Diagnostic Implications from Clinical Assessment of Movement Pathology Across Contexts Using the Movement Psychodiagnostic Inventory: A Comparison Study

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Abstract

Diagnostic Implications from Clinical Assessment of Movement Pathology Across Contexts Using the Movement Psychodiagnostic Inventory: A Comparison Study

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The Movement Psychodiagnostic Inventory (MPI) is an assessment tool, that uses movement observation for the purpose of diagnosing individuals with mental illnesses. The MPI requires extensive training as well as access to a videotape of a seated interview and several hours to carefully observe an individual in conversation. In 2007, a short-form version of the MPI was created for the clinical use of the instrument in dance/movement therapy (DMT) assessment. To date, no known use of this novel instrument has been published.

In this pilot study, one rater with extensive experience with the MPI used both forms of the MPI to assess videotaped sessions one individual in both a DMT assessment session as well as a seated interview during his stay in an inpatient psychiatric facility. Both instruments were used in each context, and the researcher compared the data across all contexts. In this study, the results indicated that each assessment instrument when used in its intended context uncovered similar movement patterns in the same individual, suggesting that the novel instrument could be applicable in a DMT setting.

Because this study had an N of 1, the results are not generalizable nor did the study test the validity of the instrument. The findings of this pilot study, however, suggest that further research should be conducted by multiple raters in several different contexts using multiple participants. In addition to further research, a publication of guidelines for use and available trainings would make the short-form MPI a valuable assessment tool for dance/movement therapists working in a clinical setting with people with mental illness.

1. INTRODUCTION

1.1 Background

The Movement Psychodiagnostic Inventory (MPI) is a tool that uses movement observation of an individual's movement patterns and behaviors related to diagnosis of severe mental illness (Davis, 1997). It is an instrument designed to study the movement of an individual in the context of a seated interview. Several studies have applied the MPI to different clinical populations, including people with schizophrenia (Cruz 1995), people with personality disorders (Cruz, 1995; Berger, 1999), and people with substance abuse disorders (Whipple, 1998). In each of these studies, the MPI was examined as a way to detect psychodiagnostic implications in an individual's movements and to aid in the formulation of individual treatment planning. A short-form version of the MPI was created and proposed for use in the context of a dance/movement therapy (DMT) setting, but has not yet been utilized in a clinical context beyond theoretical hypotheses (Davis, Lausberg, Cruz, Berger, & Dulicai, 2007).

1.2 Operational Definitions

For the purpose of this study, dance/movement therapy (DMT) refers to the use of movement and the body in a psychotherapeutic context. The focus of DMT is on the individual person as a whole being. This study will focus on the practice of DMT in a mental health setting. According to the American Dance Therapy Association (ADTA), "body movement, as the core component of dance, simultaneously provides the means of assessment and the mode of intervention for dance/movement therapy" ("About dance/movement therapy," 2014). DMT focuses on the whole person with the idea that bodily integration is reflective of a healthy mind.

The MPI is an assessment tool designed to analyze the movement patterns and behaviors of people with severe mental illness through videotaped observation of an individual in the context of a seated interview with a clinician (Davis, 1997). The MPI is meant to be used by clinicians to evaluate, analyze, and interpret the movements of the observed individuals by taking inventory of specified body actions, also known as the Action Inventory, as well as Primary

Inventory categories of movement patterns (Davis, 1997). It specifically looks at the psychopathological aspects of the characteristics and patterns of movement related to diagnoses. Ultimately this identifies treatment goals and selection of specific therapeutic interventions.

The theoretical basis for the MPI is rooted in Laban Movement Analysis (LMA) (Davis, 1970). For the purpose of this study, LMA will refer to the method of movement observation and analysis created by Rudolph Von Laban and further developed by North, Bartenieff, Lamb, Kestenberg and others. The LMA system, as it is currently taught, provides a vocabulary for describing movements (Hackney, 2002) and focuses on four main categories: Body, Effort, Shape, and Space (BESS). These categories refer to aspects of the body, qualities of movement, the way an individual moves through space and relates to others, and the approach to the space around an individual (Bartenieff & Lewis, 1980).

The MPI was originally intended for the use with people with severe mental illness (Davis, 1997). This study will use the terms mental illness, mental disorder and psychiatric disorder interchangeably. For the purpose of this study, these terms will refer to a mental or psychiatric disorder as a pattern of behavioral and/or psychological symptoms that cause significant distress on the individual (American Psychiatric Association, 2013).

One final construct that must be defined is clinical assessment. In the context of this study, clinical assessment refers to the gathering of information through observation and interactions with an individual in the context of a clinical, mental health setting. Assessment provides clinicians with information about the client in order to better understand the client's individual needs, and assessment conducted by a qualified therapist produces data that informs both diagnosis and treatment planning (Bruscia, 1988). This study will examine the use of clinical assessment specifically in the context of DMT in a psychiatric mental health setting.

1.3 Purpose of the study

The overall aim of this study was to explore the clinical utility of the MPI in all of its purported forms and uses, for clinical DMT assessment. There were three related components to

this exploration. The first was to compare the movement data of an individual using both the original full long-form and the newer short-form of the MPI. The second was to compare the use of both forms of the instrument across each of two possible clinical contexts: the seated clinical interview and a DMT session. Finally, the study compared the proposed and novel use of the short-form MPI in DMT with its original use in a seated interview.

The objective of this study was to compare observations and conclusions from the short-form MPI with the full MPI in both DMT and seated interview contexts. This pilot study sought to answer the following research question: How do observations and conclusions from the short-form MPI compare with those from the full MPI in both DMT and seated interview contexts for the clinical assessment of a single patient with mental illness?

1.4 Description of what was done

Two video segments of a 41-year-old African American male in an inpatient psychiatric setting were viewed by an experienced rater who has been trained in the MPI. The video segments are of a seated interview with the patient and a one-to-one DMT assessment session with the same patient. The rater completed four different assessments and applied both the full MPI as well as the short-form MPI to each video-recorded session segment. The researcher compared the four sets of data, resulting in a descriptive comparison across contexts and forms of the assessment tool.

1.5 Rationale and potential implications and applications

In the creative arts therapies, evidence is found through assessment, and therefore evidence-informed practice occurs through clinical assessment. Dance/movement therapists assess an individual's movement behaviors, qualities, and patterns in order to inform treatment planning and the effectiveness and feasibility of the treatment within a clinical context. The MPI could be a beneficial tool for dance/movement therapists because it provides a systematic way to collect and analyze information gathered about an individual through movement observation.

The MPI was designed to examine a person's movement in the context of a seated interview. It is a lengthy tool that requires a great deal of training for its use. A benefit of the short-form MPI is that it is less time-consuming to use than the original MPI. Its authors have hypothesized that it views the movement data from a perspective that is more applicable to DMT (Davis, Lausberg, Cruz, Berger, & Dulicai, 2007). Exploring the utilization of this instrument in the different movement and nonverbal communication contexts and in relation to the full MPI would allow dance/movement therapists to get a clearer picture of the movement pathology and diagnostic implications from the movement, which could result in more information for diagnosis and treatment planning in a clinical setting. If the short-form MPI demonstrates practical applicability, it may increase the use of the MPI in a DMT clinical context. Additionally, the findings of this study may help clinicians choose the best approach to assessment and treatment with the MPI and might help to inform future MPI training.

1.6 Gap analysis

Mental health professionals proficient in movement observation and nonverbal communication have been observing movement characteristics of people with severe mental illness for over 40 years. Davis (1970) analyzed the movements of people with schizophrenia using LMA as the basis for observation. This preliminary study eventually led to the development of the full MPI.

Since its development, the MPI has been used in several studies to observe different diagnostic populations of people with mental illness. Preliminary studies resulted in diagnostic implications seen in the movement characteristics of people with schizophrenia and people with personality disorders (Cruz, 1995; Berger, 1999). Another study piloted the use of the MPI with a population of people with a history of prolonged substance abuse (Whipple, 1998). Only one study so far has tested the validity of the MPI (Cruz, 2009).

Seven years ago, several experts trained in the MPI, including the creator of the instrument, published a short-form version of the MPI and proposed its use in a DMT clinical

setting (Davis, Lausberg, Cruz, Berger, & Dulicai, 2007). To date, no studies have been published implementing the short-form version of the MPI.

This research thesis will use the short-form MPI in its proposed context of a DMT session, implementing its use both in its proposed context as well as the intended context of the full MPI. Additionally it will compare the use of the short-form MPI and the full MPI in both settings.

1.7 Limitations and Delimitations of the study

As with any "N of 1" study, the results of this study will not be generalizable. Ex-post facto video data was used to look at one participant in short segments from a seated mental status exam interview and an individual DMT assessment session. These segments are approximately half the length of Davis's (1997) suggested observation time of 20 minutes when using the MPI and one third the length of Davis, Lausberg, Cruz, Berger, & Dulicai's (2007) suggested observation time of 30 minutes when using the short-form MPI. The MPI requires extensive training, which the researcher does not have. Therefore, one experienced rater was selected from the community of professionals trained in the MPI. The use of a single rater means that while intra-observer agreement would be relatively high, there was no opportunity for establishing inter-rater agreement, which is a common component of reliability.

2. LITERATURE REVIEW

2.1 The Movement Psychodiagnostic Inventory (MPI)

In a preliminary study, presented at the 5th American Dance Therapy Association (ADTA) conference, Davis (1970) systematically analyzed the movements of people with schizophrenia on an in-patient psychiatric unit in a state hospital. She observed diagnostic implications in the movement using a movement scale derived from Laban Movement Analysis (LMA), which eventually developed into the MPI. Although interactional components of movement patterns and behaviors were observed, the focus was mainly on the individual's movement behaviors. Three raters observed 22 participants with varying diagnoses behind a one-way screen during live individual verbal psychotherapy sessions. The study was based on the assumption that certain movement patterns correspond to behaviors associated with schizophrenia and correlate to the severity of the illness. Although the study was unable to control for medication side effects, the main results suggested that three or more factors on the eight-factor scale, including fragmentation and disorganization, could indicate chronic schizophrenia and that fragmentation in movement revealed a positive correlation to the number of hospitalizations of the individual. This was also a finding that was additionally suggested in a small study conducted later by Wilder (1987).

Wilder (1987) used the MPI to study the effects of neuroleptic medications. This pilot study compared the movement pathology of people with schizophrenia across neuroleptic medication and placebo conditions. The study aimed to determine whether the identified pathological movement features characteristic of schizophrenia are observable regardless of the effects of neuroleptic medication. The Movement Diagnostic Scale (MDS) (Davis, 1970), an earlier version of the MPI, was used to determine pathology in movement. The study measured the side effects of medication in seven people with diagnoses on the schizophrenia spectrum using the MDS. Significant differences in movement patterns all indicated increased health during placebo conditions, specifically an increase in mobility. Movement factors presumed to be

indicative of schizophrenia such as integration, posture/locomotion, mobility and spatial complexity were markedly different during neuroleptic use and placebo conditions, rejecting the original hypothesis that they would remain the same across conditions. The study also suggested that fragmentation is related to a higher number of hospitalizations rather than the diagnosis of chronic schizophrenia. Additionally, this study supported the Movement Diagnostic Scale's ability to differentiate between the diagnoses of schizophrenia and schizoaffective disorders.

In another pilot study using the Movement Diagnostic Scale as well as an additional LMA-based scale developed by the author, Higgens (1993) observed the movement of six pre-lingually deaf patients in an inpatient psychiatric setting and compared the movement assessments with the diagnosis of each individual. Four of the participants were diagnosed with psychotic disorders, while two were not. Each participant was videotaped during a 20-minute seated interview using sign language and a 20-minute one-to-one movement session with the author immediately following the interview, which included directed movement activities in which the individual mirrored the author, a ball toss, and an improvisational movement activity with a stretch cloth. Using both scales created by Higgens (1993) and Davis (1970), one dance/movement therapist rated each participant's movements based on guideline notes provided by Dr. Davis as well as her own clinical experience. Although the reliability of this study was questioned due to lack of both rater training and inter-observer agreement, the rater successfully identified the two participants who were not diagnosed with psychotic disorders, indicating that movement assessment can contribute to diagnoses in both hearing and deaf populations as well as the differential diagnosis in patients with schizophrenia-related disorders.

In an unpublished manuscript, Davis (1997) described and provided guidelines for the use of the original full MPI (Appendix A), along with two other movement analysis methods. The original instrument was developed by the author as a way to systematically record movement data of individuals with severe mental illness observed during a videotaped, seated interview for at least 20 minutes. It is divided into two sections: the Action Inventory, which codes the

movement behaviors related to an individual's interactions with another, and the Primary Inventory, which focuses on how the individual produces movement in terms of disorganization, immobility, intensity, spatial complexity, repetitive movements, flaccidity or retardation, diffusion, exaggeration, hyperkinesis and even control and suspension (Davis, 1997). The MPI uses LMA terms, and movement observation techniques to distinguish between what and how movements are executed. In addition, findings from nonverbal communication research and psychiatric literature inform some elements of the MPI. Definitions of LMA-related terms discussed throughout this study can be found in Glossary A (Appendix B) and definitions of MPI Primary Inventory categories can be found in Glossary B (Appendix C).

In a doctoral dissertation, Cruz (1995) used the MPI to compare the movements of people with schizophrenia and related disorders, a population historically known to produce movements which appear abnormal or disturbed, to people with diagnosed personality disorders, a population not previously associated with movement abnormalities. This pilot study systematically examined the relationship between movement abnormalities and psychopathology and identified a need to look beyond schizophrenia in order to gain a better understanding of motor abnormalities and their relationship to mental illness. Three raters of varying expertise used the MPI to rate nonverbal communicative behaviors in 62 participants, comparing 23 individuals who were diagnosed on the schizophrenia spectrum with 39 individuals with personality disorders. The raters, who consisted of one expert, one with MPI experience, and one novice (who had received initial training in the use of the MPI), viewed the data individually and then used consensus rating to score each videotape. The study found that people with personality disorders exhibit more combinations of co-occurring patterns between the Action Inventory and Primary Inventory items than do people with schizophrenia. It also identified a distinct difference between the two diagnostic groups in the Action Inventory category regarding movements related to orienting to others, specifically that people with schizophrenia-related diagnoses exhibited a general failure to connect head and trunk orienting movements with other motor signs, suggesting

a possible disturbance in nonverbal communication behaviors. The author suggested that the lack of co-occurrence of nonverbal communication behaviors related to orienting to others seen in people with schizophrenia, but not those with personality disorders personality disorders, when removing the context of speech or diagnosis. The general findings, however, suggest that many movement behaviors seen in people with psychotic disorders can also be seen in those with personality disorders.

In another doctoral dissertation, Berger (1999) more closely examined the movements of people with personality disorders who participated in the Cruz (1995) study. Movement behaviors between people with borderline personality disorder (BPD) and those with narcissistic personality disorder (NPD) were compared using the results from the previous study. Differences in movement variables in the Primary Inventory coded by the MPI corresponded with the differences in diagnoses within the population of people with personality disorders, specifically in terms of disorganization, spatial complexity, and immobility and flaccidity. Both diagnostic groups exhibited high scores in immobility and flaccidity, but people with BPD displayed much higher scores of low spatial complexity and disorganization than those with NPD. The author identified that disorganization specifically is an MPI item which is commonly connected to severe psychopathology, and is the main factor in distinguishing between the two diagnostic groups within the personality disorder cluster. This study served as a secondary step in the on-going process of validating the MPI as a tool for clinical assessment and diagnosis.

Whipple (1998) studied a different clinical population in an unpublished master's thesis. This pilot study used four categories of the MPI's Primary Inventory to examine the movement qualities of people with alcoholism and other substance abuse disorders. Ten male participants from a forensic rehabilitation inpatient unit were videotaped during individual seated interviews and scored on the categories of Immobility, Hyperkinesis, Exaggeration, and Even Control/Suspension. In order to limit researcher bias, the raters were blind to the study's specific purpose and diagnostic information of the participants. Although they received some training

from Dr. Davis, the creator of the MPI, in the usage and coding of the MPI, none of them were considered expert raters. The participants displayed extreme movements in each of the measured categories, indicating dance/movement therapy (DMT) treatment goals such as modulation of intensity and body organization and integration. This descriptive study resulted in the implication of the use of the MPI to further investigate neurological and psychological problems related to a population different from the MPI's originally intended population.

In a secondary analysis of the 1995 pilot study, Cruz (2009) conducted an investigation into the validity of the use of the MPI as a diagnostic tool. The study sought evidence of the potential relationship of the MPI to other measures of abnormal involuntary movement behavior. Modifications to the scoring of the MPI were made along with a secondary analysis of the originally studied populations of people with schizophrenia and those with personality disorders (Cruz, 1995). This study confirmed the differences in movement patterns between the two groups, identifying that the major diagnostic implications in movement between the two groups can be derived from the patterns of abnormal motor behavior rather than the severity. Based on these findings, Cruz called attention to the need for a more global consideration of movement indicators rather than a strictly individual one. As the author stated, "it is the study of their [movement indicators] coexistence in complex patterns, rather than their individual attributes, that can yield results for researchers in dance/movement therapy as well as other researchers into the meaning of human movement behavior" (Cruz, 2009, p. 134).

In a recent publication regarding movement analysis, Davis, Lausberg, Cruz, Berger, & Dulicai (2007) proposed and published for the first time a short-form version of the MPI (Appendix D). The authors, all of whom are trained extensively in the use of the MPI, hypothesized that the short-form version of the MPI will be useful to dance/movement therapists in a clinical setting because it is less time-consuming to complete than the full MPI. They also hypothesized that the short-form MPI will allow clinicians to document what they observe during a DMT session rather than relying on 30 minutes of videotape that is often not readily available.

Unlike the full MPI, which approaches movement observation from a pathological viewpoint (Davis, 1997), the short-form MPI includes categories for movement that can highlight both disordered and healthy movements, allowing for documentation of strengths from a movement perspective. Davis (2007) created an additional form, the MPI Action Inventory for Movement Assessment (Appendix E), which is an unpublished assessment form also geared to the DMT context. It constitutes a less structured way to track the changes in an individual's interpersonal nonverbal interactions throughout a DMT session. To date, reports of the use of this form have yet to be published.

2.2 Movement Observation in a DMT Clinical Context

Dulicai (1973) published a preliminary study in which she observed the movement of 42 patients on an intensive care unit (ICU) in an inpatient psychiatric hospital in order to predict the behaviors of referral to the unit. The movement observations were blind to the reasons for referral to the ICU. The author used a modified scale from the early version of the MPI (Davis, 1970) to record movement observations of body attitudes, Effort qualities, quality and clarity of space used, and body integration of each individual. Results showed that these categories corresponded to three reasons for referral and three different movement profiles evolved, which the author referred to as Groups A, B, and C. Group A was comprised of 24 people who were at risk for violence to self or others and who exhibited a continually maintained use of spatial clarity as well as Strength and Bound Flow as the predominantly used Efforts. Group B included 10 individuals who were referred for risk of elopement and who exhibited a lack of or diminished Effort qualities, neutral Effort flow, and a lack of spatial clarity. Group C was comprised of eight people who most likely suffered from organic brain damage and who demonstrated impulsivity, erratically large postural shifts, and a lack of spatial clarity. Through careful movement observation, the author predicted the correct reason for referral for all but four patients. Although the study is not considered statistically valid because it was not randomized, the findings

implicate that “observation of movement characteristics can have predictive value for these types of patients so that likely behavior can be anticipated” (Dulicai, 1973, p. 153).

