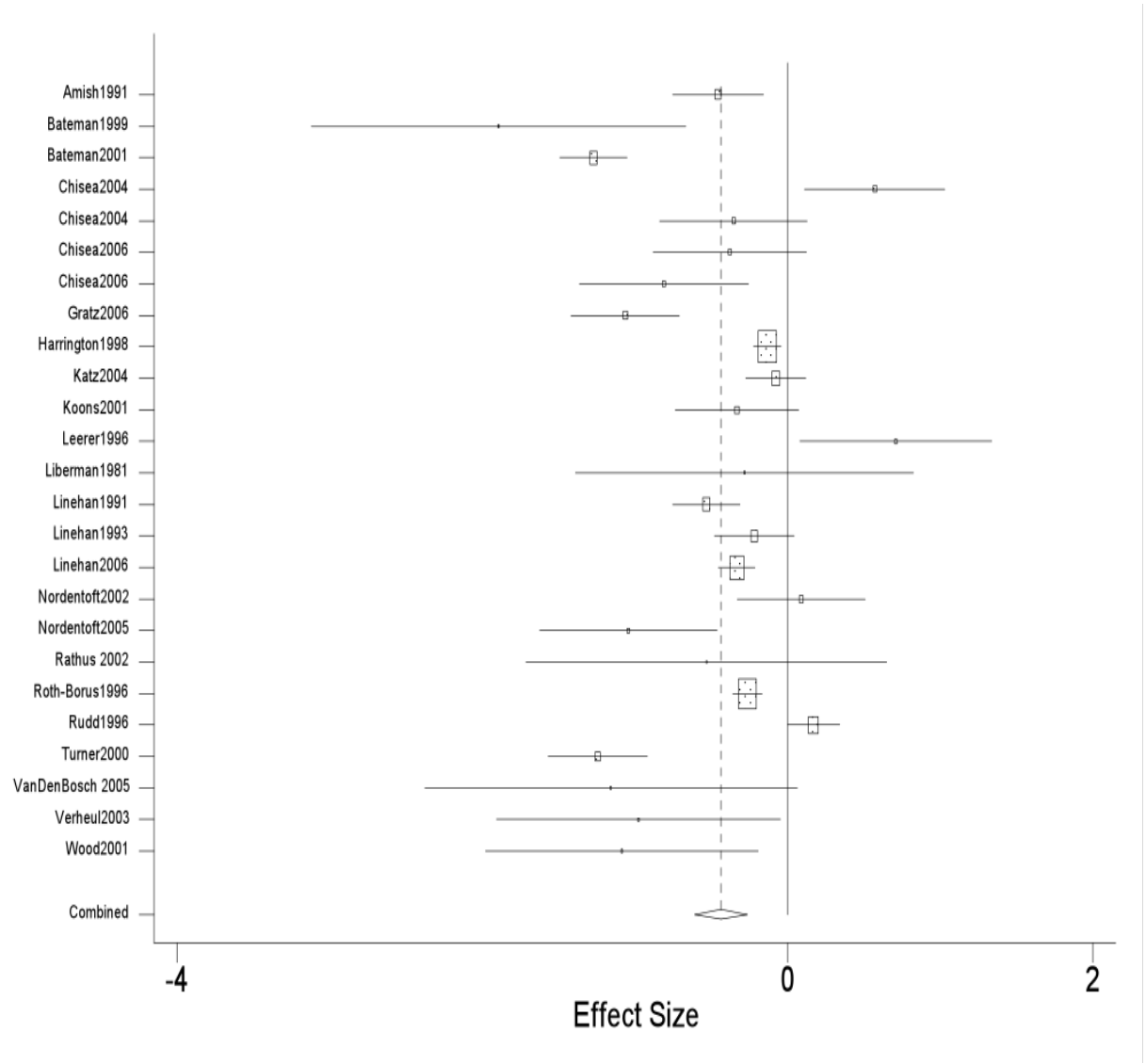


Table 12: Meta-analysis for mixed treatment

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.44	-0.61	-0.27	-5.03	0.000	25

Test for heterogeneity: I^2= 89% on 24 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.13

Figure 13: Forest plot of studies looking at a form of treatment against a control with participants < 18 years of age

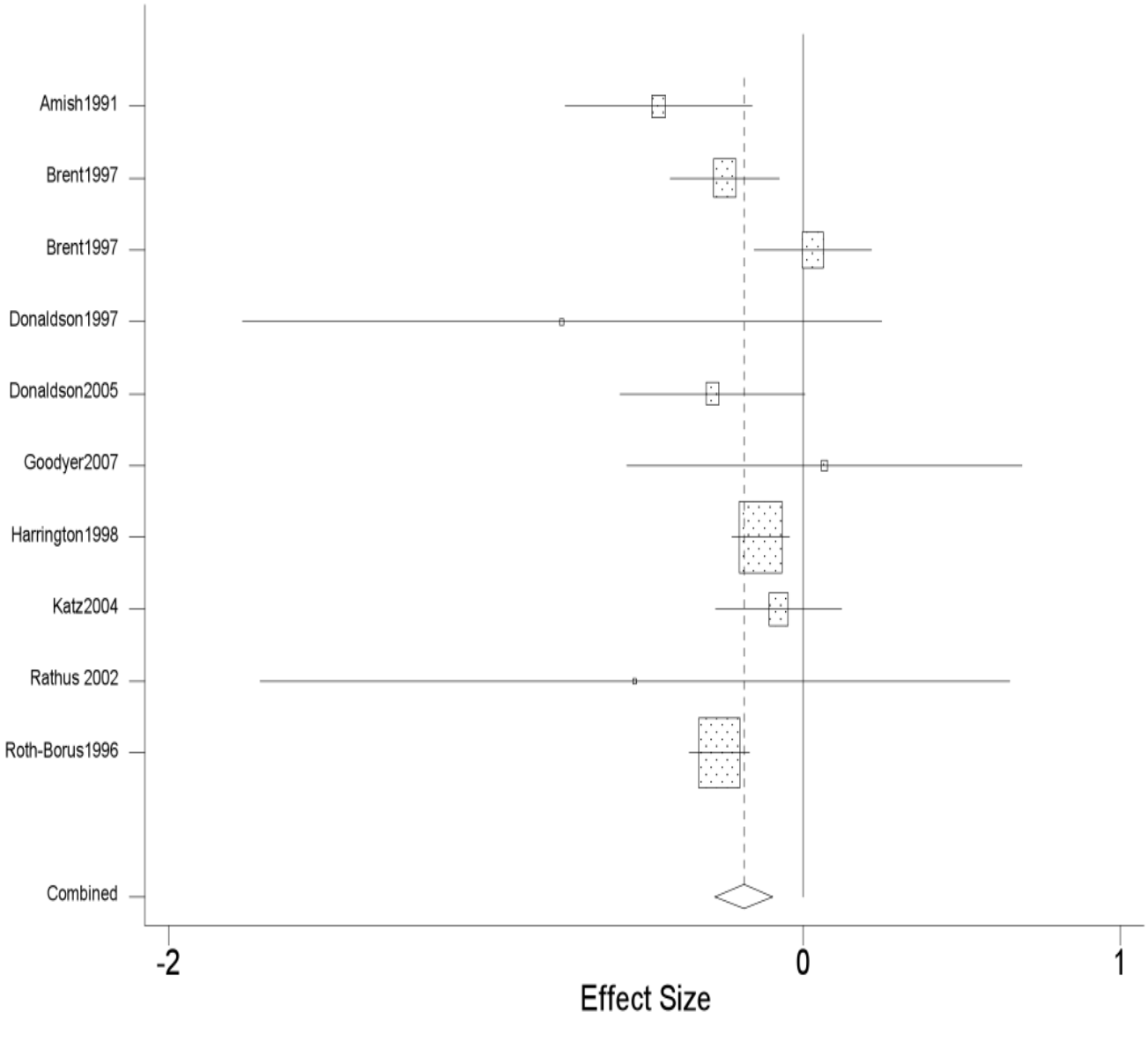


Table 13: Meta-analysis for participants less than 18 years of age

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.19	-0.28	-0.10	-4.04	0.000	10

Test for heterogeneity: I^2= 46% on 9 degrees of freedom (p< 0.06)
Moment-based estimate of between studies variance = 0.01

Figure 14: Forest plot of studies looking at a form of treatment against a control with participants >18 years of age but <50 years of age

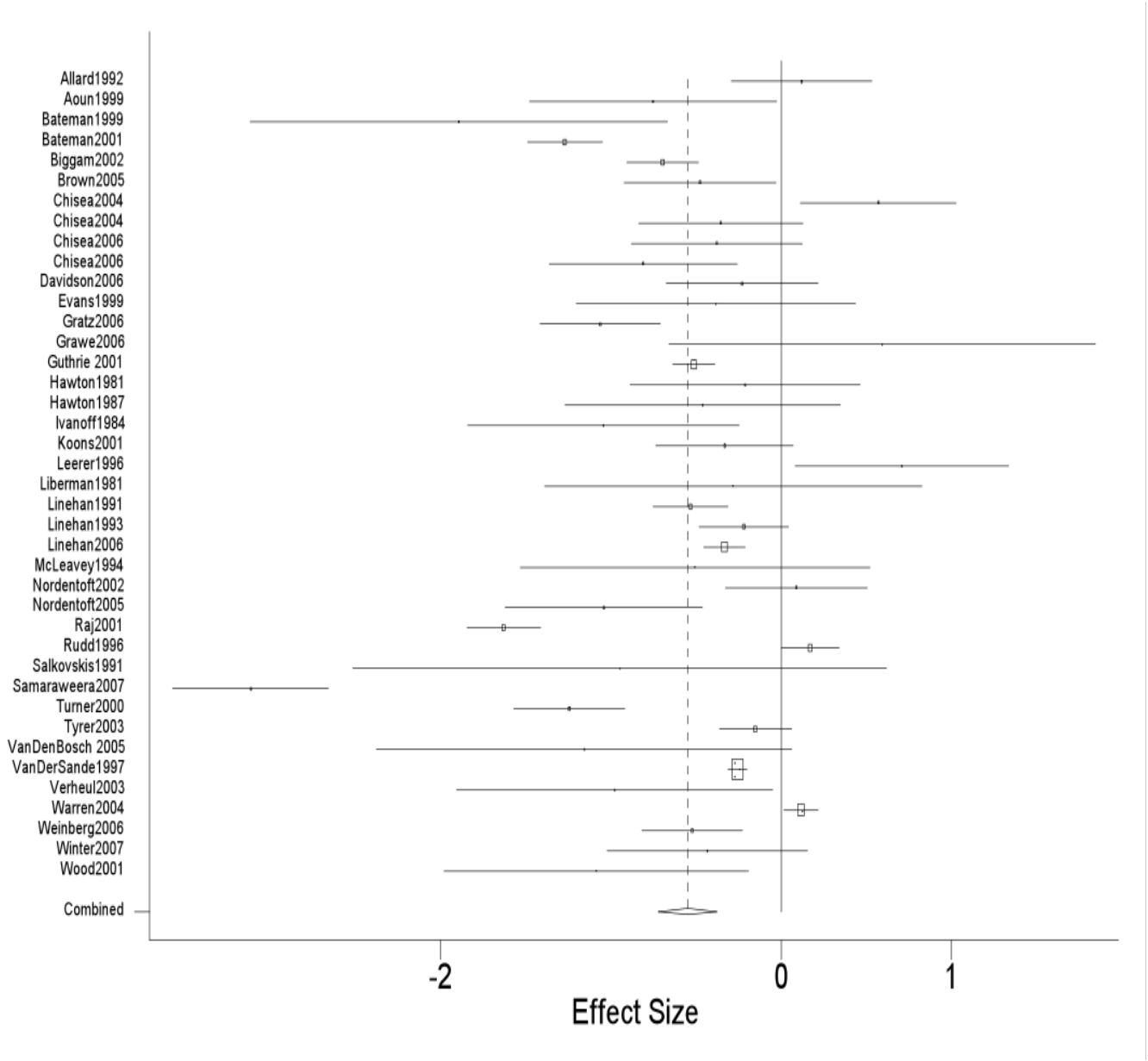


Table 14: Meta-analysis for participants aged >18 years of age but <50 years of age

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.55	-0.72	-0.38	-6.29	0.000	40

Test for heterogeneity: I^2= 94% on 39 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.23

Figure 15: Forest plot of studies looking at a form of treatment against a control with quality criteria score of less than 50%

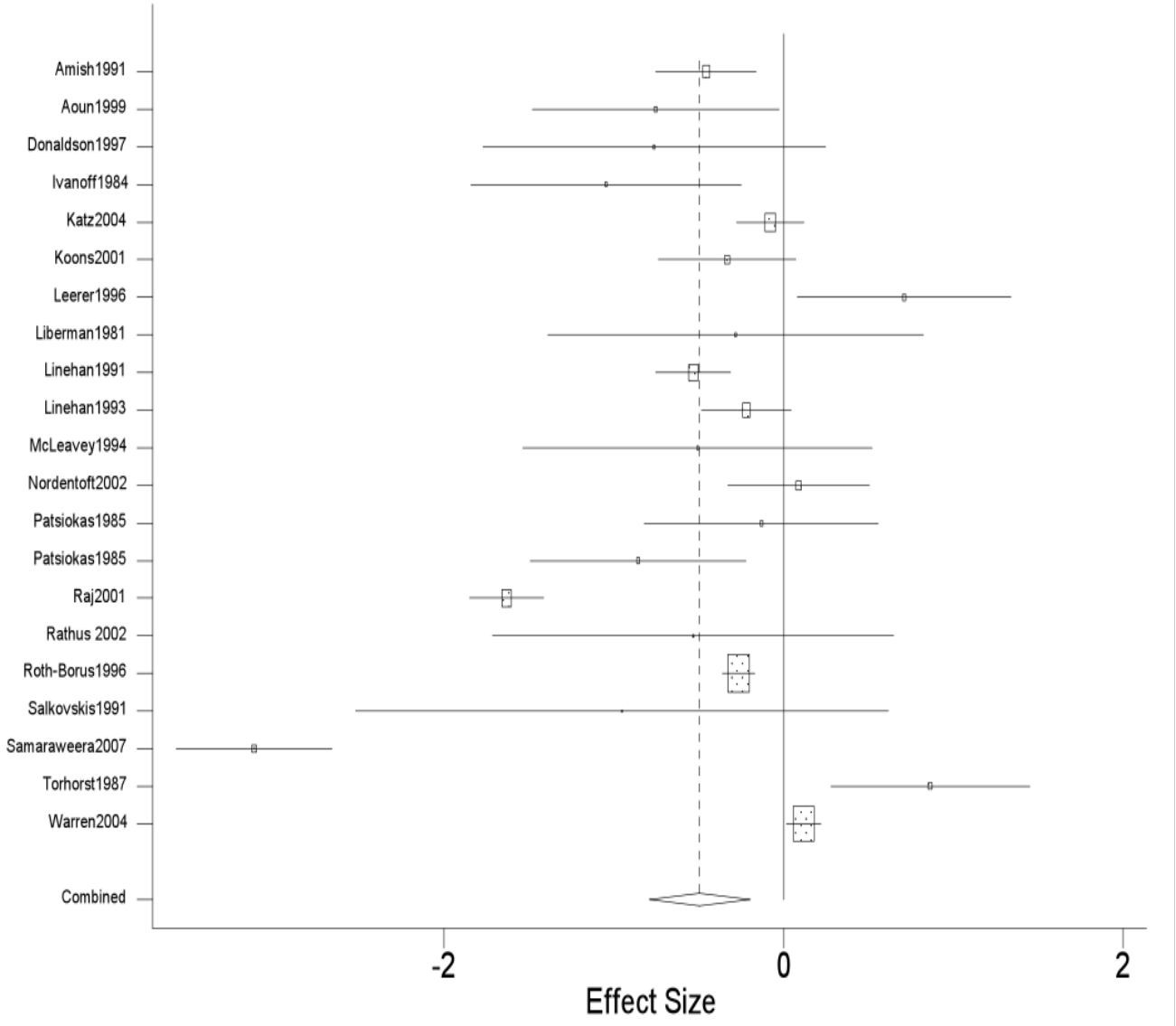


Table 15: Meta-analysis for studies that had less than 50% in quality criteria met

