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Review article

Creative art therapy for mental illness

Mathew Chiang, William Bernard Reid-Varley, Xiaoduo Fan*

UMass Memorial Health Care/University of Massachusetts Medical School, Worcester, MA 01605, USA

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ABSTRACT

Creative art therapy (CAT) for severe mental illness (SMI) represents an extremely heterogenous body of literature that encompasses the use of a large variety of creative mediums (i.e. visual art, music, dance, drama, writing) in the treatment of mental disorders. The present review provides a narrative summary of the findings on the use of CAT for the selected SMI, being: schizophrenia, trauma-related disorders, major depression, and bipolar disorder. A database search of PubMed and the Cochrane Library was conducted related to the use of CAT in the treatment of mental disorders published between January 2008 and March 2019. A total of 9697 citations were identified to match the search criteria and 86 full-texts were reviewed. Although literature suggests CAT to be a potentially low-risk and high benefit intervention to minimize symptoms and maximize functioning in individuals living with SMI, the lack of methodological rigor, and inconsistency in study methods and outcome measures have prevented the advancement of CAT for use in SMI. Although creation of a single CAT regimen for all psychiatric disorders stands neither practical nor advisable, greater standardization of methods would improve evaluation of CAT interventions. Future research should elucidate biological mechanisms underlying CAT methods.

1. Introduction

Recent trends in psychiatry towards a more holistic approach in the treatment of mental disorders have placed increasing attention on psychotherapeutic methods like creative arts therapy (CAT). While advances in medicine, especially related to genetics, have kept pharmacological agents at the forefront of psychiatric disorder treatment, many psychotropic agents, and especially antipsychotics, contribute to poor quality of life and debilitating adverse effects even when the medications are able to alleviate the major symptoms of a disorder (Hanevik et al., 2013). Increasingly, clinicians have turned towards creative art therapy (CAT) and other psychotherapy in addressing the health needs of patients. The utilization of the creative arts for the treatment of mental disorders first appeared more than half a century ago, but the last three decades have witnessed the growth of a literature describing its potential utility (Attard and Larkin, 2016; Carr et al., 2013; Feirstein, 2016; Fenner et al., 2017; Stuckey and Nobel, 2010).

The concept of CAT encompasses a variety of methods including musical engagement, visual art, movement and dance, drama/theater, and expressive/creative writing (Stuckey and Nobel, 2010). Various types of CAT have been studied as adjunctive treatments for a range of psychiatric diagnoses including psychotic, mood, substance use, and trauma-related disorders (Aalbers et al., 2017; Crawford et al., 2012; Grocke et al., 2014; Levine and Land, 2016). Results regarding its effectiveness have been varied and sometimes contradictory (Attard and Larkin, 2016; Carr et al., 2013; Chung and Woods-Giscombe, 2016). Nonetheless, the use of CAT treatments extends beyond SMI or psychiatric disorders and has been shown to reduce disease-specific symptoms and improve mental health, satisfaction with care, and overall well-being for neurological and age-related disorders, such as Parkinson's and dementia, autoimmune disorders, cancers, cardiovascular disease, and more (Archer et al., 2015; Bradt and Dileo, 2009; Carr et al., 2013; Chancellor et al., 2014; de Natale et al., 2017).

Past reviews have analyzed the quality of and conclusions from data collected in previous CAT studies. This narrative review sought to contribute to the literature by suggesting mechanisms of action, identifying consistent conclusions regarding the effectiveness of CAT, discussing lingering issues with study design, and proposing necessary steps to advance the application of CAT in the treatment of mental disorders.

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* Corresponding author at: Biotech One, Suite 100, 365 Plantation Street, Worcester, MA 01605, USA.
E-mail address: xiaoduo.fan@umassmed.edu (X. Fan).

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Table 1
Record of citation found and full texts reviewed by search query.

