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# The Effects of Dance/Movement Therapy on Treatment and Medication Compliance for Individuals Diagnosed with Schizophrenia: A Literature Review

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**The Effects of Dance/Movement Therapy on Treatment and Medication  
Compliance for Individuals Diagnosed with Schizophrenia: A Literature Review**

Capstone Thesis  
Lesley University

Spring 2021

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Mental Health Counseling with a Specialization Dance/Movement Therapy

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## Abstract

With a high prevalence of non-medication compliance in individuals diagnosed with schizophrenia and a wide range of side effects from administered antipsychotics, it is imperative that the field of dance/movement therapy advocates for the implementation of dance/movement therapy in the treatment for this population. This literature review addressed the gap in dance/movement therapy research on the use of dance/movement therapy to reduce antipsychotic medication side effects and increase medication compliance. The multiple challenges faced by individuals diagnosed with schizophrenia were explored such as, stigmatization, the wide range of possible symptoms, poor insight, and movement dysfunctions. Side effects affecting cognitive, behavioral, and emotional functioning were also clarified. In addition, literature on the therapeutic relationship between dance/movement therapist and patient, body awareness, mind and body connection, physical activity, self-expression, and many other dance/movement therapy techniques were examined, followed by a review of dance/movement therapy literature with individuals diagnosed with schizophrenia. Dance/movement therapy has the potential to increase bodily awareness by providing the individual with insight into their medication side effects and reduce debilitating medication effects on cognitive, behavioral, and emotional functioning. Although limited research includes dance/movement therapy as a complementary form of treatment to increase medication compliance in individual diagnosed with schizophrenia, dance/movement therapy has shown to improve cognitive, behavioral, and emotional functioning in a variety of ways.

*Keywords:* schizophrenia, dance/movement therapy, non-medication compliance, antipsychotic side effects, mind and body connection, body awareness

## **The Effects of Dance/Movement Therapy on Treatment and Medication Compliance for People with Schizophrenia: A Literature Review**

Schizophrenia is a severe and pervasive mental illness that consists of cognitive, behavioral, and emotional symptoms. These symptoms are associated with interference in occupational, social, and self-care functioning. Impairment in these major areas of functioning requires significant mental health treatment (American Psychiatric Association, 2013). The first line of treatment for schizophrenia is antipsychotics due to their demonstrated effectiveness in reducing the acute symptoms, improving well-being, and enabling some to live more productive lives. Medication compliance is important to receive optimal benefits (DiBonaventura et al., 2012). It is important to consider non-medication compliance as a significant risk factor during treatment for individuals diagnosed with schizophrenia. A majority of individuals with schizophrenia have poor insight regarding the fact that they have a psychotic illness. Evidence suggests that poor insight is a manifestation of the illness itself rather than a coping strategy (Amador, 2020). This symptom is the most common predictor of nonadherence to treatment (American Psychiatric Association, 2013, as cited in Amador, 2020). Additional limitations to pharmacological treatment are the limited effects on stabilization of negative symptoms (Tandon, 2010) and side effects from antipsychotics (DiBonaventura, et al., 2012). Recent research suggests the need for acute mental health services to deliver a full range of psychosocial and physical interventions, which focus on the patient's recovery in addition to pharmacological treatment (Barnicot et al., 2020). Full range treatment plans for schizophrenic patients can help to support insight awareness, stabilization, and reduce the side effects from pharmacological treatment.

It is proposed that the use of dance/movement therapy (DMT) interventions in full range treatment can enhance the care provided to people with schizophrenia. The American Dance Therapy Association (ADTA) defines dance/movement therapy as “the psychotherapeutic use of movement to promote emotional, social, cognitive and physical integration of the individual, for the purpose of improving health and well-being” (n.d.). Through the embodied practice of dance/movement therapy (DMT), dance/movement therapists can aim to support treatment and medication compliance in individuals diagnosed with schizophrenia. Research shows that DMT can effectively improve affect and psychotic symptoms in patients with schizophrenia. A study conducted at a Wonkwang University hospital showed significantly improved effects on depression, state anger, anger control, and negative symptoms in schizophrenic patients (Lee et al., 2015). In addition, another study revealed dance/movement therapy as an effective form of therapy for patients with severe mental illness, including schizophrenia. “The evaluation data revealed that the participants benefited significantly in their paths towards recovery, as evidenced by improvements in self-esteem and confidence, improved ability to self-regulate, improved social relationship, and enhanced use of effective communication skills” (Barton, 2011, p.178). Investigating DMT as an effective intervention for this population is important due to the array of symptoms experienced, the prevalence of treatment and non-medication compliance, and the importance of full range treatment.

Before examining the possibility of DMT as an effective intervention for increasing treatment and medication compliance in people with schizophrenia, this thesis will begin by providing thorough information and background on the diagnosis and

symptomology. Further, examining the need for full range treatment will contain the importance of psychosocial and physical interventions. With enough information to present an understanding of treatment and reasoning for non-medication compliance in individuals with schizophrenia, additional information will be provided on DMT and it's effectiveness in increasing insight into mental illness, stabilization, and improvements on medication side effects. Collected research will highlight DMT as an effective intervention to increase treatment and medication compliance for the schizophrenic population.