Lausberg (1998) investigated the movement characteristics of women with anorexia nervosa, bulimia nervosa, Chrohn’s disease and ulcerative colitis compared to 30 healthy control participants in a controlled study with a total of 120 participants. The study aimed to use the movement data in order to better understand the disorders and inform diagnostic and treatment implications in DMT. The raters were two dance therapists who underwent 35 hours of training in the LMA-based movement parameters used in the study developed by the author. The raters, who were blind to the subjects’ diagnoses, observed specific movement qualities during 10-minute individual movement tests performed by each participant. These included both structured movement tasks as well as improvisation on given themes. Two rating scales based in LMA were used to rate both the movement qualities present in each task as well as different movement parameters for individual features of the improvisations on a theme. While specific MPI items were not explicitly used, measured movement parameters included duration of movement (similar to certain items in the MPI) as well as individual movement features such as use of kinesphere and body involvement which also have some similarity to certain MPI items in the Primary Inventory. Although significant differences in movement were found between the healthy controls and the patient groups, no significant differences in movement were discovered between the four different diagnostic groups, implicating that the application of movement observation and analysis is capable of distinguishing between health and dysfunction.

In an exploratory study, Levy & Duke (2003) examined the application of LMA in research on the relationship between movement style and personality. Its purpose was to systematically apply LMA concepts to the study of individual differences in movement with the aim to validate the use of LMA by psychologists. The study was done in a non-clinical setting and involved 36 college students who were videotaped in small groups during a 10-minute guided movement improvisation designed to elicit the different LMA Effort qualities. The hypothesis,

that patterns of movement are indicators of certain personality qualities as well as emotional states including anxiety and depression, was supported. However, the study was considered more exploratory than definitive. Additionally, the authors noticed a difference between the ways in which these movement patterns manifested in males and females. Movement patterns indicative of depression in males consisted of decrease in sagittal locomotion as well as a lack of spatial clarity, while females with depression exhibited a lack of Effort use and fluctuation in addition to decreased locomotion. Additionally, males who reported high levels of anxiety used more narrowing and enclosing movements as well as self-related movement behaviors, while highly anxious females demonstrated a very similar movement profile to the females who identified as depressed. These results suggest that there are relationships between movement patterns and emotional and psychological factors seen in a non-clinical sample which points to the potential of using movement patterns as valid indicators of emotional states.

Goodill & Dulicai (2007) highlighted a study using case examples which further examined the hypothesis upheld in LMA that there is a relationship between personality and movement preferences. This original study was conducted by North (1972) and compared the movement behaviors of 26 children in primary school with both standardized test scores as well as teacher reports of behavior in the classroom. An example of a case presented was that of an eight-year-old girl whose standardized test results indicated both high intelligence and neurotic tendencies. According to North (1972), her movement behaviors suggested that when she was not upset, she exhibited complex movements that were indicative of congruent cognitive processes, but that she had a tendency to quickly fluctuate between many different Effort qualities and approaches to kinesphere (Goodill & Dulicai, 2007, p.31). The movement data presented in this case correlates to North's (1972) movement reports, which stated: "Because of her lack of intuitive perception, her emotional insecurity, and her lack of rhythmical adaptability, she has no confidence, sensitivity, or awareness to make easy relationships" (Goodill & Dulicai, 2007). According to (Goodill & Dulicai, 2007) this study led to a further development of the use of

LMA as empirical evidence for using movement analysis as a way to further understand an individual's personality and inner thought process.

In addition to the MPI and LMA as tools for movement observation and analysis, dance/movement therapists also use the Kestenberg Movement Profile (KMP), which views movement data from a developmental perspective (Kestenberg, Loman, Lewis, et al., 1999). Sossin & Loman (1992) state:

> The Kestenberg Movement Profile (KMP) is a complex instrument for describing, assessing, and interpreting nonverbal behavior. It graphically depicts 120 distinct movement factors (across 29 polar dimensions) and includes descriptions of body attitudes and qualifying numerical data. These are derived and calculated from a notation system that has its roots in Laban Movement Analysis (p. 21).

The KMP places the movement qualities associated with the core concepts of LMA into a developmental and psychoanalytical framework. The KMP connects LMA principles to the typical psychosocial and appropriate cognitive level of mastery for each developmental stage through the movement patterns and qualities (Kestenberg et al., 1999).

Sossin & Loman (1992) described the KMP and its clinical application to a DMT context. The authors emphasized the relevance of using a systematic tool such as the KMP for movement observation in DMT. Although the KMP focuses mostly on the connection between movement parameters and developmental level and psychological functioning of an individual rather than the pathological movement indicators that the MPI detects, the authors illustrated through brief descriptions of each aspect of the KMP that "the diagnostic/interpretive application of the KMP can lead to the detection of specific early developmental deficits and areas of psychic conflict, and suggests which movement patterns will be likely to foster resolution and growth" (Sossin & Loman, 1992, p. 34). Furthermore, the paper iterated that the KMP provides dance/movement therapists with information that can guide clients towards meeting

developmental goals in movement, which may not have been accomplished during the formative years, aiding in treatment planning and further evaluation.

In a publication highlighting six different studies using the KMP, Koch (2007) described associations between emotional states regarding attitudes and affect to rhythm and shape patterns in movement. The publication presented previously conducted experiments aimed at testing the validity of the KMP as a psychometric instrument. Results of these experiments implied that movement rhythms and shape effect affective states and attitudes, but not necessarily cognition. The KMP is a complex tool that incorporates many developmental and psychoanalytical elements into the movement observation process. In the Koch (2007) study, movements were artificially imposed on the participants by the experimenter, which decreased the validity of this particular study. Despite this limitation, the study contributed psychometric information about the KMP as a clinically valid tool for psychosocial assessment. It complements the study conducted by Levy & Duke (2003) by indicating connections between movement and emotional states using two different forms of movement observation and assessment.

2.3 Evidence-Informed Practice, Clinical Assessment, and Multicultural Implications in DMT

2.3.1 Evidence-Informed Practice

In a recent publication, Cruz & Berrol (2012) presented possible research methods to be used in DMT as well as the relationship between DMT research and the use of that research in the practice of DMT, establishing the need for more evidence-informed clinical practice in the field. The authors cite a research survey by Cruz & Hervey (2001), which found that many dance/movement therapists consider research important to the field of DMT but not necessarily to their own clinical practice. The idea that practice is informed and improved by new knowledge was discussed throughout this publication, and the authors emphasized the need for more research in the field of DMT in order to avoid the reliance on opinion and loosely defined and personalized theories.

In another recently published article, Meekums (2010) discussed the importance of evidence-based practice in the creative arts therapies. In this article, three different types of evidence were explored, including randomized clinical trials (RCTs) and systematic reviews, process research, and practice-based evidence. The author argued that descriptive data through narratives and embodiment involve creative methods and are more applicable to the field of DMT, and advocated for the need for evidence-informed practice in the creative arts therapies.

Additionally, Meekums (2010) presented a case study to demonstrate the use of practice-based evidence in the creative arts therapies using an instrument developed by Evans, Mellor-Clark, Margison, Barkham, Audin, Connel, et al. (2000). Barkham et al. (2001) defined practice-based evidence as "evidence from routine clinical settings (effectiveness data) to be compared with outcomes obtained from randomized controlled-treatment trials (efficacy data)," (p. 184). The authors suggest that practice-based evidence is an essential and useful counterpart to evidence-based practice in psychological therapy (Barkham et al, 2001). The Clinical Outcomes in Routine Evaluation (CORE) is a brief, user-friendly measurement tool created for therapists to use as evidence to inform clinical practice (Evans et al, 2000). This comprehensive questionnaire consists of multiple choice questions answered by the client in order to determine the client's insight into level of functioning and issues related to treatment. It provides raw data and standardized reports that can easily be scanned and shared among clinicians. Although the CORE data is provided by the client rather than the clinician, Meekums (2010) described a case example using the CORE in order to demonstrate its application in a clinical context and the possible use of such a tool, and to indicate the need for a more succinct and comprehensive assessment tool in DMT.

2.3.2 Clinical Assessment

Bruscia (1988) discussed the importance of assessment in understanding both the client as well as the client's needs through clinical assessment in the context of the creative arts therapies. The author distinguished between assessment and evaluation, stating that assessment

provides information about the client in the present moment while evaluation is an on-going process of assessment. In this article, the author identified seven characteristics of effective clinical assessment in the creative arts therapies, which include clearly defined objectives, qualified therapists conducting the assessment and effective data collection methods. Additionally, the author suggested that effective creative arts therapies' clinical assessments need to offer unique clinical advantages, produce reliable data, lead to valid conclusions and adhere to ethical standards. These seven characteristics of assessment in the creative arts therapies were emphasized in order for the creative arts therapist to better understand the client's needs. The MPI demonstrates several of these qualities, specifically in regards to the significant amount of training needed in order to complete the assessment, resulting in qualified therapists conducting the assessment, as well as a unique application of clinical assessment with a clearly defined objective for diagnosis using movement analysis. Data produced by an assessment using the MPI is valuable because of its unique opportunity to diagnose and inform treatment planning through careful observation of an individual's movements. The MPI also meets Bruscia's (1988) criteria for effective clinical assessment in the creative arts therapies because it adheres to ethical standards. However, while data collection methods are effective, they are very specific, requiring video footage of a client from a particular vantage point for a specific period of time. The MPI data could be subjective in nature and therefore does not present the most reliable or valid conclusions.

In a recent book chapter, Cruz (2013) discussed the importance of movement observation in clinical practice in DMT and highlighted the different assessment tools and systems that currently exist, including LMA, the KMP, and the MPI. The author elaborated on the concepts Bruscia (1988) laid out in his initial article from the perspective of movement observation, which Cruz (2013) distinguished from formal assessment for evaluation. The author ascertained that movement observation is an ongoing process, which provides guidelines for dance/movement therapists during a session in order to choose interventions. In contrast, formal assessment is

conducted in order to better understand the client, aid in the process of treatment planning and inform diagnosis. Additionally Cruz (2013) pointed out the issue of validity and reliability of using movement observation for formal clinical assessment due to the subjective nature of the process, identifying that perceptual biases inevitably inform the way all humans view and interpret movement. Dance/movement therapists, therefore, need to pay attention to the unconscious assumptions and biases that may affect the interpretation of movement observed in a clinical context. Additionally, dance/movement therapists should practice movement observation within the scope of their training and certification from programs in LMA, KMP, and the MPI. The author also reiterated the complexity of the KMP and MPI, emphasized the need for extensive training in these areas for clinical application, and supported the need for more research including the implementation of the short-form MPI in a clinical DMT context (Cruz, 2013).

2.3.3 Multicultural Considerations in Movement Analysis

It is important to recognize that movement qualities and behaviors are partially informed by culture. Therefore, a multicultural aspect must be considered when using movement observation as part of the diagnostic process. Caldwell (2013) indicated that it is the dance/movement therapist's responsibility to reflect on her own movement biases and recognize that DMT is mostly based on Western European and North American constructs regarding mental health as well as the theoretical basis for DMT. The author recognized the unconscious worldview adopted by dance/movement therapists based on the aforementioned theoretical models. These frameworks place the therapist in a more privileged role than the client, which could result in the possible marginalization of the client during the process of interpreting observed movement behaviors and characteristics. Movement observation is made up of three paradigms, which consider: a) the universality of human movement, b) the practical analysis of movement using LMA to describe movement, and c) the cultural aspect of movement regarding the body as a socially constructed entity (Caldwell, 2013). It is this last paradigm that the author identified as an area of caution for dance/movement therapists when analyzing and interpreting

movement. It is for this reason that Cruz (2009) did not include eye contact, an item on the Action Inventory of the MPI, in her study, since not all cultures view eye contact with the same importance that Western European-based DMT does (Caldwell, 2013).

Although movement behaviors are informed by culture and must be assessed with caution, there are certain aspects of all movements that are biologically and neurologically rooted in all human beings. In a recent presentation published through the ADTA video series supported by the Marian Chace Foundation, Cruz (2014) referenced an example from her clinical experience in which an abnormal involuntary movement (AIM) (and not the hour-long conversation that followed in an initial assessment with a child) led to an accurate diagnosis of severe mental illness. Because AIMs are caused by a disruption in the extrapyramidial motor system, part of the central nervous system, which controls all movement, there is no cultural component to such movements (Cruz, 2014). This suggests that movement observation and analysis, when used for the purpose of psychodiagnosis (specifically related to schizophrenia and other severe mental illnesses) could possibly be an important part of the diagnostic process within the mental health system. According to Cruz (2014), the neurological basis for AIMs, which have been historically connected to severe mental illness and referenced in several studies including Cruz (1995, 2009), Davis (1997), and Berger (1999), suggests that movement analysis may transcend cultural constructs when specifically focused on the biological basis for movement patterns.

3. INVESTIGATIONAL METHODS AND PROCEDURES

3.1 Design of the study

This study is a comparative descriptive observational study with an N of 1. Both the original full and the short-form Movement Psychodiagnostic Inventory (MPI) were used to assess the movement of the same individual by analyzing two different video segments: a seated mental status exam and a one-to-one dance/movement therapy (DMT) assessment session. Ex-post facto video data was used.

The objective of this study is to compare observations and conclusions from the short-form MPI with the full MPI in both DMT and seated interview contexts.

There are four major variables in this study, comprised of the different contexts and types of instrument used. The two context variables are the seated interview and the DMT assessment session, while the two instrument variables are the full MPI and the short-form MPI.

The research itself was conducted at the Center City campus of Drexel University, at Hahnemann University Hospital. An experienced rater with training in the MPI viewed and coded the videotapes in a private conference room free from interruptions in the Department of Creative Arts Therapies in one day, in the presence of the student researcher.

Because this study used ex-post facto video data of which the university was already in possession, no recruitment or enrollment procedures were needed. The researcher submitted and was granted an expedited exempt approval to the Drexel University Institutional Review Board (IRB) (see Appendix F for IRB approval form).

This study used pre-existing ex-post facto video data that has been in the Department of the Creative Arts Therapies at Drexel University. This study examined two video segments from a larger compilation of videos presented as a multi-disciplinary case assessment at the 1982 American Psychiatric Association (APA) conference.

This study has an N of 1. The individual portrayed in the videos is a 41-year-old African American male who was interviewed and assessed near the time of discharge from an inpatient

psychiatric unit. Both the researcher and rater were unaware of this individual's diagnosis. Due to his history of hospitalizations for psychiatric reasons and the fact that he was being treated at an inpatient psychiatric facility at the time the video was taken, it is likely that he was on medication at the time of the video, which may affect the movement data. However, this is not confirmed.

These video segments of this particular individual were chosen for several reasons. The first is that the individual fits the population for which the MPI was originally designed. Additionally, the use of existing video provided a unique opportunity to study both the standard and novel proposed uses of the MPI as well as to explore the research question without risk to anyone.

There were no foreseeable risks to the individual depicted on the video. The professionals seen working with the video did so in a private setting and no one outside the mental health professionals or students, for whom the tapes were intended, saw the videos.

3.2 Data collection

The data were collected for this study through the observation and coding of the video segments by an experienced rater. Data was collected in four stages. Each stage was anticipated to require two hours of coding each (Davis, 1997), with an estimated total time spent coding of eight hours with additional time allotted for breaks. The data collection process occurred on a single Saturday in March, 2015 in a private conference room at the Center City campus of Drexel University, during which time the rater completed each assessment during an eight-hour period of time with the researcher present. The suggested time allotted for coding a 20-minute video segment using the MPI is at least two hours (Davis, 1997), but because the video segments are between 10 and 11 minutes long, each assessment coding lasted less then an hour and a half each. Table 1 outlines the design of the study.

The order of the data collection was as follows:

1. The coding of the DMT assessment session using the short-form MPI (D).
2. The coding of the DMT assessment session using the full MPI (B).
3. The coding of the seated interview using the short-form MPI (C).
4. The coding of the seated interview using the full MPI (A).

Table 1.

Study Schematic

Instrument	Context: Seated interview	Context: DMT assessment session
Full MPI	Standard (A)	From the standard, vary context (B)
Short- Form MPI	From the standard, vary Form (C)	Novel: Vary context and form (D)

For each assessment, the rater viewed the video segment once for observation and was subsequently allowed to view the video or segments of the video as many times as she needed in order to complete the assessment. The first and third assessments (D and A respectively), both of which used the short-form MPI as the assessment tool, were completed in one hour, with a 15-minute break following each of these assessments. The second and fourth assessments (B and C respectively), which both used the full MPI as the assessment tool, were completed in approximately an hour and a half. In order to avoid both rater fatigue and bias, two short breaks were taken in between assessments one and two and assessments three and four. A 45-minute lunch break was taken between assessments two (B) and three (C).

Data collection also included the use of the Abnormal Involuntary Movement Scale (AIMS) for both assessments using the full MPI for completeness (Appendix G). An additional form was used for both short-form assessments. This document is the unpublished addendum to

the short-form MPI titled “MPI Action Inventory for Movement Session,” authored by Martha Davis in 2007 (Appendix E).

3.3 Data analysis

Descriptive data from each of the inventories was analyzed through visual inspections and comparisons. The five following comparisons were made:

1. Data collection four (A) to data collection three (C).
2. Data collection four (A) to data collection two (B).
3. Data collection one (D) to data collection two (B).
4. Data collection one (D) to data collection three (C).
5. Data collection four (A) to data collection one (D).

It was anticipated that comparisons between the short-form MPI to the full MPI would require some consultation and be more involved than comparisons between the same instrumentations. When comparing the use of the full MPI across contexts the researcher separated the Primary and Action Inventories and performed an item-by-item comparison. The comparison of the short-form MPI across contexts involved a comparison of categories and narratives provided by the rater.

The researcher only analyzed the data collected using the short-form MPI and the full MPI. As previously mentioned, the rater used the AIMS with the full MPI for completeness, which provided additional information that could be used in a diagnostic study for consideration of medication side effects. For the sake of this study, however, the AIMS was completed as a formality and additional information, but because the researcher did not seek to diagnose the individual, the data collected from the AIMS were not included in the analyzed data. Additionally, the researcher did not analyze the data collected from the MPI Action Inventory for Movement Session (Davis, 2007). Again, although the intention of this study was not diagnosis, the Action Inventory addendum was not designed for diagnosis. The researcher included this form in the study to explore its possible applicability to clinical movement assessment in

conjunction with the short-form MPI, but did not analyze the data to remain true to the original scope of the study, which was to explore the diagnostic implications that arose from each assessment.

