

Dance/Movement Therapy (D/MT)¹ for Depression: A Scoping Review

Abstract

Depression affects 121 million people worldwide (WHO 2010). The socio-economic repercussions of depression are putting an enormous strain on UK and US governmental health budgets. Regarding treatment interventions, D/MT and other arts therapies are widely practiced around the world as a treatment of choice for depression. Research evidence suggests that exercise has positive effects on mood. Similarly, it has been argued that dance has a positive social-cultural influence on a person's wellbeing. However there are no systematic reviews that support the effectiveness of D/MT for people with a diagnosis of depression.

It is therefore important to map the field existing research studies of D/MT for depression. In this paper a scoping review is presented that engaged with an extensive search to best answer the question: *is there good quality research evidence available regarding the effectiveness of D/MT and related fields for the treatment of depression?* A search strategy was developed to locate publications from electronic databases, websites, arts therapies organizations and associations using specified criteria for including and excluding studies. All studies meeting the inclusion criteria were then evaluated for their quality, using broad criteria of quality such as type of methodology followed, number of participants, relevance of interventions and specific comparisons made and outcome measures.

¹ In the UK and since 2008, the discipline is known as 'dance movement psychotherapy' and practitioners call themselves dance movement psychotherapists. For the purposes of this article the USA term 'dance/movement therapy' and its acronym 'D/MT' will be used throughout, while practitioners will be referred to as 'dance/movement therapists'.

A total of nine studies were found. Six studies followed a randomized controlled trial design, and three adopted a non randomized design. At least one study met most criteria of quality. We concluded that there was a need to undertake a full systematic review of the literature and to follow a Cochrane Review protocol and procedures.

Keywords

Dance/Movement Therapy, Dance Movement Psychotherapy, Depression, Effectiveness, Systematic Review, Randomized Controlled Trials

Introduction

Dance/Movement Therapy (D/MT) and Evidence-Based Practice (EBP)

It is often difficult for arts therapists, including dance/movement therapists, who are not in direct contact with academic institutions, to keep up to date with research evidence. As a result of this, practitioners often become disconnected from recent developments, while remaining reliant upon theoretical frameworks and their own and others' experience to inform their work. In recent years, however, dance/movement therapists, along with the other arts therapists, are encouraged to shift towards a more cyclical process of practice which on the one hand still remains well-informed by theory and experience but on the other also draws upon research findings (Karkou 2009). This way research becomes an integral part of practice informing clinical decisions throughout the therapeutic process. Thorough evaluation of the therapeutic work and generation of research evidence based on practice are also part of this cycle, aiming to develop improved services. Ultimately this approach to practice highlights the value of research and makes it more tangible to the working clinician. The framework for clinical practice that incorporates scientific research

evidence is known as Evidence-Based Practice (EBP) (Mason, Leavitt, & Chaffee 2002, Melnyk. & Fineout-Overholt 2005 and Leach 2006).

EBP requires a shift away from the traditional paradigm of clinical practice grounded solely in intuition, clinical experience, and psychological rationale (Mason et al. 2002; Melnyk. & Fineout-Overholt 2005, Leach 2006). Clinical expertise is seen as important in combination with best scientific evidence, patient values and preferences, and clinical circumstances. In Dance/Movement Therapy (D/MT) in particular, Meekums (2010) argues that practitioners have at times tended to be misinformed and consequently demonize the EBP paradigm. She suggests that there is a need for dance/movement therapists to embrace research evidence including quantitative experimental studies while not losing sight of the particular strengths offered through embodied knowledge. Our intention through this scoping review is to offer this integration with respect to one particular area of evidence, namely D/MT for depression.

In order to support the shift towards EBP, it is important that good quality research evidence becomes available to practitioners. Systematic reviews and/or meta-analyses that report on and evaluate research studies are often regarded as important sources of research evidence in a particular area of clinical practice. However, there are not enough systematic reviews and/or meta-analyses available to guide practitioners. Working with depression in D/MT is one such area; while this is a common diagnosis for a number of clients seen by dance/movement therapists, there is still a marked absence of either systematic reviews or meta-analyses on the topic. This article, therefore, attempts to address the gap in the literature by reporting on a scoping review of published and unpublished research studies pertaining to the effectiveness of D/MT in the treatment of depression. The scoping review

was an initial, step in order to determine whether we could undertake a systematic Cochrane Review on the topic.

