Dance movement therapy for depression (Protocol)

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[Intervention Protocol]

Dance movement therapy for depression

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Editorial group: Cochrane Depression, Anxiety and Neurosis Group.
Publication status and date: New, published in Issue 6, 2012.

Citation: Meekums B, Karkou V, Nelson EA. Dance movement therapy for depression. *Cochrane Database of Systematic Reviews* 2012, Issue 6. Art. No.: CD009895. DOI: 10.1002/14651858.CD009895.

ABSTRACT

This is the protocol for a review and there is no abstract. The objectives are as follows:

1. To assess the effects of dance movement therapy (DMT) for depression compared with no treatment (waiting list) or to standard care in both child and adult populations

2. To compare DMT with other psychological interventions (e.g. psychodynamic psychotherapy or IPT, counselling or CBT)

3. To compare DMT with pharmacological interventions (e.g. anti-depressants, minor tranquillisers or mood stabilisers)

4. To compare DMT with other physical interventions (e.g. dance or exercise)

5. To compare different forms of DMT (e.g. Laban-based DMT, Chacian DMT or Authentic Movement) (see below for explanations of these)

BACKGROUND

Description of the condition

Depression is characterised by low mood, a loss of interest or pleasure in most activities, sleep disturbances (either lack of sleep or over sleeping), changes in appetite or unintentional changes of weight (up or down), decreased energy, either slowed or agitated movement, decreased concentration and, in some cases, feelings of guilt, worthlessness and potentially thoughts of suicide (APA 2000). The diagnosis of major depression requires five or more of these symptoms, including depressed mood or a loss of interest or pleasure in most activities, which have been present during the same two-week period and cause significant distress or impairment of functioning (Williams 2002). Depression is a prevalent condition; the World Health Organization (WHO 2010a) reports that it affects about 121 million people worldwide. In the UK, 60% of the population meet the criteria for major depressive disorder or dysthymia (chronic depression which is less severe than major depression) at any time, with 20% of major depressive disorders persisting more than two years, 30% relapsing within three months of recovery and 50% within two years (Scott 2003). Depression thus represents a significant burden to families and to society. It has a negative impact on quality of life and can lead to suicide

(Scott 2003). Often depression remains undiagnosed, which suggests that the real scale of the problem is probably much larger.

Description of the intervention

The two key strategies used to treat depression, and often used in combination, are talking therapies (for example counselling, psychodynamic psychotherapy, interpersonal therapy or cognitive behavioural therapy) and pharmacological treatments such as: antidepressants (including Serotonin Selective Re-uptake Inhibitors (SSRIs), Tricyclics, Monoamine Oxidase Inhibitors (MAOIs) and Serontonin and Noradrenaline Re-uptake Inhibitors (SNRIs)); and mood stabilisers including Lithium. Physical activity is also recommended as a low intensity intervention (NICE 2010). A Cochrane systematic review (Moncrieff 2004) found only small differences between the effects of anti-depressant medication and active placebos. Disadvantages to pharmacological treatments are that they may have adverse side effects, adherence can be poor, and there is a lag time between starting treatment and any clinical improvement (Pampallona 2002).

A Cochrane systematic review of psychosocial and psychological treatments for postpartum depression (Dennis 2007a) found that any psychosocial or psychological intervention, when compared with usual postpartum care, was associated with a reduction in depression within the first year postpartum. While there is some evidence that interpersonal therapy (IPT) may be superior to a parenting education programme in treating antenatal depression, the evidence remains inconclusive (Dennis 2007b). Family therapy (Henken 2007) and marital therapy (Barbato 2006) have also both been reviewed as treatments of depression, but no significant advantage was found with either of these treatments over other psychological or pharmacological treatments. A Cochrane systematic review of psychological treatments for older people (Wilson 2008) concluded that cognitive behavioural therapy (CBT) may be of benefit, although there was no significant difference in treatment effect between psychodynamic therapy and CBT in the three trials reviewed.

As far as physical activity is concerned, a meta-analysis completed in 1998 (Craft 1998) testifies that there is evidence for beneficial effects of exercise on depressive symptoms. More recently, a Cochrane review by Mead 2010 indicated that there is evidence of positive effects of group exercise. As a result, physical activity is now recommended by the NICE guideline for adult depression (NICE 2010). However, Mead 2010 highlights that research studies to date have not revealed the type of exercise that is most suitable for this client population. They also note that so far studies concerning exercise have been hampered by methodological problems and a lack of follow-up studies.

Furthermore, it appears that the most readily available treatments may not be suitable for everyone, either for reasons of side-effects, cost or personal preference. Arts therapies (that is art therapy, dance movement therapy, dramatherapy and music therapy) are less common treatment options for people faced with depression, and scientific evidence for their effectiveness remains limited. The only available Cochrane systematic review of arts therapies for this population has been in music therapy (Maratos 2008). The review concluded that music therapy is an acceptable treatment and is associated with improvements in mood, however there was insufficient evidence to be able to establish effectiveness.