4. RESULTS

Once the data had been collected, five cross-comparisons were made amongst the four assessments. This chapter outlines each of the comparisons and highlights the results of each using tables to display the data collected from each assessment. All assessments can be seen in full in the Appendices section in the order in which they were completed. Each assessment used either the short-form or full version of the Movement Psychodiagnostic Inventory (MPI) to assess either the 11-minunte-45-seccond seated interview segment or the 10-minute dance/movement therapy (DMT) assessment session segment. The first assessment (Appendix H) used the short-form MPI to assess the DMT assessment session, the context for which the instrument was proposed, as well as the unpublished Action Inventory addendum (Appendix I). The second assessment (Appendix J) used the full MPI to assess the DMT assessment session as well as an Abnormal Involuntary Movement Scale (AIMS) for completeness (Appendix K). The third assessment (Appendix L) used the short-form MPI to assess the seated interview as well as the unpublished Action Inventory addendum (Appendix M). The fourth assessment (Appendix N) used the full MPI to assess the seated interview, the context for which the instrument was initially intended, as well as an AIMS for completeness (Appendix O). Each comparison will be discussed in terms of both the Action Inventory and the Primary Inventory from each instrument and have been presented in separate tables, for the purpose of clarity.

The first comparison was made between data collections three (C) and four (A): the seated interview using the short-form MPI and the seated interview using the full MPI, respectively. In this case, the researcher compared the use of the two different instruments in the same context. Table 2 is a chart that compares the Action Inventory scores from both instruments side by side. The rater's notes are in quotations, while the text from each form is written out along with the score. The full MPI Action Inventory, which contains 14 items, displays data in two different ways. In items #1 and #2, in the Gesticulation (G) subsystem, the recorded scores represent the number of times a gesture is seen. The same is true for items #13 and #14, in the

Position/Posture (P) subsystem, which count the number of postural shifts and different resting positions. All other items are scored with either a "0," "1," or "2." In general, a score of "0" suggests that the individual displays healthy patterns in movement, while a "1" and a "2" suggest more difficult in these areas. Please refer to the second page of Appendix A for the full Action Inventory, which includes criteria for scoring.

Table 2.

Action Inventory comparison: Short-form and full MPI for seated interview

Subsystem	Short-Form MPI (C)	Full MPI (A)
Gesticulation (G)	Frequency hand- 12-13 Frequency shrugs- 0 Clinical Impressions: "mostly bilateral, 3-5 unilateral"	1. Gestures accompanying speech- #12 2. Emblems, shrugs- #0
Self- Related (S)	Frequency repetitive- 0 Frequency single- 4 Clinical Impressions: "indicating a body part (shoulder, stomach)"	3. Repetitive Actions- 0 4. Self-touching- 1 *see AIMS→"both right and left hands pill rolling"
Instrumental (I)	Frequency- 0	5. Instrumental actions, object handling- 0
Orienting (O)	Clinical Impressions: "Head no trouble here" "Body- stayed with orientation of chair"	6. Speaks entire turn without looking at listener- 0 7. Holds gaze away from speaker when addressed- 0 8. Head orienting in conversation- 0 9. Trunk orienting in conversation- 1
Head Moves (H)	Clinical Impressions: "A little low, almost normal range, very small"	10. Head movements with speech- 0 11. Listens with head nods "yes" or "no"- 0
Facial Expression (F)	Clinical Impressions: "1- furrowed brow with soft even flaccid lower face; 2-3 times breaks into smile"	12. Facial expression held longer than 15 seconds- 0
Position/Posture (P)	Frequency positions- 2 Frequency postural- 1 Clinical Impressions: "1 homebase- right leg crossed over left, arms on arms of chair and 1 shift to homebase #2 at 2:12-2:20 (8 seconds) uncross legs"	13. Different "homebase" positions- #2 14. Phrases of postural shifts- #1

Since the gesticulation (G), instrumental (I) and position/posture (P) subsystems measure frequency of an action, the results did not differ. Because the short-form MPI Action Inventory is mostly based on clinical impressions, more information about the nature of each action in its subsystem was given using the short-form MPI. The data collected from the orienting (O), head moves (H), and facial expression (F) subsystems were congruent with one another; the rater's clinical impressions on the short-form MPI gave a descriptive version of the corresponding numerical score from the full MPI. The self-related (S) subsystem results appear to differ, which is due to the difference in instruments. The short-form MPI asks for frequency of self-related actions, breaking up the scores into repetitive and single actions, as well as providing a space for clinical impressions, in which the rater described the nature of the actions. The full MPI does not ask for the frequency of self-related actions but rather assigns a score of "0", "1," or "2," in which a lower score indicates more health. The score of "1" on the full MPI Action Inventory in this subsystem would suggest that the client uses a fair amount of self-touch. This subsystem allows for a description of the touch, which differed from the clinical impression description the rater gave in the short-form MPI assessment. Additionally, the rater attached an Abnormal Involuntary Movement Scale (AIMS) for completeness and to account for possible medication side effects in regards to such movements. The completed AIMS for this assessment can be found in Appendix H.

Table 3 is a chart that compares the Primary Inventory scores from both instruments side by side. In the short-form section, a check mark (☑) indicates that this category should be scored. In the categories of Disorganization, Low Spatial Complexity, and Diffusion the check mark on the short-form matched a score of "1" on the full MPI. In the categories of Perseveration/Fixed Invariant, Exaggeration, Hyperkinesis, and Even Control/Suspension, the note "OK" on the short-form matched with a score of "0" on the full MPI. The only two categories that did not match completely were Low Intensity and Flaccidity/Retardation. For Low Intensity, the rater gave an "OK" on the short-form, noting that Strength Effort was seen

once, while the score was an "A," or almost, on the full MPI. Similarly for Flaccidity/Retardation, the rater gave an "A" in the full MPI while a check mark was given on the short-form, indicating flaccidity in the abdomen, or lower part of the trunk. Please refer to Appendix I for rater's impressions on the short-form MPI Primary Inventory.

Table 3.

Primary Inventory comparison: Short-form and full MPI for seated interview

Category	Short-Form MPI (C)	Full MPI (A)
I. Disorganization	☑	Score= 1, Subsystem G
II. Immobility	"OK"	Score= 1, Subsystem P
III. Low Intensity	"OK"	Score= *A*, Subsystem G
IV. Low Spatial Complexity	☑	Score= 1, Subsystem G
V. Perseveration/Fixed Invariant	"OK"	Score= 0
VI. Flaccidity or Retardation	☑	Score= *A*, Subsystem P
VII. Diffusion	☑	Score= 1, Subsystem G
VIII. Exaggeration	"OK"	Score= 0
IX. Hyperkinesis	"OK"	Score= 0
X. Even Control/Suspension	"OK"	Score= 0

Not shown in Table 3 are the individual scores within each category that qualified a score on the Primary Inventory of the full MPI. These can be seen in Appendix G, but will briefly be described here. A score of "1" in Disorganization was given because the individual received two scores of one and an "almost," all in subsystem G, for items #1, #7, and #10 under that category. These scores correlate to the spatial disorganization in the upper limbs and spatial segmentation seen during a movement phrase. The rater gave an "A" for Effort Flow or weight fragmentation.

A score of "1" in Immobility was given because the individual received one score of "1" for item #6, referring to single phases of postural movement in the individual's leg shifts and two

"A"'s in the postural subsystem for items #7 and #12 under that category, referring to the low number and rate of postural shifts seen in the interview. The rater scored these last two as "A" because the video is not long enough to meet the time requirements in these specific items, however, suggested that the individual would have received a score if there was no time specification based on the segment that was viewed.

Low Intensity received an "A" for item # 3 in subsystem G for that category, which refers to fleeting observations of single Effort qualities. The other category that received an "A" was Flaccidity/Retardation, which was marked in subsystem P for item #1 in this category, referring to a flaccid or limp trunk throughout the session (this differed from the score given on the short-form because the rater noted that the entire trunk was not flaccid and indicated tonus in the chest but flaccidity in the abdomen).

The final two categories that received a score of "1" on the full MPI were Low Spatial Complexity and Diffusion. The rater gave a score Low Spatial Complexity based on item #3 in that category, which refers to spatial clarity in subsystem G within phrases of shape flow variation. Additionally, a score was given in the category of Diffusion in subsystem G of item #4, which refers to spatial or dynamic diffusion in one part of a phrase that is otherwise clearly defined.

As previously mentioned, the rater filled out an AIMS form for the full MPI for completeness to account for possible medication side effects and gave three scores, a score of "1" in the category of facial expressions and two different scores in the extremity movements category. The rater indicated that a score of "1" (minimal severity) for number one, muscles of facial expression, was given due to frowning and eyebrow movements. A score of "2" (mild) was given in number five, for upper extremity movements, in which the rater indicated "pill-rolling" finger movements as the inclusion criteria for this score. Finally, the rater gave a score of "1" (minimal) in number six, for lower extremity movements, indicating that foot squirming,

inversion, and eversion were seen. Although the rater filled out the AIMS for completeness, the results did not appear to affect the scores on the Primary Inventory.

The second comparison was made between data collections two (B) and four (A): the DMT assessment session using the full MPI and the seated interview using the full MPI, respectively. In this case, the researcher compared the use of the same instrument across contexts. Table 4 is a chart that compares the Action Inventory scores from both instruments side by side. The rater's notes are in quotations, while the text from each form is written out along with the score.

Because these Action Inventories rated behaviors from two different contexts, most of the differences in scores are irrelevant, as is the case with subsystems G, S, and P. The subsystem I scores happen to be the same due to the fact that there were no instrumental behaviors to be seen in either context. The congruent scores in subsystems H and F would indicate that the participant demonstrates health in both of these areas regardless of context. In addition, the subsystem O scores were nearly all the same except for item #9 (trunk orienting in conversation), which most likely differed because in the DMT assessment session there was no chair for the participant to rest on. The absence of scores in the rest of this subsystem would indicate health in the participant's ability to relate to others, as it is seen across contexts.

Table 4.

Action Inventory comparison: DMT assessment session and seated interview using the full MPI

Subsystem	DMT assessment session (B)	Seated interview (A)
Gesticulation (G)	1. Gestures accompanying speech- # 3 2. Emblems, shrugs- # 1	1. Gestures accompanying speech- #12 2. Emblems, shrugs- #0
Self- Related (S)	3. Repetitive Actions- 0 4. Self-touching-0	3. Repetitive Actions- 0 4. Self-touching- 1 *see AIMS→ "both right and left hands pill rolling"
Instrumental (I)	5. Instrumental actions, object handling- 0	5. Instrumental actions, object handling- 0
Orienting (O)	6. Speaks entire turn without looking at listener- 0 7. Holds gaze away from speaker when addressed- 0 8. Head orienting in conversation- 0 9. Trunk orienting in conversation- 0	6. Speaks entire turn without looking at listener- 0 7. Holds gaze away from speaker when addressed- 0 8. Head orienting in conversation- 0 9. Trunk orienting in conversation- 1
Head Moves (H)	10. Head movements with speech- 0 11. Listens with head nods "yes" or "no"- 0	10. Head movements with speech- 0 11. Listens with head nods "yes" or "no"- 0
Facial Expression (F)	12. Facial expression held longer than 15 seconds- 0	12. Facial expression held longer than 15 seconds- 0
Position/Posture (P)	13. Different "homebase" positions- # 1 14. Phrases of postural shifts- not rated	13. Different "homebase" positions- # 2 14. Phrases of postural shifts- #1

Table 5 is a chart that compares the final Primary Inventory scores between the DMT assessment session and the seated interview. The scores are consistent in almost all categories, with the exception of Disorganization, Low Intensity, and Even Control/Suspension. Disorganization was rated in subsystems G and P during the DMT assessment session, while the rater only gave a score in subsystem G during the seated interview. Additionally, an "A" was given for low intensity during the seated interview for item #3 in subsystem G for that category, which refers to fleeting observations of single Effort qualities, while a "1" was given during the DMT assessment session for the same reason, accompanied by a note from the rater that "no combinations" of Effort qualities were seen. Finally, a "1" was given for item #2 in subsystem G category of Even Control/Suspension which refers to a high degree of Bound Flow/muscle tension throughout a movement phrase, seen in most movements.

Table 5.

Primary Inventory comparison: DMT assessment session and seated interview using the full MPI

Category	DMT assessment session (B)	Seated interview (A)
I. Disorganization	Score= 1, Subsystems P & G	Score= 1, Subsystem G
II. Immobility	Score= 1, Subsystem P	Score= 1, Subsystem P
III. Low Intensity	Score= 1, Subsystem G	Score= *A*, Subsystem G
IV. Low Spatial Complexity	Score= 1, Subsystem G	Score= 1, Subsystem G
V. Perseveration/Fixed Invariant	Score= 0	Score= 0
VI. Flaccidity or Retardation	Score= *A*, Subsystem P	Score= *A*, Subsystem P
VII. Diffusion	Score= 1, Subsystem G	Score= 1, Subsystem G
VIII. Exaggeration	Score= 0	Score= 0
IX. Hyperkinesis	Score= 0	Score= 0
X. Even Control/Suspension	Score= 1, Subsystem G	Score= 0

Not shown in Table 5 are the individual scores within each category that qualified a score on the Primary Inventory for the DMT assessment session. These can be seen in Appendix D, but will briefly be described here and compared, when applicable, to the scores from the seated interview. As previously mentioned, the scores in the category of Disorganization differed slightly between the DMT assessment session and the seated interview. The rater scored a "1" in subsystems G and P for the DMT assessment session due to an "A" score in subsystem P for item #10, referring to spatial segmentation as well as a "1" for subsystems G and P in item #11, which refers to body segmentation. Although the rater also scored a "1" in subsystem G for item #10 (spatial segmentation) in the seated interview assessment, there was no score assigned for item #11 (body segmentation), but there was a score given for item #7 in the gestural subsystem, which refers to unsynchronized movements in the upper limbs, which was not seen during the DMT assessment session. This may be due to the fact that the movements seen in the DMT assessment session were guided by the therapist, and therefore might demonstrate the participant's capability for lateral upper body organization with the support of movement modeling and guidance.

Although a score of "1" was given in subsystem P for Immobility in both contexts, the individual sub-scores differed. For the DMT assessment session, a score of "2" was given for item #5 in subsystem P, referring to the lack of postural movement in walking or shifting positions. This was not scored on the assessment of the seated interview. However, similar scores were almost given in subsystem P for items #7 (one-two postural shifts) and #12 (low rate of postural movement), but the rater noted on the assessment for the DMT assessment session that because the DMT session is only 10 minutes long and is structured for one position (standing) throughout, the participant did not qualify for scores in these items. The scores on the seated interview assessment, however, combined with the notes on the assessment for the DMT assessment session that both of these would have been likely scored suggest that low postural movement is a particular area of concern for this individual.

Not only did the rest of the scores on the Primary Inventory for both contexts match, but so did the scores within each item. Low Spatial Complexity and Diffusion were both scored as "1" for the same areas, while Flaccidity/Retardation scored an "A" in subsystem P on both assessments for item #1 in that category (limp trunk tonus). Finally, Perseveration/Fixed-Invariant, Exaggeration and Hyperkinesis received scores of "0" in both contexts.

The third comparison was made between data collections one (D) and two (B): the DMT assessment session using the short-form MPI and the full MPI, respectively. In this case, the researcher compared the use of the two different instruments in the same context. Table 6 is a chart that compares the Action Inventory scores from both instruments side by side. The rater's notes are in quotations, while the text from each form is written out along with the score.

Most of the results are in agreement across instruments, specifically in subsystems I, O, H, and F. There are, however, discrepancies between subsystems G and S across instruments, which is most likely due to both the way in which the instruments categorize scoring for each item as well as the rater's interpretation. For example, the rater noted one hand gesture and three self-related gestures cued by the therapist on the short-form MPI, which differs from the data recorded on the full MPI in these areas. In the full MPI Action Inventory, gestures accompanying speech and gestures/emblems not accompanying speech are broken into two separate categories, while on the short-form MPI they may be interpreted within the same category. Additionally, the full MPI does not consider self-related behaviors as gestures, while there is room for a different interpretation in the short-form MPI. Overall, the data related to these two subsystems appear to describe relatively the same actions, but in different ways due to the nature of the instruments.

Table 6.

Action Inventory comparison: Short-form and full MPI for DMT assessment session

Subsystem	Short-form MPI (D)	Full MPI (B)
Gesticulation (G)	Frequency hand- 1 Frequency shrugs- 0 Clinical Impressions: "Simple reversals with Lightness, bilateral, near reach"	1. Gestures accompanying Speech- # 3 2. Emblems, shrugs- # 1
Self- Related (S)	Frequency repetitive- 3 Frequency single- 1 Clinical Impressions: "One spontaneous self touch to indicate own body part, the others on cue from therapist and with movement task"	3. Repetitive Actions- 0 4. Self-touching-0
Instrumental (I)	Frequency- 0	5. Instrumental actions, object handling- 0
Orienting (O)	Clinical Impressions: "No trouble here orienting to therapist"	6. Speaks entire turn without looking at listener- 0 7. Holds gaze away from speaker when addressed- 0 8. Head orienting in conversation- 0 9. Trunk orienting in conversation- 0
Head Moves (H)	Clinical Impressions: "No trouble here, nodding appropriately"	10. Head movements with speech- 0 11. Listens with head nods "yes" or "no"- 0
Facial Expression (F)	Clinical Impressions: "Looks OK here; responsive, smiles, raising eyebrows active 4 times, 3-4 different expressions"	12. Facial expression held longer than 15 seconds- 0
Position/Posture (P)	Frequency positions- 1 Frequency postural- 1	13. Different "homebase" positions- # 1 14. Phrases of postural shifts- #0

One additional discrepancy is seen in subsystem P, where the rater has noted one position and one postural on the short-form MPI while the full MPI resulted in one position (referred to as "homebase" in this instrument) but no phrases of postural shifts. The structure of the DMT assessment session directs the individual to stand and walk in one position, which may be the reason for that score. A possible explanation for the discrepancy between the short-form and full MPI rating in regards to the postural category may be in the instrument's phrasing: the short-form asks for "frequency postural," but does not specifically note a postural shift.

Table 7 is a chart that depicts a side-by-side comparison of the Primary Inventory scores from both instruments. In this assessment, a check mark (☑) on the short-form MPI indicates that this category requires a score, while the comment "nothing of concern here" indicates a score of "0," as it is scored on the full MPI (please note that in assessment three, the short-form MPI used in the context of the seated interview, the rater wrote "OK" to indicate a score of "0." These notations appear to be interchangeable and demonstrate consistency within each instrument). Additionally, the rater left Flaccidity/Retardation and Diffusion blank on the short-form MPI, which has also been interpreted by the researcher as indicative as a score of "0." Although no check mark was given on the short-form MPI for Low Spatial Complexity, the comment "no 3-Dimensionality" could be interpreted as an area to be scored, which is in agreement with a score of "1" on the full MPI.

