

**This is an electronic reprint of the original article.
This reprint *may differ* from the original in pagination and typographic detail.**

Author(s): Pylvänäinen, Päivi Maria; Lappalainen, Raimo

Title: Change in body image among depressed adult outpatients after a dance movement therapy group treatment

Year: 2018

Version:

Please cite the original version:

Pylvänäinen, P. M., & Lappalainen, R. (2018). Change in body image among depressed adult outpatients after a dance movement therapy group treatment. *Arts in Psychotherapy*, 59, 34-45. <https://doi.org/10.1016/j.aip.2017.10.006>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

Accepted Manuscript

Title: Change in body image among depressed adult outpatients after a dance movement therapy group treatment

Authors: Päivi Pylvänäinen, Raimo Lappalainen

PII: S0197-4556(16)30127-7
DOI: <https://doi.org/10.1016/j.aip.2017.10.006>
Reference: AIP 1487

To appear in: *The Arts in Psychotherapy*

Received date: 3-8-2016
Revised date: 8-6-2017
Accepted date: 7-10-2017



Please cite this article as: Pylvänäinen, Päivi., & Lappalainen, Raimo., Change in body image among depressed adult outpatients after a dance movement therapy group treatment. *The Arts in Psychotherapy* <https://doi.org/10.1016/j.aip.2017.10.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Change in body image among depressed adult outpatients after a dance movement
therapy group treatment**

Päivi Pylvänäinen^{1,2} and Raimo Lappalainen²

¹ Tampere Psychiatric Unit, Tampere City Mental Health Services, Tampere, Finland

² University of Jyväskylä, Department of Psychology, P.O. Box 35, 40014 JYVÄSKYLÄN
YLIOPISTO, Jyväskylä, Finland

e-mail: raimo.i.lappalainen@jyu.fi

Corresponding author:

Päivi Pylvänäinen

Tampere Psychiatric Unit

Tampere City Mental Health Services

Hatanpäänkatu 3 B (2nd floor)

33900 Tampere

Finland

e-mail: paivi.pylvanainen@tanssiterapia.fi

GSM: +358 40 806 2806

Fax: +358 3 5657 5919

Highlights

- The tri-partite model of body image consists of image-properties, body-self and body memory.
- Before the DMT, the patients' body image reflected problems of presence.
- The DMT group treatment promoted safety, integrated body image, alleviated depression.
- The DMT group treatment made the participants' presence more active and socially flexible.
- Statistically, body image improvement predicted symptoms alleviation.
- Improvement in body image served to alleviate depressive symptoms.

ABSTRACT

This study reports on the body image of depressed psychiatric outpatients, and the impact thereon of a dance movement therapy (DMT) group. Body image is perceived as a tri-partite construct consisting of image-properties, body-self, and body memory. Depressed patients in an outpatient mental health service participated in a DMT group treatment consisting of twelve 90-min long sessions in groups of 4 -7 patients. Patients (N=18) responded to a structured Body Image Assessment (BIA) before and after the treatment.

Initially, the depressed patients' body image was characterized by fragmentation, distortions, and shallowness of body awareness. The DMT group treatment aimed to offer the patients a safe space for exploring their embodied experiences in a validating social setting. This produced positive changes in the body image: finding a better sensation of one's body, tolerating the sensations, settling in the body, finding pleasure and meaningfulness in the experiences. BIA scores indicated large effect sizes in the change between pre- and post-treatment assessments. Change for more positive body image during the treatment predicted fewer depressive symptoms at the follow-up measurement.

Keywords: dance movement therapy; group therapy; depression; body image; attachment; mindfulness

1. Introduction

It is first relevant to review information on depression, body image and dance movement therapy (DMT). The selected references present 1) an embodied and interaction oriented view on depression, 2) a view on body image applicable in DMT and in the treatment of depression, and 3) DMT research that focuses on depression.

1.1. Depression

Depression involves an experience of a loss of agency and reduced energy level (Fuchs & Schlimme, 2009). Difficulties in interaction are a prominent aspect of depression (McCullough, 2000; Riso & Klein, 2004; Pettit & Joiner, 2006). Patients suffering from depression perceive themselves, the world, and others negatively and find it hard to recognize a gratifying impact on their relationships and living environment. Interactional patterns creating vulnerability to disappointments, conflicts, and behaviors that maintain high stress-levels increase the risk of depression and its long duration.

Reciprocal interaction (Fosha et al., 2009; Porges, 2009) with others shapes and is built on biological response patterns and attachment patterns, i.e. the learned ways in which an individual relates to others. Reciprocity in interaction refers to the shaping of the movements, level of arousal, attention, and verbal expressions in response to what is perceived from the other's expressions. Attachment may be secure or insecure. Attachment patterns are shaped in early childhood, and they continue to affect an individual's behavior and emotional responses. Attachment style is stored to a large extent into implicit memory; attachment style is embodied (Schachner, Shaver & Mikulincer, 2005; Bentzen, 2015). In interaction, attachment can be reshaped throughout the course of life (Levy et al., 2011), but through the interactional expectations and learned response patterns that constitute the attachment style, individual spontaneously tends to maintain what he/she has already acquired (see an example in Soth, 2006, p.120-123). Research has shown that insecure, i.e. avoidant or anxious-

ambivalent attachment style is characteristic of patients with depression. Insecurity in the attachment style produces difficulties in behavioral self-regulation and also in interpersonal regulation (Mikulincer & Shaver, 2007). Roberts et al. (1996) propose that dysfunctional attitudes towards self and low self-esteem, which are caused by insecurity in attachment relationships, produce vulnerability to depression. The evolutionary theories of depression interpret sadness and low mood as social pain, and consider social exclusion to be the trigger for this social pain (Rosenström, 2013; MacDonald & Leary, 2005; Eisenberger, 2012).

The concept of affordances (Gibson, 1966) is based on an interactionist view of perception and action: people perceive the environment in terms of their ability to act in it. Factors that affect physical ability and thus influence perception include body size, body control and coordination, energetic potential and the challenges of the task (Witt, 2011). This physicality also creates a basis for cognitive and social interactional abilities. Triberti & Riva (2016) perceive presence as the relevant link between intentions and affordances. Rietveld (2008) has defined affordances “as an organism’s possibilities for action in some situation (p. 978)”. According to Rietveld, affordances are experienced as potentiating and have an affective allure. In depression the person has troubled presence and perceives fewer or meager affordances, thus finding the situation even more stressful, because coping and completing actions in the situation becomes jeopardized. Consequently, a self-enhancing negative spiral develops.

Attachment and affordances are embodied and learned predispositions to responding. The symptoms of depression – low energy, anhedonia, pains, sleeping problems, anxiety, and in severe depression suicidality – can be seen as features and outcomes, which are shaped by attachment styles that are dominated by insecurity, and by affordances that are not perceived as enabling. These result in increased stress-levels in the individual.

As depression has such a strong impact on the sense of agency and interrelatedness, and as it often includes somatic symptoms – fatigue, pain, somatic illnesses, loss of energy, and weight problems - it is relevant to explore how a creative and interactive, body focused form of psychotherapy functions in the treatment of depression. The view on depression taken in this study perceives that the body-mind condition, the embodied response patterns and the implicit, procedural information individuals use in their behavior, attachment and affordances, are relevant in the treatment of depression.

1.2. Body Image

Grogan (2008, p. 3) defines body image as “a person’s perceptions, thoughts, and feelings about his or her body”. Body image refers to the lived experience contained in the body and the psychological significance of the body. Typically the research on body image has focused on body image dissatisfaction and body image distortions in eating and somatoform disorders (Cash & Smolak, 2011). In dance movement therapy (DMT) the perspective on the body image is phenomenological and experiential. For the purposes of DMT, the body image is perceived to consist of three aspects: the image-properties, the body-self and the body memory (Pylvänäinen, 2003). The body-self is the body's active quality of being present, sensing and in interaction with the environment now. The body-self is actualized in the present through connectedness with the sensory, kinesthetic, and perceptual information in the body. This information relates to the external surroundings and to the state prevailing within the individual.

Image-properties are perceptions, thoughts, judgments, and socio-cultural values related to the physical appearances of the body. The image-properties evoke emotional responses in the person and these are experienced through the body-self.

