

The Evidence Base for Dance/Movement Therapy in Mental Health

Moving the Body of Knowledge

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INTRODUCTION

The span of research on dance/movement therapy (DMT) is impressive with many studies in the post-positivist/quantitative and constructivist/qualitative traditions and a growing number of studies published that draw on mixed methodology, program evaluation, participatory action approaches, and artistic inquiry. The demand for scientific evidence of the effectiveness of dance/movement therapy from policy makers, research funders, and insurance plans is increasing and requires a robust response from the field. This chapter will frame the DMT outcome research in this context, describe the evidence for DMT effectiveness with a focus on and examples of quantitative outcome studies, and offer suggestions for advancing this aspect of DMT research globally.

It is beyond the scope of this chapter to review all dance/movement therapy research in health and mental health, and so for the present purposes certain delimitations are accepted and identified. Specifically, this review is built from the experience of a single American academic dance/movement therapist. Thus, the review is far from exhaustive—studies published in languages other than English are generally not referenced in this discussion, and there are many good studies published in English that have been omitted. In addition, given the focus on evidence for efficacy of DMT, our rich body of work in assessment research, qualitative research, and artistic inquiry will not be included herein.

Dance/movement therapy will be understood according to the definition put forth by the American Dance Therapy Association (ADTA) as “the psychotherapeutic use of movement to further the emotional, cognitive, physical, and social integration of the individual” (ADTA, n.d.). Studies published in the United Kingdom and other countries may refer to dance/movement psychotherapy (DMP), which is defined similarly as “a relational process in which client/s and therapist engage in an empathic creative process using body movement and dance to assist integration of emotional, cognitive, physical, social and spiritual aspects of self” (Association for Dance/Movement Psychotherapy UK, 2013), and some earlier studies may refer to *dance therapy* or *movement therapy*. For this review, if the intervention under study was delivered by a therapist with professional education and training in the theories and clinical methods of DMT, and if the intervention was described sufficiently to determine that it fits the definitions here, it was considered DMT.

It may be useful here to briefly describe the clinical discipline of DMT. The work is informed by theories of embodiment, human development, creativity, and movement studies as well as a full spectrum of psychotherapy and counseling theoretical approaches. These are manifest in DMT practice according to the training and education of the therapist, the assessed needs of the individual patient or client, and the prevailing theoretical paradigm of the treatment facility. In 1974, Schmais articulated the following premise for the work of DMT: “Significant changes occur on the movement level that can effect total functioning” (Schmais, 1974, p. 10). This seminal and potent theoretical proposition continues to inform practice and drive scholarship on the mechanisms for change in DMT.

Elsewhere in this volume, the specific application of DMT in the context of the RECOVERY Model is described (see Chapter 11). In addition, as summarized by Goodill and Dulicai (2007), the literature records a broad scope of practice including work with infants and their parents, young children, school-age children, those with learning differences and autism spectrum disorders, teens at risk, those with substance abuse disorders, anxiety disorders, eating disorders, and psychiatric diagnoses. Clinical reports of DMT also describe work with those who have experienced domestic violence, homelessness, physical and sexual abuse, and war-related trauma. In addition, as noted above, dance/movement therapists address psychosocial aspects of medical conditions such as cancer, other chronic illnesses, pain-related and musculoskeletal problems, and in palliative care applications (Goodill & Dulicai, 2007, p. 124).

The World Health Organization’s (WHO) definitions of health and mental health are aptly broad with overall health described as “a state of complete physical, mental and social well-being, and not merely the absence of disease” (WHO, 2015a) and mental health as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community” (WHO, 2015b). The American Psychiatric Association’s (APA) *DSM IV* states “there is much ‘physical’ in ‘mental’ disorders and much ‘mental’ in ‘physical’ disorders,” and that the distinction is “a reductionistic anachronism of the mind/body dualism” (APA, 1994, p. xxi). Dance/movement therapy, as a mental health specialty discipline, is a mind–body integrated approach that is consistent with these holistic and biopsychosocial perspectives. Consequently, studies on the psychosocial

aspects of what are commonly classified as primary medical conditions are included herein, along with those focusing on what are categorized as primarily behavioral, educational, and psychiatric challenges.

