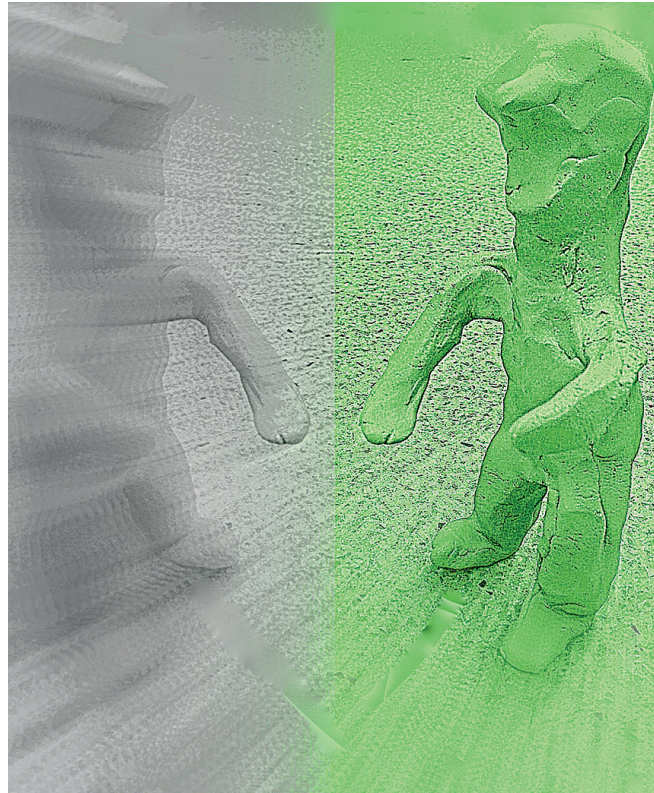


Päivi Pylvänäinen

Dance Movement Therapy in the Treatment of Depression

Change in Body Image and Mood - A Clinical Practice Based Study



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UNIVERSITY OF JYVÄSKYLÄ

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"We are essentially and fundamentally animate beings. In more specifically dynamic terms, we are animate forms who are alive to and in the world, and who, in being alive to and in the world make sense of it. We do so most fundamentally through movement." - Sheets-Johnstone, M. (2012)

ABSTRACT

Pylvänäinen, Päivi

Dance movement therapy in the treatment of depression: Change in body image and mood - A clinical practice based study

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This dissertation includes four studies of the use of dance movement therapy (DMT) in a group form in the treatment of depression at a psychiatric outpatient clinic. DMT is based on exploring the embodied experience in the here and now in the encounter between patient(s), therapist and the dance/movement. DMT is a method to develop awareness of embodiment. This dissertation presents data from ten DMT groups, involving 62 patients who participated in and completed DMT groups during the years 2007-2013 at one psychiatric outpatient clinic. The age range of the participants was 21-61 years. To allow comparisons between DMT and treatment as usual (TAU), a control group of 12 patients was part of the quasi-experimental design in one substudy. The studies utilised qualitative and quantitative research material. The aim was to offer interpretations of meanings about the phenomenon of body image and the particular group of patients with depression in outpatient psychiatric care. A tri-partite model of body image was applied in this study. It perceives the body image to consist of the body self, image properties, and body memory. To assess the body image contents, a verbal Body Image Assessment (BIA) was developed. Depressed patients' body image reflects difficulties in intra-personal and interpersonal relating. Pre- and post-intervention BIA's showed, that a 12 x 90 mins DMT group treatment produced change for the positive in the body image of the patients with depression. DMT group treatment also reduced depressive symptoms. DMT vs. TAU comparison yielded Effect sizes of $d = 0.60 - 0.97$, depending on a measurement tool (BDI, HADS, SCL-90, CORE-OM), and in favor of the DMT group. The results of this study support the view that DMT is beneficial in the treatment of depressed patients. For the individual, DMT provides tools for creating, enhancing, and maintaining a sufficient sense of safety in one's presence and action, and developing flexibility in responding. This dissertation demonstrates the possibilities for applying movement and various practices of dance in an interactional process to support the patient's wellbeing.

Keywords: dance movement therapy, body image, depression, group therapy, psychiatric outpatient care

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TIIVISTELMÄ (FINNISH ABSTRACT)

Pylvänäinen, Päivi

Tanssi-liiketerapia masennuksen hoidossa: Muutosta kehonkuvassa ja mielialassa – Kliiniseen käytäntöön pohjautuva tutkimus

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Väitöskirja koostuu neljästä osatutkimuksesta, joissa on tutkittu tanssi-liiketerapian (TLT) ryhmämuotoista käyttöä masennuksen hoidossa aikuisten avomielenterveyspalveluissa. TLT perustuu kehollisen kokemuksen tutkimiseen tässä ja nyt hetkessä, vuorovaikutustilanteessa mikä syntyy potilaan/potilaiden, terapeutin ja liikkeen välille. TLT on menetelmä, jolla kehittää tietoisuutta kehollisesta kokemuksesta. Tämä väitöskirja käsittelee kymmenen TLT-ryhmän kokemuksista karttunutta aineistoa. Yhdessä osatutkimuksessa tietoa koottiin 21 TLT-ryhmäläisestä sekä 12 potilaan kontrolliryhmästä, joka sai tavanomaista hoitoa. Kaikkiaan TLT-ryhmiin osallistui 62 potilasta vuosien 2007-2013 aikana erikoissairaanhoidon avomielenterveyspalveluissa. Tutkimushenkilöiden ikä oli 21-61 vuotta. Tutkimuksessa käytettiin laadullista ja määrällistä tutkimusaineistoa. Tavoitteena oli nostaa aineistosta esiin tulkinta siitä, mitä merkityksiä kehonkuvalla ilmiönä on masennuksesta kärsiville potilaille, jotka saavat hoitoa avomielenterveyspalveluissa. Tutkimus sovelsi kehonkuvan kolmiosaista jäsenystä. Tässä jäsennyksessä kehonkuvan osarakenteiksi tunnistetaan kehoitseys, olemusseikat sekä kehomuisti. Kehonkuvan sisältöjen tutkimista varten luotiin haastatteluun pohjautuva kehonkuvakysely (Body Image Assessment, BIA). Masentuneen potilaan kehonkuva heijastelee vaikeuksia siinä, kuinka on suhteessa itseensä ja kuinka on osallisena vuorovaikutuksessa toisten kanssa. Kehonkuvan alku- ja jälkimittaukset osoittivat, että 12 x 90 min TLT-ryhmäjakso tuotti masennuspotilaille myönteisiä muutoksia kehonkuvaan. TLT-ryhmäjakso vähensi myös masennusoireilua. TLT-ryhmäjakson ja tavanomaisen hoidon vaikutusta vertaillaessa efektikoot vaihtelivat $d = 0.60 - 0.97$, riippuen mittausvälineestä (BDI, HADS, SCL-90, CORE-OM). Suotuisampi muutos tapahtui TLT-ryhmiin osallistuneille. Tämän väitöskirjatutkimuksen tulokset osoittavat, että TLT on hyödyllinen hoitomuoto masennuksesta kärsiville potilaille. Yksilölle TLT tarjoaa keinoja luoda, vahvistaa ja ylläpitää riittävää turvallisuuden tunnetta omassa läsnäolossa ja toiminnassa, sekä kehittää joustavuutta siinä, miten tilanteisiin vastaa omalla toiminnallaan. Tämä tutkimus kuvaa mahdollisuuksia käyttää liikettä ja tanssia vuorovaikutusprosessissa, joka tukee potilaan hyvinvoinnin vahvistumista.

Asiasanat: tanssi-liiketerapia, kehonkuva, masennus, ryhmäterapia, psykiatrinen avohoito

PREFACE

My interest in body image begun during my Dance Movement Therapy Master's studies during 1997-1999 in Philadelphia, at MCP Hahnemann/Drexel University Creative Arts in Therapy program. Having studied DMT for a year in Finland - the very first Finnish DMT basic course at the Theatre Academy continuing education center - and having danced since I was a child, it deeply annoyed me to face the implication, that an *image* should be so relevant for a person's well being. As if one's reflection in a mirror or the images in photos would be so essential that improving body image would be a valuable therapeutic goal and a desirable therapeutic outcome. In common sense it is understandable, that feeling content with what you see in the mirror is better than feeling discontent with it, but it did not make sense to me, that just seeing the body's image would be so crucial. My experiential knowledge, and the readings on non-verbal communication, developmental psychology, attachment and relational theories pointed to a much richer, deeper, and multi-sensory connectedness to one's own body and between the bodies we encounter in daily life. So, in my Master's Thesis I took up this topic, went back to study Schilder, the father of the concept of body image. I found out, that he actually was talking about a much richer sphere of experiences that link ourselves to the body, than just a mere image. Needing to clarify what he was describing, I organized the concept in to the tri-partite model of body image. That has been one important source for this dissertation project.

The years of clinical practice as a psychologist and a dance movement therapist have strengthened my understanding that safety in moving, safety in space, and safety in relationships are essential. I want to thank my patients for the collaboration, which has shaped this understanding. I thank Tampere City Mental Health Services, i.e. my bosses Päivi Kiviniemi, Ulla Ilveskoski, and Eija Stengård, and the colleagues over the years, for welcoming DMT in the clinical practice. The learnings in dance and movement have been an essential backbone in my work: I want to thank my dance teachers, particularly Tarja Sara, Elwa Molin, Leena Gustafson, Marcia Plevin (authentic movement), Yoshito Ohno (butoh), and Osku Leinonen (butoh and qigong). In learning about dance, with you I also learnt about being in life and expressing one-self in life. Collaborating with my Finnish DMT colleagues has been inspiring, and has given me boost to complete this long project. I thank my parents, my family, and my friends. The gentleness and support in life comes often in unexpected ways, and they do stay with you. In the body.

Dissertation is a project of several years. Thank you for taking on with this, going through and staying along, my team of supervisors, Raimo Lappalainen, Vicky Karkou, and Sabine Koch. And with Sabine, I think warmly of our shared DMT roots at Hahnemann/Drexel University in Philadelphia.

Tampere 08.06.2018
Päivi Pylvänäinen

LIST OF ORIGINAL PUBLICATIONS

- I Pylvänäinen, P. (2010). The dance/movement therapy group in a psychiatric outpatient clinic: Explorations in body image and interaction. *Body, Movement and Dance in Psychotherapy*, 5, 219–230.
- II 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.
- III 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.
- IV Pylvänäinen, P. & Lappalainen, R. (2018). Change in body image among depressed adult outpatients after a dance movement therapy group treatment. *Arts in Psychotherapy*, 59, 34–45.

The author of this thesis is the first author of all the articles. She created the study design, formulated the research questions, the tri-partite model of body image, and the related Body Image Assessment. She structured the treatment interventions and was the facilitator of the DMT-groups. She collected the data and did the analyses. In study III the collaboration with M. Muotka focused on statistical analysis with MPlus. R. Lappalainen contributed quality check for the statistical analyses and provided critical comments, which aided in communicating the findings more clearly.

This research was supported by the Department of Psychology, University of Jyväskylä, with a 3-month study grant in 1.1.-31.3.2015.

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ABBREVIATIONS

ACC	anterior cingulate cortex
BDI	Beck Depression Inventory
BIA	Body Image Assessment
CADS	complex adaptive dynamic system
CBT	cognitive behavioral therapy
CORE-OM	Clinical Outcomes in Routine Evaluation – Outcome Measure
EADMT	European Association Dance Movement Therapy
HADS	Hospital Anxiety and Depression Scale
ICD-10	International Statistical Classification of Diseases and Related Health Problems
DMT	dance movement therapy
KELA	Kansaneläkelaitos/ National Social Insurance Institution
MUS	medically unexplained symptoms
SCL-90	Symptoms Check List -90
TAU	treatment as usual
WHO	World Health Organization

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TIIVISTELMÄ (FINNISH ABSTRACT)

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1 INTRODUCTION

This is the first dissertation in Finland related to Dance Movement Therapy (DMT) and to treating depression with DMT. Dance Movement Therapy is a creative form of therapy which uses movement and various practices of dance in an interactional process, which aims to support the client's or patient's well-being and his/her coping with the issues that are identified as the reasons for the person to seek therapy (EADMT, 2017; Cappello, 2009; Meekums, 2002).

DMT practice in Finland has developed gradually. The earliest explorations of applying dance therapeutically appeared in the 1960's. First DMT courses in Finland became available in the mid 1990's. By the end of the decade DMT was offered as one specialization in the Bachelor in Social Services training in North Carelian Municipal Training Consortium. By the beginning 2000's, providing DMT training as a professional specialization for professionals from the suitable fields of social and health care, culture and education professionals, had started in the Continuing Education Center of the Theatre Academy. At the present, the structure for DMT training consists of one year basic course and a 3-year specializing training. The Theatre Academy (Helsinki) via its continuing education sections and Eino Roiha Institute (Jyväskylä) have provided these programs. Finnish DMT training echoes the DMT programs in the Netherlands, the US (Philadelphia), the UK, and Sweden. DMT in Finland is based on the basic DMT tradition of expressive dance, developmental movement, Laban Movement Analysis, movement interaction, and creativity. In Finland the DMT training has been informed by attachment and object relations theories, trauma therapy, and cognitive psychotherapy. The tools for body and movement work have been strengthened by kinesiology and anatomy studies and by particular movement practices such as Feldenkreis and Authentic Movement. The Finnish Dance Therapy Association was founded in 2000 as a professional association for dance movement therapists. It currently has approximately 120 members.

This study explores the treatment of depression from the perspective of DMT. It scrutinises clinical work, perceiving the human situatedness in an interacting and responsive body. Starting with the concept of embodiment, the

symptoms of depression appear in a new light, which offers a new perspective to the treatment of depression. The goal is to present to the reader, why and how embodiment is so crucial in human being and in depression, and how embodiment and depression can be addressed in DMT.

1.1 Embodiment

Embodiment as a concept takes the attention to human embeddedness in a sensing, responding, and active body (Aphosyan, 1999; Foolen, 2012; Tschacher & Bergomi, 2011; Ziemke, 2016). This is quite a fundamental notion. When this recognition is the base for observations and thinking of the humans, the view of human beings is shaped differently than when embodiment is ignored. In this study, embodiment sets the epistemological and ontological starting point for the work.

Embodiment begins already during the prenatal development. The development of the embryo is created from a nourishing mother's body, by the genetic information inherent in the embryo's material and by the sensory stimulation that is available in the womb. For the newborn, this creates the embodied predisposition for functioning in the world.

Essentially, the interaction with the environment and others is sensory and emotional (Foolen, 2012; Frank & La Barre, 2011; Stern, 1985). The input from the external environment is captured by the body – tactile, kinetic, olfactory, auditory, and visual sensory information. The responses are created by the body – tensions, release, different kinds of breathing, opening towards, withdrawing, reaching, grasping, pulling and pushing, smiling, crying, sounding. These physical responses begin to build the relatedness to the environment, shaping the neuronal patterns, constructing the repertoire of expectations and actions.

In neurosciences the Hebbian theory proposes that "the neurons that fire together wire together" (Cozolino, 2002). Hebbian theory explains the plasticity of the brain, i.e. the brain's ability to shape itself by its responses. Also, it explains how connections once learnt continue to have an impact on the activity and responses the individual produces. Bucci (2011) proposes that a human being is a multi-format information processor. The information has two basic formats: symbolic and subsymbolic. Both of these can function within or outside awareness, incorporating both non-verbal and verbal components. When considering embodiment, also in adulthood, the subsymbolic system is one way to comprehend the characteristics of embodiment:

"Technically, subsymbolic processing, distinguishing it from symbolic forms, is the continuous flow; the felt similarities and relationships are known through patterning and analogy rather than generated from discrete elements. Subsymbolic systems operate in sensory, motoric and somatic systems, as sounds, smells, feelings of many different sorts. They contribute to verbal processing as well, in forms such as prosody, speech rhythm patterns and modulation of intensity and pitch" (Bucci, 2011, 211).

Thus, embodiment is subsymbolic information processing in the body, according to the learnt patterns. Based on research on affective neuroscience, embodied communication, and cognitive science, Bucci (2011) outlines a model of a recursive sequence of events in the embodied information processing. There is perception (action mirroring), activation of motoric and emotion circuitry, anticipating the action of the other, preparing a response and anticipating the consequences of alternative responses. The repetition of these sequences from the beginning of life shape the individual's response patterns, which hold the representation of one-self in relation to one's interpersonal world. It is embodied. The representation may include symbolic and verbal contents as well, but its core and essence are embodied.

Embodiment is a phenomenon within everyday experiences. The study of embodiment refers to understanding of the role of an individual's own body in its everyday, situated cognition; how persons' subjective, felt experiences of their bodies in action provide the fundamental grounding for human behavior, cognition, and language (Gibbs, 2005). Observing and consciously recognizing movement and embodied sensations can be a challenging task, as they are transient but yet constantly present in human existence (Moore & Yamamoto, 2012). It appears, that humans collectively and individually are often poorly conscious about the body's role in perceptions, responses, and interactions. Often, what is described as unconscious in human behavior (Schoore, 2012), is actually body responses and implicit, procedural memory impacting the behavior. Movement can be seen as our "royal road to the unconscious" (Penfield, 2006). Bodily responses and movement patterns are phenomena, which allow explicit presentation of that what we have not yet reached consciousness of.

We essentially perceive our body via internal, kinesthetic proprioception. For our development, we need interactional movement, responses, and feedback from the other and from the environment. Attachment theory, initially developed by Bowlby and Ainsworth, has recognized the quality of the interaction between the child and the caregiver to be the central phenomenon, which shapes the relational patterns the child begins to learn (Schoore, 2000; Slade, 2014). The security vs. insecurity in the ways of relating are embodied. Especially, to reflect on our emotional, responsive and interactional body-self, we need other human beings. It is in the interaction, where we develop and discover what we are and can be.

From the perspective of systems theory, which is one of the foundations of embodied cognition, the human body can be perceived as Complex Adaptive Dynamic System, CADS (Claxton, 2015). A system is a constellation of subsystems. Its processes are in constant interaction and reciprocal shaping. Considering humans, whatever the level of the subsystem is, ranging from cells to whole bodies of the persons to nations, the boundaries between subsystems, are sites of vital interaction. Claxton (2015) points out, that from systems perspective, human body is not a noun, it is a verb. It is constantly in interaction with its context. "The coherence of bodily structure and behaviour reflects the constant

internal resonance of all their ingredients with each other – and with the wider set of Systems within which they are embedded” (Claxton, 2015, 55).

1.2 Depression

In Finland, 5% of the population suffers from depression yearly (Käypähoito, 2016). According to the National Institute of Health and Welfare (THL), every fifth Finn gets depression during the lifetime, and for half of them, it becomes recurrent, at least once. In Finland, in 2015, there were 51 072 patients treated for depression in specialized health care, i.e. in psychiatry (THL, 2017) for depression (F32 in the ICD-10, International Statistical Classification of Diseases and Related Health Problems) or recurrent depression (F33 in the ICD-10). Mild depression is typically treated in primary health care, and those cases are not included in these statistics of psychiatry. Considering that the depressed persons’ relatives, friends, and colleagues may also encounter the ramifications of depression, there is a substantial group of people, who is influenced by depression every year. Depression as a major psychiatric diagnosis is a cause of early retirement with a frequency that is considered alarming and a substantial financial strain in the Finnish society. The statistics show that the mental health reasons, including depression, have been the main cause for the work disability pension since the 2000 in Finland (Findikaattori, 2018). At the same time, the statistics show the levels double in the use of antidepressants (Kalliokoski, Voipio, & Ruokoniemi, 2015). Approximately half of the adult population engages in physical activity for 1.5 hrs per week, and the habit of commuting by physical exercise (biking, walking) has been decreasing. Thus there is a large portion of population for whom physical activity is not part of their daily life (THL, 2015). The studies on the use of physical exercise in the treatment of depression have shown it as effective as medication and psychological therapies (Herring, Pruetz, O’Connor, & Dishman, 2012; Rimer et al., 2012).

Efforts to improve the treatment of depression have been made: the treatment of depression has been given more resources in the primary health care, and a special project (MASTO-project) was carried out in 2008-2011 to improve the handling of depressed patients in the health care and to clarify the procedures and benefits the employers and the National Social Insurance Institution (KELA) can offer to support the rehabilitation of a depressed patient. In the cases of moderate or severe depression the patient frequently requires treatment at the level of specialized health care: the public outpatient psychiatric clinics, day hospital units and inpatient periods at the psychiatric units of hospitals. Those patients who can benefit from psychotherapy can apply for 1-2 years of psychotherapy, which expenses are substituted by KELA. The choice of psychotherapy forms reimbursed by KELA is limited to psychoanalytic, cognitive-behavioral, and family therapy. Art therapy and music therapy are also available options with expenses substituted by KELA, but not DMT.

Currently in Finland, the Current Care Guidelines for depression (Käypähoito, 2016) include the combination of psychopharmacological medication and counseling or psychotherapy. It is acknowledged that physical exercise can be beneficial, but cannot act as a substitute for medication and therapy. Treatment programs at inpatient hospital units, day hospitals, and outpatient psychiatric clinics may provide some physical activity and/or psycho-physical physiotherapy, sometimes DMT is also used.

Interestingly, in the 1600's, in the earliest descriptions of illness, which later became named depression, a set of symptoms was presented: 1) fatigue, 2) mild anxiety, 3) low mood, anhedonia, 4) somatic complaints and 5) obsessive thoughts (Shorter, 2013). The same set of symptoms is common today as well. In the early days the symptoms were understood as a problem of nerves. The struggle to understand the reasons for these symptoms and their cure continues. It has been challenging to find fully satisfying treatment options for depression, particularly for the most severe type, major depressive disorder (Kupfer, Frank, & Phillips, 2012).

The Finnish Current Care Guidelines perceive depression as a bio-psycho-social disorder. The present study recognizes the lived and experienced phenomena of the biology of the human body, and builds on the embodied nature of psychological and social phenomena. This study holds a view that depression is a state of systemic distress and it usually involves an experience of a loss of agency and reduced energy level. This produces the identified symptoms of depression: low mood, loss of interest and enjoyment, anxiety, disturbed sleep and appetite, feelings of guilt or low self-appreciation, and also medically unexplained somatic symptoms (WHO, 2012; ICD-10, 2016).

1.2.1 Neuroscientific findings on depression

Neuroscientific studies on depression and the patterns of neurological functioning and networking that relate to depression offer one Complex Adaptive Dynamic Systems (CADS) perspective on persons suffering from depression. Punkanen (2011) presents a summary of recent findings on the neurological phenomena that have been found relating to depression. By neuroimaging techniques, it has been discovered, that in the brain of a depressed person, it is typical that there is an increased activity of limbic brain regions and in the Anterior Cingulate Cortex (ACC). Also, there is decreased connectivity between limbic regions and ACC during negative emotional stimuli. There is asymmetry, i.e. unbalanced activity in the frontal lobes of the right and left frontal hemisphere. EEG-studies have shown that in the brain of a depressed person, there is hypoactivation of the left frontal lobe and hyperactivation of the right frontal lobe.

To what functions do these brain areas relate to? Limbic brain channels sensory information coming to the brain and it is essential in processing emotional information. Limbic brain (amygdala and hippocampus) is connected to the anterior cingulate and Orbitofrontal cortex (Ofc), which together create the brain areas that are called the social brain (Cozolino, 2002). Thus, in the depressed person's brain, there are depression-typical functional patterns in the

social brain. There is increased activity in the limbic brain and anterior cingulate - metaphorically speaking there is stress or pressure. Anterior cingulate is an association area of visceral, motor, tactile, autonomic, and emotional information. Anterior cingulate is involved with attention, reward-based learning, maternal behavior (nurturing, care), and autonomic arousal (Cozolino, 2002). It is known, that when handling negative stimuli, the depressed person's brain has a lack of connectivity between the limbic brain, that detects threat and safety and is involved with the initiation of the stress response, and anterior cingulate, which is involved with the autonomic arousal, attention and maternal behavior, which could be offering options for responding.

Also, in the brain of a depressed person the asymmetry in the activity between right and left frontal lobes may relate to lack of connectivity between them. The right hemisphere is involved with processing information in a global way, closely connected to the limbic system and information stemming from the body (Schoore, 2012). The left hemisphere is less connected to the direct body-information and more involved with processing information via language related functions. Essentially, the task of the left hemisphere is to synthesize information and produce a coherent narrative of it (Cozolino, 2002). Left hemisphere does not have information on which to build the narrative, if there is poor connectivity to the right hemisphere, which would provide the essential information about the state of the body and sensory systems.

Regarding the limbic system, Cozolino (2002) discusses also the interaction between amygdala and hippocampus. Amygdala is an old, primitive - or rather, primary - brain structure that develops early and is available already at birth. Hippocampus matures more slowly, and its cortical-hippocampal connections myelinate till late adolescence. Hippocampus is vital for conscious, logical, and cooperative social functioning. Amygdala is involved in the emotional and somatic organization of an experience. Amygdala is geared toward right hemispheric and down systems in the brain. Hippocampus is biased toward left and up systems in the brain. For an individual to function well, the proper functioning of amygdala and hippocampus and their mutual regulation is needed. In depression, however, there is decreased density or volume of the hippocampus. Hölzel et al. propose the following perspectives for decreased volume of the hippocampus:

... "neuronal loss through chronic hypercortisolemia, glial cell loss, stress-induced reduction in neurotrophic factors, or stress-induced reduction in neurogenesis may contribute to this (Sheline, 2000). Furthermore, smaller hippocampi have also been shown to constitute a risk factor for the development of stress-related psychopathology (Gilbertson et al., 2002). However, the hippocampus is a region well known for its ability to remodel synapses and generate new neurons (Gage, 2002), and volume loss in this region seems to be reversible (Gould et al., 2000; Jacobs et al., 2000)" (Hölzel et al., 2011, 40-41).

An interesting perspective to the decreased hippocampal volume is also the question, whether the lack of connectivity to the "right and down" systems, i.e. those neuronal systems that process sensory information in and from the body,

feeds to a situation, where the hippocampus eventually receives less information to process, and consequently becomes decreased in volume.

Hözel et al. (2011) refer also to stress as one possible reason for the malfunctions that have been discovered to be associated with the brains of depressed persons. Stress causes the individual to reduce attention to internal information and focus on the external information instead (Cloninger, 2004; Fogel, 2013). According to Fogel (2013), the interoceptive information, i.e. information about internal sensations in the body and arousal are transmitted in the nervous system through the non-myelinated axons and thus the transmission of information is slower. The information from the external environment and from the proprioceptive system (stretching of muscles and ligaments, balance, movement coordination) travels through a fast lane in the spinal cord and is thus dominating. This phenomenon may be one factor that enhances the lack of connectivity between the right and left hemisphere of the brain, and the limbic system and anterior cingulate, when the individual encounters stress. Interestingly, neuroimaging studies have shown, depressed persons' brain activation presents difficulty in segregating emotional processing from cognitive and sensorimotor processing (Epstein et al., 2010).

Studies have also shown, that depressed patients have disturbed autonomous nervous system arousal patterns, particularly apparent in the heart rate and heart rate variability (Birkhofer, Schmidt, & Förstl, 2005; Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Shinba, 2014;). Heart rate has multiple determinants: present somatic activity, mental effort, emotional arousal, and/or orientation to stimuli. Heart rate is an index of sympathetic and parasympathetic arousal. The abnormalities in the autonomous nervous system arousal in depressed patients may be linked to the acquired stress response patterns and to social coping styles. There is evidence linking emotion suppression to more negative affect and sympathetic autonomous nervous system arousal (Campbell-Sills et al., 2006). For recuperation after arousal, the activation of the parasympathetic system and calming and restoring activity in the body and nervous system would be needed.

The brain has a particular set of activation when at rest from demanding cognitive tasks, and this mode of activation has been identified as default system. Affective neuroscience studies have found out, that the default system is activated in tasks related to the formation of self-representation and self-projections, i.e. mentally imagining one-self to the future or to the past, and in recognizing one-self from the perspectives of others. It has been found out, that patients with depression have abnormalities in the resting state activation of the brain. Messina, Bianco, Cusinato, Calvo, et. Sambin (2016) discuss this abnormal functioning of default system in depressed patients and connect it with the shaping of the attachment style during early childhood. They propose that the representations formed in early interactions resonate in the brain functioning. Also, they see this as relevant to the emotion regulation skills a person has.

1.2.2 Relational problems and depression

There are research findings showing that persons with depression have experienced stress, particularly familial and relational stress. Kuhlman (2013) studied 51 depressed persons and their marital couples in a couple therapy context. At the start of the study the participants' marital satisfaction was measured by Dyadic Adjustment Scale (DAS). The score 95 was taken to indicate marital dissatisfaction. The mean DAS for the depressed patients' was 104 and for their spouses 108 (higher scores indicate more marital dissatisfaction). Participants had also experienced unemployment, the average time among the subjects was 2.25 months. On the average, their depression had lasted for 42 months at the start of the study.

Heikkinen (2014) studied patients suffering from severe mental health problems, collecting data on their life satisfaction. The total sample consisted of 87 participants and 63 of them had a diagnosis in a mood disorder range. In the whole sample 65% of the subjects were discontent with their occupational situation (the participants had low income level), 50% were discontent with the situation in their family of origin, 44% were dissatisfied with their current family situation and 17% were unsatisfied with their social relations. The majority of the participants were living alone (64%).

In earlier, international studies (Andrews & Thomson, 2009; Kendler et al., 1999; Major et al., 1997) there have been findings that depressive symptoms are often present in relational problems, and depression is more severe, if there is a conflict between people close to each other. The risk of severe depression is increased, if the person has recently experienced severe marital or relational problems, has divorced, had conflicts with close ones or friends, or has been assaulted physically. A conflict between persons, that earlier had been in a collaborative and mutually supportive relationship, causes more depressive symptoms.

Depression has been linked to underactivation of the approach system and the loss of perception of intensives (Carver, 2001). Hayes et al. (2004) found that higher levels of experiential avoidance were associated with higher levels of general psychopathology, depression, anxiety, a variety of specific fears, trauma, and a lower quality of life. Experiential avoidance refers to unwillingness to experience negatively evaluated feelings, physical sensations, and thoughts. These characteristics can be understood as behavioral patterns that are produced by the difficult social and interactional situations, and by neurological characteristics discussed in the section 1.2.1. At the same time, these behavioral patterns enhance such neurological characteristics.

Behavioral patterns appear also on the basis of the attachment style the individual has acquired through his/her interactional experiences. Research indicates that insecure, i.e. avoidant/dismissing or ambivalent/anxious/preoccupied attachment style characteristically can be observed in patients with depression (Siegel, 1999). Insecurity in the attachment style produces difficulties in behavioral self-regulation and also in interpersonal regulation (Mikulincer & Shaver, 2007; Schore, 2012). There are interesting research

findings on the emotional processing characteristic to patients with depression (see Punkanen, 2011). Discoveries include negative attentional bias in recognizing facial emotions, whether the stimulus faces are emotionally neutral, sad, happy, or subtly changing; more negative interpretation of prosodic information than in healthy controls; significantly fewer happy facial expressions when observing a film; prolonged involuntary processing of negative emotional information; and rumination of negative emotional material. These characteristics of emotional information processing match with the insecure attachment environment and stress.

1.2.3 Depression in the view of phenomenologically oriented psychiatry

In the Finnish discourse on mental health and psychiatry, phenomenologically oriented psychiatry is less known. However, for clinical practice, phenomenologically oriented psychiatry offers insightful views, which can provide a valuable perspective. It perceives depression (melancholia) as a unitary phenomenon that transforms and deforms all dimensions of experience in a coherent way. This touches the individual's experience of embodiment and intersubjectivity. Micali for example proposes, that

“regarding the disturbances of embodiment in melancholia, it is possible to introduce a distinction of three different dimensions: a) disturbances mainly concerning the relation of the body with the surrounding environment; b) disorders mainly related to the way in which the body feels itself, c) disturbances mainly concerning the relation between my body and the other's body (intersubjectivity). These dimensions are closely interdependent in experience” (Micali, 2013, 204).

Micali (2013.) describes, that the feeling of the body in depression is distorted in the sense of gravity, namely there is a sense that everything appears to be heavy, falling down. There is trouble in unification of one's lived body, and a sense of a gap between one-self and one's own body. The melancholic person conceives his relation to the body in instrumental terms, not as a responsive nor affective living being, not in the context of a relationship. Micali also notes that people with the depression feel pains, and he has found it an emblematic characteristic that depressed persons feel pain in the upper part of the throat/chest and stomach.

In recognition that the body is the medium through which humans perceive and interact with the world, and our understanding of the world is based on the tacit, bodily knowledge of the world, the concept of corporealization signifies an alteration of the transparency and mediality of the lived body (Fuchs, 2005; Micali, 2013). Phenomenologically oriented psychiatry holds a view that in (severe) depression the corporealization is altered. The body is no longer a transparent, communicative site, but an obstacle and a block on the way between the individual and the environment. There is a withdrawal away from the external environment into the closed, subjective immanent sphere and a vanishing of intersubjective reciprocity in the encounter with the other (Micali, 2013; Ratcliffe, 2013). The body ceases to respond to the affordances of the sur-

rounding environment. Micali (2013) describes the person with depression identifying him/herself only with the void that is created in the middle of his existence, as he has lost the ability to feel him/herself, and thus there is nothing to activate the kinesthetic reactions and responses. Consequently the body becomes more rigid and heavier, which makes the individual less sensitive to the surrounding world. A spiral of diminishing affectability and weakening sense of self develops. Ratcliffe (2013) also makes a point that when a sense of interpersonal connection is gone from the experience, the world no longer incorporates the potential that would be inherent in the experience of the world. The network of others as a dynamic space of significant possibilities by virtue of our potential and actual relations with them ceases to have impact on the person's experience.

The value of this view on depression is that it brings together on the level of experience, what happens when the interactions with the environment are loaded with stress and insecure relating patterns. It offers a phenomenological description of the sense of self and world relations that are built when the complex system (CADS) is lacking integration of the brain networks, and lacking integration of the mind and body.