Body memory refers to the embodied information storage function of the body. Body memory, outlined from a phenomenological perspective, has three spheres: habitual, traumatic, and erotic (pleasurable) body memory (Casey, 1987). Koch et al. (2012, 2013) propose a more detailed categorical differentiation, which specifies aspects of body memory that hold information about the surrounding environments and incorporate social habits and embodied patterns. Body memory can be equated with implicit memory. Relating that view to the information afforded by the neurosciences, particularly referring to research by Kandel (2008), it has been suggested that the living body and its nervous system learn from the sensations received from the environment and from the body itself (Pylvänäinen, 2012). The integration of sensory, tactile, and proprioceptive information and motor efferent information is the essence of the organism's ability for intelligent action. Body memory stores the integration, the capacities, and dispositions (Koch et al. 2012, 2013) that are shaped in the body and nervous system through life experiences. The ability for attention, perception, and responsiveness that the body-self maintains, enable the channeling of some of the contents of body memory into our conscious processing.

The tension patterns in the body are one channel for the body memory to shape the state and responses of the body-self. Depressed individuals characteristically show muscular tension, shallow breathing, lack of energy, a predisposition to exhaustion and loss of sensory awareness (Stötter et al., 2013). When early childhood attachment experiences have been marked by insecurity, and the individual suffers from depression, it has been observed that these individuals are typically lacking in mindful body awareness (Segal et al., 2002). This means that they may not be aware of the sensations in the body nor have a habit of naming the sensations with an accepting, non-judgemental attitude.

The research on how depressed patients experience their body image is very scant. A study by Noles et al. (1985) presented their findings in a student population, and built around

the question whether the depressed people feel more dissatisfaction with their body image. This is a narrow perspective on the body image, but Noles et al. did discover that depressed students reported more body image dissatisfaction than did non-depressed students.

Rosenström et al. (2013) found a link between chronically elevated dysphoria and body image dissatisfaction. Their study sample of 156-192 subjects (varying between follow-up years) was derived from a population-based “Young Finn” -study (n= 1 050), and the subjects were examined four times over a 16-year period. In this study, high body-image dissatisfaction was associated with chronic dysphoric status, indicated by high depression scores in adapted BDI. In this study, women had slightly higher body image dissatisfaction than men. Although the average body image dissatisfaction in the population declined between the ages 15 and 30, the between-subject differences in body image dissatisfaction were more temporally stable than any of the other symptoms.

The study by Papadopoulos and Röhrich (2014) describes 31 depressed patients who initially showed a poor body satisfaction and feelings of being detached and distant from their own body. Patients found it difficult to be grounded, i.e., were cut-off from sensing a contact to the ground and from sensations in their bodies. They also experienced their body boundaries as weak and easily penetrated. Regarding the tension patterns in their bodies, their body posture typically included a sunken chest, hunched shoulders, narrow body stance, and downcast eye line gaze with an internal and withdrawn focus. Their breathing was typically shallow and mainly involved the upper chest region. The core characteristic in their movement and bodily presence was bound flow. They felt fatigue and pains in the body. The essential outcome from the 20 bi-weekly sessions of body psychotherapy group, facilitated by an experienced dance movement therapist, was that the patients became more aware of their embodiment, their bodily sensations and movement patterns, and were able to see how these related to their depression.

Bunce et al. (2014) and Grogan et al. (2014) report a pilot study in an educational setting with 17-year old, normal young adults, who participated in one DMT session. The session aimed to enable a focus on body function and body appreciation, to explore how the body responds to feeling, and how this produces a body sensation, which intra-subjectively increases awareness of the body. These young adults felt a sense of freedom in the way they could express themselves in the session. The participants in this pilot felt they had better connection to the body or body parts after the session and more understanding of the body. This created more acceptance and awareness of one's body, which was perceived as a more positive body image. The participants had a more connected sensation between the body and the mind.

1.2. Dance movement therapy

Dance movement therapy (DMT) is a form of therapy, which integrates the physical, emotional, cognitive, and social aspects in treatment (Chaiklin and Wengrower, 2009; Goodill, 2005; Meekums, 2002; Payne, 2006; Stanton-Jones, 1992). DMT is defined by the European Association Dance Movement Therapy (EADMT) as "the therapeutic use of movement to further the emotional, cognitive, physical, spiritual, and social integration of the individual. Dance as body movement, creative expression and communication, is the core component of DMT. Based on the fact that the mind, the body, the emotional state and relationships are interrelated, body movement simultaneously provides the means of assessment and the mode of intervention for DMT." (EADMT Ethical Code 2010, <http://www.eadmt.com/?action=article&id=22>, retrieved on March 21, 2017).

DMT offers an approach to the self, relating, and interaction. One focus in DMT is engaging with movement, becoming concretely involved in movement activity in the here and now. The other locus of action is to be attentive to the movement experiences and to develop the skills to be conscious and reflective of them – i.e., to develop mindfulness - and

to narrate the movement experiences in words. Considering the above, DMT practice naturally addresses body image.

The relevant effective elements in DMT are the engagement of the moving body, creativity - spontaneity, playfulness, movement exploration/improvisation, and the use of metaphors - the development of body awareness and mindfulness, and the verbal reflection of the movement experiences, focusing on the qualities of the experience (Papadopoulos et Röhrich, 2014; Bräuninger, 2014; Payne, 2014). In the dialogue the experiences unfold with a focus on kinesthetic, sensorial, and emotional qualities and embodied perceptions. This may be concrete and situation specific. This enables the patient to connect with the emotional core of his/her experience. Moving and verbalizing about the movement experience are neurologically integrative activities. When done in a safe environment they naturally promote activation and integration of various neural networks. Functional integration of the neural networks promotes well-being (Siegel, 2007).

The safety of the DMT setting relates essentially to the possibility of fostering interoception and self-aware consciousness. Orientation to the sensations and movements in the body provides the basis for self-aware consciousness (Cloninger, 2004) and body-awareness (Fogel, 2013). When the situation is safe, the interaction can include the orientation to one's own bodily sensations and experiences. When communicating a non-judgemental interest during this process, body-awareness and self-aware consciousness in the present can develop. This is also the core of mindfulness. Mindfulness is an attentional skill that supports connectedness to body image. Mindfulness promotes being present, aware, and open to an experience in a non-judgemental way. It is based on the awareness of one's body, and breath in particular (Michalak et al., 2012; Leigh & Bailey, 2013). Body awareness can also be seen as connectedness to the body image. Embodied self-awareness can increase adaptive empathy and communicative capacity (Smears, 2009), as the person is using his or

her sensory information, especially kinesthetic and tactile, in a richer and more refined way. This is beneficial to the ability to maintain awareness of both the internal experiences and the interactional perceptions of the surroundings and others.

There are a few studies on the use of DMT in the treatment of depression. A Cochrane review has been published (Meekums et al., 2015) with the focus on examining the effects of DMT on depression with or without standard care, compared to no treatment or standard care alone, psychological therapies, drug treatment, or other physical interventions. The low-quality evidence from three small RCT's (total N = 147) did not allow any firm conclusions to be drawn regarding the effectiveness of DMT for depression. The authors suggested larger trials of high methodological quality for assessing the use of DMT in the treatment of depression.

An earlier review article (Mala et al., 2012) identified two studies, which presented findings from a randomized controlled trial design and used a clear DMT intervention (Stewart et al., 1994; Jeong et al., 2005). The results in these studies showed a positive outcome for the treatment of depression. Röhricht et al. (2013) report of a manualized body psychotherapy treatment (20 sessions, bi-weekly n = 21, control group n = 10). Punkanen et al. (2014) did a pilot study on the use of DMT group in the treatment of depression (20 sessions, bi-weekly, N= 21). Pylvänäinen et al. (2015) present results from a quasi-experimental, clinical practice-based study, where participants underwent 12-session DMT-group processes (n = 21, control group n = 12 receiving treatment as usual). These three European studies report positive outcomes from the use of group form DMT in the treatment of depression.

