



Using implementation methods to study a combined dance/movement therapy (DMT) and cognitive behavioral therapy (CBT) protocol at an inpatient substance use setting

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ABSTRACT

There is evidence that dance/movement therapy (DMT) has positive outcomes for patients with various conditions when used either as a standalone therapy or when coupled with a gold standard modality such as cognitive behavioral therapy (CBT). This combined DMT/CBT has yet to be studied for patients struggling with alcohol and substance use disorders from a structured, manualized, implementation perspective. The current study outlines patient engagement and satisfaction with a 4-session DMT/CBT program at an inpatient addiction treatment facility. The 4-session manualized DMT/CBT protocol comprised “impulse inventory,” “studying impulses,” “subconscious movement,” and “body language.” Participants reported the most engagement in “studying impulses” and attended an average of 2.38 sessions during their time in treatment. Most patients reported receiving some (55%) or substantial (23%) benefit from the protocol. These findings lay the foundation to better optimize a DMT/CBT protocol for patients struggling with alcohol and substance use disorders. However, about a quarter of patients received no benefit from the group (23%), highlighting known barriers to DMT in general. Findings can help small inpatient facilities utilize information toward next steps of optimizing a DMT/CBT protocol.

Introduction

Emerging in the 1940s, dance/movement therapy (DMT) is a holistic form of psychotherapy based on the assertion that the mind, body, and spirit are interconnected, relying on the principle that movement and nonverbal communication is our first language (ADTA, 2023; Dunphy et al., 2022). Approaches to DMT are varied among practitioners yet generally draw upon the relationship between patient and therapist in a group setting (Bräuninger, 2012; Millman et al., 2021). DMT applies a psychodynamic approach to exploring unconscious processes through movement, and practitioners may tailor interventions with metaphors, mirroring, synchronicity, and repetition (Bräuninger, 2014). Such processes are typically explored across many disorders, including alcohol and substance use disorder (AUD/SUD). While generally under-utilized when treating disorders of addiction, there is evidence that DMT is effective for AUD/SUD (Korecki et al., 2020; Schmanke, 2015). The current paper seeks to utilize an implementation lens to examine clinicians’ and patients’ perspectives of a DMT session at a small inpatient

addiction treatment center.

Evidence for DMT to treat chronic conditions

A systematic review of DMT in psychiatric populations (including depression, schizophrenia, autism, and somatoform disorder) reveals some evidence of DMT clinical efficacy as well as the underlying DMT mechanisms being improvement in embodied cognition and interoceptive awareness (Millman et al., 2021). In a systematic review of DMT for the treatment of adults with depression, DMT groups were identified as an effective intervention (Karkou et al., 2019). An evaluation of the effectiveness of DMT with young adult and middle-aged individuals with intellectual disabilities revealed that DMT resulted in an improvement in motor skills, body knowledge, and emotional wellbeing, although risk of bias was high and levels of evidence were low (Takahashi & Kato, 2023). A Cochrane Review examining the effect of DMT for improving psychological and physical outcomes in patients with cancer suggested that interventions may benefit Quality of Life (QoL), somatization, and vigor

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(Bradt et al., 2015). QoL was tested in a randomized controlled trial of a 10-week DMT group, revealing significant improvement in short and long-term psychological wellbeing (Bräuninger, 2012). Finally, a systematic review of the use of DMT as a treatment modality for autism spectrum disorder (ASD) found that mirroring interventions helped individuals with ASD improve social skills. Despite studies evaluating the efficacy of DMT, greater scientific rigor is required (Takahashi et al., 2019).

DMT in AUD/SUD treatment

The application of DMT to improve patients' capacity to follow a twelve-step model in a 28-day inpatient AUD/SUD rehabilitation program was initially presented in 1990 (Fisher, 1990). DMT groups have been described in forensic settings, which offer an alternative approach to addressing addiction and to expressing difficult feelings such as shame in a safe manner (Milliken, 2008). DMT in AUD/SUD-specific settings (e.g., methadone treatment center) has been shown to have positive outcomes such as abstinence, mental health improvements, and enhanced social interactions (Brown, 2009). Inpatient practitioners of DMT have unique opportunities to enhance engagement of AUD/SUD care by exploring readiness for change, weaving motivational interviewing into DMT sessions, and taking critical steps post-session to foster the AUD/SUD treatment linkage (Kirane, 2018). In a study of dance/movement therapists' attitudes and practices toward Opioid Use Disorder (OUD), 86% of practitioners recognized an opportunity to respond to the opioid crisis in the United States (Kirane, 2021). However, attitudes toward OUD care were incongruent with actual clinical practices, and the majority of practitioners did not routinely screen (68%) or refer (75%) for addiction care (Kirane, 2021).

