



Advances in Creative Forces® Clinical Research and Applications of the Creative Arts Therapies for Treating PTSD and TBI in Military-Connected Populations

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Introduction

Creative Forces®: National Endowment for the Arts Military Healing Arts Network is an initiative of the National Endowment for the Arts in partnership with the U.S. Departments of Defense (DOD) and Veterans Affairs (VA) and state and local arts agencies that seeks to improve the health, wellness, and quality of life for military and veteran populations exposed to trauma, as well as their families and caregivers. Established in 2011, the program places creative arts therapists—art therapists, music therapists, and dance/movement therapists—at the core of patient-centered care at clinical sites throughout the country, including a telehealth program, and increases access to community arts activities. Americans for the Arts provides administrative support for Creative Forces.

Compelling preliminary evidence put forth by Creative Forces research supports use of the creative arts therapies in promoting rehabilitation and recovery for military and veteran populations exposed to trauma. To date, the 19 studies published by Creative Forces Network-affiliated researchers provide preliminary support for using creative arts therapies. Together, the findings justify continued growth of the program so that the nation’s military personnel, and families and caregivers, receive greater access to these therapies, as informed by best practices.

I. Creative Arts Therapies PTSD & TBI Research

The value of the creative arts therapies in clinical care, assessment, and evaluation with a range of patient populations has been described in the broader literature; these disciplines provide treatment efficiency and may shorten the length of treatment, advance treatment progress, or accelerate readiness for treatment ([Decker, Deaver, Abbey, Campbell, & Turpin, 2019](#); [DeLoach Walworth, 2005](#); [Karkou, Aithal, Zubala, & Meekums, 2019](#); [Romo & Gifford, 2007](#); [Standley, 2012](#); [Uttley et al., 2015](#)). The creative arts therapies research on military-connected populations and post-traumatic stress disorder (PTSD) and traumatic brain injury (TBI) is subsequently described.

Art Therapy. In a randomized, controlled trial (N = 38) that compared art therapy in conjunction with cognitive processing therapy (CPT) to CPT alone for veterans with combat-related PTSD, the art therapy and CPT group yielded significantly greater reduction in depression and PTSD symptoms ([Decker et al., 2019](#)). Furthermore, the perceived benefit of treatment was greater for

art therapy than for CPT. An earlier study found that art therapy with CPT improved trauma processing and that veterans considered it to be important to their treatment in providing healthy distancing, enhanced trauma recall, and increased access to emotions ([Campbell, Decker, Kruk, & Deaver, 2016](#)). Among its benefits, art therapy helps to identify patterns of resilience and indicators of psychological risk embedded in artwork and offers valuable clinical information ([Kaimal, Walker, Herres, French, & DeGraba, 2018](#)). It serves as an effective behavioral health assessment tool ([Kaimal, Walker, Berberian, Herres, & DeGraba, 2020](#)), it aids in recovery from traumatic experiences, and it reduces flashbacks and nightmares ([Jones, Walker, Drass, & Kaimal, 2018](#)).

Music Therapy. A scoping review that included 14 publications on clinical applications of music therapy with military populations showed positive outcomes related to emotional expression and/or emotion regulation, socialization/cohesion and/or decreasing loneliness/isolation, and social objectives ([Gooding & Langston, 2019](#)). Additional outcomes included: improvements in speech, motor, and cognitive functioning, and greater compliance with treatments ([Vaudreuil, Avila, Bradt, & Pasquina, 2019](#); [Vaudreuil, Bronson, & Bradt, 2019](#)); improving symptoms associated with PTSD and military sexual trauma ([Story & Beck, 2017](#)); and reducing anxiety and depression ([Wellman & Pinkerton, 2015](#)). The most common music-based intervention reported was group drumming ([Scheffel & Matney, 2014](#)), which was highly rated by service members engaged in group music therapy ([Vaudreuil, Biondo, & Bradt, 2020](#)). This finding is consistent with the growing body of research supporting the use of percussion (rhythm-based interventions) in music therapy and the therapeutic effects of active music-making ([Collins & Fleming, 2017](#); [Raglio et al., 2016](#)).