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.49	-0.79	-0.20	-3.28	0.001	21

Test for heterogeneity: I^2= 93% on 20 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.38

Figure 16: Forest plot of studies looking at a form of treatment against a control with quality criteria score of 50%

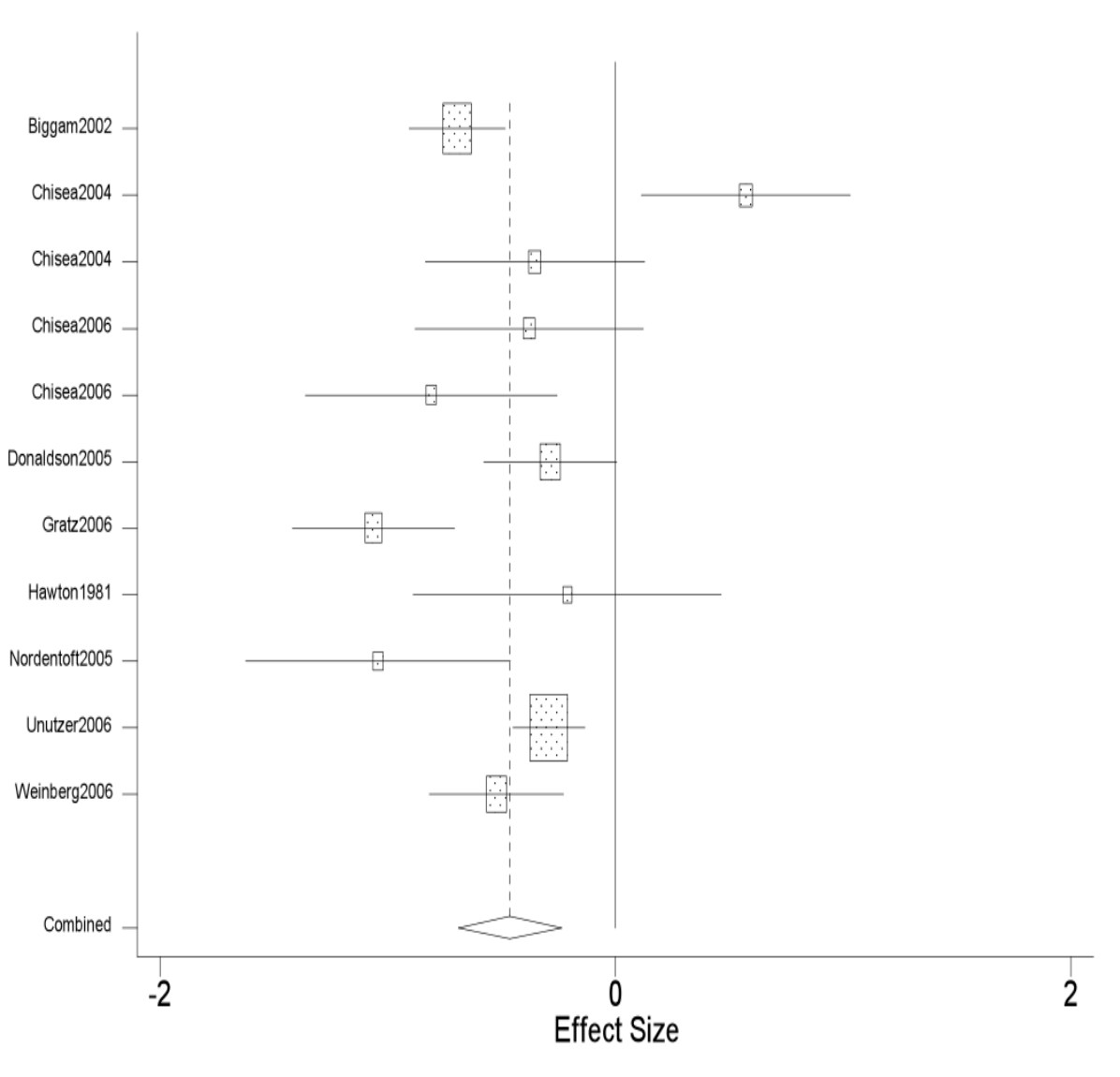


Table 16: Meta-analysis for studies that had 50% in quality criteria met

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.46	-0.69	-0.24	-3.99	0.000	11

Test for heterogeneity: I^2= 79% on 10 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.10

Figure 17: Forest plot of studies looking at a form of treatment against a control with quality criteria score of >50%

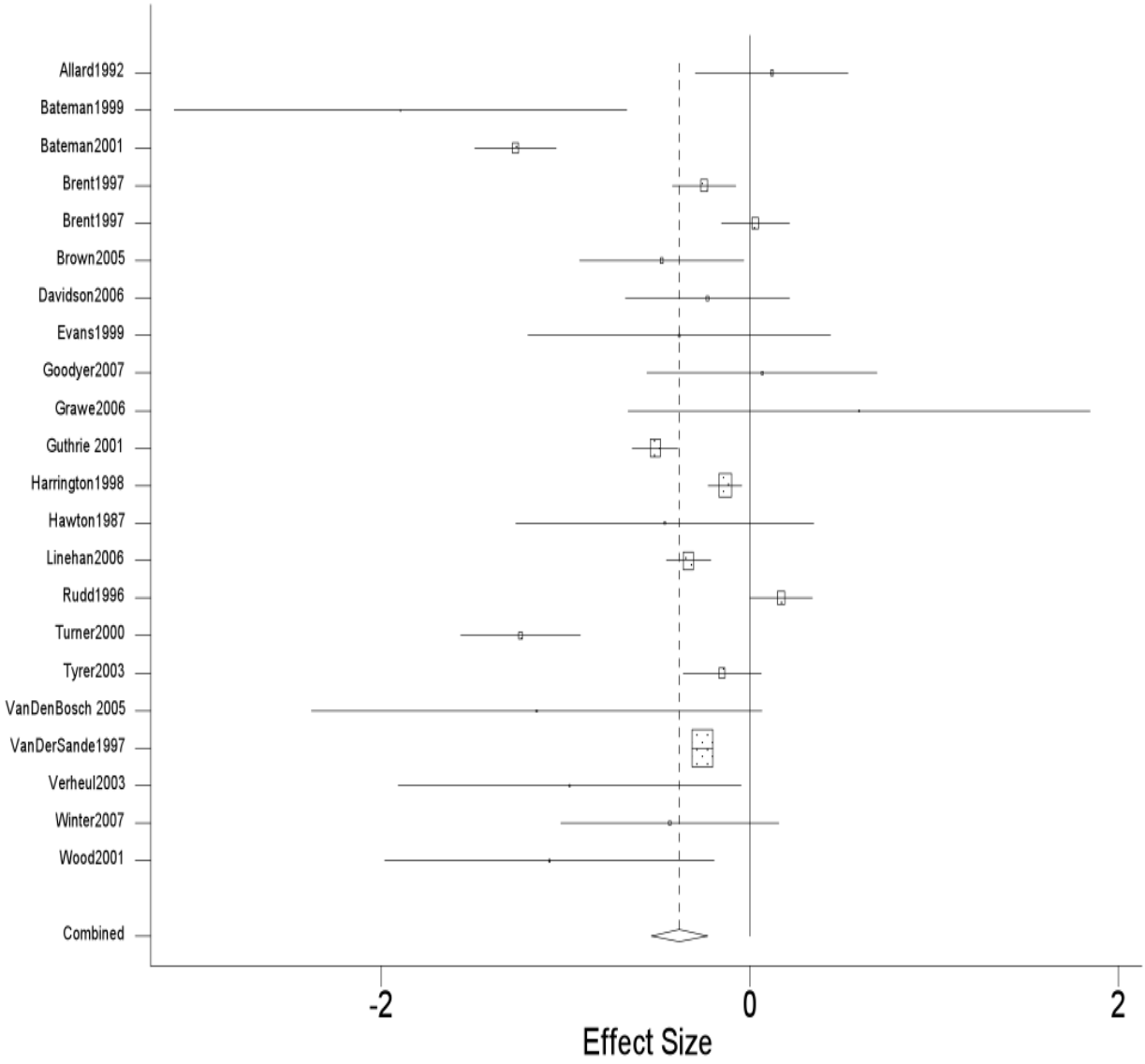


Table 17: Meta-analysis for studies that had >50% in quality criteria met

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.38	-0.53	-0.23	-4.97	0.000	22

Test for heterogeneity: I^2= 89% on 21 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.08

Figure 18: Forest plot of studies looking at a form of treatment against a control where participants had less than six hours of therapy

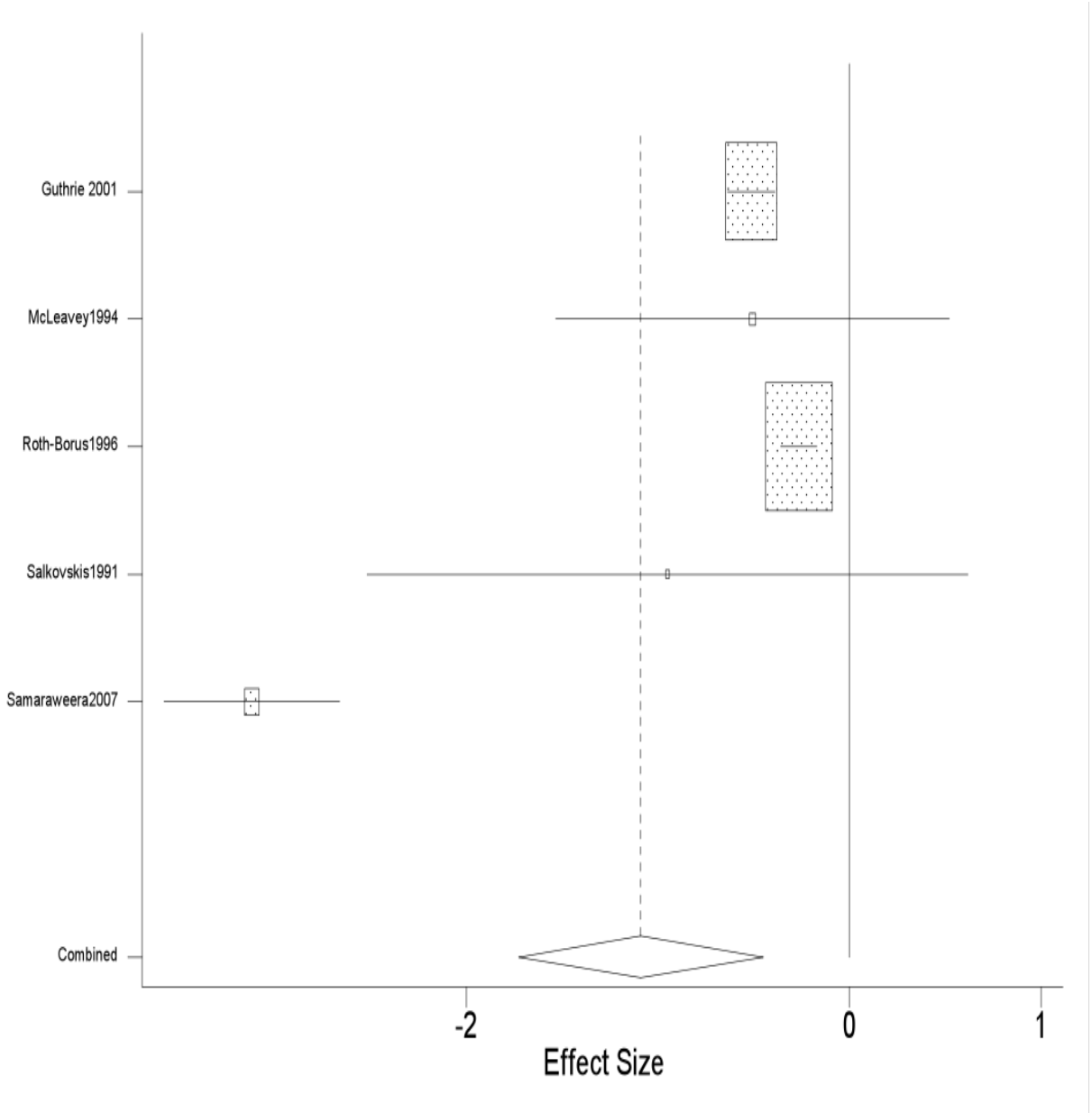


Table 18: Meta-analysis for studies with less than six hours of therapy

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-1.09	-1.73	-0.45	-3.35	0.001	5

Test for heterogeneity: I^2= 97% on 4 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.41

Figure 19: Forest plot of studies looking at a form of treatment against a control where participants had >six and <20 hours of therapy