## **Literature Review**

### **Schizophrenia**

The most stigmatized and misunderstood psychological illness. Miller & Mason (2011) explain, "There is a stigma related to schizophrenia based on common stereotypes of people with schizophrenia as frightening, dangerous, and different" (p. 64). There is a lifetime prevalence of approximately 1% of the US population, which translates to over two million people in the U.S having a diagnosis of schizophrenia (Miller & Mason, 2011). Schizophrenia is a psychotic disorder that is described by the American Psychiatric Association (2013) as the presence of abnormalities in one or more of the following five domains: delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behavior, and negative symptoms. Schizophrenia is an illness of the brain and has the power to disturb brain function in differing degrees and ways (Miller & Mason, 2011). "The brain is an organ like any other organ in the body, and it can get sick just like the heart, lungs, skin, kidneys, or other organs (Miller &

Mason, 2011, p.38).” Schizophrenia is a chronic illness, with a cause that is unknown, which has no cure, and is a continuous topic of research. Researchers have discovered that these abnormalities typically manifest in late adolescence or early adulthood and are prevalent across all genders. Schizophrenia is understood as a biological disease that could be related to genes, viruses, and problems at birth. Additional research is exploring the differences between brain structure and environmental factors such as, early use of marijuana and life stressors. There is no evidence supporting this diagnosis being influenced by how someone is raised and/or family interaction (Miller & Mason, 2011). The stigma and misunderstandings surrounding this diagnosis has made the recovery process challenging for most. It is important for medical professionals, mental health advocates, their patients and families, and society to understand the debilitating impact this diagnosis has on ones quality of life and the importance of treatment and medication adherence. Through a deepening of understanding and unconditional support this population can be provided with the appropriate full-range of treatment that is required for recovery success.

### **Symptomology**

Symptoms associated with Schizophrenia affect thinking, feeling, movement, and behavior. “When the brain is healthy it enables us to think, to learn, to feel, to work, and to move. But the brain is a complex piece of equipment, and sometimes it doesn’t function properly (Miller & Mason, 2011, p. 29).” In cases where the brain is not functioning properly due to Schizophrenia the following must be present for a significant portion of time during a 1-month period (or less if successfully treated): delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, and

diminished emotional expression (APA, 2013). The various different symptoms that can be experienced have been categorized into positive symptoms, negative symptoms, and disorganized symptoms. Positive symptoms refer to the presence of sensations, beliefs, and behaviors that would not normally occur in one's life. These symptoms are the most noticeable and individuals are most aware of. Positive symptoms consist of disturbances of thought process, delusions, hallucinations, feelings, movements, and behaviors.

Negative symptoms refer to important abilities that are lacking such as; anhedonia, low energy, blunted affect, lack of facial movement or physical movement, low motivation, and inability to form social relationships. These symptoms seem less disruptive, but they can affect an individual's life significantly. Lastly, disorganized/cognitive symptoms refer to difficulties with concentration, memory, and disorganized thinking. An individual experiencing cognitive symptoms may have delayed thinking, difficulty understanding, poor concentration and memory, and difficulty expressing and/or integrating thoughts, feelings and behaviors (Miller & Mason, 2011). In addition to experiencing positive symptoms, negative symptoms, and disorganized symptoms, this population is at higher risk for anxiety problems, a depressed mood, and/or high levels of stress (Miller & Mason, 2011). All of these symptoms are associated with interference in occupational, social, and self-care functioning. Not only do these symptoms have the power to interfere with their daily lives, but they also can contribute to the difficulties faced with treatment adherence (Biondo & Gerber, 2020).

### ***Lack of Insight***

Possible neurocognitive deficits or symptoms of a brain dysfunction that are commonly caused by Schizophrenia should be considered at the time of examining



treatment and non-medication compliance. Individuals diagnosed with Schizophrenia lack insight and refuse to accept treatment not due to denial, pridefulness, and stubbornness, but because poor insight is another symptom of the disorder itself (Amador, 2020). “This is not surprising, since the brain, the same organ we use to think ourselves and assess our needs, is the same organ that is affected in schizophrenia and bipolar disorder (Fuller Torrey, 1994 p.27 as cited in Amador, 2020).” The neuropsychological deficits faced by these individuals have left their concepts of self, their beliefs about what they can and cannot do, stranded in time. It is one’s conception of who they are gets stranded in time, one can’t help ignoring or explaining away any evidence that contradicts it. They continue to believe they have all the same abilities and the same prospects they enjoyed prior to the onset of their illness (Amador, 2020). Research has shown that functional and structural abnormalities in the brain, usually involving the frontal lobes of the brain, are responsible for poor insight in schizophrenia and other psychotic illnesses (Amador, 2020). Amador (2020) states, “From 1992 to 2017, 22 studies compared the brains of individuals with schizophrenia, with and without awareness of illness. All but two studies found significant differences in one or more anatomical structures (p. 48).” The correlation between lack of insight and structural brain abnormalities provides evidence that individuals with schizophrenia have deficits in insight and resulting non-adherence to treatment due to a dysfunction in the brain rather than denial, pridefulness, and stubbornness. Lien et al. (2018) explains cognitive insight as a “double-edged sword” when working with this population. They highlight this challenge by stating, “Increased insight not only allows individuals to recognize the symptoms and deficits that are caused by their mental illness and the need to comply with

their treatment to recover, but also finds these individuals agreeing with and internalizing the societal stigma toward individuals who have a mental illness” (Lien et al., 2018, p. 28)