There is growing evidence that coupling DMT and/or broader mindfulness-based principles (which rely on DMT principles) with cognitive behavioral therapy (CBT) is effective for treating AUD/SUD. CBT is a gold-standard treatment for AUD/SUD (de Andrade et al., 2019; U.S. Department of Health and Human Services, 2016; McHugh et al., 2010; Morgenstern et al., 2001), and adding its principles to DMT may make DMT more accessible and effective. For example, a mindfulness approach coupled with CBT has been found to reduce pain scores and improve physical functioning in patients treated with opioids for chronic back pain (Zgierska et al., 2016). Studies have also shown that manual-based CBT and mindfulness-based stress reduction are effective for the treatment of AUD/SUD (Korecki et al., 2020) and that mindfulness-based DMT can lead to reduced pain intensity and depression scores (Majore-Dusele et al., 2021).

Study purpose and aims

There is growing evidence that DMT, as well as DMT coupled with CBT, can have a positive impact on those with AUD/SUD. However, there is little evidence of manualized, standardized protocols that licensed creative arts therapists can follow. Given the lack of systematized DMT interventions or implementation research in this area (Bryl & Goodill, 2020; Dunphy et al., 2014; Kleinlooh et al., 2021; Kleinlooh et al., 2022; Koch et al., 2019; Megrnahan & Lynskey, 2018), a DMT/CBT manualized protocol was developed at an inpatient addiction facility for patients with AUD/SUD. As part of "treatment as usual" care, patients' engagement and satisfaction of the CBT-based DMT manual were tracked for several months. As part of the optimization of this manual, the first aim was to identify client engagement, as evidenced by patients' attendance in sessions and the clinician's observation of patients' degree of participation. The second aim was to identify patients' attitudes about the DMT treatment modality as determined by patient feedback during an exit interview.

Methods

Sample

Participants were selected from a convenience sample of patients at an inpatient addiction treatment and rehabilitation center that treats AUD/SUD. Given that the protocol of this study is considered treatment as usual at our facility in addition to the quality control nature of the study, participants were not consented for the study, nor does this constitute human subjects research (Pearl IRB ID 2023-0158). Data were gathered on $N = 85$ patients (female = 44%; Mage = 41.62 years; white = 85%; Hispanic / Latinx = 8%) who attended DMT between April 12th, 2021 and July 8th, 2021. Primary substances were alcohol (67%) followed by opioids (12%), and sedatives (6%). All other substances used in remaining categories (amphetamines, cannabis, cocaine, hallucinogens, inhaled toxins) was < 5%. Secondary substances ($n = 42$ patients) were cocaine (26%), cannabis (19%), opioids (17%), alcohol (10%), and amphetamines (10%). An exit interview was also conducted on a subset of patients ($N = 29$).

Approach

The DMT/CBT protocol followed a 4-session manualized structure based on the core DMT techniques and CBT principles (see below).

DMT Techniques: DMT techniques include the following. A *Chacian* approach which includes a tripartite model of warm up, thematic development, and cool down with occasional discussion (Solsvig, 2010). *Body and micro-movement awareness* to explore how sensations may be the initial expression of emotion (Fisher, 2019; Wiedenhofer & Koch, 2017). *Creativity and expression* and *primitive expression* to develop symbolism and play, leading to enhanced positive self-orientation (Margariti et al., 2012). *Authentic Movement*, an approach that involves a mover and external witness to foster the development of one's own inner witness (Lovell et al., 1999; Musicant, 1994; Millman et al., 2021).