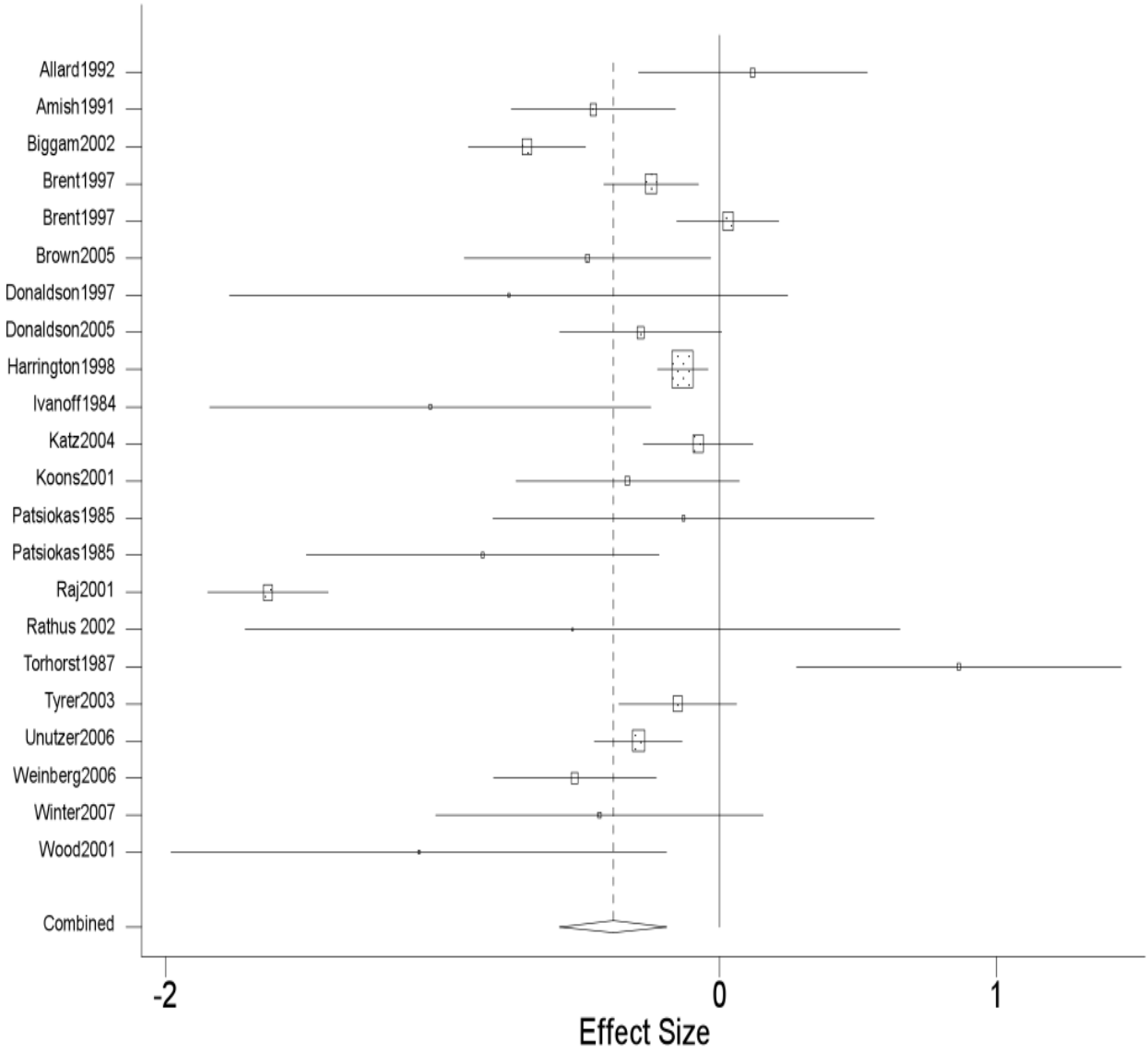


Table 19: Meta-analysis for studies with >six and <20 hours in therapy

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.39	-0.58	-0.19	-3.90	0.000	22

Test for heterogeneity: I^2= 91% on 21 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.16

Figure 20: Forest plot of studies looking at a form of treatment against a control where participants had >20 hours of therapy

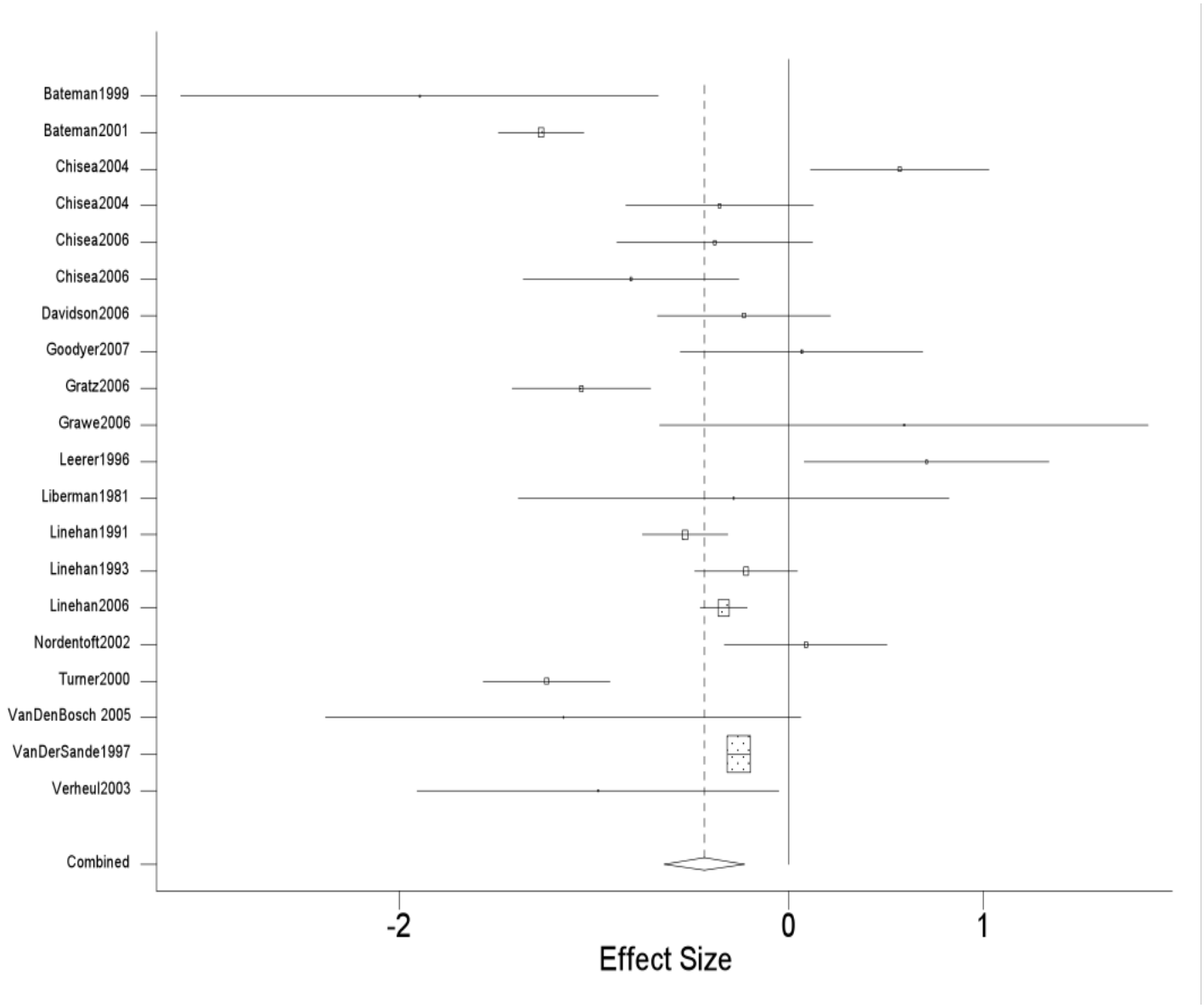


Table 20: Meta-analysis for studies where participants had >20 hours of therapy

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.43	-0.64	-0.23	-4.16	0.000	20

Test for heterogeneity: I^2= 89% on 19 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.14

Figure 21: Forest plot of studies looking at a form of treatment against a control where participants had inpatient treatment

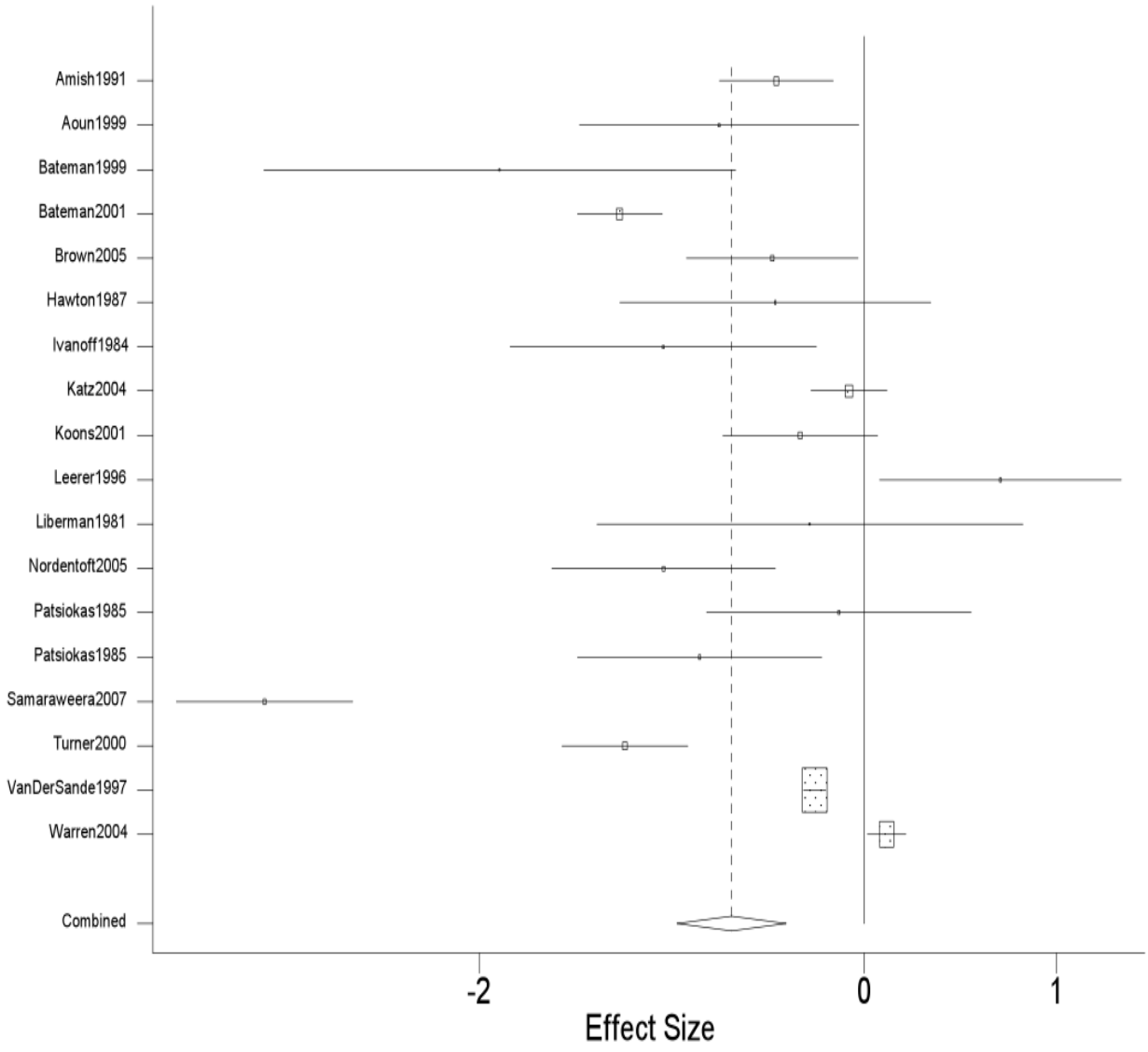


Table 21: Meta-analysis for participants who were treated on an inpatient basis

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.69	-0.97	-0.40	-4.74	0.000	18

Test for heterogeneity: I^2= 95% on 17 degrees of freedom ($p< 0.001$)
Moment-based estimate of between studies variance = 0.30

Figure 22: Forest plot of studies looking at a form of treatment against a control where participants had outpatient treatment

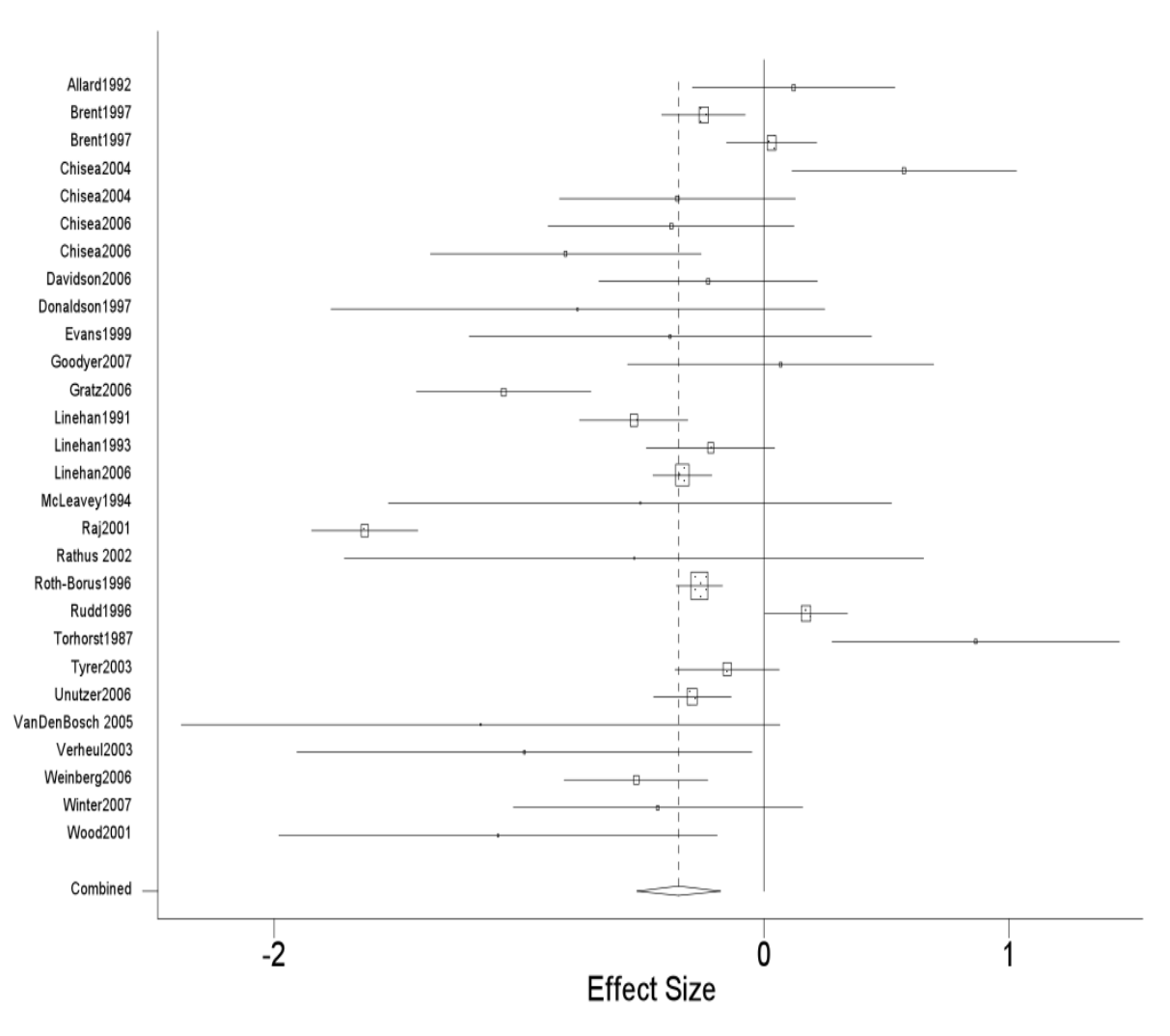


Table 22: Meta-analysis for participants who were treated on an outpatient basis

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.35	-0.52	-0.18	-4.02	0.000	28

