



**The Effectiveness of Dance Movement Therapy (DMT)  
on Reducing Symptoms of Mental Illnesses:  
A Systematic Review**

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## Abstract

**Background:** One in four people suffer from a mental illness globally. Research has shown that dance has many benefits for and mental health. Thus, dance movement therapy has emerged in the field of psychotherapy. Dance movement therapy is a movement based psychotherapeutic approach which uses body movements to encourage emotional, social, cognitive and physical completion of the individual to enhance health. Throughout the literature, dance movement therapy was used as an intervention technique for some specific disorders. But the subject has not been reviewed thoroughly and generally about reducing the psychiatric symptoms. This systematic review aims to examine the effectiveness of dance movement therapy as an intervention technique in psychiatry setting on reducing mental illness symptoms as thorough as possible.

**Methods:** Five major databases were searched according to the related keywords. Selected studies were screened by applying specific selection criteria. Quality appraisal and data extraction were conducted by the author independently. All of the findings were presented in narrative synthesis form.

**Results:** All of the twelve studies were aiming to observe the effectiveness of dance movement therapy on mental illnesses. More than half of the reviewed studies approved the effectiveness of DMT on mental illnesses. The studies reported a decrease in test anxiety symptoms, significant decrease of depression symptoms, significant higher vitality, lower negative symptoms in schizophrenia, better body image in eating disorders and fewer signs of body dissatisfaction and so on. Overall, dance movement therapy was an effective treatment technique for mental illnesses.

**Conclusion:** The evidence shows that dance movement therapy may have an effect on reducing psychiatric symptoms and improve well-being. Further research must be done.

Key words: dance/movement therapy, mental health, psychological distress

## Introduction

Mental health problems are health conditions which change thinking, emotions, behaviour or a combination of these; and linked to distress or dysfunctions in social, family, or work life (Parekh, 2015). Today, mental health problems are very common that, globally, one in four people suffers from a mental disorder at least once in their lives (NHS, 2016). Those illnesses are not just affecting health, but they are also affecting the quality of life. A World Health Organisation (WHO) research showed that mental illnesses make up five of the ten leading causes of disability (The MaGPIe Research Group, 2006).

Mental illnesses can be treated in various ways. The history of mental health treatments has been developed through years. Throughout the history treatment of mental illnesses consisted of both psychotherapy and psychopharmacology. For more than 120 years, talking therapies which refers to ‘psychotherapy’ has been the main treatment option in clinical practice (Haggerty, 2016). There have been various approaches to treat or at least reduce symptoms of mental illnesses to a minimum, such as psychodynamic therapy, cognitive behavioural therapy, cognitive analytic therapy, dialectical behaviour therapy and so on. There is also a new emergence of expressive therapies such as art therapy, play therapy, music therapy and drama therapy. Although they became more popular nowadays as intervention techniques, the idea of using arts in medical treatment emerged since the early 1900s and became more widely known in the 1930s (Malchiodi, 2005).

Creative art therapies can be effective for mental health treatment. Research has shown that creative art therapies are a very effective option to help individuals recover from traumatic experiences (Pizarro, 2004). As creative art therapies, one of them which is “dance” actually has a deep-rooted history. Throughout the history, dance has been used

as a therapeutic process for the human health and well-being. It has been some kind of a healing process since the earliest human history (Strassel, Cherkin, Steuten, Sherman & Vrijhoef, 2011). Dance can be an entertainment technique for some that to use in their social lives. Actually, dancing is one of the oldest forms of therapeutic practice and experience acknowledged to mankind. (Margariti, Ktonas, Hondraki, Daskalopoulou, Kyriakopoulos, Economou, Tsekou, Paparrigopoulos, Barbousi & Vaslamatis, 2012).

Dance has many benefits on well-being, physical health; and at the same time on mental health. Physically, dance increases our fitness, enhances our cardiovascular health, and flexibility. Extra body movement strengthens our body muscles, which increases body awareness (Hanna, 1995). There are various artistic benefits of dance as well; such as art appreciation, creativeness, imagination, musicality, sense of rhythm, and body control (Lima & Vieira, 2007). Dance has one impact on health that explains its' benefits for mental health. Dance increases the endorphin levels, which provides elevated mood (Alpert, 2011). Hence, as aforementioned, it is certain that dance has psychological benefits as well. Dance, after all, is the rhythmic interaction of sound and motion which is connected to the collection and expression of feelings (Margariti et al., 2012). While dancing, we go into a self-awareness mode with the body to achieve emotional awareness. Dance is a period of time which allows stress and tension to be at ease; and hereby stress reduction occurs (Alpert, 2011).

As a form of expressive therapy, dance therapy is based on the correlation of movement and emotion. It is evolved within the mind and body connection, body awareness, collection and expression of feelings through movement and self-awareness. Dancing has the power to communicate an individual's inner feelings by allowing them to be aware of those feelings through sensation and movement (Levy, 1988). This sensory

experience allows individuals to find those unconscious emotions that we usually are not aware of, and bring them to sunlight through movements.

### **Dance Movement Therapy**

Marian Chase was a dancer and choreographer who argued that body and mind are not separate but related to each other. Marian Chase observed that some of the students preferred expressing emotions while dancing rather than the dance technique. Therefore, with the influence of Carl Jung's work, Marian Chase advocated the therapeutic benefits of dance movement therapy. American Dance Therapy Association hereby, was founded in the 1960s, under the guidance of Marian Chase (Payne, 2003). Thereby, dance movement therapy has been characterised as a form of therapy for mental health.

Dance movement therapy (DMT) was defined by the American Dance Therapy Association (ADTA) as a holistic, movement based, psychotherapeutic approach which uses body movements to stimulate individual's emotional, social, cognitive and physical completion in order to enhance health and well-being (Welling, 2014). Dance/movement therapy is based on the assumption that body and mind are interconnected and changes in the body affect cognition, emotions, and behaviour (Malchiodi, 2005).

### **Dance Movement Therapy and Mental Health**

The literature shows that dance movement therapy was used as an intervention technique for depression, anxiety, pain and stress management, to reduce the symptoms of dementia, children with special needs, for autism, ADHD and developmental disorders, and also to cope with other medical disorders such as cancer. For example, Brauning (2012) states that dance movement therapy group treatment is more effective to improve stress management than non-treatment, and its effects last over time. According to another study, dance movement therapy improved well-being, mood and affect, quality of life,

body image and interpersonal competence; and reduced the symptoms of anxiety and depression (Koch, Kunz, Lykou & Cruz, 2014). Although there are studies on dance movement therapy and its effects on mental health, the studies were focused on one specific illness each time.