The findings of Pylvänäinen et al. (2015) are particularly relevant here, because the research subjects (n = 21) are the same individuals, whose experiences of body image and the DMT group process are presented in this paper. We have previously reported that among

these depressed patients, when compared to the treatment as usual (TAU), adding DMT seemed to improve the effect of the treatment in a psychiatric outpatient clinic. In the DMT group we observed medium or close to large *within-group* effect sizes at post measurement for depression (BDI-II, $d = 0.87$; pre $M = 25.00$, $SD = 11.70$, post $M = 14.89$, $SD = 13.60$), for depression and anxiety symptoms (HADS, $d = 0.92$; pre $M = 20.81$, $SD = 7.99$, post $M = 13.43$, $SD = 10.24$), and for patient's experience of his/her mood and interaction with others and environment (CORE-OM, $d = 0.76$; pre $M = 17.00$, $SD = 6.61$, post $M = 11.95$, $SD = 7.96$). A relatively small effect size was found for psychiatric symptoms (SCL-90/GSI general severity index), $d = 0.57$; pre $M = 1.39$, $SD = 0.76$, post $M = 0.95$, $SD = 0.74$).

1.3. Aims

The present study focuses on the body image contents and change therein through a DMT treatment in adult psychiatric outpatients with depression. We had already studied the same sample by using self-evaluation measurement tools (BDI-II, HADS, CORE-OM and SCL-90) and had found that the DMT treatment had significant impact on depressive symptoms (Pylvänäinen et al., 2015; see also above). In the present study, by utilizing the tripartite model of body image, we are interested in 1) investigating the body image of patients with diagnoses of depression, 2) whether the DMT treatment produces changes in body image and 3) how the patients experience the DMT group intervention; i.e., what features in the DMT interaction are relevant to them. This aims to present a new way of approaching and understanding depression by investigating the role of body image.

2. Methods

2.1. Recruitment procedure

This is a practice-based clinical study. All participants in the study were recruited from an outpatient mental health service, which is part of specialized public health care. The clinic

offers pharmacological treatment, individual counseling and a variety of group interventions. Since 2007, DMT group (8-12 sessions duration) has been one treatment option.

The research plan was accepted by the City of Tampere Research Board. The patient information described the research as a study on the treatment of depression and its outcome by comparing treatment as usual and a DMT group treatment. The inclusion criteria for the study were diagnosis of depression and depression as the patient's primary symptom. The exclusion criteria were psychosis, recent suicide attempts or clear suicide plans, severe personality disorder and significant alcohol abuse problem. The patients entered the study voluntarily. Patients participating in the study received information about the study, their contribution and their freedom to withdraw from the study at any time without consequences to their access to treatment. After the intake interview, participants provided written consent to participate in the study. The participants in the study were recruited over a period of 13 months. The therapist-researcher had an access to the participants' medical records.

2.2. Participants

The data was collected from four consecutive DMT groups. During the data collection period, a total of 25 patients were recruited for the DMT groups. Four patients were excluded from the sample on the basis of the inclusion criteria. Thus, 21 patients could be included in the study. Sequentially, they formed four groups. The therapist/researcher worked with one group at a time.

A background information questionnaire was used to collect information on patients' gender, date of birth, diagnoses, duration of illness, severity of depression, use of medication, and the treatment received up to the time of responding to the questionnaire. The researcher/therapist had an access to the subjects' patient records.

Of the 21 DMT group participants, five (23.8%) were male. The mean age of the participants was 42 years ($sd = 12.7$). One third of the patients had one psychiatric diagnosis

and 48% had two. The most common diagnosis was F32 -depressive episode (29%) and the total percentage of patients with F32-range diagnosis was 43%. F33 -recurrent depressive episode diagnosis was also common (19%). In the majority of the patients (67%) according to the doctor's assessment, depression was moderate or severe. There were four patients, whose primary diagnosis was of anxiety or personality disorder range.

Of the DMT group participants 67% had a second diagnosis related to somatic illness in heart or lungs, diabetes, hyperkinesia, or pain, or a second diagnosis related to depression, anxiety and personality disorders. History of alcohol abuse was reported for 14% of the patients. In the medical records, for 20 out of 21 of the DMT group participants, there was a note of relational stress in the person's history or current life situation. Relational stress refers to childhood abusive or insecure family situation, loss of parent(s) in childhood, being bullied at school, problems or divorce in marital/intimate relationships and/or lack of intimate relationship.

The mean time elapsing since the first episode of depression was 7.9 years. At the time of pre-assessment, for the majority of the patients (76%) the length of current treatment period was less than 12 months. At pre-measurement the patient's current treatment period had most commonly lasted less than six months. Before DMT group, none of the participants had previously received DMT treatment.

In the DMT group, 57% of the participants were taking antidepressants and 43% were not. In the DMT group 38% of the patients were taking some other medication for psychiatric reasons.

2.3. Treatment procedure

The DMT group treatment consisted of 12 DMT sessions. Each session was 90 minutes long and was always structured in orientation/discussion, movement warm-up, movement process, and a verbal round-up of the movement experience facilitated by a dance/movement

therapist-psychologist. At the start of the process, the same ground rules were presented to the group members: confidentiality, respect for the body and experience, and no harming of one-self or others. The basic principles of the DMT group facilitation were:

- *supporting the safety in the body* by paying attention to grounding in the movement, body boundaries (personal space and contact of the body with the environment via its surface), the respect for personal space, and the mover's position as a modulator of his/her own movement
- *supporting the sense of agency* by emphasizing the choices made in movement, paying attention to the ways one uses one's body in movement and interaction, recognizing the resources the body offers
- *supporting mindfulness skills* by paying attention to the experience of the body sensations, movements, and states, fostering the ability to verbalize these as well as the emotions and imagery relating to the body sensations
- *being attentive to interaction* by paying attention to body responses in the group interaction situations, acknowledging the impact of expectations and anticipation on the body responses
- *fostering the interaction* by being present and attentive to others, seeing and hearing them as they are, respecting the body experience, and encountering via shared movement qualities

As to the interaction that actually emerged in the group processes, an integrative model of the themes and movement practices which were flexibly used in the process of each group is presented in Appendix 1.

2.4. Data collection tools

To assess the body image and the patient's experience of the DMT treatment, the primary data collection tool was the Body Image Assessment (BIA). The BIA was done

before and after the DMT treatment. Before the treatment, the assessments were completed with the researcher/therapist in a clinical interview that lasted 50-60 minutes. As the interview was part of the regular clinical practice for entering the DMT groups, these interviews were not recorded. The researcher/therapist took detailed notes of the patient's responses, writing the expressions the patient used. After the DMT treatment, the BIA - questions were presented to the participants using a questionnaire.

BIA is based on the tri-partite model of body image (Pylvänäinen, 2003) and on the clinical practice of discussing embodied experiences with the patients. The questions in the assessment are (in parentheses a classification based on the tri-partite model of body image, Pylvänäinen 2003):

- A. How do you perceive your body and its appearances? (*image-properties*)
- B. What is it like for you to take physical action? (*body-self*)
- C. In your body, how do you typically sense or feel your everyday interactions with others? (*body-self*)
- D. What is the basic mood like in your body when you are by yourself? (*body-self*)
- E. Do you have bodily memories of moments, when you have suffered or felt ill at ease?
Please give an example of such a memory. (*body memory*)
- F. Do you have bodily memories of moments when you have felt good and enjoyed?
Please give an example of such a memory. (*body memory*)
- G. What is important for you in your body? (integrative personal evaluation; relationship to the body image)

Secondly, to give a voice to the participants' experience of the treatment, an invitation to write a poem about one's experiences in the DMT group was offered at the end of the 11th session. Poem writing was done as a home assignment. The invitation to write a poem was intended as an activity for integrating the group experience verbally and to promote

embodiment by a reflective movement improvisation of one's poem. The poems were shared in the last session.

Thirdly, after the DMT group treatment, in the last therapy session, feedback was inquired from the participants by the following questions, to which participants responded in writing:

1. What were your main expectations of the DMT group?
2. Did the DMT group meet your expectations?
3. During the process, did something change in your experiences, your condition or in your relation to the group?
4. What was important and wise in the group?
5. What was difficult?
6. What felt irrelevant?
7. What was given too little space or attention in the group?
8. Any other comments?

In addition to these data collection tools, the participants responded to the self-evaluation measurements (BDI-II, HADS, CORE-OM and SCL-90) before the treatment period, immediately after it and after a 3-month follow-up period. BDI-II (Beck Depression Inventory) and HADS (Hospital Anxiety and Depression Scale) measure mood (Beck et al., 1961, 1996; Dozois et al., 1998; Norton et al., 2013). The SCL-90 (Symptoms Check List- 90) assess a wide range psychiatric symptoms, including depression, anxiety, and somatization (Holi, 2003). CORE-OM (Clinical Outcomes in Routine Evaluation— Outcome Measure) addresses the patient's global distress and portrays the dimensions of well-being, problems, life functioning, and risk of aggressive/suicidal behavior (Evans et

al., 2002). The analysis methods and results of these measurements have been published in detail in Pylvänäinen et al. (2015).