Test for heterogeneity: I^2= 90% on 27 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.15

Figure 23: Forest plot of studies looking at a form of treatment against a control where participants had home treatment

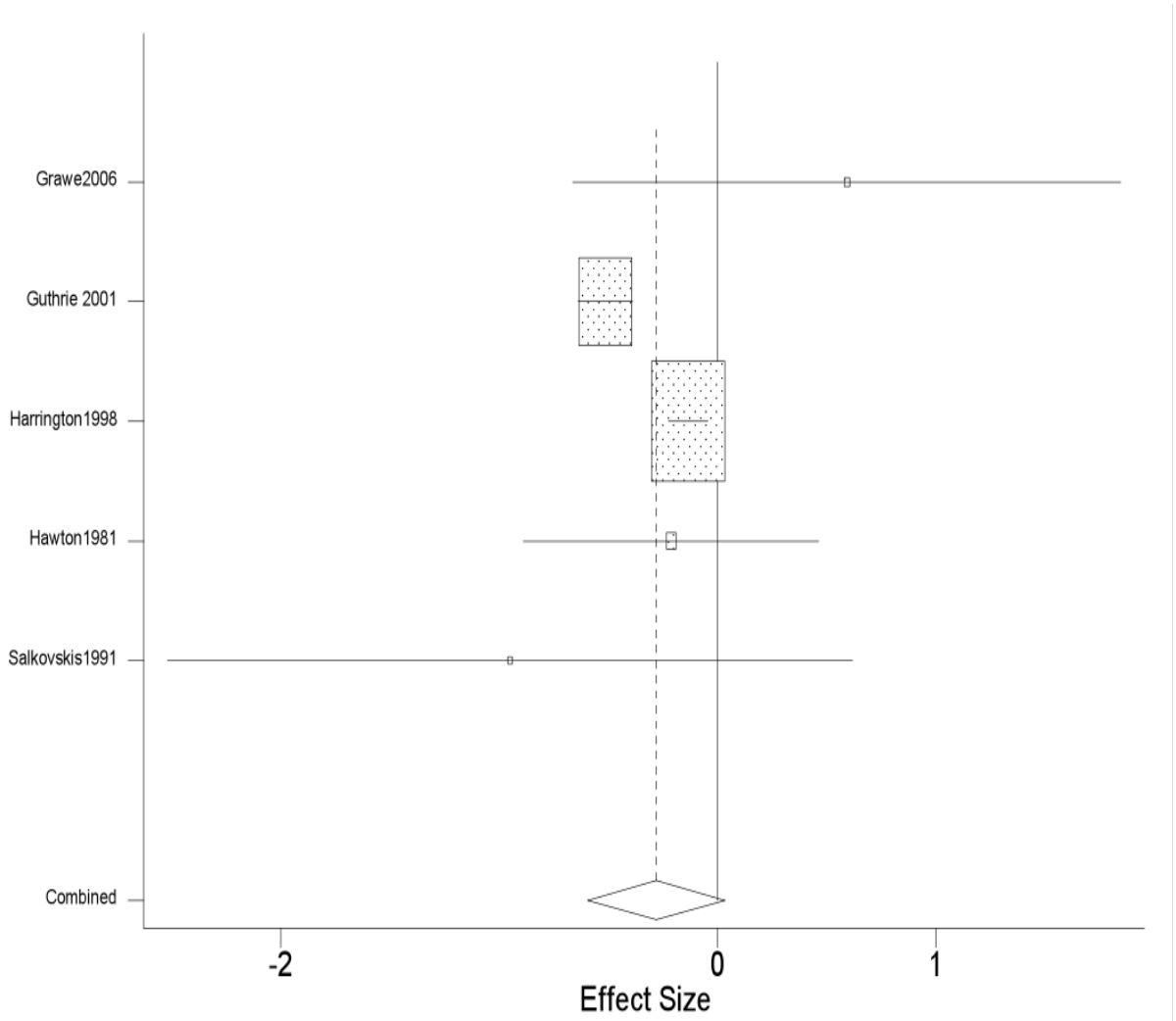


Table 23: Meta-analysis for participants who were treated at home

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.28	-0.59	0.04	-1.74	0.082	5

Test for heterogeneity: I^2= 84% on 4 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.06

Figure 24: Forest plot of studies looking at a form of treatment with assessment times at less than 12 months

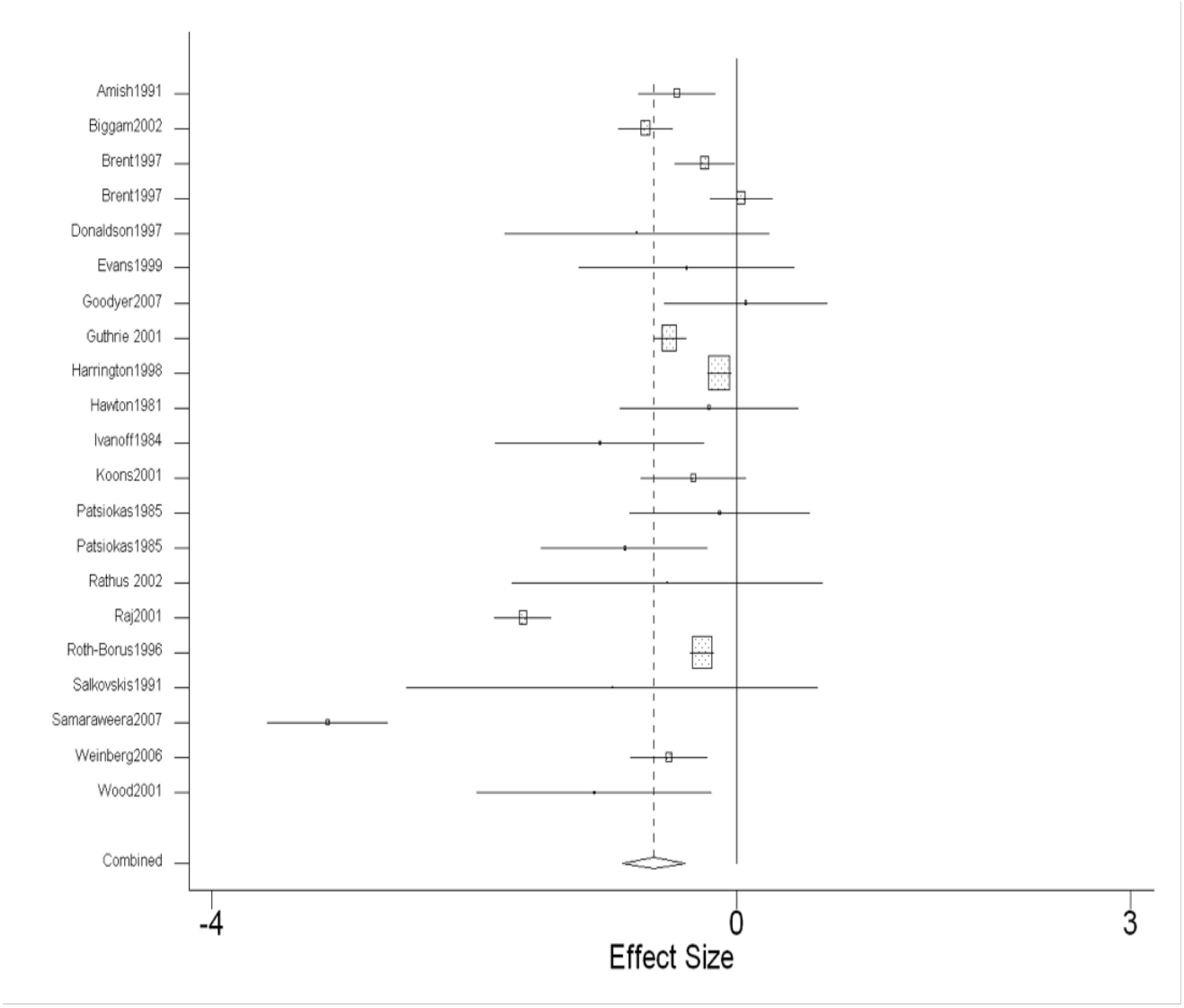


Table 24: Meta-analysis for studies with less than 12 months assessment times

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.64	-0.88	-0.40	-5.19	0.000	21

Test for heterogeneity: I^2= 94% on 20 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.24

Figure 25: Forest plot of studies looking at a form of treatment with assessment times at more than 12 months

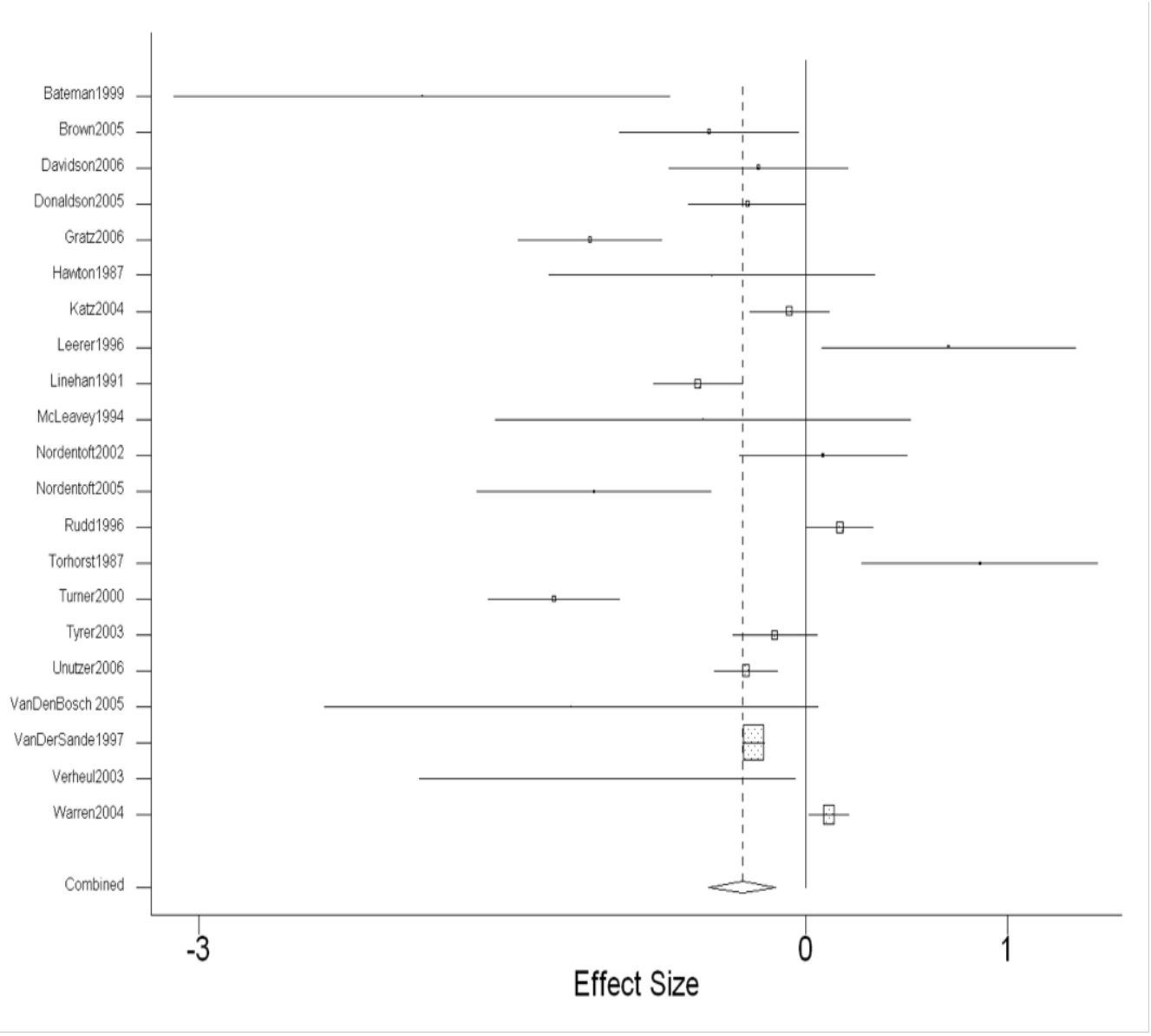


Table 25: Meta-analysis for studies with more than 12 months assessment times

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.31	-0.48	-0.15	-3.71	0.000	21

Test for heterogeneity: I^2= 87% on 11 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.23

Figure 26: Forest plot of studies looking at a form of treatment with assessment times at more than 24 months

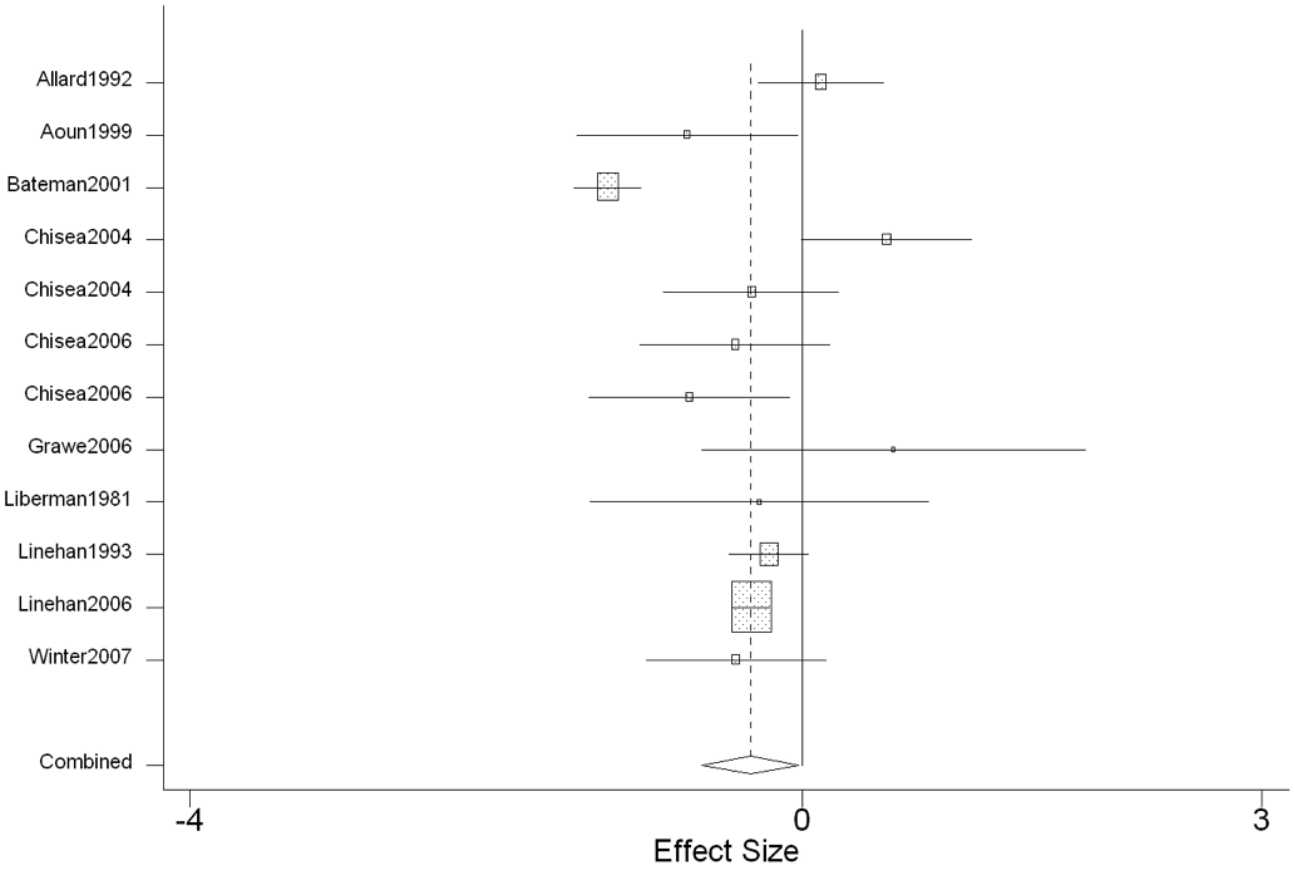


Table 26: Meta-analysis for studies with more than 24 months assessment times

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.34	-0.66	-0.03	-2.12	0.034	12