Research will be defined broadly as systematic inquiry. Research projects all include the basic components of a research question, procedures for data collection and data analysis, and a derivation and presentation of findings or conclusions. The reader is referred to the Cruz and Berrol (2012) text for a thorough reference on the wide range of research design options and approaches for DMT.

As with all professional disciplines, DMT can be construed as a dynamic, triadic integration of theory, research, and practice, with each pillar informing the others over time in iterative and bidirectional cycles. Theory can inform DMT research by providing a framework in which research questions can be formed and asked. Observations from clinical practice can stimulate research questions and sometimes become the data for research studies. Research can test theoretical assumptions, generate new theories, explain clinical phenomena, and systematically demonstrate clinical outcomes.

The terms *efficacy*, *effectiveness*, and *outcomes* are often used interchangeably in research on the benefits of treatments, interventions, or programs, including DMT. They are however defined differently, and the American Music Therapy Association provided clarity concerning efficacy and effectiveness:

The main difference relates to objectives and motivation for the trial. The objective of an efficacy trial is to demonstrate that the intervention works under optimal circumstances while that of an effectiveness trial is to test how it works under usual or typical practice circumstances. (Else, Simpson, & Farbman, 2006, p. 6)

According to the U.S. Agency for Healthcare Research and Quality (AHRQ),

Outcomes research seeks to understand the end results of particular health care practices and interventions. End results include effects that people experience and care about, such as change in the ability to function. In particular, for individuals with chronic conditions—where cure is not always possible—end results include quality of life as well as mortality. By linking the care people get to the outcomes they experience, outcomes research has become the key to developing better ways to monitor and improve the quality of care. (AHRQ, n.d.)

The term *outcomes* is also a synonym for research results or findings and used frequently in reports of individual studies. Efficacy, effectiveness, and outcomes are all represented in the body of DMT studies, and so this discussion will use all three terms.

Research designs that are used to investigate treatment outcomes include the well-known group designs: randomized controlled trial (RCT, or the true experiment), and the quasi-experimental designs (e.g., the controlled clinical trial with one or more control groups). Time series studies and $N = 1$ experiments with one or more replications can also be used to show efficacy, but on a smaller scale, and findings from these studies are not generalizable. Examples will be given later in this chapter.

SYSTEMATIC REVIEW AND META-ANALYSES

In addition to variety of research designs, there is a great variety of clinical populations, dependent/outcome variables, intervention factors (dosage, specific DMT methods, etc.), and cultural differences represented in this collection of studies. To draw conclusions about the overall effectiveness of DMT, or any treatment, it is necessary to conduct systematic review (SR). Systematic review is itself a well-respected research method that synthesizes findings from several studies, and it may or may not include meta-analysis (Vogt, 2005). Meta-analysis is a statistical procedure that integrates results from multiple studies, and it relies upon the statistic effect size (ES), which is “essentially the magnitude of the obtained experimental effect” (Cruz & Sabers, 1998, p. 101). Four meta-analyses of DMT effectiveness (Bradt, Goodill & Dileo, 2011; Cruz & Sabers, 1998; Koch, Kunz, Kolter, Lykou, & Cruz, 2013; Meekums, Karkou, & Nelson, 2012) are pertinent to this discussion.

The 1998 Cruz and Sabers meta-analysis constituted a correction of statistical errors in an earlier published review by Ritter and Low (1996). They included 16 studies with a total N of 601 participants and reported ES for four clusters of studies (Cruz & Sabers, 1998). Their interpretation of magnitude of effect followed Cohen’s guidelines for the ES r statistic and is shown in parentheses. Three clusters of studies focused on outcome variables: for anxiety, ES $r = .54$ (a large effect); for self-concept, ES $r = .15$ (a small to medium effect), and for body awareness, ES $r = .20$ (a medium effect). The aggregated ES for studies with psychiatric participants was reported as ES $r = .37$ (a large effect; Cruz & Sabers, 1998, pp. 102–103). Finally, Cruz and Sabers compared the DMT effects (with ES ranging from 0.15 to 0.54) to those published at the time on other mental health interventions and found the ES of DMT comparable to those for verbal psychotherapy, cognitive behavioral therapy (CBT), meditation, exercise, and some pharmaceuticals. This and the recent meta-analysis by Koch and colleagues (2013) used a broad scope, including studies with a full range of outcome variables and clinical population samples.