### **Purpose of this review**

In the literature, as aforementioned, the research was focused on examining the effectiveness of dance movement therapy on disorders separately. The systematic reviews in the literature were also focusing on the subject by disorders. For example, one review examined the effectiveness of dance therapy on schizophrenia (Ren & Xia, 2012), and on the other hand another systematic review examined its effect on depression (Meekums, Karkou & Nelson, 2015). Although there is some research about dance movement therapy, there are not enough thorough and precise research about the effectiveness of dance movement therapy on reducing the symptoms of mental illnesses in general.

***Aim:*** To present an in-depth review of the effectiveness of dance movement therapy as an intervention technique for reducing the symptoms of mental disorders.

Due to lack of systematic reviews in the literature regarding this topic, the ***objectives*** of this study will be like the following:

- To emphasise dance and dance movement therapy benefits on mental health,
- To investigate if dance movement therapy is effective as an intervention technique on mental disorders for psychiatric patients,
- To collect as much as evidence about the effectiveness of dance movement therapy in reducing psychiatric symptoms,
- To review the reasons for the failures of research attempts on the matter.

### **Why it was important to do this systematic review?**

The literature shows that dance movement therapy has a significant impact on improving the quality of life. As mentioned earlier, dance movement therapy can be an effective treatment option for mental disorders. Therefore, due to the lack in the literature, it was essential to conduct a systematic review of the subject matter.

### **Methodology**

#### **Search strategy**

A systematic search for published studies was conducted in January 2017 in five major electronic databases which were Cochrane Library, MEDLINE/PubMed, PsychInfo, Web of Science and Science Direct. To identify similar published and/or unpublished trials, PROSPERO International Prospective Register of Systematic Reviews (Prosero, n.d.), and to identify ongoing randomised controlled trials in particular ClinicalTrials.gov website (US National Institutes of Health, 2000) were also searched in advance of proposing the research protocol of the study. Selected subject headings were combined with key terms relating to psychological distress and dance/movement therapy to create a search strategy which was finalised for use in MEDLINE/PubMed and corrected for use in the other databases by using appropriate vocabulary and search symbols (Appendix 1). Because of the authors nationality, Turkish databases were also searched during literature search, but because of the lack of studies in Turkey or Turkish studies, none of the selected studies neither belong to Turkey nor in Turkish. The delimiters were: dates searched between 1986 - 2016 (the last 30 years), research subjects (Psychiatry patients), language (English), department (psychology and/or psychiatry) and materials (published full-text journal articles). Throughout the research, process Endnote was used to store and manage the bibliography as the reference management software.

## Selection criteria

In order to choose the most appropriate evidence with respect to the effectiveness of dance movement therapy (DMT) on reducing the symptoms of mental illnesses, a selection criterion was established involving study design, participants, interventions and outcomes (SPIO) (Table 1). The format of the selection criterion table, SPIO, was adopted from an example systematic review (Lawrence, Booth, Mercer & Crawford, 2013). The SPIO format is an adapted version of PICO (Population, Interventions, Comparison, and Outcomes) (Simpson, Booth, Lawrence, Byrne, Mair, & Mercer, 2014) which was used in the previous research protocol about this study. Participants who have a specific mental illness diagnosis by a clinician in a psychiatric setting were included. Dance movement therapy (DMT) was selected as the main intervention technique. However, studies which used dance movement therapy as one of their intervention techniques were included as well because of the scarcity of research. Psychological distress was the primary (psychological) outcome measure sought. Secondary outcome measures included were communication skills, social participation, insight and quality of life.

**Table 1** SPIO inclusion/exclusion criteria

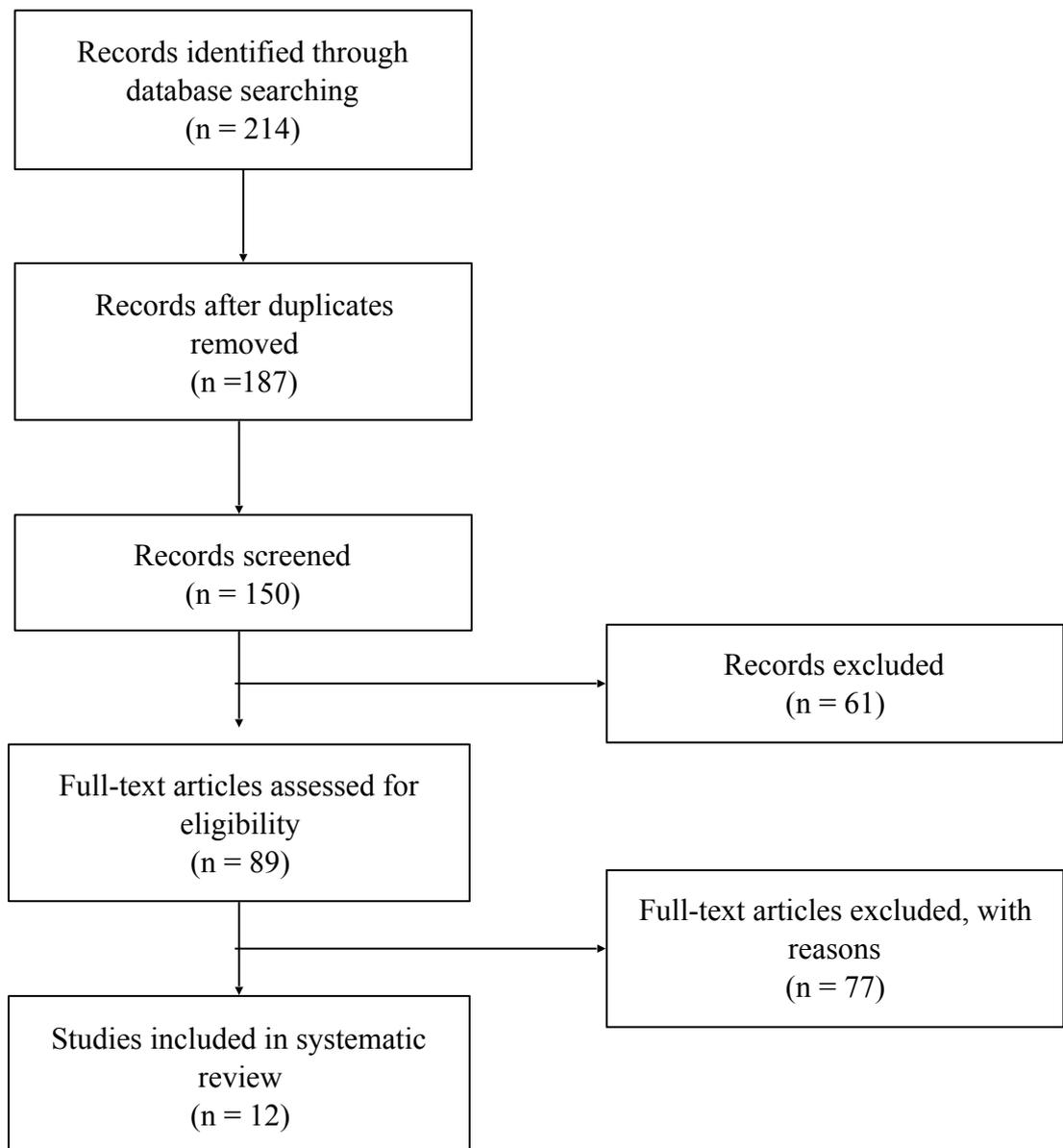
|                     | <b>Inclusion criteria</b>  | <b>Exclusion criteria</b>                                 |
|---------------------|--|---|
| <b>Study design</b> | Randomised controlled trials<br>Non-randomised controlled trials<br>Case studies<br>Cohort studies | Meta-analyses<br>Systematic reviews<br>Literature reviews |