Table 7.

Primary Inventory comparison: short-form and full MPI for DMT assessment session

Category	Short-form MPI (D)	Full MPI (B)
I. Disorganization	☑	Score= 1, Subsystems P & G
II. Immobility	☑	Score= 1, Subsystem P
III. Low Intensity	☑	Score= 1, Subsystem G
IV. Low Spatial Complexity	"no 3-Dimensionality"	Score= 1, Subsystem G
V. Perseveration/Fixed Invariant	"nothing of concern here"	Score= 0
VI. Flaccidity or Retardation		Score= *A*, Subsystem P
VII. Diffusion		Score= 1, Subsystem G
VIII. Exaggeration	"nothing of concern here"	Score= 0
IX. Hyperkinesis	"nothing of concern here"	Score= 0
X. Even Control/Suspension	"nothing of concern here"	Score= 1, Subsystem G

The scores seen in Table 7 match in almost every category except for Diffusion and Even Control/Suspension. A "1" was given on the full MPI in subsystem G for Diffusion, scored for item #3 in this category related to the diffuse spatial or dynamic part of a phrase, while the short-form MPI does not have anything marked in this category. One reason for this may be due to the fact that the Diffusion category is listed in a different sequence on the short-form MPI Primary Inventory, which places it directly after the first category of Disorganization rather than as the seventh category following Flaccidity. The omission of a score on the short-form may be due to a rater error as well as a flaw in the instrument.

The other category in which a discrepancy in scores exists is Even Control/Suspension. A score of "1" was given in subsystem G on the full MPI for item #2 in that category related to high degree of Bound Flow/muscle tension and lack of Free Flow, while the rater did not indicate

that this was an area of concern. This may be due to the fact that the short-form MPI is also geared towards finding the health in movement while the full MPI is set up to detect pathology. Therefore, from a DMT perspective, which the short-form MPI is intended to reflect, the high muscle tonus demonstrated by the individual could be interpreted as a positive attribute while the presence of muscle tonus is considered pathological on the full MPI, which phrases the subcategory as "muscle tension" and a lack of "giving into gravity."

The fourth comparison was made between data collections one (D) and three (C): the DMT assessment session using the short-form MPI and the seated interview using the short-form MPI, respectively. In this case, the researcher compared the use of the same instrument across contexts. Table 8 is a chart that compares the Action Inventory scores from both instruments side by side. The rater's notes are in quotations, while the text from each form is written out along with the score.

As seen in the other comparison across contexts, there are differences in the subsystems, which ask for the frequency of actions. Because the DMT assessment session is quasi-directive, the number of movements accounted for in each of these subsystems varies. However, subsystems O, H, and F contain data that is comparable to one another despite the difference in contexts. The rater notes that in both sessions the individual appears to demonstrate generally healthy movement behaviors in these subsystems. The clinical impressions in these three subsystems for the seated interview all include that the individual appeared to demonstrate slightly less health than in the DMT assessment session, which may be due to the fact that all movements recorded in the seated interview were generated by the individual while the movements seen in the DMT assessment session were actively guided by the therapist. Again, these side-by-side comparisons suggest that although this individual appeared to have little trouble relating to another, he had access to a healthier range of movement when supported by the dance/movement therapist, compared to when he moved spontaneously on his own in seated conversation.

Table 8.

Action Inventory comparison: DMT assessment session and seated interview using the short-form MPI

Subsystem	DMT Assessment Session (D)	Seated Interview (C)
Gesticulation (G)	Frequency hand- 1 Frequency shrugs- 0	Frequency hand- 12-13 Frequency shrugs- 0
	Clinical Impressions: "Simple reversals with Lightness, bilateral, near reach"	Clinical Impressions: "mostly bilateral, 3-5 unilateral"
Self- Related (S)	Frequency repetitive- 3 Frequency single- 1	Frequency repetitive- 0 Frequency single- 4
	Clinical Impressions: "One spontaneous self touch to indicate own body part, the others on cue from therapist and with movement task"	Clinical Impressions: "indicating a body part (shoulder, stomach)"
Instrumental (I)	Frequency- 0	Frequency- 0
Orienting (O)	Clinical Impressions: "No trouble here orienting to therapist"	Clinical Impressions: "Head no trouble here" "Body- stayed with orientation to chair"
Head Moves (H)	Clinical Impressions: "No trouble here, nodding appropriately"	Clinical Impressions: "A little low, almost normal range, very small"
Facial Expression (F)	Clinical Impressions: "Looks OK here; responsive, smiles, raising eyebrows active 4 times, 3-4 different expressions"	Clinical Impressions: "One- furrowed brow with soft even flaccid lower face" "2-3 times breaks into smile"
Position/Posture (P)	Frequency positions- 1 Frequency postural- 1	Frequency positions- 2 Frequency postural- 1
		Clinical Impressions: "Homebase #1- right leg crossed over left, arms on arms of chair and 1 shift to homebase #2 (8 seconds) uncross legs"

Table 9 is a chart that depicts a side-by-side comparison of the Primary Inventory scores using the short-form MPI in both contexts. As previously noted, a check mark (☑) indicates an area of concern that would otherwise be scored as a "1" on the full MPI Primary Inventory. This instrument allows for a description of the area of concern; the rater's clarifying descriptions can be seen in quotations in Table 9. Additionally, the rater used different language in each assessment to identify areas of health; "nothing here" on assessment one (DMT assessment session) is the same as when the rater notes "OK" on assessment three (seated interview).

Table 9.

Primary Inventory comparison: DMT assessment session and seated interview using the short-form MPI

Category	DMT Assessment Session (D)	Seated Interview (C)
I. Disorganization	☑	☑
II. Immobility	☑	"OK"
III. Low Intensity	☑	"OK"
IV. Low Spatial Complexity	"no 3-Dimensionality"	☑
V. Perseveration/Fixed Invariant	"nothing of concern here"	"OK"
VI. Flaccidity or Retardation		☑
VII. Diffusion		☑
VIII. Exaggeration	"nothing of concern here"	"OK"
IX. Hyperkinesis	"nothing of concern here"	"OK"
X. Even Control/Suspension	"nothing of concern here"	"OK"

As previously mentioned, it is difficult to compare the content of each of the scores because they relate to different contexts and movements, but a general pattern can be seen in these two assessments in terms of areas of concern and particularly areas of health. Based on

these two assessments, the individual does not display pathological movement patterns in Perseveration/Fixed Invariant, Exaggeration, Hyperkinesis, and Even Control/Suspension, which is consistent with results from the other assessments as well. Shared areas of concern based on this comparison are Disorganization and Low Spatial Complexity, which again are consistent with areas of concern as noted in other assessments. The discrepancies in this particular comparison are in the categories of Immobility, Low Intensity, Flaccidity/Retardation and Diffusion. The scores for Immobility and Low Intensity indicated areas of difficulty in these categories during a DMT assessment session that do not appear to be a problem according to the rater in a seated interview. Conversely, Flaccidity/Retardation and Diffusion were not scored during the DMT assessment session but they did receive a score during the seated interview. Again, this may be due to the difference in the context in which the individual is displaying movement, producing his own movements during a seated conversation while following the dance/movement therapist in a quasi-directive DMT assessment session.

The fifth comparison was made between data collections one (D) and four (A): the (novel) DMT assessment session using the short-form MPI and the (standard) seated interview using the full MPI, respectively. This final comparison looks at each instrument used in the context for which it was intended. Table 10 is a chart that compares the Action Inventory scores from both instruments side by side. The rater's notes are in quotations, while the text from each form is written out along with the score.

Table 10.

Action Inventory comparison: Short-form MPI for DMT assessment session and full MPI for seated interview

Subsystem	Short-form MPI for DMT Assessment Session (D)	Full MPI for Seated Interview (A)
Gesticulation (G)	Frequency hand- 1 Frequency shrugs- 0 Clinical Impressions: "Simple reversals with Lightness, bilateral, near reach"	1. Gestures accompanying Speech- #12 2. Emblems, shrugs- #0
Self- Related (S)	Frequency repetitive- 3 Frequency single- 1 Clinical Impressions: "One spontaneous self touch to indicate own body part, the others on cue from therapist and with movement task"	3. Repetitive Actions- 0 4. Self-touching- 1 *see AIMS→"both right and left hands pill rolling"
Instrumental (I)	Frequency- 0	5. Instrumental actions, object handling- 0
Orienting (O)	Clinical Impressions: "No trouble here orienting to therapist"	6. Speaks entire turn without looking at listener- 0 7. Holds gaze away from speaker when addressed- 0 8. Head orienting in conversation- 0 9. Trunk orienting in conversation- 1
Head Moves (H)	Clinical Impressions: "No trouble here, nodding appropriately"	10. Head movements with speech- 0 11. Listens with head nods "yes" or "no"- 0
Facial Expression (F)	Clinical Impressions: "Looks OK here; responsive, smiles, raising eyebrows active 4 times, 3-4 different expressions"	12. Facial expression held longer than 15 seconds- 0
Position/Posture (P)	Frequency positions- 1 Frequency postural- 1	13. Different "homebase" positions- #2 14. Phrases of postural shifts- #1

As has been previously discussed, most of the subsystems that include frequency or number of certain movement behaviors do not match because of the different contexts of the sessions. Something that can be seen in the Action Inventory comparison in Table 10 and is consistent with all of the other assessments is that the individual appears to be able to relate appropriately to others based on the scoring in subsystems O, H, and F. Subsystem O is especially important when looking at the individual's ability to relate to others since it is about how the person orients himself to the therapist.

Table 11 depicts a side-by-side Primary Inventory comparison of each assessment. As previously mentioned, a check mark (☑) or comment on the short-form MPI appears to be equal to a scored section on the full MPI. With the exception of the categories of Flaccidity/Retardation, Diffusion, and a slight discrepancy in Low Intensity, the assessments appear to agree with one another. The rater scored the individual in Disorganization and Immobility and there were no scores seen in Perseveration/Fixed Invariant, Exaggeration, Hyperkinesis, or Even Control/Suspension.

Upon closer look at the items in the full MPI for Flaccidity/Retardation, one of the two items that received a score that does not match with the short-form MPI scoring, the area that received an "A" was for item #1 related to a flaccid/limp trunk tonus throughout. The rater's notes in this category mentions a high tonus in limbs and no comment about the trunk, in which case this disagreement may be due to the way the instrument is set up in addition to the fact that the assessments are in two different contexts. The other area that received a score on the full MPI for the seated session but not on the short-form MPI for the DMT assessment session is Diffusion, which received a "1" in subsystem G for subcategory item #4, related to spatial or dynamic diffusion in some part of a phrase. Again, the discrepancy in scores might be related to the fact that the DMT assessment session is quasi-directive and the individual was following a dance/movement therapist's phrasing, whereas in the seated interview his movements were completely his own.

Table 11.

Primary Inventory comparison between short-form MPI for DMT assessment session and full MPI for seated interview

Category	Short-Form MPI for DMT Assessment Session (D)	Full MPI for Seated Interview (A)
I. Disorganization	☑	Score= 1, Subsystem G
II. Immobility	☑	Score= 1, Subsystem P
III. Low Intensity	☑	Score= *A*, Subsystem G
IV. Low Spatial Complexity	"no 3-Dimensionality"	Score= 1, Subsystem G
V. Perseveration/Fixed Invariant	"nothing of concern here"	Score= 0
VI. Flaccidity or Retardation		Score= *A*, Subsystem P
VII. Diffusion		Score= 1, Subsystem G
VIII. Exaggeration	"nothing of concern here"	Score= 0
IX. Hyperkinesis	"nothing of concern here"	Score= 0
X. Even Control/Suspension	"nothing of concern here"	Score= 0

Other than these two areas of discrepancy on the Primary Inventories from each assessment and the general agreement in relevant areas in the Action Inventories from each assessment, it would appear that both instruments capture relatively the same information about the same client regardless of context. Out of all of the assessment comparisons, the fifth comparison depicts the most agreement between assessments, suggesting that each instrument appropriately measures the context for which it was originally intended and provides nearly consistent data between the two contexts.

Table 12 depicts a Profile Analysis comparison of the Primary Inventory of all four assessments, identifying individual items scored in each category. For data collections C (short-form MPI for the seated interview) and D (short-form MPI for the DMT assessment session), an "X" was given to indicate a score. For data collections A (full MPI for the seated interview) and B (full MPI for the DMT assessment session) the first number indicates the item, followed by the letter representative of the subsystem and the score in parentheses. Although the individual items scored on the full MPI do not carry the same degree of importance as the score assigned on the MPI Profile Analysis (Davis, 1997), a side-by-side comparison of individual scores allows for a clearer idea of what was seen in each context using each instrument as well as similarities in scoring.

Table 12.

Primary Inventory profile analysis

Category	A (full MPI and seated interview)	B (full MPI and DMT assessment session)	C (short-form MPI and seated interview)	D (short-form MPI and DMT assessment session)
I. Disorganization	7- G(1) 10- G(1)	10- P(*A*) 11- G(1) & P(1)	X	X
II. Immobility	6- P(1) 7- 7(*A*) 12- P(*A*)	5- P(2)		X
III. Low Intensity	3- G(*A*)	3- G(1)		X
IV. Low Spatial Complexity	3- G(1)	3- G(1)	X	
V. Perseveration/Fixed Invariant				
VI. Flaccidity/Retardation	1- P(*A*)	1- P(*A*)	X	
VII. Diffusion	4- G(1)	4- G(1)	X	
VIII. Exaggeration				
IX. Hyperkinesis				
X. Even Control/Suspension		2- G(1)		

As evidenced by the comparison of A and B, which uses the same instrument across contexts, the full MPI generated scores in the same areas in all but one category: Even Control/Suspension. This score was given in the context of the DMT assessment session for high degree of Bound Flow and muscle tonus as well as the lack of giving into gravity and releasing of the body. One possible explanation for this score discrepancy could be the fact that the DMT assessment session was quasi-directive and required the participant to perform particular types of movements requiring muscle release that were not seen in spontaneous movements seen in the seated interview.

There were more discrepancies in the comparison between C and D, which uses short-form MPI across contexts. In this case, the only category that scored the same was Disorganization. Immobility and Low Intensity were scored in the DMT assessment session but were not seen by the rater during the seated interview. Conversely, Low Spatial Complexity, Flaccidity/Retardation, and Diffusion were scored during the seated interview and not scored during the DMT assessment session. Although it is possible that the reason for such discrepancy amongst scores is that the contexts are completely different, another explanation might be that the short-form MPI does not require the same amount of careful, specific analysis that the full MPI does and leaves more room for interpretation.

However, in both comparisons across instruments, there were only a few discrepancies in scores. In the comparison between A and C, Immobility and Low Intensity were the only categories that received scores on the full MPI and not on the short-form MPI during the seated interview. In the comparison between B and D, Low Spatial Complexity, Flaccidity/Retardation, and Diffusion were scored for the DMT assessment session using the full MPI but were not scored using the short-form MPI. Again, it is probable that the reason the full MPI resulted in more scores than the short-form is because of the detailed items within each category that require the rater to observe the movement at a finer level. In both comparisons across instruments, the amount of categories that differed was about the same. Additionally, the categories that were

scored differently during the seated interview were not the same as the ones during the DMT assessment session.

Like the MPI studies that have been conducted previously, this pilot comparison study emphasizes the major findings on a categorical level in regards to the Primary Inventory. In other words, the scores in each category as more important than the individual items scored. Based on the comparison of Primary Inventory scores seen in Table 12, the combined results of C and D are equal to the results of A on a categorical level. Therefore, the combined scores of the short-form MPI in both contexts correspond equally to the scores of standard assessment using the full MPI in the context of a seated interview. Because the seated interview demonstrates an individual's preferences through spontaneous movement and the DMT assessment session demonstrates the individual's movement capabilities with the support of directives from the therapist, the combination of the two contexts using the short-form MPI result in a more complete assessment of an individual's movement from the perspectives of both health and pathology.

Based on the fact that the scores differed more across instruments than across contexts, these results suggest that the instruments are different enough that they might result in different diagnostic impressions. However, it is important to note that, as seen in Table 12, Disorganization is the only category in which a score was given across the board. Although the individual items received different scores across contexts using the full MPI, the Primary Inventory Profile Analysis scores were the same on all four assessments. Additionally, Hyperkinesis and Exaggeration did not receive any scores on any of the assessments. Although most of the categories demonstrated discrepancies that might change a clinician's diagnostic impression in each circumstance, there is some evidence based on these three similarly scored categories that certain movement qualities that impact diagnosis (in this case Disorganization, Perseveration/Fixed Invariant, Hyperkinesis, and Exaggeration), can be detected using both instruments in both contexts. Were the rater to have diagnosed this individual using each of the instruments, her diagnostic impressions would have been equally influenced by the lack of

Perseveration/Fixed Invariant, Hyperkinesis and Exaggeration as well as the detection of Disorganization on every assessment.

Finally, the fact that there were only three discrepancies in scoring between A and D, the standard use of the full MPI in a seated interview compared to the novel use of the short-form MPI in a DMT assessment session, respectively, supports the previously stated conclusion that the instrument itself has a greater influence on the scoring than does the context. In this case, Low Spatial Complexity, Flaccidity, and Diffusion were scored during the seated interview using the full MPI, which, as previously stated, might possibly be due to the fact that the full MPI requires more careful observation of movement and therefore may capture more pathology based on the movement data. Another difference between the two may impact scoring; that is that seated interviews are naturally conducive to more gestural activity as opposed to DMT assessment sessions, which are typically structured to include more full body/postural movements, and the original MPI items are more geared to looking at gestural system actions. Additionally, the short-form MPI was designed for a DMT assessment session, during which the therapist cues for and models movements that elicit the individual's strengths. Although these assessments uncover movement qualities to which the individual does not have access, indicating some pathology, because DMT's approach is from a strengths-based perspective, a DMT assessment session may result in less pathology seen in an individual's movement.

5. DISCUSSION

5.1 Major Findings

Although the focus of this pilot study was not to diagnose the individual observed on the videotapes, because the Movement Psychodiagnostic Inventory (MPI) was designed for clinical assessment for diagnostic implications in movement, the researcher explored the movement data results with the idea of diagnosis in mind. If a diagnosis of the observed individual was made based on each assessment independently, the diagnoses would certainly differ, but maybe not necessarily dramatically. Based on the study conducted by Cruz (1995), diagnostic indicators in movement that distinguished people with schizophrenia-related disorders from people with personality disorders were based on a combination of Action Inventory and Primary Inventory items, not simply on Primary Inventory items alone. The Action Inventory does not necessarily indicate pathology, but is rather an overall view of the nonverbal communication repertoire of the individual. Cruz (1995) combined this more descriptive section of the MPI with the Primary Inventory, which focuses on possible indicators of pathology in movement behaviors. In Berger's (1999) further exploration of the aforementioned study, the use of the MPI from this combined approach resulted in the diagnostic differences seen in movement patterns and combinations between two different types of personality disorders. Therefore, based on these studies, it is important to view the individual's scores in relation to one another in the present study.