### ***Movement Dysfunctions***

Viewing schizophrenia from a dance/movement therapy lens, another symptom that is important to consider are the possible movement dysfunctions associated with this diagnosis. People diagnosed with schizophrenia may experience childlike “silliness,” unpredictable agitation, body fragmentation, unsynchronized, sporadic shifts, and overall rigidity in the body. They also may carry stillness through the head and or body, lack postural shifting or gesticulations, hold the body in fixed positions, and lack spontaneity in their movements (APA, 2013; Biondo & Gerber, 2020). If an individual is experiencing command auditory hallucinations, they may also feel controlled to move in specific movement patterns (Miller & Mason, 2011). Catatonic behavior is another possible outcome of this diagnosis. This is a marked decrease in reactivity to the environment and not moving for a long period of time (APA, 2013; Miller & Mason, 2011). This typically manifests in resistance to instructions, rigid, inappropriate, bizarre postures, lack of verbal and motor responses, excessive motor activity, and repeated stereotyped movements (staring, grimacing, echoing of speech, etc.) (APA, 2013). These movement dysfunctions affect quality of life, functioning outcomes, and physical health. These movement qualities create the potential to experience disembodiment and de-personalization, which can disrupt healthy relationship building, prevent a sense of safety in one’s own body, and increase isolation (Biondo & Gerber, 2020). Marian Chace (Levy, 1988 as cited in Biondo & Gerber 2020), founder of dance/movement therapy,

understood that symptoms of schizophrenia not only affected movements but also compromised verbal expression and thus human relationships. These movement symptoms can lead to a sedentary lifestyle, which can create additional stressors such as: health issues, weight concerns, lack of engagement with the environment, dependence on others, etc. (Strassnig et al., 2021). Not only do individuals with schizophrenia experience a wide range of symptoms, they also experience poor overall health due to lack of movement, leading to shortened lifespans. The health of people with schizophrenia can be further exacerbated by their increase in sedentary behavior and movement (Strassnig et al., 2021).

### **Treatment of Schizophrenia**

There are multiple considerations for treating schizophrenia. Each individual's experience is unique and there are a variety of symptoms that can be involved. It is important for patients and their families to understand that this diagnosis can be treated but cannot be cured. This chronic illness requires ongoing treatment in order to prevent the symptoms from returning (Miller & Mason, 2011). The recovery is a slow process and demands patience and dedication from the individual receiving treatment. Treating schizophrenia requires careful monitoring by medical professionals and participation in intensive full-range treatment (Miller & Mason, 2011). Symptom stabilization through medication is important, but full-range treatment can allow these patients to deal with the wide range of additional stressors that may occur. Although each patient's treatment plan is individualized to meet their own needs, it is recommended for most to participate in the administration of antipsychotics and psychological interventions (Barnicot et al., 2020). Although medications are the foundation for recovery in schizophrenia, most people

benefit from additional treatments such as; case management, family treatment, group and/or individual therapy, integrated treatment, psychoeducation, self help groups, social clubs, drop-in centers, clubhouses, social skills training, and vocational rehabilitation (Miller & Mason, 2011). Suggested alternative treatments are talk therapy to help cope with the symptoms, taking daily vitamins/supplements to improve overall health and performance, and eating a healthy diet for optimal functioning of the whole body including the brain (Miller & Mason, 2011). If the pharmacological and psychological treatments are not working effectively for psychotic symptoms, some doctors have recommended electroconvulsive therapy (ECT). In addition, since schizophrenia is an illness, it is important that the individual makes it a priority to sleep well, eat well, and exercise regularly. Additional treatments are crucial due to the psychopharmacological non-adherence rates for people with schizophrenia (Biondo & Gerber 2020).

Dance/movement therapy is an additional complementary therapy that should be considered to address the symptoms associated with schizophrenia and the possible side effects from antipsychotic medications. This thesis will later explore the implementation of DMT in further detail.

