

The Mechanisms, Effects, and Benefits of Dance Therapy as a Treatment for Mental Health

Outcomes

by

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Abstract

This project examines the mechanisms of dance in order to make a case for the potential benefits of movement therapy, and more specifically Dance/Movement Therapy (DMT), as a modality to treat mental health outcomes. Through the explaining of emotional theories, there is a connection made between emotions, movement, and the environment, that establish the foundations for the emerging therapeutic approach. Research reviewed in this project includes studies that examine the bi-directional and dynamic connection between an individual's movement postures and emotional states on a personal and interpersonal level. This phenomenological connection is made relevant to dance movement therapy as it applies to the interaffective therapeutic movement relationship that is created between the therapist and the client/patient. To better create a cohesive understanding of dance movement therapy, a few techniques/mechanisms of the therapy are synthesized and defined in the project which include: empathy, music, embodiment, mirroring, transference, and countertransference. Finally, gaps in the current dance movement therapy research are identified to call for more reliable and valid research to encourage a valid standard manual for Dance/Movement therapy.

Keywords: dance, movement therapy, embodiment, mirroring, emotion

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The Mechanisms, Effects, and Benefits of Dance Therapy as a Treatment for Mental Health Outcomes

The current project explores the potential benefits of dance therapy and Dance/Movement Therapy as therapeutic approaches for treating a variety of mental health outcomes. It outlines pertinent emotional theories while describing the connections between emotion and movement/exercise in order to define the potential benefits of this emerging therapeutic approach. By exploring affective appraisals and affordances, importance is placed on the connection between emotions, somatosensory outputs, movement, and an individual's environment. It reviews research studies that explore the bi-directional effects of movement postures and emotions both in an individual and how those movements and emotions are perceived by others. Through naming, defining, and outlining benefits of mechanisms utilized in dance therapy, including empathy, music, embodiment, mirroring, transference, and countertransference, the extensive potential healing benefits of this therapy are identified.

The overall goal of this project is to create a concise and cohesive theoretical foundation for dance therapy and Dance/Movement Therapy. To that end, this paper explores theories of emotion, as emotional regulation is an important component of mental health. The links between emotion and movement are explored, with an emphasis on embodiment. The existing literature on dance therapy and Dance/Movement Therapy is explored, focusing on the psychological and physical benefits of these therapies. The specific techniques used in Dance/Movement Therapy are discussed, along with how these techniques relate to embodiment, emotion, and health-related outcomes. The role of music as a component of dance therapy is also considered. At the conclusion of this project, there is a call for an increased interest in reliable and valid

research on dance therapy techniques in order to create a standardized valid manual for this practice.

Dance is a form of rhythmic movement, typically in tandem with music, that is used to express thoughts or feelings and is typically an enjoyable experience. Dance movement therapy utilizes the beneficial effects of dance's emotional outcomes and physical outcomes to create an integrative intervention for a variety of mental health illnesses and overall psychological wellness (Boing et al. 2017).

Dance within the talk therapy setting is not typical as a separation between biological and physiological treatment modalities has been encouraged though the development of psychology. But research on an integrated method called the biopsychosocial method brings relevance to dance movement therapy. Depending on the targeted illnesses' causes and mechanisms, dance movement therapy utilizes various techniques and tools that include, embodiment, transference, countertransference, mirroring, attunement, and music. To understand why dance can be integral within the therapeutic setting, this project outlines the connection between an individual's emotions, movements, and their environment.

Emotion and its Neurological Processes

Emotions are intrinsic and fundamental to the quotidian and are the symptom expression of many mental health outcomes that are targeted through the treatment modality of dance movement therapy. There has been a lot of previous research pertaining to the theoretical explanations of emotional processes and their behavioral outcomes. One theory suggests that emotions are physiological and psychological responses to an appraisal of a situation, which determine subsequent actions and behaviors (Scherer, 2001). Similarly, De Sousa (2010)

describes emotions as physiological changes that trigger an affective response that motivates a specific behavior. Appraisals have a bi-directional relationship with a triad of reactions, which include physiological responses (e.g., heart rate, BP, bodily temperature, and respiration rates), behavioral reactions (such as facial expressions and approach/avoidance behaviors), and personal subjective feelings (Scherer, 2001). Any situation must be perceived and then appraised based on the specific instinctive somatic responses that are elicited from the situation, which then triggers an appropriate emotional response. The components of the reaction triad both influence appraisals and are influenced by appraisal processes.

Emotional reactions are influenced by existing schemas for a situation that are determined by an individual's personal beliefs, values, attitudes, and judgments (Fuchs & Koch, 2014). Schemas are created based on previous experiences, culturally and interpersonally, that create expectations for future situations that share features with previous experiences. Deviations from schematic expectations can trigger emotional responses (Scherer, 2001), even when there are no immediate consequences to the violation of expectations. For instance, within music, emotional reactions can be elicited through the completion or non-completion of a schematic expectation created by the musical structure (Bharucha et al., 2006). Musical schemas are established through long-term exposure to the musical systems used within a culture. For example, Western music uses tonal and rhythmic hierarchies that create strong expectations for specific musical events that, when violated, elicit emotional reactions. These musically induced emotions are associated with activation in the limbic system and other brain areas that drive emotional responses; happy music causes activation in brain areas associated with positive emotions and pleasures, including the ventral striatum, the orbitofrontal cortex, and the anterior insula (Vuilleumier & Trost, 2015). Not only does the particular valence of music induce activity

in specific brain areas, but it also triggers the release of accompanying neurotransmitters, such as dopamine (Vuilleumier & Trost, 2015). A study by Salimpoor et al. (2011) showed that, using positron emission tomography (PET) and functional magnetic resonance imaging (fMRI), there was a dopaminergic reward associated with the intense pleasure from the fulfillment of musical expectation. These findings are one piece of a larger body of research demonstrating the augmented cognitive effect of the relationship between music and emotional states. Because music is such an integral component of dance therapies, its role in causing emotional responses should be considered when discussing the affective goals of the therapy and the affordances offered by music in this regard.

As the emotional theories have suggested, emotions are first felt as bodily sensations. Fuchs and Koch (2014) describe this phenomenon as bodily resonance, which they define as the sensation of the culmination of both autonomic nervous system activity and musculature activity. For example, it is suggested that an emotion like sadness could be felt as bodily sensations of one's chest tightening, a lump in one's throat, etc. The immediate observation of bodily sensations is how we experience emotion; they are not separate but an embodied experience of the emotion. The sensation of a pounding heart from a situation appraised as scary will only increase the emotion of fear or anxiety (Ekman et al., 1972). While appraisal theories determine emotional response from bodily sensations and schematic expectations separately, Prinz (2004) proposed a primary integration of the two. "Embodied appraisal" is the idea that one appraises the situation based on their emotional state. This creates a bi-directional relationship between one's perception of a situation and their bodily reaction (Prinz, 2004). Regardless of which emotional theory, there is an apparent relevance of an individual's perception of somatic sensations on emotional reactions.