Although in an unpublished form (Davis, 2007), a new *MPI Action Inventory for Movement Session* was also completed in this study in conjunction with the short-form MPI assessments. However, for the sake of diagnostic discussion the researcher refrained from analyzing the data collected on this form and focused on the published Action Inventory of the short-form MPI. The researcher only analyzed the data collected using the short-form MPI and the full MPI, which are designed for diagnostic purposes. The researcher did not analyze the data collected from the MPI Action Inventory for Movement Session (Davis, 2007) because it was not

created for the purpose of diagnosis. The form was experimentally included in this study when it became available to the researcher from the author in order to explore its potential in clinical assessment of movement, but the data were not analyzed in order to adhere to the original scope of the study (i.e., to explore the diagnostic implications and clinical applications of the short-form MPI and full MPI).

In each Action Inventory assessment, regardless of the instrument, the individual received no scores indicating difficulty accompanying speech with appropriate head movements. Additionally, the individual received only one score of concern in the Orienting subsystem of the Action Inventory of the full MPI used to observe the seated interview. In all other assessments, this individual received no scores and clinical impressions recorded by the rater indicated that the individual had no difficulty relating to the therapist.

The Primary Inventory scores, however, differed across assessments in every category except for Disorganization. Again, although the purpose of this study was not to diagnose the individual, were a diagnosis given, the relationship between the score of Disorganization on the Primary Inventory and the consistently seen health in the Head Moves and Orienting subsystems on the Action Inventory would need to be examined more closely. As Cruz (2009) suggested, the overall pattern and combination of a person's movement, which is measured both in pathology-oriented criteria (Primary Inventory) as well as the movement behaviors and patterns seen in the way a person relates to another (Action Inventory), is the most meaningful piece of the diagnostic puzzle for dance/movement therapists using the MPI in the context of clinical assessment for diagnosis. The diagnostic implications would differ in the combinations of the Action Inventory and Primary Inventory scores based on the general differences amongst the scores of the assessments. However, as previously mentioned, all assessments resulted in a universal score of Disorganization on the Primary Inventory and trunk orienting on the Action inventory, with the exception of one score on one assessment in the subsystem of trunk orienting. This suggests that the relationship between the category and the subsystems would be the same and would surely

influence the diagnosis in such a way that might categorize the individual in a similar diagnostic across instruments and contexts.

Whipple (1998) used just Primary Inventory categories of the MPI to observe men in a forensic population with substance abuse disorders and found that the men scored in the categories of Immobility, Hyperkinesis, Exaggeration, and Even Control. These findings, based solely on the Primary Inventory scores, resulted in new information about a diagnostic group that had not previously been linked to psychopathological movement disturbances as well as a more informed treatment plan for this particular population. Whipple's (1998) study would suggest that diagnostic information can be gleaned from Primary Inventory categories alone, and so it is worth exploring the nature of the Primary Inventory scores collected in the present study.

The present study revealed that the combination of short-form MPI Primary Inventory scores from both contexts were equivalent on a categorical level to the Primary Inventory scores from the standard assessment using the full MPI on a seated interview. Because the Primary Inventory is designed to carefully observe potential pathology in a person's movement behaviors, it is important to recognize the significance of this finding. If the standard application of the MPI, which has been tested for validity by Cruz (2009), can correctly place an individual in the proper diagnostic set, then the fact that the combined scores of the short-form MPI Primary Inventories in both studied contexts matched the scores on the standard assessment indicates that there is potential for the novel instrument's clinical use for dance/movement therapists in diagnosing and treatment planning when used in multiple contexts. It is also possible that the data may have been even more consistent if it were not for the difference between the relative lack of structure of the short-form MPI and the heavily structured coding rules for the full MPI.

Dance/movement therapists typically assess for both what healthy movement qualities a person possesses as well as what is missing from the movement repertoire, in order to form a better understanding of the person and formulate a treatment plan with appropriate interventions. The benefit of the clinical application of the short-form MPI for dance/movement therapists is

that it was originally designed to assess movement behaviors in a dance/movement therapy (DMT) setting and seeks to also find the health in a person's movement, and not only the pathology. Additionally, the short-form MPI assessment can guide the focus of treatment and interventions used by dance/movement therapists in their clinical work. Davis, Lausberg, Cruz, Berger, & Dulicai (2007) published this short-form version of the MPI with the hypothesis that the form would assess both the health and the pathology of an individual's movement.

The authors of the publication of the short-form MPI highlight the fact that although careful, extensive observation and analysis of movement behaviors results in more reliable and accurate observations and clinical impressions, the MPI is an impractical tool for dance/movement therapists in a clinical setting due to the need for video viewing, and the amount of time and training required to use the MPI (Davis, Lausberg, Cruz, Berger, & Dulicai, 2007). The short-form MPI was created specifically for dance/movement therapists to use as an assessment tool that could be completed directly following a DMT assessment session. The authors note that in clinical practice, dance/movement therapists need more assessment tools to capture movement data as accurately as possible, but not necessarily to be held to the same precise standard that the original MPI requires.

The trial of the short-form MPI for the present study did bring to the surface some ways in which the new instrument could be improved. Although the short-form MPI appears to be more user-friendly to DMT assessments in a clinical setting, the instrument is designed in a way that suggests that the user be well-trained in the original MPI. Unfortunately, according to those who teach the MPI (D. Dulicai, personal communication, June 3, 2015), there are currently few dance/movement therapists in clinical practice who are trained enough in the MPI to use the short-form MPI. Although the Primary Inventory might easily be filled out after a session, the Action Inventory still requires the dance/movement therapist to keep track of the number of gestures, self-related movements, frequency of instrumental movements and frequency of positions and postural shifts throughout a session. This would be impossible for a

dance/movement therapist to do during an assessment session because dance/movement therapists move with their clients throughout the session. In practice a dance/movement therapist would never be able to count the number of gestures or postural shifts throughout a thirty-minute (or longer) DMT assessment session. In this way the current short-form MPI is not yet fully accessible to a dance/movement therapist practicing in a clinical setting who does not have the extensive training or the luxury of watching videotaped sessions of every DMT assessment session.

5.2 Limitations of Study

This pilot study was not an attempt to establish validity of the short-form MPI, but rather an exploratory comparison between the standard use of the MPI and the novel variation on the instrument, used in its proposed context. Therefore, the results of this study cannot be considered from the standpoint of accuracy or generalizability, but rather as an initial exploration of the material. This study had several limitations, but the three major ones had to do with the number of participants, the number and experience of raters, and the video segments that were used.

Because this study had an N of one, the results are not generalizable. Although the observation of this one participant across two contexts was valuable in making a pilot comparison, results based on the performance of one individual cannot be generalized to a larger degree. This is one of the main reasons that the study cannot be used to establish validity or accuracy.

In addition, the video segments that were observed of this one individual did not meet the criteria for observation and use of both the full and short-form MPI. Davis (1997) states that the MPI should be used to observe a video segment of no less than 20 minutes in which at least the participant is in view from head to hips the whole time. In this study, the video segment of the seated interview was less than twelve minutes long, almost half the length of time that is ideal to complete this assessment. Additionally, the camera zoomed in and out throughout the segment, resulting in 25% of the video in close-up shots, 25% full body shots, and only 50% of the ideal

short from hips to head. Davis, Lausberg, Cruz, Berger & Dulicai (2007) stipulate that in order to collect sufficient movement data in a dance/movement therapy (DMT) assessment session, a video segment of no less than 30 minutes should be observed, with the participant in view from the knees up. In this study, the video segment of the dance/movement therapy DMT assessment session was about ten minutes long and at times only showed the participant from the waist up.

Finally, this study was coded by one rater, which limits the study's reliability due to the lack of inter-rater agreement. Although the rater had a great deal of experience and training with the full MPI, she is not an expert on the MPI and was not formally trained in the use of the short-form MPI. Additionally, the rater completed all four assessments in one day. Although breaks were taken between each assessment, the rater may have experienced fatigue towards the end of the day. Also, because the assessments were completed in one day, each video and assessment was fresh in the rater's mind, which may have influenced her coding of the assessments. The coder commented during the last assessment that she may not have rated as conservatively as she did earlier in the day. However, neither of the last two assessments received more scores than the first two assessments. Therefore, the coder's concern did not appear to be a major factor in the results of the assessments.

5.3 Implications for Future Research

This pilot, exploratory comparison study should be further developed using videos that meet the full criteria for observation on multiple participants coded by multiple raters trained in both the long and short-form MPI. Studies of this sort could permit the identification of sources of variance, which can be examined using generalizability theory to "examine variance components due to specific sources of variation" (Koch, Cruz, & Goodill, 2001, p. 77) and contribute to psychometric aspects of both the original and the short-form versions of the MPI. In addition to using multiple raters to observe multiple participants in more than one study, further research should be done using combinations of raters with different levels of training in the MPI. Future validity studies of the short-form MPI in clinical assessment for diagnostic purposes

would benefit from multiple perspectives and levels of training in the MPI. The use of the short-form MPI in immediate clinical assessment is currently an unrealistic goal if it can only be used by therapists who have received extensive MPI training. There is also currently a lack of widely accessible short-form training in the MPI, which could be further developed in addition to guidelines for the use of the short-form MPI. Many dance/movement therapists would be considered novices in the use of this instrument, which would exclude a great number of clinicians from using a potentially valuable assessment tool.

Additionally, the Primary Inventory of the short-form MPI needs additional clarification in order to properly code and encode the data. Currently, the layout of the short-form MPI Primary Inventory does not make it visually clear whether the rater is marking a category for the area of concern (taken from the Primary Inventory of the full MPI) or marking its healthy counterpart, which is labeled to the right of the box to be checked. There is also a difference between the sequences of the categories on each of the Primary Inventories. The short-form MPI categories, although labeled with the same Roman numeral corresponding to that of the full MPI Primary Inventory, are not placed in the same order, which may cause confusion to the coder without guidelines to follow. It is possible that these categories were reorganized in the short-form MPI in order to cluster potentially related diagnostic categories together, but there is no way to know for sure the reason for the difference in organization without guidelines and more literature written on the use of the short-form MPI. As stated earlier in this chapter, the short-form MPI Primary Inventory scores from a DMT assessment session almost matched the Primary Inventory scores on the full MPI used to code a seated interview, with only a few discrepancies. There is a possibility that the data may have been more consistently scored between the standard and novel use of the instruments in their intended contexts if the short-form MPI was slightly more structured to align to the highly structured original full MPI.

Because the short-form MPI was created for DMT assessment, there is a need for research that utilizes the instrument in a clinical setting. In order for the assessment to be

applicable to dance/movement therapists in clinical DMT assessment, research should be conducted on the use of the instrument in the immediate clinical practice to test whether or not the instrument is a practical assessment tool. Further research studies should use the short-form MPI in real-time (without the use of a videotape) to test for its applicability to a clinical setting. Additional studies should include the unpublished *MPI Action Inventory for Movement Session* developed by Martha Davis in 2007 as an addendum to the short-form MPI.

Finally and possibly the most important implication for further research is the use of the *MPI Action Inventory for Movement Session*. This form, which could be used as an addendum to the short-form MPI, does not require training in the MPI, and therefore could potentially be used as a stand-alone assessment form for clinicians to track changes in interpersonal interactions during an assessment session. The fact that the form quickly and easily collects movement data, the MPI Action Inventory for Movement Session could be used in many research studies on assessing changes of nonverbal communication patterns and movement cues in interpersonal interactions.

5.4 Implications for Clinical Application

The results of this study suggest several clinical applications based on the comparisons made from the observations of an individual's movement behaviors using two different instruments in two different contexts. As implicated in the previous section, the *MPI Action Inventory for Movement Session* addendum form has the potential for utility in conjunction with the short-form MPI in an immediate clinical setting because it does not require training in the full MPI. The unpublished *MPI Action Inventory for Movement Session* form uses very little language that requires training in Laban Movement Analysis (LMA), and therefore could potentially be used by clinicians who are not dance/movement therapists to assess nonverbal cues. However, this same feature means that the form does not necessarily capture information on the presence or absence of Efforts, which have been shown as key information to a complete record of progress in DMT sessions (Levy & Duke, 2003, and Lausberg, 1998).

Nonetheless, an additional benefit for a broader use of the *MPI Action Inventory for Movement Session* form by clinicians who are not necessarily dance/movement therapists is that it could potentially further an understanding of the field of DMT and lead to a more widespread understanding of how much information about a person's psychosocial functioning can be gleaned from movement observation. The broader use of this form has the potential to educate non-dance/movement therapists about the value that dance/movement therapy assessments bring to the diagnostic and treatment planning processes.

Using the MPI Action Inventory for Movement Session form, clinicians could quickly and efficiently gather movement data from one assessment session, which is more practical and realistic than relying on videotaped sessions and additional time spent watching and coding. This not only provides a unique clinical advantage, but it also results in effective data collection methods by qualified therapists with a clearly defined objective, several of the characteristics that Bruscia (1988) identified as crucial in effective clinical assessment in the creative arts therapies.

The addendum to the short-form MPI Action Inventory has the potential for broader utility by dance/movement therapists as well as other clinicians interested in tracking changes in nonverbal interpersonal interactions during an assessment session. If the layout of the short-form MPI were altered to be more user-friendly to clinicians along with the addition of available training and the development of guidelines for use, the combination of the short-form MPI and the short-form Action Inventory addendum have the potential for immediate clinical use in a DMT assessment.

Dance/movement therapy sessions are quasi-directive in order to support an individual's capabilities as well as deficits in movement repertoire. The dance/movement therapist looks for the strength in a person's movement. Dance/movement therapy inherently strives to assess the health of an individual as well as simultaneously discover an individual's movement limitations and possible indications of pathology. Dance/movement therapists meet their clients where they are functioning from a strengths-based perspective, and then through directives assess their

capabilities and limitations. Because the MPI was created for the purpose of identifying pathology in individuals, it is not necessarily an assessment tool that, in its original form, matches with DMT assessment goals.

The short-form MPI, on the other hand, is an assessment developed specifically for DMT (Davis, Lausberg, Cruz, Berger, & Dulicai, 2007). While it is based on the full MPI and therefore is derived from an assessment based on pathological movement observation, the short-form MPI has the potential to capture both health and pathology in an individual's movement in a DMT context. The Primary Inventory categories of the short-form MPI are marked for both the original, pathologically oriented category from the full MPI, as well as its healthier counterpart. Rather than splitting up the categories into multiple items, it is much more open-ended, allowing the clinician to write down notes and impressions related to each category. The duality of the instrument's basis in a pathologically-focused assessment tool for movement observation and its transformation into an abridged version that allows for recording of health observed in movement assessment indicates the potential for the short-form MPI to be a useful assessment tool for dance/movement therapists. The short-form MPI also has the potential to increase the value of DMT assessments in a clinical setting by adding to the documentation available to a multidisciplinary treatment team.

The results of this study also suggest that individuals should ideally be observed in multiple contexts in order to complete a full clinical movement assessment. The combined Primary Inventory results from assessments C (the short-form MPI for the seated interview) and D (the short-form MPI for the DMT assessment session) corresponded exactly to the results of assessment A (the full MPI for the seated interview). This suggests that in order for the more open-ended short-form MPI to capture the amount of movement data that the full MPI does through incredibly careful and detailed analysis, the novel instrument should be applied to both contexts. In a seated interview, all movements are spontaneous and entirely created by the individual without conscious thought or directive. The nature of this spontaneous movement

reveals information about the natural movement behaviors of the individual, which can reveal certain deficits in a person's movement repertoire and therefore indicate potential psychopathology based on the movement observed. However, there is also more emphasis on the gestural system during a seated interview, which is what much of the original MPI is geared towards, while a DMT assessment session uses mostly postural movements due to the nature of the setting. The results from this comparison study suggest that there is a need to assess movement outside of the context of a DMT session in order to have a better understanding of the individual's movement preferences as well as his abilities and areas for possible improvement.

6. SUMMARY AND CONCLUSIONS

The Movement Psychodiagnostic Inventory (MPI) is a highly detailed assessment tool designed to discover the pathology in an individual's spontaneous movement during seated conversation. The MPI requires an extensive amount of training, access to a videotape of the session with very specific requirements, and several hours to complete one assessment. This tool, while useful for understanding, diagnosing, and planning a course of treatment for individuals with mental illnesses through careful observation of movement, is not a practical assessment tool for dance/movement therapists in a clinical setting.

A short-form version of the MPI was created several years ago. Its intended use was specifically for dance/movement therapy (DMT) assessment sessions and was meant to be more user-friendly for the dance/movement therapist. This study compared the observations scored by one rater with extensive experience with the MPI across contexts and instruments in order to explore the clinical utility of the novel instrument in a DMT setting.

An additional, unpublished form authored by the creator of the original MPI was used in conjunction with the short-form MPI. The researcher discovered that this assessment form could potentially be both complementary in clinical DMT assessment with the short-form MPI, but it also has the potential to make movement observation for the purpose of clinical assessment more accessible to clinicians who are not trained in the MPI.

The results of this study suggest that the short-form MPI, which to date has yet to be used or tested for validity, has the potential to uncover the same diagnostic information as the full MPI when used in both the context of a seated interview and a DMT assessment session. These results indicate the value of movement observation for the purpose of assessment and diagnosis across multiple contexts.

The study is not generalizable due to the fact that it has an N of one and there was only one rater. However, the objective of this pilot comparison study was not to validate the short-form MPI, but rather to explore its potential use. The author suggests that further research should

be done using multiple raters with multiple participants across multiple contexts. Additionally, in order to increase the applicability of the short-form MPI to a clinical setting, the researcher suggests that written guidelines and trainings in the use of the instrument be made available to dance/movement therapists.