### ***Treatment and Non-Medication Compliance***

An important question to consider while working with this population is can a person be expected to accept treatment for a condition that they deny they have? As mentioned previously, individuals diagnosed with schizophrenia lack insight of their mental illness due to possible cognitive symptoms. Additional factors to consider throughout the examination of treatment and non-medication compliance are personal beliefs around health, the use of medication, individual willpower, religion, etc. (Miller &

Mason, 2011). Furthermore, studies have suggested that antipsychotic medication side effects are associated with lower levels of adherence. Approximately half of the patients with schizophrenia take 70% or less of their medication and this inadequate adherence to antipsychotic medications increases the risk of relapse (DiBonaventura et al., 2012). Miller and Mason (2011) reported that 98% of people who stop taking medication go back into the hospital and after several relapses they will not recover as well. Medical and mental health professionals are encouraged to educate schizophrenic patients on adherence and persistence in treatment, the possible medication side effects, and the benefits of additional treatments. A study conducted on medication non-adherence revealed, "Poor insight into medication effects and the use of first-generation antipsychotics were the two variables most strongly associated with low necessity for antipsychotic medication (Samalin et al., 2016, p. 3)." Additionally, DiBonaventura et al. (2012) discovered a strong relationship between medication side effects and non-medication adherence. Aside from side effects, the following other variables were found to significantly impact non-adherence; age, education, and employment status (DiBonaventura et al., 2012). Due to the necessity and large impression from antipsychotic medications, preventing, identifying, and reducing the frequency and severity of medication-related side effects may lead to greater adherence and fewer hospitalizations (DiBonaventura et al., 2012). Whether a patient lacks insight, has opposing personal beliefs, faces treatment barriers, and/or is experiencing medication side effects, a patient's treatment and medication adherence is the primary influence on stabilization of schizophrenia.

### **Antipsychotics**

As stated by Miller & Mason (2011), “Medicine is absolutely necessary for a return to health (p. 78).” Schizophrenia requires antipsychotics to eliminate the psychotic symptoms associated with the diagnosis. The overall purpose for taking these medications is to restore the chemical imbalance in the brain. Persistent use of these medications is suggested because beyond the absence of symptoms, medication still works to prevent the chemical imbalance (Miller & Mason, 2011). There are two types of medications that can be prescribed to treat psychotic symptoms, typical/conventional antipsychotics and atypical antipsychotics. Atypical medications are the newer generation of antipsychotics that have become available. They were designed to have fewer side effects and be more effective in treating the negative symptoms of schizophrenia (Miller & Mason, 2011). Both types of antipsychotic medications are still found to have side effects that impact adherence. Failure to adhere to prescribed medication can create challenges for mental health care professionals and decrease the potential for stabilization in schizophrenic patients (Chen et al., 2016). The diagnosis of schizophrenia carries many challenges. A challenge that seems to effect successful management the most is, the medications used to help reduce symptoms often cause side effects that are just as difficult to adjust to as the treated symptoms.

### ***Possible Side Effects From Antipsychotics***

Symptoms of schizophrenia interfere with cognitive, behavioral, and emotional functioning, and so do the potential side effects from the use of antipsychotic medications. These side effects can impact individuals functioning and quality of life significantly. Antipsychotic medications often have a variety of side effects, which are associated with lower levels of adherence (DiBonaventura et al., 2012). A study

conducted by Tandon et al. (2020) stated, “In one nationwide survey, 86.2% of patients reported at least one side effect due to their antipsychotic treatment (p.2).” The prevalence of side effects from these medications is extremely high and an important factor to consider throughout the treatment of this chronic mental illness. The impact from medication side effects ranges from insignificant and temporary to significant and permanent to life-threatening disorders (Marvasti et al., 2018). Typical, also known as first generation, antipsychotics are known to have the following side effects; muscle stiffness, muscle cramping of the neck, fingers, or eyes, dry mouth, weight gain, and involuntary muscle movements. Atypical antipsychotics side effects consist of weight gain and metabolic syndrome, which can lead to increased risk for heart disease, stroke, and diabetes (Miller & Mason, 2011). Additional common side effects from antipsychotics are, lethargy and sedation, cognitive cloudiness, emotional blunting, coordination problems, agitation, and aggression (Marvasti et al., 2018). It has been reported that some of the most bothersome side effects from antipsychotics include those that can be grouped into activating (restlessness, feeling jittery, insomnia, and motor control/coordination symptoms), sedating (sleepiness, sedation, difficulty thinking or concentrating, and dizziness), endocrine (sexual dysfunction, decreased interested in sex), and metabolic effects (weight gain) (Tandon et al, 2020). A majority of the most bothersome side effects are also some of the most common. Furthermore, antipsychotics may be paired with other medications to address comorbidity, which can lead to additional side effects. Patients with schizophrenia experiencing side effects from the use of antipsychotics are functionally impaired due to their side effects (Tandon et al., 2020). “Activating, sedating, metabolic, and sexual side effects are associated with substantial

impacts across all aspects of daily functioning (physical, social, vocational, and emotional), as well as lower quality of life satisfaction (Tandon et al., 2020 p. 10).” It is important for mental health professionals and their patients to understand and recognize the potential side effects associated with these medications. Not only do these side effects create additional challenges, but they also decrease the chances of a patient being medication compliant. It is crucial that individuals diagnosed with schizophrenia are receiving a full range in treatment in order to address their complex symptomology and reduce the number of side effects experienced.