Search terms	Articles retrieved	Abstracts reviewed	Full-texts reviewed*
Art therapy AND mental disorder [mh]	2682	286	30
Art therapy AND schizophrenia [mh]	160	160	5*
Art therapy AND depression [mh]	524	260	7*
Art therapy AND PTSD [mh]	90	70	3*
Art therapy AND bipolar	91	42	0*
Music therapy AND mental disorder [mh]	1569	245	28*
Music therapy AND schizophrenia [mh]	94	49	2*
Music therapy AND depression [mh]	299	200	8*
Music therapy AND PTSD [mh]	25	21	2*
Music therapy AND bipolar	41	14	2*
Drama therapy AND All SMI**	1067	159	2*
Clay therapy AND All SMI**	140	45	0*
Poetry therapy AND All SMI**	137	35	0*
Writing therapy AND All SMI**	2778	160	2*
TOTALS	**9697**	**1667**	**90***

[mh] refers to the search field tag used on pubmed related to a given MeSH heading that triggers the explosion search feature for a given search term.
* Full-texts retrieved and reviewed from previous searches excluded.
** All SMI refers to the use of all following MeSH-tagged search terms individually: Mental Disorder, Schizophrenia, Depression, PTSD, and Bipolar.

2. Review

To identify articles for review, we searched PubMed and the Cochrane Library using the MEDLINE tags ``art therapy,'' ``music therapy,'' ``dance,'' ``movement,'' ``clay,'' ``theater,'' ``drama,'' ``poetry,'' ``writing,'' combined with the terms ``mental disorder,'' ``severe mental illness,'' ``schizophrenia,'' ``depression,'' ``bipolar,'' ``post-traumatic stress disorder", or ``PTSD" (e.g. "art therapy AND schizophrenia", ``music therapy AND severe mental illness") published between January 2008 and March 2019 (see table 1 for details). Only articles involving creative art therapies for mental illness diagnoses in the categories listed above were selected. Articles not available in English were excluded.

3. Results

A total of 9697 citations were identified which matched the search criteria and 86 full-texts were reviewed (see Table 1 and Fig. 1).

4. Discussion

4.1. Types of creative art therapy

CAT programs frequently make use of more than one type of method in their interventions (Im and Lee, 2014; Rawtaer et al., 2015). The most common types of art therapy have been categorized and their use in mental illness briefly summarized in the sections below.

4.1.1. Visual art

Visual art methods can involve simply reflecting on the emotions evoked by looking at a famous painting or sculpture but typically include a creative component, ranging from various types of painting and drawing to clay work, sculpting, paper crafts, collage, and mask making (Campbell et al., 2016; Montag et al., 2014; Nan and Ho, 2017; Potash et al., 2013). Therapists guide patients in the creation of directed or undirected (free association) pieces of art that express emotions, symptoms, or memories. Techniques can be catered toward specific diagnostic populations: such as depicting memory triggers for patients with trauma or hallucinations for patients with schizophrenia (Campbell et al., 2016) (Hanevik et al., 2013). Simple scribble drawing or coloring techniques can be used for young children (Potash et al., 2013; Saba et al., 2016). Methods such as clay work and sculpting engage with a patient's tactile senses and can elicit a more visceral physical experience for the patient (Nan and Ho, 2017).

Among mental disorder diagnoses, visual art therapy has been most well studied in patients with psychotic disorders. A 2016 review for patients with psychotic disorders noted that several case reports and qualitative studies demonstrated psychosocial improvements to self-esteem, self-expression, self-awareness, emotional distress, emotional wellbeing, and artistic skill as a result of creative art therapy, but that results from larger randomized control trials (RCT) have been inconclusive (Attard and Larkin, 2016; Gajic, 2013; Teglbjaerg, 2011). Of note, the review included the results of the largest RCT study (n = 420) on the effect of group art on schizophrenia that was unable to demonstrate any improvement in psychiatric symptoms or other health-related outcomes following therapy (Crawford et al., 2012). A review of 21 studies of Chinese calligraphy therapy including over 10,000 patients with severe mental illness reported significant improvements in targeted neuropsychiatric symptoms including anxiety, depressive, and psychotic symptoms (Chu et al., 2018). An additional RCT evaluating the effectiveness of a weekly visual art therapy intervention in Chinese inmates with schizophrenia (n = 120) demonstrated a decrease of negative symptoms and emotional distress and an increase of social skills and compliance with rules and medications after 16 weeks (Qiu et al., 2017).