1.3 Body image

The mainstream of body image literature and research focuses on the question of the body dissatisfaction or satisfaction in normal population and in various pathologies, whether physical or psychiatric (Cash & Pruzinsky, 2002). However, there are broader and phenomenologically oriented approaches to body image, which make the concept more systemic (in the sense of complex adaptive dynamic systems) and involved with the lived body (Bermúdez et al., 1995; Gallagher, 2005, 2011; Koch et al., 2012; Sheets-Johnstone, 2009). Within this orientation to body image, the concept refers to the multilayered experiential totality we perceive within our body, about our body, and by our body. Historically, when Schilder began to study body image, he argued for a bio-psycho-social approach to body image and recognized the need to study its neurological, psychological, and sociocultural elements (Pruzinsky & Cash, 2002). The concept of body image has had an elusive nature in literature and research, as it has been perceived to address a range of phenomena and terms. Early body image research was struggling to clarify body schema, and proposed neural mechanism whereby changes in body posture and movement were centrally coordinated. For decades the study of body image evolved around questions about appearance satisfaction and appearance evaluation, body esteem and body concern. Now recently, a new focus on positive body image has emerged. Tylka & Wood-Barkalow (2015) posit positive body image is multifaceted, including body appreciation, body acceptance/love, conceptualizing beauty broadly, adaptive investment in appearance, inner positivity, and interpreting information in a body-protective manner.

The present work is built on a tri-partite model of body image, which initially is based on Schilder's (1950) view on body image. Body image consists of three elements: body-self, body memory, and image properties (Pylvänäinen, 2003). Body-self refers to the interacting body: how body is sensing and responding in a moment and how the individual experiences this. Body-self communicates and responds in a physical way, i.e. by movement, by gestures and postures, by tensions and releases, by activating or calming down in the present moment. Body-self responses are sensory-motor and often emotional. The features of emotional responding in a moment can be understood as expressions of body-self. The continuous connectedness to the body-self is essential for mental health (see also Lumsden, 2010).

Body-self actualizes the individual's relatedness to the internal and external environment in the present moment. Body-self shapes the responses in close connection to body memory. Body memory is procedural, sensory, and mostly implicit memory. Casey (1987) proposed the body memory holds three types of memories: habitual body memories, traumatic body memories, and erotic body memories, which relate to interactional memories of pleasure. Habitual body memory refers to the learnt movement patterns, schemas and skills, which build the base for the everyday functioning. Fuchs (2012; also Koch et al., 2013) has structured the body memory in a more detailed way and proposes a descriptive taxonomy with six forms of body memory:

- Habitual or procedural body memory: skill memory for motor processes
- Situational body memory: memory of the spatio-temporal situation
- Inter-corporeal body memory: bodily knowing of how to deal with others
- Incorporative body memory: socio-cultural habits and manners obtained by bodily imitation and identification
- Pain memory: the impact that painful experiences of the past continue to have to the present moment
- Traumatic memory: the impact psychologically traumatic experiences have on the present moment

Body memory functions by activating and simulating the past experiences in the body responses in the now, and to varying extent, in the consciousness. When body memory is activated, the past experience is echoed in the present body felt moment. Body memory is a dimension of the lived body, functioning as a continuous background for present, subjective experiences.

Image properties are the set of beliefs, attitudes, and values the individual associates with his/her body and its looks. These are culturally shaped and obtained in a social setting. These thoughts may elicit feelings towards the body, for example they can impact how much the person likes or values his/her bodily appearances. Image properties are typically easily described in words. In im-

age properties the body and its characteristics are viewed as something the person owns, can shape, and manipulate.

Body image, in those contents just described, contains the individual's relatedness to the physical/spatial and social environment. It portrays the body as a subject, the body as an object, and the body for others, i.e. an interactional and relating body, a body in togetherness. In the sphere of social relations, the attachment style, i.e. the secure or insecure response patterns and expectations, are ingrained in body image (Bentzen, 2015; Schachner, Shaver & Mikulincer, 2005). These patterns are embodied, learnt early in life and imprinted in communication, where the non-verbal content is central: gestures, gazes, touches, distances, the matching and mismatching of timing and movement qualities. Affordances, which refer to an individual's perception of possibilities for action provided by environment (Gibson, 1966; Rietveld 2008; Rietveld, 2013) are also essentially rooted in the body image. For example, when a person sees a door knob, there is a readiness in the hand to reach and shape around the knob, and to pull the door open. The door knob calls for some action. The physical and motor abilities in the body construct, how the person can relate to this potential in the external environment. The situation for the individual is quite different, if there is a door without a knob; if the joints in the person's hand are sore and moving is painful; if the hand is strong and flexible; if the individual feels secure or insecure in his/her body at the moment of taking the action; or if reaching for the door knob reminds him/her of a traumatic event.

Body image holds embodied behavioral and emotional patterns. The responses created in the present moment can influence how the patterns develop and how the individual perceives himself/herself in the present moment. Body feedback experiments show, that body-self responses create emotional states within the body. For example, Koch (2011) studied the kinesthetic movement feedback in normal, healthy individuals ($n = 66$), and found that participants perceive their emotional state differently depending on the movement rhythms (smooth or sharp rhythm) and movement shapes (approach or avoidance movement) they used in their behavior. Rhythms and movement shapes, whether indulgent or fighting, were linked to the affect system. Approach movements produced a more relaxed, peaceful affect independent of the rhythm quality. Avoidance movement made the participants feel more tense. In the task of assessing neutral stimuli (Chinese ideographs presented to non-Chinese speaking persons) the indulgent/smooth rhythm produced more positive assessment of the stimuli. The combinations of indulgent vs. fighting quality had an impact as well: a clashing combination of shape and rhythm (e.g. approach shape/indulgent combined with sharp rhythm/fighting) produced negative, aversive reactions and a congruent combination (e.g. approach movement, palm open and smooth rhythm) produced a positive affect. These experiments demonstrate how the concrete, identifiable qualities of movement response influence the quality of the experience of one-self and the external stimuli in the present moment. Body actions and body image are constantly in a

responsive, dynamic process with the environment. As long as the body is alive, the responding and motion never cease.

What is a healthy body image like? It is sufficiently integrated, it enables flexible and realistically responsive behavioral patterns, and it supports the experience of well-being, ability, and security. This is created in the interactional relating experiences with others and environment (Pylvänäinen, 2003; Sandel, Chaiklin & Lohn, 1993). Secure attachment promotes these qualities (Siegel, 1999).

1.3.1 Body image in depression

What is known about the characteristics of the body image of patients with depression? There is not much research on this topic. Fuchs & Schlimme (2009) recognize that the embodiment of depression has an impact on the prereflective, embodied sense of self, i.e. on body image and body-self in particular. Papadopoulos and Röhrich (2014) studied chronically depressed patients (n= 31) in the UK in a body psychotherapy context. Their study provides some description of the typical features of the depressed patients' bodily experience and response patterns. The patients with depression showed a poor body satisfaction and feelings of being detached and distant from own body. They found it difficult to be grounded, and were cut-off from experiences in their bodies. The depressed patients experienced high permeability in their body boundaries. 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 upper chest region. The core characteristic in their movement and bodily presence was bound flow. They felt fatigue and pains in the body. Michalak, Burg, & Heidenreich (2012) report a finding that depressed patients walk more slowly than healthy controls. In their walk, the persons with depression have smaller arm swings and have pronounced swaying, lateral movements of the upper body. The gait of depressed patients is characterized by a slumped posture and reduced vertical up-and-down movements of the upper body. Punkanen et al. (2017) report that in emotionally expressive motion, patients with depression move more slowly, use less acceleration, use less open postures, and move generally less than healthy controls.

The totality of body image holds an embodied, experiential, lived experience of the self and the body and the relatedness to the environment. The limitation of the descriptions just reviewed is, that they mostly present what can be observed of the body, posture, and movement by an external observer. They report about the visible characteristic movement patterns actualized by the body-self and accessed from the habitual body memory. How the depressed person experiences these patterns in him-/herself remains somewhat hidden; the few descriptive words on the experience were fatigue, pain, and feeling detached from the body.

1.3.2 Embodied mindfulness

Embodied mindfulness is a process to gain more conscious awareness of the body image contents. Mindfulness is a way for connecting with the base of experiencing, developing the skill to be more clearly aware of the present sensory contents and the responses they evoke in the body and mind. Mindfulness is a tool to develop the ability to be more connected of the right brain and low brain information. Mindfulness skills relate to observation skills, affect modulation, and stress-level management (Siegel, 2007). Mindfulness invites to develop awareness, sensing and observing with a non-demanding, neutral attitude (Kabat-Zinn, 2003). This essentially develops body awareness, which is needed for understanding one's responses to one's body. This provides the grounding of one's understanding of one's feelings and thought based interpretations of the situation (Grogan et al., 2014). Mindfulness is a skill of embracing the sensory responses with non-judgmental awareness and naming, thus creating an option for choice making regarding how to relate to these responses in one's internal environment (Odgen, 2010). Mindfulness promotes qualities of presence, which actually echo secure attachment related qualities of presence and action (see Fosha, 2010).

Originally, mindfulness essentially refers to introspective awareness of one's physical and psychological experiences (Keng et al., 2011). Framed in simple questions, this would refer to what you sense, what is the feeling, what is the emotion, what is the imagery, and what is the thought related to perceived experience (sensation). Developing mindfulness skills develops also the reflective skills and the inner observer (Adler, 2002; Weiss, 2009). The inner observer can be strengthened by directing it at something to observe. The sensory system offers a constant flow of perception, and the body action, i.e. breathing, posture, and movement create a clear flow of events to observe. The best way to start to develop mindfulness is to engage the body and to develop breath awareness.

Michalak et al. (2012) present a summary of the reasons, why body is relevant in mindfulness:

- The body functions as an anchor of mindfulness.
- Mindfulness of one's emotional bodily responses supports early detection of one's emotion.
- Intuitive insight into the interplay between the body and emotional processes enables better tracking.
- Mindful body-awareness functions as an antidote to emotional avoidance (quit rumination, separate from identification with thoughts/emotions, reduce avoidance behaviors).
- Embodied compassion and the body as the place of bliss (comfort, compassion towards one-self).
- Contact with organismic needs and limits (hunger, thirst, tiredness etc.).

- More vivid contact with the other persons in interactions (better tracking, responsiveness).

The health benefits of mindfulness have been reported in several studies. Keng et al. (2011) present a review article on the effects of mindfulness on psychological health and provide an extensive array of studies showing the benefits of mindfulness training and gained mindfulness trait. Depression, anxiety, stress, anger, and rumination are reduced; emotional regulation, cognitive flexibility, and attentional functioning are improved. An accepting attitude towards internal experiences, gained by mindfulness training, supports the recovery from dysthymic mood and eases the level of emotional reactivity to aversive stimuli.

Naturally, mindfulness can also be applied in the context of interaction and relationships, and in therapy relationship context in particular. Horst et al. (2013) studied the experience of mindfulness practice in psychotherapy by interviewing five therapist-client dyads, which applied mindfulness practices in the therapy process. The patients were suffering from depression, anxiety, relational problems, and stress. Mindfulness exercises - breathing meditation and body-scan - were a shared activity in the therapy session. The client and the therapist discussed the exercises together before doing them, interacted together in doing the exercise and reflected together on the experience after the exercise. They valued this sharing and togetherness in the session, and found it helpful in transitions, in focusing on the therapy. Mindfulness exercises supported slowing down, calming, and working in a thoughtful way in the therapy. The use of mindfulness exercises was more fluent, if the therapist was engaged in practicing mindfulness and was familiar with the approach.

In the field of therapy, mindfulness has been applied in mindfulness based stress reduction (MBSR), in mindfulness based cognitive therapy (MBCT), dialectic behavioral therapy (DBT) and acceptance and commitment therapy (ACT). In dance movement therapy (DMT) mindfulness, i.e. being attentive of the body sensations and breath, and describing the experiences in a non-judgmental and observant way, is an essential element in how the therapist approaches the interaction and how the patient and his/her bodily responses are received. In DMT, however, the array of movement activities is much richer compared to what is used in mindfulness based therapies rooted in the cognitive behavioral psychotherapies.

1.4 Dance movement therapy (DMT) in the treatment of depression

The joint exploration of physical action, mindfulness, and social interaction creates an integrative and interactive creative space, that enables the understanding of oneself and the development of better ways of coping. DMT integrates

the physical, emotional, cognitive, and social aspects in the treatment (Chaiklin and Wengrower, 2009; Meekums, 2002; Payne, 2006; Stanton-Jones, 1992). To clarify the contribution of each, here are the three key topics:

- Physical action – how to use body, how the body moves, connect with the core of self; presence and agency, creativity
- Social interaction – trust, actual space, real responses, expectations, attachment styles, communication, attunement; environment
- Mindfulness – how you use your awareness and cognition; connectedness with inner observer, connectedness with the lived body; embodiment

The focus in DMT is partly in engaging with movement, getting concretely involved in movement activity in the here and now. The other locus of activity is to be attentive to the movement experiences and to develop the skills to be conscious and reflective of them and to communicate about them in words. The relevant effective elements in DMT are the engagement of moving body, creativity, the development of body awareness and mindfulness, and the verbal exploration of the movement experiences, which focuses on the qualities of the experience. This makes the dialogue to unfold the experience more from the perspective of the right hemispheric contents, and this enables the patient to connect with the emotional core of his/her experience. The discussion about the movement experiences fosters interhemispheric connectedness.

DMT is also known as dance therapy, movement therapy, dance movement psychotherapy, movement psychotherapy, dance/movement therapy or dance-movement therapy (Meekums, Karkou, & Nelson, 2015; Payne, Warnecke, Karkou, & Westland, 2016). DMT in the treatment of depression has been found helpful, but the amount of studies on the topic is not large. See Table 1, which summarises the studies on the use of DMT in the treatment of depression.

TABLE 1 Compilation of the research on the use of DMT in group format in the treatment of depression

Author	Title of publication	N	Age range	Context	Duration and frequency of DMT treatment	Control group activity	Outcome
Steward et al. 1994	Movement therapy with depressed inpatients; a randomized multiple single case design	12	adults	Inpatient psychiatric unit	2 weeks, every other day, total of 7 sessions	No CG	Depressive symptoms (DACL) reduced on the intervention days for 5 pts out of 12.
Jeong et al. 2005	Dance Movement Therapy improves emotional responses and modulates neurohormones in adolescents with mild depression.	40	Adolescents (mean age 16 yrs)	Students	12 weeks, 3 sessions per week, total of 36 sessions (n = 20)	No intervention (n= 20)	Negative psychological symptoms of distress had improved (BDI, SCL-90), plasma serotonin concentration increased, dopamine concentration decreased in the treatment group but not in the control group.
Koch et al. 2007	The joy of dance: specific effects of a single dance intervention on psychiatric patients with depression.	31	21-66 years	Clinical	One session, up-beat circle dance, 20 min (n = 11)	Home ergometer training or music (n = 20)	Depressive symptoms (HSI) alleviated more for DMT intervention participants compared to the music group or ergometer trainers. Vitality increased more immediately after the DMT intervention compared to music intervention.

TABLE 1 continued

Author	Title of publication	N	Age range	Context	Duration and frequency of DMT treatment	Control group activity	Outcome
Röhricht & al. * 2013	An exploratory randomized controlled trial of body psychotherapy for patients with chronic depression	31	35-59 years	Clinical; community mental health service users	10 weeks, 2 sessions per week, total 20 sessions (n = 16)	Treatment as usual in community psychiatric services (n =15)	At the end of treatment patients in the treatment group had significantly lower depressive symptom scores than the waiting group (mean difference 8.7, 95% confidence interval -0.71 to -16.76)
Punkanen et al. 2014	Emotions in motion: Short-term group form Dance/Movement Therapy in the treatment of depression: A pilot study.	21	18-60	Clinical; community mental health service users	10 weeks, 2 times a week, total of 20 sessions	No CG	BDI score decreased significantly from the pre- (M = 21.67, SD = 5.26) to post-measurement (M = 10.50, SD = 5.50), $t(17) = 10.40$, $p < .001$.

* Results from the same study are presented also in Papadopoulos & Röhricht (2014)

A Cochrane review of the effects of DMT on depression by Meekums, Karkou, & Nelson (2015) examined the effects of DMT for depression compared to no treatment or to standard care, to psychological interventions, drug treatment, or other physical interventions. Only three studies met the Cochrane review inclusion criteria, totaling 99 adult subjects and 40 teenager subjects. When the authors compared group DMT to standard treatment in adults with depression, DMT reduced symptoms of depression at follow-up measure, as indicated by clinical observation using the HAM-D. Due to low methodological quality of the studies and small sample size, the findings of the effectiveness of DMT could not be considered conclusive.

A meta-analysis of the effects of DMT and dance on health-related psychological outcomes included the evidence of 23 primary studies (Koch, Kunz, Lykou, & Cruz, 2014). The meta-analysis showed moderate effects for quality of life and for depression and anxiety.

In a Finnish study (Punkanen, Saarikallio, & Luck, 2014; Punkanen et al., 2017) DMT short-term group intervention produced a positive outcome, indicated by the statistically significant decrease in the BDI scores of the 21 participants. Assessed on the basis of their BDI scores mean, the participants' moderate depression alleviated to the level of normal mood.

In the treatment of depression, DMT can be identified as an option within non-pharmaceutical therapy to patients, who do not feel able or do not wish to focus exclusively on talking about their problems. The research on the use of DMT in the treatment of depression has consistently shown positive and encouraging results, but all the research has been done with small groups of subjects. The field needs more high quality research.

1.4.1 DMT methods in the treatment of depression

Zubala (2013) found in her dissertation "Arts therapies in the treatment of depression", that disconnection is an essential feature of depression. In arts therapy (DMT included as one of the modalities), the essential factors were *reconnecting* with 1) self, 2) others, and 3) environment. This aim also can cause anxiety and threat to the patient, and consequently it may evoke a tendency to retreat. In therapy it is essential to balance this. Engagement, in Zubala's study, was understood as increased awareness of one-self and the other. Engagement was found to be a positive change for depressed patients participating in arts group therapy.

Gentle physical exercise, music, the therapeutic relationship, the use of imagery, symbolism and metaphors, creativity and the use of non-verbal communication and kinaesthetic empathy in particular have been considered as the elements that enable the positive outcome of DMT for persons with depression (Meekums et al., 2015).

However, movement can be applied in multiple ways, and the methods of DMT are varied and diverse. Thus a relevant question is, what specific DMT methods have been found useful in the treatment of depression. Papadopoulos & Röhrlich (2014) report a successful use of manualised group body psycho-

therapy for depressive disorder. This manualised treatment consisted of 20 sessions, bi-weekly, and the flow through the process was structured to four phases: 1) creating a safe containing environment, 2) recognition, widening and diversifying the experience of emotion through movement and body experience and 3) physical and cognitive re-evaluation in respect of individual's life history (conflicts, developmental needs, traumatic experiences) and 4) closure and integration of the perceptive, emotional and cognitive aspects of depressive disorder. The components for the activities during these sessions were movement exercises and sensory awareness procedures that addressed self-awareness and psychomotor activity level; exploring of psycho-motor activity, enacting and transforming affective modulation; interventions focusing on bodily strength and capabilities, working against gravity; and body-oriented psychological work for processing individual life background and unmet needs in particular.

The group intervention for patients with depression presented by Puncanen et al. (2014; 2017) also consisted of 20 bi-weekly sessions, 60 minutes long. Each therapy session was structured with three phases: warm-up, thematic work, and closure. The main DMT methods were dance-movement improvisations, body awareness exercises, and reflection through drawing/painting, writing, and verbalization. There was orientation to personal space and body awareness, interaction in pairs, and interaction in the whole group. Each therapy session began with a brief verbal discussion about the theme of the session; participants reflected it through art picture selection and eventually in movement. The themes were chosen on the basis of earlier clinical experience with this population, and included exploration of boundaries, somatic resources (core and periphery of the body), symbols, pleasant and unpleasant emotions, mindfulness and body awareness, enriched movement experiences, and safety and touch.

Lin & Payne (2014) present a structured method, The Body Mind Approach, TBMA™, which is an application based on DMT and was used for the treatment of medically unexplained symptoms (MUS; a somatic symptom disorder in DSM-V). These patients frequently have also depression and anxiety symptoms. The rationale behind this treatment, which appeared beneficial in the pilot study, is that the MUS symptoms are produced by dissociation and conversion, as the patient cannot be sufficiently aware of some embodied, typically trauma related events in his/her life. The treatment consists of three phases: 1) connecting the body and mind through (gentle) physical activity and relaxation, 2) raising the level of awareness of the body, and of the inner and outer world by the application of authentic movement practice, and 3) finding explanation for the body symptoms as the patients are verbalizing their experiences through talking and writing in an interactional setting.

Depression and stress are often related in the individual's experience. Bräuninger (2014) found in her study that the improvement of quality of life and reduction of stress were related with the use of psychodynamic-oriented DMT, the Chace approach (shared, interactional movement improvisation in a circular formation; allowing the synchronization of rhythm, space, and Effort),

the combination of directive and non-directive leadership styles, and interpersonal closure. Also, those clients who performed dance improvisation, spatial synchrony, synchrony in Effort and who received focused treatment sessions during their participation in DMT, exhibited improved daily life and decreased somatization symptoms. 'Focused treatment sessions' refers to the dance therapist's choice to focus on specific themes, emotions, or associations elicited by the client or by the therapist's response to their interaction.

Even though this present study focuses on adult depressed patients, Bräuninger's study (2014^b) on the elderly is also relevant, as the elderly clients in various treatment settings and structured therapy activities often suffer from depression, anxiety, and suicidality. Dance movement therapists (n = 113) in Germany, Austria, and Switzerland responded to a survey on the use of DMT with the elderly population. Anxiety and depression were most frequently treated with improvisation, everyday movements, guided exercises focusing on grounding and breathing, Chace approach, and Circle Dances. Lack of energy was treated by developing body awareness and by focusing on a movement's quality rather than its quantity. Awareness exercises were considered also to lead to inner calmness, thus increasing energy levels. The limitation of this survey is that the usefulness of the intervention was only assessed by the therapists, as no data was collected from the participants.

All the interventions mentioned above were grounded on the basic DMT assumption, that body movement and psycho-emotional state are closely intertwined. Central features of a depressed condition are low energy level and fatigue, bound body posture, experience of easily permeable body boundaries and often pains in the body. Bräuninger (2014^b) reports dance movement therapists' practise-based understanding on what movement activities to use in order to address those aspects:

- *sense of body-boundaries*: visualization can encourage self-perception. Linking dysfunctional body parts to the rest of the body can create a sense of wholeness. It is therefore argued that focusing on the whole body helps to update self-image (body image) and strengthens the body boundaries.
- *increase energy level / sense of self-efficacy*: grounding exercises can provide security. Furthermore, deepening movement impulses can strengthen autonomy. As a result, Bräuninger (2014b) argues, creative dance and improvisation have the potential to expand personal skills and independence. Expressive movement work can support coping mechanisms. Using physical strength and resistance in a concrete and playful way enables expressions of power and constructive aggression, stimulating resilience in a positive way.
- *ease the body / release flow in the body*: activities such as self-massage can promote self-acceptance, while gradual movement flow can invite relaxation.

These practices were reported as useful with the elderly population.

These research findings up to date portray the rationale for a DMT method choices as multilayered. The choice always happens in the context of embodiment and the unique therapy process of each group (or individual). The levels for DMT intervention method choices can be perceived as body level, interactional level and meta level. The Figure 1 summarises these levels.

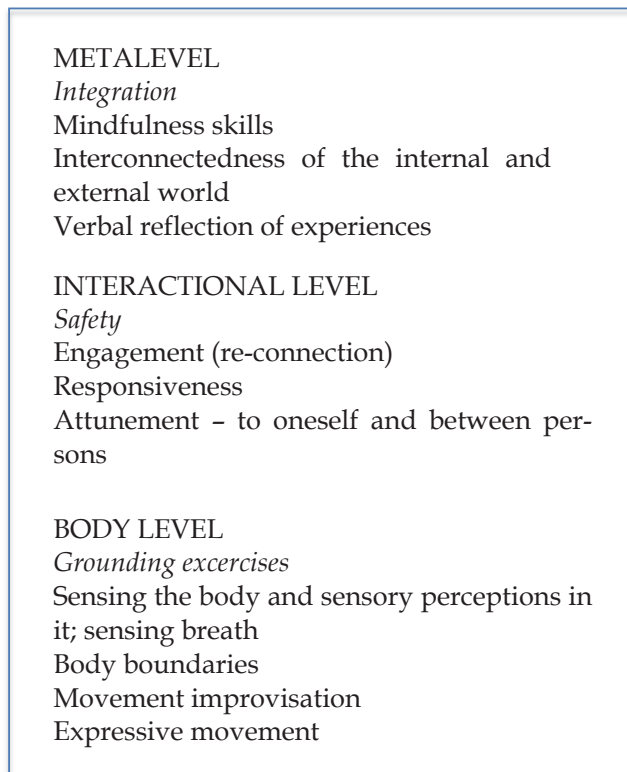


FIGURE 1 The level of rationale behind the chosen DMT method: Summary of the literature review on the DMT practice aiming at treating depression in the context of embodiment.

Even though DMT is frequently practiced in individual sessions (see Zubala & Karkou, 2015), all the studies found in the literature on the use of DMT in the treatment of patients with depression were applying DMT in group format. This may link to the reality that by case studies of individual therapy it is hard to present outcome results that are generalizable and carry strong validity in scientific view. Another reason behind this phenomenon can be that in practice, DMT is often provided in a group form. Dance originally has been a communal and social activity (Fralegih, 1987; Halprin, 2003; Hanna, 1987; LaMothe, 2015), which naturally emerged in interaction with others, in a group. When

practicing DMT in a group, the impact of the therapy is not only in the movement interventions or the therapist-client interactions, but it is the group that also influences the participants' experience and the outcomes of the therapy. In group therapy, the central therapeutic features include instillation of hope, universality, corrective recapitulation of primary family group, developing socialization techniques, and interpersonal learning in the social microcosmos that emerges in the group (Schmais, 1985; Yalom & Leszcz, 2005). DMT creates a setting where participants can gather around the movement practice, and can create a group that enables them to have an access to the therapeutic qualities of a group and to explore social connectivity while attending to the embodied experiences this environment elicits in them.

2 METHODS

2.1 Aims of the research

This research is practice-oriented therapy research. It was carried out by a clinician, in a clinical setting, and the questions that gave impetus to the study had their root in the practice of the treatment offered at a psychiatric outpatient clinic, in the treatment of depression, and in the practice of DMT. In general, very little of the clinical practice in health care has actually been explored by robust clinical study (Newell & Burnard, 2011). There are two characteristic approaches of practice oriented research, namely patient-focused research and practice-based evidence research (Castonguay, Barkham, Lutz, & McAlevey, 2013), and they are echoed in this study.

- Patient-focused research aims to produce knowledge for improvement of the actual treatment as implemented and to develop tools for achieving that task. The interest is at outcomes and the improvement of actual clinical practice. This often involves a focus on particular diagnostic subgroup.
- Practice-based evidence refers to rooting the research into actual clinical practice, and using the knowledge produced in that setting, to guide the treatment choices and organizational policies.

There is also a concept of evidence-based practice (Gilroy, 2006). Evidence-based practice is a political and social phenomenon, which origin and development is related to government policies in health services. It is characterised by a cycle of activities that seek to guarantee that interventions are effective and based on rigorous research and to make certain that services are delivered in the most efficient and economic way. Evidence-based practice evolves through many cycles of activities, beginning initially directly from clinical work, via systematic observations of particular phenomena, which then can be accompanied by development of associated theory. This should be followed by inductive,

small-scale research projects on the treatment/practice, and finally, on the basis of these, research with larger samples and more focused research questions can be conducted. This dissertation serves the early stages in the development of the evidence-based practice of DMT in the treatment of depression in Finland.

Both of patient-focused research and practice-based evidence have their primary focus on the patient. Even when the research assesses the therapist, the attention is at the therapist's efficacy in delivering the treatment and promoting positive change in the patient. This dissertation focuses on the experiences of the patient by studying patients' experiences of the DMT process, their expressions of their body image, and their own assessment of their mood.

Treatment efficacy is not the only relevant question. As depression has such a wide occurrence in the population, it is highly important to enrich the choices of effective treatments available to persons with depression. The health care system has to be able to offer deep understanding of the phenomenon of depression and to be able to respond to different kinds of treatment needs according to the individual, the severity of depression, and phase of depression recovery. This dissertation aims to contribute to these efforts. In a broader view, it is important, that research in mental health not only studies treatment outcome, but also contributes to understanding mental health problems and explores them in a social, cultural, and political context (Gilroy, 2006). Embodiment, taken as a base in this study, creates a view to social, cultural, and even political context of depression.

This dissertation brings into attention and under study a fairly new treatment method in Finland. DMT has been developing since the 1940's in the USA and Europe. In Finland it has been appearing since 1960's and it has been in the years of 2000 that the profession of DMT in Finland has been developing with increased volume. Research in DMT is much needed for the development of the method, for developing its applications in Finnish health care, and for developing the professional identity of dance movement therapists. Also, research on DMT is paramount to the profession's participation in the interdisciplinary dialogue in the fields of mental health, therapy, and psychiatry.

When body, moving, and human embodiment are approached from the perspective of DMT, the psychological, interactional, and emotional significance of body is acknowledged. Culturally, it is pertinent to begin to recognize and understand these aspects of embodiment, because they have great potential for supporting human well-being, development, and health. Collectively, with this information, the attitudes towards one's body could lead to more understanding, acceptance, and collaboration, which would encourage a more positive relationship to one-self. On a community level this information and these qualities in relating to one's body would be an essential support for mood and mental health – a cost-effective way to tackle the challenge of depression through an early intervention and supportive mental health attitudes. Thus, deepening our understanding of depression can also be useful in the preventive mental health work and in educating the general public on how to manage the risk factors of depression and to promote supportive everyday life habits and interactions.

2.2 Research questions

The general goal of this dissertation is to develop the understanding of the method of DMT in the treatment of depression. Specifically, this is done through the concept of body image: by exploring the concept theoretically and observing how body image is appearing in the movement experiences of the patients. The body image concept serves as a tool for organizing information and clarifying focus on the available literature and research material. Understanding the concept of body image builds the theoretical basis for understanding the changes DMT treatment may elicit in a patient.

Broadly speaking, this research evolves around the research questions of 1) what are the contents of the body image for the patients suffering from depression, and 2) what are the emergent themes in the DMT group process with patients with depression? Table 2 summarizes the research questions linked specifically to each substudy.

TABLE 2 The research questions of this dissertation.

Study	Title of the research	Research questions
1.	The dance/movement therapy group in a psychiatric outpatient clinic	A qualitative pilot study: In the therapist's observations, what are the general themes that emerge in DMT group processes with depressed patients?
2.	Body memory as a part of body image	Are the concepts of body image and body memory valid and applicable in studying the embodied experiences and DMT process experiences of the patients with depression?
3.	A dance movement therapy group for depressed adult outpatients in psychiatric care: Effects of the treatment	Does the DMT group treatment alleviate the symptoms of depression when quantitatively assessed by self-evaluation measurement tools?
4.	Change in body image among depressed adult outpatients after a dance movement therapy group treatment	What is the body image of patients with depression like and does the DMT treatment produce changes in their body image? What are the patients' experiences of the DMT group intervention? What features in the DMT interaction are relevant to their experience?

The Study 1 begun the work by seeking to capture the general themes that emerge in the DMT group processes with patients with depression. This was a stage of familiarizing with the phenomena through the observations the therapist had done while working with the DMT groups. The Study 2 utilized the concept of body image and sought to find out, how it appears in DMT group participants' experience. These two studies prepared the way for the Studies 3 and 4, where the research subjects, participating in DMT groups, provided data on their body image, symptom change, and feedback about the experience of the DMT group. The goal was to find out, with the same subjects, does the DMT

treatment alleviate the symptoms of depression, and how this is portrayed in their body image. The participants' personal experience of the DMT groups was studied in order to find out, what appears as relevant in the participants' experience, as this probably is shaping their change.

The root question underpinning this study has been, what is responsible for therapeutic change amongst the patients with depression participating in the DMT groups. This is a broad systemic question, and this study can provide answers, which are incomplete but still, the answers may help in developing better treatment for patients with depression.

2.3 Chrystallization

The choice of the research method is based on the research topic: a method that best contours the topic, is chosen (Berrol, 2004). The general research traditions of quantitative and qualitative research can be seen as traditions that can mutually enhance each other in mixed methods research. Mixed methods (Bergman, 2008), simply put, mean the combination of at least one qualitative and at least one quantitative component in a single research project, i.e. in this dissertation. Research can be interested in what happens, or interested in why something happens and how something happens, exploring the underlying events. Research can be utilizing *measurable, observable phenomena* to demonstrate the human experience. Research can seek to explore the internal *process* of experiencing via making it observable by some demonstrating tools. Berrol (2004) proposes the shared goal in research, regardless of the paradigm, is to enrich the body of knowledge by credible investigative research, through creative problem solving and discovery. In this dissertation, the researcher aims to make a productive blending of the arts of dance and therapy with science and to reach innovative ways of making sense and offering representation of the research topic. This dissertation pursues to offer thickly described, complexly rendered interpretations of meanings about a phenomenon (body image) and a particular group (outpatients with diagnosis of depression). More than one genre of writing is utilized in the substudies: theoretical analysis, narratives/vignettes and reporting.

Triangulation is a central aspect behind the use of mixed methods. Triangulation sets the different data sources and different methods of analyzing them as means for validity checking, for recognizing the differences in the construction of the experiences, and for finding complementary data (Hammersley, 2008). In this dissertation, the substudies serve the triangulation.

Triangulation in this dissertation is advised by the qualitative research method of crystallization (Ellingson, 2009). Chrystallization is a qualitative research method that acknowledges the embodied nature of knowledge, recognizes the interactive role of the researcher in the process of knowledge production, and aims to produce a thick description of the chosen phenomenon, covering it from different angles. Chrystallization was originally introduced by a social

scientist Laurel Richardson, and the method has been used in the fields of education, nursing, social work/human services, medicine, sociology, psychology, and the humanities. Chrystallization encourages the view that science and art are not separate opposites, but can be fruitfully integrated for the purpose of creating more understanding of humans, of ourselves, and the world. Truth is understood as partial, but at the same time, concrete, particular, and sensuous. Truth is constantly in creation in the interactions.