### **Full Range Treatment**

Many individuals diagnosed with schizophrenia have a history of inpatient hospitalizations due to their acute symptoms and/or non-medication compliance. Inpatient hospitalization primarily focuses on crisis intervention, which includes risk management, medical treatment, and brief psychological interventions. Due to the short duration of inpatient stays, a large amount of time is spent by administering medication, attending to their physical health needs, and resolving social problems such as access to housing and welfare payments. Only 4-20% of this time is used to provide the patients with therapeutic interventions (Barnicot et al., 2020). Pharmacological interventions have limitations including high rates of non-adherence and limited effects on stabilization of negative symptoms of schizophrenia (Tandon, 2010). Recent research suggests the need for acute mental health services to deliver a full range of psychosocial and physical interventions, which focus on the patient’s recovery in addition to pharmacological treatment (Barnicot et al., 2020). Full range treatment plans for schizophrenic patients



can help to support their stabilization, reduce side effects from antipsychotics, and as a result increase their willingness to comply with medication and treatment.

### **Dance/Movement Therapy**

A patient diagnosed with schizophrenia has a treatment team that generally includes medical doctors who treat the physical body, psychiatrists and psychologists who are responsible for the mind, and social workers that assist with social functioning. Typical mental health treatment lacks consideration and assessment in the connection between the patients mind and body. Body-based practices, such as dance/movement therapy, must be included in the full range treatment of schizophrenia. It is proposed that the use of dance/movement therapy (DMT) interventions enhances care for schizophrenic patients by complementing pharmacological treatment to reduce symptoms, decrease medication side effects, and as a result increases medication and treatment compliance.

The American Dance Therapy Association (ADTA) defines dance/movement therapy as “the psychotherapeutic use of movement to promote emotional, social, cognitive and physical integration of the individual, for the purpose of improving health and well-being” (n.d.). DMT is an effective form of non-verbal psychotherapy, which focuses on physical, emotional, and behavioral components, as well as activates cognitive function (Oganesian, 2008). Individuals with schizophrenia lack connection with their bodies due to the debilitating impact on functioning and quality of life caused by their symptoms and medications. The psychotherapeutic use of movement bridges the relationship between the mind and body. Body-based exploration deepens understanding of personal experiences and inner emotional states. Dance/movement therapy encourages

changes to be made within the body, and welcomes changes in the mind allowing for optimal improvements.

### ***Mind-Body Connection***

Why is treatment for severe mental illness focused on healing the mind and body separately if they are interconnected? “The most obvious place where we experience our bodies, brains and minds coming together is in our emotional lives” (Claxton, 2015, p. 102). Our whole-body is constantly communicating, but the physical component is often forgotten. Claxton (2015) explains that the body is the basis of all intelligence. As humans we have evolved physically and we are made for action. There is no dividing line between the brain and body, but rather it’s all one intelligent system. “The mind-body connection is everywhere in human experience” (Acolin, 2016). Relationship between the mind and body can be displayed through movement. Freud, founder of psychoanalysis, recognized the connection between the body and emotions, as well as the relationship between psychoanalytic thought and nonverbal communication (Levy, 2005). Research supports the connections between body movements and mental states. Additionally, research has examined how movement correlates with mental illness, the strength of including movement in assessment, and the significance of movement in treatment and health (Acolin, 2016). The mind-body connection and observance of non-verbal communication is of great importance to the DMT field. Due to this movement is the primary mode of intervention and assessment.

Movement can be functional, communicative, developmental, and expressive. All components enhance physical, cognitive, behavioral, social, and emotional health, which is beneficial for working with patients diagnosed with schizophrenia. As human’s we

communicate and provide information to others through movement. Marian Chace, a pioneer of DMT, believed “dance is communication and thus fulfills a basic human need” (Levy, 2005, p.21). Schizophrenia largely affects both the mind and body. Davis (1981) analyzed the movement of patients diagnosed with schizophrenia and witnessed movement characteristics, which are unique to the diagnosis. Specifically, that there are movement patterns that correspond to various kinds of behavioral disorganization, stereotyping, regression, etc. She also observed that these movement features increase as the patient becomes seriously ill and decreases as the patient improves. With the results of previous studies, it is hypothesized that the mind-body connection facilitated through DMT can have a positive effect on the physical, cognitive, behavioral, social, and emotional health of individuals diagnosed schizophrenia.

### **Dance/Movement Therapy and Schizophrenia**

The diagnosis of schizophrenia is correlated with specific movement behaviors that uncover information about the individual’s well being. Although the individual diagnosed with schizophrenia may not be consciously communicating, their body automatically reflects the mind and reveals their internal state (Acolin, 2016). In addition, research has shown that individuals with schizophrenia carry typical movement patterns such as disorganization, fragmentation, immobility, intensity, and spatial complexity (APA, 2013; Biondo & Gerber, 2020). Biondo and Gerber (2020) identified dance/movement therapy as a promising treatment option for this population due to the potential for verbal communication difficulties, alternative reality bases, and movement dysfunctions associated with the diagnosis. In addition, Lee et al. (2015) discovered that DMT could enrich interpersonal relationships and communication skills, control anger

and aggressiveness, prevent social regression, and lowers sensitivity to anxiety and depression. A study conducted by Oganessian (2008) showed that the use of DMT decreased self-stigmatization and psycho-motoric inhibition. This research suggests that DMT enhances multiple areas of functioning in individuals diagnosed with schizophrenia.