A review of RCTs and non-randomized, controlled clinical trials (CCT) on visual art therapy for trauma (n = 223) demonstrated statistically significant positive results. Half of the reviewed studies demonstrated significant reductions in severity of trauma symptoms and one study reported significant reductions in depressive symptoms (Curry and Kasser, 2005; Erickson, 2008; Henderson, 2007a, b; Schouten et al., 2015; Stok, 2007; Volker, 1999). A small pilot study (n = 11) on military veterans with PTSD published after the above review also reported that visual art therapy improved patients' ability to access emotions and process traumatic memories (Campbell et al., 2016). Nonetheless, larger and more methodologically robust trials are needed regarding this topic.

Studies of visual art therapy in affective disorders have been few, and have sometimes used mix methods (Im and Lee, 2014; Rawtaer et al., 2015). Nonetheless, a short 6-week RCT (n = 100) of directive clay therapy for individuals diagnosed with major depressive disorder (MDD) demonstrated improvements in cognitive function as well as a significant reduction in depressive symptoms (Beck Depression Inventory-II) and an improvement in daily life functioning and holistic wellbeing when compared with control patients treated with non-directive visual art therapy at the three-week time point (Nan and Ho, 2017).

A review of 15 RCT's (n = 777) of visual art therapy in patients diagnosed with non-psychotic disorders demonstrated that visual art therapy resulted in improved symptom outcomes in two thirds (10/15)

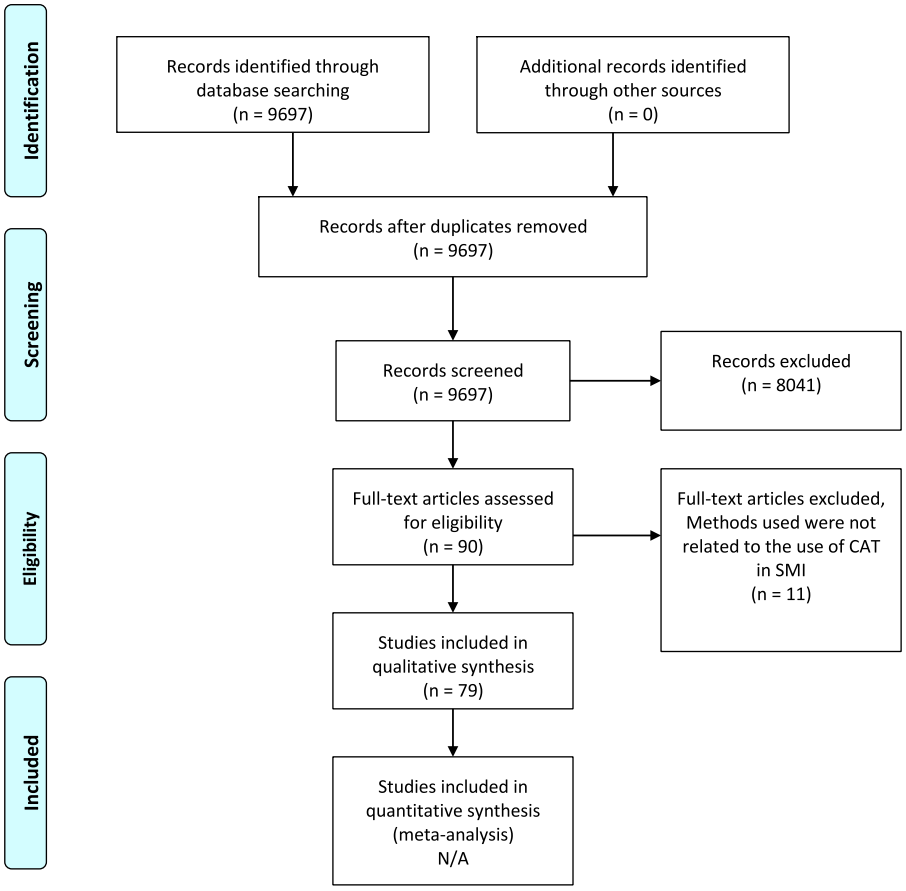

Fig. 1. Search methods flow diagram.

of studies (Uttley et al., 2015). Notably, four of the included studies demonstrated significant reductions in depressive symptoms from baseline to post-treatment (following eight to twelve weekly visual art therapy sessions) although in two of these studies similar reductions were observed in active control patients receiving traditional psychotherapy as well (Gussak, 2007; Kim, 2013; McCaffrey et al., 2011a; Thyme et al., 2007). One included study on visual art therapy and acute stress symptoms did not find any statistically significant effect of the intervention whereas another included study reported statistically significant reduction in PTSD symptoms following treatment with visual art therapy (Chapman et al., 2001; Lyshak-Stelzer et al., 2007).