Test for heterogeneity: I^2= 87% on 11 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.23

Appendix H: Forest plots

Figure 1: Forest plot for studies including immediate post data for studies comparing psychotherapy and counselling against a form of control

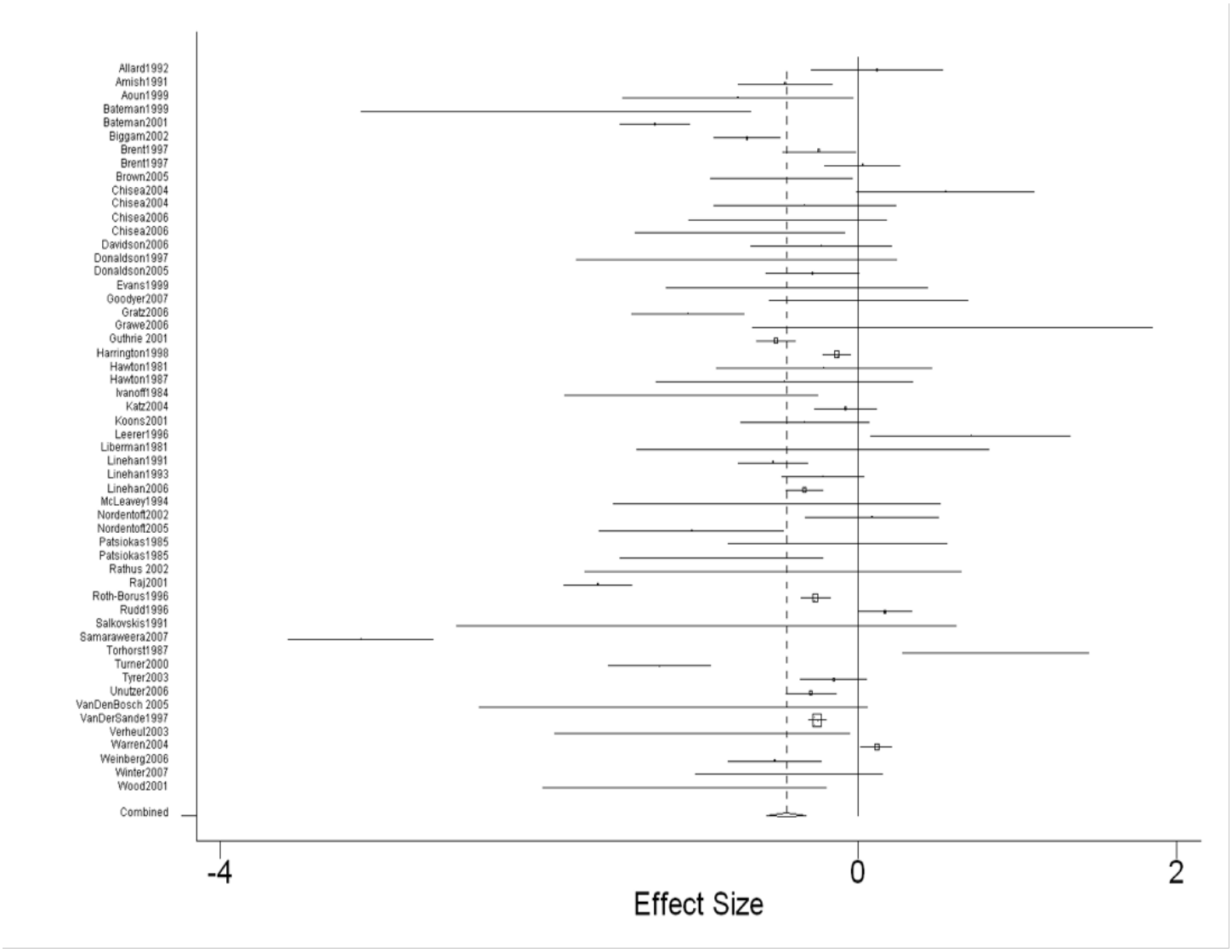


Table 1: Meta-analysis for studies including immediate post data for studies comparing psychotherapy and counselling against a form of control

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.41	-0.53	-0.29	-6.61	0.000	49

Test for heterogeneity: I^2= 92% on 48 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.12

Figure 2: Forest plot for studies in the before and after analysis looking at outcome measure BDI

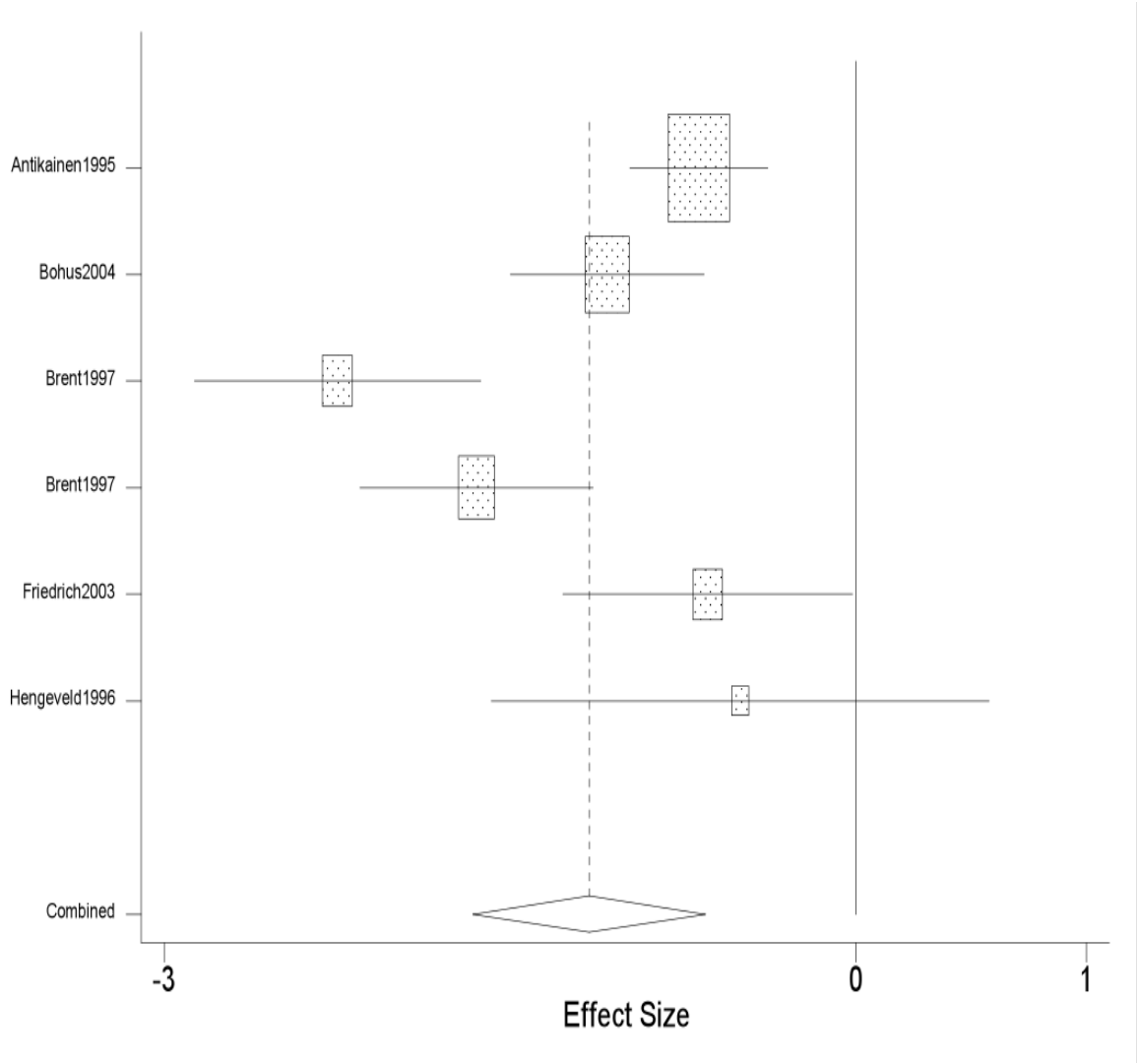


Table 2: Meta-analysis for studies looking at BDI as an outcome measure before and after an intervention

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-1.16	-1.66	-0.65	-4.51	0.000	6

Test for heterogeneity: I^2= 82% on 5 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.30

Figure 3: Forest plot for studies in the before and after analysis looking at outcome measure of self-harm

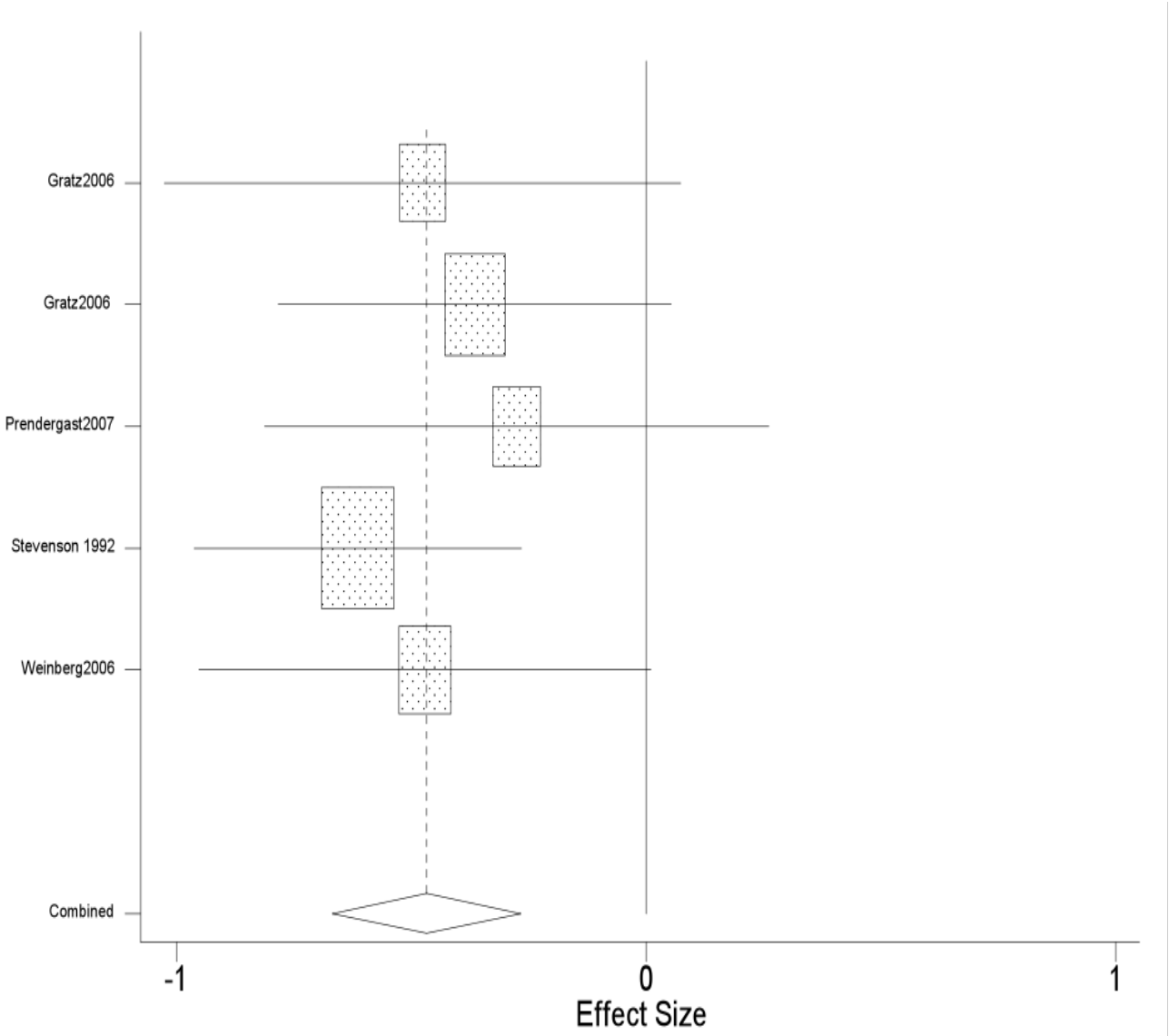


Table 3: Meta-analysis for studies looking at self-harm as an outcome measure before and after an intervention

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.47	-0.67	-0.27	-4.59	0.000	5

Test for heterogeneity: I^2= 0% on 4 degrees of freedom (p> 0.843)
Moment-based estimate of between studies variance = 0.00

Figure 4: Forest plot for studies in the before and after analysis looking at DBT