Systematic reviews aim to collate all empirical evidence relating to a specific research question, using explicit, systematic and pre-determined methods in order to minimize bias and generate reliable findings (Higgins and Green 2011). This kind of research activity is often placed on the top level in the hierarchy of evidence (Eccles et al 2001). As a result, systematic reviews, with or without meta-analyses, are highly respected by establishments such as governmental bodies and national health systems. Some of the most respected systematic reviews are undertaken by the Cochrane Collaboration. A Cochrane Review is a systematic review that not only offers a summary of reliable evidence of the benefits and risk of health care, but does this through a very clearly defined process and clearly defined criteria. For a review to be called a Cochrane Review it needs to be part of the 'parent database' (Cochrane Collaboration 2012 p.1) and to be linked with the Cochrane Collaboration from the beginning to the end of this process.

In all cases and as a first step towards a systematic review, it is common for researchers to undertake a scoping review. The purpose of a scoping review is to establish the breadth of the field, key concepts and types of evidence, and what outcome measures might be relevant; in effect, to 'map' it (Arksey and O'Malley 2005). For the scoping review reported in this article, our intention has been to map the field of D/MT for depression.

Why Depression?

The World Health Organization (WHO 2010) reports that depression affects about 121 million people worldwide and is predicted to become in 2020 the second most disabling illness in the world after ischemic heart disease. In the UK, national figures indicate a

similarly large impact of depression on the general population. According to the 2000 Psychiatric Morbidity Report among adults living in private households, 8-12 percent of the population is diagnosed with depression at some point in their lives (Office of National Statistics 2000). The National Institute of Mental Health (NIMH 2010) in the US state that 9.5% of the population, which is approximately one in ten American adults, suffers from depression. Scott and Dickey (2003), in their research on the global burden of depression, suggest of those who suffer major depressive disorders 20% will have symptoms that persist beyond two years of the initial diagnosis and treatment. Whichever estimates are accepted, depression clearly represents a significant burden to families and to society; it has a negative impact on quality of life, and can lead to suicide. For example, more than 90% of Americans who take their own lives have an undiagnosed mental health disorder or a continual depressive disorder (NIMH 2005, & Scott and Dickey, 2003), Often depression goes undiagnosed; hence the real scale of the problem is probably much larger than that identified by national statistics.

Departments of Health in the UK and US acknowledge that only a few sufferers receive treatment. For example, the USA Department of Health and Human Services (2011) reports that only one in five adult sufferers receive adequate treatment in accordance to guidelines set by the American Psychiatric Association (APA) (2012); even fewer receive treatment amongst ethnic minority groups (Areal 2011)). In the UK, The Depression Report by The centre for Economic Performance's Mental Health Policy Group (2006) claims that two in six people who do not receive treatment could be "cured at a cost of 750 pounds" (p4). The focus of the report is one of economic cost and reduction of Incapacity benefits. It suggests that depression is the biggest social problem and number one cause of unemployment affecting 40% of people claiming Incapacity benefits in the UK, (The Center for Economic

Performance's Mental Health Policy Group 2006). Major depression is a feature of 22% of Americans who classify themselves as unable to work and 10% of those who are already unemployed (Centers for Disease Control and Prevention, CDC 2010). The cost of depression, the loss of productivity and medical expenses is \$83 billion in the USA (Leahy 2010) in comparison to the £12 billion a year for the UK Government (The Center for Economic Performance's Mental Health Policy Group 2006), an enormous cost to the government but perhaps an even greater cost to the individual who on average decrease their lifetime earning potential by 35% due to undiagnosed and untreated depression (Leahy 2010). Between 1991 and 2002 in the UK alone, prescriptions per head for anti-depressants increased by £310 million (Medical News Today 2005). In the USA the overall costs for outpatient treatment of depression increased from \$10 billion in 1997 to \$125 billion in 2007 (Zorumski and Rubin 2011), a point which illustrates the sheer expense of the pharmaceutical management of medication. Zorumski and Rubin (2011) state that there is potential to curb the costs if physicians were to prescribe less inexpensive and more generic anti-depressants and consider other evidenced-based psychotherapies rather than be concerned with prescription privileges. The London Center of Economic Performance's Mental Health Policy Group (2006) proposes a new nationwide therapy service to be put in place to counter-balance the billions of pounds lost through inactivity. The loss, when compared to the £0.6 billion it would cost to provide an effective therapy service in the UK, surely justifies the importance of therapeutic interventions for depression. The argument that remains is that a therapy service is only justified if it is effective enough in making people feel better, and enabling them back to work.