As this present study is involved with the body and body experience, chrystallization as a method fits the topic. In chrystallization, the body is not considered neutral. Ellingson (2009) in her introduction to chrystallization quotes Laurel Richardson: "Crystals are prisms that reflect externalities *and* refract within themselves, creating different colors, patterns, and arrays, casting off in different directions." She was using this description as means to describe the research method of chrystallization, but the same description applies to body. Body also reflects externalities and refracts within itself in its responses and the behavioral patterns that are shaped. Also, non-neutrality refers to the relatedness of body; there is no unmediated experience, bodies reflect the relations between the individual and the environment, and we socially construct our perceptions.

In this study, the central site of the data collection has been the setting of a DMT group, where the researcher has been a participant as a therapist. The participants/subjects have also been involved with their body and embodied responses, and the therapist-researcher and the participant subjects have produced verbal expressions of these experiences. This interactional situation created an embodied practice, which influenced the creation of the therapeutic experience, representations, and the responses to the DMT-group intervention; i.e. the outcome (Johnson, 2014). Chrystallization perceives knowledge production always as a mind/body/spirit enterprise; this is a key characteristic of this study as well.

2.4 Participants

All the substudies of this dissertation have their root in clinical, embodied DMT practice. The four studies were completed at the same public health care outpatient psychiatric clinic. The articles presented in this dissertation are based on interactions with a total of 74 adult patients, out of which 62 participated in and completed DMT groups during the years 2007-2013 at the psychiatric outpatient clinic. The age range of the participants was 21-61 years.

Study 1 explores the therapist's observations of the processes of five DMT groups with 33 patients. Study 2 describes the experiences gained from one DMT group process of eight patients. Study 3 presents data from 21 patients who participated in DMT groups, and 12 patients who were in a control group. Study 4 deepens the scope of study of the same 21 patients whose data as DMT group participants was presented in the Study 3. In these ten DMT groups, the-

re were 13 patients who dropped out from the group at the beginning or in the middle of the process. In the Study 1, in the first five groups, there were three patients who participated in several group periods.

All the patients participated in the DMT groups voluntarily. The subjects for the Studies 2-4 gave their written consent for participating in the research. For the Study 1 no consent from the patients was obtained, as the idea to study the group processes arose after the five therapy processes were completed. The therapist's notes of the therapy sessions had been written with the focus on facilitating the therapy process, not considering research intentions. Study 1 explores in retrospect the observations from the therapist's view and shares her theoretical and reflective understanding of the therapy processes. As no consent was obtained from the participants afterwards, particular attention is placed on keeping the patients' protected, and filtering the information, which could promote therapy work, through the therapist's experience.

2.5 DMT group treatment

The same therapist facilitated all the DMT groups this research is based on. There was no other dance movement therapist working at the clinic. The ground rules for the group facilitation were confidentiality, respect for the body and experience, and no harming of one-self or others. The basic principles the therapist followed in the 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

The DMT groups were not manualized, i.e. there was no definite pre-set task for each therapy session. However, as the facilitator was the same therapist in all the groups, the way of working and the selection of DMT techniques was similar through out the processes. She utilized the same session structure- and

themeplans she had used in the earlier groups, and modified them in accordance with the particularities of the present group, i.e. according to the themes and needs the group expressed in the session.

In Study 1 the group processes for five groups were 10 x 90 mins. In the Study 2 the group process was 15 x 90 mins. In the Studies 3 and 4, the group processes for four groups were 12 x 90 mins. The groups had their sessions once a week. The variations in the amount of sessions were due to the clinical practice. Initially the 10-sessions period was provided, but it began to seem short for the group process to evolve. Thus a longer 15-session group was offered. This was a good structure, but it was difficult to continuously actualize it in the time pressures of the clinic. A 12-sessions structure was a practical compromise.

On the average, in these ten DMT groups 7-8 patients started in a group and six patients completed it. The drop out rate was on the average 1, ranging from 0-3 patients. The number of sessions the patient was participating in the group was on the average 8/10, 13/15 and 11/12, when counting the participation of those patients who completed the group.

2.6 Data collection tools

Chrystallization promotes the use of various approaches to the topic. This research utilized qualitative and quantitative data collection tools as follows:

- Study 1: the therapist's notes of therapy processes
- Study 2: the therapist's notes and the patients' written feedback
- Study 3: the self-evaluation measurement tools
- Study 4: the body image assessment in a dialogue and written format, the patients' poems, and written feedback

The notes of the therapy processes were the central data source in the Study 1 and also relevant in Study 2. After the lived moments of a DMT group session, the responses in the practice have been stored in a verbal and written form. No videorecording was used in this research, because video was not part of the usual clinical practice. The therapist always wrote notes on the therapy process after each session. She described the group's activity and interaction, participants' responses, narratives and metaphors, her perceptions of the energy level and mood of the group.

The feedback was one data collection tool in the Studies 2 and 4. The feedback was requested by a questionnaire and the participants provided their reflections of the process in a written form. These texts are valuable, because they store the participants' experiences and their explicit expressions of their experience. This gives a voice to the participants and expresses their expectations of the therapy process, their meaning making, their challenges, and resolutions (McLeod, 2013). The feedback questions were:

- What were your main expectations of the DMT group?
- Did the DMT group meet your expectations?
- During the process, did something change in your experiences, your condition or in your relation to the group?
- What was important and meaningful in the group?
- What was difficult?
- What felt irrelevant?
- What was given too little space or attention in the group?
- Any other comments?

The poem was one more qualitative data collection tool in the Study 4. The poem was a home assignment between the second last and last DMT session. The participants were invited to write a poem with the following instruction: "In your own way, please write a poem of your own experiences in the DMT group; what was important and central for you." The poems were discussed and responded to in movement in the last therapy session.

Body Image Assessment (BIA), utilized in the Study 4, is a body image assessment tool based on the tri-partite model of body image (Pylvänäinen, 2003; 2010). Table 3 presents the BIA structure. BIA was developed during the years of this dissertation project in the clinical practice while seeking for efficient ways to gain an understanding of the patient's relationship to his/her body, his/her interactional characteristics and his/her body memory. The findings and understanding that emerged from the Studies 1 and 2 guided the structuring of BIA as well. The information BIA provides is relevant in understanding the patient's current situation, his/her problems, and the central needs and goals in the treatment. This is useful information in the patient's treatment in general, and in planning his/her participation in a DMT group in particular.

TABLE 3 Body Image Assessment (BIA) structure

	Question	Tri-partite model aspect
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

The application of BIA can happen in an interview dialogue with the patient or s/he can respond to the questions in writing. In a dialogue, with the interviewer's further questions, the responses are richer. When responding in writing, patients typically are shorter in their expressions. BIA responses can be analyzed both qualitatively and quantitatively. Quantitative analysis is based on the negativity-neutrality-positivity of a response, and it provides a score range from 0-2 for each of the questions A-D and a sumABCD score ranging from 0-8. The questions regarding body memory and the integrative evaluation of one's relationship to one's body were omitted from this scoring system. Body memory naturally contains positive and negative contents, and these contents change gradually over the years, thus scoring body memory contents by a negativity-positivity scale does not produce relevant information and change cannot be detected in short measurement intervals. Question G, "What is important for you in your body?", inquires about the person's beliefs and opinions, and specifically those, which the person finds important. This biases the responses towards positive contents, and thus the negativity-positivity scale is not applicable on it.

The Study 3 focused on research material from a quasi-experimental design (Kazdin, 2003) on 21 DMT participating subjects and 12 treatment-as-usual subjects, who replied to self-evaluation measurements three times: before the intervention, 12 weeks later i.e. after the intervention, and after 12 weeks follow-up period. *The self-evaluation measurements were:*

- BDI-II – Beck Depression Inventory II (depression), score range 0-63
- HADS – Hospital Anxiety and Depression Scale (depression and anxiety), total score range 0-42
- SCL-90 – Symptoms Check List- 90 (general psychiatric, physical and psychological symptoms); GSI (general severity index) was used and its range is 0-4
- CORE-OM – Clinical Outcomes in Routine Evaluation – Outcome Measurement (global distress), score range 0-40

These self-evaluation measurements have been used in earlier research on depression, psychotherapy outcome, and DMT (Jeong, 2005; Punkanen et al., 2014). They are also often used in the clinical practice.

2.7 Analysis methods

In the Study 1, the analysis of the therapist's therapy notes was thematic: the therapist-researcher read and re-read the texts in order to recognize central themes that they presented regarding the body image and the therapy experience. Initially, the guiding questions were:

- what did the therapist record from the patients' description of their experience of their body?
- how was the body image reflected in the experiences and expressions?
- what did the DMT group offer to the participating patient?
- what was relevant in a DMT process - what goals/ themes/issues/patterns seem to emerge again and again?

The same thematic analysis on the therapy process notes was applied in the Study 2, emphasizing on the observations on body image and body memory. In the Study 2, also the participants' feedback was qualitatively analyzed from the view point of body image and body-memory: did the feedback reflect these contents, and what the patients had experienced as relevant in the therapy process?

In the Study 3, presenting a quasi-experimental design with DMT and treatment as usual (TAU) groups, the quantitative data from self-evaluation measurements was analyzed with the statistical softwares SPSS and MPlus. The guiding questions for the analysis were: indicated by the self-evaluation scores, what was the level of distress and depression in the sample before and after the intervention period, and at the follow-up; and how significant the change was statistically and clinically? The number of subjects (DMT $n = 21$, TAU $n = 12$) was small, and thus the statistical analysis was limited to measuring the statistical significance of the differences between the DMT and TAU groups (Wald test) and effect sizes (*d*).

With the DMT-group participants in the Study 3, it was also possible to analyze the correlations between self-evaluation assessment scores and Body Image Assessment scores. This analysis allows to respond to the research questions whether there are any changes in the symptoms of depression after a DMT-group treatment, and how the body image is relevant in depression. This analysis was part of the data reported in the Study 4.

In the Study 4 the Body Image Assessment (BIA) was the primary data collection tool. Qualitatively, the analysis of responses aimed to find the central themes emerging, portraying what is typical to the body image of the patient with depression. In both dialogue and written format it was possible to detect whether the BIA response reflected a negative - neutral- positive content. Utilizing the scoring for the questions A-D, it was possible to calculate statistical averages (i.e. means), statistical significance of the differences between pre- and post-intervention assessments, and correlations of BIA scores with other assessment measurements, i.e. the self-evaluation measurements. With the qualitative and quantitative analysis of of BIA, it was possible to respond to the research questions, identify the contents of the body image concept and speculate on the causes of therapeutic change in DMT group, if change was discovered.

In the Study 4, analyzing the poems was organized by utilizing creatively the Laban Movement Analysis for the text material. This choice was motivated by the need to maintain connectedness to a movement based approach as the

poems arose from embodied movement experiences. The Laban Movement Analysis Efforts, i.e. the elements of Flow, Space, Weight, and Time (Bartenieff, 1980; Hackney, 2002) provided a vocabulary, which was applicable both on the embodied experiences and the verbal contents of the poem-texts. To the author's knowledge, this application of the Laban Movement Analysis is new.

Finally, in the Study 4, the DMT group participants' feedback was analysed question by question (see 2.6 Data collection tools). Particularly, information about participants' experiences of the participation in the group and of the outcome of the group was sought after, and reflected with the information that emerged from the poems and BIA responses.

TABLE 4 Methods summary for the Studies 1-4

Name	Subjects	Length of intervention	Data collection tools	Analysis methods
	N age			
1. The dance/movement therapy group in a psychiatric outpatient clinic	33	10 x 90 min	Therapist's process notes	Qualitative thematic
	21-61	5 groups		
2. Body memory as a part of body image	8	15 x 90 min	Patients' feedback, therapist's process notes	Qualitative thematic
	20-59	1 group		
3. A dance/movement therapy group for depressed adult outpatients in psychiatric care: Effects of the treatment	21 (DMT)	12 x 90 min	BDI-II, SCL-90, HADS, CORE-OM	Quantitative: Wald test Effect size
	20-59	4 groups		
	12 (TAU)			
	22-55			
4. Change in body image among depressed adult outpatients after a dance movement therapy group treatment	21 (DMT)	12 x 90 min	Body Image Assessment (BIA), poem, patients' feedback	Qualitative thematic Quantitative: correlations of scores
	20-59	4 groups		

2.8 Ethical questions and trustworthiness

This is a practice-based research. The substudies 3 and 4 received an ethical approval the City of Tampere Research Board. The plan for the Study 2 was considered as a development project for the clinical practice. It was assessed and accepted by the board Psychiatric Clinic of Tampere City. Study 1, focusing on the therapist's experience, was initiated and created after the clinical encounters, and at that point the approval for presenting the work was requested from the clinical supervisor.

Due to its grounding in clinical practice, the study has certain limitations. There was no randomization of the subjects into research groups and the number of research subjects was small in each study. The researcher was also the therapist. The research subjects were real patients seeking treatment for their depression, and the data was collected from DMT groups that essentially aimed to respond to the patients' treatment needs, not to the needs of the study. Thus there is variation in the exact contents of the group processes: the length of the treatment interventions ranges from 10 to 15 (90 mins sessions), and the actual themes and practices in the sessions resonated the group process.

Ethical treatment requires that the patient has privacy in the therapy process, and yet at the same time, research demands detailed, systematic data collection and attention to the therapy process. A research project in a clinical practice required balancing between these. A central balancing tool was time: collecting the data in the clinical practice in a systematic way and analyzing it only after the therapy process was over. The author took first on a therapist role, later a researcher role. This was the feature in all the studies, but especially in the Study 1 as the research idea arose after the clinical work was completed.

In the Studies 2-4, patients were informed about the research prior their commitment to the DMT group. They received a written information sheet about the study in question, and in the DMT group intake interview they research was discussed. Patients knew they could withdraw from the study and the DMT group if they felt a need to do so, and their treatment would continue otherwise. The patients signed a written consent to participate. The intake interview content and the summary after the DMT group were written in the patient records. For research purposes, the therapist kept the group process notes of all the DMT groups, body image assessments, the patients feedback (Study 2 and 4) and poems in locked storage, and without social security numbers. When the body image assessments, feedback, and poems (Study 4) were transferred into electrical form (doc-files), the patients received a pseudonym in the Study 2 and a research subject number in Study 4. The same research subject number was used in the Study 3 when scoring the participants responses to self-evaluation measurement questionnaires. The electrical files are kept protected data storage spaces, and are only in the researcher's use.

Subjective perspective in this study is present in how the patients describe their experiences, and it is also present in how the therapist observed the therapy process. It is also present in scientific thinking in that subjectivity directs the attention of the researcher. Reflectivity and the effort to promote neutral observation and clear description of the experiences is cultivated in DMT process and in qualitative research. The transparency this brings can make the subjectivity more openly expressed and thus known.

The selection of literature that is studied and referred to in the research constitutes one aspect of the quality and ethicalness of the research. The choices for literature are shaped by relevance, applicability, availability, coherence, and limitations of time in a sense that it is not possible to review all the published information, which is linked to the research topic.

3 OVERVIEW OF THE ORIGINAL STUDIES

3.1 Study 1: The dance/movement therapy group in a psychiatric outpatient clinic

This study presents clinical experiences gained in the practice of DMT at the psychiatric outpatient clinic. It summarizes the essential process themes from five different DMT group processes, 10 x 90 min, which involved 33 patients who suffered from depression, anxiety, and pain problems. This study was a pilot: it explored the first five DMT groups provided at the outpatient clinic, focusing on how the patients experience their body (body image) and the DMT group.

The theoretical grounding for applying DMT was searched from interpersonal neurobiology. In DMT, the limbic system and right hemisphere processes are naturally activated and connected with, as the focus is on non-verbal affective signals, facial expressions, gestures, and observing body states. The integration of the information processing in the right hemisphere of the brain and in its networking to the left hemisphere shape the intersubjective relationships the individual creates. DMT is perceived as a method that works from “bottom-up”: eliciting interaction on the body-centered level creates an interactional space, which allows right brain to right brain communication between the interacting persons. Right brain focused connection means connectedness through movement and body sensitivity, and it is essential in creating an intersubjective attachment bond. The bodily-based and often implicit communication is seen as the core of the change mechanism at the unconscious level in the therapeutic alliance (Schore, 2007; 2012). DMT, promoting movement experiences, internal attunement, and enhancing the body-self, allows a creative method to explore and integrate the contents of the right hemisphere.

The attentiveness and sensitivity to movement experiences in the DMT is similar to mindfulness; it is one practice of mindfulness. Mindfulness consists of three streams of awareness (Siegel 2007):

- direct sensory experience – i.e. the sensation of one's body and perceptions
- the conceptual stream – i.e. thoughts, words
- the observer – the inner observer, inner witness that stays present to what is happening

This is also a practice of internal 'being-with-the Self'. It promotes connectedness to the body-self. It is proposed it can have similar beneficial effects on the person as the attuned interpersonal interaction has. From a state of resting, yielding, and connecting with the body-self and in a relationship, a creative reaching-out can emerge.

The therapist-researcher's notes of the therapy processes revealed a three-phase pattern in the therapy process. The basic phases of 1) beginning, 2) middle process and 3) end could also be characterized as 1) positive expectations/experiences, 2) shadow and 3) resolution.

At the beginning, in this outpatient psychiatric clinic, the groups expressed a wish to experience safety and belonging into the group, sharing movement and thoughts, playfulness, integration of mood and body, observing one's body, learning to relax while others are around, coping with pain, relieving anxiety and tension, finding a calm mind and joy of dance, discharging emotions, and discovering one's femininity in a positive way.

The process phase, shadow, presented the uncomfortable, unpleasant sensations, discomfort and anguish that related to body and movement experiences. The themes included tiredness, lack of energy, anxiety, emotional and physical pain, a sense of difficulty in being in the group and interaction, aggression, demands and feelings of guilt, memories of troublesome past interactions and relationships, and negative and critical image of one-self. The groups needed to work their way through these themes in movement and words, eventually creating some resolutions with them. The movement work often was oriented towards moderating the movement qualities, searching for a more neutral and safer experience of the body or searching for a movement based transformation of the emotional state. This was done in a mindful way, essentially holding a sense of acceptance: there was an intention to be open to perceive without judgement whatever arises in the experience and awareness, to simply explore and observe. This is one way to release suffering.

Regarding the relationship to one's body, the central themes in the group processes were sensitivity and threat vs. safety. At the core of the trouble in being in one's body, being one-self, appeared to be the question of body sensitivity and difficulties in coping with it. The body was overly sensitive or its opposite, numbed. The trouble was two-fold: how one was willing to encounter one's sensitivity and what the sensitivity brought up for the individual.

Sensitivity related to the issue of threat vs. safety in the being-in-the-body. The groups needed to work through questions such as: what brings safety, what movements can a group member experience as safe to herself, what qualities of space create safety, what distance feels safe, what sounds feel safe. The

group needed to learn about the safety and how it was maintained in order to be able to tolerate to observe also the sensations, emotions, and imagery that the individual in the group perceived as suggesting threat. This work was essentially done on the body level, as it was the embodied experience that was attended to and supported towards sufficient sense of safety.

3.2 Study 2: Body memory as a part of body image

To theoretically better comprehend the psychological significance of embodied experiences, the concepts of body image and body memory in particular were the topic of this study. The manifestation of body image related expressions was studied in one clinical DMT group of eight female patients, who participated in a DMT group of 15 x 90 mins (once a week). This study served three different purposes:

- Exploring the *validity* of the body image and body memory concepts by studying how their contents can be perceived in individuals' experiences.
- Using body image and body memory as concepts with which to organize and clarify the significance of a *participant's experiences*.
- Using body image and body memory as concepts with which to organize and clarify *the group process*.

Body memory is a bodily resonance in relation to some lived experience. In this study, Kandel's (2007) neuroscientific findings were applied as a theoretical basis for the body memory. Kandel has studied implicit, procedural memory: habituation, sensitization, classical conditioning, perceptual, and motor skills. The response patterns, that are created by a living body, begin by sensory information received by the sensory neurons, which is then combined with action execution by the kinesthetic, motor neurons. Between the sensory and motor neurons are modulatory interneurons, which transmit the information from sensory neurons to motor neurons. The learning experiences modulate the functioning and connections of the modulatory interneurons. Fundamentally, this is integration of sensory, tactile, proprioceptive, and motor (efferent) information, which is the essence for an organism's ability for intelligent action. This action can be modulated by information from the environment and the organism's own state. The body-self responds and acts in the here and now, building on the information from body memory: the habits, the learnt thresholds and response patterns. For example, tension patterns are one way for the body memory to shape the state and responses of the body-self.

In the DMT participants' experiences the body memory related themes were reflected as narratives about their embodied sensations and emotions, about their lived experiences. The more we – the group participants and me as a therapist – moved and observed ourselves in movement, the more information

we had, which opened the access to the body memory contents. This process elicited different kinds of responses, emotions, and thoughts.

For the individual participant, the body memory related material was elicited by different stimuli: by a movement pattern (e.g. rolling), by a movement quality (e.g. a quality of tempo in the interactional movement), by an interactional response which was related to coping (e.g. how a tempo was a means to adjust to others), and by emotional responses in an interactional situation. Often body memory emerged in a subtle way, intertwined with the body-self in the present, reflecting the life history and the way of being in one's body; it was presented in the habitual patterns of sensing, mood, and bodily state.

At the end of the DMT group process, participants' verbal, written feedback reflected how they explicitly recognized and embodied their changes. The release of tension from the body, a need to also talk about the lived experiences, recognition of one's typical social interactional roles and responses such as withdrawal vs. engagement or different ways of expressing emotions were issues that the participants had observed and also changed during the process. Consciously connecting with the contents of the body memory supported body-self to create new patterns and ways of relating with the environment.

The work around these body memory related themes was an organic part of the therapy process. For this to happen, the therapy process needed a safe space. The group presented already at the start of the process, what they would welcome in the group, what they perceived as a goal for the group, and what would the good space be like. The good space would provide sense of safety, physicality, emotion, gratifying interaction, tolerance of difference, acceptance and change, and adventuring into something unknown which could be nourishing. All this relates to secure and attuned interaction, which enables the individual to explore and integrate the experiences.

3.3 Study 3: A dance movement therapy group for depressed adult outpatients in psychiatric clinic: Effects of the treatment

This study focused on the question, does a DMT group alleviate the symptoms of depression. The research design was quasi-experimental. There was no randomization of the participants. Four DMT group processes of 10 x 90 mins, involving 21 patients, produced the data for the study. Also 12 patients who received treatment as usual (TAU) at the psychiatric clinic, responded to the set of self-evaluation questionnaires, which were used in the study: BDI-II, SCL-90, HADS and CORE-OM. The measurements were applied at the start (pre-measurement), after the 12-weeks intervention time (post-measurement) and 3 months after the end of the intervention (follow-up measurement).

The participants of the study were adult patients at an outpatient psychiatric clinic. The majority of the patients suffered from moderate or severe

depression, according to the doctor's assessment. Their depression was recurrent and/or chronic type: for the majority of the participants, four or more years had passed since the first episode of depression. Most patients participated in the study at a point where their current treatment period had lasted less than a year, typically less than 6 months. All the patients in the TAU group used antidepressive medication. In the DMT group, 57% of the patients used antidepressants and 43% did not. Patients in the TAU group typically had participated in a psychoeducational group during their treatment but not in psychotherapy. In the DMT group, it was characteristic that the patient had earlier gone through psychotherapy (57% of the DMT participants), but had no experience of a psychoeducational group (81% of the DMT participants). All the patients (97%) had experienced significant relational stress either in their past (childhood) or in their current life situation.

The questions for the data analysis were: indicated by the self-evaluation scores, what was the level of distress and depression in the sample before and after the intervention period, and at the follow-up; and how significant the change was statistically and clinically. At the pre-measurement, the TAU group had statistically significantly more severe depressive symptoms in BDI-II and CORE. There was no statistically significant difference between the TAU and DMT groups in the SCL-90 and HADS scores at the pre-measurement.

Symptoms (SCL-90) decreased more in the DMT group than in the TAU group during the study period (Wald test = 8.73, $df = 2$, $p = 0.013$). SCL-90 scores changed statistically significantly differently in the DMT and TAU groups during the intervention time (Estimate = -0.425, $p = 0.011$) but not during the follow-up (Estimate = 0.031, $p = 0.086$). In the HADS scores, during the intervention time the scores changed statistically significantly differently between the DMT and TAU groups (Estimate = -6.295, $p = 0.024$), but not during the follow-up (Estimate = 0.741, $p = 0.714$).

The self-evaluation scores indicated, that DMT group produced more decrease in the depressive symptoms than the treatment as usual (TAU) (see Figure 2). Within DMT group the effect size range was $d = 0.57$ - 0.92 . Within TAU group the range was $d = 0.02$ - 0.47 . DMT vs. TAU comparison yielded values $d = 0.60$ - 0.97 . In within group comparison, effect size was considered small when $d = 0.50$, medium 0.8 and large when $d = 1.1$. In between-group comparison, effect size of 0.2 was considered small, 0.5 medium and 0.8 large. Effect size indicates the clinical significance of the change. In this study, the effect sizes of the DMT group ranged from small to medium, indicating clinically favorable outcome from DMT. For TAU group the effect size range indicated small or very small change.

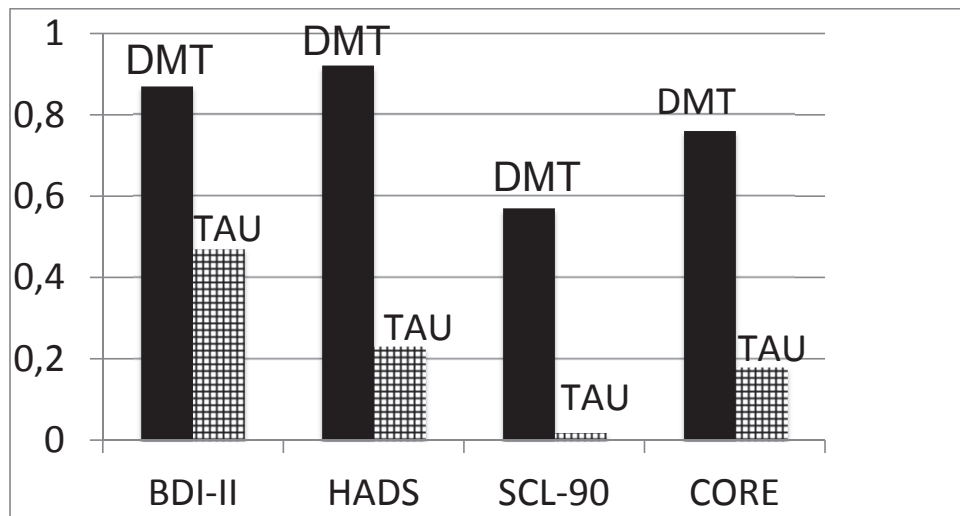


FIGURE 2 The differences in outcome with-in DMT and TAU groups as expressed in d values of the change between pre- and post measurement in the scores of the self-evaluation questionnaires.

There was no statistically significant difference between the score changes of the DMT-no-medication and DMT-with-medication subgroups. Thus DMT appears to be effective whether the patient was under antidepressive medication or not. At the post-measurement, assessing the clinical significance of the changes after the intervention period, the best improvements in the condition appeared in the group of DMT participants who were without antidepressant medication. In this group, the effect sizes ranged from $d = 0.56$ to $d = 1.07$, i.e. from small to large. The effect sizes in the pre- follow-up measurements comparison ranged also from small to large, $d = 0.62 - 1.10$. The condition of the DMT-participants using antidepressants had also clearly improved, but not so close to a normal condition as for the DMT-participants without antidepressants.

The results of the self-evaluation inquiries indicated that DMT is beneficial in the treatment of depressed patients. The analysis of the results encourages the use of creative, interactive, psycho-physical therapy intervention of the treatment of depression. This study gives evidence that DMT offers a suitable social structure to be utilized in health care for promoting interaction, the experience of relatedness, and learning through experience. The patterns of score changes of individual patients show, that promoting positive change and recuperation in milder depression happens more likely. Thus, an effective and committed treatment of depression as early as possible, i.e. responding to milder, early signs of depression, is wise. The relevant element of the treatment is supporting the connectedness to the lived body.

3.4 Study 4: Change in body image among depressed adult out-patients after a dance movement therapy group treatment

The view on depression, taken in this study, holds the assumption that the total body-mind condition, the embodied response patterns and the implicit, procedural information individuals use in their behavior, attachment and affordances, are relevant in depression and its rehabilitation. The study of the body image contents and their change by a DMT process was expected to demonstrate, what is the quality of the body image in a depressed patient and how it can change. This study aimed to answer to the research question, what the body image of patients with depression is like, and what is the impact a short-term group form DMT treatment can have on their body image.

Grogan (2008, 3) defines body image as “a person’s perceptions, thoughts and feelings about his or her body”. Study 4 was applying the tri-partite model of body image. Body image refers to the lived experience contained in the body and the psychological significance of the body. Body image holds our interconnectedness in an embodied way. Body image is the umbrella concept for our implicit, procedural information, which relates to our motor, social, and emotional response patterns and the beliefs we have about our body. Attachment and affordances are embodied and learnt predispositions to responding.

Mindfulness is an attentional skill that supports the connectedness to the body image. Mindfulness promotes being present, aware, and open to the experience in a non-judgemental way. It is based on the awareness of one’s body, and breath in particular (Michalak et al., 2012). In DMT a central 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 about them in words.

Safety of the DMT setting relates essentially to the possibility of fostering interoception and self-aware consciousness. When the interactional situation is safe, it welcomes the orientation to one’s own bodily sensations and experiences. When the interactional situation presents non-judgemental interest towards these, body-awareness and self-aware consciousness in the present can develop. This is the core of mindfulness as well.

In earlier studies, it has been observed that certain body image characteristics are typical to persons with depression. Rosenström et al. (2013) found a link between chronically elevated dysphoria and body image dissatisfaction. Depressed individuals characteristically show muscular tension, shallow breathing, lack of energy, a predisposition of exhaustion and loss of sensory awareness (Papadopoulos and Röhrich, 2014; 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 persons are typically lacking mindful body awareness (Segal, Williams, & Teasdale, 2002).

This study focused on the patients who participated in DMT group intervention (n = 21) and the qualitative material produced by them during the ther-

apy process (12 x 90 mins). The participants had a Body Image Assessment (BIA) (50-60 min) at the intake to the group, replied to the same body image related questions after the intervention, wrote a poem at the closure phase of the therapy process, and completed a feedback form at the end of the therapy process.

To inquire the research questions of this study, the qualitative text material was organized according to the themes that emerged from the responses. Positive, negative, or neutral perception regarding the body image was detected. The words in the poems were associated to Effort (Flow, Space, Weight and Time) elements' themes, and this enabled a movement-oriented reflection of the content of the poems, allowing an indirect access to recognition of the relevant elements of therapy process and change.

In the Body Image Assessment (BIA), prior the DMT intervention, experiencing lack of energy, encountering the environment as difficult, and lacking direction in one's action describe the qualities of the patient's relationship with the environment as experienced in the body-self. The fragmentation of the body image and shallow consciousness of one's body reflect difficulty within one-self and in one's body, i.e. difficulty in an intra-personal relationship. Pain and difficulty to have a repose reflect the strain and stress the patient experiences currently, or has learned and is habituated to by his/her earlier experiences. This also relates to an imbalance in the autonomous nervous system. Worry about weight can reflect the social norms and expectations related to the image properties aspect of body image. Weight concerns can also relate to a stress state in the body, as stress causes dysfunction in the systems modulating appetite and digestion.

After the DMT-group intervention, the changes in the body image could be observed in the participants' responses. The acceptance of one's body had improved. The positive valence of physical activity was strengthened. The participants were better able to consciously identify something positive in their embodied experiences of interaction with others. The majority of the participants were able to relate something positive in their embodied mood when alone. This can be seen as a reflection of more comfortable settling into one's own body. Participants were better able to relate in a validating way to their body memories. Regarding the pleasurable body memories, half of the recollected moments of pleasure related to the other and the experience of relatedness, proximity and connectedness with him/her. After the DMT-intervention, the participants valued in their body:

- Health: balance, strength, ability to function, well-being
- Ability to listen to one's body: ability to perceive the body state, the situatedness and condition of the body
- Respect of the body: allowing the body to be expressive, having the opportunity to interact with the environment by one's body, carrying out actions in a way that enables well-being in the body
- Peace: relaxedness, balanced being, free breathing, inner calm

Utilising a scoring system on the BIA, based on the negativity-neutrality-positivity of the responses relating to body-self and image-properties, it was possible to convert the responses into numeric score. BIA -scores indicated large effect sizes in the change between pre- and post-intervention assessments. Also, after the intervention, the structured self-evaluation inquiries (BDI, SCL-90, HADS, CORE-OM) indicated alleviation in the symptoms and improvement in the condition in this group of subjects. Statistically, the positive body image change had on the average a predictive power of 33% on the symptom scores improvement. Change for the better in body image predicted fewer depressive symptoms at the follow-up measurement.

In their feedback, the participants' own assessment of the significance of the changes during the therapy process revealed that four (21%) patients considered the changes insignificant. Three patients (16%) considered something relevant had changed but they continued to lack some aspect of change; for example the group felt safe but the participant did not perceive change in his/her mood. The majority of the patients, twelve (63%) felt that there had been positive changes during the process. These positive changes were:

- Improvement in condition: less sleeping problems, more positive perception of one's body, decrease or cessation of anxiety, improved activity level
- Lessening of tension
- Strengthening of feeling safe
- Recognition of one-self and one's state: finding one-self, recognizing physical experience and its influence, strengthening of trust in one's body, modulating one's action on the basis of observations from the body
- Strengthening of interaction: better tolerance for other people, courage to approach others and to be more active in interaction, positive experience of peer support

In their feedback on the process of the DMT group, participants considered the presence, peer support, encounters, and non-judgmental attitude to be important. According to the written feedback, focusing on the body, an opportunity to share and discuss one's experiences, and the development of the skill to observe the body were the wise approaches the group promoted.

