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The Effect of a Music Therapy Intervention on Inmate Levels of Executive Function and Perceived Stress: Teaching for Transfer

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FLORIDA STATE UNIVERSITY

COLLEGE OF MUSIC

THE EFFECT OF A MUSIC THERAPY INTERVENTION ON INMATE LEVELS OF
EXECUTIVE FUNCTION AND PERCEIVED STRESS: TEACHING FOR TRANSFER

By

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To my Mom and Dad

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ABSTRACT

The purpose of this research was to explore how a music therapy teaching for transfer intervention may impact inmate levels of executive function and perceived levels of stress. Sixty-four inmates were recruited to participate in the study. Participants were randomly assigned to either the experimental group or the control /wait list group. While the experimental group received music therapy, the control group received standard care during the five week intervention. Upon completion of data collection the control/wait list group received music therapy services. The experimental group received ten 90-minute group singing music therapy sessions consisting of musical and therapeutic objectives. Musical objectives included vocal warm-ups, posture exercises, breath strengthening exercises, and learning a variety of choral pieces. Therapeutic objectives included lyric analysis, group discussion, movement, and transfer of learning through songwriting. A final concert was given for fellow inmates and staff.

Participant response to treatment was measured by Cohen's *Perceived Stress Scale* (PSS) and the *Behavior Rating Inventory of Executive Function – Adult Version* (BRIEF-A) self-report form. The BRIEF-A is further divided into two indexes labeled the: Behavior Rating Inventory (BRI) and the Metacognitive Index (MI). Together the BRI and the MI indexes indicate an individual's level of executive functioning. The PSS is a ten-item self-report questionnaire measuring perceived stress within the last month.

Pre and post scale outcomes of the BRIEF-A indexes were compared utilizing a factorial ANOVA. Significant differences were found between and within groups indicating that the experimental group made greater improvements as a result of the intervention. Outcomes regarding perception of stress demonstrated no significant differences between groups, though both groups did exhibit lower levels of stress at posttest.

The present study examines a music therapy teaching for transfer protocol in the correctional environment on executive function and perceived levels of stress. Although research involving music therapy in the prison population is limited, outcomes of previous and current research demonstrate encouraging outcomes and warrant the need for continued exploration.

CHAPTER 1

INTRODUCTION

Located at the interchange of I-90 and US 81, El Reno, Oklahoma is known for its Main Street charm and Fried Onion Burger Day Festival. In July of 2015, however, it became known as hosting the first ever sitting president to visit a federal correction institute (New York Times, 2015). President Obama's visit to the El Reno FCI highlighted inmate living conditions and excessive sentencing practices for nonviolent offenders. "We need to support structure, second chances, and resources [if we are to] survive our mistakes," the President stated. Both Republicans and Democrats alike support the re-evaluation of sentencing practices which often result in an "...enormous moral and financial cost" for the offenders, their families, and communities nationwide (New York Times, 2015). President Obama's visit re-invigorated the discussion of prison's role in punishment and how a rehabilitative approach may decrease recidivism. "We rarely have presidents take notice of prison conditions," said Amy Fetting senior staff counsel at the American Civil Liberties union and director of the group's Stop Solitary campaign. "This is huge" (Washington Post, 2016).

Although the United States accounts for only 5% of the global population, it represents 25% of the world's incarcerated. The 'war on drugs' and 'tough on crime' policies characteristic of the 70s and 80s have often been cited as the reason for today's record breaking incarceration rates (Cooper, Durose, & Snyder, 2014; FDOC, 2012; Benson, 2003). Policies of that era implemented mandatory sentencing policies, increased jailable offenses, and applied punitive methodologies in an attempt to curb crime rates and increase community safety (Martin, 2007). Consequently, these actions contributed to prison over-crowding and financial strain for national and state government agencies (Baier, 2016; Wormith, et al., 2007; Benson, 2003). Presently,

discussions surrounding correctional practices are being initiated by government officials, policy makers, and the President of the United States.