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| <b>Participants</b>  | Young adults and adults (18-65 years)<br>Psychiatry patients with a specific mental health diagnosis   | Children with disabilities, autism and other medical diagnoses<br>Patients who are older than 66 years (older adults)<br>Patients with medical conditions including dementia, cancer, Parkinson's disease, chronic fatigue syndrome, chronic pain, fibromyalgia; disabilities, autism, ADHD |
| <b>Interventions</b> | Dance movement therapy (DMT)<br>DMT as one of the intervention techniques  | Usual talking therapies, art therapies, other dance related therapy techniques and medications as "primary" treatment   |
| <b>Outcomes</b>      | <i>Psychological &amp; primary outcome</i><br>Observed decrease in the symptoms of distress<br><i>Psychosocial outcomes</i> , e.g. quality of life, communication, social participation, insight |   |

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### Selection of papers for inclusion & exclusion

Figure 1 shows the steps of the literature search in detail. The database research retrieved about 214 bibliographic records about dance and health in general. Although a variety of records were retrieved about the general topic; about dance/movement therapy and mental health in particular, and after removing the duplicates, solely 187 articles left. After that, by using all of the screening methods which were aforementioned, only 150 articles remained as full-text only. All of the records which were not coherent to the selection criteria were removed. 89 articles were chosen as possible studies to examine; but after implementing inclusion and exclusion criterion, only 12 studies were used in this systematic review. Selection of studies for inclusion and exclusion was based on the PRISMA flow diagram (Moher, Liberati, Tetzlaff, Altman, The PRISMA Group, 2009).



**Fig. 1** Flowchart of study selection

The selection process started with a broad inclusion criterion, i.e., ‘mental health’ and ‘dance’ while selecting bibliographic records for inclusion. The terms were narrowed down according to the study title and it is mentioned in detail in Appendix 1 as aforementioned. All relevant studies were screened according to the SPIO inclusion/exclusion criteria (Table 1). All the titles and abstracts of studies, which are specifically about dance movement therapy and mental health, were examined (broad screening). As study design, randomised controlled trials, non-randomised controlled trials, case studies and cohort studies were included. Due to a limited number of studies in the literature, all

of the suitable studies were chosen to examine, rather than focusing on a particular mental disorder to understand the effectiveness of dance/movement therapy on mental health.

Due to the nature of this review, meta-analysis, literature reviews and systematic reviews were excluded during the selection of papers. Participants who are younger than 18 years and older than 66 years were excluded to specify the population's age range. All of the studies which contained medical conditions and diagnoses including dementia, Parkinson's disease, fibromyalgia, cancer diagnoses, chronic pain and chronic fatigue syndrome were excluded. Additionally, all of the disabilities, ADHD and autism spectrums were excluded from the selected literature as well. Mental disorders as primary diagnoses were used as the base factor; studies which contained participants who have mental disorders as secondary diagnoses were excluded. Moreover, as primary intervention art therapies, DMT specifically, was predicated on; and studies with usual psychiatric treatment (medication and talking therapies) as primary intervention techniques were excluded from the research.

The methods of screening in this systematic review were based on the Systematic Review Guideline (Boland, Cherry & Dickson, 2014).

### **Quality appraisal**

In order to continue with research, all selected papers should be subjected to a quality appraisal. In this review, to understand whether those studies are suitable to pursue the review, a range of standardised critical appraisal checklists were used. All of the checklists were from the Critical Appraisal Skills Programme (CASP, 2017) (Appendix B). CASP Randomised Controlled Trial, CASP Case Control and/or CASP Cohort Study Checklists were used for the reviewed studies. The checklists were retrieved from the CASP website, and they were cited in Harvard format according to website's suggestion.

CASP Checklists rely on three major issues: what are the results, whether the results are valid, and whether they will help locally. All of the checklists that were used in this review were based on questions to be answered as “yes”, “no” or “can’t tell”. CASP Checklist for randomised control trials and case control studies are 11 question appraisal tools, CASP Checklist for cohort studies is 12 and for systematic reviews, the checklist is a 10 question appraisal tools. According to the answers, the overall quality of studies was discussed in the results section.

### **Data extraction**

Data, including all of the details of study design, study characteristics, interventions, populations, outcome measures, main results and limitations were extracted from included studies using a data extraction table created by the author. The data extraction table was in a spreadsheet form by using Microsoft Excel. The standards were designated according to a relevant study (Elamin, Flynn, Bassler, Briel, Alonso-Coello, Karanickolas, Guyatt, Malaga, Furukawa, Kunz, Schünemann, Mohammad, Barbui, Cipriani, & Montori, 2009). All screening and assessments were conducted by the author herself, who worked independently.

### **Data synthesis**

Considering the features of this research and the papers included; and because of excluding all the statistical content, the review findings are presented in narrative synthesis form.

## **Results**

The database searches retrieved 214 published records were identified for this research from the literature. The retrieving process was shown in Figure 1 in detail. Using the screening methods described before, and after the removal of duplicates and the

exclusion process, 89 full-text articles were chosen as suitable for this review. With a systematic search strategy, only 12 articles were included in the final stage of the review.

### **Study characteristics**

The studies were conducted in different countries around the globe; such as United States of America, Germany, Hong Kong, Korea, United Kingdom and Finland. So, this systematic review did not discuss studies only in the UK. All of the key characteristics of the studies, containing study design, quality, setting, population, diagnoses, intervention method, outcome measures, results and limitations were specified in the study characteristics and key findings table (Table 2).