The DMT group also presented challenges to the participants. At times, they had found it difficult to focus on the other or in one-self in the interaction. Pair work, sharing experiences verbally and telling about one-self (in the context of the present experiences) felt difficult especially at the beginning of the group process. In verbal expression, it was particularly effortful to speak about what one perceived in the body and how one felt in the body. Finding and creating own movement felt troublesome at times. These challenging aspects were also the aspects in which or through which the participants developed during the therapy process.

Rehabilitation of depression, healing and personality development involves an increase in self-awareness, which can occur in a state of sufficient safety and acceptance. The focus on the body, the interaction and sharing in a safe group created a sufficiently supporting and enabling space for the participants in this study. The non-judgmental approach and the interest towards the embodied experiences offered a validation of the participant's presence and commitment. Essentially, this was a validation of the body-self. This kind of validation constructs the base for trusting one's body, perceptions, and assessment. It can develop the person's ability to be conscious of his or her way of perceiving the internal and external environment and relating with it. Essentially, the therapeutic space of a DMT group aims to promote qualities of secure attachment (Siegel, 1999; 2007): presence, attunement, responsiveness, modulation of emotions, communication, and reflection. This can enable the change in the body image. The body image itself begins to have more of the characteristics of secure attachment.

Analyzing this research material elicited a notion that attachment style is not only applied on external relationships, it is also applied in the ways the individual relates to his/her body and the internal environment the body constitutes. It seems, the style of relating to the external and internal world enhance each other and also can extravagate the strains caused by an insecure attachment style. The attachment style is embodied; it is also coded in the body responses and sensory patterns. The site for change is the present moment and the body; awakening the notion that one can make choices about how one relates to the information from the body.

4 DISCUSSION

4.1 Conclusions answering the research questions

This research project had two broad questions: 1) what are the contents of the body image for the patients suffering from depression, and 2) what emerges in the DMT group process with patients with depression. These questions were used as tools to explore the therapeutic change in the DMT group, if change is discovered.

Regarding the body image, patients with depression expressed tiredness, lack of energy, anxiety, emotional and physical pain, a sense of difficulty in being in the group and interaction, aggression, demands and feelings of guilt, memories of troublesome past interactions and relationships, and negative and critical image of one-self. Before the DMT intervention, the patients' body image presented the encountering with the environment as difficult and lacking direction in one's action. These qualities resonate the patient's relationship with the environment as experienced in the body-self. The fragmentation of the body image and shallow consciousness of one's body reflect difficulty within one-self and in one's body, i.e. difficulty in an intra-personal relationship. Pain and difficulty to have a rest reflect the stress the patient experiences currently, or has learned and is habituated to by his/her earlier experiences. Chronic stress responses also relate to an imbalance in the autonomous nervous system.

On the basis of the four substudies, what were the general themes that emerged in DMT group processes with depressed patients? The studies showed that the patients recognize a need for constructive and reciprocal interaction, as they expected the DMT group to offer safety and belonging in the group, sharing movement and thoughts, playfulness, integration of mood and body, learning to relax while others are around, and finding a calm mind and a joy of dance.

In the DMT process, the essential themes were body sensitivity and threat vs. safety. At the core of the trouble in being in one's body, being one-self, appeared to be the question of body sensitivity and difficulties in coping with it.

This was connected to the issue of threat vs. safety in the being-in-the-body. The body was overly sensitive or its opposite, numbed. The trouble was two-fold: how one was willing to encounter one's sensitivity and what the sensitivity brought up for the individual. This feature of the therapy processes connects with the body image issues, i.e. how one relates to the embodied experiences.

Fundamentally, the integration of sensory, tactile, proprioceptive, and motor (efferent) information, is the essence for an organism's ability for intelligent action. This action can be modulated by information from the environment and the organism's own state. The body-self responds and acts in the here and now, building on the information from body memory: the habits, the learnt thresholds, and response patterns. Tension patterns are one way for the body memory to shape the state and responses of the body-self. These phenomena are explored in the DMT process.

In the DMT participants' experiences of the body memory related themes were encountered in movement and reflected in narratives about their embodied sensations and emotions, about their lived experiences. Consciously connecting with the contents of the body memory supported the body-self to create new patterns and ways of relating with the environment. The concepts of body image and body memory as one aspect in body image were useful in the DMT process. They clarified the recognition of relevant information from the patient's experience and from the therapy process. Frequently, the patients' reflections of their experiences of the therapy process pointed at interactional needs and patterns. For example, many expressions in the patients' poems expressed the transitioning from the initial strain in the lived body to a better oriented and better connected relation with one's embodiment, which then produced a more positive tone to one's mood and being. After DMT group process, participants were better able to relate in a validating way to their body memories. Regarding the pleasurable body memories, half of the recollected moments of pleasure in body and life related to the other and the experience of relatedness, proximity and connectedness with him/her. These are features that are associated with secure attachment.

At the end of the DMT group process, participants' feedback reflected how they had recognized and embodied their changes. The release of tension from the body, a need to also talk about the lived experiences, recognition of one's typical social interactional roles and responses such as withdrawal vs. engagement or different ways of expressing emotions were issues that the participants had observed and also changed during the process.

After the DMT intervention, the patients' body image contained more positive contents intra- and interpersonally. Intra-personally, the acceptance of one's body had improved. They had begun to appreciate the ability to perceive the body state. They recognized more the situatedness and condition of the body. The majority of the participants were able to relate something positive in their embodied mood when alone. This can be seen as a reflection of more comfortable settling into one's own body. The positive valence of physical activity was strengthened. Interpersonally, the participants were better able to con-

sciously identify something positive in their embodied experiences of interaction with others. They expressed certain respect and valuing of the body in interactional situations: allowing the body to be expressive and appreciating the opportunity to interact with the environment by one's body. In these ways, the participants' sense of agency had improved.

DMT elicited change in the depressed person's mood. It was evident in the self-evaluation score change patterns: the symptoms alleviated. The self-evaluation scores indicated, that DMT group produced more decrease in the depressive symptoms than the treatment as usual (TAU). Within DMT group the effect size range was $d = 0.57- 0.92$ (small to medium). Within TAU group the range was $d = 0.02 - 0.47$ (very small - small). DMT vs. TAU comparison yielded values $d = 0.60 - 0.97$, depending on a measurement tool, and in favor of the DMT group. To compare to earlier studies, in the Koch et al. (2007) study, where the intervention was a single DMT session, the effect size was small ($d = 0.46$), when measured by a HBS/HSI subscale of depression. In the Röchricht et al. (2013) study the intervention was 20 bi-weekly sessions, and the outcome was measured by HAMD total score. The effect size was medium ($d = 0.96$). A comparison to Cognitive Behavioral Therapy (CBT): Hoffmann et al. (2013) concluded in their meta-analysis, that CBT for depression was more effective than control conditions such as waiting list or no treatment, with a medium effect size. Cuijpers et al. (2010) published a meta-analysis on the use of CBT and other psychological treatments in the treatment of adult depression, assessing the publication bias on the efficacy results. In this meta-analysis the result was, the mean effect size was 0.67, which was reduced after adjustment for publication bias to 0.42 (51 imputed studies). A meta-analysis by van Straten et al. (2010), studied the depressed patients with medical conditions, and with this population the CBT treatment produced a small effect size ($d = 0.42$).

The question, what features in the DMT interaction were relevant to the participants, brings together the questions about the body image and the therapy process. At the end of the treatment period, participants reported positive changes: less sleeping problems, more positive perception of one's body, decrease or cessation of anxiety, lessening of overtension, strengthening of feeling safe, improved activity level. Participants described a better ability to recognize physical experience and its impact, an increase in trust in one's body, and experiences of modulating one's action on the basis of observations from the body. Simultaneously, the participants found better tolerance for other people, courage to approach others and to be more active in interaction. Also, there was a positive experience of peer support, which was important to the participants. The poems echoed the positive interactional experiences the participants had had in the DMT group. Overall, when the quality of body image improved, the psychiatric symptoms tended to decrease. Positive change in body image at the at the end of the DMT group treatment predicted a reduction in symptom scores from pre-measurement to three-month follow-up.

4.2 The relevant aspects of DMT in the treatment of depression: Modulating stress, safety, interaction, dialogue, and creativity

As a clinical practice-based research, one of the aims of this research project was to understand better, clarify, and improve treatment that can be provided to the patients with depression. Doing this research has shaped a practical-theoretical view on humans, DMT, and depression. Individual is an indivisible dual, a complex, dynamic, and adaptive mind-body system, which is engaged in an exchange between the internal and external world. DMT aims for a practical application of human embodiment for the goal of improving well-being and integration. DMT methods relate to the body itself, to individual's awareness (mindfulness), to interaction, and to knowledge the individual has about his/her situation. Essentially, DMT methods work around initiating and strengthening safety within the body and in the interactional situation. If depression is understood as a state of systemic distress arising from the overload of difficulties and stressors in the exchanges between internal and external world, then addressing the embodied responses that are created, offers a path to work on the central phenomena in the individual's depressed condition. DMT provides an experiential setting for interactions that activate in the individual's behavioral patterns - which also are neurological patterns - and allow their re-shaping and modulation.

Earlier studies (Andrew & Thomson, 2009; Carver, 2001; Gross, 2006; Kuhlman, 2013) have shown that patients with depression have experienced relational stress and embodied behavioral coping mechanisms, which do not alleviate the relational stress. Also, the patients participating in the substudies of this dissertation have expressed difficulty, anxiety, and embodied experiences of tension in interactional situations in their everyday lives. Stress response involves embodied reactions and autonomous nervous system activation. Coping with stress calls for managing embodied stress response, which essentially requires behaviors that support the body, produce change in the body state, and change in how the person relates to his/her embodied state. Increasing knowledge and awareness of the characteristics of the information processing in stress response can also support the individual in coping with stress response. The recognition, that stress response is not the only option in responding, but instead, there is also the option of playful exploration and social connecting (see Panksepp, 1998), which is concretely practiced in DMT, can provide the individual with more behavioral choices in everyday life.

Stress causes a condition where the individual's self-organization becomes challenged. If the challenge can be managed, the self-organization develops further and coping improves (Cozolino, 2002; Huether, 1998). If the stress exceeds the capacities the person has for coping, the person eventually may begin to lose his/her ability to self-organize and thus the actions with the environment and relatedness to self deteriorate (Fogel, 2013). DMT introduces activities to reduce stress, i.e. to calm the body, and to calm the autonomous nervous sys-

tem, essentially, to create safety. This enables the path from distinction into participation. Safety makes participation more possible, thus the sense of agency and body image begin to have a chance to change towards integration.

DMT elicits interaction on the body-centered level and creates an interactional space, which means opportunity for connectedness through movement and body sensitivity, which is essential in creating an intersubjective attachment bond. The bodily-based and often implicit communication is seen as the core of the change mechanism at the unconscious level in the therapeutic alliance (Schore, 2012). DMT, promoting movement experiences, internal attunement, and enhancing the body-self, allows a creative method to explore the contents of this body-based, implicit communication and to integrate the contents of the right hemisphere. Also, movement is a broad channel to use, as a very large part of the human nervous system is specialized to process sensorial and kinesthetic information (Cozolino, 2002; Medina, 2008). What is needed, is the development of coordinated and integrated connections in the nervous system through experiences.

The playful exploration is possible only in safety and in sufficiently safe interaction (Winnicott, 1971). Thus in DMT, safety is essentially important. There needs to be a sufficient sense of physical, emotional and psychological safety. The therapist's task is to communicate safety on all levels:

- to guard the safety of the therapy room (privacy, comfortableness, commitment to accurate therapy time),
- to verbally express the ground rules that create safety, namely confidentiality, respect of the body experience, non-harming, and each participant's right to move the way that is suitable to him/her,
- to express and model non-judgementality, acceptance, and respect of the participant and, in particular, his/her embodied experiences and movement; this is reflected in the non-verbal behavior as well
- to allow space to be and support grounding
- to be capable in sufficiently supporting the patient in the mutual affect regulation; attunement

Safety and interaction are interconnected; they mutually enhance each other. In safety there is a possibility for freedom and exploration, which allows a richer, more flexible information processing and action possibilities with the other and environment. Thus the individual's experience of affordances gains a more positive tone. In DMT this is learnt through experiences - bodily activities, interactional responses, settling into the body and self - and thus the process creates new embodied learning for the participant. The process allows the participant to discover his/her relationship to the sensitivity of the body. Also, in safety the behavioral responses and patterns can become explicit, and thus explored and understood in integrating and more conscious ways.

Interaction is about action in the present, and dialogue is a specific form of interaction as it also can involve reflection of what has happened a moment ago.

Sufficient safety makes dialogue possible. In DMT group, there is interpersonal dialogue, which particularly gives attention to sensory experiences and bodily responses: movements and their qualities, body shapes, distances, and the feelings, images, and memories relating to those. The participant learns to use this kind of dialogue also in intra-personal dialogue, which increases his/her awareness of what his/her embodied responses and state are. This awareness decouples automaticity (Siegel, 2007) and allows space for choice making, for example making subtle changes in movement pattern, body position, tempo or other movement quality, which will then impact the individual's experience in the interaction.

Dialogue in the DMT context has an integrative nature; it integrates experience and information, emotion and cognition, sensory events and verbal expression, unconscious and conscious contents, inner and external world. Dialogue enables sharing, validation, and recognition of phenomena. When the dialogue is rooted in the embodied experiences, it offers a practice to strengthen the consciousness and connectedness to the self, to develop mindfulness skills. All this is very much rooted in implicit information processing, i.e. body responses in perception, being, and action. In DMT body responses - movement, changes in arousal, tensions in the body - are central in the interaction, and skills to observe them, relate to them, and to communicate about them verbally are developed.

Creativity is inherent in DMT. Creativity means the ability to see through the tacit assumptions gained via implicit learning (Nachmanovitch, 1990). Creativity is learning to translate your sensations. Creativity arises from working with what you have at hand, responding to it in new ways. Creativity is part of improvisation, and improvisation is acceptance; what arises in the moment is accepted and responded to. The moments of relaxation and quietude, that may take place in a DMT session, allow space for creative insights to emerge, as creative insights and surprises often arise at moments of surrender and repose. Nachmanovitch (1990) identifies the prerequisites of creation: playfulness, love, concentration, practice, skill, using the power of limits, using the power of mistakes, risk, surrender, patience, courage, and trust. These are also present in the creation of a therapy process.

Validation is one important aspect of interaction and dialogue. Validation shapes interactional patterns. If an individual has not learned to perceive consciously and validate his bodily responses, what are the consequences? Embodiment continues even if one is not conscious about it. Thus, a lot of information will be omitted from conscious attention. Like Nachmanovitch (1990, p. 174) says, "we are beings of little consciousness and a lot of unconsciousness." In order to validate an experience, response or sensation, one has to become aware of it. The sphere of consciousness enlarges as one becomes better able to stay present to embodied responses.

4.3 Promoting secure attachment qualities promotes change in the mood

After exploring the literature and the findings of the substudies, the conclusion is that on many levels, change for the mood evolves around promoting the characteristics of secure attachment. Some very relevant observations on attachment arose during the studies included in this dissertation. Firstly, learning is embodied (Kandel, 2006). Secondly, people's experience of movement is more positive when the movement quality combinations are congruent with attachment-based actions (Koch, 2007; Pylvänäinen, 2012). Thirdly, depressed patients are well able to identify what kind of interaction would be desired and supportive to them, and what they describe, is an interactional space characteristic to secure attachment (Pylvänäinen, 2010). Fourthly, an intervention that includes embodied action and characteristics of secure attachment based interaction does produce positive change in the body-image and mood (Pylvänäinen et al., 2015; Pylvänäinen & Lappalainen, 2018).

In practice and in action, a dance movement therapist is conscious of his/her aim of using gestures and elements of non-verbal communication, which support the connection and attunement in interaction. This begins already at the intake interview. The interview also cognitively prepares way for the work as the relationship to the body is discussed through the questions relating to body image and the central issues of the DMT group. The central themes in the group are: strengthening the safety of the body, supporting agency, mindfulness skills, supporting and attending to interaction, and learning about the body image. Initially, the question is, how the patient feels and thinks about these themes. Beginning to discuss these issues helps the patient to cognitively orient to the body and movement in ways that are new to him/her in order to support his/her motivation and personally connecting with the group, and moving in ways that s/he finds meaningful. A sense of meaningfulness builds safety.

In the therapy process, the phases can be characterized as 1) positive expectations/experiences, 2) shadow and 3) resolution. The movement work often is oriented towards modulating the movement qualities, searching for a more neutral and safer experience of the body or searching for a movement based transformation of the emotional state. This is a way to tolerate and modulate the affect together. Mindfulness is a relevant quality in this, holding a sense of acceptance: there is an intention to be open to perceive without judgement whatever arises in the experience and awareness, to simply explore and observe. This is one way to release suffering. Staying safely present is a feature of secure attachment as well.

For the individual, DMT provides tools for creating, enhancing, and maintaining a sufficient sense of safety in one's presence and action, i.e. embodied actions, which can actualize the secure attachment features. These tools are: giving consciously attention to space and one's relating to the environment; distin-

guishing the internal and external space and stimuli that arise from these; exploring grounding by sensing the body in movement and developing attention to yielding (i.e. giving in, connecting with the supporting ground) as a part of preparation for moving. Finetuning the sensing of the perceptions, which arrive through different sensory systems, and sensing the different (movement) qualities in responses, thus knowing the situation more clearly, can support safety. To an individual, an experience of space can bring a sense of spaciousness and a sense of having an accepting space to be, which can support the sense of safety. Space can be related to distances to the other, and to setting boundaries. Experience of space can relate to direction in movement: suggested direction, self-chosen direction, clarifying direction. Individual can discover options for direction, i.e. direct-indirect, expanding-shrinking, rising-lowering, expanding-narrowing, opening-closing, retreating-proceeding (Bartenieff, 1980; Fernandez, 2015; Hackney, 2002). Learning to use these options in movement, learning to consciously do them when needed, provides the individual with tools to manage one's emotional state, stress, and actions in relation with the environment. Also, naming the experience is a way to modulate the pressure a bodily sensation or bodily affect evokes (Block, 2007; Siegel, 2007). Returning to attending to the bodily sensations can help cease looping, ruminative thought processes.

A therapy situation is never free from anxiety. The challenges arise in how to modulate and tolerate anxiety and discomfort so that the presence, exploration, and responding can begin and continue – so that the interaction can begin and continue. In therapy the aim is to develop this safety, but the challenges come with the reality that people often have had a lifetime learning of insecurity. Individuals' experience of safety in a same, shared situation can be different. It may be, that at the same time as we work towards the security, we also need to develop the tolerance and resilience towards insecurity, whether it is in the internal or external world. That is a place where we need compassion. Using attunement brings the qualities of secure attachment and compassion into the interaction: orienting towards the other, opening towards him/her, respecting personal space, kind facial expressions, synchronizing the tempo, and mirroring the movement qualities. Yet there is a fine line: mirroring the patient is one way to communicate attunement, but if the depressed qualities of the posture, gesturing, and movements are fully mirrored back, this tends to maintain the depressed state. Therapist needs to neutralize the mirroring: communicate the interest and orientedness towards the patient, but subsume the depressive qualities. Therapist presents "titered mirroring", which aims to bring the secure attachment qualities to the interactional moment, while at the same time creating sufficient matching, sufficient attunement with the patient's embodied depressed state to promote interactional connectedness. When depression alleviates, the therapist can increase the matching in mirroring.

4.4 Body image as a tool for understanding depression

When understanding and treating depression, body image is a relevant concept. It can be used to clarify the patient's condition and the relevant events in the therapy process. Body image concept integrates the experiential contents of the body and thus offers a view to the dynamic, bio-psycho-social, affective reality of the individual. When systematically studying the body image of a person with depression, it is possible to gain an understanding of depression that takes into account the embodiment and interrelatedness of a human being, and how these are altered in depression.

A cognition (a thought, a belief, a value), an affect, or a body response are all phenomena of relating to something. Thus, the interest in body image contents focuses the therapy, exploration, and learning on the patterns of being in relation with the external and internal environment. This study showed, the depressed patient's body image is characterized by a sense of difficulty in relating with the environment, a sense of lacking direction, and lacking energy. The depressed patient's body image is fragmented, i.e. attention is given to particular body parts (e.g. head) or painful areas of the body or just one feature of the body such as weight. There often is a shallow consciousness of one's body, for example the patient is not interested in noticing the body sensations or does not have a habit of attending to them. Patients find it difficult to settle and have restoring rest. This is in line with the few earlier descriptions of the depressed patients' experiences of their body (Micali, 2013; Michalak, 2012; Papadopoulos & Röhrich, 2014).

Micali (2013) differentiates the depressed patient's trouble in embodiment into three types: a) disturbances mainly concerning the relation of the body with the *surrounding environment*; b) disorders mainly related to the way in which the body *feels itself*, c) disturbances mainly concerning the *relation between own body and the other's body* (intersubjectivity). The tri-partite model of the body image, i.e. image properties, body-self, and body memory can resonate these difficulties. Each part of the model offers a slightly differently tuned sounding of the person's situation. Image properties can reflect the thoughts, feelings and ideas relating to the body appearances and the relation to the environment, which is shaped to some extent by the physical appearances of the body. Body-self echoes the present moment condition and state in how the individual senses the body - how the body feels itself in its relatedness to the surrounding environment and others. Body memory, synonymous to implicit memory, contains the embodied learning from the interactions with the environment and attachment relationships. What can be observed in these contents, what the patient expresses in his/her body and movement responses, and what s/he can verbally narrate about his/her experiences, offer direct information about his/her experiential world and its characteristic patterns.

The task in therapy is to create interaction where intersubjective communication and regulation can happen in increasing safety and attunement,

and where the individual's internal working models of interactions with the environment (implicit, procedural memory) can be brought into consciousness and be explored and reassessed (Schoe, 2012). The information on the patient's body image is thus used in enabling the creation of this kind of interactional space. Body image concept helps the therapist to be sensitive and attentive to the patient's expressions in an organized way. The body image concept offers a containing shape for the information.

Body image contains a lot of information that originates from the body and body responses. This information is organized and processed particularly in the right hemisphere of the brain (Cozolino, 2002). Recognizing that an asymmetry of the activity between right and left hemisphere of the brain is typical to the depressed patient, as well as poor connectivity of the limbic system and right brain (see Punkanen, 2011), it can be assumed that therapeutic activities, which engage the body and elicit a narrative about the embodied experiences, promote activation and integration of the limbic system, right brain, and the interconnectedness of the left and right hemispheres. Hippocampus is vital for conscious, logical, and cooperative social functioning. Amygdala is involved in the emotional and somatic organization of an experience. Amygdala is geared toward right hemispheric and down systems in the brain. Hippocampus is biased toward left and up systems in the brain. When a person moves, creating a movement experience probably with some emotional valence, and then discusses about his/her experience of it, the person has to bring together information from hippocampus and amygdala, from both left and right hemispheric systems.

It can be speculated, that the social brain gets naturally activated in social movement interactions, which the DMT group session offers. In this study the participants offered clear guidelines what they would find helpful in alleviating their condition. These are the interactional contents that they identified:

- Sense of safety
- Sense of belonging into the group
- Sharing movement and thoughts; interacting with one another
- Playfulness
- Relaxing, relieving anxiety and tension
- Finding calmness
- Ability to listen to one's body - ability to perceive the body state
- Allowing the body to be expressive
- Breathing freely

These are the landmarks that orient the therapy process for the depressed patients. These landmarks are very similar to secure attachment features and safe interactional situation, and they are needed for building a better body image. To actualize these may take time and commitment. It requires compassion and reflection; it is a mutual effort of the participant(s) and the therapist. Improving

the individual's connectedness and consciousness to his/her body image supports the alleviation of depression and carries the process onwards.

4.5 Clinical implications

The clinical implications of this study are three fold: 1) what new understanding on depression did this study produce, 2) what features of the DMT practice could be integrated into general practice in psychiatry and treatment of depression, and 3) what considerations regarding the clinical setting arose in the study?

In this study, actively searching for information on the embodied approach to human beings - on our being, interacting and information processing, and on depression - did reveal that there is a substantial field of literature discussing these topics. Sharing knowledge on the role of embodiment is becoming possible. Approaching depression from the perspective of embodiment, interaction and responding, offers a more systemic understanding of depression. In the context of a complex adaptive dynamic system (CADS), the recognition of depressive symptoms can lead into growth rather than impasse, if the clinician and the patient can perceive, what phenomena in the patient's *systemic* life situation strain the sense of safety, maintain stress in the mind-body system and lead to fragmentation in the body image, i.e. weaken the connectedness to the self and thus the coordination of one's being and behavior.

The improvement and integration in body image appears to be related to safe interaction. Clinically, this invites a consideration on the interrelatedness of depression and sense of safety; and this relates to the sense of affordances and the typical attachment styles the person has acquired. The experiential learning and developing mindfulness appear clinically significant features of DMT, similarly to what is discovered in contextual cognitive behavioral therapies (Hayes, Villatte, Levin, & Hildebrandt, 2011). Including DMT in the treatment of depression offers the patient the opportunity to experientially work on embodied responses, body image, and ways of relating to one-self and others. The findings of the substudies encourage the use of DMT in the treatment of depression.

Considering how the general clinical practice can be informed by DMT, the primary questions are, how to include the view of embodiment into the clinical encounter, and how to create safety in the meeting between the patient and the clinician. Body image interview (BIA) can be used as a part of the clinical interview and assessment. It is a dialogue-based tool, and by a brief training, also clinicians who are not dance movement therapists, could adopt it for their use. This would support the inclusion of the perspective of embodiment and interactional and experiencing body in the treatment. It would give information on the patient's attachment style, and help clarifying the essential themes in the patient's treatment. Also, inquiring about the patient's experience of his/her being and physical experiencing in the current life situation offers a way to

communicate interest and validation of his/her own knowledge if his/her situation. This begins to build safety as well.

Applying the basic qualities of embodied attunement in the therapy encounters is always crucial for building safety in the interaction. Orienting and opening towards the patient, reaching for the eye contact, matching patient's tempo, synchronizing the gesturing, and fitting the tone of voice are basic elements of an attuned interaction. Clinicians can support the patient and the encounter by utilizing these in a respectful, kind way. Observational skills support the clinician in relating and interacting.

Safety is deeply relevant, as depression arises in a condition where there is not sufficient safety in intra- and interpersonal experience, thus the mood and sense of agency becomes jeopardized. People have different resiliency in their sense of safety. This study indicates a general guideline that the therapy for a depressed patient should provide the patient with tools to improve the sense of safety. It may be, that the mindfulness skills, that have been applied in many therapeutic interventions, are effective because they actually provide cognitive and experiential tools to practice a settling that is naturally characteristic to a safe intra- and interpersonal setting, i.e. secure attachment patterns. The characteristics of a secure and attuned interaction, first modeled in a good enough mother-child interaction, are similar to the characteristics of the moment of mindfulness: acceptance, presence, openness to the experience and a sense of connectedness, which brings pleasure.

Safety arises also from finding meaningfulness. DMT, as it typically is a new intervention for the participants, requires the dance movement therapist to be sensitive to how to enable the patient to make sense of the view offered in the treatment encounter. It is important to offer an affectively attuned encounter, but at the same time, patients need to be able to connect the information offered and the questions elicited with their own stance, values, and understanding. For example, in discussing the patient's joining in a DMT group, one way to proceed is to invite the patient to reflect the guiding principles of a DMT group, i.e. safety in the body, sense of agency, interest in mindfulness skills and attentiveness to the body sensations in particular, and orientation towards interaction. Considering these themes also cognitively, initially as questions, provides the patient more entries to connect with these issues, which supports his/her experiential exploration in the treatment, if s/he chooses to proceed into a DMT group.

In DMT the inherent features of the activity are play and creativity. The roots of the clinical significance of play and creativity are in acceptance and sufficiently safe relationship, which eventually support the venture into exploration. Winnicott (1971) emphasized these aspects already decades ago, and creative therapists have continued to bring creativity into clinical settings. Creativity and play are allowed by sufficient safety, but they not only echo the external relatedness. Creativity and play also reflect the intra-personal relatedness, a broader way of information processing, which is enabled by the safety and acceptance. It can be assumed this is a natural way to promote new coordinated

neural connectedness, and to enhance those neural connections that integrate emotional and cognitive information. Thus it would be valuable to find more ways for the creativity and play to be present in clinical settings. This can be challenging, as the present culture in clinical settings tends to value quick and focused, task and goal oriented information processing and interaction.

The considerations regarding the clinical setting evolve around the features of the structure of the group form, especially the length of the group process. The structure needs to balance the participants' motivation to commit to a group, the reality of staff resources, and the findings on sufficient length of treatment for eliciting a clinically significant result. In this study the duration of the DMT-groups (in Studies 3 and 4) were 12 x 90 mins, and the results were positive, but the recovery from depression was not complete. The differences in the severity of depression, use of medication, and participant's life situation contribute to this as well, but considering the factor of the length of treatment is also a relevant question. The research on group interventions to treat depression documents interventions, that typically have been 10-12 sessions. The effectiveness has been similar to the individual therapy (Burlingame, Strauss, & Joyce, 2013). However, there are also findings suggesting, that the patients, who were at a dysfunctional level before the beginning of the treatment, needed a much longer intervention in order to reach a clinically significant change: in order to bring 70% of these patients to a level of clinically significant change, more than 35 sessions were necessary (Castonguay et al., 2013). Yet, Castonguay et al. also refer to another result from clinical trials literature review, reporting that approximately 55% of the patients improved within the average of 12.7 sessions. They continue the discussion by pointing to the reality of clinical practice: the treatment actually received in health care produces an average of less than five sessions, and the rate of improvement at the level of 20%. In light of these research findings, it seems fairly reasonable to offer in public health care a group intervention of 10-12 sessions. It would be most beneficial to offer it before the patient reaches a dysfunctional level. Those participants, who initially are at dysfunctional level, should be offered an opportunity to participate in two or three group periods sequentially. Thus the initial commitment would not be too entangling, and eventually these patients would have a sufficient length of treatment.

In the clinical setting, the pre-group individual interview and a report of the participant's process in the group are important communication tools. It is beneficial to provide the patient with these documents. They can clarify the process for the participant, offer once again a response to and a validation of his/her presence and participation. These documents can support the patient in his/her meaning making and commitment to his/her own well-being.

4.6 Limitations

This study is a practice-based clinical study, which has evolved over several years. The substudies have had their particular nature, and the shape of the whole project has emerged during the process. The project was not clear and planned at the very beginning of the first substudy. The progress of the project has informed the next phases: what becomes possible to actualize in the research in the clinical setting. The research plan for the whole work was getting clearer at the time of the Study 2, and for the Studies 3 and 4, a research plan was written and accepted by the City of Tampere Research Board and by University of Jyväskylä.

A central limitation through all the substudies is the relatively small amount of participants. The small amount of subjects in each study can bias the findings on the basis of individual features. If the number of research subjects was larger, the findings would be better validated, more reliable, and more generalizable.

The lack of randomization of the participants is another limitation of all the substudies. In all the substudies the patients self-selected to the groups and entered on the basis on their own motivation, which naturally varied from low to high, but was on a sufficient level to get the patients involved with the activity. Because of the lack of randomization, and due to self-selection, it is not possible to rule out, that the motivational state of the participants influenced the results. In the Study 3, this may have influenced the differences in outcome between the DMT and TAU groups. One possibly significant difference between the DMT and TAU group participants of the Study 3 was, that in the DMT group 57% of the patients had earlier experience of psychotherapy process, where as in the TAU group 12% of the patients had had psychotherapy. This may indicate differences in the type of depression, as well as difference in the patients' capacity to benefit from treatment that is based on interaction, self-reflection, and psychological processing of information.

Even though it can be perceived as a strength of the study, that it was actualized in the reality of clinical practice, it also brought vagueness and variance to the data collection. This is particularly apparent in the definition of "treatment as usual" (TAU) in the Study 3. The participants in the TAU group did not participate in the DMT group, but instead, used medication, had individual appointments with varying frequency (typically not weekly, but once in every 2-5 weeks) and/or participated in psychoeducational groups focusing on managing the symptoms of depression or the tendency to set high demands on one-self. The participants in the DMT group actually had some features of the TAU in their treatment: the use of medication, and individual counseling appointments once every 3-5 weeks. The key difference between the groups was, that at the time of data collection, the DMT group participants received DMT and did not participate in a psychoeducational group, and the TAU group participants did not receive any DMT.

In the Study 4 the data collection tool, Body Image Assessment (BIA) was developed for the purposes of this study, on the basis of the tri-partite model of body image. This assessment tool is a way to collect data of the person's body image, as she or he perceives it and is able to describe it in words. Clearly, it is a limitation, that an established well known body image inquiry/questionnaire was not used. The reason for this was, that the body image questionnaires used in research typically are based on the body image dissatisfaction-satisfaction dimension, and on the symptomology of eating disorders. This approach to body image does not fit well with the tri-partite model of body image. Originally, the tri-partite model was presented in 1999 by Pylvänäinen (unpublished master's thesis, MCP Hahnemann University), and in her paper in 2003. The application of the model in the clinical work has been developing for about 20 years, but research is needed to document the observations and to seminate the model into broader professional and scientific use. The researcher developed the BIA-questionnaire through the DMT intake interviews she had done over the years at the psychiatric clinic, but it was not formally piloted as a data collection tool before the Study 4. At the moment, one of the central limitations of the BIA is, that there is no research on how persons without health problems would respond to its questions. This information would help in contextualizing the responses of the patients with depression.

Finally, in the Study 4, the connections between body image and depression, and body image improvement and the alleviation of depression were observed as correlations between the BIA- and self-evaluation score changes. Correlation does not mean causality. It is true that the patients verbally reported changes in their body image, at the same point of time as they reported self-assessed changes in their mood. It is possible to infer reasons why DMT could have contributed to the positive changes, but inferred reasons are not yet scientific facts. In order to claim causality between the body image and mood changes for better, more research is needed to document the systemic changes patients with depression experience when they participate in DMT.