The 2013 Koch et al. meta-analysis includes 23 studies of both dance and dance/movement therapy interventions. Studies represent a broad range of clinical populations with a total N of 1,078 participants. The researchers used the standard mean difference (SMD) statistic to synthesis findings and report results. They grouped outcome variables into clusters, each shown herein with the respective SMD. Four clusters were interpreted as having a small positive effect: body image (SMD = .27), mood/well-being and affect (SMD = .30), quality of life (SMD = .37), and a sub-analysis for depression (SMD = .36). The following clusters were reported with moderate positive effect: overall clinical outcomes (SMD = .44) and a sub-analysis for anxiety (SMD = .44). An additional cluster, interpersonal competence, did not show consistency across the included studies (Koch et al., 2013).

There are two additional recent meta-analyses of DMT conducted for the Cochrane Collaboration (see www.cochrane.org). Systematic reviews by the Cochrane Collaboration include only RCTs. Cochrane reviews employ rigorous scientific standards for assessment of study design, risk of bias, and the strength of the evidence produced by each included study. Meta-analysis is conducted when the findings for identified variables or sub-populations exist across one or more included studies. The Bradt et al. review (2011)

of DMT for cancer patients included two RCTs of DMT (Dibbell-Hope, 1989, 2000; Sandel et al., 2005), both of which focused on women with breast cancer. These two studies represented a combined total of 68 participants and shared one outcome variable—body image (which is a focus of concern in several medical and psychological conditions). Thus, meta-analysis for body image outcomes was conducted. The combined effect was too small to support the claim that DMT is effective for body image, and the review concludes with recommendations for studies with larger samples and the use of power analysis to determine and ensure adequate sample size. The review will be updated in accordance with Cochrane Collaboration schedules and will include studies conducted since early 2011.

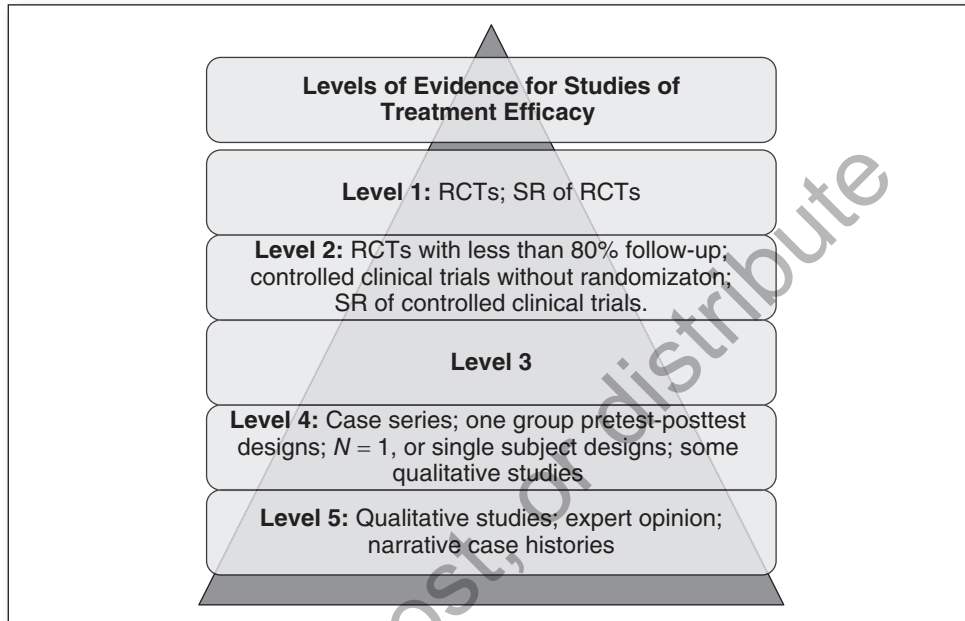
As of this writing, Meekums et al. (2012) are in the protocol stage of a new Cochrane review that focuses on DMT outcomes for depression. The scope of this systematic review includes studies on children and adults, comparing DMT to waiting list controls, standard care (also known as treatment as usual, or TAU), other psychotherapies, physical interventions (such as exercise or yoga), and pharmaceuticals.