A randomised controlled trial (RCT) was conducted by Erwin-Grabner et al. (1999), aiming to investigate whether dance movement therapy is an effective technique for reducing test anxiety. Koch et al. (2007) created a 3-group repeated measure randomised controlled trial. The study was conducted in a psychiatric university hospital in Heidelberg with volunteered participants who were diagnosed with depression. The participants were matched by their gender and the severity of their illnesses and then randomly assigned to one of the three conditions. The aim of the study was to examine whether stimulating circle dances have a positive effect on the symptoms of mental disorders, depression in particular. In the study of Lee et al. (2015), the participants were collected from Wonkwang University in Korea. The study was a randomised controlled trial and it aimed to find the effects of dance movement therapy on affect and psychotic symptoms in schizophrenia. Martin et al. (2016) conducted a randomised controlled trial about the effectiveness of dance movement therapy on negative symptoms in schizophrenia. The participants were collected from three different medical centres in Heidelberg, Germany, consecutively. Odell-Miller et al. (2006) conducted a randomised controlled trial and their participants were collected from an adult psychiatric service with

diagnoses of schizophrenia, bipolar, schizoaffective and eating disorders. The aim of the study was to investigate the effectiveness of art therapies for adults with continuing mental health problems. Pylvanainen et al. (2015) conducted a non-randomised controlled trial (non-RCT). The study was conducted in a psychiatric outpatient clinic. The aim of the study was to find out whether added dance movement therapy as an intervention technique has a significant effect on alleviating the symptoms of depression.

Gray (2001) reported a case study on an adult torture survivor who is associated with trauma. The study aimed to introduce an individual dance movement therapy as a modality for the healing of trauma. Ho (2015) conducted a cohort study which aims to develop and assess the effects of dance movement therapy for Chinese childhood sexual abuse survivors. The study focuses on the place and space concepts in particular in gaining a sense of security and promoting healthy interpersonal relationships. The participants of this study were referred by social workers from non-governmental organisations. Another study by Koch et al. (2009) was reviewed in this systematic review, which was a case study from Germany. The participants were traumatised refugees from the REFUGIO treatment centre in Munich. The study aimed to find out if dance movement therapy from a multifaceted therapeutic programme is a good alternative for treating patients who suffer from trauma along with the verbal psychotherapy. Krantz's (1999) study was a case study of a patient who was diagnosed with bulimia nervosa. The study was an attempt to treat eating disorders with dance movement therapy and it aimed to find out whether the approach itself will promote therapeutic change or not.

Probst et al.'s (1999) cohort study collected participants from University Centre Sint Jozef's inpatient eating disorders unit in Belgium, Kortenberg. The aim of the study was to assess the effects of a multidimensional treatment programme on body experience

of eating disordered patients (either anorexia nervosa restricting type, binge eating and purging type, or bulimia nervosa) before and after treatment with one year follow up. The multi-dimensional treatment programme contained dance movement therapy as well. Another cohort study was established by Punkanen et al. (2014) and the aim was to investigate a short-term dance movement therapy group for treating depression. All of the participants were Finnish outpatients who were diagnosed with clinical depression.

There were three pilot studies reviewed in this study which was Ho (2015), Erwin-Grabner et al. (1999) and Punkanen et al. (2014). Those studies provided only preliminary results because of the nature of pilot studies. Some of the studies did not provide detailed information, especially for the outcome measures and limitations.

### **Methodological quality of included papers**

In terms of methodological quality, reporting was as “++” as fulfilling all of the criteria, “+” as in fulfilling some of the criteria, “-” as in the quality of the study is insufficient. Majority of the studies were fulfilling the general criteria of scientific research but some for some, the quality was poor. The quality assessment was evaluated by the CASP checklists which were attached to Appendices (Appendix B). Particular methodological issues were small sample size, outcome measures, biases, reporting experiment and/or control groups and generalisability. Overall, the issues were about the structure of studies compared to scientific research structure and the generalisability of results.

**Table 2** Study characteristics and key findings

| Author;<br>country;<br>year;<br>design;<br>quality | Participants<br>(N, sex, age)<br>I: Intervention<br>group<br>C: Control<br>group | Diagnoses | Intervention<br>I:<br>Intervention<br>group<br>C: Control<br>group | Outcome<br>measures | Results | Limitations |
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| Erwin-Grabner; USA; 1999; RCT +     | N: 27 university students who had not previously undergone treatment (21 completers)<br>I: n=11<br>C: n=10<br>Gender: 7 males, 14 females<br>Age: 19-44<br>(Mean: 29yrs) | Anxiety prior test taking situations, test anxiety | Dance movement therapy<br>I: 5 sessions for 2 weeks, each 35 min; prior to midterm exams<br>C: no treatment (but not stated) | Test Anxiety Inventory (TAI)<br>Worry & Emotionality Questionnaire for correlations of the TAI subscales   | Experimental group demonstrated a significantly greater reduction in test anxiety scores.<br>DMT may be an effective intervention for decreasing TA symptoms.   | Small sample, not evenly distributed.<br>Treating weeks before exams can cause elevation on TA; but TA is situation specific.<br>Demanding characteristics of participants may have prompted the IG. Strong desire to please the experimenter may have influenced the findings. |
| Gray; USA; 2001; Case study +       | An adult torture survivor associated with trauma.<br>Gender: female<br>Age: 38   | Depression, PTSD                                   | Dance movement therapy; weekly sessions (16 in total), for 6 months  |  | The patient benefited from DMT (not stated in detail).  | Longer treatment period<br>Intervention should continue with family members and with group<br>DMT sessions should be added.   |
| Ho; Hong Kong; 2015; Cohort study + | N: 25 survivors of CSA<br>Gender: all females<br>Age: 25-52  | Trauma/ PTSD                                       | Dance movement therapy; for 5 weeks, 2 hrs per week<br>Format: group<br>Regular consultation meetings                        | General Health Questionnaire (GHQ12) for psychological distress<br>Courtward Emotional Control Scale (CECS) to measure how often expressing emotions when feeling angry, anxious, depressed<br>Rosenberg Self-Esteem Scale (RSES) measures positive/negative orientation toward self | Small but insignificant effects on mental distress, self-esteem and over-attachment (quantitative)<br>The programs positive effects are related to its therapeutic elements e.g. heightened awareness of the body | Small sample size<br>Sampling bias<br>Lack of comparison group; thus hard to generalise, less objective<br>Short intervention period  |