4.7 Research aspirations for the future

There are ample research needs in order to better understand the systemic nature of depression, to develop best fitting DMT interventions for depression, and to develop further the knowledge on body image and its relation to attachment styles in particular. Essentially, what is needed is a study of these questions with a larger sample of research subjects. This study has already been initiated in Finland, at the University of Jyväskylä, as a collaboration between the Department of Psychology, National Social Insurance Institution (KELA) and the Finnish Dance Therapy Association.

During this present dissertation project arose the observation that the body image reflects the attachment styles that have been identified in the patterns with which individuals relate to others. The attachment styles can be se-

cure or insecure (Schachner et al., 2005). When insecure, they can be avoidant, ambivalent or disorganized. There seems to be a similar variation in how individuals relate to their own body, their internal world, and their embodied interconnectedness to the environment. Keeping in mind, that body memory is a part of body image, and body memory holds the implicit learning from interpersonal and constitutional encounters, it becomes understandable, that similar choices would be applied in relatedness to the external and internal environment. The roots of the similarities between body image contents and attachment style are in the experiences of interactional safety or the lack of it. Usually individuals present a melange of attachment styles - it is context specific to some extent - yet some attachment pattern may be dominant or more typical to a person than some other. Knowing that attachment style creates predispositions to mental health problems, for example the avoidant attachment style has been linked to depression, it becomes very relevant to recognize the attachment quality that is echoed in the individual's body image. In a fairly concise body image interview, the attachment style can be recognized in descriptions on how one relates to one's body, how one interacts with others, and what are the contents of body memory that the person most easily can access. Exploring in more detail, how the patterns in attachment and body image co-emerge, could provide valuable systemic understanding on human mind and body and the reciprocity of relatedness to the environment. Furthermore, it would be valuable to study these body image related phenomena in different cultures.

The antidepressant medication has a dominating role in current recommended treatment guidelines. In the Study 3 in this dissertation project, with a fairly small amount of research subjects (total $n = 33$), the finding was that the best improvement in the patient's condition happened when s/he was not using antidepressive medication and participated in DMT. In the Study 3 the best alleviation in the depression, measured by the self-evaluation scores, was with the DMT patients who were not using antidepressant medication. This subgroup was small ($n = 9$), but their score means closely reached the level of normal mood in the post-treatment measurement. In this subgroup, the within-group pre to post effect sizes ranged from $d = 0.56$ to $d = 1.07$, i.e., from small to medium. The effect sizes in the pre- follow-up measurements comparison ranged from small to large, $d = 0.62$ - 1.10 . At the pre-measurement, the mean score differences were small (ranging from 0.15 to 1.41 points, depending on the measurement tool) between the DMT participants using antidepressive medication and not using antidepressants. However, the difference between these subgroups was, that the patients not using antidepressants had had their first depressive episode on the average five years ago, and the patients using antidepressants had had the first depressive episode on the average 10 years ago. The mean duration of the present treatment period was 10 months for patients not using antidepressants and 17 months for patients using antidepressants. These findings, even though based on the data of a small subgroup, elicit important questions about the timing of interventions and the early accessibility of treatment, which would seem beneficial for the patient. Also, it is important to con-

tinue to research the impact of antidepressants in the patient's ability to benefit from psychotherapeutic and interactional treatment.

DMT is a field that is an unexplored terrain compared to for example cognitive behavioral therapies. To develop DMT and its applications, it is necessary to research it. It is an inspiring field to research, as it invites explorations into complex, living and interacting mind-body systems, which self-organize. This offers tasks of studying coordination, integration, and patterns in the context of human action, struggles, and well-being.

SUMMARY

This clinical practice-based, mixed methods research evolved around the following research questions: 1) what are the contents of the body image for the patients suffering from depression, and 2) what are the emergent themes in the DMT group process with patients with depression? These questions were explored in more detail by asking, were there any changes in the symptoms of depression after a DMT-group intervention, and how the body image is relevant in depression and mood change.

As a concept, body image refers to the multilayered experiential totality we perceive within our body, about our body, and by our body. Body image refers to the lived experience contained in the body and the psychological significance of the body. Body image holds our interconnectedness in an embodied way. The ways of relating and interacting with the environment compile into an attachment style and individual ways of relating with affordances; fundamentally, these are embodied response patterns, which constitute body image.

Tri-partite model of body image consists of body-self, body memory, and image properties (Pylvänäinen, 2003). Body-self communicates and responds in a physical way, i.e. by movement, by gestures and postures, by tensions and releases, by activation and calming down in the present moment. The features of emotional responding in a moment can be understood as expressions of body-self. The continuous connectedness to the body-self is essential for mental health. Body-self actualizes the individual's relatedness to the internal and external environment in the present moment. Body memory is procedural, sensory, and mostly implicit memory. Body memory functions as a continuous background for present, subjective experiences. Image properties are the set of beliefs, attitudes, and values the individual associates with his/her body and its looks. These are culturally shaped and obtained in a social setting.

The identified symptoms of depression are low mood, loss of interest and enjoyment, anxiety, disturbed sleep and appetite, feelings of guilt or low self-appreciation, and also medically unexplained somatic symptoms (WHO, 2012). Typically, persons with depression have experienced stress, particularly familial and relational stress (Andrews & Thomson, 2009; Heikkinen, 2014; Kendler et al., 1999; Kuhlman, 2013; Major et al., 1997). Depression has been linked to underactivation of the approach system (Carver, 2001). Hayes et al. (2004) found that higher levels of experiential avoidance is also linked with depression. Research indicates that insecure, i.e. avoidant/dismissing or ambivalent/anxious/preoccupied attachment style characteristically can be observed in patients with depression (Siegel, 1999). Depressed patients have also disturbed autonomous nervous system arousal patterns (Birkhofer et al., 2005; Campbell-Sills et al., 2006; Shinba, 2014) and present a difficulty in segregating emotional processing from cognitive and sensorimotor processing (Epstein et al., 2010).

In depression, there is trouble in unification of one's lived body, and a sense of a gap between one-self and one's own body (Micali, 2013). The depres-

sed person conceives his relation to the body in instrumental terms, not as a responsive nor affective lived being and as a relationship. The body is no longer a transparent, communicative site, but rather, an obstacle and a block on the way between the individual and the environment. There is a withdrawal away from the external environment into the closed, subjective immanent sphere and a vanishing of intersubjective reciprocity in the encounter with the other (Micali, 2013; Ratcliffe, 2013). The body ceases to respond to the affordances of the surrounding environment.

It has been discovered, that the brains of depressed persons frequently present asymmetry between the activation of left and right hemispheres, and decreased hippocampal volume (see Hölzel et al., 2011; Puncanen, 2011). Hölzel et al. (2011) refer to stress as one possible reason for these malfunctions in the brain structure. Stress causes the individual to reduce attention to internal information and focus on the external information instead (Cloninger, 2004; Fogel, 2013). According to Fogel (2013), the interoceptive information, i.e. information about internal sensations in the body and arousal are transmitted in the nervous system through the non-myelinated axons and thus the transmission of information is slower. The information from the external environment and from the proprioceptive system (stretching of muscles and ligaments, balance, movement coordination) travels through a fast lane in the spinal cord and is thus dominating. This phenomenon may be one factor that enhances the lack of connectivity between the right and left hemisphere of the brain, and the limbic system and anterior cingulate, when the individual encounters stress. However, practicing non-judgemental and observing attention to the information of the proprioceptive system, can provide means to develop and broaden the attentive skills to the internal sensations and arousal, thus improving the connectedness between various brain networks. Experientially this means improving connectedness to one's embodiment.

In terms of body image, this study revealed the patients with depression experience a lack of energy, encounter the environment as difficult and sense lacking direction in one's action. These features describe the qualities of the patient's relationship with the environment as experienced in the body-self. The fragmentation of the body image and shallow consciousness of one's body reflect difficulty within one-self and in one's body, i.e. difficulty in an intrapersonal relationship. Pain and difficulty to have a repose reflect the strain and stress the patient experiences currently, or has learned and is habituated to by his/her earlier experiences. Worry about weight was quite often mentioned.

DMT is interaction based: exploring the embodied experience in the here and now in the encounter between patient(s), therapist and the dance/movement. DMT is a method to develop awareness of embodiment. The theoretical basis of DMT provides knowledge that improves understanding of the phenomena of embodiment. The practice of DMT offers to an individual an experiential space where to explore, learn about, and integrate the embodiment. The aspiration is to provide the individual with more behavioral choices in everyday life. In DMT body responses - movement, changes in arousal, tensions in

the body - are central in the interaction, and skills to observe them, relate to them, and to communicate about them verbally are developed. The central factors in the DMT treatment of depression are the modulation of stress response, safety, interaction and dialogue. This process is carried on in the context of embodiment and fuelled by creativity.

In this study, the groups' expectations of a DMT group were a wish to experience safety and belonging in the group, sharing movement and thoughts, playfulness, integration of mood and body, observing one's body, learning to relax while others are around, coping with pain, relieving anxiety and tension, finding a calm mind and joy of dance, and discharging emotions. A good DMT group space would provide sense of safety, physicality, emotion, gratifying interaction, tolerance of difference, acceptance and change, and eventually also adventuring into something unknown, which can be nourishing. All this relates to secure and attuned interaction, which enables the individual to explore and integrate the experiences.

A DMT group intervention (12 x 90 min) resulted in an alleviation of depressive symptoms, as measured by self-evaluation measures (BDI-II, SCL-90, HADS, CORE-OM) and in improved, more positive body image. DMT vs. TAU comparison yielded Effect sizes of $d = 0.60 - 0.97$, depending on a measurement tool, and in favor of the DMT group.

The effect sizes of the DMT group ranged from small to medium, indicating clinically favorable outcome from DMT. For TAU group the effect size range indicated very small change.

After the intervention, a positive change was observed in the Body Image Assessment (BIA). The body image change explained 30% of the improvement in the self-evaluation measures scores. The more positive the Body Image Assessment (BIA) score, the lower the symptoms scores were at the post-measurement. Also, the more positive the BIA was at the post measurement, the lower the symptom scores at the 3-months follow-up measurement.

In their feedback, patients described their experiences with their body with more positive quality. They had a more positive perception of one's body, improved activity level, lessening of tension, strengthening of feeling safe. They recognized more themselves: a feeling of finding one-self, recognizing physical experience and its influence, strengthening of trust in one's body. They felt more able to modulate one's action on the basis of observations from the body. Interaction became more flexible as the patients felt a better tolerance for other people, courage to approach others and to be more active in interaction. The positive experience of peer support in the group was relevant.

People have different resiliency in their sense of safety. In therapy, there needs to be a sufficient sense of physical, emotional, and psychological safety. In safety there is a possibility for freedom and exploration, which allows a richer, more flexible information processing and action possibilities with the other and environment. Thus the individual's experience of affordances gains a more positive tone. In safety the behavioral responses and patterns can become explicit, and thus explored and understood in integrating and more conscious

ways. The participant learns to use this form of dialogue also in intrapersonal dialogue, which increases his/her awareness of what his/her embodied responses and state are. This awareness allows space for choice making, for example making subtle changes in movement pattern, body position, tempo or other movement quality, which will then impact the individual's experience in the interaction.

In DMT, the inherent features of the activity are play and creativity. The clinical significance of play and creativity is in acceptance and sufficiently safe relationship, which eventually support the venture into exploration. Creativity and play also reflect the intra-personal relatedness, a broader way of information processing, which is enabled by the safety and acceptance.

DMT experience can result in a better ability to recognize physical experience and its impact, an increase in trust in one's body, and experiences of modulating one's action on the basis of observations from the body. Simultaneously, the participants can find better tolerance for other people, courage to approach others and to be more active in interaction. This improves mood and alleviates depressive symptoms. To summarize, DMT seems to enhance psychological flexibility as the person becomes better connected with the embodiment and more aware of the patterns and options embodied responding.

In the future, it will important to continue to study the body image and the use of DMT interventions with a larger sample of patients with depression. BIA (Body Image Assessment) is a useful tool in this research, as well as in the clinical practice, when assessing the patient's body image, ways of relating to one-self and others, and the goals for the therapy.

YHTEENVETO (FINNISH SUMMARY)

Tämän kliiniseen potilastyöhön perustuvan monimentelmätutkimuksen tutkimuskysymyksinä ovat olleet: 1) mikä on kehonkuvan käsitteen sisältö ja 2) mikä on keskeistä masentuneiden potilaiden tanssi-liiketerapiaryhmien prosessissa. Näitä kysymyksiä tutkittiin tarkemmin selvittämällä, tuottiko TLT-ryhmä muutosta masennusoireiluun, ja hakemalla tietoa siitä, miten kehonkuva on relevantti masennuksessa ja mielialan muutoksessa.

Käsitteenä kehonkuva viittaa monikerroksiseen kokemukselliseen kokonaisuuteen, mikä havaitsemme kehossamme, kehoomme liittyen, kehollamme. Kehonkuva viittaa elettyyn keholliseen kokemukseen, joka kehoon tallentuu, ja joka on psykologisesti merkityksellinen. Kehonkuvassa on kehollisina kokemuksina ja reaktiotaipumuksina tallentuneena meidän vuorovaikutteisuutemme ympäristön kanssa. Tavat olla suhteessa ja vuorovaikutuksessa ympäristön kanssa rakentuvat kiintymyssuhdelaaduksi ja yksilön tavoiksi olla suhteessa ympäristön tarjoamiin toimintapotentiaaleihin (affordances); pohjimmiltaan nämä ovat kehollistettuja toimintatapoja, joista kehonkuva rakentuu.

Kehonkuvan voidaan katsoa rakentuvan kolmesta elementistä: kehoitseys, kehomuisti ja olemusseikat (Pylvänäinen, 2003). Kehoitseys kommunikoi ja vastaa tilanteissa fyysisellä tavalla, eli liikkeillä, eleillä ja asennoilla, kehon jännityksillä ja kehon vapautumisella, vireystason nousulla ja laskulla. Emotionaalisen responssin ilmiöt nyt-hetkessä voidaan ymmärtää kehoitseyden ilmauksina. Jatkuva yhteys kehoitseyteen on mielenterveyden kannalta olennaista. Kehoitseys todellistaa yksilön yhteyden sekä sisäiseen kokemusmaailmaan että ulkoiseen ympäristöön nyt-hetkessä. Kehomuisti on proseduraalista, aistimuksellista ja suurimmaksi osaksi implisiittistä muistia. Kehomuisti on jatkuvasti taustana yksilön subjektiivisille kokemuksille nykyhetkessä. Olemusseikat ovat se uskomusten, asenteiden ja arvojen joukko, minkä yksilö liittyy oman olemukseensa ja ulkonäköönsä. Nämä ovat kulttuurisesti muovautuneita ja omaksutaan sosiaalisessa ympäristössä.

Masennuksen tunnistettuja oireita ovat mielialan mataluus, mielenkiinnon ja mielihyvän menetys, ahdistuneisuus, uniongelmat ja ruokahalun häiriöt, syyllisyyden tunteet ja itsearvostuksen vähäisyys, sekä lääketieteellisesti selittämättömät somaattiset oireet (WHO, 2012). Tyypillistä on, että masennuksesta kärsivät henkilöt ovat kokeneet stressiä, erityisesti perhesuhteissa ja ihmissuhteissa (Andrews & Thomson, 2009; Heikkinen, 2014; Kendler et al., 1999; Kuhlman, 2013; Major et al., 1997). Masennus on liitetty riittämättömään sosiaalisen liittymisen järjestelmän aktivaatioon (Carver, 2001). Hayes ym. (2004) totesi, että masennuksessa kokemuksellinen välttämiskäyttäytyminen on korkeammalla tasolla. Tutkimus myös osoittaa, että turvaton kiintymyssuhde, eli välttelevä tai ambivalentti, kaoottinen kiintymyssuhdelaatu on tyypillisesti havaittavissa masentuneissa potilaissa (Siegel 1999). Masentuneiden potilaiden autonomisen hermoston aktivaatioissa on häiriöitä verrattuna terveisiin henkilöihin (Birkhofer et al., 2005; Campbell-Sills et al., 2006; Shinba, 2014). Aivokuvantamistutkimukset ovat tuoneet esiin, että masentuneiden henkilöiden aivoissa

ilmenee vaikeus erotella emotionaalinen prosessointi kognitiivisesta ja sensorisessa prosessoinnista (Epstein et al., 2010).

Masennuksessa henkilö kokee vaikeutta olla yhteydessä kokemukseen omasta eletystä kehosta, ja henkilö kokee, että itseyden ja oman kehon välillä on kuilu (Micali, 2013). Suhteessa omaan kehoonsa henkilö ei tunnista kehon responsiivisuutta eikä affektiivisuutta, eikä tunnista kokemuksellista suhdetta kehoon ylipäätään. Keho ei ole enää informaatiota välittävä, kommunikoiva tila, vaan pikemminkin este yksilön ja ympäristön välillä. Henkilö vetäytyy pois yhteydestä ympäristöön, sulkeutuu subjektiiviseen kehonsisäiseen tilaansa ja katoaa vastavuoroisesta intersubjektiivisesta kohtaamisesta toisen kanssa (Micali, 2013; Ratcliffe, 2013). Keho ei enää vastaa ympäristön tarjoamiin toimintapotentiaaleihin (affordances).

On todettu, että masentuneiden potilaiden aivoissa on hyvin usein epäsymmetriaa vasemman ja oikean hemisfäärin aktivaatiossa, ja supistunut hippokampuksen tilavuus (ks. Hözel ym., 2011; Punkanen, 2011). Hözel ym. (2011) olettavat stressin olevan yksi mahdollinen syy näihin aivojen toiminnallisen rakenteen häiriöihin. Stressi saa yksilön kiinnittämään vähemmän huomiota sisäiseen informaatioon ja fokusoimaan ympäristöstä tulevaan informaatioon (Cloninger, 2004; Fogel, 2013). Fogelin (2013) mukaan interoseptiivinen informaatio, eli informaatio kehon sisäisistä tuntemuksista sekä vireystilasta välittyvät hermostossa myelinisoitumattomia hermoratoja pitkin, ja siksi informaatio kulkee hitaammin. Informaatio ulkoisesta ympäristöstä ja proprioseptiivisestä systeemistä (lihasten ja ligamenttien venyminen, tasapaino, liikekoordinaatio) kulkee selkäytimessä nopeita hermoratoja pitkin, ja on siksi dominoivaa. Kun ihminen kohtaa stressiä, tämä em. ilmiö voi olla yksi tekijä, joka ruokkii yhteyksien puuttumista oikean ja vasemman hemisfäärin sekä limbisen järjestelmän ja anteriorisen cingulaatin välillä aivoissa. On mahdollista, että arvostelemattomuuden ja havainnoivan tarkkaavuuden kohdentaminen proprioseptiiviseen systeemiin voi tarjota keinoja, joilla kehittää ja laajentaa havainnointitaitoja myös sisäisiin tuntemuksiin ja vireystilaan, mikä voisi kehittää monimuotoisempia yhteyksiä aivojen toiminnallisten verkostojen välille. Kokemuksellisesti tämä tarkoittaa sitä, että yksilö kehittää yhteyttään omaan kehollisuuteensa.

Tämä tutkimus toi esiin, että masennuspotilaiden kehonkuvassa ominaisia piirteitä ovat kokemus energian vähyydestä ja siitä, että ympäristön kohtaaminen on vaikeaa, puuttuu suunta omalle tekemiselle. Nämä seikat kuvailevat niitä laatuja, joilla masentunut kokee kehoitseytenään olevansa suhteessa ympäristöön. Kehonkuvassa on fragmentaatiota, eli osittuneisuutta, ja ohut tietoisuus omasta kehosta. Nämä heijastelevat vaikeutta olla suhteessa itseen. Kipu ja vaikeus levätä heijastelevat rasittuneisuutta ja stressiä, jota potilas kokee nykyisessä tilanteessaan, tai johon potilas on aiempien kokemustensa myötä oppinut ja virittynyt. Huoli omasta painosta tuli myös melko usein mainituksi potilaiden kehonkuvakokemuksessa.

Tanssi-liiketerapia (TLT) on vuorovaikutukseen perustuvaa: tutkitaan kehollista kokemusta nyt-hetkessä siinä kohtaamisessa, mikä toteutu potilaan/potilaiden, terapeutin ja tanssi-liikkeen kesken. TLT on metodi, jolla kehit-

tää tietoisuutta kehollisuudesta. TLN teoreettinen perusta tarjoaa tietoa, joka syventää ymmärrystä kehollisuuden ilmiöistä. TLN toteutus tarjoaa yksilölle kokemuksellisen tilan, jossa tutkia ja oppia kehollisuuden kokemuksia ja integroida niitä. Pyrkimyksenä on tarjota yksilölle mahdollisuus laajempaan käyttäytymisen vaihtoehtojen kirjoon arkielämässä. TL:ssä keho reagoi ja vastaa – tapahtuu liikettä, vireystilan muutoksia, jännitteet kehossa vaihtelevat – ja tämä on keskeistä myös vuorovaikutuksen arkitodellisuudessa. Taidot havainnoida näitä kehollisia tapahtumia, olla tietoinen niistä, ja osata kommunikoida niistä myös sanoilla kehittyvät TL:ssä. TLN keskeiset tekijät masennuksen hoidossa ovat stressireaktion säätely, turvallisuus, vuorovaikutus ja dialogi. TL:ssä näiden tekijöiden prosessi tapahtuu kehollisuuden kontekstissa ja sen eteen päin kuljettamisessa luovuudella on keskeinen sija.

Tässä tutkimuksessa ryhmien odotukset TLT-ryhmään liittyen olivat seuraavia: toive kokea turvallisuutta ja kokea kuuluvansa ryhmään, jakaa liikettä ja ajatuksia, leikillisyyttä, mielialan ja kehon integraatiota, oman kehon havainnointia, oppia rentoutumaan toisten läsnäollessa, selviytyä kivun kanssa, helpottaa ahdistusta ja jännittyneisyyttä, löytää mielenrauhaa ja tanssin iloa, ja vapauttaa tunteita. Hyvä tila TLT ryhmässä tarjoaa riittävän turvallisuuden kokemuksen, fyysisyyttä, emootioita, tyydytystä tuottavaa vuorovaikutusta, erilaisuuden sietämistä, hyväksyntää, muutosta ja lopulta myös jotakin, joka on ryhmässä olijalle tuntematonta, mutta mikä voi olla voimaannuttavaa. Nämä kaikki seikat liittyvät turvalliseen, läsnäolevaan ja virittäytyneeseen vuorovaikutukseen, joka mahdollistaa yksilölle sen, että hän voi tutkia ja integroida kokemuksiaan.

Tässä tutkimuksessa ryhmämuotoinen TLT-interventio (12 x 90 min) tuotti potilaiden vointiin masennusoireiden vähentymistä, kun sitä mitattiin oiremittarein, joilla potilas itse arvioi vointiaan (BDI-II, SCL-90, HADS, CORE-OM). Vertailtaessa TLT- ja TAU-ryhmiä toisiinsa, TLT-interventio myönteisempää vaikuttavuutta osoittava efektikoko oli $d = 0.60 - 0.97$, riippuen oiremittarista. Kun vertailtiin TLT-interventio vaikutusta ennen ja jälkeen interventio, TLT-ryhmäinterventio efektikoot vaihtelivat pienestä keskisuureen, osoittaen TLN vaikuttavan kliinisesti suotuisasti. Kontrolliryhmässä, jossa potilaat saivat tavanomaista hoitoa, efektikoot osoittivat hyvin pientä muutosta voinnissa.

TLT-interventio jälkeen oli havaittavissa positiivinen muutos kehonkuvakyselyssä (Body Image Assessment BIA). Kehonkuvan muutos positiiviseen suuntaan selitti 30% oiremittareiden pistemäärien myönteisestä muutoksesta. Mitä positiivisempi oli kehonkuvakyselyn vastausten laatu jälkimittauksessa, sitä matalampia pistemääriä ilmeni oiremittareissa seurantamittauksessa, joka tehtiin 3 kuukautta TLT-jakson jälkeen.

Palautteessa, jota ryhmäläiset antoivat terapiakokemuksestaan, potilaat kuvasivat kehoon liittyviä kokemuksiaan positiivisemmin laaduin. He havaitsivat oman kehonsa positiivisemmalla tavalla, aktiivisuustaso oli kohentunut, jännitys oli hellittänyt, oli turvallisempi olla. He tunnistivat ja havainnoivat itseään joustavammin: oli kokemus, että itsensä löysi, tunnisti fyysisiä kokemuksiaan ja niiden vaikutusta itseän, luotti omaan kehoonsa enemmän. Oman toi-

minnan säätelyyn oli tullut joustavuutta, kun osasi käyttää havaintoja oman kehon olost ja tilasta apuna. Vuorovaikutus tuli joustavammaksi, kun potilaat kokivat jaksavansa toisia ihmisiä paremmin, uskalsivat lähestyä toisia ja olla aktiivisempia vuorovaikutuksessa. Positiivinen vertaistuki ryhmässä oli merkittävällinen, tärkeä kokemus osallistujille.

Ihmiset ovat eritavoin resilienttejä siinä, miten kokemus turvallisuudesta säilyy. Terapiassa ensiarvoisen tärkeää on se, että potilas voi kokea riittävässä määrin fyysistä, emotionaalista ja psyykkistä turvallisuutta. Turvallisuus mahdollistaa vapauden ja tutkimisen, mikä tuottaa rikkaampaa, joustavampaa information käsittelyä ja toimintamahdollisuuksia toisen kanssa ja ympäristön kanssa. Näin yksilön kokemus toimintapotentiaaleista (affordances) alkaa saada positiivisemmän sävyn. Turvallisuudessa käyttäytymistä rakentavat responsit ja toimintakuviot voivat tulla selvemmin ilmaistuksi, ja siten niitä voi tutkia ja ymmärtää tietoisemmin ja integroivalla tavalla. Osallistuja oppii käyttämään tämän kaltaista dialogia myös itsensä sisäisessä dialogissa, mikä vahvistaa hänen tietoisuuttaan siitä, mitä hänen keholliset vastauksensa ja kehollinen tilansa kulloinkin ovat. Tämä tietoisuus rakentaa tilaa valintojen tekemiselle; yksilö voi esim. tehdä hienovaraisia muutoksia liikemuotoon, kehon asentoon, tempoon tai johonkin muuhun liikelaatuun, mikä sitten vaikuttaa yksilön kokemukseen vuorovaikutustilanteesta.

TLTssa toiminnan sisäänrakennettuina ominaisuuksina ovat leikki ja luovuus. Leikin ja luovuuden kliininen merkitys on siinä, että niiden juuret ovat hyväksynnässä ja riittävän turvallisessa vuorovaikutussuhteessa, mikä viimekädessä tukee sitä, että yksilö voi uskaltautua tutkimaan asioita ja vuorovaikutusta. Luovuus ja leikki heijastavat myös yksilön sisäistä suhteesta olemista, laajempaa tapaa käsitellä informaatiota, ja myös tätä turvallisuus ja hyväksyntä tukevat.

Kokemus TLTsta voi tuottaa parempaa kykyä tunnistaa fyysisiä kokemuksia ja niiden vaikutusta, vahvistunutta luottamusta omaa kehoa kohtaan, ja kokemusta siitä, että omaa toimintaa voi säädellä omien keuhavaintojen perusteella. Samanaikaisesti osallistujat voivat löytää parempaa tietoa toisia ihmisiä kohtaan, rohkeutta lähestyä ja osallistua vuorovaikutukseen. Tämä korjaa mielialaa ja helpottaa depressiivisiä oireita. Tiivistäen, TLT näyttää vahvistavan psyykkistä joustavuutta sitä kautta, kun yksilö tulee parempaan yhteyteen oman kehollistetun kokemuksensa kanssa, ja osaa olla tietoisempi kehollisen vastaamisen toimintakuvioista ja niiden vaihtoehdoista.

Tulevaisuudessa on tärkeää jatkaa tutkimusta kehonkuvasta ja TLT-interventioiden käytöstä laajemmalla masennuspotilaiden aineistolla. Kehonkuvakysely (Body Image Assessment, BIA) on käyttökelpoinen menetelmä tässä tutkimuksessa, mutta myös kliiniessä työssä, kun arvioidaan potilaan kehonkuvaa, potilaan tapoja olla suhteessa itseensä ja toisiin, sekä hänen tavoitteitaan terapiassa.

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ORIGINAL PAPERS

I

THE DANCE/MOVEMENT THERAPY GROUP IN A PSYCHI- ATRIC OUTPATIENT CLINIC: EXPLORATIONS IN BODY IM- AGE AND INTERACTION

by

Päivi Pylvänäinen 2010

Body, Movement and Dance in Psychotherapy, 5, 219–230.

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The dance/movement therapy group in a psychiatric outpatient clinic: explorations in body image and interaction

Abstract

The clinical experiences gained in the use of dance/movement therapy group at the Psychiatric Clinic of Tampere are discussed. The clinical work has been built on the tradition of DMT and on the recent findings in neurobiology and interaction. From DMT perspective it is essential that the experiences of the bodily, true self are dominantly processed in right hemisphere of the brain, and the right hemisphere is also essentially involved in emotional processes, nonverbal communications, attachment, subjectivity and intersubjectivity, in empathy, in the processing of non-conscious self images, threat detection, bodily-based stress regulation and survival. Intersubjective relationships are essentially dependent upon the information processing in the right hemisphere. The quality of interpersonal interactions and relationships is influenced by nonverbal behavior and the sensitivity to it. DMT work, promoting movement experiences, internal attunement and sensitivity to body-self allows a creative method to explore and integrate right hemispheric contents.

Keywords: dance/movement therapy, group therapy, psychiatric outpatient treatment, depression, anxiety, interpersonal neurobiology

Introduction

This paper, which is developed from an oral presentation at 'Kinaesthesia and Motion' conference at the University of Tampere on 2-4 October 2008, discusses the clinical experiences gained in the use of dance/movement therapy (DMT) at the Psychiatric Clinic of Tampere City since 2007. This paper stems from the clinical work: what is the rationale for choosing DMT as a treatment method, how to understand the significance of movement experiences and what can be learnt from the therapy processes that develop. This paper reflects on the processes of the first five groups at the psychiatric clinic making reference to body-based, kinesthetic experiences and then figuring out the essential patterns of the group themes and processes.

At the psychiatric clinic, the DMT group was offered to adult psychiatric outpatients, the majority of them females, in 10-sessions periods. It is meaningful to offer DMT in a group, because dance and movement interaction are interactive modes of being. The group interaction offers opportunities for peer interaction and sharing. It enlarges the scope of experiencing and enriches the process and the insights and understanding gained in it. Group format makes the treatment available for several patients at a time, which improves the treatment availability and reduces costs in public mental health services. DMT in a group form

allows the integrated use of therapeutic experiential work, reflection and psychoeducation.

The clinical work has been built on the tradition of DMT (Meekums, 2002; Payne, 1992, 2006; Sandel, Chaiklin, & Lohn, 1993; Stanton-Jones, 1992) and on the recent findings in neurobiology and interaction (Cozolino, 2002; Gallagher, 2005; Schore, 1994, 2003a, 2003b, 2007; Siegel, 1999, 2007). In the practice of DMT there is variation in the applications of DMT. At the shared core of DMT there is the grounding statement that DMT is a creative form of therapy, which uses movement, dance and body experiences as the means of communication to connect with the other and with oneself. DMT is a body/ mind-integrated approach to psychotherapy, which uses expressive dance and movement processes to encourage the integration of emotional, cognitive, social and physical functioning. A lived experience is created in DMT, and some layers of this experience are conscious, some remain unconscious. This experience involves the person's body, emotional responses, expression, cognition and verbal communication in a relationship with the others in the group.

Attentiveness and mindfulness

The attentiveness and sensitivity to the movement experiences and expressions are fundamental in the DMT process. It is a path to get connected with what 'is'. For those who engage with DMT, this conscious, deliberate and nonjudgmental attentiveness to sensations and movement experiences in the body is often a new approach to oneself and to others. It is new as an idea and it is new as an act. Marian Chace (in Sandel et al., 1993), one of the pioneers of DMT, frequently proposed that if one can allow a change of perspective to oneself, and give interest and reverence to the body, it may eventually bring supportive and emancipating experiences. This change of perspective can be translated as improved internal attunement. Siegel (2007) perceives mindfulness as a form of internal attunement: in mindfulness one searches for a way to be aware and awake to what is happening as it is happening. Siegel analyses mindfulness as consisting of three streams of awareness:

- (1) direct sensory experience - i.e. raw sensation of one's body & perceptions
- (2) the conceptual stream - thoughts, words
- (3) observer - the inner witness

In DMT the patient is working with these three streams of awareness: s/he practices to develop a more conscious skill to be attentive to these. In order to do so, s/he needs to move the body, to experience the moments of moving. The body movement and embodied experience create the ground and the concreteness with which to interact. Siegel (2007) proposes that mindfulness may involve more than sensing; it may also essentially involve observing the experi-

ence. This internal 'being-with-the Self' through the function of inner witness can have similar beneficial effects on the person as we know the attuned interaction has. When in DMT intrapersonal and interpersonal attunement happen simultaneously, it can be an experience that elicits change and transformation.

The connections between interpersonal neurobiology and DMT

Interpersonal and affective research orientations in neurobiology offer very inspiring and relevant information for understanding, what happens in the brain and the body in moments of interaction. I am specifically referring to Schore (as presented in his lecture in Helsinki, 2007), Siegel (1999, 2007) and Cozolino (2002). From the DMT perspective, what is essential in this information is that the right hemisphere of the brain is dominant in processing the information relating to the corporeal self. The right hemisphere dominates in non-verbal, kinesthetic communication and stores the repertoire for nonverbal affective signals, which are facial expressions, prosody and gestures. In the brain, the most direct and integrated map of the state of the body is generated in the right hemisphere. The sense of the subjective self is the right hemispheric emotional, implicit self. It is called implicit because we are limited in our conscious attentiveness to this information processing. This implicit emotional self is centrally involved in emotional processes, nonverbal communication, attachment, subjectivity and intersubjectivity, in empathy, in the processing of unconscious self images, threat detection, bodily-based stress regulation and survival.