Emotions are appraised in part by their proximity to an individual's environment. In order to yield a specific emotion, a set of appraisal criteria was determined by Scherer (2001), which included the encounter's probability, the specific cause, the inherent agreeability, its applicability to one's goals, the likely outcome, the response to the outcome, and the innate response. Fuchs and Koch (2014) also describe an appraisal process known as affective intentionality, which they define as the affective importance that an individual places on a situation. When an individual encounters an environment, appraisals of affective intentionality are evaluated in terms of both the physical and emotional opportunities available in the environment and the individual's mental state including their current goals and emotional needs (Fuch & Koch, 2014). The objects in an environment provide cues for how we can interact with those objects; these cues are referred to as affordances (Gibson, 1979). *Affective* affordances are similar and provide opportunities for achieving emotional goals by using features of the environment (Fuchs & Koch, 2014). For example, if it is an individual's intention to feel happy, an environment that contains a source of music affords them the opportunity to listen to a song that is upbeat and catchy, typical connotations with joyful music. As a person appraises a situation based on their goals, affective affordances describe the emotional significance that is placed on the features of the situation, and the person's subsequent actions are accordingly affected and decided. For example, if one is feeling tired, they will have certain goals that mitigate this feeling and running 3 miles will not help them achieve their goal of obtaining rest, so it is this perception of events through an individual's affective perceptions that determine appropriate affordances, like sleeping. It is important to understand an individual's environment affects not only their emotional output but also affords them movement/behaviors in order to act on that environment.

Emotions are pervasive in personal and interpersonal experiences. As emotional outputs are dependent on appraisals, determined by physiological, behavioral, and affective reactions, emotions that are elicited are extremely variable between environments (Scherer, 2001). Additionally, the environment, which offers specific behavioral opportunities based on stimuli, is appraised through an emotional state with a specific emotional goal, and allows the individual to take goal-oriented actions (Fuchs & Koch, 2014).

Emotion and Movement

The relationship between movement and emotion is inseparable and as suggested previously, is continuous. Research by Koch (2014) investigated the effect that specific movement characteristics, rhythms and shapes, had on emotional states and attitudes. Participants were assigned to both a movement rhythm, smooth or sharp, and a movement shape, avoidance or approach, and presented with neutral novel stimuli (Chinese ideographs). Data was collected on their affect using a movement-based affect scale self report and their attitudes towards the images using a preference scale self report. It was found in this study (and replicated in other consequential studies) that movement rhythm patterns that were smooth elicited a more positive affect as compared to the patterns of sharp movements (Kestenberg, 1995; Koch, 2014). For example, movement-based words whose connotations were smooth, e.g. “sway,” had a more positive emotional response than those words like “bite” (Kestenberg, 1995). This was tested in relation to the Kestenberg Movement Profile theory, which delineates categories of movement and relates them to neurotypical developmental stages for clinical application. Koch’s work elaborated further into the relationship of movement to emotionality by additionally including the *structure* or shape of the movement, specifically which movement is being explored, and the attitude outcomes. The difference between attitude and affect within this study is differentiated

by the intended matter of outcome, with affect referring to the self, and attitude referring to an outside object. It was found that approach movement elicited a significantly more positive affect, a greater preference towards peaceful, joyful, excited, etc. on the movement-based affect scale, when compared to avoidance movements. In this research, movement rhythm, whether it was sharp or smooth, affected an individual's attitude towards the images more than their affective valence. These works are a part of the larger body of work that suggests that movement affects personal emotionality based on the specific quality and shape of the movement. Emulating the muscular activation, quality, and shape of bodily postures of typical basic emotions can induce an associated emotion.

As described in the previous section, there is a fundamental difference between attitude and affect differentiated by how the experiencer directs their emotion, either implicitly or explicitly. While many works have investigated how movement and various characteristics affect the personal self or one's affect, few have investigated how movement affects one's attitude towards an outside object. Cacioppo (1993) delved into this notion by using flexion and extension muscular activation of the arm while viewing novel ideograph stimuli. Participants, which included students collected from a course at an United States university, viewed a series of Chinese ideographs, images acting as neutral stimuli, while assuming either arm flexion, a muscular activation that is typically utilized for procurement of an object, or arm extension, a muscular activation that is typically utilized for negation of an object. They were then asked to provide a pleasantness rating of the ideographs, selecting from "extremely unpleasant, very unpleasant, unpleasant, pleasant, very pleasant, and extremely pleasant." Results showed that the ideographs that were viewed in the arm flexion group—the object procurement movement—were viewed more positively than the ideographs shown in the arm extension group (Cacioppo, 1993).

In a subsequent experiment in the same paper, it was also shown that as compared to a non-contraction control group (which didn't engage in any specific arm movements), ideographs witnessed in arm-flexion held more positive attitudes and ideographs witnessed in arm-extension held more negative attitudes. This work demonstrates the effect that bodily postures and sensations can have on attitudes toward neutral stimuli, and the ways in which these types of postures and gestures are typically used (such as for approach or avoidance) can shape how neutral stimuli are evaluated.

Similar links between body position and appraisal were observed by Riskind and Gotay (1982), who conducted a study that investigated physical postures on emotional output and motivation, both in self-perception and outwards-perception. Participants were either placed into a bodily posture condition involving upright and expansive posture or slumped and hunched posture and completed a learned helplessness task. Results of the study reported that when participants assumed a hunched posture there was greater helplessness measured though less persistence on an insolvable task. An additional experiment was conducted that analyzed the effect of others' bodily postures on an individual's perceived emotional state of the other. This study showed photographs of individuals' bodies assuming either slumped or upright position and prompted participants to rate their perception of depression in the photo. Results showed that the images of people assuming slumped postures were judged to be more depressed than those of upright posture. Bodily posture both in oneself and in others are instrumental in individual perception of emotion.

The relationship between body movements, appraisal, and emotion has relevance to therapeutic approaches. Reich's psychoanalytic work, *Character Analysis* (2013, originally published 1933), correlated muscular tension with emotional blockages, with various physical

therapies as an intervention for releasing memories, sensations, and emotions associated with a specific trauma. Contrastively, this effect can happen in the opposite direction, with movement eliciting various emotional outcomes. The body can inform emotional therapies through observation of bodily postures, movement, and tensions.