2.5. Analysis methods

In the qualitative analysis, the material from the BIA responses was organized according to the main themes that emerged from the responses. A quantitative analysis of the responses was utilized to compare the differences between the responses before and after the DMT treatment. To create a quantifiable measure of the responses to the BIA, the questions regarding body-self and image-properties (questions A-D, see “Data collection tools”) were classified into three categories: 1) *No or a negative* response was scored zero (0) point, i.e., negative attitude/experience/affect such as “tired”, “clumsy”, “it is through faults one experiences one’s body”. 2) *Neutral or “pros & cons”* -response was scored one (1) point, e.g. “my body is stiffened, but it cheered me up to lose some weight”, “I like my body moving, but I get overstrained easily or at least more easily than before”. 3) *Positive or favorable* response was scored two (2) points, e.g. “I am very content with my body, I accept myself more and more, I feel strong”, “I can be relaxed among strange people”. Questions regarding body memory were omitted from the quantitative analysis, as the question behind the scoring was the negativity-positivity of the body image content. The data collection time was 3-4 months, and naturally body memory contents tend to take longer time to accumulate change in their general positivity.

The participants’ BIA responses were scored by the therapist/researcher and additionally, by a group of 70 Finnish dance movement therapists. The therapists were introduced to the scoring criteria, and then, in teams of 3-4 therapists, each team scored a participant’s pre- and post-treatment responses to the BIA. The participant’s identifying information was undisclosed. This outside evaluation was done in order to check the reliability of the researcher’s assessment of the responses.

The means of the scores were calculated for the pre- and post-interviews for the questions A-D, and the statistical significance of the differences was assessed by paired *t*-test using SPSS (Brace, Kemp, and Snelgar, 2012). Within- group effect sizes (*d*) were computed by calculating the difference between the mean values divided by the pooled standard deviation. These calculations were done separately with the researcher's scores and with the outside evaluation scores.

Correlations between the BIA scores (sum of questions ABCD, researcher's scoring) and self-evaluation measurements scores (symptom measures, see Pylvänäinen et al., 2015) were analyzed using Pearson's correlations coefficients. Correlating patients' symptoms evaluation scores with the body image assessment sheds light on the co-changes of depressive symptoms and the quality of body image. Linear regression analyses by SPSS were performed to investigate whether the changes in BIA scores (sumABCD) after the 12-week treatment (pre-post change) predicted changes in symptoms from pre-assessment to three-month follow-up.

To make a synthesis of the 18 poems the patients wrote, the words and expressions used in them were reflected using the Laban Movement Analysis (LMA) Effort -system. LMA is a method for systematically analyzing movement, its qualities, shapes, and unfolding (Bartenieff, 1980; Hackney, 2002). LMA provides a vocabulary for identifying and naming movement qualities. The quality aspect of motion is called Effort, and its elements are Flow, Space, Time, and Weight. These qualities can be observed as different combinations in movement. The Effort elements also relate to specific questions and functions. Flow relates to the question what, and its function is feeling. Space relates to the question where and its functions are awareness, orientation, and thinking. Time is a response to the question when, and relates to timing and decision-making. Weight relates to the question how, and its functions are presence and action. The words in the poems were associated with these Effort

element themes, and this enabled a movement-rooted reflection of the content of the poems, allowing an indirect reflection of the therapy process and the participants' experiences of it. This affords an understanding of what kinds of experiences promoted the changes in the body image.

The feedback questionnaire was analyzed thematically question by question. The key was to seek information about participants' experiences in the treatment group and of the outcome of the treatment.

3. Results

3.1. The portrayal of the body image in depression before DMT treatment

Table 1 summarizes the patients' verbal expressions of their body image during the pre-treatment Body Image Assessment (BIA) interview, and the body image aspects of the themes related to them. Patients experienced listlessness, feeling tired and lacking direction in their actions and in life in general. Patients reported social situations as demanding and difficult, e.g. feeling not accepted and being an outsider, feeling that coping with the social and occupational world requires immense effort. Several utterances were observed reflecting difficulties in accepting one's body image, e.g. feeling that one's body is "not good", feeling clumsy, finding it difficult to be with one's body. Difficulties in accepting one's body image seemed to be related to responses indicating avoidance behaviors associated with body image, e.g. actively trying not to think of one's bodily appearance and using activity to avoid sensing one's body and self. Difficulties with awareness of one's body were reflected in statements such as not being able to verbalize experiences, and finding some questions in the interview strange and unusual. In addition, patients reported difficulties in relaxing and resting, worries concerning body weight (e.g. the experience of being fat), experiences of having pain, and memories of traumatic or difficult events that were associated with their body image (e.g. physical abuse by parents). See Table 1 for more detailed examples.

).

3.2. Effects of the DMT treatment on the body image – the comparison of the pre- and post-treatment BIA responses

The patients responded to the Body Image Assessment (BIA) questions before and after the DMT treatment. The post-treatment responses were completed by 18 of the 21 patients who participated in the DMT treatment (86%). The responses portray the patient's personal way of addressing the embodied experience of her body in relation to self and environment. The written responses were more concise than the pre-treatment responses, which were communicated in an interview dialogue.

In the post-treatment BIA, the body and its appearance (question A) were frequently described as overweight, heavy, and tense. The positive experiences related to feeling comfortable with the motility of the body, its strength, sensing one's body as balanced and healthy. Physical activity (question B) was perceived as a strain because of problems with stamina and initiative. When physical activity was felt to be positive, it was described as the pleasure of moving, ease, enjoying physical work and getting easily excited, finding vitality in physical activity. The perceptions of the responses to social interaction in one's body (question C) varied on a continuum from tension to non-recognition to comfort and relaxedness. The difference between being with strangers and with familiar people was mentioned frequently, and the tension arising from being with strangers was specifically recognized. The perceptions of one's embodied state when alone (question D) ranged from fearful, nervous, and restless to pleasant, free, relaxed, and happy. In several responses the fluctuating quality of one's basic, embodied mood was noted. The question "what is important to you in your body" opened a selection of characteristic topics: health, harmony and a kind and interested attitude towards one's body.

To compare the pre- and post-treatment responses, the patients' responses to the four BIA questions assessing the present features of body image were evaluated on a three point scale: negative (=0), neutral (=1) and positive (=2) (Table 2, see also Analysis methods). Statistically significant changes from pre- to post-treatment assessment were observed in how patients perceived their body and its appearance (question A), their experience of physical activity (question B), and in the change of the sum ABCD score. The effect sizes ranged between 0.85 and 0.96 in the therapist's assessment and between 0.70 and 1.09 in the outside evaluation. The consensus on the evaluations of questions A and B was 75% in pre-scores and 78% in post-scores. Questions about of the impact of social interaction on one's body (question C) and the quality one's embodied state when alone (question D) yielded a 64% consensus in pre-scores and 83% in post-scores. This was due to the therapist-researcher's tendency to evaluate the responses more negatively in the pre-treatment and in the post-treatment assessment compared to the outside evaluators. Specifically, she considered responses indicating non-attention to the body as negative (0 points) whereas the outside evaluators often scored non-attention as neutral (1 point). Comparing BIA score (sum ABCD) at post-intervention with the pre-intervention score, the therapist's scoring produced a higher score at the end for 14 patients (78%) and for 9 (43%) patients according to the outside evaluation.

How the BIA responses related to the self-evaluation measurements (Pylvänäinen et al., 2015), which reflected the level of depressive symptoms, was studied by correlating these measurements with each other. At the pre-treatment measurement point there were relatively high correlations ($r = 0.44 - 0.62$) between the symptoms scores and BIA scores (Table 3). This suggested that when depression symptoms are more severe, the BIA scores are lower, meaning that the body image is more negative. Except for SCL-90 (General Severity Index

was used in the calculations), all correlations were statistically significant. At post measurement the correlations between the BIA scores and symptoms measures were even higher ($r = 0.65 - 0.78$). Also, changes in all symptom measures from pre-measurement to three-month follow-up correlated significantly with changes in BIA scores during the DMT treatment (pre-post). A pattern emerged: the higher the BIA scores at the post-intervention, the lower the symptoms scores at the follow-up measurement.