Dance/Movement Therapy (DMT). DMT programming was a recent addition to the Network; accordingly, Creative Forces DMT-specific research is forthcoming. The broader DMT literature points to multiple benefits in treating psychological health conditions and TBI in military-connected populations. A meta-synthesis of qualitative findings about DMT for individuals with trauma suggested that the treatment length can be reduced by addressing neurobiological and somatic goals, i.e., by promoting connections between body and mind, increasing mobility and range of movement, developing a healthy physical relationship with self and others, and creating new relationships with movement ([Levine & Land, 2016](#)). A pilot case study presented an analysis of an existing DMT-based mind-body wellness program that is part of a larger integrative program for military service members with TBI and psychological health conditions ([Winters Fisher, 2019](#)). Results showed potential increase in mind-body awareness for patients as well as a possible shift in movement flow. In a case study described by Lee ([Spooner et al., 2019](#)), telehealth delivery of DMT helped a veteran improve his quality of life and coping strategy for chronic health conditions. The patient achieved an expanded repertoire for movement and range of motion and met certain socialization goals.

II. Creative Forces Clinical Research

In recognition of the benefits of the creative arts therapies, the Creative Forces clinical research program was launched with art therapy and expanded to include music therapy and plans to

expand the dance/movement therapy program are presently underway. The promising empirical platform for the use of creative arts therapies across the Creative Forces Network so far includes 19 scholarly papers by clinicians in collaboration with academic partners. This research informs the present review. All 19 papers describe the work of Creative Forces creative arts therapists with military service members and/or veterans presenting with psychological health conditions, primarily PTSD and/or TBI.

The clinical research summarized in this article focuses on how interventions attributable to the work of Creative Forces creative arts therapists, patients, their families and cross-disciplinary colleagues promote rehabilitation and recovery across four domains: (1) psychological/behavioral, (2) neurological/cognitive, (3) rehabilitative (physiological, physical, functional, and/or occupational), and (4) social/relational. The 19 scholarly papers include 11 art therapy studies (one of which examines the use of therapeutic writing), seven music therapy papers, and one multi-disciplinary article (telehealth applications of art therapy, dance/movement therapy, and music therapy).

III. Creative Forces Art Therapy Research

Art therapy research publications from the Creative Forces Network total 11 to date and include case reports, correlational analyses of secondary data, and program evaluation studies, one of which examines the use of therapeutic writing ([Landless, Walker, & Kaimal, 2018](#)).

(1) Psychological/behavioral: Creative Forces research reveals that the recollection of a traumatic memory in art therapy leads to construction of an alternative narrative for trauma processing and recovery ([Berberian, Walker, & Kaimal, 2018](#)). Art therapy helps service members to open up, express, and confront aspects of their struggles too hard to articulate in words ([Kaimal et al., 2018](#)); it provides patients with the opportunity to freely express trauma symptoms and engages them in the treatment process ([Walker, Stamper, Nathan, & Riedy, 2018](#)). As found in a study by [Berberian, Walker, and Kaimal \(2018\)](#), art therapy fosters the ability to experience positive feelings like hopefulness and gratification and, according to [Kaimal, Jones, Dieterich-Hartwell, Acharya, and Wang \(2019\)](#), verbal processing is enhanced through artmaking. Furthermore, therapeutic writing used in conjunction with art therapy promotes expression of positive emotions ([Landless, Walker, & Kaimal, 2018](#)).

Artworks created in art therapy supported through Creative Forces can act as agents for change to improve frustration tolerance and stabilize emotions ([Jones, Drass, & Kaimal, 2019](#); [Walker et al., 2016](#)). As several studies demonstrate, art therapy provides a means to channel aggressive behaviors and address emotions like anger and anxiety and helps in coping with difficult experiences and feelings such as grief, loss, avoidance, survivor's guilt, and shame related to wartime actions ([Jones et al., 2018](#); [Kaimal et al., 2019](#); [Walker et al., 2017](#)).

(2) Neurological/cognitive: Art therapy improves concentration and memory ([Kaimal et al., 2018](#); [Walker et al., 2017](#)); it may foster connectivity in the brain to help support healthier brain

function (Walker et al., 2018); and it can enhance enjoyment and promote relaxation ([Kaimal et al., 2018](#)).