Affect and attitude are two pieces of the same puzzle. While there is a bidirectional relationship between the two, simply put, an individual experiences an affective state and then acts either implicitly or explicitly (Koch, 2014). Kafka's (1950) seminal theory paired emotional states to consequential action behaviors and their combined intersubjective communication ability. Below are the four named and defined affective states with behavioral actions, either approach or avoidance, and the intended matter.

- "Profusion: 'along with me to you' (love, affection);
- Ingestion: 'along with you to me' (desire, greed):
- Recession: 'away with me from you' (fear, disgust);
- Ejection: 'away with you from me' (anger hatred)."

This demonstrates the idea that attitude (appraisal of an object), affect (the personal emotion), and movement (the behavioral/physical action) are all related and can affect one another. This phenomenon was later named affective affordances, which is described previously as providing opportunities for achieving emotional goals by using features of the environment. When we appraise a situation or object, we do so with an emotional basis—our affect—which then determines the significance of the situation or object to our goal, our attitude towards the object, and then the appropriate actions within the situation. For example, if an individual is annoyed and is then faced with a frustrating situation, they appraise the situation through this annoyed

state and judge that this experience is more trouble than it's worth. Affect, attitude, and action are inseparable as they all affect the others in a continuous dynamic manner.

The notion of bi-directionality opens the exploration into the concept of individuals having emotional regulation based on conscious bodily movements. Research shows that emotions can be induced by bodily postures and movements. Emotionally induced muscle activation has been researched by Strack et al. (1988), whose findings suggest that contracting muscles in ways that are typically associated with specific emotional states influences the emotions experienced. Strack et al.'s study required participants to either hold a pen between their teeth, similar to muscular contractions of smiling, or between their lips, similar to muscular contractions of frowning, while watching a cartoon. Results suggested that in the condition of holding the pen with their teeth as if they were smiling, participants found the same cartoons to be funnier, demonstrating the influence of movement on object appraisal.

There have been many separate studies that have investigated the effect of initial bodily experiences on consequential emotional experiences. Research detailed previously by Koch (2014) explored the effect of bodily movements and postures on one's perceptions toward their environment. This relationship between emotions and movement has been codified by Frijda (1986), linking an action to a specific emotional state, such as avoidance being linked with fear or approach being linked with desire. Fuchs and Koch (2014) thus describe emotions as a circular feedback cycle with two separate parts: sensory feedback and body postures. The notion of two separate parts of emotionality is similar to Polanyi's (1967) theory of proximal and distal components of emotions, which describes bodily resonance as the proximal experience and perception of the environment as the distal experience. Collectively, the studies that have explored the dichotomous relationship between somatosensory information and emotional

information, with bi-directional feedback, have found that there is possibility for manipulation of either input to affect the outcome.

While emotions have an internal feedback cycle that is continually affecting and being affected both through sensorial feedback and reactions, the environment may contain other people, and their actions and emotions affect the actions and emotions of others. This phenomena of interaffectivity is described by Fuchs and Koch (2014): “Our body is affected by the other’s expression, and we experience the kinetics and intensity of his emotions through our own bodily kinesthesia and sensation.” The sensorial experience-sharing is vital to interaffectivity and dynamically affects valence and intensity of a situation. In the same way that an individual experiences emotion in this cyclical continuous feedback loop, emotions that happen in the intermediate are also mutually dynamic and continuous. Similar to this is resonance, which Siegel (2012) describes as a product of attunement which creates a mutually affecting state between members. This shared bodily resonance is the foundation of empathy. For example, when an individual is experiencing sadness, they sense this through the bodily feedback that is felt as a sinking chest, watering eyes, etc. and the subjective experience of the emotion itself, which creates a dynamic emotional state. At the same time, a separate ‘other’ is perceiving the individual’s bodily postures and responding appropriately to the specific situation (eg. consoling and connecting), creating a resonance between the two individuals. These actions are affective affordances that are brought up through the same individual dynamic feedback loop of the ‘other.’ The process does not stop here, as each individual is continually perceiving and interpreting the other through their individual bodily resonances and emotions. The interconnectivity between two individuals is related to research on mirror neurons. There is a large body of work that explores the effect when bodily postures are embodied and mirrored.

When perceiving movement in another individual, mirror neurons in the receiver's brain trigger the activation of brain regions (including the premotor cortex and the parietal lobe) that would be used to generate the perceived movement, creating a shared brain state between individuals and eliciting an empathetic emotional response that is very useful for the therapeutic setting (Shafir, 2016; Buccino et al., 2001; Blum, 2015). Mirror neurons are utilized for interaffectivity, an integral part of navigating human interactions. Each individual in the interaction is receiving bodily resonance and interpreting shared affective valence and intensity of a situation to better attune and respond to the other person.

Movement provides the foundation for connection between an environment and an individual's emotions. An individual's goals and emotions will influence what movements are appropriate to act upon within and on an environment. Bodily postures can influence self-perceptions and emotions, but they also have the ability to affect overall judgments towards outside objects or others. An understanding of these emotional and movement theories should be encouraged within the dance therapy setting/occupation as the continuous interaffectivity can be utilized for improved awareness and overall therapeutic output. The movement and emotions that an individual experiences are inextricably connected and affect how the individual relates to their environment around them; but how do they affect and adapt to the other and how does this inform the individual's sense-of-self?

Embodiment

Embodiment can be described as the way in which we give meaning to ourselves and our bodies and the presentation of the physical manifestation of our integrated being within the world (Dieterich-Hartwell, 2019). The growing body of research in the realm of embodiment is

defining a bi-directional relationship between an individual's presence and effect in the world and consequently the world's presence and effect on the individual.

As explained previously, an individual's present state is continually being affected by internal and external stimuli that are being sensed, perceived, and integrated into the individual as an emotionality. An individual's environment and stimuli are constantly being perceived from this ever-changing state. Additionally, research by Koch (2014) suggests that how we experience and sense the world is determined by our embodied presence, posture, and movement (Wiedenhofer & Koch, 2017). A study conducted by Koch (2014) instructed participants to either complete indulgent (bounding-like) or fighting rhythms (kicking-like) for a period of time and then an emotional self-report and stimuli-preference self-report. Results showed that the variation of rhythms within movement can affect an individual's emotional state and their attitudes towards external objects. This study is one of many that lends to empirical evidence supporting the relationship between an individual's bodily postures and the way the individual perceives an environment.