CBT Principles: Principles of CBT include teaching patients to recognize triggers, behaviors, and consequences of their AUD/SUD. CBT is grounded in the cognitive model, inviting patients to identify and challenge maladaptive thoughts, beliefs, and interpretations (Beck and Fleming, 2021) and actively encourages the practice of problem-solving skills (Mignogna et al., 2018). When applied to the treatment of SUD, CBT involves challenging maladaptive thoughts and beliefs related to substance use, promoting self-efficacy, and developing coping skills for cravings and triggers in order to promote recovery (Magill et al., 2020; Morgenstern et al., 2001). Thus, the CBT utilized at this inpatient treatment facility included the following groups (in this order): *Coping with Cravings and Urges*, *Managing Thoughts about Drug and Alcohol Use*, *Problem Solving*, *Refusal Skills*, *Planning for Emergencies and Coping with a Lapse*, *Seemingly Irrelevant Decisions*, *Anger Management* (2 parts), *Managing Negative Thinking*, *Assertiveness and Communication Skills* (2 parts), and *Increasing Social and Recreational Activities*. This manual was similarly optimized following implementation methods (Bourdon et al., 2023).

DMT/CBT Session Details: The DMT/CBT manual was developed and sessions were facilitated by a New York State Licensed Creative Arts Therapist / Board Certified Dance/Movement Therapist with 15 years of experience working in inpatient psychiatric settings, including with the AUD/SUD population. Initially there was a 1:1 correspondence between the DMT/CBT manual and the CBT manual outlined above, and 12 DMT/CBT sessions were offered (*Impulse Inventory*, *Studying Impulses*, *Movement Patterns*, *Personal Space and Limits*, *Resiliency*, *Intrinsic Motivation*, *Subconscious Movement*, *Normalizing and Transforming*, *Acceptance and Growth*, *Body Language*, *Kinesthetic Connection*, and *Commitment Gestures*). However, due to scheduling and census barriers, the DMT/CBT manualized protocol was reduced to 4 core session topics: *Impulse Inventory* (corresponding with the CBT session *Coping with Urges and*

Cravings), *Studying Impulses* (corresponding with the CBT session *Managing Thoughts about Using*), *Subconscious Movement* (corresponding with the CBT session *Seemingly Irrelevant Decisions*), and *Body Language* (corresponding with the CBT session *Assertiveness and Communication Skills*).

Each session followed a similar structure whereby the therapist opened with a brief check-in, discussed the topic and rationale for the session that day, led patients through a brief physical warm-up followed by the main movement exploration, and ended with a debriefing discussion. Patients were always given a 1-page handout at the start of the session that explained the outline and purpose of the session so that they could better follow along. The use of open-ended questions by the therapist, and the invitation to explore their thoughts, feelings, and experiences of the session topic through movement in depth, was intended to promote self-awareness, self-reflection, and empowerment. The use of symbolism and metaphor was used to explore the meaning behind patients' movements and to encourage a reflection on the deeper significance of the recovery experience than words alone. Patients were prone to skipping sessions ("no show") but may have also missed sessions due to other appointments (e.g., individual therapy, medical appointment, discharge planning). Patients were informed that attendance was expected unless they had another clinical appointment. These DMT/CBT sessions occurred once per week.

Data Collection: Following each group during the time range specified above, the licensed creative arts therapist answered questions about each patient who was supposed to attend and who did attend the group (see *Engagement* below). Further, the facility had a standard exit interview open to all patients that included a range of quality-related topics (satisfaction, quality, therapist alliance, etc.). For the time period specified above, a section was added that was specifically about the DMT/CBT group (see *Attitudes* below).

Measures

There were two measures used for each key outcome: engagement and attitude. *Engagement* was measured by the therapist after each DMT session via a Microsoft Excel tracking sheet (Microsoft Corporation, 2018). The tracking sheet assessed how engaged each participant was on a 3-point Likert scale (actively, disengaged, marginally engaged) for each stage of the session (check-in, discussion, movement exploration, debrief). *Attitudes* were measured in the exit interview using REDCap (Harris et al., 2009; Harris et al., 2019) to capture barriers and/or benefits to the group. Patients were asked if they had engaged in DMT/CBT during their time at the facility. For those who answered affirmatively, they were asked how much benefit they received on seven key skills of the DMT/CBT protocol as well as the overall benefit of DMT on a 3-point Likert scale (no benefit, some benefit, substantial benefit).