4.1.2. Music therapy

Music therapy represents another one of the most commonly studied methods of CAT and can be active (patient engages in active production of music guided by the therapist) or receptive (patient listens and responds to music through methods such as lyrical analysis) (Aalbers et al., 2017; Chung and Woods-Giscombe, 2016). Genre of music and/or instrument choice is generally determined by therapist discretion and based on patient preferences, prior musical experience, and physical ability (Aalbers et al., 2017; McCaffrey et al., 2011b).

Two recent reviews ($n > 1000$) on music therapy in the schizophrenic population demonstrate that while much heterogeneity within the characteristics of music therapy treatment exists (types of instruments used, guided vs. unguided intervention, active instrument use vs. receptive therapy, etc.), some tentative conclusions can be drawn (Chung and Woods-Giscombe, 2016; Geretsegger et al., 2017). About half of the studies reviewed reported significantly improved outcomes in positive and negative symptoms of schizophrenia. Both reviews found music therapy in its active and receptive forms to improve social functioning and quality of life. A recent RCT ($n = 70$) adds to these findings, reporting that a 4-week program in which participants met 5 times a week, resulted in significant improvements in psychotic symptoms and depression in patients with schizophrenia (Kavak et al., 2016).

An RCT on Chinese inmates ($n = 200$) found that group music therapy resulted in decreased levels of depression and anxiety and resulted in an increase in self-esteem (Chen et al., 2016b). Additionally, the study noted that improvements were greater in younger subjects and those with lower levels of education. A recent study comparing receptive versus active music therapy in the treatment of depression demonstrated that receptive music therapy may achieve its maximal therapeutic effect more rapidly but the peak effect of active music therapy appears to be greater (Atiwannapat et al., 2016).

A recent Cochrane review of music therapy in depression found only 9 controlled trials ($n = 421$) available for inclusion (Aalbers et al., 2017). Although an overall reduction in depressive symptoms was noted, significant heterogeneity in intervention and observation methods and results existed between studies. No significant improvements in overall quality of life or global functioning were observed.

A study ($n = 27$) of psychiatric outpatients assigned to a year of weekly music therapy sessions demonstrated better adherence to drug therapy when compared to controls (Degli Stefani and Biasutti, 2016). In a recent 13-week music therapy intervention for patients with a severe mental illness ($n = 99$), patients reported better quality of life and increased spirituality, self-esteem, and appreciation for the intervention facilitators and co-participants by the end of treatment and also reported they would recommend the intervention to peers (Grocke et al., 2014). A study of music therapy for patients diagnosed with obsessive compulsive disorder demonstrated that music therapy was effective at reducing both obsessive symptoms and secondary symptoms of depression and anxiety (Shiranibidabadi and Mehryar, 2015). Similarly, a

RCT of an active music therapy intervention for interested veterans with PTSD demonstrated a significant improvement in PTSD-specific symptoms and depression in participants as compared to a delayed-entry control (Pezzin et al., 2018).

A recent 2017 review of music therapy for substance use disorders analyzed the results of 34 qualitative and 6 quantitative studies across a large variety of symptom and psychosocial outcomes including: motivation, depression, withdrawal/cravings, physical and psychiatric symptoms, coping, anxiety, anger, sadness, and stress (Hohmann et al., 2017). Each study varied greatly in the music intervention used, therapist qualification, and patient group precluding effective meta-analysis of the data. It was found that music therapy generally resulted in positive improvements to mood leading to decreased anger, depression, stress, and anxiety and was highly enjoyable for participants.

Despite much methodological heterogeneity, music therapy appears an effective and enjoyable method of therapy for patients with a variety of mental disorders.

4.1.3. Dance and movement

Dance and movement therapy embodies the psychotherapeutic use of movement in the treatment of mental disorders. Therapy can begin with basic exercises such as walking and advance to more complicated movements as the patients develops more comfort and skill. Dance therapy differentiates itself from other forms of art therapy through its increased ability to create mind-body connections and improve physical and aerobic health (Chen et al., 2016a; Levine and Land, 2016).