Policies such as the Fair Sentencing Act, Smart on Crime initiatives, and compassionate release considerations are changing the tone of correctional practice. In response to prison overcrowding and harsh penalties placed upon drug offenders, The Justice Department granted the early release of 6,000 inmates convicted of non-violent drug offenses in December of 2015 - the largest mass release of inmates in history (Eckholm, 2015). Policy makers are also looking to contemporary treatment practices that may impact inmate care. While affirming the importance of practical skills training and educational programs in rehabilitation for inmates, Loretta Lynch, Attorney General, praised the role of arts in criminal justice reform by highlighting the importance of the arts as they "...serve a fundamental need [for inmates] who need a creative outlet, a form of self-expression [and an] opportunity for collaboration, emotional growth, and talent exploration" Austin, 2015).

Recidivism, Re-integration, and Federal Policy

Recidivism is a term used to describe a former inmate's relapse into criminal behavior and is measured by the rate of re-arrests within a three-year time period (NIJ, 2015). The Bureau of Justice Statistics reports that nearly 68% of released inmates were arrested for a new crime within three years of their release and 77% of them within five years (Cooper, Durose & Snyder, 2014). Older inmates demonstrated lower rates of re-arrest (68%) when compared to inmates under the age of 24 who showed a re-arrest rate of 84%. Nearly half of released inmates returned to prison as a result of parole violations (Langan & Levin, 2002). The numbers of re-arrests may appear high, but further consideration of the challenges inmates face upon re-entry may paint a clearer picture.

Inmates not only encounter numerous re-integrational challenges concerning employment, housing, finances, and healthcare, but they also wrestle with poor coping skills, a limited education, and reduced access to resources (Phillips & Lindsay, 2010; Makarios, Steiner & Travis, 2010). Inmates are often released from prison with minimal cash, a change of clothes, and a one-way bus ticket. In her best-selling memoir *Orange is the New Black*, Piper Kerman recalls that since the prison "...had no extra women's street clothes she was given the smallest pair of men's jeans they had, a green polo shirt, a windbreaker, and a cheap pair of fake-suede lace-up shoes with thin plastic soles. They also provided me with \$28.30." (Kerman, 2011, p. 294-295). In a survey conducted by the American RadioWorks state-by-state report, "gate money" provided to inmates averages \$54.00 and is often given in the form of a check. One third of the states surveyed provided no funding. In an interview with Rolling Stone magazine, political commentator John Oliver commented on the extremely challenging barriers inmates face upon re-entry. "Once your money runs out, you can find yourself hungry and desperate" because some states don't allow those with a criminal history government food benefits and "...if your family lives in public housing, you may not be able to return home because some places require tenants to sign papers banning relatives with convictions from entering their homes" (*Rolling Stone*, 2015). Some states won't allow a driver's license or the option to live in public housing – two integral aspects of creating a successful livelihood (*Rolling Stone*, 2015). These barriers are capturing the attention of lawmakers.

In June, bipartisan federal legislation created The Second Chance Reauthorization Act of 2015. This act offers grant assistance in the areas of education, employment, and housing to individuals recently released from prison (Justice Center, 2015). In addition to this program, several states or major cities, in an attempt to ensure fair hiring practices, have adopted the "Ban

the Box” policy on their employment applications which removes questions regarding criminal background history during the initial application procedure. The Department of Education distributed nearly \$8 million dollars to certain communities for the purpose of providing educational programs to those formerly incarcerated in an effort to support successful reintegration (The White House, 2015). To increase employment opportunities, President Obama’s Techhire initiative incorporates nearly 30 communities throughout the nation in expanding tech-related job opportunities to former inmates (The White House, 2015). Because 95% of all inmates currently incarcerated will re-enter society, identifying ways to support their reintegration is crucial for the inmates, the community, and the correctional system (Congressional Research Service). Many federal, state, and local organizations provide rehabilitative programming to prepare inmates for a future outside prison walls.

In its New Inmate Handbook, the Florida Department of Corrections suggests inmates “make use of the resources and programs available” and “...make the purpose of [their] stay to improve [themselves]...” Incorporating various types of programming and personal betterment classes to facilitate successful re-entry experiences for inmates is a large part of this rehabilitative philosophy. Dr. Charles Haney, a psychologist at the University of California, Santa Cruz, believes that, with appropriate implementation, “...work programs [and] education...can ease a prisoner’s transition into the free world” (Benson, 2003, p. 46). Facilities offer varying types of programs and classes for their inmates.