The process of embodiment requires full body understanding of an individual's manifestation within the world and how it in turn affects the individual. Through the process of doing, an individual develops a conscious understanding of the body's movement ability, emotional ability, and affordances within personal and physical interactions (Young, 2017). There is a large body of evidence to suggest an interaction between an individual's postures and behaviors and the way these affect the individual's perceptions, in terms of both an internal affective state and an external attitude development, of an environment and its stimuli. The processes of empathy are very important to consider for the application of dance movement

therapy because they contribute to successful interaffectivity, which is integral to healthy interpersonal relationships, including the therapeutic dyad.

Dance Therapy

Dance, the foundation of dance therapy, provides an enjoyable emotional and physical outlet for participants. As the biopsychosocial model suggests, dance therapy is an integrative intervention that aids in physical and psychological wellness and is a treatment method for a variety of mental illnesses (Boing et al., 2017). In the therapy setting, dance can be used in different ways depending on the targeted illness and the illness's causes and mechanisms.

Dance therapy outcomes are interdependent and are frequently demonstrated through positive improvements in one area signifying positive improvements in another area. Levine and Land's (2016) meta-analysis gathered data on previously published articles that studied effects of dance/movement therapy on trauma patients. Qualitative data was collected from nine studies, including case studies, structured interviews, and open-ended narratives from a wide-ranging variety of participants who were exposed to trauma. Not only did the study attempt to clarify and integrate previous research into a clear definition of dance/movement therapy appropriate for generalization, but revealed various tools that were used to aid in the therapy. The research additionally showed that where they found that a positive change in mobility is indicative of confidence, awareness, or comfortability. Since the studies' data was collected qualitatively, outcomes like ones listed previously were measured in relation to the therapist's perspective. While there is no statistical significance, it should not negate the fact that there were changes on these measures. Because dance therapy has both physiological and psychological benefits (Boing et al., 2017; Dieterich-Hartwell, 2019; Earhart, 2009; Levine & Land, 2016), it is evident based

on research and the biopsychosocial model that the interconnectivity would cause effects both on physical performance measures and cognitive outputs.

Psychological Benefits of Dance Therapy

Dance therapy offers participants psychological benefits (Gow et al., 2012; Jola & Calmeiro, 2017; Sturm et al., 2014). With continued practice, exercise or movement in general has been found to decrease shrinking of the brain and white matter lesions throughout aging (Gow et al., 2012; Erickson et al., 2013). Additionally, brain functions and health are increased through improved neurotransmitter abilities; movement has been found to increase psychological health by triggering the release of neurotransmitters like endorphins and serotonin, which are associated with positive affectations (Jola & Calmeiro, 2017). As previously mentioned, dance therapy can either take place in a one-on-one or in a group setting. Group settings have been shown to provide social benefits and in turn, emotional benefits (Sturm et al., 2014). Practicing dance therapy can bring an individual many psychological benefits, both in terms of mood and neural function.

Dance therapy as a part of talk therapy uses movement as a mode of uncovering and naming conscious feelings. Boing et al. (2017) conducted a meta-analysis on published articles on dance therapy as a symptom-mitigation treatment for women diagnosed with breast cancer (with various studies' goals targeting upper-limb mobility, general affective state, quality of life, and relationship outcomes). It was found that this group setting provided an outlet to share suppressed emotions and collaborate in positive group experiences throughout the process of treatment stages. Most of the works Boing et al. (2017) reviewed, found that dance movement therapy decreased pain, stress, and anxiety regarding cancer return. As the studies were variable

in design and intervention type, data collection was wide-ranging including both qualitative case-studies and quantitative randomized clinical trials, which generally measured physical outputs and psychological questionnaires, sometimes for pre- and post- test or between a control group and an experimental treatment group. Additionally, there was an increase of experienced joy, freedom, attitude, self-esteem, mood, and trust in those who participated in dance therapy. These positive emotions decreased depressive symptoms and therefore reliance on prescription antidepressant drugs for mood regulation. When practiced, dance therapy increases positive emotions, decreases negative emotions, and encourages the sharing of conscious emotions.

Additionally, inner emotions can be manifested through the body with the individual either conscious or unconscious of their presence. Affective states can either be an elicitor of postures or can be the effect of the postures themselves. While not a dance therapy study, Camurri et al. (2003) conducted an experiment investigating the use of movement to communicate specific emotional states. They examined which types of movements, specifically in dance performance, were recognized as communicating specific emotions. The participants were required to watch a series of twenty different dance performances that were danced by five dancers representing four different basic emotions, including anger, joy, fear, and grief. The participants then matched and rated each dance fragment to a basic emotion. Results showed that emotions like anger and joy were recognized as movement projecting outwards from the center of the body. Contrastingly, movement that was introverted, avoidance-like, or implicit was recognized as low energy emotions like sadness or grief. The results from Camurri et al. (2003) are expected as movements that were recognized as each emotion are characteristically similar to the experienced body postures during these same emotions. For example, in a high energy emotional state like anger or joy, one would typically be very outward, explosive, making large

gestures, while in a low energy emotional state, like sadness, the bodily postures would be lethargic, small, and sagging. Dance therapists utilize these findings to better understand a client/patient's movements that are elicited during a session because inner emotional states can be conveyed through bodily postures.

Dance therapy, depending on the targeted neurological disease, uses movement in various ways to enhance the benefits of talk therapy. As dance therapy uses movement as its foundation, psychological benefits of movement apply to dance therapy. Research has demonstrated that movement increases performance of cognitive structures and enhances neurotransmitter functionality (Gow et al., 2012). When dance therapy is utilized during talk therapy, research demonstrates that there is an increase of positive affective state and a decrease of negative affective states (Boing et al., 2017). Research that connects movement characteristics to emotional states informs dance therapists' practices to better understand the meaning of their client's bodily postures (Camurri et al., 2003).

Physical Benefits of Dance Therapy

Physical benefits of movement are pervasive within dance therapy as movement is the basis of this therapy. Dance, and physical activity in general, are known to benefit cardiovascular fitness, decrease cardiovascular risk (Rodrigues-Krause et al., 2016), and increase cognitive health, activating most areas of the brain (Bläsing et al., 2018). Rodrigues-Krause et al. (2016) compiled a meta-analysis on various published studies that investigated the effects of dance interventions for cardiovascular risk in elderly individuals. Due to the compilation nature of this work, each study design across articles varied, with some including a dance intervention group and a control group and others including an additional exercise intervention group. Data was

collected through different measures, one being peak oxygen consumption (VO_2), a measure of cardiovascular fitness, which is taken as the highest measure of oxygen intake during intensity-increasing movement. Results showed that when compared to non-exercising controls, both the dance intervention group and the exercise group had an increase in VO_2 . While there was no significant difference of VO_2 among exercising groups and dance groups, dance therapy is demonstrated to be just as an effective intervention. Downfalls in the literature were pointed out, with some of the studies being non-randomized control studies and most of them having small sample sizes. In another study with elderly individuals, additional physical characteristics were improved upon with dance therapy interventions, including musculature, gait, and balance (Veronese et al., 2017). Due to the physical nature of dance therapy, it can be used to treat physical ailments and increase measures of physical performance.