In terms of UK health policy, the last decade has seen an expansion of psychological treatments for common mental health problems. The general consensus according to both

English and Scottish governments is that attitudes toward mental health, especially depression, should be less about reaction and more about prevention (The Department of Health, 2008; The Scottish Government 2008). Governmental targets emphasize an approach towards mental health based on a social model which recognizes that healthy mental capacity is shaped by social, cultural and economic environments. In contrast, in the USA there does not appear to be a single governmental incentive, mainly due to the complex infrastructure of the health care system; many different providers, treatment settings and payment mechanisms (Sundararaman 2009). Congress policies under discussion focus heavily upon practical issues related to mental health such as access in rural areas, co-ordination between providers, comprehensive health insurance cover and better evaluation measures of the quality of mental health care (Sundararaman 2009). Research conducted through the NIMH (2010) is largely focused on the connectivity of neuronal and biochemical processes in the brain that explains the symptoms and behavior of depression. As a result, it appears that US treatment has a more medical focus in comparison to the social focus in the UK and is thus much more interested in the development of pharmaceuticals and the adherence and continuous use of anti-depressants (NIMH 2010)).

In the UK, the shift away from a model of treatment heavily reliant on medication and towards a more holistic approach indicates the need for evidence relating to a range of psychological therapies. English targets, which initially prioritized Cognitive Behavioral Therapy (CBT) as the main intervention, nevertheless enshrine the intention of including the wider range of therapies approved by UK-based treatment decision bodies (National Institute of Clinical Excellence, NICE 2009 and Scottish Intercollegiate Guidelines Network, SIGN 2010). A review of the evidence relating to D/MT for depression is thus timely.

Dance/Movement Therapy (D/MT) and Depression: The Evidence So Far

D/MT is widely practiced around the world often with people who are suffering from depression, whether or not depression is diagnosed. There are no systematic reviews on the effectiveness of D/MT for depression. There is, however, a relatively large body of knowledge that relate to exercise and the effects of exercise on mood. Furthermore, overviews of the effects of exercise on depression can be found as early as 1988. In a meta-analysis by Craft and Lander (1988) movement was seen as having beneficial effects on depressive symptoms. More recently, a range of publications have reported on the effectiveness of exercise on depression. However, the validity of their conclusions has been hampered by methodological problems and lack of follow up studies (Sjosten and Kivela 2005, Lawlor and Hopker 2001, Dimeo et al 2001). Mead et al (2008), in their study to determine the effectiveness of exercise as a treatment for depression, call for more robust research that describes the type, frequency and intensity of the form of exercise used in the trial. Bradshaw, Lovell and Hams (2005) insist that specific client groups within specific settings should be defined in all systematic reviews. For example, particular attention needs to be paid to levels and etiology of depression for older age groups. Physical problems and isolation are particular risk factors for the development of depressive symptoms in people aged between 60 and 74 (Kerse et al 2008, Williams and Tappen 2007, Sjosten and Kivela 2005).

Furthermore, evidence suggests that exercise can lead to short-term mood improvement (Williams and Tappen 2007, Sjosten and Kivela 2005, Dimeo et al 2001), but there is no evidence of significant long-term effects. There is a need for long-term studies of the effects of exercise on depression, involving larger groups (Kerse et al 2008, Mead et al 2008,

Williams and Tappen 2007, Sjosten and Kivela 2005, Dimeo et al 2001, Lawlor and Hopker 2001).

If exercise programs can be assumed to improve strength, endurance, and body mechanics and possibly alter mood states, dance may have all of these effects but also has the potential pleasure from creating dance movement and the added dimension of social interaction. A growing body of research literature exists concerning the socio-cultural communication encouraged by participating in dance which brings groups of people together in a 'team spirit'. According to more current qualitative studies using dance as a parameter to assess well-being and psychological states in the older person, the focus is on the ritualistic or folkloric aspects of the dance (Hui, Chui and Woo 2008, Belza et al 2004). Belza et al (2004) for example, recruited 71 older adults through community agencies to participate in seven ethnic-specific focus groups: American Indian/Alaska Native, African American, Filipino, Chinese, Latino, Korean, and Vietnamese. Their results demonstrated that participants' perception of improvement of depressive symptoms (e.g. fatigue, negative thoughts) was such to warrant the development of a country-specific folkloric dance program that aimed to enable older people to sustain independence and move away from isolation.

D/MT and other arts therapies are used extensively in the treatment of depressive symptoms with client groups whose main diagnosis may be anxiety, obesity, medically unexplained conditions or behavioral difficulties (Brauninger 2006, Payne 2009, Vaverniece, Dusele and Meekums in preparation, Karkou, Fullarton and Scarth 2010). Yet there is limited quantitative evidence that supports their effectiveness of D/MT with people with a diagnosis of depression. It is possible that D/MT offers added value over both exercise treatments and dance classes in that it encompasses an embodied therapeutic relationship. Stiles, Barkham