Programs generally found in prison curricula might include substance abuse recovery, anger management, and family counseling courses. Professional certifications such as the General Education Development (GED), Heating, Ventilation and Air-Conditioning (HVAC) certifications, auto-body repair, manufacturing skills, or business related programs are frequently

available. Many of these classes are taught by inmates. The Florida Department of Corrections Bureau Services Section utilizes trained Inmate Teaching Assistants (ITA) who work in collaboration with certified academic instructors to offer classes for fellow inmates (FDOC, 2005). States in other parts of the country also acknowledge the value of inmate education and its impact on recovery, recidivism, and inmate feelings of self-worth (Kelly & Clark, 2013). Communities, colleges, and private organizations are also taking action to improve education behind bars.

With support from the privately funded Hudson Link for Higher Education in Prison organization, five correctional facilities in New York State provide college coursework, life skills, and re-entry classes for incarcerated males and females (Hudson Link, 2015). Encouraging inmates to pursue an education behind bars benefits more than just the inmate. The Hudson Link program impacts communities as well by ensuring that re-entry inmates have the ability to pursue meaningful lives within the community once released and by reducing recidivistic behaviors. Graduates of Hudson Link demonstrate a less than 2% recidivism rate and save New York taxpayers over 10 million dollars a year. Students from Princeton University provide tutoring for incarcerated individuals to reduce recidivism and strengthen community relationships through the Petey Greene Program (Petey Greene, 2015). Benefits of the program not only enhance inmate rehabilitation but also provide worthwhile experiences for the volunteers. Although the rehabilitative value of an education is clear, federal funding for these types of programs has suffered drastic reductions (Gangi, Schiraldi, & Ziedenberg, 1999). In July of 2016, however, Education Secretary Arne Duncan and Attorney General Loretta Lynch announced initiation of the Second Chance Pell Pilot program. This program would allow some inmates an opportunity to receive grant money to attend college while behind bars (The White

House, 2015). Opportunities for educational enhancement can occur outside of the classroom, too, through one-on-one interaction.

The Louisiana State Penitentiary encourages inmates to volunteer in its prison hospice program. After being interviewed and accepted, inmates receive 40 hours of training learning how to offer personal care, emotional support, and spiritual support for their fellow end-of-life inmates (Lofton, 2015). Promoting compassion through serving others and supplying meaning and purpose for the volunteers is an important part of their recovery. Additionally, lower levels of fear and frustration among the inmates have resulted in decreased rates of violence within the facility (National Catholic Supporter, 2013). The emphasis on developing the whole-person has led to the implementation of faith and character based correctional facilities. Initiated by state Departments of Correction, there are 19 faith and character based facilities in the United States and 11 of these are in Florida (OPPAGA, 2009).

Faith and Character Based Facilities

Created to focus on modifying internal motivations and behaviors, faith and character based facilities offer rehabilitative treatment. These facilities differ from traditional institutions as evidenced by their commitment to the betterment of the individual and the individual's personal commitment to transformation. Academic and vocational programs present inmates a chance to enhance social, personal, spiritual, and professional skills in preparation for re-entry into society or to enhance the quality of their remaining sentences (Frollick, 2005). Spiritual enrichment, weekly church services, and chaplaincy classes accommodate various spiritual preferences and belief systems. This rehabilitative approach to correctional programming has decreased disciplinary action within facilities and reduced recidivism (DeFoor, 2008).