Exercise interventions, specific to the increasing of balance and strength, have been used as interventions targeted to improve elderly fall incidence. Through gathering published articles, meta-analysis was conducted by Veronese et al. (2017) that attempted to determine if dance movement therapy was an applicable mitigation technique for falling anxiety in elderly. As dance movement therapy is used for both physical and psychological ailments, and falling couples the fear of falling and poor physical performance (balance and gait), dance therapy superficially seems like an ideal therapy. However due to a small sample size, results showed inconclusive preliminary evidence for treating the elderly's fear of falling with DMT interventions.

The study conducted by Boing et al. (2014), previously introduced, was a meta-analysis work on dance therapy for individuals with breast cancer. There was not only a focus on the emotional aspect of the dance therapy treatment, but additional movement outcomes were studied. To refresh, the type of experiments included were variable, with Boing et al. (2014)

including case-studies, randomized controlled studies, and quasi-experimental studies, with data collection sometimes utilizing non-exercising control groups. Results showed there was a positive increase in range-of-motion and grip strength between the dance therapy groups and the control group. Additionally the participants in the dance therapy group experienced a general feeling of improvement throughout the course of the study. The dance therapy intervention groups showed improvement with upper-extremity range of motion, either compared to the control group or self pre-tests, depending on the study design. Physical outcomes for dance movement therapy are expected, as the basis for this intervention is movement of the body itself.

Many types of dance therapy utilize exercise-like movement as its predominant means of treatment. A large body of empirical evidence demonstrates movement's ability to benefit physical performance outputs. Research has demonstrated dance therapy's ability to increase an individual's cardiovascular fitness and range-of-motion on targeted body parts/areas. There has been contrasting support for dance therapy's improvement on physical outputs of balance and gait. Overall, a majority of published work demonstrates the comparable benefits of physical performance outputs between dance therapy and movement therapy.

Processes of Dance Therapy

Foundational ideas that laid the groundwork for future dance/movement therapy research were created by Mary Whitehouse, a dancer and trained psychotherapist, who was a pioneer of the integration of the two. Based on Jungian theories, Whitehouse explored spontaneous, free association, and self-directed movement and coined this practice, "Authentic Movement" (1979).

While there has not been a definitive manual of dance therapy that would allow for clinical reproducibility, there has been the creation of various types of intervention methods

including Dance Movement Therapy (DMT), the Mindful Movement program, The Lebed Method, Authentic Movement, and Kinesthetic Imagining.

Since dance-based therapies are so little researched, there is no suggested intervention period or suggested structure for the class time. Two articles included in Boing et al.'s (2014) meta-analysis shared a general structure of a typical dance therapy session. Both were similar, including a short warm-up for about 15 minutes, the body of the dance for about 30 minutes, and then a cool down for about 10 minutes. While this general structure is beneficial, a specific reproducible process should be determined for clinical settings and future research.

Various dance therapies have been qualitatively studied to synthesize throughlines of characteristics and mechanisms utilized in the sessions. The following describes the similar processes of various dance therapies including empathy, embodiment, transference, countertransference, mirroring, attunement, and more.

Empathy

Dance movement therapy utilizes the process of empathy between the dance therapist and the client/patient. Empathy, as described by Oxford Languages, is the 'ability to understand and share the feelings of another.' The emotional theories described in previous sections provide the processes of observing and perceiving emotions and behaviors in others in an environment. The process of stimuli-observation, emotional-integration, and behavioral-reaction as dynamic feedback-loop on the individual level also is affecting and affected by this process in others. Siegel (2012) describes this as a mutually affecting state that shares resonance between individuals. Similarly, interaffectivity describes the emotional sharing of the affective valence and intensity between individuals in a situation which provides the basis for empathy (Fuchs & Koch, 2014).

Mirroring bodily postures and empathy are inseparable and can affect both the observer and participant. While not a dance therapy research study, Maurer and Tindall (1983) conducted an experiment that investigated the relationship between perceived empathy and bodily postures. The study used school counselors that manipulated their bodily postures, arm and leg positions, to either be incongruent or congruent to students' bodily postures during a 15 minute meeting. Results collected from a surveyed scale that the student completed post-meeting demonstrated the significant increase of perceived empathy when bodily postures were congruent between counselor and student. This study demonstrates the importance of how bodily postures affect the external perception of an internal process like empathy. Additionally, mirror neurons, which have been briefly described in previous sections, are integral for the mechanism of empathy. As mirror neurons are triggered when observing an individual's movement, they emulate similar cognitive motor activation that consequently elicits a similar emotion. The elicitation of the other's emotions is helpful in better understanding and empathizing with them. Dance therapy is reliant on interpersonal interactions and is successful only when empathy between therapist and client is practiced.

Embodiment

Dance/movement therapy, when used as a treatment for trauma, utilizes the element of embodiment. In Levine and Land's 2016 research, a synthesis of four themes of DMT were identified and a general definition of embodiment was synthesized, "making the connection between mind and body." The opposite of embodiment is dissociation, which is described as an individual's actions, thoughts, feelings, consciousness, memories, and actions which are not congruent with who they are. Dissociation can very frequently be one of the body's subconscious coping mechanism responses to traumatic experiences after a release of hormones from the

fight-or-flight reaction. After a trauma, the emotional response and memory is manifested within the body, causing various physical phenomena. Embodiment is used by dance movement therapy as a connective awareness between mind and body which is created by movement that helps name feelings/emotions, verbalize experiences, gain understanding, and establish its significance (Levine & Land, 2016). In dance movement therapy research, a term used with dissociation is disembodiment, which was determined to involve three elements, (1) a shift in physical experience (eg. mood), (2) anhedonia, and (3) alterations in biological patterns (Fuchs & Koch, 2014).

The process of cultivating embodiment during dance movement therapy is through shared movement that is affectively attuned between the patient and therapist (Young, 2017).

Embodiment in dance movement therapy engages as an integral process during the treatment of mental health outcomes. When an individual experiences a traumatic experience, a typical emotional response is disembodiment or disassociation. By asking individuals to name connections between their emotions and their movements or simply using symbols to more simply express their experiences, various dance therapy utilize embodiment methods to better integrate the connection between the mind and body.