(3) Rehabilitative: According to the Creative Forces research, art therapy can increase the ability to cope with pain and stress ([Jones, Drass, & Kaimal, 2019](#); [Maltz, Hoyt, Uomoto, & Herodes, 2020](#)). In one case series report by [Walker et al. \(2018\)](#), art therapy was shown to help service members experiencing physical or psychological injury and/or struggling with rumination and stress to shift from the survival brain, which is focused on self-preservation, to the learning brain, which is receptive to new information.

(4) Social/relational: Art therapy enhances learning about the self, supports identity integration, self-awareness, and improved self-concept ([Jones, Drass, & Kaimal, 2019](#); [Jones et al., 2018](#); [Kaimal et al., 2019](#)). It also addresses a divided sense of self by promoting development of a coherent self through mask-making ([Walker et al., 2017](#)). According to the Creative Forces literature, art therapy reduces isolation, fosters the ability to relate to others ([Berberian, Walker, & Kaimal, 2018](#)), and helps in overcoming resistance to treatment due to societal stigma of pursuing treatment for PTSD ([Walker et al., 2016](#)). Mask-making in art therapy supports expression of internal struggles and offers an alternative mode of communication with caregivers, family, and fellow service members. The activity also promotes expressions of patriotism and belongingness among service members and can address feelings of disconnect with the society and nation after they return home from deployment ([Walker et al., 2017](#)).

IV. Creative Forces Music Therapy Research

Music therapy is an integral component of rehabilitation and is highly valued by patients, families, and interdisciplinary team members in military healthcare ([Vaudreuil, Avila, Bradt, & Pasquina, 2019](#)). Seven Creative Forces music therapy research papers, summarized below, have been published to date; they include a scoping review ([Gooding & Langston, 2019](#)), small case series, analyses of secondary data (e.g., clinical documentation, program evaluation), innovative music therapy protocols, and a preliminary multi-site study replicating clinical programming.

(1) Psychological/behavioral: Music therapy, as demonstrated in the Creative Forces literature, is provided both as integrated care and as a stand-alone treatment for PTSD, addressing such goals as: promoting relaxation and informing mind body connections, emotional regulation, hypervigilance, and sleep disturbance ([Bronson, Vaudreuil, & Bradt, 2018](#)). A music therapy group protocol described by [Vaudreuil, Biondo, and Bradt \(2020\)](#) in an interdisciplinary intensive outpatient treatment model was shown to be a useful initial experience in allowing active duty service members to acclimate to music therapy, optimize feelings of safety, and reduce perceptions of threat during emotional risk-taking. The group protocol also includes music therapy interventions that increase awareness of somatic responses to music and have proved moderately-to-very helpful for active duty service members in accessing and expressing their emotions.

(2) Neurological/cognitive: Music therapy interventions used in the Creative Forces program address outcomes related to cognition and memory, focus on attention to tasks, problem-solving, speech and language, auditory processing (auditory perception and tolerance of auditory stimuli), motor control and response, and freedom from headaches ([Bronson, Vaudreuil, & Bradt, 2018](#)). As demonstrated in one case report by [Vaudreuil, Avila, Bradt, and Pasquina \(2019\)](#), in collaboration with other treatment disciplines, neurologic music therapy interventions contribute to improvements in articulation, task-attention, and compensatory strategies.

(3) Rehabilitative: According to [Vaudreuil, Avila, Bradt, and Pasquina \(2019\)](#), music therapists can help ease discomfort and difficulty associated with rehabilitation activities, thereby enhancing patient motivation and participation in interdisciplinary care. In collaboration with other treatment disciplines across Creative Forces sites, music therapy co-treatments contribute to improvements in range of motion, functional use of bilateral upper extremities, strength endurance, and breath support. Additionally, across three case examples presented by [Vaudreuil, Langston, Magee, Betts, Kass, and Levy \(2020\)](#), patients reported a decrease in depression, pain, and anxiety.