Dance movement therapy (DMT) is another arts therapy discipline which has reported evidence of effectiveness. For example, a meta-analysis completed by Ritter 1996 and recalculated by Cruz 1998 provides evidence for mild to moderate effect size of DMT for a wide range of different client groups and for an array of symptoms including reduction of symptoms of anxiety and depression. As DMT combines the benefits of mild physical activity with psychological therapy, it may open up the options within non-pharmaceutical therapy to people with depression who do not feel able or do not wish to focus exclusively on talking about their problems, or who prefer non-medical approaches to treatment as identified in the 2010 NICE guideline (NICE 2010).

DMT is also known as dance therapy, movement therapy, dance movement psychotherapy, movement psychotherapy, dance/movement therapy or dance-movement therapy. One of the definitions found in the field is as follows.

"Dance Movement (Psycho)therapy is the psychotherapeutic use of movement and dance through which a person can engage creatively in a process to further their emotional, cognitive, physical and social integration. It is founded on the principle that movement reflects an individual's patterns of thinking and feeling. Through acknowledging and supporting clients' movements, the therapist encourages development and integration of new adaptive movement patterns together with the emotional experiences that accompany such changes" (Association for Dance Movement Psychotherapy UK) (ADMP UK 2003, p1).

DMT is used with a range of different client groups in a number of different settings including health services, schools, social services, voluntary organisations and prisons. Both individual (one to one) as well as group work can take place. DMT as it is practised in the 21st century can be traced back to several pioneers including Marian Chace (Levy 1992), an American dancer who developed methods still in widespread use today. Aspects of practice developed by her include the use of a circular formation in group DMT and active mirroring of movement, both of which are associated with the development of the non-verbal therapeutic relationship. However, there were also pioneers in other countries who developed their approaches initially independently of American influences (Meekums 2008). Meekums 2008 suggests that what marks out contemporary DMT practice is the emphasis on it as a form of psychotherapy. For many therapists, theories relating to psychoanalytic and psychodynamic principles are used to guide practice (Karkou 2006). For example, the practice of 'Authentic Movement' (Whitehouse 1979) is associated with Jungian psychology. For others, humanistic, developmental, be-

haviour al or eclectic and integrative models are valued (Karkou 2006). Meekums 1991, for example, in her work with mothers and young children used a behaviourist approach combined with attachment theory. More recently, Meekums 2002 suggested an integrative framework based on the symbolic power of the 'movement metaphor', which transcends such theoretical divisions.

DMT has been posited as an appropriate intervention for patients with a range of diagnoses and presenting problems, including those for whom words may be difficult either because of cognitive impairment or because the emotions being explored and expressed are too painful. Sessions vary from 30 to 90 min and often take place on a weekly basis at an agreed place and time. Interventions may last from a few weeks to several months depending on client needs. Both individual and one to one work can be provided.

How the intervention might work

For clients faced with depression or depressive symptoms, dance movement therapy may have positive effects for a number of reasons. For example, mood may be elevated because the use of dance movement has an element of exercise (albeit often rather gentle) for which there is already evidence of an impact upon depressive symptoms, as reported in the exercise research literature (Mead 2010; NICE 2010). Many forms of DMT also involve the use of music. An existing Cochrane review of music therapy (Maratos 2008) suggests possible benefit, although it cannot be assumed that when music is used as part of another kind of therapy this finding will still be valid as music therapy uses music in a very specific way. Reviews of verbal psychological therapies indicate that there are benefits from the use of short-term psychodynamic psychotherapy for common mental health problems (Abbass 2006), psychotherapy for older people with depression (Wilson 2008) and psychosocial and psychological interventions for antenatal and postpartum depression (Dennis 2007a; Dennis 2007b). Since dance movement therapists often draw upon psychotherapeutic theoretical frameworks for their practice, these reviews might be relevant. However, none of the above address the unique features of DMT that may be responsible for any therapeutic effects on people with depression.

Some of the specific effects of DMT can be attributed to the use of non-verbal communication and kinaesthetic empathy in particular (Brooks 1989; Berrol 2006). Dance movement therapists use a technique called 'mirroring' as a way of achieving empathic understanding and engaging patients. Some DMT literature (for example Meekums 2002; Berrol 2006) discusses links between DMT and studies in neuroscience (Rizzolatti 1996; Gazzola 2006) and hypothesises that the effects of empathic engagement through mirroring may be due to the activation of mirror neurons in the brain. However, while echoing of movement has long been associated with empathy and positive feelings towards the other, including in therapeutic interactions (for example Scheflen 1964), the precise role of mirror neurones in empathic engagement is not identified. In addition, embodiment, creativity, movement-based imagination, the use of symbolic movement and the use of movement as a metaphor may be some of the unique features of DMT responsible for specific effects on therapeutic change, as argued by Karkou 2006. For example, as early as in 1981 Dosamantes-Alperson argued for the value of activating imagination through movement in DMT (Dosamantes-Alperson 1981). Working creatively through movement may enable participants to engage in a symbolic exploration that in turn may change cognitions and feelings, as suggested by Meekums 2002. Meekums 2002 also argues that 'movement metaphor' is another useful device as it serves both to decrease emotional distance between the therapist and client or patient and to increase emotional distance from distressing memories and feelings.