Mellor-Clark et al's (2007) study on the comparative effectiveness between different therapies (CBT, person centered therapy and psychodynamic psychotherapy), found that despite having non-equivalent theories and techniques, the outcomes were equivalent. They express this paradox as the 'dodo bird verdict' (Rosenzweig, 1936, cited in Luborsky et al, 2002, p. 2). This proposition is supported by Luborsky et al's (2002) review of meta-analyses; 'Everybody has won and all must have prizes' (taken from Lewis Carroll's *Alice's Adventures in Wonderland*). The dodo bird verdict suggests that a large part of the therapeutic effects of any psychotherapy is due to common factors and in particular the therapeutic relationship, regardless of the therapeutic framework of the therapist (Stiles et al, 2007). In the context of arts therapies, qualitative research by Meekums (1999) suggests that one important factor in the therapeutic relationship is the client's sense of psychological safety, the presence of which acts like a catalyst for positive change while the absence of psychological safety acts like a malevolent presence, associated with deterioration in mental state. Despite this important finding, we have found no valid and reliable measures for the therapeutic relationship incorporating the client's sense of safety, other than in studies in family therapy (Friedlander et al, 2006).

Notwithstanding the evidence for common factors influencing psychotherapeutic outcome, there is a wealth of well-designed research studies concerning the effectiveness of CBT on depression. However, most of these studies do not compare CBT to other therapies but to waiting list controls. This may add a degree of bias to the results, since arguably any therapy is better than no therapy, provided that 'common factors' are met. It is perhaps not surprising, given the plethora of randomized controlled trials of CBT, that the potential value of D/MT has been overlooked. This is often associated with the degree to which D/MT is taken seriously enough to invest time and money on a substantial piece of research work.

Furthermore, one could question the degree to which a randomized controlled trial, the golden standard of investigating medical treatments, is indeed the best possible research design for psychotherapeutic interventions. Unlike CBT, D/MT, as a form of humanistic or psychodynamically-informed practice, does not follow a standardized mode of delivery and a fixed clinical protocol. In including a control group, there is a similar assumption that variables will be controlled and thus interventions will be compared without interference from other variables. The concept of randomization in itself can also be questioned; in regular D/MT clinical practice selection of members for a group requires careful consideration of group therapy criteria such as 'best fit', since this may offer the best prognosis. If this principle is not adhered to and instead people are randomly allocated to either D/MT or a control group, positive treatment outcomes can be jeopardized.

It appears that either because prejudiced views of dance as 'not serious' remain or because randomized controlled trials, the golden standard of quantitative designs, are not seen as readily fitting D/MT practice, a 'chicken and egg' situation has developed: there is limited evidence of effectiveness which in turn leads to underfunding of research in this area (Meekums 2010 & 2006, Koch et al 2007, Karkou and Sanderson 2006).

The one meta-analysis completed in the field by Ritter and Low (1996) that was recalculated by Cruz and Sabers (1998) provides evidence for the effectiveness of D/MT with clients suffering a wide array of symptoms. However, the study does not examine studies for one particular diagnostic category and has not been updated since 1998 (at the time of finalizing this paper, an update is underway, conducted by Koch and colleagues). Karkou and Sanderson (2006), in their review of arts therapies research, conclude that research registers held with professional associations and/or completed by researchers in the field include very few systematic examinations of research evidence with people facing depression. This

seems to be true for research evidence concerning D/MT for any single diagnostic category. Consequently there are only a few available Cochrane Reviews in D/MT which include only a limited number of studies. For example, the Cochrane Review of dance therapy for schizophrenia (Xia & Grant, 2009) found only one study that was of a sufficiently high quality to include in the review i.e. the study by Rohrich & Priebe (2006) that provided evidence for the positive effects of D/MT on the negative symptoms of schizophrenia. Still, this seemed to be sufficient to result to the inclusion of D/MT in the NICE guideline for schizophrenia as a recommended treatment option and thus to support the development of relevant D/MT services in the UK. The most recent systematic Cochrane Review of D/MT evidence for cancer care (Bradt, Goodill and Dileo 2011) provides evidence on the value of D/MT for improving the quality of life of participants and decreasing fatigue. The number of studies in D/MT for cancer care that met Cochrane standards was equally small; only two studies were finally included in the review providing positive but, given the small number of participants, inconclusive results.

Regarding systematic reviews available for depression in the other arts therapies, a Cochrane Review completed by Maratos et al (2009) found music therapy to be a viable treatment for depression; evidence was drawn from a small number of studies. Maratos et al (2009) suggest that music therapy is associated with short-term mood improvement, and is different to standard care in that it is well tolerated by the subjects. However, conclusions remain rather similar to the Cochrane Review of dance therapy for schizophrenia (Xia & Grant, 2009) in that the effectiveness of music therapy on depression was unclear due largely to a lack of methodologically sound studies in the field. As yet, Cochrane Reviews for depression are not available in any of the other arts therapies including D/MT.