(4) Social/relational: Music therapy interventions contribute to improvements in social integration, quality of life, and overall motivation in the recovery process ([Vaudreuil, Avila, Bradt, and Pasquina 2019](#)). Music therapy enhances interpersonal communication, reduces isolation, supports familial bonding/social engagement, enables exploration of music preferences, and fosters identity and self-efficacy ([Bronson, Vaudreuil, & Bradt, 2018](#)). As described by [Vaudreuil, Bronson, and Bradt \(2019\)](#), the use of musical performance in music therapy with military service members with PTSD and TBI can contribute to individual development and rehabilitation as a vehicle for social transformation and re-integration. Music therapy can give patients voice to their experiences, raise awareness of social issues within their communities, and transform perceptions of injury or illness in audience members. Further, music therapy may spur greater support and validation from patients' communities. Songwriting in the Creative Forces music therapy program enables service members to share their thoughts, emotions, fears, and hopes with family, friends, and other providers, often for the first time, and plays an important role in their personal growth and recovery process ([Bradt, Biondo, & Vaudreuil, 2019](#)). Songwriting can also help returning service members to reduce feelings of loneliness and isolation by offering a window into service members' lived experiences of military service, injury, recovery, homecoming, and transition from active duty, particularly in the areas of: (a) personal struggles and barriers to recovery, (b) relational challenges, (c) positive relationships and support, and (d) moving forward.

V. Creative Forces Telehealth Program

Another promising area in the Creative Forces program is telehealth delivery of creative arts therapies, as illustrated through two recent publications. [Spooner et al. \(2019\)](#) underscored the need for adequate training of practitioners and development of comfort and confidence in adapting their practices to distance delivery. Through three case studies of veterans who received art therapy, dance/movement therapy, or music therapy via in-home, synchronous

clinical video telehealth through a VA medical center in the southeastern United States, the authors reported inherent therapeutic gains, challenges, and opportunities. Further research could elucidate the benefits of creative arts therapy telehealth services and explore the comparative and relative effectiveness of remote versus in person interventions on outcomes of interest. In a paper by [Vaudreuil, Langston, Magee, Betts, Kass, and Levy \(2020\)](#), three music therapy telehealth programs are described, reflecting participants' positive experiences with music therapy and community music engagement through telehealth, and elucidating knowledge gaps. One case example illustrates the Creative Forces program in collaboration with the University of Florida, the North Florida/South Georgia Veterans Health System (NF/SG VHS), and the Rural Veterans Tele-Rehabilitation Initiative (RVTRI), an enterprise-wide initiative funded by the Veterans Administration Office of Rural Health. Distance delivery of music through online platforms is found to support participants on a clinic to community continuum.

VI. Conclusion

Research on the use of creative arts therapies in clinical care, assessment, and evaluation—including in settings supported by Creative Forces—is beginning to explore the ability of these therapies to improve service members' quality-of-life outcomes (e.g., readiness for duty, ability to work, live independently, and complete educational programs). Scholars have also begun to investigate system-wide benefits of such therapies—e.g., the implications for cost-effective, sustainable treatment options and their ability to shorten the length of treatment, advance treatment progress, or accelerate readiness for treatment ([Decker, Deaver, Abbey, Campbell, & Turpin, 2019](#); [DeLoach Walworth, 2005](#); [Karkou, Aithal, Zubala, & Meekums, 2019](#); [Romo & Gifford, 2007](#); [Standley, 2012](#); [Uttley et al., 2015](#)). Despite these identified benefits, several factors present a challenge to the Creative Forces clinical research initiative ([National Endowment for the Arts, 2017](#)). Given the different clinical practices across creative arts therapies disciplines, the program operates within a complex environment. Other confounding factors include: varying levels of evidence across the different creative arts therapy disciplines; the nature of the unique populations served by Creative Forces (i.e. the differences in characteristics among individuals); and the role of creative arts therapies in integrative medicine. While efforts to address these challenges are being pursued and the research to date provides foundational evidence supporting use of the creative arts therapies for military personnel exposed to trauma, further investigation is needed.

For a rigorous research program within and across creative arts therapies, there is a need for theory-driven research guided by compelling research questions and hypotheses. To this end, Creative Forces is developing conceptual frameworks for the creative arts therapy disciplines (as well as for therapeutic writing). This process includes developing a protocol of underlying mechanisms, outcomes, and associated measures, priority research questions/hypotheses, and rigorous study designs that may extend to prospective multisite trials in collaboration with other health/rehabilitation disciplines. Of particular importance is the need to investigate mechanisms of change, economic/care efficiency, and occupational (return to duty) and social/emotional benefits for each creative arts therapy discipline.