Finally, the embodied nature of DMT makes it potentially relevant to those clients for whom body image or body memory may be a particular issue requiring exploration and working through (Meekums 2002). However, Heimbeck 2011 studied the effectiveness of two different forms of movement therapy with depressive patients (n = 103, Beck Depression Inventory (BDI) > 18) where one was disorder specific and the other was non-specific to the disorder. Both forms were effective and the authors concluded that general disorder non-specific (though potentially specific to DMT as in the examples given above) determinants play a more important role in therapeutic success than assumed so far.

Why it is important to do this review

There have been very few systematic reviews of evidence concerning DMT. A Cochrane review of DMT for schizophrenia (Xia 2010) found only one study that was of a sufficiently high quality to include (Rohricht 2006). This study demonstrated a 20% reduction in negative symptoms such as social withdrawal, apathy, inability to experience pleasure and defects in attention control; symptoms that are closely linked with those of depression. The Cochrane review protocol on DMT for cancer care (Bradt 2010) also refers to the possible effects of participation in DMT sessions upon reduction of isolation and depression (Dibbell-Hope 2000; Mannheim 2006). However, none of these reviews have specifically focused on DMT for depression. An initial scoping review of the literature, which searched for studies using the key words 'dance movement therapy' and 'depression' (Mala 2011 submitted for peer review), suggests that there is some empirical research concerning the effectiveness of DMT for depression. However, since the search focused on electronic databases accessible through one University's licence only (that is Queen Margaret University) it is likely that more studies may be revealed through a more extensive search.

Once the current review is completed, it is expected that its findings will further our understanding of research evidence in DMT beyond schizophrenia (Xia 2010) and cancer care (Bradt 2010). CCDAN is currently working on other systematic reviews

that address psychological therapies for depression (Hunot 2010; Churchill 2010), and this review will therefore add to a growing bank of evidence in the treatment of depression. It will also add to completed reviews relating to this client group, in music therapy (Maratos 2008), exercise (Mead 2010) and psychotherapy (Abbass 2006; Dennis 2007a; Dennis 2007b; Henken 2007; Wilson 2008).

OBJECTIVES

1. To assess the effects of dance movement therapy (DMT) for depression compared with no treatment (waiting list) or to standard care in both child and adult populations

2. To compare DMT with other psychological interventions (e.g. psychodynamic psychotherapy or IPT, counselling or CBT)

3. To compare DMT with pharmacological interventions (e.g. anti-depressants, minor tranquillisers or mood stabilisers)

4. To compare DMT with other physical interventions (e.g. dance or exercise)

5. To compare different forms of DMT (e.g. Laban-based DMT, Chacian DMT or Authentic Movement) (see below for explanations of these)

METHODS

Criteria for considering studies for this review

Types of studies

All randomised controlled trials (RCTs), whether published or unpublished and in any language, will be eligible for entry. Since we will be working in an area where there is very little evidence to date (as indicated by the scoping review performed by Mala 2011, submitted for peer review), cross-over designs will be considered, up to the point of cross-over. . Cluster RCTs will be considered using best practice. We will also consider trials for which there is an evident clustering effect, for example individual randomisation but to the same therapist. In this case we will reduce to an 'effective sample size' as suggested in section 16.3.4 and 16.3.5 of Higgins 2011. Trials with quasi-randomisation or systematic methods of allocation (for example alternate allocation of treatments) will also be eligible for inclusion. The rationale for this decision is that historically DMT has been an under-funded area of study and so large scale RCTs have sometimes been supplemented with more pragmatic designs.

Types of participants

Participants will be those with symptoms of depression as defined by the trialist. This may be defined clinically following either the International Statistical Classification of Diseases and Related Health Problems (ICD)-10 (WHO 2010b) or Diagnostic and Statistical Manual of Mental Disorders DSM-IV-TR (APA 2000) research diagnostic criteria or using a standardized measure and scoring above the cut-off point on self-rated or clinician-rated valid and reliable scales, for example the Beck Depression Inventory (Beck 1961), the Symptom Check List-90-Revision (SCL-90-R) (Derogatis 1977) or the Hamilton Rating Scale for Depression (HRSD) (Hamilton 1960). Cut-off scores will be those the authors of these scales have defined as such. This criterion should be present at the start of the trial. We will exclude trials involving participants with chronic or treatment resistant depression, or participants at risk of relapse. We will also exclude studies in which the primary diagnosis is either a physical condition or other psychiatric diagnosis with depression secondary, though we will include studies where there is a comorbid physical or common mental disorder so long as these are secondary to the diagnosis of depression. There will be no restrictions in terms of age, gender or ethnicity nor in severity of depression. Both in-patients and out-patients will be considered and in all settings including both statutory and non-statutory organisations.