### **Reducing Side Effects Through the Use Movement**

As mentioned previously, non-medication compliance is a significant risk factor during treatment for patients with schizophrenia. DMT has been proven to enhance physical, cognitive, behavioral, social, and emotional functioning. It is important to understand each patient's personal experience, but research has shown that a common complaint is the wide range of side effects from antipsychotics (Tandon et al., 2020). Antipsychotics have the ability to affect the physical body in a variety of ways, and in turn can effect the mind. An impression is made on the physical body by the activating (restlessness, feeling jittery, insomnia, and motor control/coordination symptoms), sedating (sleepiness, sedation, difficulty thinking or concentrating, and dizziness), endocrine (sexual dysfunction, decreased interested in sex), and metabolic effects (weight gain) of antipsychotic medication (Marvasti et al., 2018; Miller & Mason, 2011; Tandon et al, 2020). Through the use of mind-body centered DMT interventions, individuals diagnosed with schizophrenia are able to increase their body awareness, recognize their symptoms and side effects, gain insight into their illness, address and challenge their motor and coordination difficulties, and as a result reduce the physical side effects from medication.

Individuals diagnosed with schizophrenia may be experiencing high symptom acuity levels and/or discomfort in their bodies due to side effects. (Biondo & Gerber, 2020). Increasing body awareness for this population is an important consideration for treatment. Through the use of movement, DMT promotes an increase in body awareness by leading patients through grounding exercises, breath and/or movement modulation, and rhythm. An increase in body awareness allows the patients time and space to become familiar with their personal experience. Once patients become more aware of themselves and their bodies they are able to recognize their symptoms and medication side effects more clearly. By participating in body awareness and acknowledging their current movement patterns and behaviors they are able to gain insight into their illness.

“DMT offers therapeutic intervention that joins and adapts patient movements to increase their movement repertoire and introduce healthy movement options” (Biondo & Gerber, 2020, p. 280). Due to the bodily disorganization experienced, individuals with schizophrenia can be observed to have body fragmentation, unsynchronized, sporadic shifts in the body, and overall rigidity in their movement (Biondo & Gerber, 2020). These movement qualities are challenged and transformed through the use of dance/movement therapy interventions. Throughout the participation of DMT interventions, individuals are guided through movement utilizing various different parts of the body. Body parts are held as a result of the experienced movement dysfunctions associated with the diagnoses and the additional bodily side effects from antipsychotic medications. Guided movement encourages patients with schizophrenia to welcome movement into these held areas of the body. The activating, sedating, and metabolic effects from antipsychotic medications are addressed through adequate physical activity and regular movements by improving

cardiopulmonary functions, and enhancing physical strength and joint flexibility. Additionally, this also strengthens the body's homeostasis and immune functions, and lowers sensitivity to anxiety and depression (Lee et al., 2015).

Movement dysfunction and bodily disorganized has the potential to lead to a sedentary lifestyle. Individuals with schizophrenia spend significantly more time sleeping and sedentary than the general population. This sedentary lifestyle is a result of the symptoms and other barriers such as, the side effects of antipsychotic drugs. A sedentary lifestyle is known to lead to physical, social, and emotional issues. Furthermore, the prevalence of medical illness in people with schizophrenia is related to the metabolic factors and the weight gain produced by antipsychotic drugs (Sailer et al., 2015).

“Exercising has been found to be an effective way to combat these health risks, with a positive effect on the physical and mental health of individuals with schizophrenia” (Sailer et al., 2015, p. 2). Although exercising is beneficial to this population, research suggests that a positive attitude towards physical activity and the intention to be more physically active are not sufficient to ensure actual exercise, which is supported by low attendance rates and high dropout rates in prior physical activity intervention programs (Sailer et al., 2015). It is hypothesized that DMT can help patients with schizophrenia translate their intention to exercise into actual exercising behavior by implementing DMT interventions into their full range treatment plan. Dance/movement therapy is a valuable addition to full range treatment and a complementary intervention to pharmacological treatment, because through the use of movement patients are able to experience a reduction in side effects.

### ***Dance/Movement Therapist and Client Relationship***

The therapeutic relationship between a dance/movement therapist and their client is unique and complementary to the clinical treatment team, the intervention dynamic, and the clinician/participant relationship. Nonphysician therapists are an important part of the clinical team in any setting, and this includes dance/movement therapists (Marvasti et al., 2018). It is in the hands of the nonphysician professional, including a dance/movement therapist, to become proficient in observing problems and unwanted effects of antipsychotic medications, and report it to the client's physician for reevaluation (Marvasti et al., 2018). Familiarity with the effects and side effects of medications is crucial for dance/movement therapists because there is a high probability that dance/movement therapists will be the first to notice them. Physicians spend a brief amount of time with each client and rely heavily on the observations made by other clinical staff (Marvasti et al., 2018). Since dance/movement therapists work from a body-based approach, they provide crucial information and are able to make clear, clinical, observation of the patient's mind and body. Individuals diagnosed with schizophrenia on medications and in dance/movement therapy generally see their therapist weekly and their physician monthly or as needed. Due to the continuous schedule for DMT interventions, the dance/movement therapists are the ones who can first recognize the effect, or side effects of the medication and speak with patient directly and inform the prescriber of the medication (Marvasti et al., 2018). An increase in medication and treatment compliance was observed by Oganessian (2008) as evidenced by improved cooperation with doctors, the patients became more accessible to contact, and were overall more active. Additionally, dance/movement therapists are able to tailor their DMT interventions to cope with the side effects of medication. By doing so,

dance/movement therapists are able to develop a deeper understanding for the cause of new psychological and behavioral complaints (Marvasti et al., 2018).