We also analyzed, how body image change during the intervention (pre-post) predicted symptom change (pre-follow-up). Table 4 presents the results of the linear regression analysis. Even though it is impossible to identify a single cause of change for a patient participating in a treatment intervention, the positive body image change seemed to predict a statistically significant reduction in symptom scores. Positive change in body image from pre- to post-treatment measurement seemed to predict a more significant reduction in symptom scores from pre-measurement to three-month follow-up, i.e., greater alleviation of depression. Body image change after the 12-week treatment explained 44% of the change on the CORE-OM scores, 37% on the SCL-90 (GSI), 29% on the BDI-II, and 23% on the HADS from pre-assessment to follow-up.

3.3. Participants' experiences of the DMT treatment

3.3.1. Participants' voices: poems reflecting the relationship to the body image and to interaction

The participants wrote all together 18 poems that were shared in the last DMT session (two examples are provided in Table 5). Each poem was unique. At the data analysis phase, Laban Movement Analysis (LMA) Efforts were used to qualitatively analyze the content of the poems. In the following, examples and quotes from the patients' poems are presented in order to describe patients' experiences of the DMT group process.

Words reflecting the Flow Effort were used in the poems to describe awareness of the boundness or freedom of Flow in the body and in breathing. The body was described being limp (actually lacking Flow -element) or depressed; or bound, i.e., “tense”, “anxious” or “like a stone”, “like a knot” (a knot was related to shame in the writer’s experience). The transformation through the DMT process resulted in “finding breathing” (a primary expression of Flow), finding a Flow experience of being “capable and succeeding in one’s action”. Feelings of “liking the body”, “sensing one-self better”, “feeling freer”, and “feeling happy” emerged. Participants felt they could “share feelings and emotions”.

Flow and Weight Effort linked words together, and singular Weight Effort linked words could be identified in many of the expressions describing movement experiences in the DMT activities. The starting point was often the lack of Flow or Weight as in “limpness” and “listlessness”. The increase in the energy was expressed in words “rising, growing, experiencing, receiving, and giving”. “We sat, laughed, danced, talked and shared; I found myself moving” were expressions of experiencing and finding movement and reflecting on it. There was an air of exploration and playfulness. Movement enabled connection: “touch, sharing, a story is told and I join it, it gives me”; “there is a lot of strength/power in our group”.

The Space Effort related words were presented in many contexts in the poems. The Space element in the body was initially described as “emptiness”, “separateness”, being outside of one-self”, “lacking interest” and “not knowing how to get a hold on to the tiredness, anxiety, and depression”. The “confusion in direction” and “disorganization”, and “being broken” were expressed. In the poems there were many words that related to strengthening attention, thinking and insight: “I noticed, I realized, self-knowing, reason, insight, understanding, interest”. The Space element was also presented in words that relate to spatially or directionally oriented movement: rising, growing (in a direction in space),

approaching (each other), following (one's heart, dreams), listening (as in focusing attention to listen to one's heart). The body and movement defined and created Space. This occurred in expressions such as: "I found in the body/through the body, I found toes, hands, head (i.e., the body provided a location), I try to find a new perspective on myself through my body". The affective quality of Space changed in the poems: the initial emptiness and confusion transformed into expressions of a space that was welcoming and inclusive: "to be accepted, to be heard without having to be ashamed of one-self; we came to each other, we were not alone anymore."

The Time Effort related words were used in the chronological description of the unfolding of the experience, e.g. "yesterday I was a knot"; "the time to decide came", "session one", "until the change happened", "today I found", "tomorrow I will try again". Time was a quality in action: "I was in a hurry to get to experience, "hurriedness and impatience lost their sharpness", "I am waiting without expectations". Time was opening to the future: "I am waiting for the morning". The experience of "waiting and being in a process", "in the middle of a journey", was expressed in several poems. There is a settling into time, not forcing time but instead going with its flow, being grounded in one's body and finding support for grounding in the environment.

3.3.2. Participants' feedback of the DMT process outcomes

In their feedback, the patients reported they had expected that the treatment would alleviate their depressive symptoms (42.1% out of 19 participants, who articulated expectations). Also, the patients had wanted to learn something new (four responses, 21.1%), and had expected to receive peer support (three responses, 15.8%). All reported after the treatment that the DMT group had given them more than they had anticipated.

Four patients considered that the changes during the treatment were not relevant for them. Three patients described partly positive changes, although they did not perceive a

change in their mood. The majority of the patients, 12 (63%), reported that they had experienced positive changes during the DMT treatment. The changes after the DMT treatment were for example:

- Improvement in well-being: fewer sleeping problems, more positive perception of one's body, decrease or cessation of anxiety, improved activity level
- Reduction of tension
- Strengthening of feeling secure
- Increased awareness of self: attending to self, recognition of physical experience and its influence, strengthened trust in one's body, adjustment of actions on the basis of observations of the body
- Improved social interaction: better tolerance of other people, courage to approach others and to be more active in social situations, positive experience of peer support

In the DMT group participants appreciated peer support, an opportunity to challenge themselves, the non-judgmental attitude during the meetings, the opportunity to share and discuss experiences with others, and the opportunity to acquire skills to observe one's body. Furthermore, the patients valued clarity in the group structure and in action during the meetings, and focusing on what was happening in the present moment in the group and the therapy room.

In the feedback, the participants did not report adverse effects of DMT, but they did report that the DMT group had also presented challenges to them. At times, they had found it difficult to be attentive to other group members or to themselves during the interaction. Pair work, sharing experiences verbally, and telling about one-self in the context of the present experiences was difficult especially at the beginning of the DMT process. It was particularly burdensome to speak about what one perceived in the body and how one felt in the body. Finding and creating one's own movement were felt at times to be difficult.

Almost all the participants (14/74%) expressed a wish for more time for dancing, movement, and discussion during the DMT sessions. More sessions or a longer (two-hour) session time were suggested in the feedback. The group atmosphere had been perceived as encouraging. One could be in the group as one is, in the here and now. The therapist received thanks for sensitive and warm facilitation. Some participants were concerned about feeling left on their own at the end of the DMT treatment. These participants wondered where to continue a similar practice and activity, and how to find a suitable movement group outside the mental health services, in the community.

4. Discussion

We have already shown (Pylvänäinen et al., 2015) that the DMT intervention alleviated depressive symptoms as measured by self-evaluation scores (BDI-II, HADS, CORE-OM and SCL-90). That part of the study was quasi-experimental and we found that the DMT-participants improved more than the patients receiving treatment as usual. To study the DMT-participants further, the aim of this present study was to report on the body image of patients with diagnoses of depression, the impact of the DMT treatment on body image, and to describe the patients' experiences of the DMT group treatment.

This study has limitations that need to be kept in mind when considering the results and conclusions. The participant group of this study was small. There was no systematic background data on how healthy individuals would respond to the Body Image Assessment (BIA). BIA was not presented to those patients who were receiving treatment as usual at the clinic, thus comparing how TAU impacts body image was not possible. There was no follow-up BIA, so the present study cannot directly describe how the patients maintained the changes in their body image or how the change continued to proceed. In the future more descriptions of body image contents and body image changes are needed to better understand

in a sense of a complex dynamic system, how depression affects the individual, and what supports the recovery.

In the pre-treatment BIA interview the body image was characterized by listlessness and the depressed patients seemed to have difficulties accepting their body image and appearance. In their embodied experience, they perceived their environment as difficult and found it difficult to take a rest. Traumatic and stressful events were frequently mentioned in the depressed patients' narratives about their body memories. Depressed patients expressed shallow consciousness of the body, distortions, and/or actual fragmentation of the body image. Initially the body image qualities of the subjects were similar to what has been reported in earlier studies (Papadopoulou and Röhrich, 2014; Stötter et al., 2013; Segal et al., 2002): there was a lack of mindful body awareness, feelings of being detached and distant from one's own body, difficulties in finding grounding, experiences of fatigue and pains. Essentially, most of the body image problems were problems of presence. There was a statistically significant correlation between a patient's body image and reports of psychological symptoms. These findings suggest that it is useful to pay attention to body image among patients with depression, as body image reveals characteristics of the patient's depression and treatment addressing body image seems to alleviate the depressive symptoms.