Types of interventions

Experimental intervention

For an intervention to be considered, it will have to include active involvement of participants in dance movement in the presence of a therapist or dance movement interaction with a therapist or other group members, or both. Dance movement may be either improvisatory or structured, with or without music. In all cases, however, sessions will have to have a clearly articulated therapeutic intent. The intervention will need to be facilitated by a practitioner who may have received formal training, be a dance movement therapist in training, or be otherwise accredited in the country in which the study was conducted.

We will include both group and individual DMT within any number and duration of sessions.

There are a number of different approaches to DMT. Karkou 2006 identifies three models, as follows.

(i) Some practitioners rely primarily upon dance movement engagement, e.g. creative movement work primarily informed by an early proponent of therapeutic applications of dance movement, Rudolf Laban (Laban 1975), in order to explore specific movement themes and qualities.

(ii) There are those that value the non-verbal interaction between client(s) and therapist (interactive work based on principles developed originally by the American dance movement therapy pioneer

Marion Chace, as described by Chaiklin 1986). In this approach, the therapist (and at times other group members) actively mirrors the movement of patients or clients.
(iii) Others encourage internal work in the presence of a therapist, such as Authentic Movement which originated with the American choreographer Mary Whitehouse (Whitehouse 1979) and is influenced by Jungian psychology. In Authentic Movement the therapist stays still and observes, using self as an empathic witness.
In all cases, however, dance movement is used within a well-defined therapeutic relationship, that is a relationship between the client and therapist with or without others, for example group members, with therapeutic intent. The therapist may be active (moving with participants, as in the Chacian approach) or adopt a more observational stance (as in Authentic Movement). In all cases this involves an embodied empathic relationship. In addition to this empathic engagement, the therapist's body may be available for dynamic projections that can be worked through on either the non-verbal or verbal level. Verbal reflection on the individual meanings associated with movement may form an integral part of DMT sessions. Studies of dance classes in which no therapeutic relationship or psychotherapeutic intent is identified will be excluded.

Comparators

1. No treatment and standard care
The review will include all studies in which any form of DMT is compared with no treatment or standard care. In the case of no treatment, studies included may compare DMT with people either recruited from the community or placed on waiting lists and thus not receiving standard care. Studies where standard care as defined by the trialists is available will also be considered along with DMT or as a control.
2. Psychological therapies
Psychological therapies such as counselling, verbal psychotherapies including psychodynamic psychotherapy, IPT or CBT will be considered as appropriate controls for either DMT alone or in combination with standard care.
3. Pharmacological interventions
Studies that compare DMT with anti-depressant medication such as SSRIs, Tricyclics, MAOIs and SNRIs will be included. Other minor tranquillisers such as benzodiazepines and mood stabilisers such as Lithium will also be considered, if relevant.
4. Physical interventions
Studies that compare DMT with physical interventions such as exercise or dance will be considered.
5. Different types of DMT
Different types of DMT, as defined above, will be considered as potential comparators.

Types of outcome measures

Primary outcomes

The primary outcomes will be level of depression as measured through a valid and reliable scale or self-rated measurement such as, but not limited to, the Beck Depression Inventory (Beck 1961), the Symptom Check List-90-Revision (SCL-90-R) (Derogatis 1977) or a clinician-rated scale such as the Hamilton Rating Scale for Depression (HRSD) (Hamilton 1960). Continuous outcomes of depression improvement will be used; however, where the trialist has dichotomised outcomes we will also analyse these. We will refer to the literature on the standardized measure used in order to determine what is a minimal clinically significant change.
Drop-out rates will also be reported, as a measure of treatment acceptability (high drop-out rates being seen as a measure of potential harm because they suggest unacceptability).

Secondary outcomes

We will report the following secondary outcomes.

1. Social and occupational functioning (e.g. engagement in social activities (Tyrer 2005)).
2. Quality of life (e.g. WHOQOL-BREF (WHO 2004)).
3. Self esteem (e.g. Rosenberg 1965).
4. Body image (e.g. the Body Image Quality of Life Inventory (Cash 2002)).
5. Cost effectiveness of treatment, as measured by the trialist.

In all cases, validated measurements will be preferred over non-validated measurements, especially when different measurements were used for the same outcome. It is expected that outcomes will be measured at various time points, as follows:
1. End of intervention.
2. Short-term follow up (up and including three months after intervention end)
3. Medium-term follow up (more than three months, and up to and including 6 months after intervention end)
4. Long-term follow up (more than six months after intervention end)

Adverse events

The authors plan to summarise adverse events quantitatively or qualitatively depending on the information available in trial reports. This could include, for example, a worsening of symptoms as identified using the measures identified above, or injury.