LEVELS OF EVIDENCE AND EXAMPLE STUDIES

To determine the strength of evidence produced by research studies, most health professions rely on some derivation of Sackett's levels of evidence (Center for Evidence-Based Medicine [CEBM], n.d.), which were initially developed to inform evidence-based practice in medicine. There is a relatively solid global consensus that in the realm of scientific research on health and mental health interventions, certain designs yield stronger evidence and others weaker. This way of assessing and ranking research studies is decidedly aligned with the post-positivist paradigm and is frequently referenced by policy-makers and regulatory entities when choosing which human services to fund or promote. Sackett's levels of evidence address the strength of evidence from both treatment outcome and assessment/diagnostic research, but the discussion here will cover only the material related to outcome studies. To show DMT research in relation to the levels of evidence, one or two examples of each are briefly summarized in Figure 12.1. The pyramid schematic is commonly used to rank various research designs for quality of evidence. It visually suggests that there are more studies in the Level 4 and 5 categories and fewer of the Level 1 and 2 types. This is true in many health professions (see Chapter 9) and in DMT as well. The reader will notice that no study types are shown for Level 3. This is because the CEBM and many other authorities list only observational study types at Level 3 (e.g., longitudinal cohort studies or case-control studies) and not treatment outcome designs.

Level 1: Randomized Controlled Trials and Systematic Review of Randomized Controlled Trials

Two studies conducted in Germany serve as examples of the RCT. Bräuninger (2012) conducted a multisite RCT of DMT for stress reduction and stress management with a sample of 162 adults who self-identified as suffering from stress. Intervention group

Figure 12.1 Levels of evidence for studies of treatment efficacy.

Adapted from 1. Dileo, C., & Bradt, J. (2009). On creating the discipline, profession, and evidence in the field of arts and healthcare. *Arts & Health*, 1(2), 168–182. 2. National Network of Libraries of Medicine (n.d.) Levels of Evidence Pyramid. Retrieved November 22, 2014, from <http://nmlm.gov/training/evidencebased/PICO/pyramidhandout.pdf>

participants received ten 90-minute group DMT sessions over a three-month period. Standardized measures were used at pretest, posttest, and six-month follow-up. Results showed significant improvements in the intervention group compared to the control group in stress management at both posttest ($p < .005$) and follow-up ($p < .05$) with statistically significant reductions in depression, anxiety, phobic anxiety, positive symptom distress, and obsessive-compulsive behaviors at posttest (Bräuninger, 2012, pp. 447–448).

Investigating the effects of a single-session dance intervention, Koch, Morlinghaus, and Fuchs (2007) randomized 31 participants with depression to either a group circle dance experience or one of two relevant control conditions—exercise and music listening. When compared to the music listening group, the circle dance group increased in vitality scores ($p < .05$) and decreased in depression scores ($p < .001$), and when compared to the exercise group, the dance group had significantly less depression ($p < .05$).

There are many more RCTs of dance/movement therapy, but space limits do not permit a full review. Some additional studies using the RCT design, some of which have been used in the meta-analyses described herein, are mentioned elsewhere in this chapter or listed in the appendix.

Level 2: Controlled Clinical Trials Without Randomization (Quasi-Experimental)

The program evaluation study by Koshland and Wittaker (2004) included a comparison of nonrandomized, nonequivalent groups. The 12-week DMT program conducted in a school setting focused on violence prevention with goals to decrease aggressive behaviors and increase prosocial behaviors. The intervention group ($n = 54$) that received the program were the first-, second-, and third-grade classrooms. Fourth-, fifth- and sixth-grade classes, which did not receive the program, served as controls. The study operationalized reduction of aggressive behaviors by documenting the frequency of reports to the principal's office about aggressive incidents. The number of reports of aggressive incidences about children in the intervention group classrooms decreased significantly more than did the reports of aggressive incidents for children from the control classrooms (Koshland & Wittaker, 2004). Other components of this program evaluation used the one group pretest–posttest design with just the intervention group, and these elements would be considered Level 4 evidence; still other components used qualitative data and analysis.