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Appendix A: Full MPI

MOVEMENT PSYCHODIAGNOSTIC INVENTORY

Subject_____ID #_____ Context_____Duration____
Observer_____Observation date(s)_____

CAMERA SHOT DISTRIBUTION Recorded___ Estimated___

Close-up	Upper Arm	Thigh/Hip	Full Body	Both in Medium+
				Totals

Locomotion on video___ Standing and/or sitting moves on video___

Movement Signature Analysis (MSA) Selected Segment(s):

COMMENTS:

CODING KEY:
0=none, never seen 1=rare (1-3) 2=some or frequent (unless noted otherwise)

A = Almost recorded, seriously considered Z = Data unavailable, not applicable

Subject_____Observer_____Date____ MPI--2

ACTION INVENTORY

SUB-SYSTEM

1. Gesticulations, gestures accompanying speech: #_____
2. Emblems, gestures without speech, e.g. shrug: #_____

[G]esticulation

3. Repetitive actions, e.g. rocking: 0 1 2
   Describe_____
   _____
4. Self-touching, e.g. scratching: 0 1 2
   Describe_____
   _____

[S]elf-related

5. Instrumental actions, object handling: 0 1 2
   e.g. smoking, drinking activity (2 = 50% of session)
   Describe_____
   _____

[I]nstrumental

6. Speaks entire turn without looking at listener 0 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
7. Holds gaze away from speaker when addressed: 0 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
8. Head orienting in conversation: 0 1 2
   (0 = at least sometimes 1 = rarely 2 = never toward)
9. Trunk orienting in conversation: 0 1 2
   0 = at least some active orienting, however slight
   1 = stays with chair position, i.e. no active orienting to
   2 = stays markedly away

[O]rienting

10. Head movements with speech: 0 1 2
    0 = clearly accompany 2 = none
    1 = nods or shakes only or very rare accenting moves
11. Listens with head nods "yes" or "no": 0 1 2
    0 = at least sometimes 1 = very rarely 2 = never
    Describe_____
    _____

[H]ead Moves

12. Facial expression held longer than 15 seconds: 0 1 2
    0 = none 1 = once or twice 2 = often
    Describe_____
    _____

[F]acial Expression

13. Different resting or "homebase" positions: #_____
14. Phrases of postural shifts: #_____

[P]osition/Posture

Subject_____Observer_____Date_____ MPI-3

I. DISORGANIZATION

G__S__I__H__F__P__ *1. Effort flow or weight fragmentation; very erratic fluctuations or breaks in fluency or emphasis.

G__S__I__H__F__P__ *2. Sporadic, sudden movements as if "out of nowhere".

G__S__I__ P__ *3. Hand fragmentation: fingers hyperextended, flexion/extension only at knuckles and/or wrist.

G__S__I__H__ P__ *4. Body fragmentation: movement occurs sporadically in different body parts during a phrase without a coherent sequence or fluent connections.

P__ *5. Sequence of weight shifts and/or weight in stillness disorganized; e.g., one part shifts, then another in a different direction, etc., and/or body does not come to balanced rest.

G__S__I__H__ *6. Different movements performed simultaneously in different parts of the body, unsynchronized.

G__ I__ P__ *7. Spatial/lateral disorganization in upper limbs; as two limbs move, changes in their directions are unsynchronized unsynchronized and/or there is no clear bilateral coordination.

G__S__I__H__ P__ 8. Spatial contradiction: one part moves in one direction while another goes in opposite direction several times.

G__S__I__ P__ 9. Flow contradiction: e.g. one body part moves with very bound flow while another is limp or in free flow.

G__S__I__H__ P__ 10. Spatial segmentation: entire movement phrase is broken up with perceptible pauses between each change of direction; series of one-phasic moves in the air.

G__S__I__H__ P__ 11. Body segmentation: isolated use of one part; a pause or clear separation before movement of another part.

G__S__I__ P__ 12. Action segmentation: string of short but complete action phases that alternate or repeat such that they segment each other and break each other up, e.g. waves hand, then rubs chin, then waves, then rubs, etc.

II. IMMOBILITY

P__ *1. No movement and absolutely still except for eyeblinks for periods of two minutes or longer (cf catatonic).

H__ *2. Head still through time observed.

G__ P__ *3. Fixed shape or position held up in the air and against gravity for long periods of time (30+ seconds).

P__ *4. No position shifts in 20 minutes or more.

P__ *5. Gestural movement only in large body actions, no postural movement in walking (if seen) or when shifting positions of trunk or legs.

P__ 6. "Fleeting" or single phases of postural movement in locomotion and whole trunk or leg position shifting.

P__ 7. Only one or two position shifts in 20 minutes or more.

G__S__I__ P__ 8. Distal parts only move while seated or standing in place (i.e. hands, feet, head, forearms) through entire session.

G__S__I__ P__ 9. Fixed or held body configuration through session, e.g. fixed finger-hand position or arms held still.

F__ 10. Little or no movement of face apart from eyes

G__S__I__ P__ 11. Arrests specific action midway and holds for 15+ secs.

P__ 12. Very low rate of postural movement (e.g. 1 phrase per 30 minutes).

Subject_____Observer_____Date_____ MPI--4

III. LOW INTENSITY

G__S__I__H__F__P__ *1. Very little fluctuation in effort flow and/or neutral range of flow in movement; flow changes hard to see.

G__ *2. No effort qualities (space, weight, time variations) visible in any movement during the session, including gesticulations.

G__ 3. Only rare, fleeting occurrence of single effort qualities.

IV. LOW SPATIAL COMPLEXITY

G__ I__ P__ *1. Movement has no clear directionality or projection into space; only shape flow throughout session.

G__ 2. Any spatial complexity (i.e., shaping, clear directions, curved transitions, projection into space) restricted to hand or forearm.

G__ 3. Two-phasic or single phase of fleeting directionality within phrases of shape flow variation.

V. PERSEVERATION, FIXED-INVARIANT

G__S__I__ *1. Repetition of one or two effort qualities in an unvarying way; stays intense and has no build up or decrease; phrase has clear beginning, ending.

G__S__I__H__ P__ *2. Repetitive movement of one isolated body part; tempo same throughout; action appears to "go by itself" unrelated to rest of body.

G__S__I__ P__ *3. An action apparently related to some expression or conventional action but unvarying in performance, each repetition dynamically the same.

G__ 4. Moves strictly in one plane or axis per phrase.

VI. FLACCIDITY OR RETARDATION

P__ *1. Flaccid, inert, limp trunk tonus throughout.

P__ *2. Flaccid, complete limpness, giving into gravity in still limbs most of session

G__S__I__ P__ 3. Flaccid, complete limpness and giving into gravity at end of several gestures or upper limb actions.

G__S__I__H__F__P__ 4. Retardation: Entire action performed with slowness or with a level of tension and lack of acceleration such that activity is of long duration.

VII. DIFFUSION

G__ H__ *1. Movement spatially diffuse and unclear through entire phrase (i.e. absence of straight, round or 3-D paths or transitions); difficult to discern phrase.

G__ *2. Continuous diffuse effort pattern through entire phrase; flow and possibly effort qualities "running on"; difficult to determine distinct phrases and clear build up or die down in intensity. No clear endings to movements.

G__S__I__H__ P__ 3. Overlapping actions: particular action not completed before person starts new action; no pause or transition but a kind of diffuse overlapping.

* For Extreme Forms of This Pattern Only.

G__ 4. Diffusion (spatial or dynamic) in one part of phrase. Part of an otherwise clearly defined phrase is diffuse spatially or dynamically.

Subject_____Observer_____Date_____ MPI–5

VIII. EXAGGERATION

G__S__I__ *1. More postural or large limb position shift phases than gestural phases within a phrase than emphasizes limb activity (e.g. gesticulation or instrumental action). Locomotion or standing/sitting excluded.

G__S__I__H__ P__ *2. Large, exaggerated movements through phrase; i.e. no modulation in large size within phrase.

G__S__I__H__F__P__ *3. A "conventional" gesture or action that is bizarrely exaggerated.

IX. HYPERKINESIS

P__ *1. Three or more phrases of large limb and/or trunk shifts within 15 seconds or less (excluding instrumental activity and gesticulating periods).

S__I__ P__ 2. Three or more phrases of peripheral limb position shifts within 15 seconds, i.e. hands, forearms, lower (excluding instrumental activity and

G__S__I__H__F__P__ 3. Activity or action performed very rapidly either [redacted] because each phase is done without pause or deceleration or because there are repeated instances of the effort quality of suddenness throughout.

*For Extreme Forms of This Pattern Only.

X. EVEN CONTROL/SUSPENSION

G__S__I__ P__ *1. Suspended in space: movements and still positions are without time variations, suspended, and possibly light throughout; weightless and surreal quality.

G__S__I__H__F__P__ 2. High degree of bound flow or muscle tension maintained throughout the entire movement phrase; absence of free moments, release, giving into gravity within the phrase. To be coded most of the movements must display this pattern.

P__ 3. High degree of bound control or muscle tension actively maintained through position repertoire, i.e. in trunk and limbs when still.

Additional observations and comments:

* Asterisked items are hypothesized to be pathognomonic of severe psychopathology. Those without asterisk may contribute to the degree of disturbance, but are not in themselves considered sufficient for diagnosis of severe mental illness until research indicates otherwise. Note that VII. 3. and IX. 3. may be asterisked if they are extreme.

Subject_____Session_____Observer_____MPI--6

MOVEMENT PSYCHODIAGNOSTIC INVENTORY (MPI)--Profile Analysis

Subsystem involved						
____	____	I DISORGANIZATION	0	1	2	3
____	____	II IMMOBILITY	0	1	2	3
____	____	III LOW INTENSITY	0	1	2	3
____	____	IV LOW SPATIAL COMPLEXITY	0	1	2	3
____	____	V PERSEVERATION/FIXED-INVARIANT	0	1	2	3
____	____	VI FLACCIDITY OR RETARDATION	0	1	2	3
____	____	VII DIFFUSION	0	1	2	3
____	____	VIII EXAGGERATION	0	1	2	3
____	____	IX HYPERKINESIS	0	1	2	3
____	____	X EVEN CONTROL/SUSPENSION	0	1	2	3
____		LIMITED COMMUNICATIVE REPERTOIRE	0	1	2	3

[___] Check further for extrapyramidal/organic/medication signs (AIMS___ | DIMSE___)

[___] Viewing conditions adequate (20+ minutes in at least medium shot)
[___] Viewing conditions inadequate:_____

Scoring for MPI Categories I-X: 0 = not observed 1 = presence of "less serious", not asterisked patterns
2 = one to three "pathognomonic", asterisked patterns 3 = four or more "pathognomonic" patterns

Scoring for Limited Communicative Repertoire:
0 = some speech gesticulations, head movements with conversation, facial expression, range of homebase positions, and clear orienting to other (2+ gesticulation phrases per 10 minutes, at least 3 different base positions, and 0 on 6-12 of Action Inventory).
1 = slight restriction, low score (1 on items 6-12, 1 gesticulation/10 minutes, only 2 different base positions) on 1-3 items of Action Inventory.
2 = notable restriction, high score (2 on items 6-12, less than 3 gesticulations/30 minutes, one base position) on one or two items or low scores only on 4-5 items.
3 = severe restriction (1 or 2 high with 4+ low or high score on 3+ items or low only on 6+ items)

Subsystem Key: G = Gesticulations S = Self-related actions I = Instrumental actions O = Orienting
H = Head moves with speech F = Facial expression P = Positions, Postural shifts and Locomotion

Appendix B: Glossary A

Laban Movement Analysis-related terms (alphabetical)

(excerpted from Dell, 1977)

Bound Flow- "The restriction of flow" (p. 14).

Direct Space Effort- "Movement in which spatial attention in the body is pinpointed, channeled, single focused" (p. 29).

Effort- "How the body concentrates its exertion… Qualitative change concentrated in each factor occurs in a range between two opposite extremes" (p. 11).

Effort Flow- "The rhythmic changes in breathing, the constant responding of the body to both inner and outer stimuli, provide a constant stream of urges to move" (p. 13).

Free Flow- "'Going with' the flow of movement" (p. 14).

Indirect Space Effort- "Movement in which spatial attention consists of overlapping shifts in the body among a number of foci" (p. 29).

Kinesphere- "The limits of an individual's reach into space without changing place, or taking a step" (p. 69).

Phrasing- "Movement… has an exertion-recuperation rhythm that creates the phrase. Even everyday movement tends to organize itself into phrases that somehow initiate, make their main statement, and conclude, the conclusion often being a transition into another phrase" (p.93).

Shape flow- "Changes in the body parts toward or away from the body center" (p. 45)

Shaping- "The body's creating of or adapting to contour, to two and three dimensional forms in space" (p. 54)

Space Effort- "Changes in the quality of spatial focus or attention, becoming either Indirect or Direct" (p. 28).

Time Effort- "Changes in the quality of time in movement, becoming either Sustained or Quick" (p. 24).

Weight Effort- "Changes in the quality of the body weight, becoming either light or forceful" (p. 20)

Appendix C: Glossary B

MPI Primary Inventory Categories (in order as seen on inventory)

(excerpted from Davis, 1997)

Disorganization- "…qualities and patterns of movement, how the person is moving not what he or she is doing. These are distinctions regarding the manner of performance and the qualitative and structural patterning of the movement itself. This category refers to patterns that are simply 'awkward' or 'ungraceful'" (p. MPI-4-5).

Immobility- "Low mobility refers here to extremes of holding or inactivity of various body areas" (p. MPI-5).

Low Intensity- "…the virtual absence of movement dynamic or "effort" qualities (sudden, sustained, light, strong, direct, indirect) and the display of very neutral and unchanging tension patterns" (p. MPI-5).

Low Spatial Complexity- "…movements lacking spatial complexity and projection, such as vague in and out changes or moves that display a fleeting projection into a direction then become reduced to spatially vague moves or fall back to a resting position" (p. MPI-5).

Perseveration/Fixed Invariant- "This factor refers to a special case of repetition- exact repetition in which there is precise duplication of the movement size, intensity, spatial path and body part articulation…Analogous to perseveration in speech, this category includes forms of exact repetition in motor performance, as well as cases in which the entire movement phrase is strictly limited to one spatial axis or plane" (p. MPI-5).

Flaccidity- "Flaccidity in this sense is very extreme, not simply looseness or floppy movements. It involves losing 'tonus' and any degree of active tension or carrying of one's weight" (p. MPI-6)

Retardation- "The operational definition of motor retardation in this coding refers to movement phrases displaying continuous slowness in the effort dynamic sense or to movements performed with a level of tension and lack of acceleration in every movement such that the action has a very long duration" (p. MPI-6)

Diffusion- "This category refers to movements that are very vague, formless, and without clear definition, such as distinct beginnings and endings" (p. MPI-6).

Exaggeration- "…included in this category are actions that appear exaggerated, too large, intense and dramatic for what they are, such that they appear bizarre" (p. MPI-6).

Hyperkinesis- "This category refers to movements that are performed very rapidly, one after another virtually without pause or deceleration in any phase of the action. It also includes the pattern in which a person makes a very high number of position shifts during periods in which she or he is not talking/gesticulating or engaged in instrumental, functional activities that require them" (p. MPI-6).

Even Control/Suspension- “In motion or stillness the body weight may be controlled, the person not giving into gravity or becoming momentarily freer in tonus or flow…At its most extreme, the movement may have a very even, weightless, surreal quality” (p. MPI-6).

Appendix D: Short Form MPI

Short Form of Movement Psychodiagnostic Inventory devised by M. Davis (2006)

Name_____Therapist_____Context_____Duration____Date____

MPI Action	Sub-system	Clinical Impressions
Frequency hand_____ shrugs_____	GESTICULATION	_____ _____
Frequency repetitive____ single_____	SELF-RELATED	_____ _____
Frequency _____ _____	INSTRUMENTAL	_____ _____
MPI #_____ ☐	ORIENTING	_____ _____
MPI # _____ ☐	HEAD MOVES	_____ _____
MPI #_____ ☐	FACIAL EXPRESSION	_____ _____
Frequency positions_____ Frequency postural_____	POSITION/POSTURE	_____ _____

Figure 1: Movement Psychodiagnostic Inventory Short Form, Part 1

MPI	Category	Impressions
I Disorganization	☐ ORGANIZATION/	
VII Diffusion	☐ INTEGRATION	
II Immobility	☐ MOBILITY	
III Low Intensity	☐ INTENSITY	
IV Low Spatial Complexity	☐ SPATIAL CLARITY/ COMPLEXITY	
V Fixed/Invariant	☐ PATTERN VARIATION	
VI Flaccidity	☐ TONUS/FLOW	
X Bound Control	☐ CONTROL	
VIII Exaggeration	☐ MODULATION	
IX Hyperkinesis	☐	

Figure 2: Movement Psychodiagnostic Inventory Short Form, Part 2

Appendix E: MPI Action Inventory for Movement Session

MPI ACTION INVENTORY FOR MOVEMENT SESSION (by M. Davis 2007)

1. Participation. actively joins session most or all 0 some 1 not at all 2

2. Self-related actions (rocking, repetitive hand or object rubbing, etc.) No__Yes__
   If some, list type(s) _____
   plus relationship between self-related action and movement session:
   stop, start. vary relative to changes during session 0
   rarely (1-3) relate to movements of therapist and/or group 1
   no perceptible relation to dance/movement session 2

3. Eye Contact some/often (4+) with therapist or other participant 0
   rare (1-3 times) 1
   none/gaze averted when other addresses or looks 2

4. Orientation

	when participating	when not
initiates head or torso facing toward therapist or other	0	0
faces as directed; doesn't avert if therapist or other faces	1	1
no active turning toward others, averts body/head away	2	2

5. Proximity/Distance Tolerance

	0 initiates	1 follows/allows	2 balks/avoids
touch/close space			
forearm range distance			
arm reach+ dist.			

6. Movement Changes

	0 4+/often	1 rarely (1-3)	2 not at all
initiates change others do			
initiates change not followed			
follows/picks up others			

7. Types of Interaction

	0 4+/often	1 rare (1-3)	2 not at all
mirroring/synchrony			
move echo/answer			
speaks while moves			

8. Torso/limb configurations while moving: 0 4 or more 1 two/three 2 one only

Additional Observations (e.g. facial expressions, notable interactions)_____

Appendix F: IRB Approval

Drexel UNIVERSITY
Office of Research

APPROVAL OF PROTOCOL

February 4, 2015

Sharon W. Goodill
Drexel University
Creative Arts and Therapy
1505 Race Street
Philadelphia, Pa 19102

Dear Dr. Goodill,

On February 4, 2015, the IRB reviewed the following protocol:

Type of Review:	Initial
Title:	Diagnostic Implications from Clinical Assessment of Movement Pathology Across Context Using the Movement Psychodiagnostic Inventory: A Comparison Study
Investigator:	Sharon W. Goodill
IRB ID:	1502003388
Funding:	Internal
Grant Title:	None
Grant ID:	None
IND, IDE or HDE:	None
Documents Reviewed:	Application Form, Hahnemann Letter, Proposal

On February 4, 2015, the case study protocol was approved to review a video made in 1982 of one patient through the Department of Mental Health Services at Hahnemann University.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL.