Literature on dance therapy in mental illness remains sparse. A Cochrane Review on dance therapy in schizophrenia found one CCT (Rohricht, 2006) for review (Ren and Xia, 2013). The Rohricht et al. study ($n = 45$) found that dance therapy resulted in a greater reduction in negative symptoms of schizophrenia when compared with a supportive counseling control (Rohricht and Priebe, 2006). Other secondary measures were similar between the groups. Two recent CCT studies ($n = 36$ and $n = 31$) of dance therapy for schizophrenia (mean age ~60) demonstrated significant improvements in cognitive functioning, quality of life, and physical ability (i.e. walking distance, balance, and strength) when compared to a sedentary or non-directed visual art therapy control group (Chen et al., 2016a; Kaltsatou et al., 2015). Another CCT of dance therapy for patients with schizophrenia ($n = 38$) observed reductions in anger, depression, and negative symptoms when compared to treatment as usual controls (Lee et al., 2015).

A pilot study ($n = 12$) of individuals with severe mental illness demonstrated that dance therapy had no significant effects on symptoms of mental illness or quality of life, but improved balance and mobility (Hackney and Earhart, 2010). A review of nine qualitative studies on dance therapy for trauma patients demonstrated dance therapy's unique therapeutic potential in allowing patients with trauma to access and express memories and emotions through nonverbal bodily movements, but highlighted the need for larger quantitative studies to be conducted (Levine and Land, 2016).

4.1.4. Drama/Theater

Despite a more limited body of literature regarding the use of drama therapy in the treatment of mental disorders, reports claim that drama therapy can combine the techniques of other types of CAT, such as dance and music, to help patients in novel ways. Moreover, the skills involved with acting have been thought to increase social functioning and empathy by requiring participants to imagine themselves as another (Mirabella, 2015).

Five RCT studies ($n = 210$) on drama therapy for schizophrenia were identified in a 2007 Cochrane review (Ruddy and Dent-Brown, 2007). One of the studies reviewed ($n = 60$) reported a significant decrease in negative symptoms, but not positive symptom with drama therapy (Qu et al., 2000). Another study ($n = 24$) found that drama therapy led to significant improvement to self-esteem and feelings of inferiority (Zhou, 2002). It was noted in one study ($n = 24$) that active participation and enthusiasm took time to develop during the course of the study and that patients had to overcome an adjustment period before progress was made (Nitsun et al., 1974). All studies were associated with an improvement in social functioning and emotional expression by the end of intervention.

4.1.5. Expressive/Creative writing

Expressive and creative writing represents a long-utilized, yet less studied form of CAT that includes personal journaling as well as crafting poetry, fiction, and autobiographies and memoirs (Feirstein, 2016; King et al., 2013). Outcomes from a few brief case reports suggest that creative writing can provide receptive individuals with the opportunity for expression and emotional release conferred by other types of CAT (Hankir and Zaman, 2015; Hankir et al., 2012).

A pilot study of 11 individuals diagnosed with severe mental illness placed in a writing workshop demonstrated that creative writing therapy was a highly positive experience and may have increased participants' confidence and cognitive functioning (King et al., 2013). The study suggested that future studies on writing therapy utilize a professional writer and focus on writing technique rather than content.

One CCT of expressive writing therapy in the treatment of MDD ($n = 40$) assigned patients to an expressive writing condition and a control writing condition (Krpan et al., 2013). Patients assigned to the expressive writing group were asked to write about their deepest thoughts and feelings, while the control group wrote about daily events. Both groups wrote for 20 min a day on three consecutive days. Patients in the expressive writing group demonstrated significant improvement in depression compared to the control group with effects persisting four weeks after completion of the active intervention. A meta-analysis of 5 studies ($n = 633$) of writing therapy compared to waiting-list control for post-traumatic stress showed that writing therapy robustly resulted in a substantial reduction of post-traumatic and comorbid depressive symptoms across studies (van Emmerik et al., 2013). Nonetheless, when writing therapy was compared with a cognitive behavioral therapy group in two of the studies, no differences between the groups were found.