The right hemisphere is in close interaction with the limbic system. The limbic system rapidly processes information, in particular the sensory information that enters the brain, and makes evaluations whether the information signifies pleasantness or unpleasantness, threat or safety. Cozolino (2002, p. 71) describes the limbic system 'as an intersection of the internal and external worlds where the primitive needs of the organism negotiate with the requirements of the world'. The integration of the information processing in the right hemisphere and in its networking to the left hemisphere shape the intersubjective relationships the individual creates. The quality of interpersonal interactions and relationships is influenced by nonverbal, kinesthetic behaviour and the sensitivity to it.

This information presented by Schore, Siegel and Cozolino (they build their work on the research by other scientists and specialists in the field of interpersonal neurobiology) offers a solid rationale for the core fundamental of DMT, which is the use of movement and bodily experiences as the ground for the therapeutic work. In DMT we work bottom-up: we create the interaction on the body-centred level and emphasise movement communication and exploration. This experience of interaction can be rewarding because there is a space for right brain to right brain communication. Right brain to right brain connectedness, or connectedness through movement and body sensitivity, is essential in

creating an intersubjective attachment bond. Schore (2007) considers this level of bodily-based affective and often implicit communication to be the core of change mechanism at unconscious level in the therapeutic alliance. Change ultimately requires connection to bodily experience that the individual has been disconnected from.

For the use of DMT, I have earlier (Pylvänäinen, 2003, 2008) proposed a tripartite model of body image, consisting of the body-self, image properties and body memory (see Table 1 presenting this model.) Body image as a concept is utilised to convey the psychological and experiential (phenomenological) significance of the body. Gallagher (2005) argues for the distinction between body image and body schema on the level of concept construction. Knowing that my model does not make that distinction, I would still like to bring it into this discussion because I find it meaningful when approaching the contents of the lived body and the experiences of embodiment.

Table 1. The tripartite model of body image (Pylvänäinen, 2003).

Modality	Description	Shared qualities
Body-self	The experiencing, interacting core-self. Relates to the environment. Responds affectively in interaction. Essentially creates the sense of self.	Socially constructed. Developed through movement experiences. Influence the quality of movement that the person creates. Interrelated.
Body memory	The core of what the person is. Functions as a reference for evaluating the current sensations. The container of the movement response repertoire. Carries the experienced life of the person. Habitual/traumatic/erotic body-memory.	Build the sense of self. Have a physiological and neural grounding.
Image properties	Individual's perception of the physical appearance of one's body. A set of beliefs about the body. Influenced by cultural idealisations and attitudes. Can be articulated and visually expressed. Represents the body as something that is owned.	

Of the elements of the tri-partite model of body image, the body-self refers to the experiencing and interacting core self. It is the same as what is referred to as an implicit self by Schore. Body-self relates to environment in the present moment, responds affectively in interaction and essentially creates the sense of self.

Body memory is the container of past experiences and it functions as a reference for evaluating the current sensations. Schore (2007) refers to Shuren and Grafman (2002) saying that the right hemisphere holds representations of the emotional states associated with events experienced by the individual. When the individual encounters a familiar scenario, representations of past emotional experiences are retrieved by the right hemisphere. On the phenomenological level, the body memories are wordless and independent of the conscious will (Casey, 1987); it is the way body remembers in sensations, movement and emotion. Body memory influences the responses we create through the body-self in the present moment.

The third element of body image is image properties, which consists of the culturally shaped attitudes, opinions, preferences and judgements relating to body, body appearance and style. The image-properties conceive the body as something that is owned by the person, the body being malleable and under an outside gaze. This approach to body dominates in our culture, in media and in the word centred communication, because image-properties can quite easily be articulated and visually expressed. Even though the image-properties relate to the external and visual qualities of the body appearance, the associated emotional attitude and self-image shape the movement responses of the body-self.

Schore (2007) suggests the corporeal self is equal to the Winnicottian term 'true self', and I want to suggest that the body-self is equal to the concept of corporeal self. These concepts explore the same terrain, an interactive body and the shaping of the self in that process, but with slightly different ways of shaping the information. Schore elucidates the preciousness of non-verbal, kinesthetic communication in interaction and offers information about how these events evolve at the level of neurology. The body-self brings into focus the relevance of the body, its sensitivity and responsiveness, and the fact that all our actions, whether doing or being, are carried out through the body. Returning to Winnicott's writing about true self, which he uses to describe the feeling of being real, whole and spontaneous (St Clair, 1996), reveals that the essential nature of body in interaction and in the sense of self has been noted decades ago, but it has not been verbalised and understood in a clear and plain way. Winnicott (1971, p. 80) states that 'no sense of self emerges except on the basis of (this) relating in the sense of being. The sense of being is something that antedates the idea of being-at-one-with, because there has not yet been anything else except identity'. The identity that we have from the very start is the body, and we need to sense the being-in-the-body. This sensing is the function of the body-self. We need to perceive the actions and sensations of the body and also our becoming

conscious about them to some extent. Interestingly, Winnicott also says it is only in being creative that the individual discovers the self. He suggests that in this context, creativity is a feature of life and total living. I see this kind of creativity appearing in the spontaneous creation of responses and connections as we interact with the environment. Again, it is the body that does these. Winnicott describes what kind of setting is most supportive for this kind of creative exploration: one needs to enter a nonpurposive state (allow a visit to formlessness) in an atmosphere of trust and relaxation (Winnicott, 1971, pp. 54–55). From a state of resting in the body-self and in a relationship, a creative reaching-out can emerge.

The DMT group processes

In the DMT process, the elements of the body image are encountered and the body-self has a chance to be carefully attended to. At the psychiatric clinic I have written session notes of the DMT sessions, and these notes document the process each of the five groups moved through over the treatment period. The processes of the groups demonstrate issues that the adult patients with depression, anxiety and chronic pain discover and work on. The creative nature of DMT has allowed the group members to unfold these themes through movement explorations and body-oriented awareness and mindfulness. When a mindful approach is applied on movement experiences, the therapist models a stance characterised by curiosity, openness, affection and loving kindness. Then, for the observation of the movement experience, the attention is opened towards being aware of sensations, images, feelings and thoughts. Essential in this working atmosphere are confidentiality, respect, compassion (especially being non-judgmental) and non-violence.

The patients joined the DMT group after an initial interview. The basis for entering the group was the patient's own willingness and motivation to enter DMT and the suitability of this treatment form in his/her situation. For the suitability, the essential factors are that the patient can tolerate being in a group and moving, and also find some cognitive rationale for joining this kind of activity. The groups were closed (no new members during the treatment period) and had 5–11 participants, who gathered weekly for a 90-minute session. The sessions were offered in a spacious gymnastics room which was located at a public sports facility. This arrangement allowed a clear space for moving, which was not available in the office rooms at the site of the clinic.

The group processes can be seen as a triad of beginning, middle process and end (Schmais, 1985). Another way to describe these phases, and to acknowledge their overlapping nature, is to call the three phases of the processes as positive expectations/experiences, the shadow and the resolution. The positive expectations and hopes the groups worded at the beginning of the process were: a wish to experience safety and a belonging into the group, sharing movement and

thoughts, playfulness, to integrate mood and body, to observe one's body, to learn to relax while others are around, to cope with pain, to have some relief to anxiety and tension, to find a calm mind, joy of dance and a discharge of emotions, to be able to go beyond one's anxiety causing limitations, and to discover one's femininity in a positive way. Various movement qualities and orientations were welcomed: to move with quick tempo and slow tempo, to move aggressively, to move gently, to move rhythmically, to move with imagery, to move with music, and to move emotionally.

In the DMT session we moved to warm-up the body and to make movement explorations. In the warm-up, the focus was to enhance the personal body boundaries, the sense of groundedness, the various options for the use of space and movement qualities, and very gently bring the attentiveness to breathing. In the DMT work the group members could experience release of tension, relaxation, joy and the pleasure of movement, and even playfulness. In addition to these positive experiences within the individual, the aim in the warm-ups was to build safety in the body, in the interaction, and in the shared space. It is good to remember Schore's (2007) notion that the safe holding environment in the therapeutic relationship is created through the nonverbal activity and preverbal communications.

However, the shadow often and sometimes very quickly appeared in experiences. This could be observed in single sessions as well as in the path of the group process. I use the word 'shadow' to refer to the uncomfortable, unpleasant sensations, discomfort and anguish that relate to movement experiences. These kinesthetic sensations may relate to the unconscious and rejected contents in the Self, but in the immediate experience in the DMT session they arise from what is happening in the moment and in movement interaction. To go to specifics, these themes included feelings of tiredness and lack of energy, anxiety, emotional and physical pain, difficulty in being in the group and interacting with others, aggression, demands and feelings of guilt, memories of the past interactions and relationships, and negative and critical image of oneself. The groups gradually worked their way through these themes in movement and words, and created some kind of resolutions with them.

The DMT group aims to use the constructive elements of movement to support the patient while s/he is going through the process of encountering the struggles with the discomfort and anguish discovered in the body. It was common in the group process that initially the suffering was expressed in words describing tiredness, anxiety, difficulty to function, etc. The general atmosphere in the group was frequently depressed in this phase. Patients might sit quite immobile, in closed and sunken postures. There was lack of spontaneity in interaction. Sometimes someone shared a particularly anxiety evoking narrative, about a dream or some event or incident in life. In DMT we have the option of directing the group activity at this point to the body level, and we can choose wheth-

er we use the movement to search for a more neutral and safer experience, or move to express and explore the suffering. I often chose the first option of using emotionally neutral movement which focuses on the body basics of grounding, body boundaries, personal space and tension releasing movement in vertical posture. The improved sense of the body image, safer grounding in the body-self, increased awareness of the body sensations and experience of movement abilities and movement options offered the patient a stronger sense of the body-self. This contributed to the sense of trust, safety and mastery in oneself. Also, when the body was activated into movement, the state in the body and in the brain changed, which could change the experienced mood. As a modelling of emotion regulation, my choice of neutral movement offered the patient the option of not freezing into immobility with anxiety, but to safely move in spite of it and with it.

When we explore through movement, it is important to remember the potential of different movement qualities and the different ways we can use space in movement. The change of tempo (Time-effort), the change of strength in movement (Weight-effort), the change in the orientation to space (Space effort) and the change in the freedom or boundness of the movement flow (Flow-effort) can significantly transform the experience the movement brings to a person. The options of qualitative changes in movement also open the options of gentle and natural changes. While movement is the language of emotion, interaction and the right brain hemisphere, the possibility for different qualities in movement is the venue to search for transformation via this movement language. It is paradoxically concrete and abstract at the same time. Also, movement qualities create the space for creative and symbolic expression. For example, in the group an improvised movement exploration can start with a bound and stiff movement quality, which can express in movement the experience of anxiety. When we add an active use of time-quality for example through rhythmic shaking of hands or stepping of the feet, we can alter the boundness and allow a safe expression of restlessness. Then we can change the quality of strength into stronger and express assertion or aggression and, as the stamina naturally decreases, we can explore lighter weight, which can express delicacy or ease. This was an example of an actual movement improvisation one group once created at the end of a session, which had been filled with anxiety and hopelessness.

Sometimes it is imagery that guides the movement changes. For example, once a group was improvising movement with an octopus-shaped, colourful, lycra-cloth. I asked the group members what they want to do with the cloth, and they begun to comment on how it looks like to them. The cloth seemed scary like a spider; it was a soft jellyfish, it was like mucus. To others the cloth was like a sun, it was welcoming in a pleasant way. We begun to explore these images in movement, and the activity turned very lively. The group discovered movements expressing disgust, aggression, and dropping away, letting go of long

held tensions in the body. During the activity someone commented that the cloth looks like a neuron. As the intensity of the active movement gradually and naturally eased, I offered the idea of exploring what the cloth gives to oneself; the cloth invites into movement, its extensions can give something to oneself. I suggested the group members play and explore in movement with the idea that the body can receive. At the end then, the body could find a suitable way of separating from the contact to the cloth. Here the imagery allowed a safe space to express some personal issues symbolically and through movement. Imagery allowed play and creative expressions. We used words but did not have to analyze why we used the words we used. Sometimes this can be a way of emotional expression the person can consciously accept and tolerate, and at the same time the body-self, the emotional core-self is actively engaged in the expressive process.

Acknowledgement and sharing of these contents of movement explorations is an important part of the work. When we are involved with movement in DMT, the attitude towards it is mindful. At its core, mindful awareness is acceptance: there is an intention to be open to perceive without judgment whatever arises in the experience and awareness. There is no active attempt to achieve an outcome or change, we simply explore, and this actually is one pathway to release us from suffering. In a DMT session, we always return to reflect on the movement experiences. Sometimes we can reflect on the experience through movement by creating movement that expresses what was essential in the previous movement experience. Or we can draw a picture of what was essential in the experience. However, because in adult interaction verbal expression plays a significant role, we frequently search for a verbal reflection of the movement experiences. The method to get a hold on the movement experience in words is to describe what movements one did, what body sensations one had, what emotions arose, and what imagery or associations were evoked during the movement experience. Again, the attitude is mindful; we aim to observe and to acknowledge. This allows the group members to practice a more body-oriented way of self-observation, a more concrete and embodied way of using words and an orientation to the present moment. The observation and body-based grounded description of what happened helps in recognising response patterns. When this practice is done repeatedly, it allows a possibility to 'decouple automaticity' in responses (Siegel, 2007); the person becomes aware of her typical embodied responses in some situations, and this gives her an option to alter her responses by deliberately choosing to change some quality in her body shape or movement qualities. Here I want to refer to Siegel's (2007) proposal that in clinical work with suffering there may be a need to amplify the observer capacity to 'decouple automaticity' to begin the process of balancing. Also, the act of verbally describing movement based experiences activates integrative connections in the brain.

Central themes in the processes: sensitivity and threat vs. safety

The engagement in movement activity with an attitude of observation brings us to the theme of sensitivity. When we are willing to be open to experiences and perceive something, we are choosing to keep our senses open and we are intending to be able to sense. Sensing and sensitivity is a very fundamental and multilayered theme. One aspect of sensing is how one senses one's own movement. In one session a group member told us that she had just moved in a way which did not quite feel like her own, except for when she was stretching her back. This very observation of the difference 'when the movement feels like my own – when it does not feel like my own' is essential in consciously connecting with one's own activity and in one's body-self.

Another group in its seventh session encountered the theme of sensitivity when the movement suggestion was to create movement about a word that describes oneself. The words that the group members chose for themselves were dull/tired, sensitive and timid/timorous. The task took the group to a low energy and stuck movement. When we discussed this experience, the group members spoke about feelings of unease and discomfort, annoyance and disinterest, and dullness. So the invitation to move about oneself took the group members to an uncomfortable and anxiety invoking place, which led to the shadow and suffering coming right up. It was interesting that the words the group members had chosen had all something to do with sensitivity: dulled sensitivity, fearful sensitivity, too much sensitivity. The shared challenge of the group members was this difficulty with sensitivity. This opens up a broader array of questions: what is one's personal attitude towards sensitivity, has one ever learned ways to live with the sensitivity the body holds, what is the attitude the surrounding culture seems to hold towards sensitivity and the sensitive, sensing body-self. In this particular session, one group member eventually commented that she feels like she is too sensitive to this world. And she is not alone with this theme; in DMT it has appeared several times that sensitivity, a natural quality of the body, is often causing difficulty to the group members. The difficulty seems to be two-fold: how one is willing to encounter one's sensitivity and what one's sensitivity brings up.

Also, the theme of threat vs. safety in the being-in-the body has appeared in the groups as a very essential theme. This, of course, relates to the theme of sensitivity as well. Threat vs. safety is a quality in the experiential world of the body image, particularly in the experiencing body-self (see also Fosha, 2003). Sometimes a threat is perceived in the environment outside of the body, sometimes it is a more internal experience. The groups spontaneously brought the theme of threat up; my task seemed to be to introduce the option of safety. What brings safety, what movements can a group member experience as safe to herself, what qualities of space create safety, what distance feels safe, and what sounds feel safe? It is important to work to create the possibilities for the safety to develop.

When there is the polarity of safety, we can tolerate to observe also the sensations, emotions or imagery that we perceive as suggesting threat.

There were challenges and shadows on the way, but gradually the groups worked towards some resolutions. The contents of the resolutions included experiences of connectedness and sharing in the group, some taming of anxiety and finding tolerable ways to be with it, and finding interest and a caring attitude towards one's body. After the DMT group process the members were grasping the body-oriented attitude and had improved their connectedness to their body-self. They were more grounded in their body, which enabled them to function in a more grounded, aware and resourceful way. This was a basis they could then continue to flow with.

Integrating conclusions

The following list summarises what DMT explorations in movement and interaction may bring:

- release, relaxation which relates to the calming of the state of the autonomous nervous system
- images, memories, associations
- symbolic expressions of the self
- varying ways of experiencing and encountering the world
- new ways of being and acting in interaction
- activated relationship to oneself: what one discovers in oneself, movement expressions of this, connectedness to the body-self/core-self
- reflections in words of these experiences
- being in the body in the present

The embodied and reflective engagement in these explorations can change the state of the patient in the present. They can give her new experiential information about how she can be in her body, what she can do with her body, and how she wants to and can reach out for others in these moments. Body, movement and interaction are the ground and the space, mindfulness is the way to observe the phenomena, and all this is reflected in the present activity of the brain. Some of the experiences become stored in the brain, thus becoming a part of the patterns in our behaviour. DMT supports creating integrated patterns on the neurological level, which naturally supports more integrated behaviour and a more integrated experience of self. Experiences in DMT bring us to the sphere of being in the body, developing a more conscious settling into our embodied nature, which fosters vitality for our reaching-out.

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II

BODY MEMORY AS A PART OF THE BODY IMAGE

by

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Running Head: BODY MEMORY AS A PART OF THE BODY IMAGE

Body Memory as a Part of the Body Image

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Abstract

First outlining body memory from a phenomenological perspective, this chapter then relates that view with the information offered by neurosciences, especially with the work of Kandel (2007), and makes efforts to understand, what is the nature of connections between body memory and the body-self; is something one just experienced part of body memory immediately after the lived moment; and how body memory influences the responses and actions the body-self expresses. Through vignettes from a clinical dance/movement therapy (DMT) group, it is explored how patients encounter body memory related issues in DMT.

Keywords: body image, body memory, neuroscience, dance/movement therapy, psychiatric outpatients

This chapter explores body memory in relation to the tri-partite model of body image (Pylvänäinen, 2003, 2006, 2008). The tri-partite model of body image differentiates the body image into the elements of body-self, body memory and image properties. The body-self is an active, responsive element in the body image, the body's quality of being present and in interaction with the environment. The body-self is actualized in the present through connectedness with the sensory, kinesthetic and perceptual information in the body. The image-properties are perceptions, thoughts, judgments, and 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 is the name for the embodied information storage function of the body.

A Phenomenological View on Body Memory

Body memory on a phenomenological level has three spheres: habitual, traumatic and erotic body memory (Casey, 1987). Habitual body memory is defined as the active presence of the individual's past in the body. Habitual body memory contains the embodied experiences of everyday routine activities and movement repertoire. This essentially builds the sense of coherence, continuity and familiarity. It supports orientation in the present situation. The habitual body memory, as it carries our movement repertoire and embodied ways of coping, can foster a sense of safety, mastery, and agency (Pylvänäinen, 2003). Traumatic body memory, according to Casey, holds sensations and kinesthetic responses from moments of trauma and pain, whether emotional or physical. These moments may have been personally lived, or observed in others. In traumatic body memories the integration of the body is violated and the experience of embodiment becomes fragmented. The third sphere of body memory,

erotic body memory, is the storage of embodied experiences of pleasure. Casey suggests that erotic body memories are essentially interpersonal. As secure and attuned interactions are nurturing and empowering to us, they also bring pleasure which is experienced in the body and is then stored there. This has a positive impact on the general state of the body-self.

In an interdisciplinary exchange on the concept of body memory (Pylvänäinen, 2010), the shared consensus was that body memory is a bodily resonance in relation to some lived experience. However, as the nervous system and the brain integrate information, body memories may become associated with olfactory information, visual imagery, sounds and/or words that are related to the situation. Body memory is a hybrid of time, space and kinesthesia. It has potential to make the past present through embodied reminiscence, and yet it also may enable the person to recognize that the present moment is distanced from the past. Body memory influences the state of the body as it has an impact on how the present moment is experienced. Importantly, body memory shapes the person's perception of his/her window of tolerance; what s/he feels s/he can hold in his/her body and not to break. The contents of body memory arise from how we are in relation with the other – how the body-self interacts with the other and what kind of imprint that leaves into the body. Not only is body memory shaped by the interactions with the other and our experiences of ourselves, it is also shaped by our interactions with nature and environment. The patterns that the body repeats in the tension cycles and body-attitudes in its relation to space and environment are contents of body memory (Shahar-Levy, 2009, p. 275). Body memory stores our experiences; what we have learnt through our experiences on the embodied level. The contents of body memory are created through the interactive body-self.

Body Memory Perceived through the Neurosciences

Kandel, a Nobel Prize winning neuroscientist, whose molecular biological approach has revolutionized human understanding of how information received by our senses becomes hard-wired, is an inspiring source of knowledge also when deepening the understanding of body memory. In the year 2000 Kandel received the Nobel Prize in Physiology and Medicine for his contributions to the study of memory storage in the brain. Kandel differentiates two kinds of memory: implicit and explicit memory, both of which can function in either short-term or long-term storage of information. He defines conscious memory as explicit or declarative memory: conscious recall of people, places, objects, facts, and events. Unconscious memory refers to implicit or procedural memory: habituation, sensitization, classical conditioning, perceptual and motor skills (Kandel, 2007, p. 132). Implicit memory guides us through well-established routines that are not consciously controlled (*ibid.*, p. 279). This unconscious, implicit memory seems to equal with the content that has been related to body memory. Kandel notes, “that constant repetition can transform explicit memory into implicit memory. Implicit memory often has an automatic quality. It is recalled directly through performance, without any conscious effort or even awareness that we are drawing on memory” (*ibid.* p. 132). This is particularly true for habitual body memory, but also for traumatic and erotic body memory. Implicit memories of skills, habits, and conditioning are stored in the cerebellum, striatum, and amygdala (*ibid.* p. 130).

Body memory on a cellular level is manifest in how the neural pathways are shaped to store information relating to sensations and kinesthetic responses in the body. Information processing patterns and response patterns on the neural level are shaped by

experience. In his scientific work, Kandel's particular interest has been around what actually goes on at the level of the synapse when behavior is modified by learning and how different forms of learning and memory relate to each other on the cellular level. He studied these phenomena on the cellular level in a fairly simple snail-like animal, *Aplysia*, and was able to show what changes happen in neurons, when the animal learns through habituation, sensitization, and conditioning. He also studied how this learning becomes stored in implicit memory. Even though we like to think that humans are different from snails, a biological fact is that different organisms – and different types of cells - are made from the same material. Half of the genes expressed in the human genome are present in much simpler invertebrate animals, such as the snail *Aplysia* (Kandel 2007, p. 245). Thus the neural phenomena *Aplysia* demonstrates also essentially apply to humans.

At the core of the lessons from *Aplysia* is the unfolding of the fact, that the living body and its nervous system learn from the sensations received from the environment. There are many kinds of learning, and one kind of learning – and eventually memory – is mediated by sensory neurons, interneurons, and motor neurons. Kandel (2007, pp. 66-67) sums Cajal's early findings on the nervous system:

Sensory neurons, which are located in the skin and in various sense organs, respond to specific type of stimulus from the outside world - mechanical pressure (touch), light (vision), sound waves (hearing), or specific chemicals (smell and taste) - and send this information to the brain. Motor neurons send their axons out of the brain stem and spinal cord to effector cells, such as muscle and gland cells,

and control the activity of those cells. Interneurons, the most numerous class of neurons in the brain, serve as relays between sensory and motor neurons.

By increasing the amount of glutamate a sensory cell sends to a motor cell, sensitization strengthens the synaptic potential elicited in the motor neuron, thus making it easier for that neuron to fire an action potential and cause the response pattern (ibid. p. 222). Thus there is a response pattern that is created by the living body and its nervous system: initiated by sensory information received by the sensory neurons, and executed by the motor, kinesthetic activity. The motor, kinesthetic action is related to a sensory perception, and the information from the sensory perception is transmitted by the intermediary neurons. The serotonin-releasing interneurons are called modulatory interneurons because they do not mediate behavior directly; rather, they modify the strength of response (the gill-withdrawal reflex in *Aplysia*) by enhancing the strength of the connections between sensory and motor neurons (ibid. p. 223). The organism has, and indeed needs, an integration of sensory, tactile, proprioceptive, and motor efferent information; it is the essence of its ability for intelligent action, which can be shaped by information from the environment and the organism's own state. Going to synaptic level, Kandel and his colleagues found that in implicit memory

... the same synaptic connections between sensory and motor neurons that are altered in short-term habituation and sensitization are also altered in long-term habituation and sensitization. Specifically, in long-term habituation the number of presynaptic connections among sensory neurons and motor neurons decreases, where as in long-term sensitization sensory neurons grow new connections that

persist as long as the memory is retained. There is in each case a parallel set of changes in the motor cell. (ibid. p. 213)

The learning and its storage in memory thus shape the nervous system. In relation to body memory, some fascinating and also baffling questions arise: Is something I just experienced part of my body memory immediately after the lived moment? What is the nature of connections between body memory and the body-self? How dominant is the role of body memory in the choice of responses and actions the body-self expresses? Pondering on these questions can organize the understanding of body image and body memory. In Kandel's work, some perspectives on these questions may be found. He discovered a clear pattern in the changes that take place in a single sensory and motor cell for short- and long-term memory. A modulatory interneuron is activated by a sensory cell, which receives information from a body part. The way of signaling the modulatory neuron uses is the transmission of serotonin to the sensory neuron that is directly connected to a motor neuron (Kandel, 2007, p. 224). Kandel discovered in his experiments that one brief pulse of serotonin strengthened the synaptic connection between the sensory and motor neuron for a few minutes by enhancing the release of glutamate from the sensory cell. Glutamate is a major excitatory neurotransmitter. A functional change happens as the synapse is strengthened via this enhanced release of glutamate. At this stage, the nucleus of the cell is not involved. According to Kandel, this is the phenomenon under short-term memory. Anatomical change happens after several (5) pulses of serotonin: the synthesis of proteins in the nucleus is activated and new synaptic connections grow, as well as the release of glutamate is enhanced (ibid., pp. 255-256). If we boldly try to apply this information on the level of body memory,

we would have to ask, how strong is the impact of an experience – is it just ”one pulse of serotonin” or ”several pulses of serotonin”, which would make the nucleus of the neuron change, and thus lead to a long-term storage of the information? This is quite an abstract and technical question, but it does guide us toward acknowledging, that experiences are sensed in varying intensity by our sensory system. The stronger or more repetitive the stimulus, the stronger the signaling and the more happens in the neurons, which increases the possibility that the neurons may become transformed by the signaling for a shorter or even longer period of time.

Could we assume then, that the body-self, i.e. our sensory and motor systems, act and respond, and when some more permanent transformation happens in the configuration of the connections between the neurons in these systems, then a new body-memory trace has settled into the system? It may be very relevant to recognize that the nervous system is in a state of constant change in its almost infinite connections. The human brain contains about 100 billion neurons (Kandel 2007, p. 443), and some of them function as sensory neurons. The amount of connections between the nerve cells is huge: Kandel shares Bailey's and Chen's finding that a single sensory neuron has approximately 1300 presynaptic terminals with which it contacts about 25 different target cells - motor neurons, excitatory interneurons, and inhibitory interneurons (ibid. p. 214). So a change in one connection is a very minor change in this network of connections, and yet it has some impact on the way the nervous system and the brain process information. Kandel states: "The cellular mechanisms of learning and memory reside not in the special properties of the neuron itself, but in the connections it receives and makes with other cells in the neuronal circuit to which it belongs (ibid. p. 142)". In the constant processes of experiencing and acting, the neurons make

connections, indeed struggle to make connections with each other. The connectedness defines the survival and development of a neuron (Cozolino, 2002); the integration of the nervous system defines the survival and development of an organism; and this pattern is repeated in the significance of connectedness and interaction between individuals. There must be some stability in the connections to enable and organize the functioning, and there must be some changes in the connections as live processes take place.

In a lived experience, it is clear that the body-self and body memory are closely connected. The body-self responds and acts in the here and now, and in its responses it is informed by information stored the body memory: the habits, the learnt thresholds and response patterns. But, in our actions, do we only repeat what we have already learnt? If we place the functions of sensitivity, kinesthesia and attention to the body-self, there opens up an option for choice and the creation of new activity. I propose that the body-self creatively shapes the response from the information body-memory offers and on the basis of the present sensations and information from the environment. It becomes essential, what is the focus of attention, and how much consciousness plays in. Kandel (2007, p. 302) quotes Mountcastle:

...sensory nerve fibers, (are) our only information channels, our lifelines to reality. They provide also what is essential for life itself; an afferent excitation that maintains the conscious state, the awareness of self. Sensations are set by the encoding functions of sensory nerve endings, and by the integrating neural mechanics of the central nervous system.

Kandel (2007, p. 313) reminds us, that in the field of psychology already one of the original thinkers, William James pointed out that there is more than one form of attention. Involuntary attention is supported by automatic neural processes and it is particularly evident in implicit memory. Involuntary attention is activated by a property of the external world. Voluntary attention is a specific feature of explicit memory and arises from the internal need to process stimuli that are not automatically salient. I propose the body-self holds both involuntary and voluntary attention. The coupling of consciousness with attention defines whether the attention is involuntary or voluntary.

According to Kandel (2007, p. 374), "consciousness is a state of perceptual awareness, or selective attention writ large. At its core, consciousness in people, is an awareness of self, an awareness of being aware, ability to experience and attend to and reflect upon those experiences." The ability for attention and consciousness that the body-self holds enables the channelling of some of the contents of body memory into our conscious processing. I propose the body-self holds the ability for consciousness and attention because we need to be attentive to and conscious about something: initially that something would be our sensory perceptions which can be perceived only through the body. Kandel (ibid., p. 383) makes an interesting reference to the work of Crick and Koch, who proposed that in the brain, claustrum may be a population of nerve cells that mediates the unity of consciousness. Claustrum is a sheet of brain tissue that is located below the cerebral cortex. Claustrum connects to and exchanges information with almost all of the sensory and motor regions of the cortex as well as the amygdala, which plays an important role in emotion. It is significant, that all of the neural networks relating also to implicit learning and memory – sensory and motor networks and amygdala – are areas that the claustrum is connected to as it makes consciousness

emerge. This, I propose, indicates that the body-self is involved with the creation and maintenance of consciousness and attention. And yet, in the present moment, for these functions, the body-self needs the connections to body memory.

Fascinating in this regard is the finding, which Kandel brings up from studies by Kornhuber and Libet (Kandel, 2007, pp. 389-390). Kornhuber found in his experiment, that invariably, each movement of the right index finger his study subjects executed was preceded by a little blip in the electrical record of the activity in the brain. He called this potential in the brain the "readiness potential" and found, that it occurred one second before the voluntary movement. Later Libet found that the readiness potential appeared 200 milliseconds before a person consciously felt an urge to move his/her finger. Libet proposes that the process of initiating a voluntary action occurs in an unconscious part of the brain, but that just before the action is initiated, consciousness is recruited to approve or veto the action. The body-self may start some activity unconsciously, and at some point of the process, the activity may become conscious.

The body-self is active and responding in the present. The brain actually has a more limited capacity for processing sensory information than what is the capacity for measuring environment in the body and receptors (Kandel, 2007, p. 311). Attention acts as a filter, selecting some objects for further processing, and yet, attention does not necessarily imply consciousness. For example, studies have shown, that the neural system stores both unconscious, emotionally charged memories and conscious, explicit memories of feelings. They are stored because unconsciously or consciously, attention was paid to the stimuli that evoked the emotions and feelings. In the neurological research of emotion processing in humans, the unconscious recall of emotional memory has been shown to involve implicit memory storage, whereas conscious remembrance

of the feeling state has been shown to involve explicit memory storage and therefore to require the hippocampus (ibid., p. 342). Using the perception of fearful faces as the setting in which to study the unconscious and conscious perception of emotional information, Kandel and his colleagues (ibid. p. 387) found out, that in the unconscious perception of fearful faces neural activation takes place in the basolateral nucleus of amygdala, which receives the most of incoming sensory information and is the primary means by which amygdala communicates with the cortex. In the conscious perception of fearful faces the neural activation is located in the dorsal region of amygdala, which contains the central nucleus, sending information to the regions of the brain that are part of the autonomic nervous system - concerned with arousal and defensive responses. In both instances, body-self mediated information is needed and processed. This again gives ground to the understanding, that body-self can be functioning both consciously and unconsciously.

The connections and exchange between the body-self and body memory are fundamental; they enable each other and function in an orchestrated way. In the study about the perception of fearful faces (Kandel, 2007, p. 387), it was also discovered, that the higher the person's background anxiety, the greater the person's response. People with low background anxiety had no response at all in the case of unconscious perception of fearful faces. Unconsciously perceived threats disproportionately affected people with high background anxiety, where as consciously perceived threats activated fight-or-flight response in all volunteers in Kandel's and colleagues' study. Background anxiety is presumably developed in connection with earlier experiences, and that information is stored in body memory. Another interesting view to the interconnectedness of the body-self and body memory appears in the neural

phenomenon that in the unconscious perception of an emotional signal, the signal goes to those parts of the amygdala which communicate with the cortex, whereas in the conscious perception the signal is sent onwards to the autonomic nervous system, which shapes the state of arousal and defensive responses (ibid., p. 387). What happens then, when the state of arousal changes and some defensive responses are activated? Defensive responses may be perceived as information stored in body memory, particularly in habitual and traumatic body memory. Through these changes in the responsive body-self, the person has more embodied information and more time and chances to attend to it. In doing this the body-self is actively involved, again combining the information from body memory and from the present situation.