Therapeutic Movement Relationship, Transference, and Countertransference

Research conducted by Dosamantes-Beaudry (2007) investigated properties that are integral to dance/movement therapy sessions and identified a bidirectional relationship between the patient and the therapist as transference and countertransference. Transference is a phenomenon that describes the projection of a previous relationship, from a patient onto their relationship with the therapist (Dosamantes-Beaudry, 2007). For example, transference occurs

during the treatment process if the client/patient begins to subconsciously project similar thoughts, feelings, and behaviors towards and onto the therapist that they typically would/had feel/felt towards their mother. The countertransference relationship also describes the therapeutic dyad, but in the inverse direction, as it is the therapist's reactions and thoughts in regards to the therapeutic relationship. Countertransference would occur when the therapist allows their thoughts and feelings towards the client to influence their interactions with the client. For instance, countertransference occurs when a client reminds the therapist of an individual from the therapist's personal life, and those prior experiences bias the therapist's attitudes or behaviors towards the client. The countertransference relationship has been broken down into two different categories, concordance countertransference, which is when the therapist empathetically acts in harmony with the patient's feelings, and complementary countertransference, which is when the therapist experiences a projection from the patient of problematic characteristics (Dosamantes-Beaudry, 2007). A healthy and aware relationship between the therapist and the patient is central to a successful dance movement therapy session, so transference and countertransference must be monitored and accordingly addressed.

The therapeutic movement relationship (TMR) is integral for a successful therapy session and is defined by the interactive presence between movement therapist and patient on the physical and psychological planes (Young, 2017). The TMR is developed through understanding commonalities and dissimilarities in individual emotional and behavioral experiences (Fischman, 2015). In dance movement therapy the TMR is created through the therapist's ability to kinesthetically attune to the patient (Young, 2017). Similar to attunement but specifically in relation to the physical plane, kinesthetic attunement is an individuals' ability to be aware of the physical positions of another's body parts. The awareness leads to a kinesthetic empathy, which

is defined as the ability to understand and relate to another's emotions through bodily observations (Pierce, 2014), and is integral for the understanding of transference within the therapeutic dyad (Young, 2017). Many different processes aid in the development of the TMR and pertain mostly to the dynamic observation of physical behaviors and how they possibly relate to an individual's emotions.

Dosamante-Beaudry (2007) defines the concept of transference within movement-based therapies specifically as somatic transference, referring to the felt sensations and behaviors of the patient in reaction and towards the therapist. The feelings and sensations that are expressed as movement and are directed towards the therapist act as objects to aid in difficult transition periods, holding symbolic importance in relation to relevant experiences; these movements through the therapeutic process should be indicative of the client/patient's progress. Similarly within movement based therapies, inversely, the therapist can experience somatic countertransference which describes the bodily reactions of the therapist towards the patient and can manifest as sensations of relaxation, anxiety, hunger, hotness, etc. (Dosamantes-Alperson, 1979; Shuper Engelhard, 2017). The therapist must be extremely aware of both their own body and its reactions and their patients in order to understand and interpret the movement correctly. Once entering the therapeutic flow, both therapist and patient reach a "mutual recognition" brought about by the movement and informed by somatic transference and countertransference (Rappoport, 2015). The therapeutic dyad may experience similar projection processes to talk therapy but are distinguished in dance movement therapy as somatic transference and countertransference.

Winnicott's (1953) term "transitional object" originally was used to refer to an object used by an infant (4-12 months old) that was an emotional crutch bearing the responsibility to

soothe anxiety, receive love, and accept hatred. Dosmantes-Beaudry (2007) defines the patient's movement as a version of a transitional object, as it acts as a crutch for expressing hard to verbalize emotions and symbolic meaning. Additionally this article followed the therapeutic journey of a patient who experienced developmental trauma, and within the treatment process, regressed to nonverbal stages. Through the use of receptive and active movement, previously described, and assigning symbolic meaning, there was creation of a kinesthetically attuned therapeutic relationship that allowed for an exploration of previous traumatic experiences (Dosmantes-Beaudry, 2007).

Transference and countertransference may be present within the therapeutic setting, but must be aptly understood by the therapist for the properties to be utilized advantageously during the course of treatment. The therapist must be aware of personal influences, specifically movement patterns, to facilitate a safe encounter for the patient (Levine & Land, 2016; Orbach, 2003). Movements of the client and the therapist should be carefully observed to determine symbolic meaning pertinent to the relationship or mental health outcome targeted to inform the healing process.

Mirroring

Mirroring, a technique previously introduced as a vital part of a DMT session, has specific neurological processes engaging mirror neurons of the brain. Research has suggested that motor observation triggers the response of mirror neurons that activate internally stimulated mirrored movements in the observing individuals (Shafir, 2016). These neurons are activated within the pre-motor cortex and the limbic system when an individual copies another's bodily movements or facial expressions (Buccino et al., 2001; McGarry & Russo, 2011). The embodied simulation caused by mirror neurons produces similar emotional affectations, which is helpful

for the process of empathy (Maurer & Tindall, 1983) and to sense an emotional atmosphere (McGarry & Russo, 2011). Mirroring uses body movements as the basis for making inferences about the emotions of others.

Dance/movement therapy researchers, Marian Chace and Trudi Schoop, pioneered the mirroring technique while working with inpatients of a psychiatric ward. The dance/movement therapists would observe a patient's movement and recreate it by mirroring and creatively responding in a bodily empathetic manner (Young, 2017). By mirroring, the therapist can embody behaviors and emotions and create an intimate trust that allows an "intersubjective union" (Berrol, 2006). Within the therapeutic dyad, by mirroring their patients and sharing in a bonding activity, the researchers communicate understanding, approval, acceptance, and trust (Bordin, 1994; Chaiklin & Schmais, 1979; Henry & Strupp, 1994; Levine & Land, 2016; Schoop & Mitchell, 1974). Mirroring allows the patient to realize that the therapist is understanding their movements, their somatic experiences, and their 'narrative' (Levine & Land, 2016).

Dosamante-Beaudry's (2007) work describes a case study that explored nonverbal communication, including receptive movement and active movement, that happens in the therapeutic dyad. Receptive movement describes a sensitive self-initiated movement pattern within a subconscious state that has a focus on implicit sensations and emotionalities. Contrastingly, active movement describes an aware self-initiated movement pattern within a conscious state that is focused on explicit stimuli. Both receptive and active movements of the client/patient within the therapeutic setting can communicate information to the therapist that can be observed, mirrored, and brought to the client/patient's conscious awareness.