### ***Dance/Movement Therapy Interventions for People with Schizophrenia***

The list of medication-induced symptoms seen in individuals diagnosed with schizophrenia during dance/movement therapy interventions contributes to the severity of movement disturbance (Davis, 1981). Dance/movement therapists may adapt their movement interventions to cope with the side effects from antipsychotic medications. There are many ways to tailor movement interventions to meet the patient's needs, but the following explanation will be in regard to the negative impact of psychopharmacology. Dance/movement therapists can make the choice to utilize movement to decrease the nature of the experienced side effects. For example, in cases where the antipsychotic causes muscle stiffness, then movement that increases range of motion, releases tension and/or tightness, and brings awareness to these areas of the body may be selected. "This technique's philosophy is similar to that of physical therapy or medical rehabilitation; when a muscle/limb is weak and has not been used because of a medical problem, therapy is focused on increasing the performance and strength of the weak muscle or organ" (Marvasti et al., 2018). There are multiple movement interventions that can be used in DMT to help control the side effects from these medications. Below is a list of the side effects that movement interventions can address to help to improve the mood, energy levels, and motivation for individuals diagnosed with schizophrenia.

**Lethargy.** "Many medications including benzodiazepines (Valium, Ativan, etc.),



antipsychotics, and SSRIs may cause lethargy and sedation” (Marvasti et al., 2018). If the dance/movement therapist has an available outdoor space, they can utilize that space throughout the session to encourage the patients to get fresh air and sunlight, while participating in movement to cope with these side effects (Marvasti et al., 2018). Furthermore, movement decreases sedentary behavior, which improves everyday functioning not only through its positive impact on physical health, but also via productive engagement with the environment (Strassnig et al., 2021). By decreasing sedentary behavior and encouraging physical activity through movement, individuals are putting themselves less at risk for weight gain.

**Cognitive Cloudiness.** Failure to adhere to a prescribed medication has been a challenge for mental health care professionals that may compromise the pharmacological effects on cognitive functions in individuals with schizophrenia (Chen et al., 2016). Individuals experiencing cognitive cloudiness benefit from DMT interventions because they encourage patients to engage in physical exercise. Through the use of DMT, patients are able to participate in exercise while still having an enjoyable and therapeutic experience. Research supports DMT as an effective add-on to treatment to improve cognitive functions in this population. A study conducted in 2016, revealed that dance activities could be utilized as a form of physical exercise. Dance interventions allowed people with schizophrenia to experience significant changes in processing speed, memory and executive function (Chen et al., 2016).

**Emotional Blunting.** If emotional blunting is present because of a side effect from antipsychotics, dance/movement therapists may utilize music, rhythm, mirroring, and direct peer interaction. These various different movement interventions can have a

direct focus on emotion identification and self-expression to empower changes in affect and mood. These interventions support relational attunement, mood stabilization, creative self-expression, connection with others, and self-awareness (Biondo & Gerber, 2020).

**Movement/Coordination.** “Most antipsychotics and several mood stabilizers (Depakote, Tegretol) can cause coordination problems” (Marvasti et al., 2018). The depersonalization and disembodiment that occurs due to these movement dysfunctions can disrupt healthy relationship building, prevent a sense of safety in one’s body, result in fear of physical touch, or a disregard for body boundaries (Biondo & Gerber, 2020). Individuals with schizophrenia that experience disembodiment, coordination problems, and clumsiness from antipsychotics, DMT interventions can be geared towards improving gross and fine motor skills, exploring movement modulation, experiencing control and leadership, and bringing awareness to one’s body and energy (Biondo & Gerber, 2020; Marvasti et al., 2018).

**Agitation/Aggression.** “Anger and its expression are especially important considerations for patients with schizophrenia as they often show aggressive behaviors that can result in harm to themselves and others” (Lee et al., 2015). Movement interventions focused on self-awareness, bodily/physical awareness, eye contact, developing self-esteem, awareness of others, and social interactions have been proven to reduce anger and aggression. Research supports that anger status of hospitalized schizophrenic patients significantly reduced after completing 12 weeks of DMT interventions. Additionally, DMT enhances emotional expression through body, redirects inner authenticity of patients, and encourages patients to productively express it safely through movement (Lee et al., 2015).

The previous information explains why dance/movement therapists may first notice and pick up the effects, side effects, or lack of effectiveness of antipsychotic medications. They may also observe the changes that occur in an individual's psychophysical condition because of their prescribed medication. By acknowledging these changes, combating the side effects through movement, and educating patients on body awareness, dance/movement therapist have the potential to reduce medication side effects and increase medication compliance for individuals diagnosed with schizophrenia.