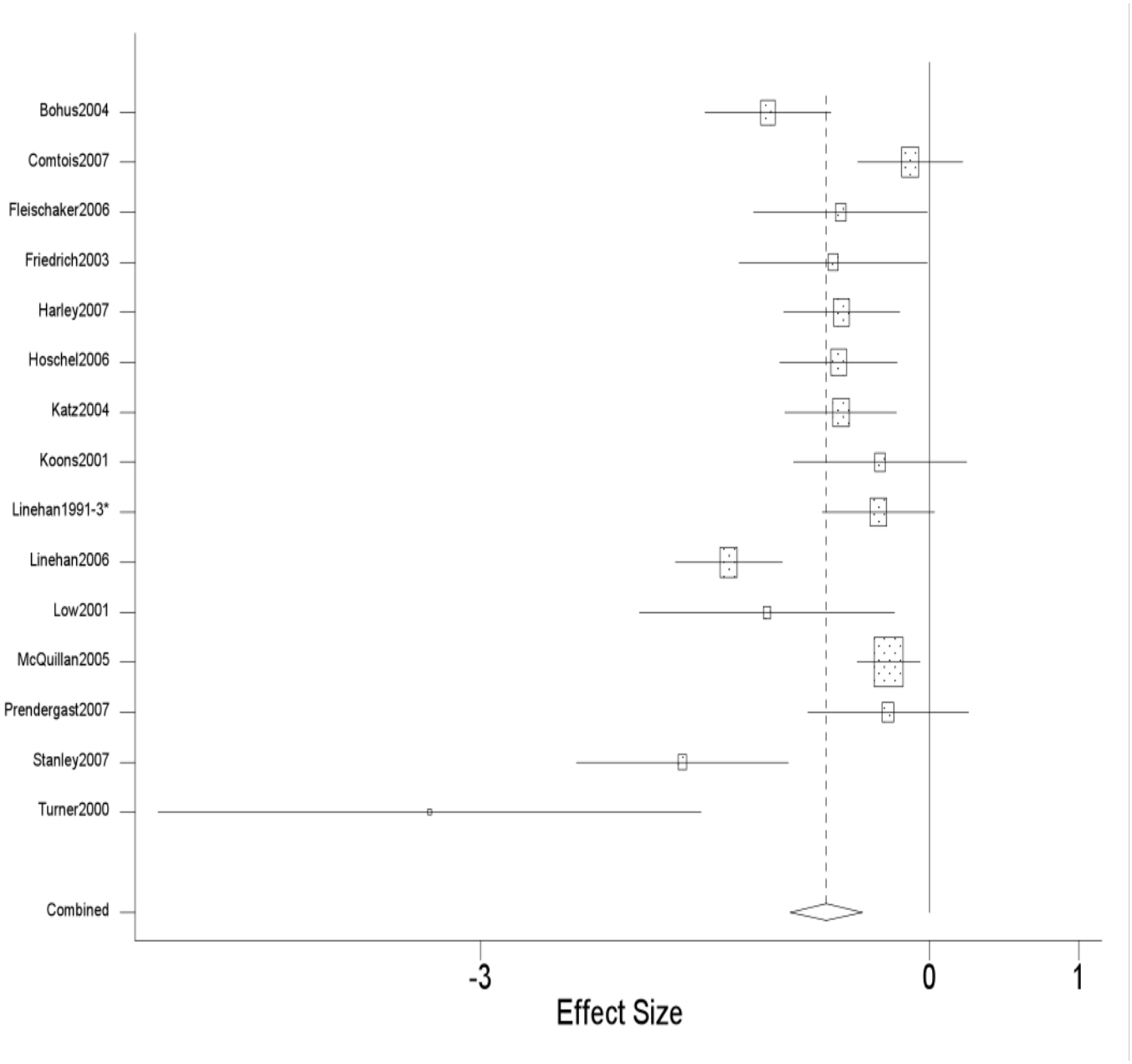


Table 4: Meta-analysis for studies looking at DBT therapy before and after an intervention

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.69	-0.93	-0.45	-5.59	0.000	15

Test for heterogeneity: I^2= 77% on 14 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.16

Figure 5: Forest plot for studies in the before and after analysis looking at PS therapy

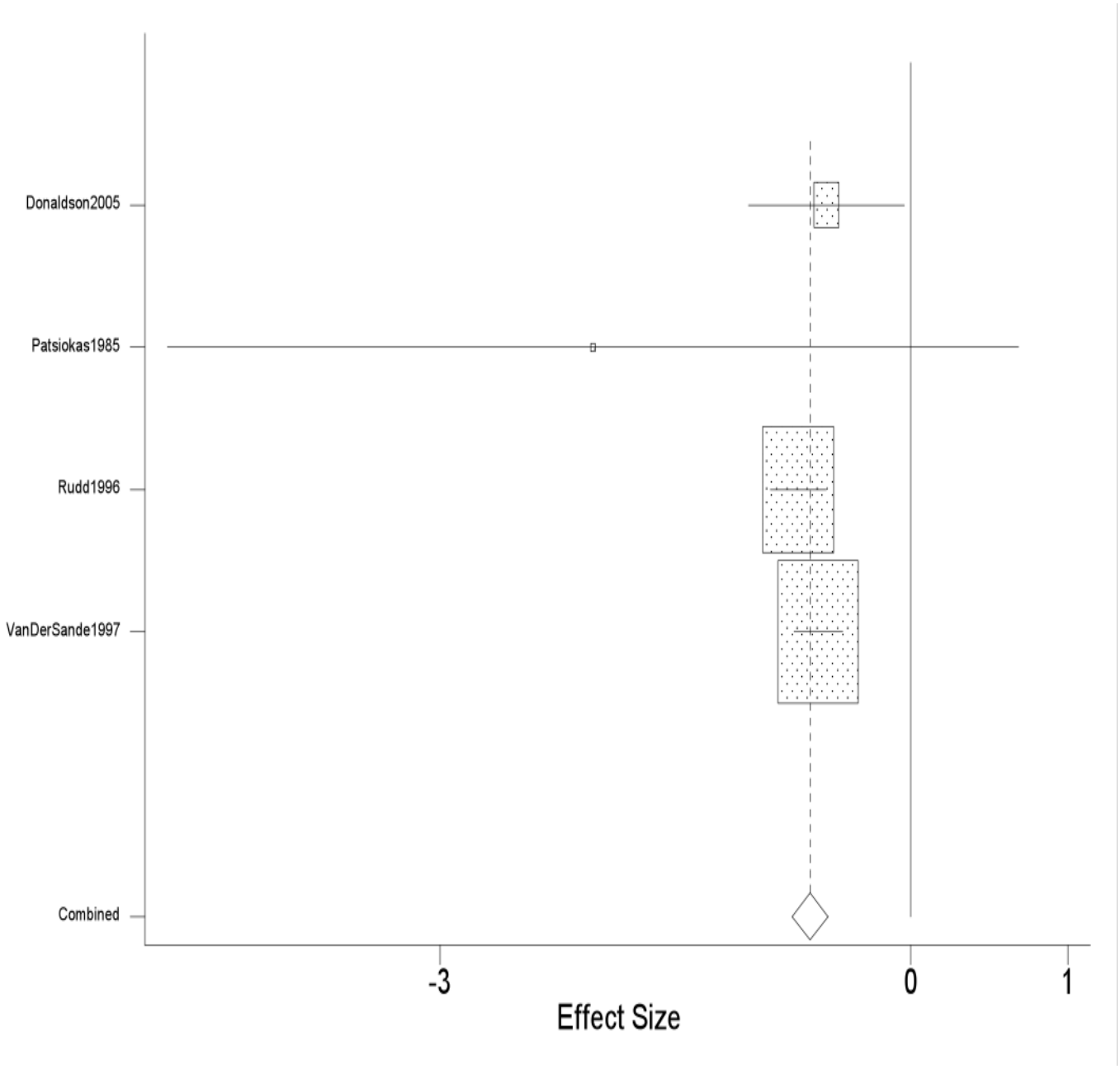


Table 5: Meta-analysis for studies looking at PS therapy before and after an intervention

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.64	-0.76	-0.53	-11.09	0.000	4

Test for heterogeneity: I^2= 0% on 3 degrees of freedom (p> 0.510)
Moment-based estimate of between studies variance = 0.000

Figure 6: Forest plot for studies in the before and after analysis looking at therapy on an individual basis

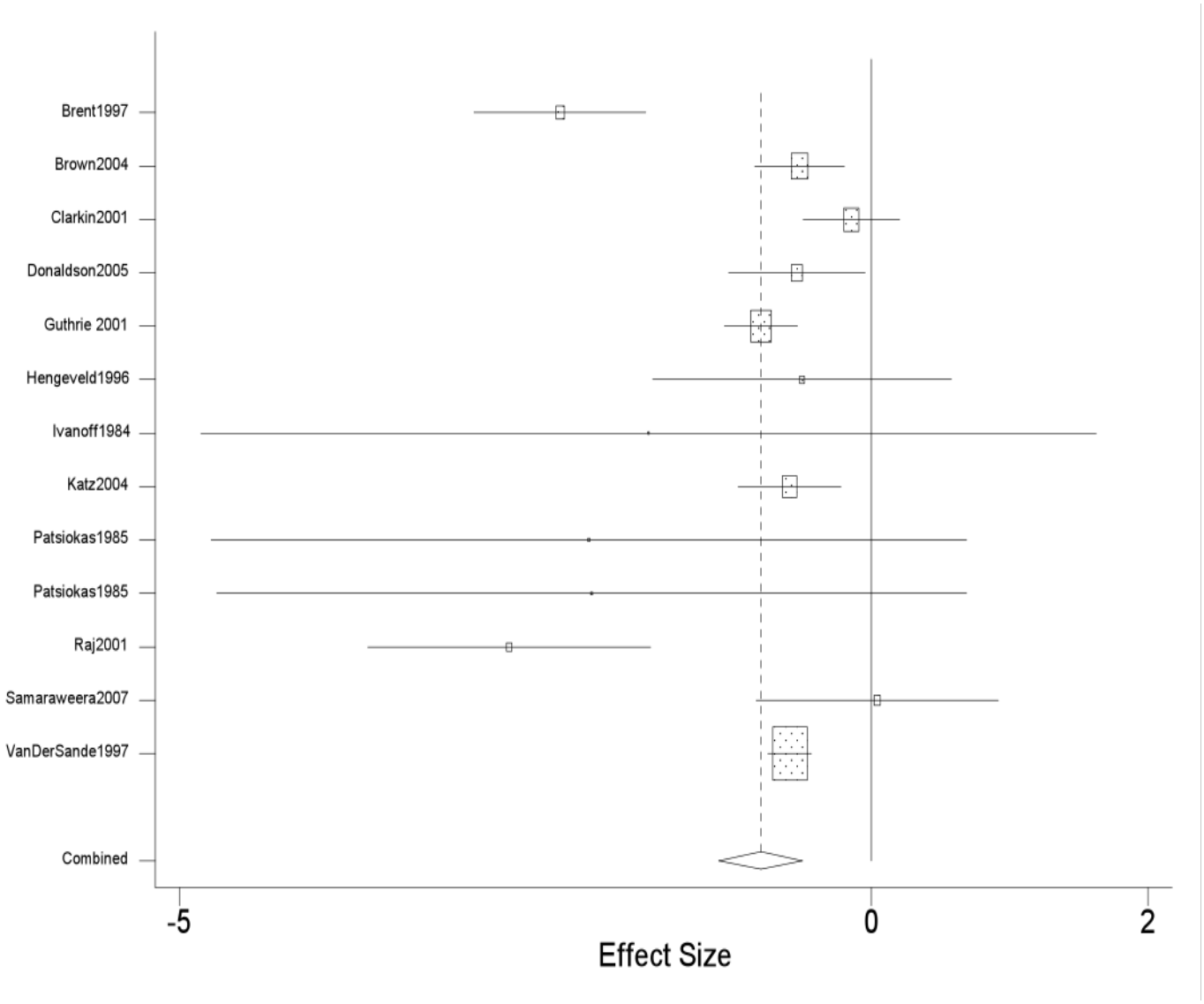


Table 6: Meta-analysis for studies looking at individual therapy in a before and after analysis

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.80	-1.10	-0.50	-5.22	0.000	13

Test for heterogeneity: I^2= 78% on 12 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.17

Figure 7: Forest plot for studies in the before and after analysis looking at mixed therapy (ie individual and group)

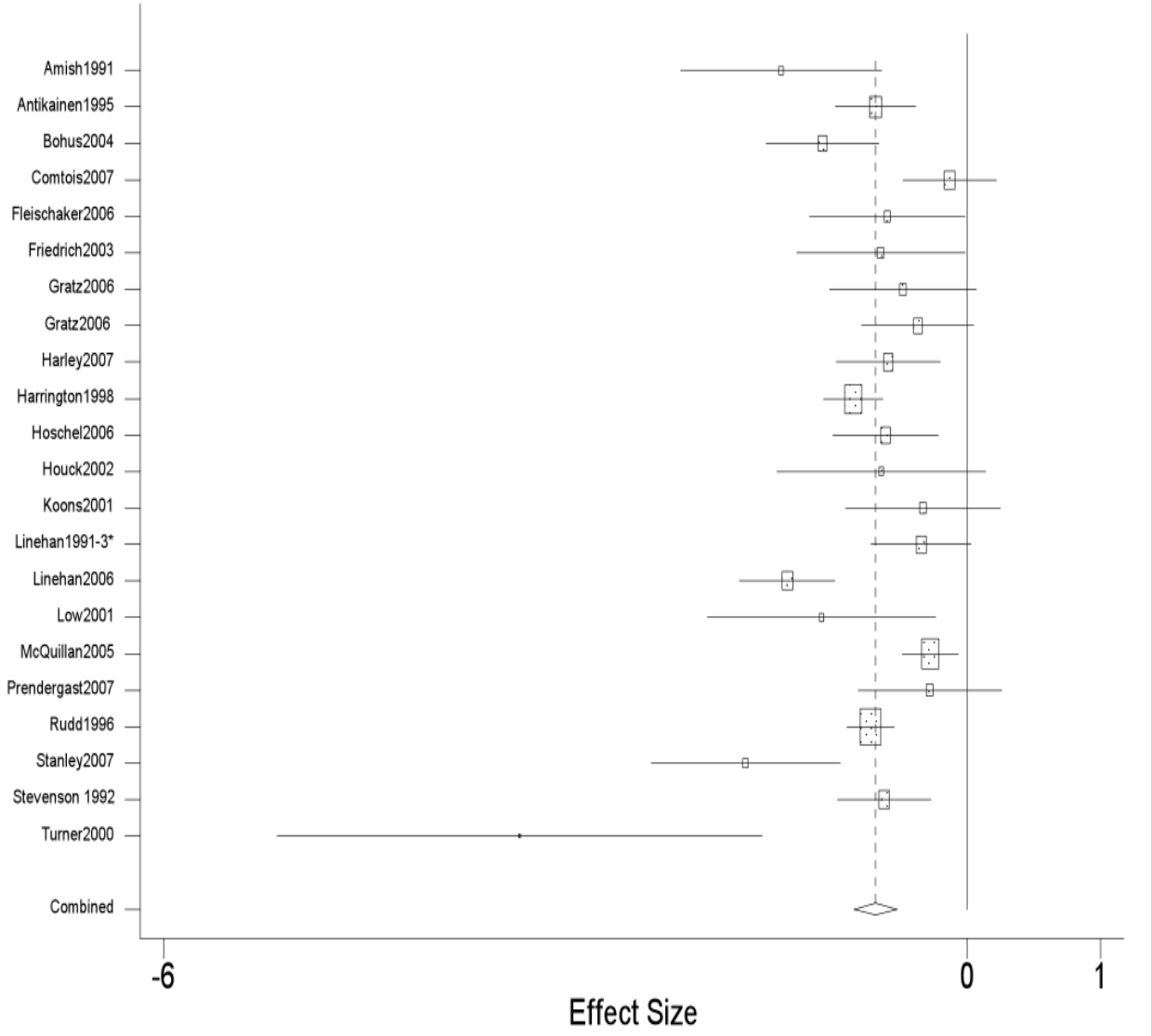


Table 7: Meta-analysis for studies looking at mixed therapy in a before and after analysis