After the DMT treatment patients with diagnoses of depression reported changes in their body image. This is encouraging since for example Rosenström et al. (2013) report, that the body dissatisfaction is a stable characteristic in chronic dysphoria. In the present study the change observed could be due to social desirability bias, but this concern is diminished by the finding, that the positive changes were communicated consistently through several data collection tools. In the present study, as seen especially in the poems and the feedback on the therapy process, the changes in the body image were reflected in a willingness to be aware of the body image: being able to sense one's body, to tolerate the sensations, to settle in the

body and find some pleasure and meaningfulness in the sensations and experiences. In DMT these processes are referred to as grounding (de Tord & Bräuninger, 2015), which means safe, embodied connectedness to the body and the body's connectedness with the environment. In the DMT group, the non-judgmental approach and the interest in the embodied experiences validated the patients' experience of their own bodies. The validation of body-self constructs the base for trusting one's body, perceptions, and own assessment. It can develop awareness of one's way of perceiving the internal and external environment and relating to it. These changes can promote a sense of safety and a sense of agency.

In their feedback of the DMT group, 63% of the patients reported they had noticed alleviation of their symptoms of depression after the intervention. The reports of a change for the better in depressive symptoms and also the improved BIA scores (sum ABCD) appear to run parallel in this study sample. The symptoms scores correlated negatively with the BIA scores, i.e., when the quality of body image improved, the psychiatric symptoms tended to abate. In addition, positive change in body image at the post-treatment assessment predicted a reduction in symptom scores from pre-measurement to three-month follow-up. Thus, this study suggests that more attention should be paid to investigating the role of body image in the treatment of depression.

There is a need for more studies investigating essential processes in DMT that are responsible for changes in mood or psychological wellbeing. For example, it is known that avoidant behavioral and attachment patterns are typical for patients with depression. In interactional situations, reciprocal movement behavior creates an experience of communication, which can enhance the sense of connectedness and agency (Trevarthen & Fresquez, 2015). This reciprocal movement is frequently present in secure attachment interactions. DMT group aims to promote the characteristics of secure attachment: presence, attunement, responsiveness, modulation of emotions, communication, and reflection (Siegel

1999, 2007). Corroborating this, in the present study the feedback and poems produced by the patients indicated that the DMT group intervention made the participants' presence more active, flexible, and open to new experiences.

Nearly all the participants in this study (20 out of 21) had in their medical records a description of challenging and stressful experiences in their relationships, either in their earlier lives or currently. At the beginning of the DMT treatment, patients' BIA responses revealed they had a poor connectedness to the body sensations and a tendency to avoid bodily information, there was a lack of kindness towards the body and self, a lack of liking the body, there was a lack of will in patients' actions, and a sense of difficulty in connecting with the environment/others. These features seem to echo the characteristics of an insecure, avoidant relationship style, and also the avoidant behavioral patterns characteristic of depression. These attachment and behavioral styles not only apply to external relationships, it seems they also apply to the ways in which the individual relates to his/her body. It is possible that DMT affects these processes among depressed patients. The impression is, that the style of relating to the external and internal world may enhance each other, which may exacerbate the strains caused by an insecure attachment style and depression.

Punkanen et al. (2014), studying the outcome of a DMT intervention in the treatment of depression, used in their study a brief relationship questionnaire (RQ), assessing the attachment style of the participants. In their study, the RQ scores indicated a change towards a more secure attachment style after the intervention. However, body image was not assessed in their study. In future research it would be particularly interesting to focus on the connections between attachment styles, self-compassion, and body image. This can enhance the understanding of the impact of DMT interventions. It would also enhance our understanding of body image, which is shaped in our interactions, and which shapes how we interact. It would be interesting to study, in light of interpersonal neurobiology and

neuroimaging techniques, whether these patterns could be documented as different activation patterns in the brain.

In the future, with a larger study sample, it would be interesting to study individual differences between depressed patients participating in DMT groups. The severity of symptoms, the level of cognitive biases in information processing typical to depression, the attachment style, and the quality of body image may be factors that characterize patient types who benefit differently from a brief DMT group treatment. These factors would make it possible to monitor, as the time passes on, how the participants continue to maintain and further develop their learning, alternative response patterns, and awareness gained in the DMT group.

In the treatment of depression, DMT offers methods and a socially appropriate structure for exploring the contents of the body image and gaining new embodied experiences relating to self, others, and the environment. In the future, more research on this is needed, with larger samples and in an RCT (randomized controlled trial, including a comparison group) research design. The present study suggests that DMT group treatment enables positive changes in body image: improved recognition of the body, more kindness in relating to one's body and bodily experiences, and a clearer validation of one's body sensations, expressed in verbalizing about the sensations, and improved access to body memories. As these changes took place, patients also experienced alleviation of their depression.

Acknowledgements

With thoughtful gratitude and thanks to dance movement therapists Dr. Sabine Koch and Dr. Vicky Karkou for their collaboration on this research project.

Dance movement therapist Marcia Plevin, my longtime teacher in authentic movement, gave helpful comments on the English writing style of this paper – thank you.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Bartenieff, I., & Lewis, D. (1980). *Body movement: Coping with the environment*. Amsterdam: Gordon & Breach Publishers.
- Beck, A. T., Steer, R. A., Ball, R., and Ranieri, W. F. (1996). Comparison of Beck Depression Inventories –IA and –II in psychiatric outpatients. *J. Pers. Assess.* 67, 588–597. doi: 10.1207/s15327752jpa6703_13
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., and Erbaugh, J. (1961). An inventory of measuring depression. *Arch. Gen. Psychiatry* 4, 561–571. doi: 10.1001/archpsyc.1961.01710120031004
- Bentzen, M. (2015). Dances of connection: Neuroaffective development in clinical work with attachment. *Body, Movement and Dance in Psychotherapy*, 10(4), 211-226. <http://dx.doi.org/10.1080/17432979.2015.1064479>.
- Bunce, J., Heyland, S., Grogan, S., Padilla, T., Williams, A., Killgariff, S., Woodhouse, C., Cowap, L., & Davies, W. (2014). The rationale behind a dance movement psychotherapy intervention used in a small research pilot in a further education context to develop awareness about young people’s body image. *Body, Movement and Dance in Psychotherapy*, 9(1), 4-15.
- Brace, N., Kemp, R., & Snelgar, R. (2012). *SPSS for psychologists*. (5th ed). New York: Palgrave Macmillan.
- Bräuninger, I. (2014). Specific dance movement therapy interventions – Which are successful? An intervention and correlation study. *The Arts in Psychotherapy*, 41, 445-457. <http://dx.doi.org/10.1016/j.aip.2014.08.002>

Cash, T. F., & Smolak, L. (Eds.) (2011). *Body image: A handbook of science, practice and prevention*. (2nd ed.) New York NY: The Guilford Press.

Casey, E. S. (1987). *Remembering: A phenomenological study*. Bloomington, IN: Indiana University Press.

Chaiklin, S., & Wengrower, H. (Eds.) (2009): *The art and science of dance/movement therapy. Life is dance*. New York: Routledge.

Cloninger, R. E. (2004). *Feeling good. The science of well-being*. New York: Oxford University Press.

Eisenberger, N. I. (2012). The neural bases of social pain: evidence for shared representations with physical pain. *Psychosomatic Medicine*, 74(2), 126-35. doi: 10.1097/PSY.0b013e3182464dd1.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., et al. (2002). Towards a standardized brief outcome measure: psychometric properties and utility of the CORE-OM. *Br. J. Psychiatry* 180, 51–60. doi: 10.1192/bjp.180.1.51

Fogel, A. (2013). *Body sense. The science and practice of embodied self-awareness*. New York: W.W. Norton & Company, Inc.

Fosha, D., Siegel, D. J., & Solomon, M. F. (Eds.) (2009). *The healing power of emotion: affective neuroscience, development, & clinical practice*. New York: W.W. Norton & Company, Inc.

Fuchs, T., & Schlimme, J. E. (2009). Embodiment and psychopathology: a phenomenological perspective. *Current Opinion in Psychiatry*, 22, 570-575.
DOI:10.1097/YCO.0b013e3283318e5c

Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston MA: Houghton.

Goodill, S. W. (2005). *An introduction to medical dance/movement therapy. Health care in motion*. Philadelphia PA: Jessica Kingsley Publishers.

Grogan, S. (2008). *Body image: Understanding body dissatisfaction in men, women and children*. (2nd ed.) New York NY: Routledge.