While rehabilitative programming offers desirable outcomes, it is not without its challenges. The prison environment holds unique implications for treatment delivery that impact inmate participation (Center for Substance Abuse Treatment, 2005). In addition to the social stigma attached to being labeled an inmate, inmates experience substantial feelings of trauma and powerlessness, exist in dehumanizing environments, and embody intense feelings of shame and guilt (Center for Substance Abuse Treatment, 2005). Choosing to attend treatment may cause an inmate to be characterized as “weak” or unable to handle life situations by his fellow inmates. Gender also plays a role when implementing therapeutic programming and should be considered (Meijers, Harte, Jonker, & Meynen, 2015). Evidence-based treatment methods in this environment must aim to affect engagement, enhance the re-entry experience, decrease the likelihood of recidivating, and elevate societal gains. Cognitive behavior therapy and its effect within the corrections environment has gained the attention of administrators. Rehabilitation in the form of cognitive behavioral therapy is coming to the forefront of correctional treatment models and is being implemented across the country as a result of its evidence-based outcomes (Clark, 2010; Wormith, et al., 2007; Craig, 2004; MacKenzie, 2000).

Cognitive Behavioral Therapy

Cognitive behavior therapy (CBT) combines cognitive therapy with behavioral techniques to alter thought processes and approaches to thinking (Corsini & Wedding, 2005). Participants in CBT work on re-framing and challenging pre-existing beliefs in response to personal experiences and learn new ways of thinking through role-playing, modeling, imagery, and diversion techniques (Clark, 2010; Corsini & Wedding 2005; Zlotnick et al., 2003). Experiences can mislead a person’s perception of reality and impact day to day interactions as evidenced by poor problem solving skills, lack of capacity to consider the consequence of one’s

actions, inability to accept responsibility for mistakes, lack of impulse control or anger management, and by choosing violence as a solution to be successful (Clark, 2005). In the correctional environment, individuals who commit crimes do so as a result of a particular way of thinking and the environment in which they live (Cullen & Johnson, 2002). Those who have experienced "...a lack of parental love and supervision, exposure to delinquent peers, the internalization of antisocial values..." and who demonstrate below average verbal intelligence and have difficulty in relationships with others are more likely to become involved in crime than those not having had those experiences (Cullen & Johnson, 2002; Andrews, 1989). Many of the programs mentioned thus far, while not labeled as CBT, practice many of the techniques emphasized by the CBT protocol. Real-life opportunities give inmates opportunities to apply positive behaviors through compassionate healing in hospice, identifying goals and practicing perseverance through an education, or gaining real-life skills through professional programming.

Cheek, Bradley, Parr, and Lan (2003) explored how music therapy in conjunction with CBT may lead to reductions in levels of teacher burnout. Results of their study showed that music therapy in combination with CBT significantly improved outcomes as evidenced by coping more effectively with stress. Outcomes of this research are in line with previous studies showing how the addition of music therapy to existing cognitive behavioral groups presented opportunities for improving social rapport, developing coping skills, and expressing emotions through verbal and non-verbal means (Cheek, et al., 2003; Forman, 1982; Forman, 1983). Similarly, Hadley and Yancy (2012) described the role of hip-hop songwriting as an adjunct treatment to CBT in the recovery of adolescent substance abuse offenders. Group songwriting experiences allowed participants to engage in meaningful and helpful self-expression exercises

about various topics without resulting in negative behaviors such as substance abuse.

Interventions such as this improve emotional management and coping skills.

CBT for inmates has been noted for its ability to reduce recidivism in adults and juveniles, substance abusers, and nonviolent and violent offenders alike (Clark, 2010). When compared to programs focused on deterrence and punishment, CBT's emphasis on practical skill-building, counseling, and social skills lends itself to successful re-entry experiences for inmate participants (Lipsey, 2009). The National Institute of Corrections promotes the integration of CBT and also emphasizes the incorporation of a third 'sociocentric' aspect relating to "developing skills for living in harmony with the community and engaging in behaviors that contribute to positive outcomes in society" (Milkman & Wanberg, 2007). The department of corrections implements several types of CBT programs. They are: Aggression Replacement Training® (ART®), Criminal Conduct and Substance Abuse Treatment: Strategies for Self-Improvement and Change® (SSC®), Moral Reconation Therapy® (MRT®), Reasoning and Rehabilitation® (R&R® and R&R2®), Relapse Prevention Therapy® (RPT®), and Thinking for a Change® (T4C®). Regardless of any program, patient compliance is imperative. Music therapy demonstrates increased levels of retention (Dingle, Gleadhill, & Baker, 2008).