Search methods for identification of studies

The CCDAN Specialized Register (CCDANCTR)

The Cochrane Depression, Anxiety and Neurosis Group (CCDAN) maintain two clinical trials registers at their editorial base in Bristol, UK, a references register and a studies based register. The

CCDANCTR-References Register contains over 28,000 reports of trials in depression, anxiety and neurosis. Approximately 65% of these references have been tagged to individual, coded trials. The coded trials are held in the CCDANCTR-Studies Register and records are linked between the two registers through the use of unique study identity (ID) tags. Coding of trials is based on the EU-Psi coding manual. Please contact the CCDAN Trials Search Coordinator for further details.

Reports of trials for inclusion in the Group's registers are collated from routine (weekly) generic searches of MEDLINE (1950 on), EMBASE (1974 on) and PsycINFO (1967 on); quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL); and review specific searches of additional databases. Reports of trials are also sourced from international trials registers through the World Health Organization's trials portal (ICTRP), drug companies, the handsearching of key journals, conference proceedings and other (non-Cochrane) systematic reviews and meta-analyses. Details of CCDAN's generic search strategies can be found on the Group's website.

Electronic searches

The CCDANCTR-Studies Register will be searched by the Trials Search Coordinator (TSC) using the following terms: Condition = (depress* or dysthymi*) AND Intervention = "dance therapy".

The CCDANCTR-References Register will be searched by the TSC using a more sensitive set of free-text terms:

(depress* or dysthymi* or "adjustment disorder*" or "mood disorder" or "affective disorder*" or "affective symptom*") AND (danc* or "authentic movement*" or "movement therap*" or "movement psychotherap*" or "body psychot*").

We will conduct complementary searches on AMED, CINAHL, ERIC, Dissertation Abstracts, the WHO trials portal (ICTRP) and ClinicalTrials.gov.

Searching other resources

In an effort to identify further published, unpublished and ongoing trials we will:

- search the bibliographies of relevant studies and reviews;
- contact the professional associations and educational programmes in dance movement therapy from around the world including those in the UK, USA, Australia, Europe, Israel, Korea and Japan, asking members to inform us about published and unpublished research studies including Masters and PhD work that meet the inclusion criteria;
- contact experts in the field.

Data collection and analysis

Selection of studies

Two members of the team (BM, VK) will screen titles and abstracts of all studies, where available, for inclusion according to the inclusion criteria identified above (Criteria for considering studies for this review) and below (Data extraction and management). We will use a proforma based on these criteria to assess the trial's eligibility for inclusion (see Appendix 1). From these, the same two review authors will obtain full reports for trials appearing to meet the inclusion criteria and for which there is insufficient information in the title and abstract to make a clear decision.

Two review authors (BM, VK) will each independently assess full reports to establish whether the trial meets the inclusion criteria or not. We will resolve disagreements by discussion; where this does not result in agreement a third member of the review team (AN) will arbitrate. If we exclude a trial after the abstract stage, we will keep a record of both the article and the reason for exclusion.

Data extraction and management

Two review authors (BM, VK) will each independently extract data using a specially designed data extraction form (See Appendix 1). We will resolve disagreements by discussion; where this does not result in agreement a third member of the review team (AN) will arbitrate. In the first instance, we will extract data relating to the following categories.

1. General information.
2. Eligibility criteria. (An interim decision will be recorded as follows: inclusion, exclusion or requiring more information from the authors. The final decision will then be recorded, after inclusion of additional information obtained. In this second stage we will extract the following information as detailed in the sample data extraction form presented in Appendix 1.)
3. Study characteristics.
4. Interventions.
5. Outcome measures used in the study.
6. Study results.
7. Additional notes.

Main comparisons

We plan to make the following treatment comparisons.

1. DMT versus no treatment (waiting list) and DMT plus standard care versus standard care.
2. DMT versus other psychological interventions (e.g. psychodynamic psychotherapy, IPT or CBT).
3. DMT versus pharmacological interventions (e.g. antidepressants, minor tranquillisers and mood stabilisers).
4. DMT versus other physical interventions (e.g. dance or exercise).
5. One form of DMT versus another (e.g. Laban-based DMT versus Chacian DMT or Chacian DMT versus Authentic Movement).

Assessment of risk of bias in included studies

Two review authors (BM, VK) will each independently conduct a 'risk of bias' assessment. We will solve any disagreements through discussion. The review authors will record a judgement of 'low risk', 'high risk' or 'unclear risk' of bias for each of six domains, using a proforma designed for this purpose (see Appendix 1) (Higgins 2011).

Low, high and unclear risk will be identified for the following as defined in Appendix 1:

1. Selection bias
a) Random sequence generation
b) Allocation concealment
2. Blinding of participants and personnel
3. Blinding of outcome assessment
4. Intention-to-treat analysis (ITT) for continuous outcomes
5. Outcome reporting bias
6. Other sources of bias

We will not exclude studies based on a high risk of bias.