Methodology for this scoping review

The scoping review reported in this paper was carried out over a period of three months; May, June and July 2009, which was reviewed again in November 2010 in preparation for the title approved by the Cochrane Collaboration 'Dance Movement Therapy for Depression' (Meekums, Karkou, Nundy-Mala, Elefant and Nelson 2010). As a scoping exercise it remained fairly wide, searching for research studies that could best answer the question:

Is there good quality research evidence available regarding the effectiveness of D/MT and related fields for treatment of depression?

By 'good quality' we drew upon the hierarchy of evidence (Eccles et al 2001; Higgins 2009) as used by the Cochrane Collaboration. And we defined 'related fields' to stand for the other arts therapies (art, drama and music) and dance.

The process of undertaking the scoping review involved the following stages:

- The development of a search strategy that involved searching for research publications located in a wide range of electronic databases, websites, arts therapies associations and organizations (led by the first author with contributions by the other two).
- Sourcing publications and evaluation of quality (all three authors).
- Consultation and agreement amongst team members on the inclusion or exclusion of publications and their quality on the basis of agreed criteria (all three authors).
- Writing up (all three authors).

Development of Search Strategy

Research evidence was identified by conducting searches across bibliographical databases with pre-determined search terms. Table A shows how this strategy translated to reflect the various indexing terms, search functions and syntax available on the specified databases.

[Table A: The Search Strategy around here]

A search for evidence based exclusively on electronic databases would have overlooked relevant publications. To widen the search, the same indexing terms, syntax and search combinations were also used in the following areas:

1. Specific Electronic Journals: Body, Movement and Dance in Psychotherapy; E-Motion; The Arts in Psychotherapy; American Journal of Dance Therapy; British Journal of Guidance and Counseling; Counseling and Psychotherapy Research; European Journal of Psychotherapy; Counseling and Health.
2. Arts Therapies Websites and Online Research Registers: Electronic databases held with the Association for Dance Movement Psychotherapy UK (ADMP UK); the American Dance Therapy Association (ADTA); and the Dance-Movement Therapy Association of Australia (DTAA). The European Register was checked and found to be under construction at the time of the search; instead the German Research Register was included.
3. Generic Search Engines; Google.com; Google Scholar; Live Search; Yahoo
4. Reference Lists; the reference lists of all seminal publications obtained were checked in order to identify additional references. Although an effective process of checking

for additional publications, if a reference was found to be important it was also searched for within the bibliographical databases.

Inclusion and Exclusion Criteria

Research studies were identified using the search strategy shown in Table A. Inclusion criteria used to specify studies were: randomized controlled trials, controlled trials, experiments and quasi-experimental studies; published and unpublished; in English; either as whole papers or as abstracts; which stated outcomes specific to the effectiveness of D/MT, arts therapies and dance as interventions for depression.

Exclusion criteria were: all studies that were not methodologically robust; studies which did not provide results and discussion about findings. We also excluded studies relating to exercise due to the fact that this field is extensively researched and reviewed. Studies relating to D/MT, arts therapies or dance used for alleviation of depressive symptoms were also excluded in order to identify evidence for D/MT for clients with a diagnosis of depression rather than depression as a co-morbid illness.

Table B shows an example of how the literature was searched. The table includes information on databases, dates of when the search took place, search terms used, the total number of articles and relevant articles found.

[\[Table B: Examples of Literature Searches around here\]](#)

An initial evaluation of the quality of the sourced studies was then completed using the following criteria as stated in the application for to the Cochrane Collaboration for the systematic review of D/MT for depression (Meekums et al 2010):

1. Types of study
2. Participants
3. Interventions and specific comparisons made
4. Types of D/MT interventions and comparisons with other therapies
5. Outcome measures used

Note that as this was a scoping exercise aiming to answer the study = question, ie whether there were good quality research studies available in the treatment of D/MP and related areas for depression, statistical analysis of data from the collected studies was not undertaken.

Findings and Discussion

We found a total of 9 studies which fulfilled at least one of the inclusion criteria.

[Table C: Findings around here]

Of the nine studies found, six studies followed a randomized controlled trial design, and three adopted a non randomized design.

Non Randomized Controlled Trials

Three studies are included in Table C because they are significant pieces of research which offer a wider picture of existing literature in the field of D/MT and depression, arts therapies and depression, and dance and depression. None of the three were randomized controlled trials, but followed either a controlled trial design or a design with pre and post testing.