Results

All data were analyzed using R Software Package (R Core Team, 2021).

Engagement (see Table 1). The average number of sessions attended was 2.38 of the possible 4. Of the 85 participants seen during this time period, participation ranged from 31–41 patients for each session total (not per session). A patient left the group early during sessions 2 and 3, which is reflected in the reported sample size for each session of the session in Table 1. Data were limited to those who attended the sessions, i.e., we deleted out "no shows" and those with "other" appointments. Of the four sessions, patients were most engaged with session 2 (engagement = 87–91%) and least engaged with session 4 (engagement = 50–78%). A pattern emerged whereby the *debrief* section was consistently the most or second-most engaged section of the group. The *discussion* and *debrief* had the most patient engagement for sessions 1 and 4; *check-in* had the most engagement for session 2 with a single percentage point lead over *debrief*; and *debrief* had the most engagement for session

Table 1

Results for therapist's perceived patient engagement of the Movement Psychotherapy protocol.

	Actively engaged	Disengaged	Marginally engaged
<u>Session 1: Impulse Inventory</u>			
Check-in (n = 31)	20 (65%)	2 (6%)	9 (29%)
Discussion (n = 31)	25 (81%)	0	6 (19%)
Movement Exploration (n = 31)	22 (71%)	1 (3%)	8 (26%)
Debrief (n = 31)	25 (81%)	1 (3%)	5 (16%)
<u>Session 2: Studying Impulses</u>			
Check-in (n = 32)	29 (91%)	0	3 (10%)
Discussion (n = 31)	27 (87%)	0	4 (13%)
Movement Exploration (n = 31)	25 (81%)	0	6 (19%)
Debrief (n = 31)	28 (90%)	0	3 (10%)
<u>Session 3: Subconscious Movement</u>			
Check-in (n = 41)	31 (76%)	0	10 (24%)
Discussion (n = 41)	32 (78%)	1 (2%)	8 (20%)
Movement Exploration (n = 41)	29 (71%)	3 (7%)	9 (22%)
Debrief (n = 40)	32 (80%)	1 (2%)	7 (18%)
<u>Session 4: Body Language</u>			
Check-in (n = 32)	21 (66%)	0	11 (34%)
Discussion (n = 32)	25 (78%)	2 (6%)	5 (16%)
Movement Exploration (n = 32)	16 (50%)	3 (9%)	13 (41%)
Debrief (n = 32)	25 (78%)	3 (9%)	4 (13%)

Note: Percentages may not add up to 100 due to rounding error.

3.

Attitudes (see Table 2). Of the patients who received the exit interview during this time period, 22 (76%) attended at least one DMT/CBT session. Most patients reported receiving some (55%) or substantial (23%) benefit from the protocol, while about a quarter (23%) reported no benefit overall.

The two skills that were reported to be the most beneficial to patients were *Using nonverbal communication to express my thoughts and emotions related to addiction* and *Having my peers participate with me in movement psychotherapy*. The two skills that were reported as the least beneficial to patients were *Developing better skills for coping with cravings and urges* and *Developing assertiveness and communication skills*.

Discussion

The purpose of this study was to examine the patient engagement in a CBT-based DMT manual at an inpatient addiction facility as well as query patients' attitudes toward this modality. The DMT/CBT protocol

Table 2

Results for patients' perceived benefit of the Movement Psychotherapy protocol.

	No Benefit	Some Benefit	Substantial Benefit
Overall benefit	5 (23%)	12 (55%)	5 (23%)
Using nonverbal communication to express my thoughts and emotions related to addiction	6 (27%)	7 (32%)	9 (41%)
Using nonverbal communication to process my thoughts and emotions related to addiction	8 (36%)	6 (27%)	8 (36%)
Having my peers participate with me in movement psychotherapy	7 (32%)	5 (23%)	10 (45%)
Developing better skills for coping with urges cravings	12 (55%)	8 (36%)	2 (9%)
Developing better skills for managing thoughts about using	10 (45%)	7 (32%)	5 (23%)
Developing better skills for recognizing seemingly irrelevant decisions	9 (41%)	7 (32%)	6 (27%)
Developing assertiveness and communication skills	12 (55%)	5 (23%)	5 (23%)