Measures of treatment effect

The levels of depression will be measured using rating scales presented as dichotomous or continuous outcomes. We will summarise dichotomous outcomes, such as the number of people achieving a minimum clinically significant reduction in level of depression, using odds ratios (OR). For continuous outcomes, such as scores from a scale and they come from the same scale, we will use mean differences (MD). When outcomes from different scales are combined, we will use standardized mean differences (SMD). We will calculate 95% confidence intervals (CI) for each effect estimate. If sufficient data are available to pool both dichotomous and continuous outcomes, we will do so using the formula recommended in section 9.4.6 of Higgins 2011.

Two review authors (AN, BM) will perform a meta-analysis on the extracted data if:

- more than one study is included with an estimated treatment effect;
- there are minimal differences in characteristics across studies, or these characteristics have been identified a priori and investigated as a potential source of heterogeneity in subgroup analyses;
- the same outcomes have been measured using validated scales;
- data in each study are available.

If different scales have been used to measure the same outcome, data will be entered into RevMan to summarise outcomes across scales using the standardized mean difference. It is expected that studies will have used different time points for measurement. If sufficient data are available, the authors plan to conduct a meta-analysis with planned subgroup analysis to look at different time points: short follow-up (up to 14 weeks); moderate follow-up (15 to 27 weeks) and long follow-up (28 weeks and over). If there are marked variations in the interventions offered, the populations studied and the outcome measures used, the review will be restricted to developing a narrative description of the findings of individual trials. In all cases, we will consider the objectives of the review in terms of (i) identifying evidence relating to the efficacy of dance movement therapy for depression on its own, (ii) comparison with standard care or other treatments, and (iii) when different types of dance movement therapy are used.

Unit of analysis issues

We will include cross-over trials, only using the first active treatment period. For studies with multiple arms, only those with DMT and the control will be included in the analysis. If there are two DMT arms with a single control group (for example a dose study), then prior to the meta-analysis we will halve the effective sample size of the control in order to avoid counting the same participants twice.

In the case of cluster randomisation, we will conduct the analysis at the same level as the allocation, using a summary measurement from each cluster. The sample size will then be treated as the number of clusters in order to avoid unit-of-analysis errors.

Dealing with missing data

Where individuals are missing from end of treatment scores, we will contact the trialist in the first instance in an attempt to obtain the missing data and the reason for this. If data are unavailable and unlikely to be 'missing at random' (Higgins 2011, 16.1.2), and provided that the individuals concerned did receive the intervention to which they were allocated, we will assume that the individuals have dropped out from the treatment, which offers some indication of its acceptability (calculated as a percentage drop-out). Where standard deviations (SD) are unavailable, we will in the first instance look for other reported measures that will allow us to impute the standard deviation (for example, p values, t values, confidence intervals and standard errors). If sufficient numbers of studies are available to allow us to impute a SD, we will do so either by taking the mean or (if fewer than six studies are available for this or there is considerable variability) we will assume the highest value. This will be noted, however, as it may bias towards lack of effect. Sensitivity analyses will be performed for all imputed measures.

Where authors describe an intention to treat (ITT) analysis, we will scrutinise the data and where necessary contact the authors to determine whether this is in fact so, or whether a per-protocol analysis has been performed (Higgins 2011, 16.2.1). Given that ITT analyses tend to bias towards no difference (because they include participants who are randomised to the treatment group but in fact receive something else) an available case analysis will

be performed in addition to an ITT analysis and we will carry out a sensitivity analysis (Higgins 2011, 16.2.1).
For the ITT analysis, we will treat missing data cautiously, assuming no change since the last available measurement (continuous outcomes) or no change overall for dichotomous outcomes. This is because in a depression trial, those individuals who do not attend for their end of treatment measurements may have had a relapse of their depression. Any analysis of the available data without adjustment for this will be biased. We will therefore impute missing data with replacement values, treating these as if they were observed by carrying the last measurement forward.
All missing data will be reported in the risk of bias tables (Appendix 1).

Assessment of heterogeneity

Initially, the review authors will inspect studies to identify sources of clinical heterogeneity; studies will only be pooled if there is sufficient clinical homogeneity. In order to assess this, tables will be constructed to summarise studies in terms of participants, settings, method of delivery (that is group or individual, number of sessions), type of dance movement therapy used, and outcomes presented. If the identified studies appear to be clinically similar, two review authors (AN, BM) will undertake a further analysis of statistical heterogeneity. Heterogeneity will initially be identified visually (if confidence intervals are not overlapping, this indicates heterogeneity). If appropriate, the Chi^2 test will be applied. If Chi^2 is greater than the degrees of freedom (which is one less than the number of studies in the forest plot) then heterogeneity is present. Given that some statistical heterogeneity is inevitable, the I^2 statistic (Higgins 2002) will also be applied in order to assess its impact on the meta-analysis (Higgins 2011, 9.5.2), using overlapping bands as follows:

- I^2 = 0% to 40%: might not be important
- I^2 = 30% to 60%: may represent moderate heterogeneity
- I^2 = 50% to 90%: may represent substantial heterogeneity
- I^2 = 75% to 100%: considerable heterogeneity

Despite these figures, for psychological assessments it may be acceptable to pool studies with up to 80% heterogeneity. However, low quality studies will then be removed and a sensitivity analysis performed.