Alpert et al (2009) and Jeon et al (2005) both focused on dance for older people living with depression, either jazz dance (Alpert et al 2009), or traditional Korean dance (Jeon et al 2005). Alpert et al (2009) used a quasi-experiment design to evaluate the impact of class instructed jazz dance on the balance, cognition and mood of older women. The study used a time series analysis of self-reported questionnaires completed by the participant during three time intervals, without a random assignment. Comparisons were made between jazz dance participation and the dependant variable outcome from the three time intervals. On the other hand, the study by Jeon et al (2005) is the methodologically stronger of the two studies. It followed a quasi-experiment design that was strengthened by the use of a controlled trial with a large sample of 130 subjects in the intervention group and 123 in the control group. The level of depression was just one of the features tested in both studies alongside balance, medical cost, medical institutions utilization, and falls (Jeon et al 2005) and balance, cognition and mood (Alpert et al 2009). Outcomes for both studies were favorable for dance and highlight improvements especially in balance which according to Alpert et al (2009) was attributed to the preventions of falls, one of the major causes of morbidity in the older adult (Alpert et al 2009). However no direct link could be made between dance and improvement of mood.

Harden's (1989) doctoral study is categorized under studies of D/MT for clients faced with depression (see Table C). Harden (1989) reported on a quasi-experimental pre and post testing design that had a twofold aim: (a) to examine the effect of group movement therapy on depression, morale and self-esteem; and (b) to identify any relationships between certain demographic variables and depression, morale, and self-esteem in women aged 65 and above who resided in four intermediate day care facility nursing homes. Four groups, one in each care facility, were set up to test four hypothesized outcomes: (a) lower depression, (b)

higher morale, (c) higher behavior morale, and (d) higher self esteem. Findings of these hypotheses showed significant differences among the four groups. The movement therapy group; showed a significant change in pre to post test scores, demonstrating improvement of depression, higher behavior morale and higher self esteem in comparison to other study groups. Although the authors found a link between group movement therapy and the improvement of well being among older people, the lack of a control group does not allow for clear conclusions to be drawn from the findings. This is not to say the study is not worthy of merit, but outcomes may be difficult to determine due to the particular intervention used, the tests employed and a variety of extraneous variables affecting successful therapeutic interventions.

Randomized Controlled Trials

Our literature search revealed that there are some interesting studies with rigorous scientific design on dance for clients faced with depression (Table C). The first was by Eyigor et al (2009) who completed a randomized controlled trial focusing on Quality of Life (QoL) of older people. The second, completed by Koch et al (2007), followed an experimental design that identified a particular dance-related aspect of D/MT with psychiatric patients with depression.

Eyigor et al (2009) used Turkish folkloric dance as an intervention to affect the physical capabilities of the subjects, indirectly aiming to make changes in their depression. Volunteers were recruited through advertisement and formed two groups; (a) a folkloric dance based group, (b) a control group that continued with their daily activities pre-study. Eyigor et al (2009) used three outcome measures: (i) Berg balance Scale (BBS), which looked at physical functionality; (ii) Medical Outcomes Study (MOS), a health survey; and (iii)

Geriatric Depression Scale (GSD) questionnaires. The evaluation of GSD questionnaires showed no significant changes in the clients' depression; however the researchers state that half of the participants were evaluated as 'normal' pre-study on the basis of the GSD scale.

Koch et al (2007) focused on a particular aspect of D/MT practice with psychiatric patients with depression, investigating the role of the 'jumping rhythm' in circle dance. Koch et al (2007) formed three group conditions: (a) Israeli circle dance group (which uses both a circular group formation and movements characterized by strong 'Weight'); (b) a group that listened to just the music associated with Israeli dance; and (c) a group that moved at home on an ergometer (home trainer). All thirty one participants of the study were diagnosed with depression using ICD 10 as a measure to ascertain either a main or additional diagnosis of depression. The study used a 12 item scale inventory, the Heidelberg State Inventory (HBS), (Koch et al 2007), as a pre and post test means. Results were in contrast to Eyigor et al's (2009) study, Koch et al (2007) findings from the HBS inventory scale showed a significant decrease in depression and increased vitality in the group that used circle dance as an intervention; the group who moved on an ergometer showed less than that of the intervention group but more than the group that just listened to music. The difference between the two studies can possibly be attributed to the fact that the participants for the second study had been selected to form a cohesive group on the baseline measurement; all were diagnosed with depression.

Erkkila et al (2008) and Wu, Shwu Ming and I-Shou, (2002), were found to be the main randomized controlled trials representing arts therapies with clients faced with depression. Both studies focused on music therapy as the intervention; for the treatment of depression (Erkkila et al 2008), and on depression, anxiety and self esteem (Wu Shwu Ming and I-Shou, (2002). Both studies offered very clear descriptions of the designs of the trials, the measures

used and the outcomes obtained; the main difference was in the size of the study. Erkkila et al's (2008) study involved 85 participants between 18-50, with severe depression as assessed by the Mini-SCID, a structured clinical interview for DSM-III R (Erkkila et al 2008; Grunenber, Goldstein and Pincus 2005). All participants received standard care and the experimental groups also received improvisational music therapy twice a week as the intervention. Wu Shwu Ming and I-Shou, (2002) described a smaller trial using 24 undergraduate students as subjects who were randomly assigned to a treatment group of music therapy and a control group with no intervention. Both studies were robust in their evaluation of the outcomes of the trial. Erkkila et al (2008) looked at both primary and secondary outcomes, and offered details of the measures used: the Montgomery and Asberg Depression Scale (MADRS) was used to measure primary outcomes. Findings from the Wu Shwu Ming and I-Shou (2002) study revealed that there was a reduction in depression in the experimental group only after a two-month follow up, whereas the level of anxiety showed immediate improvement after the music therapy intervention.