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| Koch; German y; 2007; 3-group repeated measure RCT + | N: 39 (31 completers)<br>Psychiatric University hospital patients<br>Gender: 18 males, 13 females<br>Age: 21-66 years | Depression (severe, moderate, mild) | DMT as circle formed dance; single session, each group spent 20-30 min<br>Format: group or in pairs                         | Scale for main dependent variables; depression, vitality, affect<br>The Heidelberger Befindlichkeitskala (HBS) Velocity Therapy ranking | Depression decreased significantly only in the dance group in comparison with the music-only group and movement-only group.<br>Significantly higher vitality has been observed in the music group.<br>Affect was not significant.   | The brevity and the typicality of intervention.<br>Possible demand effects from the researchers; because the researchers and therapists, who established the hypotheses, were the ones who conducted the study. Thus; the expectancy effects have occurred. |
| Koch; German y; 2009; Case study -                   | Mrs. A, a refugee<br>Age: 40<br>Mrs. B, a refugee<br>Age: at her 30s  | Trauma/ PTSD                        | A multifaceted therapeutic program and an interface of dance and verbal psychotherapy<br>Format: individual and group cases | Therapeutic process;<br>- Stabilisation<br>- Confrontation<br>- Integration   | DMT supports the reintegration of the fragmented & negatively cathected body image & to strengthen the resources of the client<br>Approach enables and supports regaining a positive relationship with their body.<br>Motion elements go hand in hand with the verbal parts of the session in promoting the therapeutic progress. |   |
| Krantz; USA; 1999; Case study +                      | Elena<br>Gender: female<br>Age: 24  | Bulimia Nervosa                     | Dance movement therapy, for 14 months (a part from her 6 years treatment)<br>Format: individual                             | Feeling expression<br>Body image<br>Self concept<br>Redefinition of problems<br>Management of eating disorder                           | Treatment of eating disorders beneficially informed by the dance therapy objective of psychophysical integration.   |   |

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| Lee; Korea; 2015; RCT +       | N: 38 psychiatry patients from the Wonkwang University Hospital<br>Gender: 18 males, 20 females<br>Age: 41-52<br>I: n= 18<br>C: n= 20        | Schizophrenia   | Dance movement therapy (DMT), 60 minutes per session, once a week for 12 weeks<br>I: DMT and medical treatment<br>C: only medical treatment | State-trait anger expression inventory (STAXI)<br>Beck Depression Inventory (BDI)<br>State-trait Anxiety Inventory (STAI)<br>Positive and Negative Symptom Scale (PANSS)    | A significant decrease of state anger and depression; and a significant increase of anger control. A significant decrease of negative psychotic symptoms; but no significant change in positive symptoms. | The study was conducted in a limited environment of hospitalisation which results in less reflection of reality. The sample size was small for generalisation. The study relied on self-report surveys that may have been influenced by researchers' subjective biases. |
| Martin; German; 2016; RCT +   | N: 68 out-patients<br>Gender: 36 males, 32 females<br>Mean age: 37-41 years<br>I: n=44<br>C: n=24  | Schizophrenia spectrum disorder   | I: Body Psychotherapy (BPT) and Dance Movement Therapy (DMT), 20 sessions for 10 weeks<br>C: Treatment as usual (TAU)                       | Scale for the Assessment of Negative Symptoms (SANS)<br>Simpson-Angus Scale (SAS)   | Patients receiving movement therapy had significantly lower negative symptom scores. BPT/DMT are highly effective in the treatment of schizophrenia.  | High rate of missing data due to drop-outs. Block randomisation Control group waited during treatment due to financial constraints and time limitations.  |
| Odell-Miller; UK; 2006; RCT + | N: 45 (25 completer) adult psychiatric services patients<br>I: 10 patients, C: 15 patients<br>Gender: 10 male, 15 female<br>Age: 20-60 years | Schizophrenia, bipolar, depression, schizoaffective disorder, eating disorder | I: arts therapies incl. art, music, and DMT; for 6 months; with TAU<br>C: TAU<br>Format: individual or group                                | Personal measures PQRST<br>Distress and severity of symptoms measures HAD; CORE<br>Patient's presentation by a third party LSP<br>Quantitative measures six-month interview | Qualitative results showed that patients value and use of different therapies can effect the value of art therapies compared with talking therapies.  | Due to the small sample size and high variability the results were not conclusive to show the effectiveness of art therapies on continuing mental health problems.  |

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| Probst; Belgium; 1999; Cohort study + | N: 460 in-patients of the University Centre Sint-Jozef in Kortenberg (309 completers)<br>Gender: female<br>Mean age: 22.7 years | Eating disorders either anorexia nervosa of the restricting type, or bingeing/purging type, and normal-weight bulimia nervosa | Eclectic and Multidimensional Treatment Programme:<br>-A behavioural contract<br>-A group psychotherapy<br>-Body-oriented therapy & dance-movement therapy<br>-Family therapy<br>Format: group, 9 patients each, max 6 months | The Body Attitude Test (BAT), The Eating Disorder Inventory (EDI), The Eating Disorder Evaluation Scale (EDES) | Total sample reported significantly fewer signs of body dissatisfaction. %58 of patients made a significant progress during treatment. No major differences were found between the different subgroups of eating disorders. Patients who finished their treatment showed a better body experience at one-year follow-up than early dropouts. 11% of the patients reported to be unchanged or worsened and 50% of the patients considered themselves considerably improved. For 39% of the patients, the progress is not so clear. | Not all subjects were followed-up. The information is based on patients' self-reports. There was no no-treatment control group. The scope focused on body experience only; therefore no conclusions can be made about whether the improvement is attributable to the therapeutic process or not. |
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| Punkanen; Finland; 2014; Cohort study + | N: 21 outpatients<br>Gender: 3 males, 18 females<br>Age: 18-60 years   | Depression                          | Dance movement therapy; twice a week for 10 weeks; 20 sessions in total, each 60 minutes<br>Format: short-term group, 5 participants each | Beck Depression Inventory (BDI)<br>Hospital Anxiety & Depression Scale (HADS-A)<br>Satisfaction with Life Scale (SWLS)<br>Te Item Personality Inventory (TIPI)<br>Toronto Alexythmia Scale (TAS-20)<br>The Relationship Questionnaire (RQ)  | The short-term group form of DMT intervention has a positive effect on depression. DMT decreased neuroticism, and increased extraversion, secure attachment, satisfaction with life. Significant positive changes in ability to identify feelings. | No control group was used. Follow-up measurements were not conducted. Sample size was relatively small.  |
| Pylvänen; Finland; 2015; Non-RCT +      | N: 33 patients from a psychiatric outpatient clinic<br>I: 21, C: 12<br>Gender: 9 male, 24 female<br>Age: 20-59 years | Depression (severe, moderate, mild) | I: DMT; 12 sessions (1 session per week for 90 min) with 3 month follow-up<br>Format: group<br>C: TAU                                     | Background information assessment<br>Self-evaluation measures<br>Beck Depression Inventory (BDI-II);<br>Hospital Anxiety and Depression Scale (HADS) for mood<br>Psychiatric measures:<br>Symptoms Check List (SCL-90)<br>Experience: Clinical Outcomes in Routine Evaluation (CORE-OM) | It is proven that dance movement therapy is beneficial in the treatment of depressed patients. Compared to usual treatment, DMT was improving the effect of the treatment.   | Using only self-evaluation measures only, and the lack of movement based assessments. Selection bias: Participants weren't randomly allocated; they joined on the basis of self-selection. The follow-up time was short; thus it is difficult to draw a conclusion about the long-term effects of DMT. Sample size was too small. No data were collected about the reasons of drop-outs. |

+ Denotes some of the criteria have been fulfilled.