Assessment of reporting biases

Where evidence of missing outcomes is found, attempts will be made to obtain available data direct from the trial authors. We will consider the studies for reporting biases, including whether only positive results were published and whether they were published more rapidly. We will also consider whether English publications included more positive results than those in other languages, and we will consider citation bias and outcome reporting bias. We will use a funnel plot analysis to examine publication bias if there are more than 10 studies addressing a particular question.

Data synthesis

We will enter all trials included in the systematic review into Review Manager (Revman 5.1).
If the formal test of homogeneity shows that there is significant heterogeneity (see Assessment of heterogeneity) which is not due to a moderator variable, we will use random-effects models to calculate differences between treatment and control groups and pooled estimates.

Subgroup analysis and investigation of heterogeneity

If possible, we will perform subgroup analyses by:

- mode of delivery including group or individual;
- moving or non-moving therapist;
- length of treatment including number of sessions (session number of fewer than 12, 12 and more);
- intensity of intervention, to include frequency (weekly or less frequent, bi-weekly or more frequent) and duration of sessions (one hour or less, more than one hour);
- severity of depression at start of treatment (mild, moderate or severe, as identified by the trialist using standardized measures);
- participant characteristics including gender (men, women or other) and age (under 18 years or child and adolescent however determined by the trialist, 18 to 64 years or adult however determined by the trialist, 65 years and over or older adult however determined by the trialist);
- setting (statutory and non-statutory).

Sensitivity analysis

We will perform a sensitivity analysis, if relevant, in order to test methodological decisions made throughout the review process:
1. Different designs:
   - a) Quasi-RCTs (with systematic methods of allocation)
   - b) Cross-over designs
   - c) Cluster RCTs and other cluster effects including randomisation but to the same therapist.

2. High risk of bias, for example due to poor allocation concealment.
3. Imputed measures vs available case analysis.
4. Other identified low quality studies.

ACKNOWLEDGEMENTS

We wish to acknowledge the contribution of the CCDAN Trials Search Co-ordinator, Sarah Dawson. We also wish to acknowledge

the prior work undertaken by Andrea Nundy-Mala in our initial scoping study and Dr Cochavit Elefant in helping to prepare the registration of the title.

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* *Indicates the major publication for the study*

APPENDICES

Appendix 1. Sample of data extraction form

Data Extraction for all Relevant Studies
General information

- 'Data extractor'/author ID: .....
- Date of extraction: .....
- Study ID: .....
- Title, author/s, publication details of study:

.....

- Source if unpublished:

.....

- language of publication: .....

Eligibility criteria
Does the study meet the inclusion criteria, and how?

- Study design (parallel, controlled trial, randomised controlled trial):

.....

- Participants (diagnosis of depression, valid and reliable depression scores or symptom measures):

.....

- Interventions (type of dance movement therapy):

.....

- Outcomes (changes in scores of depression and depressive symptoms:

.....

Inclusion ? Exclusion ? More Information Needed ?
Data Extraction for Included Studies
Study characteristics

- Study setting (e.g. country, urban/rural, hospital/clinic/school/charity/community/prison etc:

.....

- Participant demographics (e.g. age, gender, socio-economic status, co-morbidity):

.....

..

- Inclusion/exclusion criteria used in the study:

.....

Outcome measures used in the study

- Primary outcome measures that provide scores for:

1. Depression as measured using valid and reliable scale measurements

.....

1. Depressive symptoms including: low mood; fatigue; sleep disturbance; appetite disturbance; suicidal ideation

.....

- Secondary outcome measures that provide scores for:

1. Social and occupational functioning, (e.g. engagement in social activities)

.....

1. Quality of life

.....

1. Self esteem and body image

.....

1. Adverse effects (including injury, suicide or suicide attempt/s)

.....

1. Overall treatment dropouts

.....

1. Costs

.....

Study results

- Source (table, graph, text) .....
- Participants, number of events, percentages, chi-squares, risk ratios, for dichotomous outcomes, mean differences or standardized mean differences for continuous outcomes, missing participants

.....

.....

- Queries regarding data or methods (to be referred to the author for further information)

.....

Additional notes

- Record of details regarding correspondence with author/s for additional information or clarification of queries

.....

- Ethics of stated conflict of interest .....
- Details of other studies cited in the references .....
- Duplicate publications .....
- Translation required .....