was manualized and included 4 sessions. Overall, this project lays the foundation and first steps for further standardization of DMT into an addiction treatment space and allows for improved quality control. Specifically, it was challenging at times to maintain an actively engaged population throughout entire DMT/CBT sessions, and patients' attitudes toward it were mixed (see Tables 1 and 2). However, given how polarizing this treatment can be, even moderate levels of engagement and attitudes were viewed as successes. From an organizational perspective, this project offered an opportunity to translate science into practice which is difficult in general, let alone in Creative Arts Therapy. Given the structure of the DMT/CBT groups, perceived engagement could be ascertained at each section of the group. The *debrief* section was consistently an engaging section of the group along with the *discussion*. In most groups, the *movement exploration* had the least patient engagement. This aligns with past literature of what can be expected when experiencing resistance in psychotherapy (McFerran & Finlay, 2018).

Pairing the perceived engagement data with patient attitudes from an exit interview allowed us to more fully understand and contextualize the DMT group. About a quarter of patients reported receiving "substantial" benefit, whereas roughly another quarter reported receiving "no" benefit from the group, highlighting how polarizing DMT can be and that there are distinctly different perceptions of these interventions (Millard et al., 2021), especially among the SUD population. Nevertheless, such information is necessary to grow DMT programs within inpatient addiction treatment facilities. Ultimately, patients reported receiving benefit in learning new ways to express their thoughts and emotions as well as being able to connect with their peers in a new modality. However, the more CBT-focused skills (coping with cravings and urges, managing thoughts about using, recognizing seemingly irrelevant decisions, developing assertiveness and communication skills) were not as reportedly beneficial to patients who attended the DMT/CBT group, highlighting that more work needs to be done to better integrate CBT and DMT into a cohesive modality (see Table 2).

This information not only helps us internally inform next steps but can help others attempting to add DMT into an inpatient addiction treatment facility's clinical programming schedule. Next steps include optimizing the CBT-based DMT manual and taking a more systematic, hypothesis-driven approach to identifying and addressing barriers to this work. The current project was hypothesis-generating, as it points us in the correct direction for continuing to close the gap between science and practice within the fields of addiction science and Creative Arts Therapy. For example, future studies could more specifically study the engagement and benefits of a DMT/CBT manualized protocol using a hypothesis-driven randomized controlled trial design.

Limitations

There are a number of limitations to note for this study. First, data tracking was ultimately difficult and a barrier at the clinician level, thus there was much missing data due to the extra burden that this poses to a clinical facility. Second, it is both a positive and a negative that the current study was done in a "real world" setting. While this allowed us to work within our means, and thus the means of other facilities, ultimately it meant sacrificing some level of rigor (e.g., see limitation 1 above or 4 below). Third, there was not complete overlap across the samples from the *engagement* and *attitudes* aims. Given that the nature of this was quality control, patient IDs were not gathered, thus eliminating our ability to pair data. However, we limited the exit interview data to the time of this study to maximize overlap. Finally, there was unavoidable bias in that the clinician who designed the CBT-based DMT manual was the same clinician who delivered the manual and rated patients on their level of engagement.

Conclusions

This paper highlights the creation of a novel manualized CBT-based

DMT protocol for use in an inpatient addiction facility. The current study outlined one such facility's experience tracking patient *engagement* and *attitudes* about this protocol. While most patients were engaged in all 4 DMT sessions, benefit was mixed. These findings set the stage for further hypothesis-driven research to occur in this under-studied area.

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CRediT authorship contribution statement

Jessica L Bourdon: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation. **Kendra Kirane:** Writing – review & editing, Methodology, Conceptualization.

Declaration of Competing Interest

None.

Data Availability

The authors do not have permission to share data.

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Author contributions

KK came up with the initial project idea. JB helped facilitate data tracking, collected survey data, and analyzed all data. JB wrote the methods, results, and discussion. KK wrote the introduction. All authors provided comments and edits to the paper.

Statement on informed consent

Informed consent was not needed because this study was done with the intent of internal education and quality control. It does not constitute human subjects research (Pearl ID 2023-0158).

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