Grogan, S., & al (2014). Dance and body image: young people's experiences of a dance movement psychotherapy session. *Qualitative Research in Sport, Exercise and Health*, 6:2, 261-277, DOI: 10.1080/2159676X.2013.796492

Hackney, P. (2002). *Making connections. Total body integration through Bartenieff Fundamentals*. New York: Routledge.

Holi, M. (2003). *Assessment of Psychiatric Symptoms using the SCL-90*. Academic dissertation. University of Helsinki.

Kandel, E. R. (2006). *In search of memory. The emergence of a new science of mind*. New York: W.W. Norton & Co.

Koch, S. C., Caldwell, C., & Fuchs, T. (2013). On body memory and embodied therapy. *Body, Movement and Dance in Psychotherapy*, 8(2), 82-94.

DOI:10.1080/17432979.2013.775968

Koch, S. C., Fuchs, T., Summa, M., & Müller, C. (Eds.) (2012). *Body, metaphor and movement. Advances in Consciousness Research 84*. Amsterdam: John Benjamins Publishing Company.

Leigh, J., & Bailey, R. (2013). Reflection, reflective practice and embodied reflective practice. *Body, Movement and Dance in Psychotherapy*, 8(3), 160-171.

DOI:10.1080/17432979.2013.797498

Levy, K. N., Ellison, W. D., Scott, L. N., & Bernecker, S. L. (2011). Attachment Style. In Norcross, J. C. (Ed.): *Psychotherapy relationships that work. Evidence based responsiveness*. 2nd ed. (pp. 377-401). New York: Oxford University Press.

MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin*, 131(2), 202-223.

Meekums, B. (2002). *Dance/movement therapy. A creative psychotherapeutic approach*. London: Sage Publications.

Meekums, B., Karkou, V., & Nelson, E.A. (2015). Dance movement therapy for depression. *Cochrane Database of Systematic Reviews*, Issue 2. Art. No.: CD009895. DOI: 10.1002/14651858.CD009895.pub2.

Michalak, J., Burg, J. M., & Heidenreich, T. (2012). Mindfulness, embodiment, and depression. In S. C. Koch, T. Fuchs, M. Summa, & C. Müller (Eds.). *Body, metaphor and movement. Advances in Consciousness Research 84* (pp. 393-413). Amsterdam: John Benjamins Publishing Company.

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in Adulthood: Structure, Dynamics, and Change*. New York: Guilford Press.

Noles, S. W., Cash, T. F., & Winstead, B. A. (1985). Body image, physical attractiveness, and depression. *Journal of Consulting and Clinical Psychology*, 53(1), 88-94.

Norton, S., Cosco, T., Doyle, F., Done, J., and Sacker, A. (2013). The hospital anxiety and depression scale: a meta-confirmatory factor analysis. *J. Psychosom. Res.* 74, 74–81. doi: 10.1016/j.jpsychores.2012.10.010

Payne, H. (Ed.) (2006). *Dance movement therapy: Theory, research and practice*. (2nd ed.). London: Routledge.

Papadopoulos, N. L. R., & Röhrich, F. (2014). An investigation into the application and processes of manualized group body psychotherapy for depressive disorder in a clinical trial. *Body, Movement and Dance in Psychotherapy*, 9(3), 167-180.

DOI: 10.1080/17432979.2013.847499

Porges, S. W. (2009). Reciprocal influences between body and brain in the perception and expression of affect. In D. Fosha, D. J. Siegel & M. F. Solomon (Eds.). *The healing power of emotion: affective neuroscience, development, & clinical practice* (pp. 27-54). New York: W.W. Norton & Company, Inc.

Punkanen, M., Saarikallio, S., & Luck, G. (2014). Emotions in motion: Short-term group form Dance/Movement Therapy in the treatment of depression. A pilot study. *The Arts in Psychotherapy*, 41, 493-497. DOI: 10.1016/j.aip.2014.07.001.

Pylvänäinen, P. (2003). Body image: A tri-partite model for use in dance/movement therapy. *American Journal of Dance Therapy*, 25, 39-56.

Pylvänäinen, P. (2012). Body memory as a part of the body image. In S. C. Koch, T. Fuchs, M. Summa, & C. Müller (Eds.). *Body, metaphor and movement. Advances in Consciousness Research 84* (pp. 289-306). Amsterdam: John Benjamins Publishing Company.

Pylvänäinen, P., Muotka, J., & Lappalainen, R. (2015). A dance movement therapy group for depressed adult patients in a psychiatric outpatient clinic: effects of the treatment. *Frontiers in Psychology*, 6:980. doi: 10.3389/fpsyg.2015.00980.

Rietveld, E. (2008). Situated normativity: The normative aspect of embodied cognition in unreflective action. *Mind*, 117(468); 973-1000.

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating role of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology*, 70(2), 310-320.

Rosenström, T., & al. (2013). Body-image dissatisfaction is strongly associated with chronic dysphoria. *Journal of Affective Disorders*, 150(2), 253-260. DOI: <http://dx.doi.org/10.1016/j.jad.2013.04.003>

Röhricht, F., Papadopoulos, N. L. R., & Priebe, S. (2013). An exploratory randomized controlled trial of body psychotherapy for patients with chronic depression. *Journal of Affective Disorders*, 151, 85-91. <http://dx.doi.org/10.1016/j.jad.2013.05.056>

Schachner, D., Shaver, P. R., & Mikulincer, M. (2005). Patterns of nonverbal behavior and sensitivity in the context of attachment relationships. *Journal of Nonverbal Behavior*, 29(3), 141-169. DOI: 10.1007/s10919-005-4847-x

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York, NY: Guilford Press.

Siegel, D. J. (1999). *The developing mind. How relationships and the brain interact to shape who we are*. New York: The Guilford Press.

Siegel, D. J. (2007). *The mindful brain. Reflection and attunement in the cultivation of well-being*. New York: W.W. Norton & co.

Smears, E. (2009). Breaking old habits: professional development through an embodied approach to reflective practice. *Journal of Dance and Somatic Practices*, 1, 99-110.

Soth, M. (2006). What therapeutic hope for a subjective mind in an objectified body? In J. Corrigan, H. Payne, & H. Wilkinson (Eds.). *About a body* (pp. 111-131). London: Routledge.

Stanton-Jones, K. (1992). *An introduction to dance movement therapy in psychiatry*. London: Routledge.

Stötter, A., Mitche, M., Endler, P. C., Oleksy, P., Kamenscheck, D., Mosgoeller, W., & Haring, C. (2013). Mindfulness-based touch therapy and mindfulness practice in persons with moderate depression. *Body, Movement and Dance in Psychotherapy*, 8(3), 183-198. DOI:10.1080/17432979.2013.803154

de Tord, P. & Bräuninger, I. (2015). Grounding: Theoretical application and practice in dance movement therapy. *The Arts in Psychotherapy*, 43, 16–22. DOI:

<http://dx.doi.org/10.1016/j.aip.2015.02.001>

Trevarthen, C. & Fresquez, C. (2015). Sharing human movement for well-being: Research on communication in infancy and applications in dance movement psychotherapy. *Body, Movement and Dance in Psychotherapy*, 10(4), 194-210.

<http://dx.doi.org/10.1080/17432979.2015.1084948>.

Triberti, S. & Riva, G. (2016). Being present in action: A theoretical model about the “interlocking” between intentions and environmental affordances. *Front. Psychol.* 6:2052. doi: 10.3389/fpsyg.2015.02052 .

Witt, J. K. (2011). Action’s effect on perception. *Current Directions in Psychological Science*, 20(3), 201-206.

Table 1: Classification of main themes expressed regarding body image in the pre-treatment Body Image Assessment (BIA).