Risk of bias assessment

1. Selection bias

a)Method of randomisation

Was the trial reported as randomised? YES/NO/UNCLEAR

Was the method of randomisation appropriate? YES/NO/UNCLEAR

Randomization will be rated as appropriate if every participant had equal chance to be selected for either condition and if investigator was unable to predict which treatment the participant would be assigned to. Examples are: random number table; computer random number generator; coin tossing; shuffling cards or envelopes; throwing dice; drawing lots; minimization.
Inappropriate methods include: use of date of birth; sequence generated by a rule e.g. date of admission; patient preference; clinician judgement; availability of the intervention.
Unclear: insufficient information on which to base judgement.
b) **Allocation concealment**
Was allocation concealment adequate? YES/NO/UNCLEAR
Adequate - methods to conceal allocation include: central allocation (e.g. telephone, web or pharmacy based randomisation); serially numbered, opaque, sealed envelopes; other descriptions with convincing concealment

Inadequate methods include: open random allocation schedule, e.g. list of random numbers; envelopes without safeguards, e.g. unsealed, non-opaque or not sequentially numbered; alternation or rotation; date of birth; case record number; any other explicitly unconcealed procedure.
Unclear: authors did not adequately report on method of concealment
2. **Blinding of participants and personnel**
Was the discussion of participant and personnel blinding adequate? YES/NO/UNCLEAR

NB For dance movement therapy studies, it is not possible to blind participants and those providing the dance movement therapy interventions. Adequate discussion of blinding would therefore be implied in adequate randomisation and allocation concealment (see above).
Inadequate blinding would be implied in studies for example in which the therapist, participant and/or researcher chooses participants for the experimental group.
Unclear blinding would be implied in cases in which either allocation concealment or randomisation are unclear.
3. **Blinding of outcome assessment**
Was discussion of blinding of outcome assessment adequate? YES/NO/UNCLEAR
NB A yes is possible if blinding of outcome assessment is not ensured (both blinded and unlikely to be broken), but that the review authors judge this is unlikely to influence outcome measurement.
A judgement of unclear will be used if the study does not address this.
4. **Intention-to-treat analysis**
Was ITT analysis adequate? YES/NO/UNCLEAR
An intention-to-treat (ITT) analysis will be considered adequate when: there are no missing outcome data; reasons for missing data unlikely to be related to true outcome; missing outcome data are balanced across comparison groups, with similar reasons; plausible effect size (difference in means or standardized difference in means) among missing outcomes is insufficient to have clinically relevant impact on observed effect size; missing data are imputed using appropriate methods.
Inadequate: reasons for missing outcome data likely to be related to true outcome, with either imbalance of numbers or reasons for missing data across groups; plausible effect size among missing outcomes sufficient to induce clinically relevant bias in observed effect size; 'as treated' analysis performed with substantial departure of the intervention received from that assigned at randomisation; potentially inappropriate application of simple imputation.
Unclear: insufficient reporting of attrition or exclusions to permit judgement, e.g. number randomisation not stated or no reasons for missing data given; or the study did not address this outcome.

5. Outcome reporting bias
Was the reporting bias acceptable? YES/NO/UNCLEAR
Reporting bias will be assessed as acceptable if: the study protocol is available and all pre-specified outcomes of interest in the review have been reported in the pre-specified way; or the protocol is not available but it is clear that the published reports include all expected outcomes.
Unacceptable: not all of the pre-specified primary outcomes are reported; one or more of these is reported using measurements or analytic methods or subsets of data that were not pre-specified; one or more of the primary outcomes were not pre-specified (unless clearly justified, e.g. adverse effect); one of more outcome of interest is reported incompletely and so cannot be entered into meta-analysis; failure to report results for a key outcome that would be expected from such a study (including adverse outcomes).
Unclear: insufficient information to make a judgement.
6. **Other sources of bias**

Were other sources of bias eliminated: YES/NO/UNCLEAR
Examples of other risk of bias include: those related to study design; claimed to be fraudulent.
Examples of unclear risk of bias include: insufficient rationale or evidence that an identified problem would introduce bias.
The above criteria will be used to give each article an overall quality rating, as follows:
A. Low risk of bias - all criteria met.
B. Moderate risk of bias - one or more of the criteria only partly met.
C. High risk of bias - one or more criteria not met.

Studies will not be excluded based on a low quality score.

HISTORY

Protocol first published: Issue 6, 2012

CONTRIBUTIONS OF AUTHORS

Draft the protocol: BM, VK and AN. Develop search strategy and undertake searches: VK and BM in consultation with the CCDAN Trials Search Co-ordinator. Data extraction and management: BM and VK. Assessment of quality: BM, VK and AN. Analysis and synthesis: statistical, AN and BM; narrative, BM and VK.

DECLARATIONS OF INTEREST

Both Karkou and Meekums are members of the Association for Dance Movement Psychotherapy UK (ADMP UK). Both have completed studies that may be included in the review.

SOURCES OF SUPPORT

Internal sources

- University of Leeds, School of Healthcare, UK.

Provided computer / email resources and time for Meekums and Nelson to work on review.

- Queen Margaret University, School of Health Sciences, UK.

Provided computer/email resources and time for Karkou to work on review. Offered access to electronic databases for Mala to work on scoping review

External sources

- No sources of support supplied