Steward et al (1994) and Joeng et al (2005) are the strongest studies of D/MT for clients faced with depression; both used a defined type of D/MT and both adopted a randomized controlled trial design. In particular, Steward et al (1994) applied a crossover design for inpatients with depression. Twelve participants were selected from their inpatient records to see if they fitted the criteria for depression using psychiatric diagnosis (DSM-III-R) and by an interview conducted by a trained nurse using the Diagnostic Interview Schedule. Movement therapy was randomly assigned for seven days of the 14-day study. On the other seven days a non movement therapy condition was applied. The evaluation measure used was the Depression Adjectives Check List (DACL), in which the subjects chose adjectives that best

described their feeling on both the intervention and non intervention days. Critiquing this study, two comments can be made:

- (i) This study was completed by nurses; their understanding of what they called movement therapy was limited to the medical model and the use of movement work resembled daily exercise and/or medication. Therefore there were neither references made to the therapeutic relationship nor to the embodied therapeutic relationship in particular as discussed by Meekums (2002). No references were made either to the overall therapeutic approach used in the intervention as described by Karkou and Sanderson (2006).
- (ii) The design appeared to be unnecessarily complex, and the sample was small.

Nevertheless, the outcomes showed significant reduction in depressed mood on the intervention days in five of the 12 subjects. None of the subjects had significant results in the opposite direction, while seven subjects showed no change in mood.

Jeong et al (2005) randomly assigned 40 student adolescents (mean age; 16 years old) with mild depression to either group D/MT or a no intervention control group. The intention of the study was to examine and track changes in the neurohormones linked to depression. Thorough depression measurements were employed: BDI (Becks Depression Inventory), to initially indentify subjects; and SCL-90.R (Symptom Check List-90-Revision), to assess psychological distress and interpersonal sensitivity. Lastly liquid chromatography with electrochemical detection was used to measure the concentration of plasma, serotonin and dopamine in the individual (Joeng et al 2005). A 12 week D/MT program ran three times a week, and was designed around four major themes: awareness; expression and symbolic quality; images and feelings; and the differentiation and integration of feelings (Joeng et al 2005). Results showed significantly increased plasma serotonin concentration and decreased

dopamine concentration, and found that the negative psychological symptoms of distress had improved in the treatment group, but not in the control group. There is clear evidence to suggest that the modulation of serotonin and dopamine production through the intervention of D/MT might be a mechanism for reduction in depression.

Conclusions

Going back to the research question guiding this scoping review (i.e. *'is there good quality research evidence available regarding the effectiveness of D/MT and related fields for treatment of depression?'*), we found a number of studies in D/MT and related fields for depression that met our inclusion criteria. They were evaluated in the first instance using broad criteria of quality such as the presence or absence of full randomization, allocation of participants in two groups and the completion of comparisons of D/MT with either a waiting list, standard care, music alone etc through standardized tests. From the reviewed studies there is at least one study that meets most criteria of quality and addresses the D/MT discipline per se, that of Jeong et al (2005). Further studies of a similar quality might be identified through a longer and more exhaustive search of published and grey literature. Given that randomization is a difficult process in therapeutic work, quasi-experimental studies may also need to be considered. Further arguments will need to be made to the value of well-designed and thorough quasi-experiments. Berrol (2012) notes that when dealing with human subjects, the reality is, because so many of the variables cannot be controlled, most studies fall into the category of quasi-experimental research. When quasi-experimentation takes place "the investigator not only needs to be aware of, but also work within the constraints of this modified form, (Berrol 2012, p.??)

Nevertheless, this scoping review suggests that there are a growing number of scientific studies in D/MT and related fields. It has therefore become essential to pursue a more systematic review of the literature through completing a Cochrane Review on the topic. The growth of depression as a global burden (WHO 2010) is an additional reason for the need to tackle issues of effectiveness as defined by the medical and health professions, and policy makers. And as Meekums (2010) has argued elsewhere, as dance/movement therapists we need to start changing our attitudes towards research, shifting away from a defensive tendency within the profession to demonize the scientific paradigm. Developing a more systematic body of scientific evidence can improve our chances to capitalize on what we already know in our practice as effective. Furthermore, as both Karkou (2009) and Meekums (2010) have argued, we need to engage in a dialogue with scientists and form research teams that can generate robust and effective research evidence.