- Denotes the quality of the study is insufficient.

DMT: Dance movement therapy, TAU: Treatment as usual, OCD: Obsessive-compulsive disorder, TA: Test anxiety

### **Participant characteristics**

The entire review data were extracted from 12 studies, which included 760 baseline participants and only 581 completers. Reported study characteristics and key findings were based on the completers only. As aforementioned, the age of the participants differed from 18 to 65. Gender of participants is all mixed, the number of females and males are neither equal nor homogenous. Participants characteristics were noted in detail in Table 2. All of the participants, except Erwin-Grabner et al.'s (1999), were clinically diagnosed with a specific mental disorder by a professional. Diagnoses were as follows: anxiety disorders, PTSD, depression, eating disorders, schizophrenia and/or mood disorders such as bipolar disorder.

In Erwin-Grabner et al.'s study, the participants were graduate and undergraduate students from an urban health sciences university in the USA. The participants previously experienced anxiety before an examination. Thus, they had personal knowledge of increased anxiety levels because of a test, and who had not previously undergone treatment for test anxiety (TA). Furthermore, in Ho (2015) and Koch et al.'s (2009) studies, associated trauma is not always about PTSD. That is to say, the participants were not specifically diagnosed with post-traumatic stress disorder, but had experiences with trauma and its effects in their personal lives.

### **Intervention characteristics**

All of the studies were conducted with dance movement therapy (DMT) as their intervention techniques in a selected period of time but in different terms. Dance movement therapy was used as a treatment option by a professional, namely by a certified dance movement therapist or a psychologist.

In reviewed randomised controlled trials; Erwin-Grabner et al. (1999) used dance movement therapy for two weeks as five sessions, 35 minutes each in the experimental

group. The sessions were structured about test taking situations. The control group did not receive dance movement therapy but it has not specifically mentioned in the study. Koch et al. (2007) delivered dance movement therapy in their study as circle movement session, which was basically moving in circular motion as a group. The researchers conducted two movement and two music groups. The participants were assessed on the home trainer as well in pairs (while one of the participant was on the bike, the other was completing the distraction task). As the main intervention, participants in the dance groups first danced without music in a circle formation to understand the movements and steps, and then danced with music. On the other hand, the participants in music group were asked to sit down only, relax and listen to the music. In Koch et al.'s study, there was not any communication with the professionals as in a therapeutic sense. In the study of Lee et al. (2015), the participants of experimental group received both medical treatment and dance movement therapy for 12 weeks. Control group did only take medical treatment. The medical treatment was for schizophrenia diagnosis specifically.

Another study which used another treatment option along with dance movement therapy was Martin et al.'s (2016) study. Body psychotherapy was used alongside with dance movement therapy for 10 weeks when the control group was having treatment as usual to examine the changes in negative symptoms of schizophrenia. In Odell-Miller et al.'s (2006) study dance movement therapy was used with other art therapy intervention techniques such as art, music and drama according to the patients needs including withdrawal, difficulties with relationships and communication, and social participation. The intervention lasted for 6 months. The groups were shaped as art and music in general because majority of the demand was for art and music therapies. Although one patient chose dance movement therapy, none of the patients received drama therapy. All of the

participants continued with their usual psychiatric treatments which were medication and having sessions with their psychiatrist or psychologist.

As a non-randomised controlled study, Pylvanainen et al. (2015) delivered dance movement therapy which was based on Marian Chase's authentic movement methods, for 12 sessions with 3 months follow up. Both of the treatment and control groups received individual counselling while participating in the study. The control group received treatment as usual during the study. All of the dance movement therapy sessions included discussion, movement warm-up and the actual process, verbal reflection and closure in a group format.

Case studies used dance movement therapy as in many different ways. Gray (2001) used dance movement therapy for 6 months, 16 sessions in total as individual therapy, and Ho (2015) used dance movement therapy for 5 weeks in a group format and regular consultation meetings were added in the process as well as additional support. On the other hand, in Koch et al.'s study (2009) a multifaceted therapeutic programme was used. The programme focused on stabilisation, confrontation and integration, and contributed the healing process directly on a body level. And Krantz (1999) used dance movement therapy with Blanche Evans's techniques. Blanche Evans' techniques are based on insight oriented dance movement therapy and psychoanalytic theory. Treatment in this study was for 14 months in individual format, as part of patient's 6 years of treatment.

Probst et al. (1999) worked with an eclectic and multidimensional treatment style which consisted of a behavioural contract, a group psychotherapy, body-oriented therapy and dance movement therapy, and family therapy in a group format, for 6 months. Punkanen et al. (2014) used dance movement therapy as their main intervention technique as well. The sessions lasted for 10 weeks in a short-term group format.

## **Outcomes**

All of the reviewed studies aimed to show the effectiveness of dance movement therapy as an intervention technique for mental illnesses. The majority of the articles were focused on the effectiveness of dance movement therapy on mental illnesses, rather than reducing the symptoms in long term. However, studies reported other outcome measures such as emotional control, self-esteem, changing body image, orientation toward self, or vitality.

### ***Anxiety***

Erwin Grabner et al. measured test anxiety by using the Test Anxiety Inventory (TAI) (Spielberger, 1980). During the study, the experimental group participants showed a significant amount of reduction in test anxiety scores. Test anxiety is a situation specific anxiety type. Although a change was observed, treating test anxiety weeks before exams can also elevate test anxiety. In the literature, there was a lack of studies which examined dance therapy for anxiety disorders. Thus, the results are limited; in this case, based on a single study.