Sincerely,

Lois Carpenter

Lois Carpenter
Member, Social and Behavioral IRB #3

1601 Cherry Street, 3 Parkway Building, Suite 10444, Philadelphia, PA 19102 | Tel: 215.255.7857 | Fax: 215.255.7874
HRPP@drexel.edu | drexel.edu/research

Appendix G: AIMS

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute of Mental Health

NAME:_____
DATE: _____
Prescribing Practitioner: _____

CODE: 0 = None
1 = Minimal, may be extreme normal
2 = Mild
3 = Moderate
4 - Severe

INSTRUCTIONS:
Complete Examination Procedure (attachment d.) before making ratings

MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously. Circle movement as well as code number that applies.		RATER Date	RATER Date	RATER Date	RATER Date
Facial and Oral Movements	**1. Muscles of Facial Expression** e.g. movements of forehead, eyebrows periorbital area, cheeks, including frowning blinking, smiling, grimacing	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	2. Lips and Perioral Area e.g., puckering, pouting, smacking	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	3. Jaw e.g. biting, clenching, chewing, mouth opening, lateral movement	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	4. Tongue Rate only increases in movement both in and out of mouth. NOT inability to sustain movement. Darting in and out of mouth.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	O 1 2 3 4
Extremity Movements	**5. Upper (arms, wrists,, hands, fingers)** Include choreic movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT INCLUDE TREMOR (i.e., repetitive, regular, rhythmic)	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	6. Lower (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Trunk Movements	**7. Neck, shoulders, hips** e.g., rocking, twisting, squirming, pelvic gyrations	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Global Judgments	**8. Severity of abnormal movements overall**	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	9. Incapacitation due to abnormal movements	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	10. Patient's awareness of abnormal movements. Rate only patient's report No awareness 0 Aware, no distress 1 Aware, mild distress 2 Aware, moderate distress 3 Aware, severe distress 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Dental Status	**11. Current problems with teeth and/or dentures**	No Yes	No Yes	No Yes	No Yes
	12. Are dentures usually worn?	No Yes	No Yes	No Yes	No Yes
	13. Edentia?	No Yes	No Yes	No Yes	No Yes
	14. Do movements disappear in sleep?	No Yes	No Yes	No Yes	No Yes

Appendix H: Assessment 1 (D) Short-Form MPI for DMT Assessment Session

Short Form of Movement Psychodiagnostic Inventory devised by M. Davis (2006)

Name_____ Therapist_____ Context 1:1 Duration 10 MINS Date_____

DMT assessment session

MPI Action	Sub-system	Clinical Impressions
Frequency hand 1 shrugs_____	GESTICULATION	Simple reversals: ~~left~~ light (b/lateral) in near Reach Space
Frequency repetitive 3 single 1	SELF-RELATED	on cue from therapist, with movement task. One spontaneous self touch to indicate a body part.
Frequency 0	INSTRUMENTAL	_____
MPI #_____ ☐	ORIENTING	to therapist in ⊢ ⊣ facing, or no trouble here ⊢ to travel ⊢
MPI #_____ ☐	HEAD MOVES	nodding appropriately No trouble here
MPI #_____ ☐	FACIAL EXPRESSION	looks OK here Responsive, Smiles, Raises eyebrows 3-4 different expressions
Frequency positions 1 Frequency postural_____	POSITION/POSTURE	_____

Figure 1: Movement Psychodiagnostic Inventory Short Form, Part 1

MPI	?	Category	Impressions
I Disorganization	☒	ORGANIZATION/	fragmentation? Segmentation? at (hands to Knees)?
VII Diffusion	☐	INTEGRATION	
II Immobility	☒	MOBILITY	TORSO immobile chest held, middle / belly flaccid Gestural only, when walking
III Low Intensity	☒	INTENSITY	single efforts only
IV Low Spatial Complexity	☐	SPATIAL CLARITY/ COMPLEXITY	no 3-Dimensionality
V Fixed/Invariant	☐	PATTERN VARIATION	nothing of concern here
VI Flaccidity	☐	TONUS/FLOW	
X Bound Control	☐	CONTROL	nothing of concern here. High tonus in limbs
VIII Exaggeration	☐	MODULATION	nothing of concern here
IX Hyperkinesis	☐		nothing of concern here

Left side

Figure 2: Movement Psychodiagnostic Inventory Short Form, Part 2

Appendix I: Assessment 1 (D) MPI Action Inventory for Movement Session

Context: DMT

MPI ACTION INVENTORY FOR MOVEMENT SESSION (by M. Davis 2007)

1. Participation. actively joins session — most or all 0 — some 1 — not at all 2

2. Self-related actions (rocking, repetitive hand or object rubbing, etc.) No__ Yes ↘(1)
   If some, list type(s) hands to belly in Repeated patting + light pressing w/ sucking + biting Rhythms
   plus relationship between self-related action and movement session:
   - stop, start. vary relative to changes during session — 0
   - rarely (1-3) relate to movements of therapist and/or group (3x) — (1) — Per therapist directive, tapping, with oral biting Rhythms.
   - no perceptible relation to dance/movement session — 2

3. Eye Contact
   - some/often (4+) with therapist or other participant — (0)
   - rare (1-3 times) — 1
   - none/gaze averted when other addresses or looks — 2

4. Orientation

	when participating	when not
initiates head or torso facing toward therapist or other	0	0
faces as directed; doesn't avert if therapist or other faces	(1)	(1)
no active turning toward others, averts body/head away	2	2

5. Proximity/Distance Tolerance

	0 initiates	1 follows/allows	2 balks/avoids
touch/close space		↘	
forearm range distance		↘	
arm reach+ dist.		↘	

6. Movement Changes

	0 4+/often	1 rarely (1-3)	2 not at all
initiates change others do (The therapist)			↘
initiates change not followed			
follows/picks up others	↘		

In this 1:1 session, this Referenced The Therapist only. NA

7. Types of Interaction

	0 4+/often	1 rare (1-3)	2 not at all
mirroring/synchrony	↘		
move echo/answer		↘	
speaks while moves		↘	

8. Torso/limb configurations while moving: 0 4 or more — 1 two/three — (2) one only arms, spoking/arcing only

Per directive from therapist standing in vertical dimension

Additional Observations (e.g. facial expressions, notable interactions): Smiles 2-3 times when movement symbolism (the "thumbs up / thumbs down" gesture) becomes clear and shared with therapist.

Appendix J: Assessment 2 (B) Full MPI for DMT Assessment Session

MOVEMENT PSYCHODIAGNOSTIC INVENTORY

Subject_____ ID #_____ Context DMT 1:1 Duration 10 mins.
Observer_____ Observation date(s)_____

CAMERA SHOT DISTRIBUTION Recorded___ Estimated ✓

Close-up	Upper Arm	Thigh/Hip	Full Body	Both in Medium+
5%			~~100%~~ 90%	5%
				Totals

Locomotion on video ✓ Standing and/or sitting moves on video YES NO

Movement Signature Analysis (MSA) Selected Segment(s):

NA

COMMENTS:

CODING KEY:

0=none, never seen 1=rare (1-3) 2=some or frequent (unless noted otherwise)

A = Almost recorded, seriously considered Z = Data unavailable, not applicable

Subject_____ Observer_____ Date____ MPI–2

ACTION INVENTORY

1. Gesticulations, gestures accompanying speech: # 3
2. Emblems, gestures without speech, e.g. shrug: # 1
   using eyebrows to question

SUB S YS TEM

- Gesticulation
  - hands to head
  - belly at 3:48:3:55
  - hand
  - Rt. hand to L shoulder, indicative, at :20

3. Repetitive actions, e.g. rocking: 0 1 2
   Describe_____
4. Self-touching, e.g. scratching: 0 1 2
   Describe_____

- Self-related

5. Instrumental actions, object handling: 0 1 2
   e.g. smoking, drinking activity (2 = 50% of session)
   Describe_____

- Instrumental

6. Speaks entire turn without looking at listener 0 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
7. Holds gaze away from speaker when addressed: 0 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
8. Head orienting in conversation: 0 1 2
   (0 = at least sometimes 1 = rarely 2 = never toward)
9. Trunk orienting in conversation: 0 1 2
   0 = at least some active orienting, however slight
   1 = stays with chair position, i.e. no active orienting to
   2 = stays markedly away

- Orienting

10. Head movements with speech: 0 1 2
    0 = clearly accompany 2 = none
    1 = nods or shakes only or very rare accenting moves
11. Listens with head nods "yes" or "no": 0 1 2
    0 = at least sometimes 1 = very rarely 2 = never
    Describe_____

- Head Moves

12. Facial expression held longer than 15 seconds: 0 1 2
    0 = none 1 = once or twice 2 = often
    Describe_____

- Facial Expression

13. Different resting or "homebase" positions: # 1
14. Phrases of postural shifts: (Not Rated) #_____

- Position/Posture

→ Due to structure of DMT assessment session: Standing and walking in vertical upright.

Subject_____ Observer_____ Date_____ MPI–3

I. DISORGANIZATION

G__S__I__H__F__P__ *1. Effort flow or weight fragmentation; very erratic fluctuations or breaks in fluency or emphasis.

G__S__I__H__F__P__ *2. Sporadic, sudden movements as if "out of nowhere".

G__S__I__ P__ *3. Hand fragmentation: fingers hyperextended, flexion/extension only at knuckles and/or wrist.

G__S__I__H__ P__ *4. Body fragmentation: movement occurs sporadically in different body parts during a phrase without a coherent sequence or fluent connections.

P__ *5. Sequence of weight shifts and/or weight in stillness disorganized; e.g., one part shifts, then another in a different direction, etc., and/or body does not come to balanced rest.

G__S__I__H__ *6. Different movements performed simultaneously in different parts of the body, unsynchronized.

G__ I__ P__ *7. Spatial/lateral disorganization in upper limbs; as two limbs move, changes in their directions are unsynchronized unsynchronized and/or there is no clear bilateral coordination.

G__S__I__H__ P__ 8. Spatial contradiction: one part moves in one direction while another goes in opposite direction several times.

G__S__I__ P__ 9. Flow contradiction: e.g. one body part moves with very bound flow while another is limp or in free flow.

G__S__I__H__ P A 10. Spatial segmentation: entire movement phrase is broken up with perceptible pauses between each change of direction; series of one-phasic moves in the air. → weight shifts at 4:30–5:00

G__S__I__H__ P__ * 11. Body segmentation: isolated use of one part; a pause or clear separation before movement of another part. — at 6:02–6:10

G__S__I__ P__ 12. Action segmentation: string of short but complete action phases that alternate or repeat such that they segment each other and break each other up, e.g. waves hand, then rubs chin, then waves, then rubs, etc.

II. IMMOBILITY

P__ *1. No movement and absolutely still except for eyeblinks for periods of two minutes or longer (cf catatonic).

H__ *2. Head still through time observed.

G__ P__ *3. Fixed shape or position held up in the air and against gravity for long periods of time (30+ seconds).

P__ *4. No position shifts in 20 minutes or more.

P 2 *5. Gestural movement only in large body actions, no postural movement in walking (if seen) or when shifting positions of trunk or legs.

P__ 6. "Fleeting" or single phases of postural movement in locomotion and whole trunk or leg position shifting.

P__ 7. Only one or two position shifts in 20 minutes or more.**

G__S__I__ P__ 8. Distal parts only move while seated or standing in place (i.e. hands, feet, head, forearms) through entire session.

G__S__I__ P__ 9. Fixed or held body configuration through session, e.g. fixed finger-hand position or arms held still.

F__ 10. Little or no movement of face apart from eyes

G__S__I__ P__ 11. Arrests specific action midway and holds for 15+ secs.

P__ 12. Very low rate of postural movement (e.g. 1 phrase per 30 minutes).**

* a combination of G and P

** unable to score with 10 mins. of tape, and DMT session structured for one position (standing) throughout; (but likely)

Subject_____Observer_____Date_____ MPI–4

III. LOW INTENSITY

G__S__I__H__F__P__ *1. Very little fluctuation in effort flow and/or neutral range of flow in movement; flow changes hard to see.

G *2. No effort qualities (space, weight, time variations) visible in any movement during the session, including gesticulations.

G1 3. Only rare, fleeting occurrence of single effort qualities.

— no combinations

IV. LOW SPATIAL COMPLEXITY

G__ I__ P__ *1. Movement has no clear directionality or projection into space; only shape flow throughout session.

G__ 2. Any spatial complexity (i.e., shaping, clear directions, curved transitions, projection into space) restricted to hand or forearm.

G1 3. Two-phasic or single phase of fleeting directionality within phrases of shape flow variation. See fleeting directionality a few times, in hands and arm.

V. PERSEVERATION, FIXED-INVARIANT

G__S__I__ *1. Repetition of one or two effort qualities in an unvarying way; stays intense and has no build up or decrease; phrase has clear beginning, ending.

G__S__I__H__ P__ *2. Repetitive movement of one isolated body part; tempo same throughout; action appears to "go by itself" unrelated to rest of body.

G__S__I__ P__ *3. An action apparently related to some expression or conventional action but unvarying in performance, each repetition dynamically the same.

G__ ? 4. Moves strictly in one plane or axis per phrase. — questioned this, but he disqualified himself at 2:47-2:49.

VI. FLACCIDITY OR RETARDATION

PA *1. Flaccid, inert, limp trunk tonus throughout.

P__ *2. Flaccid, complete limpness, giving into gravity in still limbs most of session

G__S__I__ P__ 3. Flaccid, complete limpness and giving into gravity at end of several gestures or upper limb actions.

G__S__I__H__F__P__ 4. Retardation: Entire action performed with slowness or with a level of tension and lack of acceleration such that activity is of long duration.

VII. DIFFUSION

G__ H__ *1. Movement spatially diffuse and unclear through entire phrase (i.e. absence of straight, round or 3-D paths or transitions); difficult to discern phrase.

G__ *2. Continuous diffuse effort pattern through entire phrase; flow and possibly effort qualities "running on"; difficult to determine distinct phrases and clear build up or die down in intensity. No clear endings to movements.

G__S__I__H__ P__ 3. Overlapping actions; particular action not completed before person starts new action; no pause or transition but a kind of diffuse overlapping.

* For Extreme Forms of This Pattern Only.

G1 4. Diffusion (spatial or dynamic) in one part of phrase. Part of an otherwise clearly defined phrase is diffuse spatially or dynamically.

at 3:48 - 3:55 (hands to belly)

Subject_____Observer_____Date_____ MPI–5

VIII. EXAGGERATION

G__S__I__ *1. More postural or large limb position shift phases than gestural phases within a phrase than emphasizes limb activity (e.g. gesticulation or instrumental action). Locomotion or standing/sitting excluded.

G__S__I__H__ P__ *2. Large, exaggerated movements through phrase; i.e. no modulation in large size within phrase.

G__S__I__H__F__P__ *3. A "conventional" gesture or action that is bizarrely exaggerated.

IX. HYPERKINESIS

P__ *1. Three or more phrases of large limb and/or trunk shifts within 15 seconds or less (excluding instrumental activity and gesticulating periods).

S__I__ P__ 2. Three or more phrases of peripheral limb position shifts within 15 seconds, i.e. hands, forearms, lower legs (excluding instrumental activity and gesticulating).

G__S__I__H__F__P__ 3. Activity or action performed very rapidly either [redacted] because each phase is done without pause or deceleration or because there are repeated instances of the effort quality of suddenness throughout.

*For Extreme Forms of This Pattern Only.

X. EVEN CONTROL/SUSPENSION

G__S__I__ P__ *1. Suspended in space: movements and still positions are without time variations, suspended, and possibly light throughout; weightless and surreal quality.

G S I H F P 2. High degree of bound flow or muscle tension maintained throughout the entire movement phrase; absence of free moments, release, giving into gravity within the phrase. To be coded most of the movements must display this pattern.

P__ 3. High degree of bound control or muscle tension actively maintained through position repertoire, i.e. in trunk and limbs when still.

Additional observations and comments:

* Asterisked items are hypothesized to be pathognomonic of severe psychopathology. Those without asterisk may contribute to the degree of disturbance, but are not in themselves considered sufficient for diagnosis of severe mental illness until research indicates otherwise. Note that VII. 3. and IX. 3. may be asterisked if they are extreme.

Subject_____Session_____Observer_____MPI--6

MOVEMENT PSYCHODIAGNOSTIC INVENTORY (MPI)--Profile Analysis

Subsystem involved					
P	G	I DISORGANIZATION	0	(1)	2	3
walking P		II IMMOBILITY	0	(1)	2	3
	G	III LOW INTENSITY	0	(1)	2	3
	G	IV LOW SPATIAL COMPLEXITY	0	(1)	2	3
		V PERSEVERATION/FIXED-INVARIANT	0	1	2	3
torso P		VI FLACCIDITY OR RETARDATION A	(0 | 1)	2	3
	G	VII DIFFUSION	0	(1)	2	3
		VIII EXAGGERATION	0	1	2	3
		IX HYPERKINESIS	0	1	2	3
	G	X EVEN CONTROL/SUSPENSION	0	(1)	2	3
		LIMITED COMMUNICATIVE REPERTOIRE	0	1	2	3

[___] Check further for extrapyramidal/organic/medication signs (AIMS ✓ | DIMSE___)

[___] Viewing conditions adequate (20+ minutes in at least medium shot)
[✓] Viewing conditions inadequate: 10 mins. video

Scoring for MPI Categories I-X: 0 = not observed 1 = presence of "less serious", not asterisked patterns
2 = one to three "pathognomonic", asterisked patterns 3 = four or more "pathognomonic" patterns

Scoring for Limited Communicative Repertoire:
0 = some speech gesticulations, head movements with conversation, facial expression, range of homebase positions, and clear orienting to other (2+ gesticulation phrases per 10 minutes, at least 3 different base positions, and 0 on 6-12 of Action Inventory).
1 = slight restriction, low score (1 on items 6-12, 1 gesticulation/10 minutes, only 2 different base positions) on 1-3 items of Action Inventory.
2 = notable restriction, high score (2 on items 6-12, less than 3 gesticulations/30 minutes, one base position) on one or two items or low scores only on 4-5 items.
3 = severe restriction (1 or 2 high with 4+ low or high score on 3+ items or low only on 6+ items)

Subsystem Key: G = Gesticulations S = Self-related actions I = Instrumental actions O = Orienting
H = Head moves with speech F = Facial expression P = Positions, Postural shifts and Locomotion

Appendix K: Assessment 2 (B) AIMS

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

no formal administration for AIMS

Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute of Mental Health

NAME: Sra. **DATE:** 3/14/15 DMT with Longform 10/15/15.
Prescribing Practitioner: _____

CODE: 0 = None
1 = Minimal, may be extreme normal
2 = Mild
3 = Moderate
4 - Severe

INSTRUCTIONS:
Complete Examination Procedure (attachment d.) before making ratings

Sra

MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously. Circle movement as well as code number that applies.		RATER Date	RATER Date	RATER Date	RATER Date
Facial and Oral Movements	**1. Muscles of Facial Expression** e.g. movements of forehead, eyebrows periorbital area, cheeks, including frowning blinking, smiling, grimacing	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	2. Lips and Perioral Area e.g., puckering, pouting, smacking	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	3. Jaw e.g. biting, clenching, chewing, mouth opening, lateral movement	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	4. Tongue Rate only increases in movement both in and out of mouth. NOT inability to sustain movement. Darting in and out of mouth.	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	O 1 2 3 4
Extremity Movements	**5. Upper (arms, wrists,, hands, fingers)** Include choreic movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT INCLUDE TREMOR (i.e., repetitive, regular, rhythmic)	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	6. Lower (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Trunk Movements	**7. Neck, shoulders, hips** e.g., rocking, twisting, squirming, pelvic gyrations	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Global Judgments	**8. Severity of abnormal movements overall**	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	9. Incapacitation due to abnormal movements	(0) 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	10. Patient's awareness of abnormal movements. Rate only patient's report No awareness 0 Aware, no distress 1 Aware, mild distress 2 Aware, moderate distress 3 Aware, severe distress 4	NA 0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Dental Status	**11. Current problems with teeth and/or dentures**	NA No Yes	No Yes	No Yes	No Yes
	12. Are dentures usually worn? NA	No Yes	No Yes	No Yes	No Yes
	13. Edentia? NA	No Yes	No Yes	No Yes	No Yes
	14. Do movements disappear in sleep? NA	No Yes	No Yes	No Yes	No Yes

Final: 9/2000

Appendix L: Assessment 3 (C) Short-Form MPI for Seated Interview

③ Talk

Short Form of Movement Psychodiagnostic Inventory devised by M. Davis (2006)

Name_____ Therapist_____ Context_____ Duration 11:45 Date 3/14/15

MPI Action	Sub-system	Clinical Impressions
Frequency hand 13 (12→13)	GESTICULATION	mostly bilateral (3-5 unilateral)
shrugs 0		
Frequency repetitive ___	SELF-RELATED	indicating a body part (shoulder, stomach)
single 4		
Frequency 0	INSTRUMENTAL	
MPI #_____ ☐	ORIENTING	no trouble here body-square w/ orientation of chair
MPI #_____ ☐	HEAD MOVES	a little low, almost normal Range, very small
MPI #_____ ☐	FACIAL EXPRESSION	1-furrowed brow w/ soft even flaccid lower face; 2-3x blinks in 5min
Frequency positions 2	POSITION/POSTURE	1 [illegible]
Frequency postural 1		

Figure 1: Movement Psychodiagnostic Inventory Short Form, Part 1

HB#1 Rt. leg crossed over Lft, 1 ft on 1's of chair

+ 1 Δ to HB#2 @ 2:12 - 2:20 (8 secs) (uncross legs)

$ 11:30?