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Table A: The Search Strategy

Search Combinations	Resources
<p>Diagnosis: Depress*</p> <p>Interventions: <u>D/MT</u> Dance/Movement Therap* or Dance Movement Therap* or Dance Therap* or Dance Movement Psycho* or Movement Psychotherap* or Movement Therap*</p> <p><u>Arts Therapies</u> Art* Therap* or Art* Psychotherap* or Dramatherap* or Drama Therap* or Drama Psychotherap* or Music Therap* or Music Psychotherap*</p> <p><u>Dance</u> Dance* or Dance/Movement</p> <p>Research Design Randomi* or Controlled Trial* or RCT* or Experiment*</p> <p>Combinations</p> <p>Diagnosis and D/MT</p> <p>Diagnosis and Arts Therapies and Research Design</p> <p>Diagnosis and Dance and Research Design</p>	<p>General journal databases for Psychology and life sciences, to be accessed through Applied Social Science Index & Abstracts British educational index British humanities Index British Nursing Index CENAH CINAHL ETHOs ERIC IBSS International Bibliography of the Social Sciences Igendera Journals@Ovid PILOTS PubMed PsycINFO SALSER SCOPUS Shine Union List SSCI Social Sciences Citations Index Zetoc Search EBSCO Host</p> <p>Specific databases Springerlink Informaworld Sciencedirect Wiley Interscience Ingentaconnect SAGE JSTOR MEDLINE/PubMed Web of knowledge British Nursing Index All EBM reviews</p> <p>Hand Searches</p> <p>European Network for the Professional Development of Dance Movement Therapy Association for Dance Movement Psychotherapy UK</p>

	American Dance Therapy Association Dance-Movement Therapy Association of Australia German Research Register
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Table B: Example of Literature Searches

Journal or other database Database, Journal or Grey Literature	Date	Diagnosis	Intervention	Research Design	Total Articles Found	Relevant Articles Found
EBSCO Host (inc PsycINFO, MEDLINE, CINAHL)	11/10	Depress*	Dance Movement Therap* or Dance Therap* or Dance Movement Psycho* or Dance/Movement Therap* or Movement Psychotherap* or Movement Therap*	-	64	Koch et al 2007 Jeong et al 2005 Payne 2010 Stewart et al 1994 Brooks and Stark 1989 Harden 1989
EBSCO Host (inc PsycINFO, MEDLINE, CINAHL)	11/10	Depress*	Art* Therap* or Art* Psychotherap* or Dramatherap* or Drama Therap* or Drama Psychotherap* or Music Therap* or Music Psychotherap*	Randomi* or Controlled Trial* or RCT* or Experiment*	74	Stewart et al 1994 Wu 2002 Erkkila et al 2008
EBSCO Host (inc PsycINFO,	11/10	Depress*	Dance* or Dance/Movement	Randomi* or Controlled	28	Jeon et al 2005 Koch et al

MEDLINE, CINAHL)				Trial* or RCT* or Experiment *		2007 Alpert et al 2009
Hand Searches	11/10	German Research Register			1	Brauninger 2006

Table C: Findings

Studies on dance and specific D/MT aspects for clients faced with depression	
1.	Eyigor, S. Karapolat, H. Durmaz, B. Ibisoglu, U. Cakir, S. (2009). A randomized controlled of Turkish Folklore dance on the physical performance, balance, depression and quality of life in older women.
2.	Koch, S. Morlinghaus, K. Fuchs, T. (2007). The joy of dance: specific effects of a single dance intervention on psychiatric patients with depression.
3.	Alpert et al (2009) The effects of modified jazz dance on balance, cognition and mood in older adults.
4.	Jeon et al (2009) Effects of a Korean traditional dance movement program in elderly women.
Studies on Arts Therapies for clients faced with depression	
5.	Erkkila, J et al (2008) The effect of improvisational music therapy on treatment of depression; protocol for a randomized controlled trial.
6.	Wu, Shwu Ming, I-Shou U, (2002) Effects of MT on anxiety, depression and self-esteem of undergraduates
Studies on D/MT for clients faced with depression	
7.	Jeong, Y, J. Hong, S, C. Lee, M, S. Park, M. (2005). Dance Movement Therapy improves emotional responses and modulates neurohormones in adolescents with mild depression.
8.	Steward, N, J. McMullen, L, M. Rubin, L, D. (1994). Movement Therapy with depressed inpatients; a randomized multiple single case design.
9.	Harden (1989) Effect of movement group therapy on depression, morale and self-esteem in aged women