4.2. Mechanisms of creative art therapy

At its best, CAT works to help patients diagnosed with mental illness to connect and communicate with themselves, their peers, their therapists, and the world in novel ways (Hanevik et al., 2013; Stuckey and Nobel, 2010). Most types of CAT differ from traditional psychotherapeutic techniques in that the former utilize primarily non-verbal mediums of expression and all seek to stimulate healing through the therapeutic effects of creativity (Lusebrink, 2010). CAT helps patients learn and develop artistic and/or musical talents that can increase their confidence/self-esteem, coping mechanisms, mood, cognitive functioning, and social functioning, and decrease symptoms of mental disorder diagnoses (Campbell et al., 2016; Hanevik et al., 2013; Solli and Rolvsjord, 2015; Teglbjaerg, 2011). CAT can also help transform the inpatient therapeutic setting into a more comfortable or liberating environment and foster increased levels of trust in healthcare providers and their treatment plans (Degli Stefani and Biasutti, 2016; George and Kasinathan, 2015; Potash et al., 2013). While the neurobiological mechanisms whereby CAT produces its effects have yet to be established, two proposed theoretical models are discussed below.

4.2.1. Body and mind

Body and mind theories of CAT state that mental disorders cause a disorganization of thought that interrupts normal connections between the brain and the body and that CAT works to repair disorganization between them (Czamanski-Cohen and Weihs, 2016). Creation of a successful CAT environment requires strength and balance at all points of the "CAT relational triangle" that describes the necessary

connections between the therapist, patient, and artistic expression (Czamanski-Cohen and Weihs, 2016). CAT is thought to enable patients to access the emotional experience of mental illness by activating a somatosensory reaction in response to the visual, tactile, and auditory components of the art making process. The Expressive Therapies Continuum (ETC) represents a mechanistic theory of CAT that presents a three tiered hierarchical system (kinesthetic/sensory, perceptual/ affective, cognitive/ symbolic) of action that CAT can affect, mirroring the three levels of sensory processing in the brain (parietal lobes; sensory to limbic; emotional to prefrontal cortex) (Lusebrink, 2010). In the ETC system, the sensory and physical experience of artistic expressions trigger emotional affective and perceptual responses that help reshape psychological and decision-making processes.

4.2.2. Recovery model

The recovery model focuses on the holistic health of each patient and providing the patient with the highest quality of life possible. It differs from concepts of clinical recovery which focus solely on correctly diagnosing a patient and addressing the symptoms of the given diagnosis (Hanevik et al., 2013; McCaffrey et al., 2011b). Instead of simply aiming for symptom remission, the recovery model aims to restore the patient to premorbid levels of community functioning and independent living. It seriously considers feedback received from patients and works to empower patients by building upon their strengths and interests in helping them develop self-confidence (McCaffrey et al., 2011b). CAT works well in the recovery model by offering therapeutic activity to the patient that can assist in the management of symptoms and pharmaceutical side effects when used alongside treatment as usual.

4.2.3. Molecular biological mechanisms

While theoretical frameworks for CAT can be useful in guiding future research, brain imaging and other neurological type studies should be conducted to determine the physiological basis of effects of CAT. A recent study of a music therapy intervention for schizophrenia demonstrated that music therapy resulted in improved functional connectivity strength in the right middle temporal gyrus (related to emotion and sensorimotor function), with the level in improvement of symptoms being correlated with level of improved connectivity observed (Yang et al., 2018). In addition, it is likely that CAT works to produce changes in brain plasticity in participants through the mechanisms of activity and experience-dependent brain plasticity (Bengtsson et al., 2005; Jamann et al., 2018). While the exact molecular pathways of axonal and somatodendritic plasticity in the mature human adult brain have yet to be fully understood, sensory manipulation is thought to promote plasticity (Jamann et al., 2018). One study involving pianists in the general population demonstrated a correlation between fractional anisotropy (e.g. a measure of brain connectivity), white matter development, and practice time in child, adolescent, and adult populations (Bengtsson et al., 2005). However, as expected, the correlation between plasticity and music-based practice time was reduced in the adult participants. Animal studies have demonstrated that the obtainment of new motor skills and spatial learning can encourage changes in white matter and increase myelination (Fields, 2015).