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.68	-0.84	-0.52	-8.29	0.000	22

Test for heterogeneity: I^2= 71% on 21 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.09

Figure 8: Forest plot for studies in the before and after analysis looking at participants less than 18 years of age

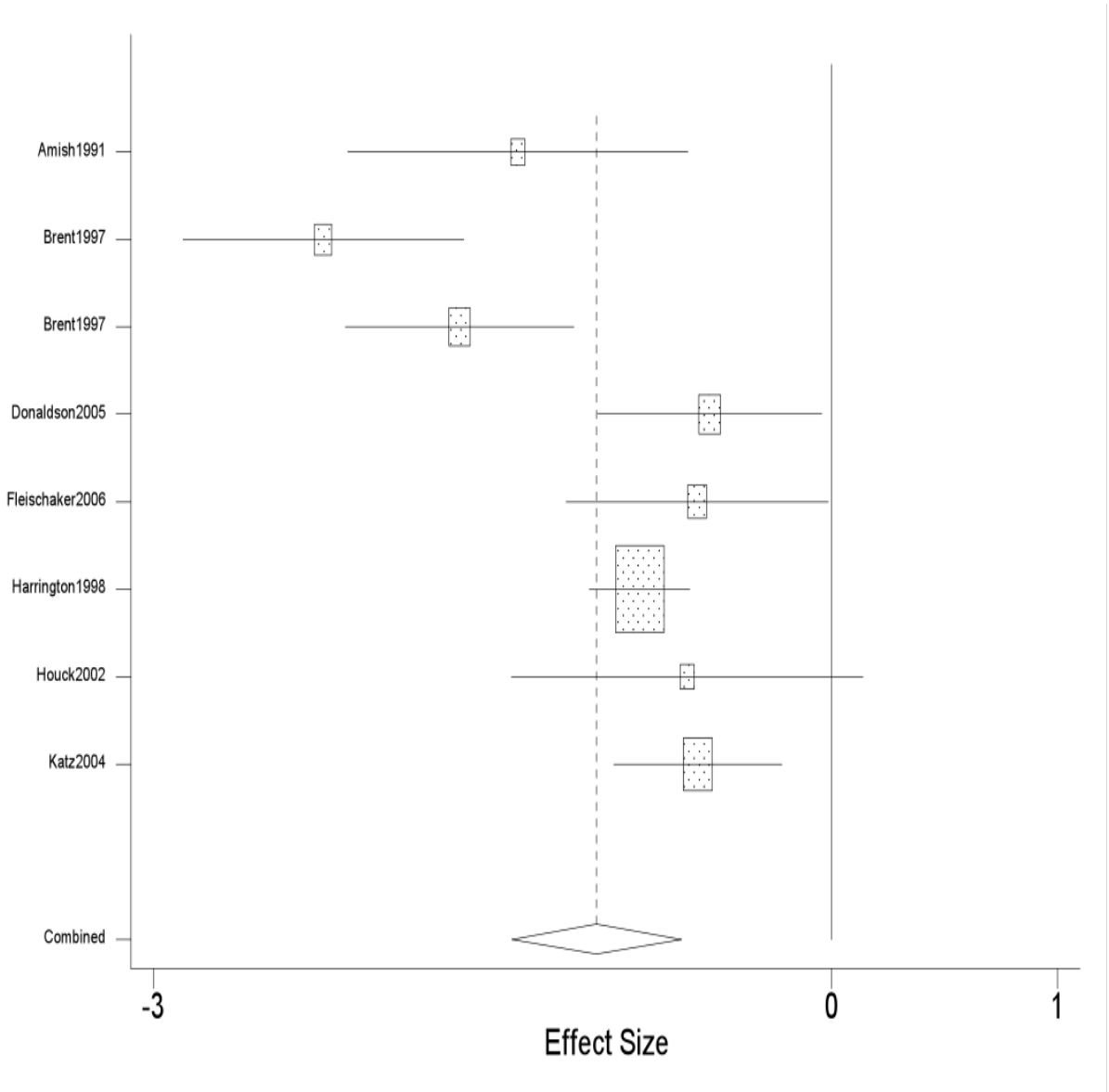


Table 8: Meta-analysis for studies looking at before and after an intervention with participants less than 18 years of age

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-1.04	-1.42	-0.66	-5.42	0.000	8

Test for heterogeneity: I^2= 80% on 7 degrees of freedom ($p< 0.001$)
Moment-based estimate of between studies variance = 0.22

Figure 9: Forest plot for studies in the before and after analysis looking at more than 6 hours of therapy but less than 20

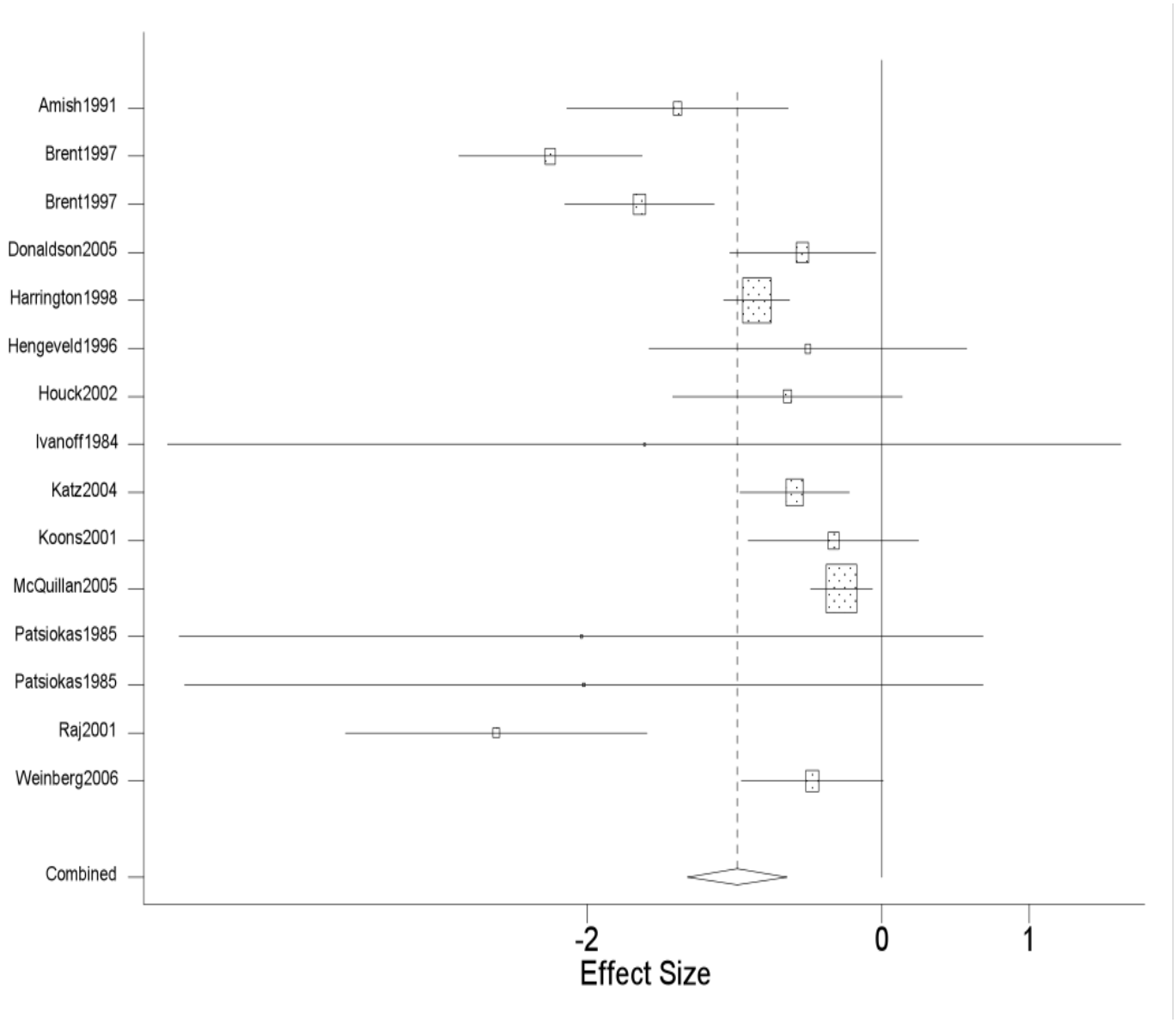


Table 9: Meta-analysis for studies looking at before and after an intervention on hours in therapy between 6 and 20

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.98	-1.32	-0.65	-5.71	0.000	15

Test for heterogeneity: I^2= 82% on 14 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.28

Figure 10: Forest plot for studies in the before and after analysis looking at more than 20 hours of therapy

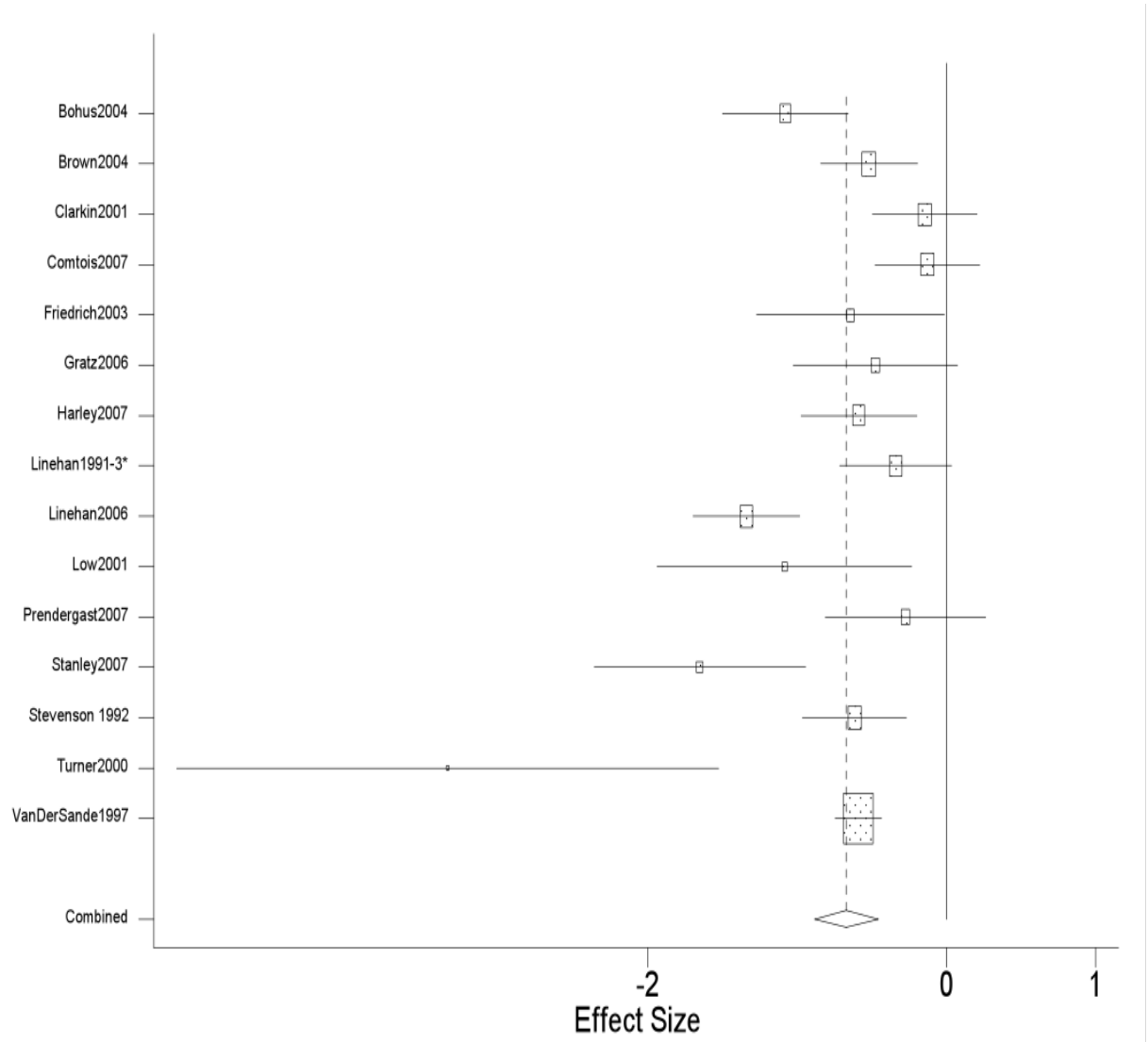


Table 10: Meta-analysis for studies looking at before and after an intervention on hours in therapy more than 20

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.67	-0.88	-0.46	-6.14	0.000	15

Test for heterogeneity: I^2= 76% on 14 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.12

Figure 11: Forest plot for studies in the before and after analysis looking at treatment in an outpatient setting

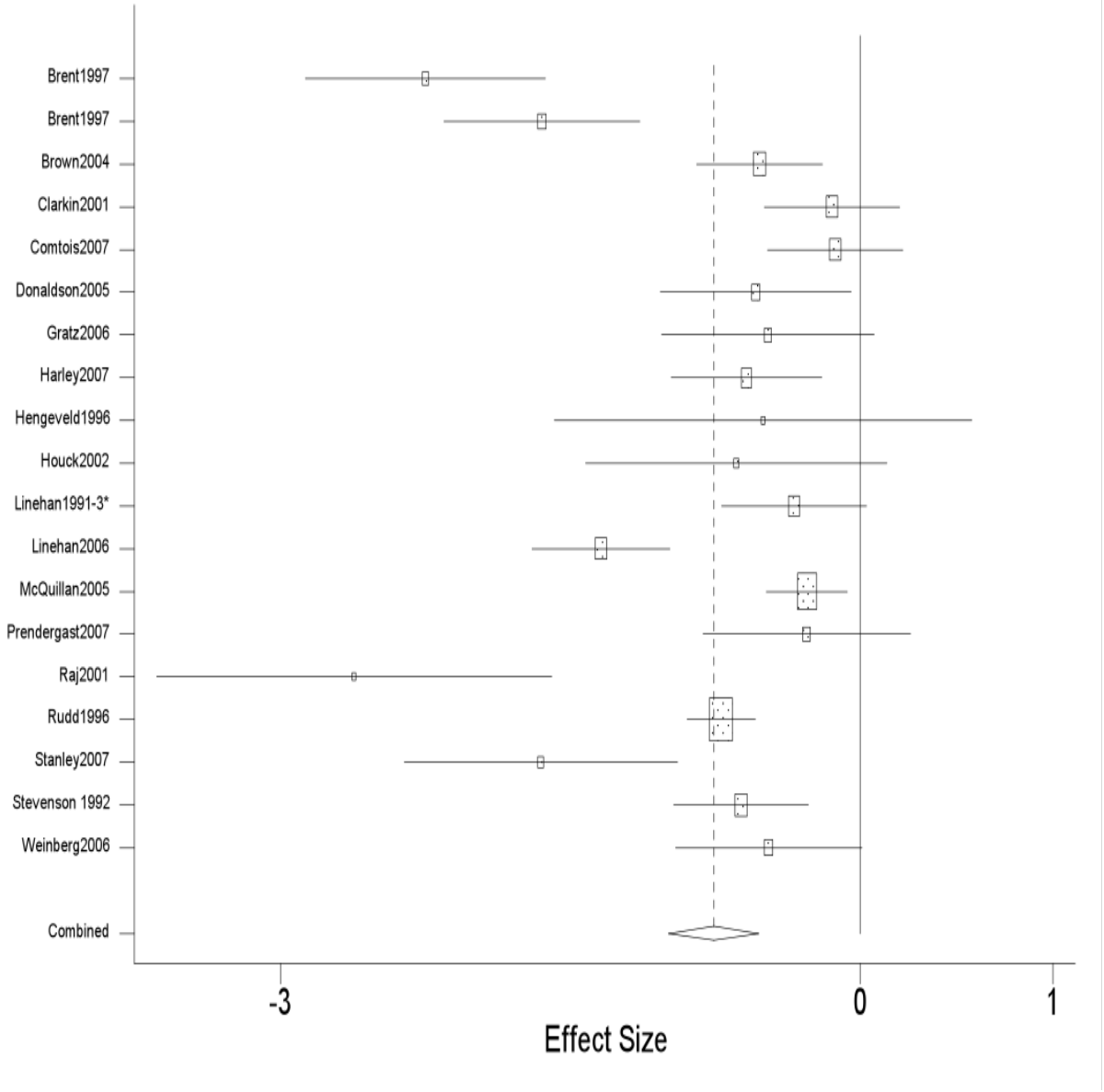


Table 11: Meta-analysis for studies looking at before and after an intervention in an outpatient setting