MPI	Category	Impressions
I Disorganization / VII Diffusion	[N] ORGANIZATION/ [ ] INTEGRATION	? lacked bilaterality ? spatial diffusion @4:06? 4:13?
II Immobility	[ ] MOBILITY	OK. [illegible], 1 Pshift @ 7:43-7:48
III Low Intensity	[ ] INTENSITY	OK. no b/c we did sa [illegible] @ 8:10
IV Low Spatial Complexity	[ ] SPATIAL CLARITY/ COMPLEXITY	OK Plane/axis in phase ? NO see 8:00-8:15
V Fixed/Invariant	[ ] PATTERN VARIATION	OK here
VI Flaccidity / X Bound Control	[N] TONUS/FLOW [ ] CONTROL	OK?
VIII Exaggeration / IX Hyperkinesis	[ ] MODULATION	OK OK

Figure 2: Movement Psychodiagnostic Inventory Short Form, Part 2

(3 units) most complex phrase 8:00 - 8:15

Appendix M: Assessment 3 (C) MPI Action Inventory for Movement Session

3a

MPI ACTION INVENTORY FOR MOVEMENT SESSION (by M. Davis 2007)

1. Participation. actively joins session most or all (0) some 1 not at all 2

2. Self-related actions (rocking, repetitive hand or object rubbing, etc.) No__ Yes ✓
If some, list type(s) finger Rubbing in Right hand, some Left
plus relationship between self-related action and movement session:
stop, start. vary relative to changes during session 0
rarely (1-3) relate to movements of therapist and/or group NA (1)
no perceptible relation to dance/movement session 2

3. Eye Contact
some/often (4+) with therapist or other participant (0)
rare (1-3 times) 1
none/gaze averted when other addresses or looks 2

4. Orientation (Yes) (NO)

	when participating	when not
initiates head or torso facing toward therapist or other	0	0
faces as directed; doesn't avert if therapist or other faces	1	1
no active turning toward others, averts body/head away	2	2

5. Proximity/Distance Tolerance

	0 initiates	1 follows/allows	2 balks/avoids
NA – touch/close space			
NA – forearm range distance			
arm reach+ dist.		✓	

per context

6. Movement Changes

	0 4+/often	1 rarely (1-3)	2 not at all
initiates change others do			
initiates change not followed	1 P shift not echoed by tx		
follows/picks up others			

NA

7. Types of Interaction

	0 4+/often	1 rare (1-3)	2 not at all
mirroring/synchrony			
move echo/answer			
speaks while moves (G) ✓			

8. Torso/limb configurations while moving: 0 4 or more; 1 two/three; (2) one only

Additional Observations (e.g. facial expressions, notable interactions)

2 - #1 furrowed brow, flacced lower face.
#2 - breaks into smile 1-3 x ?

Appendix N: Assessment 4 (A) Full MPI for Seated Interview

MOVEMENT PSYCHODIAGNOSTIC INVENTORY

Subject_____ ID #_____ Context Seated Duration 11:45
Observer_____ Observation date(s) 3/14/15

CAMERA SHOT DISTRIBUTION Recorded___ Estimated___

Close-up	Upper Arm	Thigh/Hip	Full Body	Both in Medium+
25%			25%	50%
				Totals

Locomotion on video NO Standing and/or sitting moves on video YES

Movement Signature Analysis (MSA) Selected Segment(s):

NA

COMMENTS:

CODING KEY:

0=none, never seen 1=rare (1-3) 2=some or frequent (unless noted otherwise)

A = Almost recorded, seriously considered Z = Data unavailable, not applicable

Subject_____ Observer_____ Date____ MPI–2

ACTION INVENTORY

SUB-SYSTEM

1. Gesticulations, gestures accompanying speech: #12
2. Emblems, gestures without speech, e.g. shrug: #0

[G]esticulation

3. Repetitive actions, e.g. rocking: (0) 1 2
   Describe_____
4. Self-touching, e.g. scratching: 0 (1) 2
   Describe Pill Rolling with both Right and Left hands.

[S]elf-related

5. Instrumental actions, object handling: (0) 1 2
   e.g. smoking, drinking activity (2 = 50% of session)
   Describe_____

[I]nstrumental

6. Speaks entire turn without looking at listener (0) 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
7. Holds gaze away from speaker when addressed: (0) 1 2
   (0 = no turns 1 = 1-3 turns 2 = 4+ turns)
8. Head orienting in conversation: (0) 1 2
   (0 = at least sometimes 1 = rarely 2 = never toward)
9. Trunk orienting in conversation: 0 (1) 2
   0 = at least some active orienting, however slight
   1 = stays with chair position, i.e. no active orienting to
   2 = stays markedly away

[O]rienting

10. Head movements with speech: (0) 1 2
    0 = clearly accompany 2 = none
    1 = nods or shakes only or very rare accenting moves
11. Listens with head nods "yes" or "no": (0) 1 2
    0 = at least sometimes 1 = very rarely 2 = never
    Describe_____

[H]ead Moves

12. Facial expression held longer than 15 seconds: (0) 1 2
    0 = none 1 = once or twice 2 = often
    Describe_____

[F]acial Expression

13. Different resting or "homebase" positions: #2*
14. Phrases of postural shifts: (min. 7:43-7:48) #1

[P]osition/Posture

*See min. 12:12-12:20, held only 8 seconds, and seen only once.

Subject_____ Observer_____ Date_____ MPI--3

I. DISORGANIZATION

G(A) S I H F P		*1. Effort flow or weight fragmentation; very erratic fluctuations or breaks in fluency or emphasis.
G S I H F P		*2. Sporadic, sudden movements as if "out of nowhere".
G S I	P	*3. Hand fragmentation: fingers hyperextended, flexion/extension only at knuckles and/or wrist.
G S I H	P	*4. Body fragmentation: movement occurs sporadically in different body parts during a phrase without a coherent sequence or fluent connections.
	P	*5. Sequence of weight shifts and/or weight in stillness disorganized; e.g., one part shifts, then another in a different direction, etc., and/or body does not come to balanced rest.
G S I H		*6. Different movements performed simultaneously in different parts of the body, unsynchronized.
G I I	P	*7. Spatial/lateral disorganization in upper limbs; as two ——— at limbs move, changes in their directions are unsynchronized unsynchronized and/or there is no clear bilateral coordination. 2:12-2:16
G S I H	P	8. Spatial contradiction: one part moves in one direction while another goes in opposite direction several times.
G S I	P	9. Flow contradiction: e.g. one body part moves with very bound flow while another is limp or in free flow.
G(I) S I H	P	10. Spatial segmentation: entire movement phrase is broken —— at up with perceptible pauses between each change of direction; series of one-phasic moves in the air. 8:00-8:15
G S I H	P	11. Body segmentation: isolated use of one part; a pause or clear separation before movement of another part.
G S I	P	12. Action segmentation: string of short but complete action phases that alternate or repeat such that they segment each other and break each other up, e.g. waves hand, then rubs chin, then waves, then rubs, etc.

II. IMMOBILITY

	P	*1. No movement and absolutely still except for eyeblinks for periods of two minutes or longer (cf catatonic).
H		*2. Head still through time observed.
G	P	*3. Fixed shape or position held up in the air and against gravity for long periods of time (30+ seconds).
	P	*4. No position shifts in 20 minutes or more.
	P	*5. Gestural movement only in large body actions, no postural movement in walking (if seen) or when shifting positions of trunk or legs.
	P(I)	6. "Fleeting" or single phases of postural movement in —— locomotion and whole trunk or leg position shifting.
	(A)	7. Only one or two position shifts in 20 minutes or more.
G S I	P	8. Distal parts only move while seated or standing in place (i.e. hands, feet, head, forearms) through entire session.
G S I	P	9. Fixed or held body configuration through session, e.g. fixed finger-hand position or arms held still.
	F	10. Little or no movement of face apart from eyes
G S I	P	11. Arrests specific action midway and holds for 15+ secs.
	P(A)	12. Very low rate of postural movement (e.g. 1 phrase per 30 minutes).

II.6. at 2:12 (leg) and 7:43-48 (trunk)

II 7. at 7:43 - 7:48

Subject_____Observer_____Date_____ MPI–4

III. LOW INTENSITY

G__S__I__H__F__P__ *1. Very little fluctuation in effort flow and/or neutral range of flow in movement; flow changes hard to see.

G__ *2. No effort qualities (space, weight, time variations) visible in any movement during the session, including gesticulations.

G A 3. Only rare, fleeting occurrence of single effort qualities. – at 8:08-8:10

IV. LOW SPATIAL COMPLEXITY

G__ I__ P__ *1. Movement has no clear directionality or projection into space; only shape flow throughout session.

G__ 2. Any spatial complexity (i.e., shaping, clear directions, curved transitions, projection into space) restricted to hand or forearm.

G I 3. Two-phasic or single phase of fleeting directionality within phrases of shape flow variation.

One phrase with spatial clarity beyond hand and forearm, at 8:00-8:15

V. PERSEVERATION, FIXED-INVARIANT

G__S__I__ *1. Repetition of one or two effort qualities in an unvarying way; stays intense and has no build up or decrease; phrase has clear beginning, ending.

G__S__I__H__ P__ *2. Repetitive movement of one isolated body part; tempo same throughout; action appears to "go by itself" unrelated to rest of body.

G__S__I__ P__ *3. An action apparently related to some expression or conventional action but unvarying in performance, each repetition dynamically the same.

G__ 4. Moves strictly in one plane or axis per phrase. – disqualified by 8:00-8:15 with ↕ than ↔

VI. FLACCIDITY OR RETARDATION

P A *1. Flaccid, inert, limp trunk tonus throughout.

P__ *2. Flaccid, complete limpness, giving into gravity in still limbs most of session

G__S__I__ P__ 3. Flaccid, complete limpness and giving into gravity at end of several gestures or upper limb actions.

G__S__I__H__F__P__ 4. Retardation: Entire action performed with slowness or with a level of tension and lack of acceleration such that activity is of long duration.

VII. DIFFUSION

G__ H__ *1. Movement spatially diffuse and unclear through entire phrase (i.e. absence of straight, round or 3-D paths or transitions); difficult to discern phrase.

G__ *2. Continuous diffuse effort pattern through entire phrase; flow and possibly effort qualities "running on"; difficult to determine distinct phrases and clear build up or die down in intensity. No clear endings to movements.

G__S__I__H__ P__ 3. Overlapping actions: particular action not completed before person starts new action; no pause or transition but a kind of diffuse overlapping.

* For Extreme Forms of This Pattern Only.

G I 4. Diffusion (spatial or dynamic) in one part of phrase. Part of an otherwise clearly defined phrase is diffuse spatially or dynamically.

at 1:30 – 1:40

Subject_____Observer_____Date_____ MPI–5

VIII. EXAGGERATION

G__S__I__ *1. More postural or large limb position shift phases than gestural phases within a phrase than emphasizes limb activity (e.g. gesticulation or instrumental action). Locomotion or standing/sitting excluded.

G__S__I__H__ P__ *2. Large, exaggerated movements through phrase; i.e. no modulation in large size within phrase.

G__S__I__H__F__P__ *3. A "conventional" gesture or action that is bizarrely exaggerated.

IX. HYPERKINESIS

P__ *1. Three or more phrases of large limb and/or trunk shifts within 15 seconds or less (excluding instrumental activity and gesticulating periods).

S__I__ P__ 2. Three or more phrases of peripheral limb position shifts within 15 seconds, i.e. hands, forearms, lower legs (excluding instrumental activity and gesticulating).

G__S__I__H__F__P__ 3. Activity or action performed very rapidly either [redacted] because each phase is done without pause or deceleration or because there are repeated instances of the effort quality of suddenness throughout.

*For Extreme Forms of This Pattern Only.

X. EVEN CONTROL/SUSPENSION

G__S__I__ P__ *1. Suspended in space: movements and still positions are without time variations, suspended, and possibly light throughout; weightless and surreal quality.

G__S__I__H__F__P__ 2. High degree of bound flow or muscle tension maintained throughout the entire movement phrase; absence of free moments, release, giving into gravity within the phrase. To be coded most of the movements must display this pattern.

P__ 3. High degree of bound control or muscle tension actively maintained through position repertoire, i.e. in trunk and limbs when still.

Additional observations and comments:

---

* Asterisked items are hypothesized to be pathognomonic of severe psychopathology. Those without asterisk may contribute to the degree of disturbance, but are not in themselves considered sufficient for diagnosis of severe mental illness until research indicates otherwise. Note that VII. 3. and IX. 3. may be asterisked if they are extreme.

Subject_____Session_____Observer_____MPI--6

MOVEMENT PSYCHODIAGNOSTIC INVENTORY (MPI)--Profile Analysis

Subsystem involved							
G		I DISORGANIZATION	0	(1)	2	3
	P	II IMMOBILITY	0	(1)	2	3
G		III LOW INTENSITY (A) ←	(0	1)	2	3
G		IV LOW SPATIAL COMPLEXITY	0	(1)	2	3
		V PERSEVERATION/FIXED-INVARIANT	0	1	2	3
	P	VI FLACCIDITY OR RETARDATION (A) ←	(0	1)	2	3
G		VII DIFFUSION	0	(1)	2	3
		VIII EXAGGERATION	0	1	2	3
		IX HYPERKINESIS	0	1	2	3
		X EVEN CONTROL/SUSPENSION	0	1	2	3
		LIMITED COMMUNICATIVE REPERTOIRE	(0	1)	2	3

[___] Check further for extrapyramidal/organic/medication signs (AIMS ✓ | DIMSE___)

[___] Viewing conditions adequate (20+ minutes in at least medium shot)
[___] Viewing conditions inadequate: 11:45 minutes ~~total~~ (10% less than medium shot)

Scoring for MPI Categories I-X: 0 = not observed 1 = presence of "less serious", not asterisked patterns
2 = one to three "pathognomonic", asterisked patterns 3 = four or more "pathognomonic" patterns

Scoring for Limited Communicative Repertoire:
0 = some speech gesticulations, head movements with conversation, facial expression, range of homebase positions, and clear orienting to other (2+ gesticulation phrases per 10 minutes, at least 3 different base positions, and 0 on 6-12 of Action Inventory).
1 = slight restriction, low score (1 on items 6-12, 1 gesticulation/10 minutes, only 2 different base positions) on 1-3 items of Action Inventory.
2 = notable restriction, high score (2 on items 6-12, less than 3 gesticulations/30 minutes, one base position) on one or two items or low scores only on 4-5 items.
3 = severe restriction (1 or 2 high with 4+ low or high score on 3+ items or low only on 6+ items)

Subsystem Key: G = Gesticulations S = Self-related actions I = Instrumental actions O = Orienting
H = Head moves with speech F = Facial expression P = Positions, Postural shifts and Locomotion

Appendix O: Assessment 4 (A) AIMS

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

Track Long-term

Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute of Mental Health

NAME: _____
DATE: _____
Prescribing Practitioner: Mmms

CODE: 0 = None
1 = Minimal, may be extreme normal
2 = Mild
3 = Moderate
4 - Severe

INSTRUCTIONS:
Complete Examination Procedure (attachment d.) before making ratings

MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously. Circle movement as well as code number that applies.		RATER Date	RATER Date	RATER Date	RATER Date
Facial and Oral Movements	**1. Muscles of Facial Expression** e.g. movements of forehead, eyebrows periorbital area, cheeks, including frowning blinking, smiling, grimacing	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	2. Lips and Perioral Area e.g., puckering, pouting, smacking	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	3. Jaw e.g. biting, clenching, chewing, mouth opening, lateral movement	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	4. Tongue Rate only increases in movement both in and out of mouth. NOT inability to sustain movement. Darting in and out of mouth.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Extremity Movements	**5. Upper (arms, wrists,, hands, fingers)** Include choreic movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT INCLUDE TREMOR (i.e., repetitive, regular, rhythmic)	Still Rolling 0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
7	**6. Lower (legs, knees, ankles, toes)** e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Trunk Movements	**7. Neck, shoulders, hips** e.g., rocking, twisting, squirming, pelvic gyrations	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Global Judgments	**8. Severity of abnormal movements overall**	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	9. Incapacitation due to abnormal movements	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
	10. Patient's awareness of abnormal movements. Rate only patient's report No awareness 0 Aware, no distress 1 Aware, mild distress 2 Aware, moderate distress 3 Aware, severe distress 4	NA 0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4
Dental Status	**11. Current problems with teeth and/or dentures**	NA No Yes	No Yes	No Yes	No Yes
	12. Are dentures usually worn?	NA No Yes	No Yes	No Yes	No Yes
	13. Edentia?	NA No Yes	No Yes	No Yes	No Yes
	14. Do movements disappear in sleep?	NA No Yes	No Yes	No Yes	No Yes

Final: 9/2000