Patients' verbal expressions of the problem in body image	Classification based on the tri-partite model of body image: image-properties / body-self / body memory
lack of energy, tiredness	
<ul style="list-style-type: none"> -my body feels tired and listless -the listlessness in the body leads to lack of initiative in action -I feel tired and sad 	body-self – the relationship to the environment via action and experiencing
lack of direction in action	
<ul style="list-style-type: none"> -feeling that I am driven by the wind (not by my own ideas/will) -no planning, no desire for my actions, I just do -it is not clear where I am heading to, I am doubting the sufficiency of my resources 	body-self – the relationship to the environment via action and experiencing
lacking a sense of agency - social situations appear demanding and difficult	
<ul style="list-style-type: none"> -I feel that I am not accepted as I am -it is difficult to join the community, feeling like outsider -I have my antenna hyper sensitive when I am with people and this consumes a lot of my resources -I have feared social situations so much I have trembled and left the situation -I have shrunk and withdrawn in order to not to be seen -illness and death of a close relative -facing violence -experiences of work overload impacting health 	body-self – the relationship to the environment via action and experiencing
distortions/ fragmentation in the body image	
<ul style="list-style-type: none"> -compared to the head, the rest of my body feels withered -my body moves in ways that feel unfamiliar to me -I feel blocked and tense -I feel clumsy -I feel my body is not good -I feel my body is contradictory -It is difficult to be with my body -I feel my body is not what I would want it to be -I am discontented with my looks 	body-self – the experience of one-self the image-properties
a shallow consciousness of one's body – avoidance of attending consciously to body-image	
<ul style="list-style-type: none"> -I only pay attention to my body when it aches and I recognize I cannot function -I do not think of my bodily appearance because it easily provokes self-loathing -I do something all the time so I do not have to be with myself -I have not quite learned to verbalize my experiences -I have had my attention too much in my head and a feeling that I lose touch with my physicality 	body-self - the experience of one-self

Table 1, continued

difficulty to relax and have a rest	
-I have not been able to rest -I cannot relax -I do not like to stop and calm down -when I try to settle down, it is difficult	body-self – the relationship to the environment via action and experiencing; the experience of one-self
worry about weight	
-for health reasons and my looks, I would like to lose weight -I feel my body is overweight, I am fat (even if objectively of normal weight)	image-properties
pain	
-I have a basic pain in my body -I have pain in different body parts -pain reduces my capacity to function -emotional state causes me pain	body-self – the relationship to the environment via action and experiencing body memory
memories of traumatic events and/or circumstances in childhood	
-I was hardly ever hugged in my family -with my parents, I could not express certain emotions -severe parental illness or substance abuse -physical abuse by parents -I was bullied at school	body memory – traumatic body memory and habitual body memory

Table 2: Body image assessment: a comparison between scores at pre- and post-assessment. Mean values (standard deviations), paired *t*-test, and effect sizes (d-values) are presented. Scoring by the researcher (R) and outside evaluation (OE).

N=18	R Pre M (SD)	R Post M (SD)	R <i>t</i> (df)	R <i>p</i>	R <i>d</i>	OE Pre M (SD)	OE Post M (SD)	OE <i>t</i> (df)	OE <i>p</i>	OE <i>d</i>
A: experience of appearance	0.28 (0.58)	0.94 (0.87)	3.69 (17)	.002*	0.96	0.39 (0.70)	1.11 (0.90)	4.08 (17)	.001*	1.09
B: experience of physical activity	0.33 (0.59)	1.06 (0.94)	3.71 (17)	.003*	0.85	0.72 (0.58)	1.22 (0.81)	2.47 (17)	.024*	0.70
C: sensations in interaction	0.61 (0.85)	0.94 (0.87)	1.57 (17)	.083	0.62	0.89 (0.90)	1.00 (0.87)	0.62 (17)	.54	0.43
D: sensations when alone	0.44 (0.71)	1.28 (0.75)	2.92 (17)	.002*	0.86	0.83 (0.71)	1.11 (0.75)	1.32 (17)	.21	0.41
sum ABCD (possible range 0-8)	1.67 (2.22)	4.22 (2.80)	3.60 (17)	<.0005*	0.91	2.83 (2.09)	4.50 (2.81)	3.30 (17)	0.004*	0.73

A: How do you perceive your body and its appearances?

B: What is it like for you to take physical action?

C: In your body, how do you typically sense or feel your everyday interactions with others?

D: What is the basic mood like in your body when you are by yourself?

$d = (x_1 - x_2) / \text{mean SD}$. In questions A-D, score range could be 0-2. Higher score indicates more positive content.

* $p < 0.05$, statistically significant

Table 3: Correlations (N = 18) between Body Image Assessment (BIA sum ABCD) scores and symptom self-evaluation scores at pre- and post-assessment.

N=18	Pre BIA	p-value	Post BIA	p-value	pre-fup change correlation with BIA-change (pre-post)	p-value
BDI-II	-.62	0.007	-.78	< 0.001	-.53	0.022
SCL-90	-.44	0.068 (ns)	-.65	0.003	-.64	0.005
HADS	-.60	0.008	-.78	< 0.001	-.48	0.047
CORE-OM	-.57	0.013	-.72	0.001	-.66	0.003

Table 4: Linear regression analyses. Body image (BIA -scores) change during the DMT treatment (pre-post) predicts symptom change (pre-fup) (N = 18).

Change Pre-Fup	R ²	β stand.	t	p
BDI-II	.285	-0.534	-2.53	0.022
SCL-90	.368	-0.636	-3.30	0.005
HADS	.225	-0.475	-2.16	0.047
CORE-OM	.438	-0.662	-3.53	0.003

Table 5: Two examples of poems (translation from Finnish by the researcher/therapist)

<p>I was separate from myself outside of myself I noticed that through myself I can sense better express more freely exist in multiple dimensions in my being Now I try to find a new perspective to myself, through my body.</p>	<p>Weakness. Sluggishness. Emptiness. Until a revelation about something else. Rising. Growing, insight. Mind and surrounding it, the frame of the body came back. And maybe, more complete than one would have assumed. An opportunity arrived.</p>
---	--

Appendix 1. A group model based on the integration of the four different DMT group processes. (Pylvänäinen et al., 2015)

	Theme	Process movement practices
1	Introduction, start	<p>Circular motion in joints.</p> <p>Improvisation with name gestures.</p> <p>With picture cards, expressing one's expectations of the DMT group.</p>
2	Familiarizing with the space, moving, and collaboration	<p>Exploring the space/room by moving in it in various ways and acknowledging the others.</p> <p>In a dyad, mirroring on each other's movement.</p>
3	Safety and agency, playfulness	<p>Recognizing how one directs attention: outwards, inwards.</p> <p>Sensing body boundaries.</p> <p>Moving with eyes open or closed.</p> <p>Exploring the spatial options in movement.</p>
4	Playfulness, agency, finding different options	<p>Exploring spine motility.</p> <p>Imagery & improvisation: If you were an animal, how would the animal move?</p> <p>In a circle, moving by holding hands.</p>
5	Grounding, intuition, sensitivity	<p>Activation of the body, starting from the feet.</p> <p>Playing with different movement qualities.</p> <p>Mindfulness skills and breathing: sensing one's walking.</p>
6	Relieving achievement pressure	<p>Sensing hands through different movements.</p> <p>Breathing exercises.</p> <p>Basic movement exercises allowing grounding and sensing the kinesthetic connections in the body structure. Mindfulness skills: breathing and seeing the other.</p> <p>Polarity: familiar and unfamiliar in movement.</p>
7	Boundaries, distances, directions	<p>Activating hands and breathing, sensing body boundaries, sensing center/core also with strength.</p> <p>Movement improvisation with a focus on near space, middle space, far space.</p>

		<p>Walking in a dyad and sensing the connection.</p> <p>Drawing a picture of one's experience.</p>
8	Space for motion, boundaries, surfaces – balancing being and action	<p>Self-nurturing movement and moving on the floor level.</p> <p>Basic movement exercises allowing grounding and sensing the kinesthetic connections in the body structure. Getting into vertical slowly and through different postures.</p>
9	Emotion – acceptance and agency in one's life and in relation with environment/others	<p>Movement improvisation from the words selected to express one's present state.</p> <p>Exploring earth, water, air and fire through movement improvisation – expressing and describing associated feelings.</p>
10	What do I need – attention and focusing in action	<p>In a dyad, hand massage.</p> <p>On a tape line, improvising movement in relation to the line; working with a partner who accompanies the movement in the way one asks for.</p>
11	Accepting needs – nurturing, simplicity, freedom	<p>Moving with breath, gradually engaging the whole body.</p> <p>Simple movement exercise (breath, clear movement pattern, a sense of opening/stretching, focusing).</p> <p>Requesting from a pair something one needs in movement and/or presence.</p> <p>Homework: to write a poem of one's experiences in this group.</p>
12	Closure – what have I learnt?	<p>Activating the body, grounding, being aware of the body.</p> <p>Simple movement exercise (same as in the session 11)</p> <p>Poems: sharing them, improvising movement on them.</p> <p>Feedback of the process.</p>