Moreover, schizophrenia, MDD, and SMI have been linked to dysregulation in white matter density and inflammatory states that have been thought to contribute the impaired cognition and symptoms observed in the disorders (Jeon and Kim, 2017; Jiang et al., 2018; Najjar and Pearlman, 2015). Recent studies have begun recording serum levels of various inflammatory markers suggested to contribute to the etiology and prognosis of mental disorders in patients receiving CAT interventions (Fancourt et al., 2016; Verrusio et al., 2014). Specifically, one RCT (n = 24) of elderly patients with depression observed a decrease in the levels of tumor necrosis factor-α (TNF-α), a pro-inflammatory marker, following combined treatment with exercise and music therapy (Verrusio et al., 2014). A ten-week CCT (n = 45) of group drumming therapy assessed levels of cortisol and inflammatory cytokines and TNF-α in adults receiving mental health services from hospitals (specific diagnoses not reported). The study noted a decrease in pro-inflammatory markers (TNF-α, interleukin-6) at the six week point and an increase in the levels of anti-inflammatory markers (interleukin-4) which was maintained up to at least the ten-week mark (Fancourt et al., 2016). Thus, CAT may generate its benefits to cognition, symptom severity, and functional recovery by restoring white matter and inflammatory pathways disrupted in SMI.

4.3. Current issues and possible solutions

4.3.1. Delivery methods and dosage

It remains difficult to measure the specific benefits derived from CAT as the therapy is often conducted in conjunction with pharmacological or other types of psychotherapeutic treatment. Moreover, the diversity of outcomes observed in studies of CAT appears partially a result of the extraordinary diversity with which CAT can be implemented. Studies on CAT not only differ in the total number of treatment hours (dosage), specific population, and controls, but also in the specific method of implementation (Chung and Woods-Giscombe, 2016). The following sections detail issues affecting the consistency of past studies which are applicable to all forms of CAT.

4.3.2. Provider/Therapist qualification

The qualifications of the person(s) delivering the CAT intervention remains an issue affecting consistency between studies, with some using professionally trained art therapists and others utilizing general healthcare professionals, or a mix of both.

Professionally licensed art therapists earn bachelors and graduate degrees in the field and are trained to recognize and interpret subtleties of CAT treatment that other clinicians or professional artists may miss, such as nuances related to the clinical significance of an artistic form (e.g. line, color, shape, depth, shading, and image in visual art therapy) (Lesser, 2017; Lusebrink, 2010; Saint Louis, 2017).

In countries such as the United States, United Kingdom, etc., CAT training is regulated by accrediting associations and governing bodies (e.g. American Art Therapy Association) and studies of CAT should utilize professionally licensed therapists as much as possible (King et al., 2013; Potash et al., 2013).

4.3.3. Group versus individual therapy

While group and individual type therapy sessions both appear able to effect positive outcomes, group sessions allow for greater peer-peer interaction and individual sessions allow for greater adaptability and personalization (Hanevik et al., 2013; McCaffrey et al., 2011b). Previous reviews of the literature on music therapy found little difference in the efficacy of studies that used group versus private therapy sessions (Chung and Woods-Giscombe, 2016). Nonetheless, group sessions remain recommended for the greater benefits to social functioning they provide and have even been argued to be essential for realization of the benefits of visual art therapy interventions (Hanevik et al., 2013; Potash et al., 2013).

4.3.4. Dosage

Several studies have demonstrated the key role dosage plays as a determinant of the efficacy of CAT (Chung and Woods-Giscombe, 2016; Fancourt et al., 2016; Gold et al., 2009). Greater total treatment hours (number of sessions x length of each session) seem to correlate with greater levels of benefit. Clinical anecdotes demonstrate the patience and time needed to develop a strong patient-therapist relationship and for patients to develop the necessary musical or artistic skills for maximally effective engagement with CAT (McCaffrey et al., 2011b). A review on music therapy in patients with schizophrenia suggested that at least 20 therapy sessions were necessary for the consistent realization of statistically significant results (Chung and Woods-Giscombe, 2016).

Even so, required dosage likely varies amongst individuals according to factors both related to the level of skill required for each type of therapy and severity of the mental disorder diagnosis. A dose-response relationship of music therapy in severe mental illness has been suggested, with modest benefits observed after 3–10 sessions and more robust benefits observed after 16–51 sessions (Gold et al., 2009). The dose-response relationship and general delayed of onset before benefit from CAT can be realized may be a result of the underlying biological mechanisms at play in CAT, that appear to include time-dependent molecular processes involving activity-dependent brain plasticity and activation of an anti-inflammatory response (Bengtsson et al., 2005; Fancourt et al., 2016; Jamann et al., 2018). It must also be noted that a recent review put sudden or unplanned termination of CAT programs as a source of potential harm in treatment (Scope et al., 2017).