As a complementary therapy to a substance abuse CBT program, Dingle, Gleadhill, and Baker (2008) introduced a music therapy component. Over the seven-week music therapy intervention, surveys were gathered reflecting participant attendance and perceptions of music therapy services. Results showed an attendance rate of 75% and that enjoyment and motivation to participate were high as evidenced by mean rating scores of 4.3 out of 5. Nearly half of participants (46%) indicated they would be interested in future music therapy sessions and that the sessions helped them feel included. Results of the study also indicated that age or type of

substance abuse played no role in participant perception of services suggesting that age/substance had no effect on participant engagement. Music therapy's relationship with CBT offers promising outcomes. Inpatient psychiatric members assigned to one of three groups exhibited higher retention rates when compared to the no music group (Silverman, 2011). In exploring the effects of a single-session assertiveness music therapy role-playing protocol for psychiatric patients, participants demonstrated not only higher attendance rates for the music therapy groups but also indicated a higher satisfaction with session outcomes.

Focus of Current Research

Evidence-based research outcomes demonstrate that CBT approaches to treatment are successful in providing inmates a promising option for re-entry success and lowering recidivistic behaviors (Cooper, 2014; Phillips & Lindsay, 2010; Craig, 2004). Music therapy encourages participation, facilitates large groups of people, retains participants, and provides unique therapeutic opportunities for expression and interaction unlike talk-based therapies (Hadley & Yancy, 2012; Silverman & Leonard, 2012; AMTA, 2008; Cheek, et al., 2003; Daveson & Edwards, 2001; Standley, 1996; Forman, 1982). Combining music therapy principles with CBT may further enhance rehabilitation programs for inmates. Music therapy demonstrates strong evidence-based treatment outcomes for meeting the many needs of this diverse population.

CHAPTER 2

REVIEW OF LITERATURE

Music Therapy in Prisons

Innovative music educator and music therapist William van de Wall pioneered the use of music in hospitals, psychiatric centers, and prisons (Kirkun, 2010). His first publication in 1923, *Music in Correctional Institutions*, suggests that music's ability to create an environment of expressive and thoughtful development and to provide opportunities for group work, self-expression, and self-discipline created a worthwhile method of rehabilitation (Davis, Gfeller, & Thaut, 2008). Music's capacity to stimulate thoughts and emotions within a sincere environment gives inmates opportunities for appropriate social interaction and expression (Clair & Heller, 2007; Daveson & Edwards, 2001). Van de Wall specifies that singing is the most functional use of music within this environment due to its cost effectiveness, accessibility, and effortless adaptability in group settings (Clair & Heller, 2007; Coddington, 2002). Group work, he adds, lends itself to social change in comparison to individual work.

Music therapy as a viable method of treatment for inmates continues to be explored well into the 21st century. Wardle (as cited in Daveson & Edwards, 2001) studied the effects of therapeutic music interventions in the female unit of a psychiatric facility. The researcher described how the inmates responded to singing, playing, type of music and opportunities for improvisation. Other significant contributors in this area were Nolan (1983) who explored the role of guided imagery and music with an incarcerated male and Cohen (1987) who used music with violent offenders (as cited in Daveson & Edwards, 2001). Cohen's (1987) research explored two case studies of offenders who committed violent crimes as a result of loss of control due to alcohol or alcohol/psychosis. The researcher described how music offered an ideal treatment

modality through its ability to provide opportunities for expression while giving continuous support. Thaut's (1989) utilization of active guided music listening and self-expression within a group setting was implemented to address patient goals. Later research offers deeper insight into the practical therapeutic applications within this environment like psychotherapy and guided imagery with music (Coddington, 2002). As these studies indicate, many aspects in the treatment of inmates have been explored relating to professional limitations, therapeutic approaches, and inmate viewpoints on functionality of services.