Mirroring is a technique frequently used in dance movement therapy sessions as it aids the therapist in understanding the client emotionally and physically. Early research has

demonstrated the shared neural activation between the dyad when mirroring triggers the response of mirror neurons. Emotionally, mirroring communicates to the client/patient that the therapist understands, approves, accepts, and most importantly, empathizes with them.

Attunement

The dance/movement therapy sessions utilize attunement, which describes one's awareness of the emotions and behaviors of others. Within a dance/movement therapy session, the patient's conscious and unconscious movements must be observed by the therapist (Shuper Engelhard, 2017). It is suggested that a patient's breathing and muscular contractions must be monitored and gently brought to the patient's conscious attention to assign symbolic meaning. Through mirroring the therapist attunes to the patient's emotional needs (Stern, 1985; Stern, 2005; Young, 2017;) and can act as a bridge between the patient's bodily experience and consciousness to aid in verbalizing difficult experiences (Shuper Engelhard, 2017).

The relationship in the setting of a dance/movement therapy session is one that is attuned, similar to the attached caregiver/child relationship (Loman et al., 2009). The caregiver/child relationship begins with the mutual exploration of interactions, bodily movements, and expressive noises to understand the other (Dosamantes-Beaudry, 2007). The play between action and reaction within a safe 'practice' space allows the bonding process to develop (Loman et al., 2009). This is congruent to the therapist/patient relationship within dance/movement therapy as both are creating an attuned dyad that is proper for attachment. It is even suggested that for more beneficial dance/movement therapy sessions, the therapist should adopt the maternal non-verbal instinct that aids in behavioral understanding (Dosamantes-Beaudry, 2007).

Inter-modal attunement is a type of attunement technique to understand the patients' somatic experiences (Loman et al., 2009). In a case study describing a student with developmental challenges in a special education classroom, one approach to calming the child's outburst was to attune to him. To do this, the clinician hummed the beats that the child was making at a lower tone which showed the child that they were listening and responding to the outbursts. This describes inter-modal attunement whereby creating similar muscular tension and rhythms in the therapeutic dyad, created trust after many unsuccessful attempts eventually settle the child down.

During dance movement therapy sessions, attuning to movement through observation within the therapeutic dyad can create trust and understanding which leads to a bonded relationship. Mirroring can facilitate attunement and brings conscious and unconscious movements to the patients awareness to derive symbolic meaning related to the treatment process. Various types of attunement during therapy sessions can be utilized and all provide a safe container of therapeutic dyad to create a deeper sense of trust.

Dance Movement Therapy

Used for almost 75 years now, Dance Movement Therapy (DMT) is a way of harnessing the benefits of movement to better one's biological, psychological, and social capacity. Physical outcomes are possible, but in DMT the focus is on identifying subconscious emotions. While experimentation and quantifiable data on DMT is far and few between, articles have suggested that neurological benefits can be derived from this therapy (Dunphy et al., 2014; Loman et al., 2009; Lotan Mesika et al., 2020; Wiedenhofer & Koch, 2017; Earhart, 2009). The American Dance Therapy Association suggests that a dance therapy session consists of a bidirectional

relationship created between a therapist and patient that uses the body as an integral part of the healing process. Depending on the medium of therapy, this work can be done one-on-one or as a group, whereby in a group there is a greater focus on community and socialization.

Differing from the typical form of dance, which pertains to the artistic status of movement, dance movement therapy utilizes various techniques and tools that targets underlying neurological processes of the disease being treated. As previously mentioned a few techniques that are utilized within a DMT session include mirroring movements, which attunes the relationship and targets embodied interaffectivity, and symbolizing tasks, which assigns metaphoric meaning to target subconscious emotions. Interaffectivity refers to the kinesthetic relationship between the two movers, the therapist and patient, in which the ever-changing present implicit sensations, emotions, and experiences are effecting and being affected by the other (Fuchs & Koch, 2014). The overall goal of DMT in the therapeutic setting is to express what is being experienced through movement. Rather than using words to initially name feelings and emotions, dance/movement therapy begins with bodily movements that aid in uncovering subconscious feelings that otherwise would be undetected (Levine & Land, 2016).

Music's Role

While dance movement therapy is similar to movement therapy in that the conceptual foundation for each is movement, dance movement therapy differs in one integral element, music. Not only does the concept/research from movement therapy apply to the remedial potential of DMT but so does the concepts/research of music therapy.

Music incorporates sound characteristics like melody, harmony, rhythm, and timbre to convey emotionality and beauty to a listener. While music experienced within groups is theorized

to create bonding and a greater sense of community (Madison et al., 2013), listening to music alone also brings psychological benefits. Listening to preferred music, which contains qualities that are determined by an individual's psychomotor arousal (Bigliassi et al., 2018), increases mood (Madison et al., 2013) and improves emotional regulation (Patania et al., 2018).

Music has been known to cause an individual to adopt either an associative focus or a dissociative focus (Morgan & Pollock, 1977). Dissociation when listening to music causes the individual to focus on external stimuli, including all objects outside of one's body (Morgan & Pollock, 1977). Adopting this dissociative cognitive strategy can aid an individual that is trying to distract themselves from the physical and mental life demands (Bigliassi et al., 2018; Dyrland & Wining, 2008; Hutchinson & Sherman, 2018; Jones et al., 2014; Madison et al., 2013; Patania et al., 2018). Contrastingly, adopting an associative mental strategy when listening to music describes the individual's focus on internal stimuli relating to the body (e.g., heart rate, bodily sensations, and emotions) (Morgan & Pollock, 1977).

Music listening can also manifest itself physically. Specifically, rhythm, a distinct part of music which is described as the forward movement and overall flow in a particular work or speech, typically pertaining to the specific accent, meter, and tempo (Merriam Webster), affects an individual's physicalities. Research investigating this notion found that pieces with faster tempos and rhythms showed greater activation of the brain's motor areas which were triggered through the brainstem's release of serotonin, epinephrine, and norepinephrine (Chanda & Levitin, 2013) and specific rhythm patterns produced more stimulative arousal (Karageorghis, 2018). Physiological measures are also benefited through music listening; research demonstrates that music listening causes regulation of heart rate (Patania et al., 2018), decrease of pain perception (Mitchell et al., 2006), decrease of blood pressure (Madison et al., 2013), and

regulation of respiratory rate (Bigliassi et al., 2018). Overall an individual's psychological and physiological arousal is positively affected by music listening.

The presence of music during dance therapy can amplify the already beneficial effects of movement or movement therapy. Music and musical qualities already show connections and improvement on physiological outcomes and psychological outcomes, so the incorporation of movement only strengthens these effects.