4.3.5. Outcome measures

Although quantitative data generally present visual art and music therapy as providing modest benefits, it remains evident that many of the benefits clinicians believe to be associated with art therapy are not fully captured by the available clinical diagnostic tools. In order to accurately measure the complete range of benefits of art and music therapy, new assessment tools, in addition to the established psychiatric rating scales should be developed.

Art therapists have developed their own types of scales and methods of measuring baseline deficits in their daily visual art therapy practice. The Diagnostic Drawing Series (DDS) is a standardized test that can help inform patient diagnosis (Cohen et al., 1988). It demonstrates that differences in artistic content made by different diagnostic populations can be systematically categorized and assessed. A recent three-part study on CAT in individuals diagnosed with personality disorders demonstrated that the development of a treatment specific scale to measure the outcomes of CAT on personality disorders was both effective and necessary in determining the treatment specific outcomes of therapy (Haeyen et al., 2018). Moreover, a group drumming intervention for mental health service users and their care givers highlighted the need and benefit of using multidimensional measures of well-being for music therapy interventions (Ascenso et al., 2018).

4.3.6. Patient population

It appears that different psychiatric diagnostic populations respond differently to the various types of CAT (Campbell et al., 2016; Saba et al., 2016). A study on CAT in child psychiatric populations observed that patient interest and retention rates differed significantly between different diagnostic categories (Saba et al., 2016). Many studies seem to pre-select and tailor the specific CAT intervention used based on the target patient population although more thorough documentation and analysis thereof remains necessary to confirm this assessment. Determination of more effective population specific techniques could help standardize therapy interventions for patients (Campbell et al., 2016; McCaffrey et al., 2011b; Solli and Rolvsjord, 2015). Interventions in which diagnostic populations are mixed should focus on elucidating which methods are most effective for each diagnostic population. Special attention should also be paid to geriatric, military veteran, pediatric, and inmate populations, all of which seem to derive special benefit from CAT (Campbell et al., 2016; Im and Lee, 2014; Qiu et al., 2017; Saba et al., 2016).

4.3.7. Therapist-patient relationship

The therapist-patient relationship has been shown to be of particular importance for CAT with potential for both positive and negative effects on patient outcomes (Scope et al., 2017). CAT allows the therapist to form a unique relationship with the patient that enables the therapist to create a secure and aesthetic environment for the patient to engage in (Czamanski-Cohen and Weihs, 2016). The therapist should aim to facilitate an attachment relationship with the patient that allows the patient to feel safe to explore both the art materials and his/her emotions. The formation of this relationship serves as an essential part of the art therapy process (Czamanski-Cohen and Weihs, 2016). Patient satisfaction with the intervention leader should be regularly assessed.

4.3.8. Motivation

For many, participation in the arts serves as an enjoyable and relaxing activity. However, not all patients will appreciate CAT. Interest and enjoyment in CAT appear important determinants for both adherence to and benefit from therapy (Crawford et al., 2012; McCaffrey et al., 2011b). Even so, a retrospective follow-up study of one trial noted that an inherent interest in CAT at baseline was not associated with better patient outcomes (Leurent et al., 2014).

4.3.9. Mental health awareness

By developing and showcasing artistic talents of patients in the mental health community, CAT has been shown to help to change patient and community narratives and eliminate stigma toward mental disorder diagnoses (Potash et al., 2013). This has been shown to be especially evident in drama-based therapies that have been shown to improve mental health and social and cognitive functioning in individuals with SMI but also individuals with Parkinson's disease (Mirabella, 2015; Modugno et al., 2010). Moreover, CAT can help turn the inpatient psychiatric hospital setting into a more welcoming and secure environment and can even incorporate family members in the treatment process and increase satisfaction with care (Bensimon et al., 2018; McDermott et al., 2014). The use of creative art therapy should maximize the involvement of the general community to increase awareness of mental health issues and establish mutually beneficial social relationships between individuals living with psychiatric conditions and the general community.

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