Music therapy affected inmates' self-perceived changes regarding relaxation, mood, and insight for psychiatric patients residing in prisons (Thaut, 1989). Participants in this study engaged in three different music modalities: group music therapy, instrumental group improvisation, and music with relaxation. Results of the study demonstrated significant changes in perceptions of all areas as a result of having received music therapy services. Differences in the three music types of modalities did not differentially impact the results.

Davies and Richards (2002) found that the unique capacity of music to transcend words offers valuable insight for inmates' emotions. Exchanging thoughts and ideas with fellow inmates encouraged feelings of validation, community, and support. Group music therapy services provided opportunities for emotional expression, increased self-confidence, and a sense of belonging. Maguire and Merrick (2013) wrote that development of these skills is necessary to ensure a positive life both inside and outside prison walls (Maguire & Merrick, 2013). During a twelve-week choral program involving inmates and community members, Cohen (2012) discovered that significant differences were found regarding community members' attitudes toward prisoners after a group music concert. Results of the study also demonstrated improvements in inmates' sense of confidence in social situations, their ability to meaningfully

engage with others, and their relationships with family. This research complements related theories that a connection exists between low self-esteem and levels of criminal activity. Group music making opportunities are meaningful and insightful for inmates and for community members who come into prisons to share music.

This shared meaning is illustrated in a prison music program created by two pre-service music education majors in the southeastern United States (Abrahams, Rowland, & Kohler, 2012). Not only did the inmates benefit from the experience but, according to the authors, the pre-service music students also grew both spiritually and professionally (Abrahams, Rowland, & Kohler, 2012). They learned that music is more than just a subject to be studied; it became an avenue to create change. Music allowed the inmates to feel pride, express creativity, and enhance self-worth (Abrahams, Rowland, & Kohler, 2012). These intrinsic values are important to develop as the primary health needs of inmates relate to mental health (James & Glaze, 2006). Chronic stress is a primary health concern for inmates with psychological and physiological ramifications. Stress can exacerbate existing mental health issues and/or create new ones (Stewart, 2007; Van der Kolk, McFarlane, & Weisaeth, 2007; Weinstein, 2006).

Stress

Defining stress is a daunting task with implications for various disciplines and practices. Physicians, engineers, and psychologists utilize the term stress for different reasons. In the behavioral sciences, the term stress may be defined as the "...perception of threat, with resulting anxiety discomfort, emotional tension, and difficulty in adjustment" (Fink, 2010). Despite its subjectivity, one thing is certain: stress is a natural part of any human experience (Van der Kolk, 2007; McFarlane, 2012).

The body is designed to respond to stress by increasing oxygen to the brain, releasing hormones, and elevating heart and respiration rates (Lovallo, 2015). Stress can be beneficial because it motivates us, helps us stay focused, and improves cognitive functioning (McGonigal, 2015; Murgia, 2015). Too much stress, however, negatively impacts the physiological and psychological aspects of well-being. For example, persistent stress can increase the desire for isolation, affect sleep quality, interrupt digestive operation, compromise immune function, and alter mood (Weinstein, 2004). Chronic stress also has implications for neurological functioning. When confronted with stressful situations, the brain releases cortisol, a hormone enabling the body to quickly respond. However, heightened levels of cortisol levels as a result of chronic stress carry critical outcomes. Chronic stress increases levels of fear and deteriorates the portion of the brain that assists with learning and stress control. It can also diminish the size of the pre-frontal cortex which impacts decision making, concentration, impulse control, social ability, and can ultimately lead to depression (Murgia, 2015). This region of the brain is responsible for carrying out behaviors relating to executive function. Prison's distinctive set of psychological and physiological experiences affects levels of stress making it a primary contributor to inmate health and well-being (Ahmad & Mazlan, 2014; Haney, 2012).

Feelings of diminished self-worth, existence in a volatile environment, absence of autonomy, discomfort from overcrowding, and distrust of others characterize the dynamics of prison culture and contribute to elevated levels of stress (Haney, 2012). Research has revealed that stress management programs increased inmate levels of self-confidence, improved sleep, decreased instances of violence, and diminished utilization of health services (Kristofferson & Maas, 2013). In fact, 30% of visits to the medical unit were made by inmates with stress-related complaints. The most frequent type of inmate to utilize health services scored high on stress,

depression, and anxiety assessments and expressed feelings somatically (Kristofferson & Maas, 2013). Inmates face challenges relating to stress beyond prison walls as well.