Discussion

Emotions and movement are intrinsically linked and their interdependence has practical therapeutic effects. Emotions are based on appraisals gathered from an individual's perception of their physiological responses, physical actions, and feelings based on previous experiences (Scherer, 2001). Appraisal values are dependent on the individual's specific environment and the individual's schematic experiences, including beliefs, attitudes, and judgements, with environmental stimuli (Fuchs & Koch, 2014). Psychological responses play an important role in emotion formulation; when the physiological responses (e.g., feeling a pit in one's stomach) are interpreted, they augment the individual's perception of the environment. The term "embodied appraisal" defines this phenomenon, where the individual then perceives the environment from this new emotional state, which is informed by physical sensations, that is in a constant state of interaction (Prinz, 2004).

Individuals have the ability to act on their environment through movement. Affective affordances refer to the behavioral opportunities appropriate for achieving emotional goals based on cues within the environment (Fuchs & Koch, 2014). By using affective affordances, an individual can influence the way they are feeling through the actions they take based on their

environment (Fuchs & Koch, 2014). Research by Koch (2014) that explored the relationship between movement characteristics and emotional states found that movement that was prompted with words typical of sharp patterns (e.g., bite) elicited more of a negative emotional response and vice versa. Bodily postures elicit emotional states and affect the way we judge and perceive our environment (Cacioppo, 1993; Strack et al., 1988; Koch, 2014). Other individuals in an environment additionally act as stimuli, which affect an individual and are being affected by the individual. Interactivity describes this continual interplay between feeling our reactions and emotions and perceiving others' emotions and postures (Fuchs & Koch, 2014). Research into shared movement delves into the notion that mirror neurons can trigger a synchronized activation of brain areas between individuals that can elicit a similar emotional response in relation to the movement (Shafir, 2016; Buccino et al., 2001; Blum, 2015). Mirror neurons are integral for empathy between individuals because they allow for attunement, which is the emotional awareness of another (Dieterich-Harwell & Magdalena, 2019).

Dance therapy integrates movement and talk therapy to utilize respective beneficial effects. Research has shown that movement decreases brain shrinkage and white matter lesions throughout aging (Gow et al., 2012) and increases the release of neurotransmitters related to positive affectations (Jola & Calmeiro, 2017). Over the years, research has been done on dance therapy as a treatment for both psychological and physical symptoms for patients undergoing breast cancer treatment (Boing et al, 2017). Findings showed that dance therapy allowed for an outlet to share suppressed emotions, increased positive emotions, and improved range of motion in negatively affected upper-limbs. Additionally dance, a form of physical activity, is known to benefit cardiovascular fitness and decrease cardiovascular risk (Rodrigues-Krause et al., 2016).

In studies that utilized dance therapy as a prevention technique for elderly falls, physical performance on measures of balance and gait improved (Veronese et al., 2017).

Dance movement therapy is a fairly new treatment modality for mental health outcomes and physical ailments, but has demonstrated the need for rigorous controlled research due to its great potential in the preliminary studies, some of which were reviewed in this project. All of the considerations previously mentioned relate to the function of the dance movement therapy as means to successful treatment, either a specific mental health outcome or to reach a specific wellness goal. The movement in dance movement therapy can primarily or secondarily inform the content of the therapeutic treatment process in various ways. A trained therapist is in a constant state of observation, evaluation, and intervention with the patient which dynamically affects the appropriate therapeutic structure. When dance movement therapy is the primary approach during intervention, the therapist determines if free movement/self-directed movement or guided movement/other-directed movement is more applicable depending on the intended target of treatment. A therapist utilizes primary free movement as a mechanism for uncovering subconscious emotions for the treatment of related mental health outcomes (e.g., trauma, Post-Traumatic Stress Disorder). The focus of this intervention content is dance/movement that serves as communication and expression. Conversely, a therapist will utilize primary guided movement when the goals of the treatment process include physical/motor improvements for mental health outcomes like Parkinson's or for the precise manipulation of emotions for related mental health outcomes (e.g., depression). Additionally, when movement is used in dance movement therapy as a secondary mechanism during the therapeutic process, it acts as supplementary information in addition to talk therapy. Therapists can use movement in this

secondary way to assess subconscious bodily postures of the client/patient while they are speaking to better aid in their knowledge of the patient's nature and feelings.

Lastly, there are benefits that are similar across all modalities of dance movement therapy regardless of the contents of the treatment process that were outlined above; dance brings most participants positive feelings as it is an enjoyable means of escape and pleasure. Every dance movement therapy journey will include different content and mechanisms as it is an adaptable modality and is highly dependent on the specific needs of the client(s)/patient(s). As a therapist sees fit, a combination of primary and secondary content approaches will be included in the sessions as the ever-changing therapeutic relationship informs the short- and long-term goals of the treatment process.

Implications

Dance is a popular form of entertainment that has great healing potential. Dance therapy has the ability to treat both psychological symptoms and physical symptoms through the use of movement and music. Dance therapy research has shown high levels of enjoyment and positive affect. Additionally in some studies, there has been excellent coherence to the intervention schedule and frequently even interest to continue the sessions after the conclusion of the experiment.

Research Limitations

Many of the studies that research dance therapy or dance movement therapy are lacking in many areas. While there is such a large variety of studies, there is little ability for reproducibility. In psychological therapies, there is a need for a reliable and valid manual that outlines findings that are cohesive so reproducibility is possible. Dance therapy or its subgenres (eg. Dance/Movement therapy or Authentic Movement) has no such manual published, making

future reliable and valid research difficult. Consequently, study design of research that is currently published consists of a majority of quantitative data collection or case studies, which is beneficial knowledge, but does little for creating statistically significant results. Additionally, many of the meta-analysis works that were detailed in the current work included various forms of dance therapy (e.g., Irish step dancing or ballroom). While more studies were included, it must be noted that overgeneralization can make reliability and reproducibility difficult.

Current lacking research is indicative of a collective disinterest in furthering continuity and research applicability to dance therapies and Dance/Movement therapy. The general disinterest can cause a lack of necessary funding for future research and explains the gap in the research. In many of the studies that were qualitative, small sample sizes negated any possible statistical significance, especially devastating when results were trending towards significance. Small sample sizes could have been in part due to lack of interest or lack of funding.

Future Research Directions

Future research should first primarily focus on the publication of a general dance therapy manual with suggestions and encouragement for consequential subgenre manuals. Following this, research should include large sample-size randomized-control studies with experimental manipulations that relate to the dance therapy manual for greatest reproducibility and validity.

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