### ***Depression***

Depression decreased significantly only in the dance group in Koch et al.'s study (2007) in comparison with music only or movement only group. Participants in music and ergometer group showed fewer depression symptoms significantly. Stimulating circle dance session was effective for reducing the symptoms of depression. In Odell Miller et al.'s study (2006) the effectiveness of dance movement therapy on depression did not mention, but the results showed that patients value and use of different therapies can affect the importance of art therapies compared to talking therapies. Furthermore, in Punkanen et al.'s study, depression was measured with Beck Depression Inventory and Hospital Depression & Anxiety Scale. The results showed that the short term dance

movement therapy treatment has a positive effect on depression and also in the ability to identify feelings. Lastly, in Pylvanainen et al.' study (2015), during pre-measurement, both of the control and treatment groups were not significantly different; however, with the intervention, the results showed that depression symptoms decreased more in the dance movement therapy group rather than the treatment as usual group; but not during the follow-up. The results also showed that use of antidepressant medication affected the outcome of the study; because patients who had antidepressant medication had suffered from their illnesses more and had more severe psychiatric symptoms during pre-measurement. For that reason, the researchers compared the participants who were in the dance movement therapy group with or without medication to observe the effectiveness of medication consumption. After all of the estimations, there were not any statistically significant result regarding medication use. This showed that dance movement therapy as an intervention technique on patients who have mental disorders was beneficial to reduce symptoms with or without medication use. But the longevity of this effect is open to question because of the limitations of the study.

### ***PTSD / Trauma related***

None of the reviewed studies mentioned a specific diagnosis of post-traumatic stress disorder, but it has been always mentioned as associated with trauma. The articles which mentioned trauma related disorders observed patients who were victims of sexual abuse, torture and/or being a refugee. Thus, the experienced distress is related to trauma and trauma associated disorders.

In Gray et al.'s (2001) study the outcome measure was not mentioned. As a result, the patient who was an adult torture survivor benefited from dance movement therapy. But the results weren't mentioned in detail as well. Ho (2015) measured distress with General Health Questionnaire, Courtwald Emotional Control Scale and Rosenberg Self-

Esteem Scale. The results showed that there were small but insignificant effects of dance movement therapy on mental distress. Because dance movement therapy is based on the connection of mind and body, the positive effects were related to programme's therapeutic effects i.e. heightened awareness of the body. Lastly, in Koch et al.'s (2009) case study, the outcomes measures were not described in detail. But the results show that dance movement therapy supports and enables to regain a positive relationship with the body. The study observed that the motion elements in dance movement therapy go hand in hand with talking therapies for advocating the therapeutic process. Overall, the results for trauma related disorders were not enough to understand dance movement therapy's effectiveness.

### ***Schizophrenia***

Schizophrenia was measured by Positive and Negative Symptom Scale in Lee et al.'s study (2015); Scale for Assessment Negative Symptoms and Simpson-Angus Scale in Martin et al.'s study (2016). A significant decrease of state anger, depression, negative psychotic symptoms and a significant increase of anger control were observed; but no significant change in positive symptoms. (Lee et al., 2015). In Martin et al.'s (2016) study patients who received movement, therapy had significantly lower negative symptom scores. According to the study, dance movement therapy was an effective treatment option for schizophrenia.

### ***Eating disorders***

Probst et al. measured distress related to eating disorders by The Body Attitude Test (BAT), The Eating Disorder Inventory (EDI) and The Eating Disorder Evaluation Scale (EDES). According to the results, all of the participants reported a significantly decreased body dissatisfaction and increased body experience. %58 of patients made a significant progress during the study. Patients who were able to finish the treatment

showed better body experience after one-year follow-up than early dropouts. However, some patients reported no change (%11) and the progress is not clear (%39). Krantz et al. (1999) did not state outcome measures and there were not enough reported evidence as results and/or limitations. The only stated result was about the psychophysical aspect of dance movement therapy. The participant reported a noticed shift in her eating disorder, feeling of being less out of control and shorter binges. The patient became more aware of painful feelings and the effects of traumatic past life on her eating disorder. Although she experienced a relapse during the 8th month, she recovered fully from her eating disorder even after two years follow-up.

In Odell-Miller et al.'s (2006) study all of the patients had continuing complex mental disorders. Thus, this study is not mentioned under any of these subtitles. The diagnoses in the study were schizophrenia, bipolar disorder, depressive disorder, schizoaffective disorder, eating disorder and dementia. Because there was only one participant had dementia, the study was not excluded completely from the study. Also, there were no relevant results about dance movement therapy and dementia mentioned in this study. Measures were PQRST for personal measures, HAD for symptoms of anxiety and depression, CORE for global distress and LSP for patient presentation by a third party. According to the results, some patients felt they were explored and helped by the art therapies. The group work had benefits about increasing the awareness and recognition of other people were having similar problems with them as well. It is also shown that group work has benefits on developing social skills for those participants.

### **Discussion**

This systematic review is the first attempt to do a thorough review of the effectiveness of dance movement therapy on reducing mental illness symptoms that include more than one specific mental illness. An all inclusive search and consecutive

screening determined from 12 different studies. The literature supports the idea of the effectiveness of dance movement therapy on symptom reduction. Dance movement therapy is a form of psychotherapy that allows realising or finding emotions and feelings from within, from bodily movements. It is a holistic approach which based on the idea that mind and body are interconnected (Welling, 2014). Because dance is a non-verbal art form, dance movement therapy is based on non-verbal communication. Sensation and movement allow individuals find their hidden emotions and solve their problems. With movement, patients become able to express themselves and challenges that they face in such ways that words can not describe (Anderson, 2014). Thus, through movement some of the mental illness symptoms may be reduced.

The results of the reviewed studies showed that, dance movement therapy may be an effective method for reducing mental illness symptoms. Some participants benefited from dance movement therapy well, and some managed to control their urges coming from their eating disorders, or some of the negative symptoms of schizophrenia were decreased with dance movement therapy. As literature shows, dance movement therapy can actually be as effective as other treatment options in clinical practice. As Punkanen et al. (2014) stated, dance movement therapy as an intervention technique for psychiatry patients has a positive effect on depression. Dance movement therapy decreases neuroticism and increases extraversion, secure attachment and life satisfaction at the same time (Punkanen, 2014). When dance movement therapy is used along with another treatment, such as medication or treatment as usual, dance movement therapy improves the effect of the overall treatment (Pylvanainen, 2015). Also, because dance movement therapy is based on the idea of being aware of our emotions by movements, it is expected to see heightened awareness of the body in Ho's study (2015). In addition, dance movement therapy has benefits for eating disorders and body image as well. Patients who

finish their treatment with dance movement therapy showed better body experience comparing to dropouts even after one year follow up (Probst, 1999).