Level 3: Case Series Designs

It is possible to study DMT effectiveness by studying several participants in a single subject design framework. Moore (2006) systematically collected data from 16 participants who had experienced domestic violence and who received an average of 28 DMT sessions. Fifteen of the participants completed the Beck Depression Inventory (BDI) and the Brief Symptom Index (BSI) at the beginning and end of therapy and a self-report questionnaire about their DMT experiences. In addition, clinical observations and movement analyses using Laban Movement Analysis were systematically recorded. Changes on the BDI and the three subscales of the BSI (Global Severity, Positive Symptoms Distress, and Positive Symptoms Total) were reported at the individual case level and t -test comparisons were computed to compare all pretest with all posttest scores. For all four measures, improvements were statistically significant ($p < .005$ for all four comparisons) in the direction of improved psychological health (Moore, 2006, p.111). The study concluded that DMT can benefit women traumatized by domestic violence but that findings were not generalizable. Moore concluded also that further study with larger samples, male clients, and independent movement raters is warranted.

Level 4: One-Group Pretest–Posttest Design

There are many examples of this design in the DMT literature. In the one-group pretest–posttest design, there is no control group for comparison, and consequently one cannot claim that observed changes before and after DMT are due to the intervention (Mertens, 2009). These are best seen as initial studies and ideally can be followed with the more robust controlled clinical trials or RCT. An example is Harvey's (1989) study of 56 children in the second and fourth grades in a suburban public school in the United States. Harvey described the sample as "from middle and lower-middle class working families,

predominantly white” (Harvey, p. 89) and typically developing. The children received integrated creative arts therapy (CAT) sessions (including dance/movement therapy, music therapy, and art therapy) twice weekly over three months, seen in their intact existing classroom groupings. Sessions were cofacilitated by the three CAT professionals, each of whom had graduate level training. Dance/movement therapy methods “facilitated gestural, postural, and facial expressions of affect, dyadic and group mirroring, physical sculpturing, and the development of individual and group dances expressing feelings . . . [including] anger, happiness, sadness, fear and confusion” (Harvey, 1989, p. 90). Standardized pretest and posttest measures assessed on creative thinking, reading comprehension, self-concept, and motivation for learning. Repeated measures analysis of variance statistical tests found significant gains from pretest to posttest in reading comprehension and the following dimensions of creative thinking: verbal originality, figural originality, verbal creative composite, and figural creative composite. In the absence of a control group, Harvey compared the changes in reading comprehension scores (as percentiles) to the published norms for children in the second and fourth grades. He observed that in the two and a half months of the CAT intervention, the children in his sample averaged a six and a half month gain in reading comprehension.

It is interesting to note that within this study Harvey also examined relationships between the creativity and academic variables measured, using the data to explore more theoretical and process questions about the creative skills and academic skills. This observational design component of the study was not compromised by the lack of a control group.

SUMMARY OF EVIDENCE FOR DANCE/MOVEMENT THERAPY

The body of work investigating the efficacy of DMT is impressive, considering the numbers of trained, credentialed practitioners globally, the age of the professional discipline, and the fact that there are very few academic DMT positions in colleges or universities dedicated to the conduct of research. There are trends emerging, but more work is needed. Importantly, all meta-analyses published to date have recommended that future clinical studies employ designs and procedures that will strengthen the quality of evidence reported. As the DMT research agenda moves forward, there are several priorities to consider and the following recommendations address just a few of them.