If the understanding is, that body memory influences the state of the body-self in the present moment, how does it do it? The tension patterns, for example the background anxiety, are one channel for body-memory to shape the state and responses of the body-self. Koch (2007) reports some interesting results from experiments on how movement in the present moment influences person's affect or cognitive evaluations. She had participants move the arms in either fighting or indulgent movement qualities. The results showed that when movement had a quality of fighting rhythms, it caused higher negative affect (tense, aggressive, nervous, etc.). The quality of indulgent rhythms caused higher positive affect (relaxed, joyful, playful, etc.). In two other experiments she studied the influence of movement rhythms (indulgent versus fighting movement qualities) and movement shape (approach versus avoidance arm movement) on attitudes toward initially valence free Chinese ideographs (cf. Cacioppo, Priester, & Berntson, 1993). These studies indicated that when movement was indulgent in rhythm and approaching in shape it evoked the most positive attitudes toward the initially

valence-free Chinese ideographs. The quality combination of indulgent rhythm and avoidance shape produced the least positive attitudes. The combination of fighting rhythm with either approaching or avoidance shape caused fairly similar impact on attitudes, and in both instances the attitudes were significantly less positive than in the condition of indulgent rhythm and approaching shape. However, when the combination was congruent, i.e. fighting rhythm was combined with avoidance shape, the attitudes were more positive than when the combination was clashing, i.e. the indulgent rhythm was combined with avoidance shape. I find it very interesting to consider these results in relation to body memory: what kind of experiences and learning have previously related to these rhythm and shape combinations? It seems, that the activation of positive body memories – indulgence signaling safety and approaching signaling connection and gratifying encounter – has the most positive impact on the present state of the body-self and the experienced affect and attitudes. The fighting quality combined with either approaching or avoidance shape produces somewhat positive attitudes. This could echo the experiences of successful use of own strength, which may activate a sense of agency and sense of control. The least positive impact on attitudes arises from the clashing combination of indulging rhythm and avoidance shape, which in combination may relate to experiences of displeasure, the loss of volition and sense of agency. In these ways, the qualities of our interactions, which become stored in the body memory, return to influence the responses the body-self creates in the present moment.

Encountering the Body Memory in a Dance/Movement Therapy Group

In my work as a psychologist in a psychiatric outpatient clinic, facilitating a dance/movement therapy (DMT) group, it is fascinating to explore how the concept of

body image is reflected in the experiences the patients have in a DMT process. The source of the vignettes presented in the following is a 15-session DMT group for eight women, aged 21-59 years. The group members have signed a consent form allowing the sharing of the material from the group in this text in a manner that protects each individual's privacy. The information about the group is stored in written process notes that I kept in order to support the containment and understanding of the process. There is no video material about the sessions. Consequently, all the information about the embodied, sensory experiences that evolved in the sessions has had to be transformed into words for the purpose of communicating about them in this text.

The patients in the group had various diagnoses: depression (moderate or severe), bi-polar disorder (depressive phase), ADD, eating disorder and social anxiety disorder. Several of the patients had a challenging life situation, e.g. a chronically demanding family situation, burn-out from work, significant changes in relationships or personal roles. Many of the patients had traumatic experiences in their life-history. Two of the patients had gone through an individual psychotherapy (2.5 and 3 yrs), one had received individual psychophysical physiotherapy for a year, one had participated in a group for patients with eating disorders and one had studied expressive therapy. All of the patients had received individual counseling or supportive therapy at the clinic prior to this group. Thus, all of the patients had some experience and skills in reflecting on their experiences. Most of them used medication to support their recovery.

The patients were chosen for participation in this group on the basis of their own interest in doing movement based work and their willingness to participate in a group. In an initial interview the patient's situation was discussed. Mostly the focus was in the present, screening also the patient's experience and thoughts about her body: how she

has moved recently, what preferences she has in movement, what her opinions or concerns in relation to her body were. Often the narrative about one's body connected with the mood, the level of the sense of agency and with self-appraisal, i.e. how content or discontent the patient was with herself.

One of the goals of the initial interview was to discuss the personal themes and/or goals for the patient's participation in the group. The patients (with their avatar names) are here in the order of age, the eldest first:

Amalia: To continue the exploration of embodiment and the development of regulation skills for the state of tension one holds in the body.

Birgitta: Exploring the tensions one carries in one-self. Patient also noticed she needs to develop her skill to recognize and describe and differentiate what is one's bodily experience and what is the feeling.

Carla: Exploring the fact that one is middle-aged and lives in a certain way. As her life situation was challenging, the patient expected the DMT group to function as a refueling place. At the start of the group she also thought that the verbal sharing about one's experiences in the group could be a positive and supportive element of the work.

Dora: To explore embodiment, to improve body awareness and the ability to be attentive to the body in everyday life, to deepen one's understanding about the connections between body and mood. Patient was also interested in exploring gentleness and interaction through movement.

Eva: To continue to reflect on one's bodily responses; this patient had already made significant notions about her response patterns which were built on her experiences in earlier interactions in her life. She wanted to maintain the possibility to be engaged with moving and physical activity. Participating in a group therapy was new

for her, and she was curious about it. One theme in the process was coming to terms with one's expectations and with what one does in reality. The patient had experienced several disappointments of placing hard expectations on herself and then finding the situation impeding.

Fanni: To strengthen one's sense of self, to develop stress management skills and the ability to relax. The patient was interested in developing her own way of doing, her own space, and her own tempo in her sense of agency. This related to her work and also to her way of participating in social interaction. Since the patient was pregnant at the start of the group, the DMT group would also allow her to encounter her changing body and her path into motherhood in movement interactions.

Gail: The patient had noticed her body image as unstable; sometimes she would be content, sometimes discontent with it. She would like to develop a skill to orient towards her body and movement from an internal rather than external perspective. She also would like to develop her body image towards being able to tolerate the changes that in her future may come along with pregnancy and motherhood.

Hanna: As the patient had recognized her body image was distorted, she wanted to explore it. She had undergone a psychotherapy and wanted to embody the learning she had achieved there: to talk about herself, to be gentle and merciful towards one-self. She found relaxing difficult and was interested in developing the ability to relax. For her, the weekly routine and structure provided by the group was also welcome. She wished the DMT group to be a place to listen to one-self.

The body image related themes came up in various ways in the patients' individual themes. Most of them related to the body-self: developing skills to recognize and regulate the state of the body-self, the sensations and tensions in the body-self, bringing

the body-self into interaction, differentiating between sensations and emotions. The exchange between body-memory and the body-self become apparent when a patient acknowledged the impact of her past life events on her typical ways of reacting and responding with her body-self. No-one in the group placed her themes or expectations directly in the image-properties, but rather, the image-properties topics were filtered through the body-self, e.g. in Gail's theme of learning to relate to her body through internal experience instead of the perspective of an external gaze.

When the group worked together for the first time in the first session, the goals the group as a unit held were explored. The group members chose a postcard with an image which had something that interested them. Later, after a movement warm-up, we returned to these cards with a question “what do these images contain that expresses something one wants to bring into the group as a quality in interaction or as a theme to work on?”. This was first expressed verbally, and we then improvised movement holding in consciousness the themes that emerged in the verbal sharing. In this indirect and creative way the patients shaped some goals for the group:

secure space

physicality

trust, safety – feeling - happiness, joyfulness - calming down

caring - there is support - helping each other - sharing joys and sorrows together

being different, going into the same direction - there is space for each person

it does not matter even if one's wing was hurt - freeing one-self from old dependencies

adventure - something forms, ripens - nourishment for the soul

Grouped in this way, the goals actually unfold a theme of a developmental process: sense of safety, physicality, emotion, gratifying interaction, tolerance of difference, acceptance and change, and adventuring into something unknown, which can be nourishing. Even though the group did not present its goals in this grouping order, it molded its essential nature through this list of words. All these words relate to secure and attuned interaction which enables the individual to explore and integrate the experiences. In particular, these words describe a physical, emotional, and social environment which allows the body-self to be fully engaged. The patients described it spontaneously, initially orienting with their sense of interest.

In the therapy process that unfolded over the 15 sessions approximately half of the time was spent in movement and half in discussing the experiences. Central themes were group formation, exploring moving in the group and exploring one's own kinesthesia. At some points, an educational approach was utilized and the patients received information about body image, body memory, embodiment, the significance of the non-verbal in interaction and about mindfulness. This information supported the patients in getting a cognitive perspective on and understanding of the movement work, and also in developing an accepting and non-judgmental attitude towards one's embodied experiences. The group was committed to this work. As the trust in the group developed, also the troubles and difficulties in relation to one's body and in interaction started to emerge in the sharing. In its interactions, the group created support to the members. Through the creative process of moving and verbalizing, the group members had several meaningful insights into their situation, which helped them to understand themselves and their ways of coping in their everyday lives. In this process, the body

image changed: there was more respect, consciousness, and compassion in relation to one's body image.

The process brought up body memory related issues with varying nuances. Sometimes a *movement pattern* activated body memory. For example Carla, in the middle of a confusing and rushed life situation, in session three, found a rolling movement on the floor, which gave her an embodied experience of being carried by the floor, relaxation and trust. The movement also reminded her of her childhood plays, where rolling was a sort of releasing and letting go. This made her note that now in adulthood one can also let go, ease, and enjoy it; that it is important to acknowledge both the strong, fighting side and the indulging side in oneself.

Sometimes it was a *movement quality* that activated a body memory. In one interaction situation, Carla and Amalia felt that the interaction was uncomfortable, unsatisfying. When talking about this experience and reminiscing on what was the trouble, a mismatch in their tempos was discovered. Carla had felt the tempo of the shared movement was rushed, too quick. Her immediate response was unwillingness to join this, a desire to take her own space and tempo. Simultaneously, she was reminded that in her professional and family life she had for years been going along the tempos and needs the others brought in. She remembered the repeated situations with her mother who was always rushing her when it was time to get going, controlling her in this way. Carla observed that these childhood and work-life memories of forced tempos activated in her stomach a tight, pressing, squeezing sensation, which was radiating into the back.

Sometimes the elicited patterns of body memory were acknowledged specifically as a *coping mechanism*. For Amalia, in the above mentioned interaction with Carla, the

mismatch of connection and tempos brought a notion about her way of coping over the years: when in an uncomfortable and non-motivating situation, she has tried to use quickness as a way to get through the moment. This had also meant shutting off the sensing, just performing. This interaction made her notice and pay attention to this often used coping pattern. In the discussion, the option of a more sustained tempo was connected with the possibility of sensing more, when it is safe to sense. In this way, the old, body memory based coping pattern received some new input for the future.

Like in the previous example of Carla's and Amalia's experience, it quite often was *the social, interactional situation*, which was the key to activate the surfacing of the body memory. In some moments the history of interactions was alluded to through self-reflections. For example, Birgitta commented in one session, that it is very difficult to find one's own movement when for the whole life-time one had to always do what others told to. In an other session Birgitta experienced again something which was deeply connected with her body memories. The theme was to move with a cotton cloth. These cotton cloths were differently patterned. Birgitta had quickly picked up the cloth with a pattern she desired, and someone remarked, she would also have wanted that cloth. This had made Birgitta to feel guilty, and she shrinkingly curled under the cloth, becoming invisible, in a small shape and feeling she no longer exists. She noticed, that the old traumas of moments when feeling "I am not existing" joined into the present experience. Quietly she pulled and pressed the cloth into her fist and then threw it away, with a genuine feeling of disgust and rejection. After a little while she stood up, walked after the cloth, picked it up and folded it into her hands, squeezed it with full strength, and felt hatred towards the cloth. At the same time she collected herself into an upright, handsome stance, and then felt clearly she was existing. It was also fascinating, that in

the cloth Birgitta chose for herself, the pattern was small dots, which Birgitta described as a representation of her feelings of smallness (inferiority). She thought a large pattern might have been attractive to her as well, but she would have been unable to take it. At the end of her movement, her own body shape was a large pattern.

Quite frequently, body memory emerged in a subtle way, intertwined with the body-self in the present, reflecting *life history and the way of being in one's body, that has been shaped by the past experiences*. In these moments, there was not necessarily a sense of dealing with a memory nor of dealing with the past. The body memory entered the present moment through habitual patterns of sensing, moods, and bodily states. At the first glance one might have thought the patient's response is solely arising from the present situation, but as similar patterns kept returning in slightly different situations, it gradually became possible to perceive the impact of body memory in the responses. For example Eva, in a long phase of depression, at the start of the therapy process said that she felt, metaphorically speaking, a difficulty in going through her own birth, she felt a need of nurturance and a sense of not being alone. In the second session, in her movement she discovered that she is able to do movement by receiving good support from the ground. In the fifth session, through a theme of moving a picture drawn to represent one's mood, Eva discovered a squatting position, where she began to feel sleepy. She surrendered into her bodily desire to rest, lay on her back on the floor, and in so doing, realized this was possible: she continued to exist even though she felt tired or even fell asleep. The curiosity about movement did not escape from her even if she allowed herself to sense her tiredness. In the middle of the therapy process, she frequently sensed her bodily heaviness, agitation, tightness in the muscles and breathing, and tiredness. Occasionally her sensory perceptions about her body brought

to her attention that she was feeling comfortable as she engaged with movement: it was easier to breathe when standing than when sitting, self-touch clarified the body boundaries and a smile eased her state in another session. One day she noticed moving felt easy and free-flowing. In session ten she noted, that even though her situation in her everyday life was much improved now, her body could not let go of the sense of a struggle, which stayed inside her, while on the outside she seemed calm. The discomfort, that “was” her in the middle phase of the therapy, now started to emerge as something she could consciously and deliberately observe and reflect on. The old patterns of being in the body, shaped by her body memory, had been repeatedly encountered in the activity of the body-self in the present, and the reflection on these sensations gradually allowed a more conscious relationship to them. In a later session, Eva's discomfort and restlessness in the moment significantly eased as she played with dropping down and picking up a cotton cloth. In this movement, she said she was exploring the idea that she could release her own controlling and let things settle on their own. At the end of this movement exploration, she sat down and loosely entwined the cloth around her own ankles. She thought the entwining contained her restlessness, but she wondered how it could do so, as the binding was not tight at all. I suggested, perhaps the contact, just the resting in contact with something, was helpful. As a movement metaphor, this action in an implicit way echoed the patient's need to experience nurturance and to not be alone. The next session she did not feel restless.

The Lived Experience in the Body Is the Base

In the group process, it was central to take time for the development of the sense of the group, familiarizing with moving in a group, and with the motility and sensory

information in one's own body. The participants were exploring and encountering their own body image in the process through movement and reflection. At the start of the process, the participants spontaneously brought up themes that shaped safety and a sense of connectedness in the group. This is the base, a setting for the body-self to be encountered. The more we moved and observed ourselves in movement, the more information we had, which also opened the path for facing the contents of body memory. This process elicited different kinds of responses, emotions, and thoughts. The written feedback from the group members at the end of the group process demonstrated this as follows:

Amalia: DMT brought to her an experience that *her body is releasing tensions and burdens*. She frequently felt good and relaxed after the sessions. She felt a relief in her body every time she noticed emotional tensions were released. Often after the sessions Amalia felt energetic and wanted to talk (often about past events), *to pour out her thoughts also verbally*. She found her physical and mental well-being had improved.

Birgitta: She found DMT to be fun. She discovered new sides of herself and her body. *She did not like to take a leadership role in Chacian circles* (an improvisational movement method of DMT). Her experience was that she gained more self-confidence and acceptance towards her body in the group. After the process, she also felt proud of herself since she always made herself come to the sessions.

Carla: Moving in the group made Carla to *learn about her body and its rhythms*. *She also found different personal meanings to small and large movements*. For her, moving was refreshing and it gave her strength. In the group setting, she learnt to focus on herself even though there were others around. She came to appreciate her body as her most precious and unique possession.

Dora: The experience of the DMT process allowed Dora to connect with her embodied sensations and feelings that might have otherwise been hidden or differently understood on the verbal level. She was several times surprised by what she found her body telling in movement and dance. She was able to live emotional states as she focused on movement. Moving helped to *release tensions* that easily accumulate in the body. For her, the process was an expedition into the body. She found the body to hold wisdom and truthfulness. She developed the skill of perceiving the messages of the body in herself. “Reading” the other's body was a challenge, and she noticed one often makes conclusions based on what one perceives in one's own body. She felt the group became familiar during the process, it was easy to be in it and sharing felt good, it was possible to be what one is. Hearing the experiences of others gave help and brought new ideas. In group, she also noticed *which feelings were easy to share and which she tended to hide from others, for example tears*.

Eva: In DMT group, Eva noticed she longs for moving since moving brings her pleasure and allows her to connect with her sensations in her body. She noticed she tends to pay a lot of attention to strains and other unpleasant sensations in the body. For her, the movement tasks first felt complicated or difficult to enter, but in most occasions, she found into the movement and it did reflect her state in the moment. *She had found reinforcement to what kind of movements and being were typical of her, and also insights to why this was so*. Eva discovered her body as being curious also about new kinds of movement – and whether she experienced them difficult or positive, depended on her mental condition.

Fanni: Participating in the group helped Fanni *to alleviate social anxiety*. She discovered it felt good to concentrate and listen to others – opening up to the shared

communication instead of withdrawing into an internal dialogue. The alternation of conversation and moving felt good to her. Through movement and touch it was easy, or easier, to work with themes that were difficult for her. She made a notion that facing and accepting one's self-centeredness was hard.

Gail: In the beginning it was difficult for her to move when others were present and could see her, but gradually her *trust strengthened, timidity eased, and moving became less of an act of performing*. Through the DMT process she found a new way of relating to *the unpleasant sensations in her body: she could take a more observing and reflective stance toward them which made her less anxious about her embodied sensations*. She felt her relationship to her own body became slightly more friendly and accepting.

Hanna: DMT was often a puzzling experience: while moving, she felt she did not get enough out of it, but after a few days or weeks, she noticed that *something from the movement exercise and experience had stayed in her mind and adhered in to her daily life*. After the DMT process she listened more to her body, wondering what her sensations might mean. She felt able to describe her physical experiences in words and to connect them with what was going on in her mind. One of the most significant experiences in the DMT group for Hanna was the concretization of her body image. She had hoped to learn to perceive her real physical boundaries, and after the DMT process she perceived and felt them more clearly than before. She found a new kind of appreciation toward embodiment.

How was body memory involved in what the group members consciously recognized of their DMT experience? Generally, the release of tension relates to body memory, as the body often is a container of tension. Amalia's experience of feeling an

urge to also verbally release her stories after having had an experience of a body-based release of tensions, seems to indicate, that there are connections between body memory and explicit, narrative memory. Body memory appears in some patients' feedback in the context of old, social behavioral patterns, such as in Birgitta's comment about the difficulty to take a leadership role. In her life experience she had learnt an opposite role, and in her body memory the response patterns of trying to be invisible and compliant were dominating. Her efforts of trying out new roles and new ways of responding could be understood as her body-self creating new alternatives in the present moment, negotiating between the old patterns drawn from the body memory and the present potentials. Also, the patterns of social withdrawal vs. engagement, which appeared in Fanni's experience, are rooted in body memory. Dora's comment about the differences in how she expressed socially different emotions also relates to learnt interaction patterns, which have much to do with body memory. Trust, an aspect that Gail's text referred to, is to a large extent shaped by very early body memory. Carla's experience of learning about the rhythms in her body and the meanings associated with small and large movements was clearly connected with body memory, as in the DMT process she recollected her life-history relating to these qualities. Here the connecting with the contents of body memory supported her body-self to create new patterns and ways of relating to the environment.

The DMT process clearly elicited new discoveries and learning in the group members. It added new contents to their body memory, new response patterns for interaction situations. One essential aspect seemed to be the change in thresholds; Gail phrased it clearly when she described she could take a more observing and reflecting stance at the sensations she perceived in her body, which made her less anxious. A

sensation from then on was not so much of an alarm for her but something that could be neutrally observed. This kind of change helps the body-self to maintain more tolerable levels of tension or vigilance, which echoes in the state of the whole nervous system.

In their own words, patients do not talk about body memory. They talk about their lived experience. The lived experience in the body is the base. This experience could be examined on a microscopic level, which would reveal the constant work of the neurons. In the human experience the firing of nerve cells truly remains on an implicit level, and we can only connect to what the firing activates: sensation, movement, emotion, imagery, words. Yet it is valuable to acknowledge the neurological level, as it has scientifically demonstrated the fantastic nature of a living organism, the miracle that a material, living body is sensitive, responsive, creative, learning, and remembering. This exploration indicates the relevance of paying attention to the information in the body.

Summary

First outlining the body memory from a phenomenological perspective, this chapter then related that view with the information offered by the neurosciences, equating body memory with implicit memory. Referring to research by Kandel, it was suggested that the living body and its nervous system learn from the sensations received from the environment and from the body itself. The organism needs to integrate the sensory, tactile, proprioceptive and motor efferent information as it is the basis of its ability for intelligent action, which can be shaped by information about the environment and the organism's own state. The ability for attention and consciousness that the body-self maintains, enables the channeling of some of the contents of body memory into our

conscious processing. The tension patterns are one channel for body-memory to shape the state and responses of the body-self.

In a clinical dance/movement therapy (DMT) group, facilitated at a psychiatric outpatient clinic, it was possible to observe how patients encounter body memory related issues in DMT. Most of the personal goals the patients had for the DMT group were related to the body-self: developing skills to recognize and regulate the state of the body-self, bringing the body-self into interaction, differentiating between sensations and emotions. In the DMT process, body memory related issues were activated by movement patterns or qualities, or by the social situation. Body memory also appeared in the process through coping patterns and in the ways the patient related to her sensations. The experience of the DMT group process produced new contents to patients' body memory, new response patterns for interaction situations, and more observing and neutral ways of relating to the sensations in the body.

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III

A DANCE MOVEMENT THERAPY GROUP FOR DEPRESSED ADULT PATIENTS IN A PSYCHIATRIC OUTPATIENT CLINIC: EFFECTS OF THE TREATMENT

by

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A dance movement therapy group for depressed adult patients in a psychiatric outpatient clinic: effects of the treatment

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We were interested in investigating the effects of dance movement therapy (DMT) in a psychiatric outpatient clinic with patients diagnosed with depression. DMT aims to engage the patients in physical and verbal exploration of their experiences generated in movement based interaction. The assumption was that DMT, which includes both physical engagement as well as emotional and social exploration, would alleviate the mood and psychiatric symptoms. All adult patients ($n = 33$) included in the study received treatment as usual (TAU). Twenty-one patients participated in a 12-session DMT group intervention, and the remaining 12 patients chose to take TAU only. The majority of the patients suffered from moderate or severe depression, recurrent and/or chronic type. The effects of the interventions were investigated after the intervention, and at 3-month follow-up. Compared to the TAU, adding DMT seemed to improve the effect of the treatment. The effect of the DMT was observable whether the patient was taking antidepressant medication or not. At follow-up, between group effect sizes (ES) were medium in favor for the DMT group ($d = 0.60-0.79$). In the DMT group, the within ES at the 3 months follow-up varied from 0.62 to 0.82 as compared to TAU 0.15–0.37. The results indicated that DMT is beneficial in the treatment of depressed patients.

Keywords: dance movement therapy, depression, antidepressants, treatment outcome, group therapy, psychiatric outpatient clinic

Introduction

The global burden of disease studies show unipolar depression as the leading cause of years lived with disability (YLD) in adult population throughout the world (WHO, 2013¹). In Finland in 2013, mental health problems were the reason for 40% of work disability retirement, and in this group, depression was the most common problem. Further, mental health problems have been the main reason for the early retirement since the year 2000².

In Finland, the Current Care Guidelines³ base the treatment of depression on comprehensive diagnostic, clinical, and psychosocial evaluation. The treatment consists of medication and

¹ <http://www.who.int/healthinfo/statistics/GlobalDALYmethods.pdf>

² <http://www.findikaattori.fi/fi/76>

³ Käypähoitosuositus, <http://www.kaypahoito.fi/web/english/guidelineabstracts/guideline?id=ccs00062&suositusid=hoi50023>

psychotherapy (see Kupfer et al., 2012; Holma, 2013). The recommended brief psychotherapy forms are cognitive, interpersonal, psychodynamic, and problem-solving focused psychotherapy. In practice, medication is often the main intervention to treat depression. It is acknowledged that physical exercise can be beneficial in the treatment of depression, but it cannot replace medication and therapy. Treatment programs in hospital units, day hospitals and outpatient psychiatric clinics may provide some physical activity, and sometimes also dance movement therapy (DMT) is used.

The positive effects of physical activity in the prevention of depression (Brown et al., 2005; Teychenne et al., 2010; Luoto et al., 2013) and in coping with depression (Harris et al., 2005; Rimer et al., 2012) are frequently noted. The Cochrane review on the impact of exercise as a treatment of depression by Rimer et al. (2012) included 39 studies, totaling 2326 subjects. The review indicated that exercise was equally effective as antidepressants or psychological therapies in reducing the symptoms of depression.

Health care providers and sports researchers provide information on amounts of physical exercise that would be the minimum needed to gain the health effects for preventing illnesses, to support the level of functioning in the old age and to foster good mood and happiness⁴. However, a physically active lifestyle is challenged, because the way of living, the methods of transportation and many occupational and leisurely activities are becoming increasingly sedentary. In Finland, collectively, the population is getting less physical activity (Husu et al., 2011) and thus the connectedness to one's embodiment is weakening. Lack of movement and physicality is not only a problem of physical fitness, but also seems to have repercussions on the experiential level, i.e., on the level of body image (Pylvänäinen, 2003, 2012; Koch et al., 2013), which affects social interaction, self-awareness, cognition, and coping. Interestingly, while physical activity in the population has decreased, there are statistical records from the years 1990–2010 documenting a steady increase in the consumption of antidepressants in the Finnish population (Finnish Medicines Agency and Social Insurance Institution, 2012). Patients with depression often suffer from ailments, pain-problems, fatigue, and dissatisfaction with one's own body. When depressed, it is a challenge to overcome the experiential and emotional barriers and reach the benefits of physical exercise and activity. A treatment intervention such as DMT, which includes both physical engagement as well as emotional and social exploration, starting on the level where the patient is, would be feasible to increase self-awareness and emotional and social flexibility among depressed patients (Kiepe et al., 2012; Kolter et al., 2012).

DMT is a form of therapy, which integrates the physical, emotional, cognitive, and social aspects into treatment (Stanton-Jones, 1992; Meekums, 2002; Bloom, 2006; Payne, 2006a; Chaiklin and Wengrower, 2009). DMT aims to engage the patients in physical and verbal exploration of their experiences generated in movement based interaction. DMT can be carried out as individual treatment or in groups. It can be applied to various populations ranging from children to the elderly,

and from people with severe psychiatric problems to high-functioning people, who may be interested in strengthening their resources and self-development.

One focus in DMT is engaging with movement: becoming concretely involved in movement activity in the here and now. The other locus of activity is to be attentive to the movement experiences and to develop the skills to be conscious and reflective of them and to communicate about them in words. The relevant interactional elements in DMT are the engagement of moving body, the development of body awareness and mindfulness, and the verbal reflection of the movement experiences, which focuses on the qualities of the experience (Meekums, 2002; Capello, 2009; Koch and Fischman, 2011; Nolan, 2014). It is assumed, that this enables the patient to connect with the emotional core of his/her experience.

The early meta-analysis of the effects of DMT by Ritter and Low (1996) included five studies on people with depression. Two of these studies included psychiatric patients. Revisiting this meta-analysis, Koch et al. (2007) summarize DMT outcome research on depression in a conclusion that the effect sizes in the treatment of depression have ranged from moderate to strong. A Cochrane review of the effects of DMT on depression by Meekums et al. (2015) examined the effects of DMT for depression compared to no treatment or to standard care, to psychological interventions, drug treatment, or other physical interventions. Only three studies met the Cochrane review inclusion criteria, totaling 99 adult subjects and 40 teenage subjects. When the authors compared group DMT to standard treatment in adults with depression, DMT reduced symptoms of depression at follow-up measure, as indicated by clinical observation using the HAM-D. Due to the poor methodological quality of the studies and small sample size, the findings of the effectiveness of DMT could not be considered conclusive. A recent meta-analysis of the effects of DMT and dance on health-related psychological outcomes included the evidence of 23 primary studies (Koch et al., 2014). The meta-analysis showed moderate effects for quality of life and for depression and anxiety.

In the treatment of psychiatric patients the impact of DMT has been positive on body image, the perception of the body and self, affect, motility and well-being, perception of relationships, and biography (Koch et al., 2007, 2014). Goodill's (2005) review of the DMT outcome research in clinical populations concludes that the treatment brings favorable changes in the following dependent variables: vitality, mood, anxiety, mastery, coping-skills, and body image.

Punkanen et al. (2014) conducted a pilot study where DMT group was used in the treatment of depressed patients. Twenty-one depressed adult participants were recruited to participate in 20 sessions of group DMT, twice weekly. The psychometric questionnaires were taken before and after the intervention. The mean score of the primary outcome measure, the BDI, decreased significantly from the pre- ($M = 21.67$, $SD = 5.26$) to post-measurement ($M = 10.50$, $SD = 5.50$), showing that the short-term, group DMT intervention had a positive effect on patients with depression.

As depression is so widespread in the population, it is important to develop its treatment, and if possible, to augment

⁴e.g., http://www.ukkinstituutti.fi/filebank/64-physical_activity_pie.pdf; <http://www.health.gov/paguidelines/guidelines/default.aspx#toc>

the choices of effective treatments. Research on a current clinical practice in a natural setting is relevant for improving the treatment of depression. Thus, for the development of outpatient psychiatric care, we were interested in investigating the effect of DMT in an outpatient psychiatric clinic. This study plans to add to the knowledge of the effects of DMT in the treatment of psychiatric outpatients diagnosed with depression. The main research question concerned, whether DMT-group intervention produces alleviation in the symptoms of depression. We compared DMT + treatment as usual (TAU) with TAU. Thus, we were interested in whether adding DMT to TAU has benefits as compared with TAU alone. This information may provide legitimation for the choices made on the use of DMT in psychiatric outpatient care.

Methods

Recruitment Procedure

The research plan was approved by the City of Tampere Research Board, which also is a regional board for ethical research practices. All participants in the study were recruited from a psychiatric outpatient clinic, which is a part of specialized public health care. The patients enter the clinic on a referral from a physician. The patients' treatment is carried out by a multi-professional team, which includes a psychiatrist, a psychiatric nurse, a psychologist, and a social worker. The clinic offers pharmacological treatment, individual counseling, and a selection of group interventions. There are various psycho-educational groups focusing on coping with psychiatric disorder and its symptoms. The DMT group (8–12 sessions) has been one option in the available treatment since 2007. The clinic does not provide physical exercise groups as a treatment option.

Announcements of the study were posted in the lobbies of the clinic. The staff received e-mails about the study, inviting them to tell to patients with depression about the opportunity to participate. The patient information described the study aiming at exploring the treatment of depression and its outcome by comparing TAU and the DMT group intervention.

The inclusion criteria were: depression diagnosis and depression as primary symptom. The exclusion criteria were psychosis, suicide attempts or clear suicide plans, diagnosis of severe personality disorder, diagnosis of current alcohol or substance abuse problem, or debilitating somatic symptoms. Patients entered the study voluntarily and could choose between participating in the DMT group or in the TAU group, where they received the other treatment options the clinic provides. At the clinic, the common practice is that the patient can choose, which of the recommended groups to join. Group participation is never imposed on the patient. Patients participating in the study received information about it, their contribution and freedom to withdraw from the study at any time without consequences for their access to treatment. All the participants in the study were recruited between August 2011 and September 2012 and provided written consent to participate in the study.

Patients joining the TAU group signed the consent, which was then sent to the researcher. The TAU group participants were mailed the set of assessment measures at the start of the research

period, after 3 months (12 weeks) and after 6 months since the first measurement point. The replies could be sent in stamped, addressed envelope.

Patients interested in joining the DMT group came to a recruitment interview according to the normal practice. At the end of the interview the patient could decide whether to agree to participate in the research and sign the consent form. After the interview, the set of self-evaluation measures was sent to the patient via mail and s/he mailed them back in a stamped addressed envelope. This procedure aimed at distancing the research aspect of the group and the therapy process. Similarly to the TAU group, the measurements were completed at the start of the intervention period (pre), after the 3-months (12-weeks) DMT intervention (post) and after 3 months (follow-up).

During the data collection period, a total of 25 patients were recruited for the DMT groups. Sequentially, they formed four groups. The therapist/researcher worked with one group at a time. Four patients were excluded from the sample on the basis of the inclusion criteria. Thus, 21 patients could be included in the study, and 19 completed all measures. Two patients did not respond to the self-evaluation measures after the treatment or at the follow-up measurement, but they were included in the statistical analysis. In the DMT group, 84% of the participants stayed in the study and in analyses.

The TAU groups were collected at the same time as the DMT groups. A total of 18 patients joined and provided written consent. Twelve patients answered the pre-measurement self-evaluations and were included in the study. However, only eight patients completed the self-evaluations at all three measurement points. In the TAU group, 67% of the initial participants who completed the first evaluation stayed in the study. Supplementary Figure A summarizes flow of the data collection.

Selecting the sample and assigning the groups this way creates a quasi-experimental research design, as there is no randomization. This limits the validity of the results, but this design was chosen in order to remain close to the everyday practices of the clinic. Also, it was assumed that self-selection to the groups would minimize the drop-out rate in the DMT group.

Participants

The background information presented on the participants is based on the patient records (see **Table 1**). About 60% (57.5%) of the participants had two or more psychiatric diagnoses. On the basis of the patient records, in the TAU group the most common diagnoses were F32.1—moderate depressive episode (42%) and F32.2—depression severe/major without psychotic symptoms (25%). In the DMT group the most common diagnosis was F32—major depressive disorder, single episode (29%) and the total percentage of patients with F32-range diagnoses was 43%. In the DMT group, 19% of the participants had an F33 diagnosis—recurrent depressive episode. During the treatment period at the clinic, the medical examination indicated the severity of depression to be moderate or severe in the majority of patients in both groups.

In the whole group, there were five patients, whose primary diagnosis was of anxiety or eating disorder or in the personality disorder range. This reflects the common clinical situation in

TABLE 1 | Participant data at the pre-measurement—depression characteristics.