Dance movement may be an effective way to improve the symptoms of mental disorders. But with the amount of evidence that we have here is not enough to generalise such hypothesis. Overall, the studies do not give valid evidence to support this hypothesis. It is inevitable to say that, dance movement therapy may have benefits on mentally ill patients or symptoms but to surmise such opinion, we need further research and evidence from clinical practice. Maybe dance movement therapy is beneficial for problems like stress management that are not as challenging as, for instance, schizophrenia or any mood disorder. For example, Brauninger (2012) states that dance movement therapy has both short-term and long-term lasting effects on stress reduction. The aim of this systematic review was to present an in-depth review of the effectiveness of dance movement therapy as an intervention technique for reducing the symptoms of mental disorders. It is beneficial for scientific research to prove some evidence about the effectiveness of dance movement therapy in reducing psychological distress, but the area needs further research and evidence to fully support this hypothesis.

### **Limitations of the included papers**

The studies included in the review had poor methodological quality. The major problems were having small sample sizes and short intervention period without follow-up. Therefore, it is impossible to assume the further effects of dance movement therapy on mental illness symptoms or to check whether patients had relapsed or not. Another issue about included studies was not reporting the control group, outcome measures in detail. The study of Ho (2015) was lacking a comparison group, Pulkanen et al. (2014) did not use a control group and Probst et al. (1999) did not even mention what was given to control group even if it is no-treatment.

Moreover, some studies were experiencing biases. In Erwin-Grabner et al.'s study (1999) the demanding characteristics of participants, in order to please the researcher, may affect the results of the intervention group. The study of Ho's (2015) had a sampling bias. The participants were represented as a group of sexual abuse survivors who are willing to join the treatment programme. Also, the lack of a comparison group made the entire study less objective and hard to generalise. In Koch's study (2007), there was confirmation bias because of the researchers and therapists, who established the hypotheses, were the ones who conducted the study at the same time. Lee et al.'s study (2015) relied on self-report surveys that may have been influenced by researchers' subjective biases. Furthermore, in Martin et al.'s study, there were an excess amount of dropouts which causes a high rate of missing data. Also, there was selection bias in Pylvanainen et al.'s study (2015). The participants going to the study with self-selection rather than being randomly allocated. In Probst (1999) and Odell-Miller et al.'s (2006) studies, the results did not conclude the effectiveness of dance movement therapy. Because in Probst et al.'s study, the extent of the study was focused on body experience only. Thus, it was hard to come to a conclusion about whether the change is attributable to the therapeutic process or not. And in Odell-Miller et al.'s study, high variability caused not conclusive results.

### **Strengths and limitations of this review**

This is the first systematic review which tries to investigate the effectiveness of dance movement therapy in reducing mental illness symptoms in adult psychiatric patient population. It is the first review which tries to investigate the effects of dance movement therapy on more than one mental illness in the literature. There are few pilot studies or systematic reviews about dance movement therapy but all of them were focused on a specific disease rather than gathering all of the disorders which were mentioned with

DMT. All of the data found while reviewing the studies were discussed well to understand the subject. The aim of this study was carried out accordingly to the findings from the literature.

However, there are some limitations of this systematic review. In order to generalise the outcomes, a bigger amount of evidence is essential. To answer and support the research question we need more proven evidence. Also, to review this subject thoroughly, more specific and significant studies are needed, especially studies with good quality. Moreover, the review is limited to English studies only. During literature research, some articles were found from other countries, in different languages. This causes missing evidence from the literature. Also, there is a vast amount of studies which can not be accessible because of the accessing and financial difficulties.

### **Further implications**

This systematic review is a good attempt of demonstrating how effective dance movement therapy is for mental illnesses and whether it is able to decrease illness symptoms well. Because of the paucity of evidence in the literature, it may be a good start for conducting more systematic reviews about dance movement therapy. Also, it can be set an example to apply dance movement therapy to other types of disorders from the diagnostic manual as a treatment option, rather than just to depression or schizophrenia, to record the evidence for further research and practice. Furthermore, the evidence found from the literature is not generalisable because of their limitations. Thus, this study may be helpful to realise those difficulties with previous research and to attempt more standardised and structured research in the future.

### **Conclusions**

The evidence shows that dance movement therapy may have an effect on reducing psychiatric symptoms and improve well-being. In conclusion, this systematic review

shows that we need more research with bigger populations and longer timescale in order to do a thorough review of the subject. This systematic review lays the first stone for a thorough and generalisable research about the capability of dance movement therapy on reducing mental illness symptoms in long term as a therapeutic technique in the field.

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## **Appendix**

### **Appendix A**

**Keywords:** art therapies, dance, dance/movement therapy (DMT), benefits of dance, mental health, psychological distress, effectiveness of dance/movement therapy, common mental health disorders, schizophrenia, depression, anxiety, trauma, wellbeing,

### **Appendix B**

#### **Critical Appraisal Skills Programme (CASP)**

Critical appraisal skills programme (CASP) was introduced into the academy of research by Sir Muir Gray when he was the director of research at Oxford Regional Health Authority in 1993. It is established due to the need for developing skills in health care to work more efficiently in evidence based medicine.

#### **CASP Randomised Controlled Trial Checklist**

Three broad issues need to be considered when appraising the report of a randomised controlled trial (Section A, B, C). The 11 questions are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is yes, it is worth proceeding with the remaining questions.

A. Are the results of the trial valid?

#### *Screening Questions:*

1. Did the trial address a clearly focused issue?
2. Was the assignment of patients to treatments randomised?

#### *Detailed questions:*

3. Were patients, health workers and study personnel blinded?
4. Were the groups similar at the start of the trial?

5. Aside from the experimental intervention, were the groups treated equally?
6. Were all of the patients who entered the trial properly accounted for at its conclusion?

B. What are the results?

7. How large was the treatment effect?
8. How precise was the estimate of the treatment effect?

C. Will the results help locally?

9. Can the results be applied in your context? (or to the local population?)
10. Were all clinically important outcomes considered?
11. Are the benefits worth the harm and costs?

### **CASP Cohort Study Checklist**

Three broad issues need to be considered when appraising a cohort study (Section A, B, C). The 12 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is “yes,” it is worth proceeding with the remaining questions. There is some degree of overlap between the questions, you are asked to record a “yes,” “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

A. Are the results of the study valid?

*Screening Questions:*

1. Did the study address a clearly focused issue?
2. Was the cohort recruited in an acceptable way?

*Detailed Questions:*

3. Was the exposure accurately measured to minimise bias?
4. Was the outcome accurately measured to minimise bias?

5. (A) Have the authors identified all important confounding factors? (B) Have they taken account of the confounding factors in the design and/or analysis? List the ones you think might be important, that the author missed.
6. (A) Was the followup of subjects complete enough? (B) Was the follow-up of subjects long enough?
7. What are the results of this study?
8. How precise are the results?
9. Do you believe the results?
10. Can the results be applied to the local population?
11. Do the results of this study fit with other available evidence?
12. What are the implications of this study for practice?