RECOMMENDATIONS

Multicultural considerations are paramount. Too many of the published studies do not provide enough information about the race, culture, class, or other characteristics of study participants. As DMT practitioners, educators and researchers integrate multicultural perspectives to clinical work and training, our research activity also must align with principles of social justice and multiculturalism (see Caldwell & Johnson, 2012). Mertens’ (2009) transformative paradigm for research in education and the social sciences is a good model

and framework for this. While it may initially seem that quantitative research for establishing DMT efficacy is incompatible with the transformative paradigm, there are ways to integrate both approaches. For example, instruments selected for measuring outcome variables need to be culturally congruent for the diverse populations served by DMT. Researchers need to transparently consider the interplay of power and privilege in the research dynamic and develop recruitment and data collection procedures that acknowledge and respect cultural values and norms. In addition, post-positivist researchers can and should engage in reflexivity to examine their subjective relationships to their research topics and participants. This can be done without compromising the objectivity required for good outcome studies; in fact, it can strengthen both internal and external validity by compelling researchers to consider all possible aspects of context and potential influences on the study. Mertens (2009) argues that the research paradigms can be merged, and it is this author's opinion that all research should integrate transformative paradigm considerations and elements.

Based solely on this author's impressions, there appear to be themes emerging in the outcome research that suggest areas for a research agenda. Trends in DMT studies seem to point to benefits with mood/emotion parameters (e.g., reducing anxiety, depression, stress, and fatigue, and increasing vitality and positive emotions). Studies with cancer survivors suggest themes of body image and social support parameters. This observation leads to one idea for an overarching DMT research agenda: to focus studies, groups of studies, and aggregation of study findings on outcome variables as opposed to the focus on specific clinical populations. The global communities of DMT researchers may be wise to concentrate on mood/emotion variables and relationship variables, for which good outcomes are already documented, to increase the power of the studies and thus the overall strength of the evidence for DMT effectiveness.

It is this author's view that although DMT master's thesis research projects have occasionally yielded publishable and useful outcomes (e.g., Erwin-Grabner, Goodill, Schelly-Hill, & Von Neida, 1999) it is not sufficient to build the research evidence for DMT with master's level studies. We need more dance/movement therapists educated at the doctoral level who can conduct large, robust, excellent studies, preferably with adequate funding. Many dance/movement therapists have published their doctoral dissertations, but few have gone on to continue the research trajectory started in the doctoral work. This has led to a number of interesting first studies in the literature, and we need to create the conditions for researchers to build on those studies in elaborated research programs or themes. One remedy for this is to advocate for more academic DMT positions that focus on research.

Another recommendation is to encourage collaborations with experienced, funded researchers in closely related disciplines; these studies might conduct the comparative effectiveness research, which is important for policy making around insurance coverage for DMT services. A very good example is the 2012 RCT out of the Netherlands (Cima et al., 2012) on the quality of life and reduction of symptoms associated with tinnitus ($N = 492$). This collaboration with researchers in audiology and psychology integrated DMT into CBT programming and documented statistically significant decreases in tinnitus severity and tinnitus impairment when compared to treatment as usual. The specific contribution of the movement therapy intervention, which was provided by trained dance/movement

therapists, was not investigated in the analysis. Nonetheless, this is a powerful study published in a prestigious journal and shows how interdisciplinary collaboration can bring findings about the utility of DMT to wider professional audiences.

Another option is to engage in more international DMT research collaborations, which by bringing together diverse areas of expertise, access to research participant groups, or aggregating data sets—to name a few examples—could facilitate a more productive use of both human and monetary research resources.

Finally, we need to think and act more on the ways in which research informs not only practice but policy. An example of this is the 2010 recommendation from the U.K. National Collaborating Centre for Mental Health on the value of creative arts therapies for people with schizophrenia. The report includes systematic review of several creative arts therapy studies and sophisticated cost effectiveness estimates favoring the use of CAT services in the public health system. As of this writing, the American Dance Therapy Association is in the process of compiling an outcome research bibliography. For this project, 79 studies of DMT effectiveness with various research designs have been collected to date, including RCTs as well as quasi-experimental designs, DMT program evaluations, and single-subject designs. Many of these studies used a mixed method approach as well, incorporating a qualitative research design element. One intended use for the development of this resource is for advocacy with governmental policymakers and in the pursuit of research funding. This use of our research has far reaching potential for making DMT accessible to more participants, families, and communities.

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APPENDIX

Selected Additional Studies of Dance/Movement Therapy Effectiveness Using an RCT Design

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