Descriptives of subjects at pre-measurement		DMT group	TAU group	Total
N		21	12	33
Gender	Male	5(23.8%)	4(33.3%)	9(27.7%)
	Female	16(76.2%)	8(66.7%)	24(72.7%)
Age M (SD)		42(12.7)	38(10.4)	41(11.9)
		Min 20	Min 22	Min 20
		Max 59	Max 55	Max 59
Number of diagnosis	1	7(33.3%)	7(58.3%)	14(42.4%)
	2	10(47.6%)	4(33.3%)	14(42.4%)
	3<	4(19.1%)	1(8.3%)	5(15.1%)
Severity of depression (psychiatrist's recorded assessment)	Mild	5(23.8%)	1(8.3%)	6(18.2%)
	Moderate	9(42.9%)	7(58.3%)	16(48.5%)
	Severe	5(23.8%)	4(33.3%)	9(27.3%)
	Not assessed	2(9.5%)	0(0.0%)	2(6.1%)
Years since first episode of depression	1	1(4.8%)	4(33.3%)	5(15.2%)
	2–3	4(19.1%)	1(8.3%)	5(15.2%)
	4–8	11(52.4%)	3(25.0%)	14(42.5%)
	9–25	5(23.8%)	4(33.3%)	9(27.1%)
		M = 7.9 years	M = 6.4 years	M = 7.4 years
Significant relational stress in history or currently	Yes	20(95.2%)	12(100%)	32(97.0%)
	No	1(4.8%)	0(0%)	1(3.0%)

specialized psychiatric care, that patients' depression is rarely just plain depression. This is also reflected in the second diagnoses the patients had. Of the whole group 58% had a second diagnosis. Twenty-four percent of these second diagnoses related to somatic pain, heart, lungs, diabetes, hyperkinesia. Fifteen percent of the second diagnoses related to anxiety. In the whole group, 18% of the patients reported a history of alcohol abuse.

The mean duration of time since the first episode of depression was 6.4 years in the TAU group and 7.9 years in the DMT group. The mean length of the current treatment period was 16 months in the TAU group and 21 months in the DMT group. At the pre-measurement, for the majority of the patients, the length of the current treatment period was less than 12 months.

In the TAU group, all the patients were taking antidepressant medication (Table 2). In the DMT group, 57% of the participants were taking antidepressant medication, 43% (nine patients) were not. The difference in the use of medication between the DMT and TAU groups was statistically significant ($\chi^2 = 7.07$, $df = 1$, $p < 0.01$). One reason for the referral to the psychiatric unit was a medication resistant depression, where the patient did not benefit from antidepressants. In the DMT group, 38% of the patients were taking some other medication for psychiatric reasons, and in the control group 42%.

TABLE 2 | Participant data at the pre-measurement—treatment features.

Descriptives of participants at baseline		DMT group	TAU group	Total
N		21	12	33
Duration of the current treatment period	>6 months	10(47.7%)	5(41.7%)	15(45.5%)
	7–12 months	6(28.5%)	4(33.3%)	10(30.3%)
	13–35 months	3(14.4%)	1(8.3%)	4(12.0%)
	36–96 months	2(9.5%)	2(16.6%)	4(12.0%)
		M = 21.1	M = 15.8	M = 14.24
Antidepressant medication	Yes	12(57.1%)	12(100%)	24(72.7%)
	No	9(42.9%)	0(0%)	9(27.3%)
Other psychotropic medication	Yes	8(38.1%)	5(41.7%)	13(39.4%)
	No	13(61.9%)	7(58.3%)	20(60.6%)
Frequency of individual counseling/therapy at pre-measurement	1x/week	1(4.8%)	0(0.0%)	1(3.0%)
	every other week	3(14.3%)	3(25.0%)	6(18.2%)
	every 3–4 weeks	7(33.3%)	5(41.7%)	12(36.4%)
	5 or more weeks interval	9(42.9%)	4(33.3%)	13(39.4%)
	none	1(4.8%)	0(0.0%)	1(3.0%)
Psychoeducational group experience	Yes	4(19.0%)	11(91.7%)	15(45.5%)
	No	17(81.0%)	1(8.3%)	18(54.5%)
Psychotherapy experience	Yes	12(57.1%)	3(25.0%)	15(45.5%)
	No	9(42.9%)	9(75.0%)	18(54.5%)

In the DMT group, 57% of the patients had experience of psychotherapy and in the TAU group 25%. At the pre-measurement, in the TAU group 92% of patients had experience of psychoeducational groups and in the DMT group 19%. The difference was statistically significant ($\chi^2 = 16.24$, $df = 1$, $p < 0.01$), and was due to the fact that seven patients (64%) in the TAU group were participating in a psychoeducational group for depressed patients during the evaluation of the intervention.

Intervention Procedure

Both the DMT and the TAU group received individual counseling during the study. In the TAU group 33% of the patients had an individual counseling appointment every 5 weeks or less frequently, and 25% had counseling every 1–2 weeks. In the DMT group 67% of the patients had counseling every 5 weeks or less frequently, and 20% every 1–2 weeks.

The DMT intervention was delivered by a psychologist and dance movement therapist trained in the DMT methods of Marian Chase and in authentic movement. The essence of the Chacian approach is engaging in improvised, shared movement, and creating an interactional space through movement (Levy, 1992; Fischman, 2009). The Chacian method is primarily a DMT form of group therapy. Authentic movement, initially developed by Mary Whitehouse and Janet Adler, can be applied as a method in individual or group therapy (Payne, 2006b). The application of authentic movement based practices in DMT

in psychiatric outpatient care means emphasizing the non-judgmental empathetic witnessing of movement expression as it appears, the cultivation of conscious awareness of movement, and the allowing of the person to be visible and seen in his/her movement (Adler, 1999; Penfield, 2006). Both the Chacian method and authentic movement promote the integration of intra-actional (within the individual) and interactional (relating with the environment) systems (Capello, 2009).

The DMT group intervention consisted of 12 dance/movement therapy sessions (one session a week for 12 weeks). Each session was 90 min long and included discussion (20–40 min), movement warm-up and process (30–40 min) and a verbal reflection and closure of the movement experience (15–30 min) facilitated by a dance/movement therapist-psychologist. The therapy groups were small with 4–7 participants. The guiding principles for the group facilitation were:

- *supporting the safety in the body* by paying attention to grounding in the movement, body boundaries, 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 choice making 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 in the body responses
- *fostering the interaction* by being present and attentive to the patients, conveying seeing and hearing them as they are, respecting the body experience, and encountering via shared movement qualities

As DMT is based on interaction, the group facilitation in practice was an integration of these principles, pre-planned structures and themes, and responses to the needs and themes of the group in the moment. The same therapist working with each group was the constant factor. All sessions included a discussion at the start and after the movement explorations. The discussions were oriented toward expressing embodied experiences and reflecting on them. Discussions also echoed the process and needs of the group. **Table 3** presents a model of the 12-sessions group process.

Outcome Measures

The background information assessment included the patient's gender, date of birth, diagnosis, duration of illness, severity of depression, use of medication, and the treatment received by the time of answering the inquiry. The researcher/therapist had also had access to the research subjects' patient records. The self-evaluation measures used in the study and reported in this paper were: BDI-II, HADS, SCL-90, and CORE-OM.

BDI-II (Beck Depression Inventory) and HADS (Hospital Anxiety and Depression Scale) measure mood. BDI-II (Beck

et al., 1961, 1996; Dozois et al., 1998) measures depressive symptoms. The score range is 0–63. Higher points indicate more severe depression (0–13 indicates no or very few depressive symptoms, 14–19 indicates mild depression, 20–28 moderate depression and 29–63 severe depression). HADS screens for depression and anxiety symptoms (Norton et al., 2013). HADS is indicating symptoms, when the score is above 8 in anxiety (HADS-A) and depression scales (HADS-D), respectively (Bjelland et al., 2002), or when the total score is ≥ 9 (Kjærgaard et al., 2014). Both BDI-II and HADS are frequently used in clinical assessment of depression.

The SCL-90 (Symptoms Check List- 90) is a psychiatric self-report inventory consisting of 90 questions. The questions assess a wide range psychiatric symptoms, including depression, anxiety, and somatization (Holi, 2003). Many of the symptoms reflect bodily states and autonomous nervous system arousal. A single number representing the severity of the patient's condition is GSI (global severity index), which is the average score of the 90 questions of the inventory.

CORE-OM (Clinical Outcomes in Routine Evaluation—Outcome Measure) shows the patient's experience of his/her mood and interactions with others and environment. It addresses the patient's global distress and portrays the dimensions of well-being, problems, life functioning, and risk for aggressive/suicidal behavior. Between the general and clinical populations, the clinical cut-off point is 10 points (Connell et al., 2007) or as a total mean score for women 1.29 and for men 1.19 (Evans et al., 2002). CORE-OM is sensitive to change in condition. The CORE-OM all-items score has a correlation of 0.81 with BDI-II and 0.88 with SCL-90-revised version. CORE-OM is applicable to a wide range of populations. It can be used for assessing clinical effectiveness of various models of therapy (Evans et al., 2002).

The self-evaluation measurements were presented to the participants at the start (pre-assessment), after 3 months (post assessment), and 3 months after the end of the intervention (follow-up assessment).

Statistical Analysis

Baseline between-group differences in demographic data and pre-treatment measures were analyzed with independent *t*-tests and chi-square tests, or using Mplus statistics (see below). The effects of interventions were analyzed using hierarchical linear modeling (HLM) in Mplus (version 7) (Muthén and Muthén, 2012). The most important advantage in using HLM with full information maximum likelihood (FIML) estimation method instead using repeated measures ANOVA/MANOVA is that it uses all the available information. Thus all participants who started the study (DMT, $n = 21$, TAU, $n = 12$) were included in the analyses. The missing data in HLM&FIML is supposed to be Missing At Random (MAR). ANOVA/MANOVA approach uses listwise deletion requiring that the missing data have to be Missing Completely At Random (MCAR). This listwise deletion has a greater effect on statistical power than the HLM/FIML method. The HLM uses a full information approach, with standard errors that are robust in the case of a non-normal distribution (MLR estimator in Mplus). The analyses were as follows. First, the group x time interaction was tested with Wald

TABLE 3 | A group model based on the integration of the four different DMT group processes.

Theme	Process exercises
1 Introduction, start	Circular motion in joints. Improvisation with name gestures. With picture cards, expressing one's expectations of the DMT group.
2 Familiarizing with the space, moving, and collaboration	Exploring the space/room by moving in it in various ways and acknowledging the others. In a dyad, reflecting each other's movement.
3 Safety and agency, playfulness	Recognizing how one directs attention: outwards, inwards. Sensing body boundaries. Moving eyes open or closed. Exploring the spatial options in movement.
4 Playfulness, agency, finding different options	Exploring spine motility. Imagery and improvisation: If you were an animal, how would the animal move? In a circle, moving by holding hands.
5 Intuition, sensitivity	Activation of the body, starting from the feet. Playing with different movement qualities. Mindfulness skills and breathing: sensing one's walking.
6 Relieving achievement pressure	Sensing hands through different movements. Breathing exercises. Bartenieff Fundamentals* basic exercises. Mindfulness skills: breathing and seeing the other. Polarity: familiar and unfamiliar in movement.
7 Boundaries, distances, directions	Activating hands and breathing, sensing body boundaries, sensing center/core also with strength. Movement improvisation with a focus on near space, middle space, far space. Walking in a dyad and sensing the connection. Drawing a picture of one's experience.
8 Space for motion, boundaries, surfaces—balancing being, and action	Self-nurturing movement and moving on the floor level. Bartenieff Fundamentals* basic exercises. Getting into vertical slowly and through different postures.
9 Emotion—acceptance and agency in one's life and in relation with environment/others	Movement improvisation from the words selected to express one's present state. Exploring earth, water, air, and fire through movement improvisation—expressing and describing associated feelings.
10 What do I need—attention and focusing in action	In a dyad, hand massage. 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.
11 Accepting needs—nurturing, simplicity, freedom	Moving with breath, gradually engaging the whole body. Simple qigong exercise (breath, clear movement pattern, a sense of opening/stretching, focusing). Requesting from a pair something one needs in movement and/or presence. Homework: to write a poem of one's experiences in this group.
12 Closure—what have I learnt?	Activating the body, grounding, being aware of the body. Simple qigong exercise (same as in the session 11) Poems: sharing them, improvising movement on them. Feedback of the process.

*See Bartenieff and Lewis, 1980.

test. Secondly, if the interaction was statistically significant the group differences were tested for the intervention period (pre to post), and follow-up period (post to follow-up) separately.

Effect sizes (ES) were calculated as follows. The *between-groups* ES was calculated after the treatment and at follow-up by dividing the difference between the DMT group mean

and the TAU group mean by the pooled standard deviation of the two conditions. The *within-group* ES was calculated for both the post- and follow-up measurements by dividing the mean change from pre-measurement by the combined (pooled) standard deviation (SD) (Feske and Chambless, 1995; Morris and DeShon, 2002). Due to possible differences between groups at

pre-measurement, between-group ES differences at post- and at follow-up measurements were corrected by the pre-measurement difference. Thus, corrected between-group ES were reported. A *between-group* effect size of 0.2 was considered small, 0.5 was medium, and 0.8 was large. A *within-group* ES of 0.5 was considered small, 0.8 was medium, and 1.1 was large (Roth and Fonagy, 1996; Öst, 2006).

Results

Symptom Measurements

At the pre-measurement, the groups were statistically significantly different in their BDI-II -scores (DMT group $m = 25.00$, $sd = 11.70$; TAU group $m = 32.50$, $sd = 7.60$; Estimate = -7.50 , $p = 0.026$) and CORE-scores (DMT group $m = 17.00$, $sd = 6.61$; TAU group $m = 20.65$, $sd = 3.55$; Estimate = -3.66 , $p = 0.036$). BDI and CORE described the depression symptoms and psychiatric condition to be more severe in the TAU group than in the DMT group at the pre-measurement. Based on the HADS and SCL-90 scores, the groups were not statistically significantly different at the pre-measurement.

Symptoms (SCL-90) decreased more in the DMT group than in the TAU group during the study period. When the intervention and follow-up periods were analyzed separately it was observed that SCL-90 scores changed statistically significantly differently in the DMT and TAU groups during the intervention (Estimate = -0.425 , $p = 0.011$) but not during the follow-up (Estimate = 0.031 , $p = 0.086$). In the HADS scores, there was a trend for a significantly different change over the three measures. During the intervention the scores changed statistically significantly differently between the DMT and TAU groups (Estimate = -6.295 , $p = 0.024$), but not during the follow-up (Estimate = 0.741 , $p = 0.714$). In the BDI-II- and CORE-scores there was a greater reduction in the DMT group than in the TAU group, but over time, the groups did not change statistically significantly differently (Table 4).

To assess the size of the treatment effects, effect sizes were analyzed (see Supplementary Table 1). *Between groups* ES showed large differences ($d \geq 0.80$) at post measurement in HADS and CORE, and medium size ($d \geq 0.50$) in BDI-II and SCL-90. At follow-up between groups ES were medium in favor of the DMT group ($d = 0.60$ – 0.79). The difference in HADS at 3-month follow-up was close to large ($d = 0.79$). In the DMT group, the *within group* ESs were medium or close to medium size at post measurement BDI-II ($d = 0.87$), HADS ($d = 0.92$), and CORE ($d = 0.76$), and small in SCL-90 ($d = 0.57$). In the follow-up the within ES were medium for HADS ($d = 0.83$) and close to medium in BDI-II ($d = 0.75$). ESs were small for CORE ($d = 0.71$) and SCL-90 ($d = 0.62$). In the TAU group the within ESs were small (BDI-II, $d = 0.47$) or very small (HADS, $d = 0.23$; SCL-90, $d = 0.02$; CORE, $d = 0.18$) at post measurement. The within ESs were also small in the follow-up (BDI, $d = 0.37$; HADS, $d = 0.31$; SCL-90, $d = 0.15$; CORE, $d = 0.26$). Thus, in the DMT group the within ESs at the 3-month follow-up varied from 0.62 to 0.82 as compared to TAU 0.15–0.37.

TABLE 4 | Mean scores and standard deviation for depression (BDI-II), anxiety and depression (HADS), physical and psychological symptoms (SCL-90), and global distress (CORE) at pre, post, and 3-month follow-up.

Out-come	Pre M (SD)	Post M (SD)	Fup 3-mo M (SD)	Wald test $df = 2$	P-value
BDI-II				2.93	0.231
DMT	25.00(11.70)	14.89(13.60)	16.24(13.62)		
TAU	32.50(7.60)	28.97(8.65)	29.66(9.85)		
<i>d</i>		-0.67	-0.60		
HADS				5.39	0.068
DMT	20.81(7.99)	13.43(10.24)	14.22(9.85)		
TAU	24.58(4.65)	23.54(6.47)	23.15(7.75)		
<i>d</i>		-0.97	-0.79		
SCL-90				8.23	0.013
DMT	1.39(0.76)	0.95(0.74)	0.91(0.67)		
TAU	1.59(0.41)	1.58(0.37)	1.53(0.55)		
<i>d</i>		-0.70	-0.67		
CORE				4.14	0.126
DMT	17.00(6.61)	11.95(7.96)	12.31(7.02)		
TAU	20.65(3.55)	20.05(4.55)	19.78(6.04)		
<i>d</i>		-0.85	-0.73		

Between-group effect-sizes (d) are also presented (corrected with pre-measurement difference).

Differences between the Groups on the Basis of the Use of Antidepressants

When analyzing the data on the subjects' use of medications, it was revealed that all the patients in the TAU group ($n = 12$) were on antidepressive medication, but in the DMT group there were nine patients, who were not taking antidepressants, leaving 12 with antidepressants. Table 5 presents the differences that can be observed when the subjects are grouped on the basis of the DMT intervention and the use of medication.

The duration of the participants' illness, the length of the current treatment period, and the measurements score level differed according to the use of antidepressant medication. Compared to no-antidepressants patients, patients taking antidepressive medications had suffered longer from their illness and had more severe psychiatric symptoms at the pre-measurement point. The TAU group participants on antidepressive medication had the most severe psychiatric symptoms in this material. However, the mean duration of their illness and the length of the current treatment period were shorter than in the subgroup of DMT antidepressant users. Since medication could have affected the results we decided to conduct additional analyses. We were especially interested to ascertain, if the DMT group on medication showed a different change pattern from that in the TAU group (on medication). Further, we were also interested in comparing the members of the DMT group with medication and without medication.

Wald test showed that the DMT group with medication changed differently from the TAU group (on medication) during the intervention regarding the scores on SCL-90, Wald test = 13.46 , $df = 2$, $p = 0.001$. In this comparison, the change was

TABLE 5 | Differences between outcomes in the DMT and TAU groups when the subgroup distribution is based on DMT intervention and taking antidepressants.

Variable		DMT group, pts taking antidepressants <i>n</i> = 12		DMT group, no antidepressants <i>n</i> = 9		TAU group, pts taking antidepressants <i>n</i> = 12	
Mean duration of the treatment period		17 months		10 months		15 months	
Years since first episode of depression (mean)		10 years		5 years		6 years	
INVENTORY		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
BDI-II	Pre	25.58	10.43	24.22	13.16	32.50	7.60
	Post	18.02	13.76	11.55	11.92	28.97	8.65
	Follow-up	19.59	11.88	13.36	14.77	29.66	9.85
HADS	Pre	20.67	7.00	21.00	9.13	24.58	4.65
	Post	15.67	10.57	11.00	9.06	23.54	6.47
	Follow-up	16.96	10.01	11.22	8.57	23.15	7.75
SCL-90	Pre	1.45	0.67	1.30	0.86	1.59	0.41
	Post	1.06	0.80	0.81	0.63	1.58	0.37
	Follow-up	1.03	0.75	0.77	0.54	1.53	0.55
CORE	Pre	17.54	5.53	16.13	7.95	20.65	3.35
	Post	13.44	7.79	10.21	7.70	20.05	4.55
	Follow-up	13.36	7.07	10.77	6.50	19.78	6.04

statistically significantly different during the intervention period (Estimate = -0.378 , $p = 0.008$), but not during the follow-up period.

The HADS scores showed a tendency for a statistically significantly different change pattern when comparing the DMT with no medication and the TAU group (Wald test = 5.472, $df = 2$, $p = 0.06$). In this comparison, the change was statistically significantly different during the intervention period (the Estimate = -8.936 , $p = 0.026$). During the follow-up period there was no statistically significant change.

In all other comparisons Wald test did not reveal any statistically significant difference. As there were no statistically significant differences between the score changes of the DMT group with no medication and DMT with medication subgroups, DMT appears to be effective whether the patient is taking antidepressive medication or not.

At the post-measurement, assessing the clinical significance of the changes after the intervention period, the greatest improvements in the condition appeared in the group of DMT participants who were not on antidepressant medication (see Supplementary Table 2). In this group, the within-group pre to post effect sizes ranged from $d = 0.56$ to $d = 1.07$, i.e., from small to medium. The effect sizes in the pre- follow-up measurements comparison ranged from small to large, $d = 0.62$ – 1.10 . The DMT participants on antidepressants had also clearly improved, but the within-ES changes were slightly smaller than for the DMT participants not on antidepressants. In the DMT group on antidepressants the range of effect sizes (d) was 0.59 – 0.76 at the pre-post measurements comparison, and at the pre-follow-up comparison the range was from $d = 0.53$ to $d = 0.71$; thus

in this group the ESs were small. In the TAU group, where all the patients were on antidepressant medication, the changes in the scores during the data collection time were minor. The range of within-group effect sizes (d) was 0.02 – 0.47 .

Discussion

This study investigated the effect of adding dance/movement group therapy (DMT) to the treatment of psychiatric outpatients with a diagnosis of depression. Compared to the TAU, adding DMT seemed to improve the effect of the treatment. There was a tendency for the effect of DMT to be slightly better with patients who were not taking antidepressive medication.

Between-group effect sizes between the DMT + TAU and TAU indicated medium or large differences ($d = 0.60$ – 0.85) in the four measures used in this study in favor of the DMT + TAU. In addition, the within-group effect sizes were considerably larger among patients attending to the DMT group. This suggests, that the favorable changes observed when the DMT was added to the TAU may have clinical significance. However, more studies are needed to confirm the clinical effects of DMT.

The indication of a statistically significantly greater improvement between the DMT + TAU and TAU groups appeared in the SCL-90 measuring psychiatric symptoms and HADS measuring depression and anxiety symptoms. In these self-evaluation assessments, the verbal content of the statements is geared toward bodily felt sensations, symptoms, and emotions. In the SCL-90 one third of the questions refer to somatization or phenomena that relate to autonomous nervous system arousal. This may be one reason why the change was expressed

more clearly through these measurements. In addition to these changes, the DMT group showed favorable changes, although not statistically significant, in symptoms of depression (BDI-II) and global distress (CORE-OM). These observations are in line with the study by Punkanen et al. (2014) using a similar DMT group intervention. In their study the mean decrease on the BDI from baseline to post-measurement was 11.17 points compared to 10.11 points in the present study. Both these studies produced a similar favorable outcome in the treatment of depression. Punkanen et al. (2014) used a 20-session group intervention provided twice a week while the present study applied a 12-session intervention. This suggests that favorable changes could also be achieved using a shorter DMT group intervention.

The observations made in this study are also in accordance with the previous reviews by Meekums et al. (2015), Koch et al. (2014), and Papadopoulos and Röhrlich (2014). These suggested positive effects of DMT on quality of life and on depression and anxiety. One focus in DMT is engaging with movement activity in the here and now. Further, the aim of activity is to be attentive to the movement experiences and to develop the skills to be aware of experiences, and to communicate about them in words (Meekums, 2002; Koch and Fischman, 2011; Nolan, 2014). Thus DMT involves experiential exercises including mindfulness skills and attention training. There are several other studies suggesting that this type of training, which includes experiential exercises, could be beneficial to the patients (Hayes et al., 2011; Michalak et al., 2012; Horst et al., 2013; Payne, 2015). It could also be speculated that DMT increases psychological flexibility, which has been shown to be associated with wellbeing and quality of life (Hayes et al., 2011; Keng et al., 2011), as the skills for observation, reflection and body state modulation improve. Thus, given that DMT is a useful intervention method for patients with depression symptoms, more studies are needed to examine the possible mechanism of change.

A tendency was observed for the greatest improvement to be achieved when the patient participated in the DMT group and was not on antidepressive medication. However, it should be noted that the patients in the DMT group without or with antidepressant medication benefited from the intervention, and no statistically significant differences were observed between the groups. Thus, more studies are needed to investigate the impact of DMT interventions with or without medication. The importance of observing medication in the treatment is emphasized by the fact that the more difficult symptomatology appears to go along with more complex diagnosis set, longer treatment period, and taking of medication. We observed that those patients not taking medication had typically had current treatment periods under 6 months (67% of the patients) and only one diagnosis (44% of the patients). Those patients, who used medication at the pre-measurement, had typically two or more diagnosis (63% of the patients) and had more than 6 months of treatment (63% of patients).

When comparing DMT + TAU to TAU among patients on antidepressant medication, it was observed that all the four outcome measures tended to improve more in the DMT group, with especially SCL-90 showing significantly larger change. It is

of particular interest that at the pre-measurement point in the DMT group, the patients on antidepressive medication and those without antidepressive medication had a fairly similar level of symptoms, but the score differences between these two subgroups had clearly increased at the post-measurement, in favor of no antidepressants sub-group. The question arises as to whether the DMT participants on antidepressants had a more difficult type of depression and the medication had alleviated their symptoms so that their symptom scores were on the level of a less complicated depression at the pre-measurement point. If this was the case, it could be assumed that the smaller score changes after the intervention could have been due to the more difficult type of depression.

This study has limitations to be born in mind when drawing conclusions from the results. One concern is the use of self-evaluation measures only, and the lack of movement based assessment of the effects of the intervention. Videotaping the sessions was not part of the usual clinical practice at this clinic, and the goal was to study the natural clinical practice. Without video recordings it is difficult to produce any reliable movement assessment of the four groups. Even with video recordings, movement observation of group activity would have been challenging to carry out reliably.

The participants joined the research groups on the basis of self-selection. They were not randomly divided among the groups. Thus, we cannot ignore the possibility that the selection bias has affected the results. In fact, at the pre-measurement point the TAU group reported significantly higher value for depression symptoms and global distress compared to the DMT + TAU. On the other hand, the DMT group had a slightly longer history of illness, more frequently two diagnoses and more frequently an experience of psychotherapy than the TAU group patients. Also, as more patients in the DMT group had experience of psychotherapy, it is possible that DMT attracts patients who are positively disposed to therapeutic work, willing and able to use self-reflection and interaction as means for their recovery. Both the DMT and the TAU group participants may have had expectations about the treatment they received. As we did not systematically assess their expectations, we can draw no conclusions of the impact of expectations on the results.

Further, the follow-up time was relatively short (3 months), thus in light of the current data it is difficult to draw firm conclusions about the long-term effects of DMT. Another limitation is the small number of participants included in the study. In the TAU group there was a fairly high drop-out rate. However, we applied hierarchical linear modeling in data analyses, since it included all the patients who started the treatment. According to the patient records, all the patients who left the research did continue their treatment at the psychiatric clinic over the study period. No data were collected about their reasons for leaving the study.

The TAU patients were not interested in joining the DMT group, but this study offers no information about their reasons for this. Compared to the TAU group, a higher percentage of the DMT group patients continued in the study. This prompts a question, whether the participation in the DMT group,

personal commitment and joining the interaction supported the motivation for treatment and also the alleviation of depression. If this was the case, DMT seems to offer a suitable social context to be utilized in health care to offer new interactional experiences and learning through them.

The TAU did not significantly improve the patients' wellbeing. This study suggests that experiential treatment methods such as DMT could improve the effects of treatment. However, not all clients want to join a DMT group as was observed in this study. In the future, more attention could be devoted for increasing patients' motivation for experiential and action based treatment methods.

The results indicated that adding DMT to TAU is beneficial in the treatment of patients with depression. These results encourage the use of creative, interactive, psycho-physical,

and experiential therapy interventions in the treatment of depression.

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Supplementary Material

The Supplementary Material for this article can be found online at: <http://journal.frontiersin.org/article/10.3389/fpsyg.2015.00980>

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IV

CHANGE IN BODY IMAGE AMONG DEPRESSED ADULT OUTPATIENTS AFTER A DANCE MOVEMENT THERAPY GROUP TREATMENT

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Research Article

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



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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.

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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.

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, Ellison, Scott, & Bernecker, 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 rela-

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tionships, 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 (Eisenberger, 2012; MacDonald & Leary, 2005; Rosenström et al., 2013).

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.

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 (2006), 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, Williams, & Teasdale, 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 Röhrlich (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.

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 (Bräuninger, 2014; Papadopoulos and Röhrlich, 2014; Payne, 2006). 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 (Leigh & Bailey, 2013; Michalak, Burg, & Heidenreich, 2012). 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, Karkou, & Nelson, 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 (Jeong et al., 2005; Stewart et al., 1994). The results in these studies showed a positive outcome for the treatment of depression. Röhrlich et al. (2013) report of a manualized body psychotherapy treatment (20 sessions, bi-weekly n = 21, control group n = 10). Pylvänäinen 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).

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, Muotka, & Lappalainen, 2015; see also above). In the present study, by utilizing the tri-partite 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.

Methods

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.

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, hyperkinesis, 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.

Treatment procedure

The DMT group treatment consisted of 12 DMT sessions. Each session was 90 min 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 A](#).

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 min. 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, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Steer, Ball, & Ranieri, 1996; Dozois et al., 1998; Norton, Cosco, Doyle, Done, & Sacker, 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).

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, & 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 & Lewis, 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.

Results

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.

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 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 ($r = 0.44\text{--}0.62$) 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 ($r = 0.65\text{--}0.78$). 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.

Participants' experiences of the DMT treatment

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

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
<p>lack of energy, tiredness</p> <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 	<p>body-self</p> <ul style="list-style-type: none"> – the relationship to the environment via action and experiencing
<p>lack of direction in action</p> <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 	<p>body-self</p> <ul style="list-style-type: none"> – the relationship to the environment via action and experiencing
<p>lacking a sense of agency – social situations appear demanding and difficult</p> <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 	<p>body-self</p> <ul style="list-style-type: none"> – the relationship to the environment via action and experiencing
<p>distortions/fragmentation in the body image</p> <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 	<p>body-self</p> <ul style="list-style-type: none"> – the experience of one-self <p>the image-properties</p>
<p>a shallow consciousness of one's body – avoidance of attending consciously to body-image</p> <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 	<p>body-self</p> <ul style="list-style-type: none"> – the experience of one-self
<p>difficulty to relax and have a rest</p> <ul style="list-style-type: none"> – 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 	<p>body-self</p> <ul style="list-style-type: none"> – the relationship to the environment via action and experiencing; the experience of one-self
<p>worry about weight</p> <ul style="list-style-type: none"> – 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) 	<p>image-properties</p>
<p>pain</p> <ul style="list-style-type: none"> – 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 	<p>body-self</p> <ul style="list-style-type: none"> – the relationship to the environment via action and experiencing <p>body memory</p>
<p>memories of traumatic events and/or circumstances in childhood</p> <ul style="list-style-type: none"> – 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 	<p>body memory</p> <ul style="list-style-type: none"> – 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)	0.083	0.62	0.89 (0.90)	1.00 (0.87)	0.62 (17)	0.54	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)	0.21	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) / 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	<i>p</i> -value	Post BIA	<i>p</i> -value	pre-fup change correlation with BIA-change (pre-post) <i>p</i> -value
BDI-II	-0.62	0.007	-0.78	<0.001	-0.53
SCL-90	-0.44	0.068 (ns)	-0.65	0.003	-0.64
HADS	-0.60	0.008	-0.78	<0.001	-0.48
CORE-OM	-0.57	0.013	-0.72	0.001	-0.66

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	<i>t</i>	<i>p</i>
BDI-II	0.285	-0.534	-2.53	0.022
SCL-90	0.368	-0.636	-3.30	0.005
HADS	0.225	-0.475	-2.16	0.047
CORE-OM	0.438	-0.662	-3.53	0.003

Table 5

Two examples of poems (translation from Finnish by the researcher/therapist).

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.	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.
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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.

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.

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 (Papadopoulos and Röhrlich, 2014; Segal et al., 2002; Stötter et al., 2013): 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 atten-

tion 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.

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Appendix A. 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	Circular motion in joints. Improvisation with name gestures.
2	Familiarizing with the space, moving, and collaboration	With picture cards, expressing one's expectations of the DMT group. Exploring the space/room by moving in it in various ways and acknowledging the others.
3	Safety and agency, playfulness	In a dyad, mirroring on each other's movement. Recognizing how one directs attention: outwards, inwards. Sensing body boundaries. Moving with eyes open or closed.
4	Playfulness, agency, finding different options	Exploring the spatial options in movement. Exploring spine motility.
5	Grounding, intuition, sensitivity	Imagery & improvisation: If you were an animal, how would the animal move? In a circle, moving by holding hands. Activation of the body, starting from the feet. Playing with different movement qualities. Mindfulness skills and breathing: sensing one's walking.

	Theme	Process movement practices
6	Relieving achievement pressure	Sensing hands through different movements. Breathing exercises. Basic movement exercises allowing grounding and sensing the kinesthetic connections in the body structure. Mindfulness skills: breathing and seeing the other. Polarity: familiar and unfamiliar in movement.
7	Boundaries, distances, directions	Activating hands and breathing, sensing body boundaries, sensing center/core also with strength. Movement improvisation with a focus on near space, middle space, far space. Walking in a dyad and sensing the connection. Drawing a picture of one's experience.
8	Space for motion, boundaries, surfaces – balancing being and action	Self-nurturing movement and moving on the floor level.
9	Emotion – acceptance and agency in one's life and in relation with environment/others	Basic movement exercises allowing grounding and sensing the kinesthetic connections in the body structure. Getting into vertical slowly and through different postures. Movement improvisation from the words selected to express one's present state.
10	What do I need – attention and focusing in action	Exploring earth, water, air and fire through movement improvisation – expressing and describing associated feelings. In a dyad, hand massage.
11	Accepting needs – nurturing, simplicity, freedom	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. Moving with breath, gradually engaging the whole body. Simple movement exercise (breath, clear movement pattern, a sense of opening/stretching, focusing). Requesting from a pair something one needs in movement and/or presence. Homework: to write a poem of one's experiences in this group.
12	Closure – what have I learnt?	Activating the body, grounding, being aware of the body. Simple movement exercise (same as in the session 11) Poems: sharing them, improvising movement on them. Feedback of the process.

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