### **Discussion**

This literature review aimed to identify the side effects and challenges faced by antipsychotic medications in individuals diagnosed with schizophrenia and to evaluate the potential effectiveness of dance/movement therapy to alleviate those effects and challenges. Literature on the background of schizophrenia was explored to further understand the diagnosis, symptomology, cause, and prevalence. Additionally, literature was explored on antipsychotic medications, possible side effects, and the need for full range treatment. Later, dance/movement therapy was examined to identify aspects of DMT that may serve to alleviate the side effects and treatment compliance issues faced by individuals diagnosed with schizophrenia. This critical review of the literature provided a much deeper understanding of not only how DMT can reduce medication side effects and support medication compliance, but also how to better understand the use of DMT with individuals diagnosed with schizophrenia. Although most DMT literature does not directly focus on reduction of medication side effects and increasing medication compliance, research reflects DMT's ability to reduce lethargy/sedation, weight gain, cognitive cloudiness, emotional blunting, movement dysfunctions, and

agitation/aggression (Biondo & Gerber, 2020; Marvasti et al., 2018; Lee et al., 2015; Chen et al., 2016; Strassnig et al., 2021) and in turn increase compliance with treatment (Oganesian, 2008). Thus, suggesting that DMT may be an effective complementary treatment for individuals diagnosed with schizophrenia taking antipsychotic medications.

Throughout the research process, it was noted that multiple studies support the wide range of benefits from DMT, but do not acknowledge how these improvements may impact medication side effects and compliance. Research on pharmacological treatment suggests that antipsychotics are the first line of treatment for this population and that they are required to receive optimum improvement (Miller & Mason, 2011; Amador, 2020; Chen et al., 2016). While research on medication non-compliance states that approximately half of the patients with schizophrenia take 70% or less of their medication (DiBonaventura, et al., 2012). Furthermore, research suggests that poor insight is a manifestation of schizophrenia itself rather than a coping strategy (Amador, 2020). This symptom is the most common predictor of nonadherence to treatment (American Psychiatric Association, 2013, as cited in Amador, 2020). Research also argues that additional limitations to pharmacological treatment are the limited effects on stabilization of negative symptoms (Tandon, 2010) and side effects from antipsychotics (DiBonaventura, et al., 2012). If the prevalence of non-medication compliance in individuals diagnosed with schizophrenia is so high, why isn't there supportive research and advocacy for these patients to receive additional treatments to address these concerns?

While there has previously been no direct research that connects DMT with increasing medication compliance in this population, there is research to support the

physical, mental, and social benefits of incorporating DMT in treatment of schizophrenia. This thesis acknowledges the many challenges individuals with schizophrenia face and the possible improvements that can be made through the use of DMT to address antipsychotic side effects and medication non-compliance. Regardless of the lack of research on the relationship between DMT and medication compliance, through analyzing the research above a variety of benefits and common themes emerged which supports the potential for DMT to be used as a complementary therapy to pharmacological treatment. There is research to suggest that DMT, through interventions that build body awareness, strengthen mind and body connection, increase insight into medication side effects, encourage physical activity, increase social interaction, and promote self-expression can help reduce the side effects from antipsychotics (Biondo & Gerber, 2020; Davis, 1981; Oganessian, 2008; Lee et al., 2015; Marvasti et al., 2018; Chen et al., 2016). Moreover, research suggests the effectiveness of DMT to provide enjoyable and therapeutic physical activity, which is an effective way to combat possible health risks, with a positive effect on the physical and mental health of individuals with schizophrenia (Sailer et al., 2015; Chen et al., 2016). Previously mentioned research on non-medication compliance highlights the importance of providing appropriate care in a personalized approach toward schizophrenic patients to improve adherence (Samalin et al., 2016). Therefore, research reflecting DMT's capacities to reduce the effects of antipsychotic medications and enhance pharmacological treatment suggest DMT may be an effective complementary treatment for individuals diagnosed with schizophrenia. As such, it is critical to conduct research further to determine and demonstrate DMT's effectiveness to increase medication compliance.

Dance/movement therapists must conduct research to continue developing evidence for the effectiveness of dance/movement therapy in addressing antipsychotic side effects and increasing medication compliance in individuals diagnosed with schizophrenia. Furthermore, as research demonstrates the importance of therapist's ability to recognize the lack of improvement and possible side effects from medications (Marvasti et al., 2018), dance/movement therapists are tasked with the responsibility to educate themselves on this topic and consider these challenges when observing movement patterns in individuals diagnosed with schizophrenia. It is not enough for individuals with schizophrenia to be prescribed antipsychotic medication and be responsible for the possible side effects on their own. For individuals diagnosed with schizophrenia to receive full range treatment, they must be provided with treatment that includes dance/movement therapy. To further support this perspective, dance/movement therapists must conduct research on medication compliance with individuals diagnosed with schizophrenia, advocate for the implementation of DMT in treatment, and educate themselves on the signs of medication side effects.

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***THESIS APPROVAL FORM***

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**Student's Name:** Natalie Jacobs

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In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

**Thesis Advisor:** Carla M. Velázquez-García