As practitioners across the country seek effective interventions for military personnel and their families, Creative Forces provides pathways for healing and meaning making as part of an integrated care approach ([National Endowment for the Arts, 2018](#)). The Creative Forces' research strategic framework and agenda formalizes a commitment to strategic objectives that are guiding the program to develop the necessary leadership, infrastructure, and capacity to support and direct the research and guide the treatments with a greater degree of precision. Further success in the program's research efforts will yield new knowledge on how the creative arts therapies can be tailored to the specific needs of each patient. Creative Forces upholds a fervent commitment to pursuing rigorous biomedical and behavioral research on the effectiveness of the creative arts therapies.

For more information on Creative Forces clinical research visit the [Clinical Research Findings](#) page and the [National Resource Center Creative Forces Clinical Research Resources](#) Collection.

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Appendix A
Creative Forces Peer-Reviewed Clinical Research Publications (N=19)
December 2020

| ART THERAPY PUBLICATIONS (N=11) | | | |
|---|---|------|--|
| Authors | Title & Hyperlink | Year | Journal |
| Berberian, M., Walker, M. S., & Kaimal, G. | “Master My Demons:” Art Therapy Montage Painting by Active-Duty Military Service Members with Traumatic Brain Injury and Post-Traumatic Stress https://mh.bmj.com/content/45/4/353.abstract | 2018 | Medical Humanities |
| Jones, J. P., Drass, J. M., & Kaimal, G. | Art Therapy for Military Service Members with Post-Traumatic Stress and Traumatic Brain Injury: Three Case Reports Highlighting Trajectories of Treatment and Recovery https://www.sciencedirect.com/science/article/pii/S0197455618301540 | 2019 | The Arts in Psychotherapy |
| Jones, J. P., Walker, M. S., Drass, J. M. & Kaimal, G. | Art Therapy Interventions for Active Duty Service Members with Post-Traumatic Stress Disorder and Traumatic Brain Injury https://www.tandfonline.com/doi/full/10.1080/17454832.2017.1388263 | 2018 | International Journal of Art Therapy |
| Kaimal, G., Jones, J. P., Dieterich-Hartwell, R., Acharya, B., & Wang, X. | Evaluation of Long- and Short-Term Art Therapy Interventions in an Integrative Care Setting for Military Service Members with Post-Traumatic Stress and Traumatic Brain Injury https://www.sciencedirect.com/science/article/pii/S0197455618301321 | 2019 | The Arts in Psychotherapy |
| Kaimal, G., Walker, M. S., Berberian, M. G., Herres, J. M. & DeGraba, T. M. | Examining Associations Between Montage Painting Imagery and Symptoms of Depression and Posttraumatic Stress Among Active-Duty Military Service Members https://psycnet.apa.org/fulltext/2020-40994-001.pdf | 2020 | Psychology of Aesthetics, Creativity, and the Arts |
| Kaimal G., Walker, M. S., Herres J., French, L. M., & DeGraba, T. J. | Observational Study of Associations Between Visual Imagery and Measures of Depression, Anxiety, and Post Traumatic Stress Among Active-Duty Military Service Members with Traumatic Brain Injury https://bmjopen.bmj.com/content/8/6/e021448.long | 2018 | BMJ Open |
| Landless, B. M., Walker, M. S., & Kaimal, G. | Using Human and Computer-Based text Analysis of Clinical Notes to Understand Military Service Members' Experience with Therapeutic Writing https://www.sciencedirect.com/science/article/pii/S0197455618301370 | 2018 | The Arts in Psychotherapy |
| Maltz, B., Hoyt, T., Uomoto, J., & Herodes, M. | A Case Analysis of Service Member Trauma Processing Related to Art Therapy within a Military-Intensive Outpatient Program https://onlinelibrary.wiley.com/doi/full/10.1002/jclp.22929 | 2020 | Journal of Clinical Psychology |

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| Walker, M. S., Stamper, A. M., Nathan, D. E., & Riedy, G. | Art Therapy and Underlying fMRI Brain Patterns in Military TBI: A Case Series https://www.tandfonline.com/doi/full/10.1080/17454832.2018.1473453 | 2018 | International Journal of Art Therapy |
| MUSIC THERAPY PUBLICATIONS (N=7) | | | |
| Authors | Title & Hyperlink | Year | Journal |
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