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.76	-0.99	-0.53	-6.40	0.000	19

Test for heterogeneity: I^2= 84% on 18 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.20

Figure 12: Forest plot for studies in the before and after analysis looking at less than six months assessment times

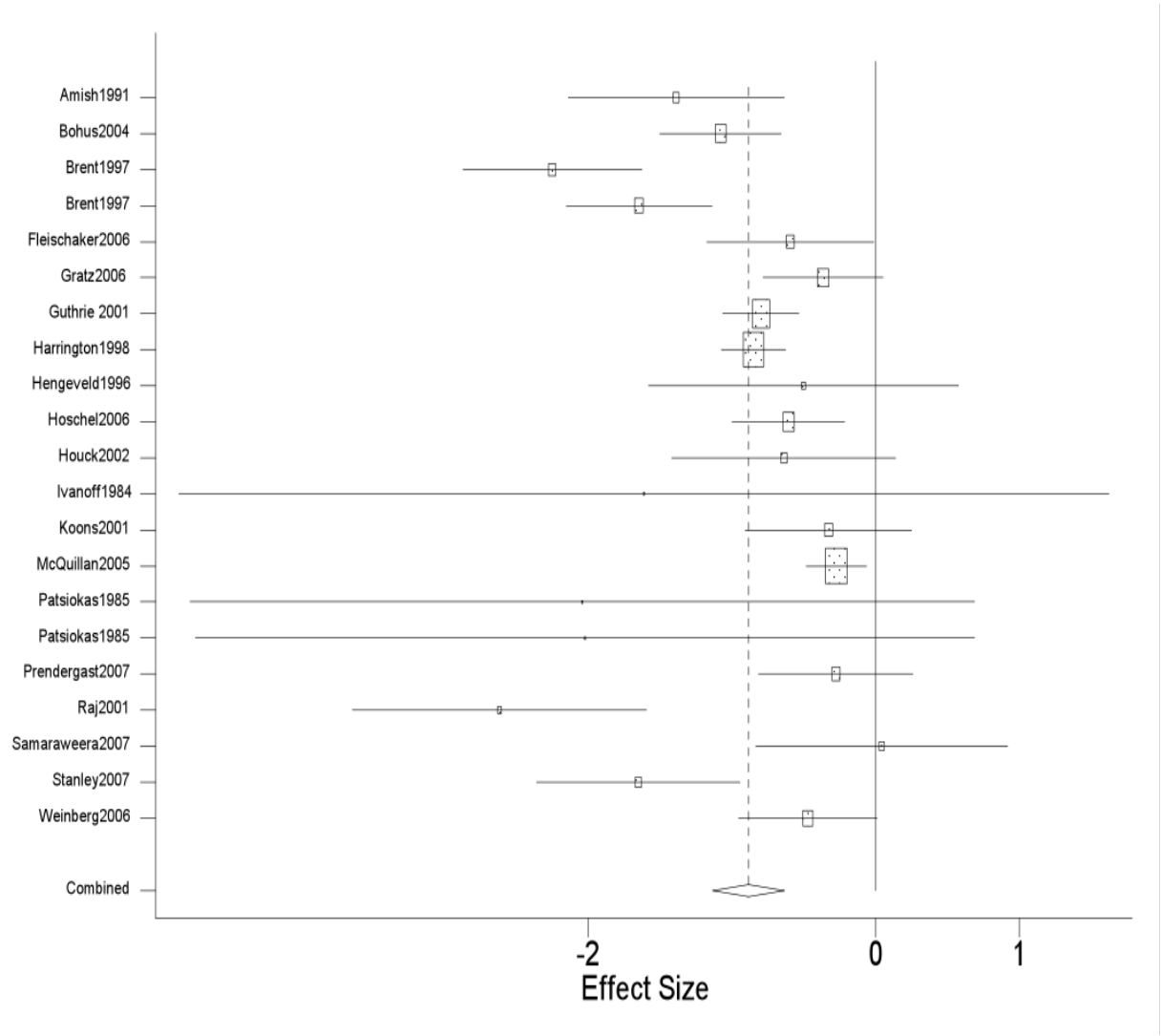


Table 12: Meta-analysis for studies looking at before and after an intervention with less than six months assessment times

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-088	-1.13	-0.63	-6.93	0.000	21

Test for heterogeneity: I^2= 79% on 20 degrees of freedom (p< 0.001)
Moment-based estimate of between studies variance = 0.213

Figure 13: Forest plot for studies in the before and after analysis that had between six months and 12 months follow-up assessment

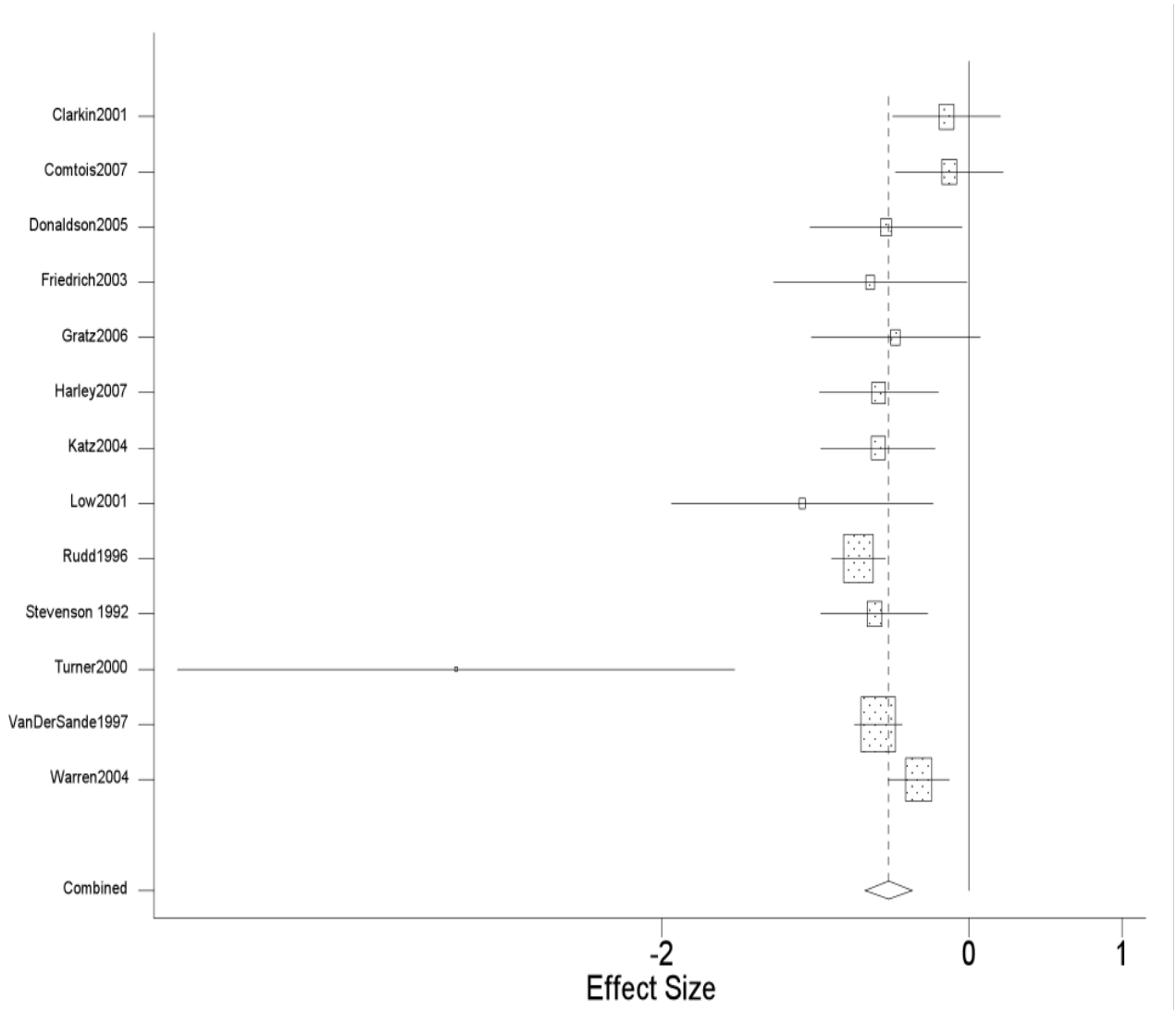


Table 13: Meta-analysis for studies looking at before and after an intervention that had between six months and 12 months follow-up assessment

	Pooled	95% CI		Asymptotic	P value	No. of studies
Method	Est	Lower	Upper	Z value		
Random	-0.52	-0.68	-0.37	-6.70	0.000	13

Test for heterogeneity: I^2= 60% on 12 degrees of freedom (p< 0.003)
Moment-based estimate of between studies variance = 0.04

Appendix I: Critical appraisal guidelines and quality criteria for qualitative studies

Critical appraisal guidelines for qualitative studies

1. *Is there an explicit theoretical framework and/or literature review?*

   Is the design appropriate to the question, or would a different method have been more appropriate? The execution of a qualitative research study is crucially related to the theoretical perspective in which the researchers have chosen to locate the study.

2. *Are the aims and objectives clearly stated?*

   What types of issues need exploring, and why is the research necessary?

3. *Is there a clear description of the context?*

   Is the context described so that the reader could relate the findings to other settings?

   Is there a description of study locations/areas and how and why they were chosen?

4. *Is there a clear description of the sample and how it was recruited?*

   Is there a rationale for the selection of the target sample? Are basic descriptive data included to judge the range of persons and situations to which findings might be relevant?

5. *Is there a clear description of methods used to collect and analyse data?*

   How are themes and concepts identified from the research material and is this sufficiently rigorous and justified? Is it apparent whether themes were grounded in people's views or from pre-defined coding? How many analysts were employed? Did the researcher search for disconfirming cases? Is there an audit trail so that replication would be possible?

6. *Are attempts made to establish the reliability or validity of data analysis?*

   Are attempts made to ensure confidentiality, and are there consent procedures, etc? Did participants understand the questions in the same way? Are the values of the researcher known, ie do they describe their theoretical, methodological or personal orientation relevant to the subject? Are credibility checks employed, eg using multiple qualitative analysts; checking with original informants or others similar to them?

7. *Is there inclusion of sufficient original data to mediate between evidence and interpretation?*

   Is the understanding represented in a way that achieves coherence and integration, ie does the understanding fit together in a logical, insightful way so that the reader can follow the line of thought? Does the author provide examples of the data to allow appraisal of the fit between the data and the author's understanding of them? Does the paper make a useful contribution?

Table 1: Quality criteria for qualitative studies

Study	Is there an explicit theoretical framework and/or literature review?	Are the aims and objectives clearly stated?	Is there a clear description of the context?	Is there a clear description of the sample and how it was recruited?	Is there a clear description of methods used to collect and analyse data?	Are attempts made to establish the reliability or validity of data analysis?	Is there inclusion of sufficient original data to mediate between evidence and interpretation?
Araminta (2000)	Yes	Yes	Yes	Yes	Yes	Unclear	Partially
Colbert (2002)	Yes	Yes	Partially	Partially	Yes	Partially	Yes
Craigen (2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Crockwell (1997)	Yes	Yes	Partially	Yes	Partially	Partially	Yes
Crouch (2004)	Yes	Yes	Yes	Yes	Yes	Partially	Partially
Cunningham (2004)	Yes	Yes	Yes	Yes	Yes	Partially	Yes
Huband (2004)	Yes	Yes	Yes	Yes	Yes	Partially	No
Perseius (2003)	Partially	Yes	Partially	Yes	Yes	Partially	Yes
Reeves and Mintz (2001)	Yes	Yes	Partially	Partially	Unclear	No	Partially
Reeves et al. (2004)	Yes	Yes	No	No	Partially	No	Unclear
Ross (2000)	Yes	Yes	Partially	Yes	Yes	Yes	Yes
Rubenstein (2003)	Yes	Yes	Yes	Yes	Yes	Partially	Yes
Sinclair (2005)	Yes	Yes	Unclear	Partially	Partially	Unclear	Partially

Appendix J: Glossary of terms

Glossary of terms included in this review

BDI – Beck Depression Inventory

BHS – Beck Hopelessness Scale

BPD – Borderline Personality Disorder

CASP – Critical Appraisal Skills Programme

CBT – Cognitive Behaviour Therapy

DAP-R – Death Attitude Profile – revised

DBT – Dialectical Behaviour Therapy

DSH – Deliberate Self-Harm

DSM-IV – Diagnostic and Statistical Manual of Mental Disorders, 4th edition

GP – General Practitioner

IC – Integrative Complexity

LPC – Lifetime Parasuicide Count

NICE – National Institute of Health and Clinical Excellence

NST – Non-directive Supportive Therapy

PHI – Parasuicidal History Interview

PIT – Psychodynamic Interpersonal Therapy

PSI – Problem-Solving Inventory

PS – Problem Solving

RCT – Randomised Controlled Trial

SA – Suicide Attempt

SBFT – Systemic-Behavioural Family Therapy

SBQ – Suicidal Behaviours Questionnaire

SD – Standard Deviation

SE – Standard Error

SI – Suicide Ideation

SIC – Suicide Intervention Counsellor

SIRI – Suicide Intervention Response Inventory

SOQ – Suicide Opinion Questionnaire

SPSI-R – Social Problem-Solving Inventory – revised

Notes

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