Malott and Fromader (2010) surveyed 102 inmates regarding their opinion of resources that would be most valuable upon release. Nearly 30% of respondents indicated that they would benefit from learning how to cope better with stress. Programs like PRISON S.M.A.R.T. (Stress Management and Rehabilitation Training) emphasize a curriculum focused on stress reduction, emotional healing, and practical skill implementation. The program highlights the application's usefulness both inside and outside of prison walls. Participants reported improved sleep, diminished anxiety, and increased coping with daily stressors (Prison S.M.A.R.T., 2014). Stress reduction activities are available at various correctional facilities across the country through programs such as mindfulness meditation and yoga (Samuelson, et al., 2007). Music therapy has shown to be a valuable tool in teaching stress management skills.

Music Therapy and Stress. Miller and Spence (2013) explored the effects of music listening in combination with therapeutic breathing exercises on patients and visitor stress levels in a psychiatric emergency room. Results of surveys indicated significant differences on stress levels of those who participated in the music intervention when compared to the control group. Stress as a result of participating in combat missions was explored through drumming interventions (Bensimon, Amir, & Wolf, 2008). Data collected via self-report measures, video footage from sessions, and interviews demonstrated minimization of PTSD symptoms -- specifically relating to outlets of rage, regaining feelings of self-control, belonging, and connectedness. Inmates have frequently reported and received treatment for symptoms related to PTSD as a result of the incarceration experience (Gremigni, Del Bene, Tossani, 2010; Komarovskaya, et al., 2011; Wolff, et al., 2011; Dudek, et al., 2013; Baier, et al., 2016).

Inmates face a unique set of challenges when re-adjusting to civilian life (Curlsey & Maruna, 2015; Wormith, et al., 2007). Reliance on institutional structure, need for health care, and lack of autonomy can make the transition period demanding and difficult (Harkins, et al., 2011; Gremingi, et al., 2010; Haney, 2010; Phillips & Lindsay, 2010). Inmates reprising parental roles experience even more challenges as they transition from the alienating prison environment to the more trusting environment needed for children and families (Haney, 2012).

Research has recognized the need for treatment of post-incarceration syndrome (PICS), a group of symptoms often identified in many inmates who are newly released (Liem & Kunst, 2013). PICS is a subtype of PTSD and consists of a group of several mental disorders including post-traumatic stress disorder, antisocial personality disorder, social-sensory deprivation syndrome, substance abuse disorder, and institutionalized personality traits (Liem & Kunst, 2013). When inmates leave prison, they often are not equipped to cope with real-life situations and manage existing mental health issues they may have developed as a result of incarceration (Dudek, 2013; Wolff, et al., 2011; Komarovskaya, 2011;).

In a women's prison, Daveson and Edwards (2001) explored inmates' perceptions of music therapy as a method of coping with stress. Results of the protocol demonstrated that music therapy was successful in helping participants diminish their levels of stress and increase opportunities for self-expression and relaxation. At the present time, the only study found exploring stress, music therapy, and inmates is mentioned above. The U.S. department of corrections has acknowledged the value of stress management programs and its value in the treatment of inmates (Samuelson, et al., 2007).

Considering the benefits of stress management programs, music therapy's capacity to address these symptoms and correctional institutions' support of stress management techniques,

it would appear that the relationship among these three variables and inmates is worthy of exploration.

Executive Function

Executive function, or dysfunction, is the brain's ability to "...create new aspirations, set goals, become motivated to act, organize efforts, inhibit incompatible behaviors, initiate and execute plans, monitor the outcomes, and, when necessary, make adjustments in order to guide plans to their completion" (Gardiner & Thaut, 2014). Individuals who experience challenges with executive function often have difficulty re-adjusting to, or being successful in, environments which were once familiar to them (Gardiner & Thaut, 2014) and may have behavioral deficiencies regarding impulse control, problem-solving, planning, attention, self-monitoring, and present as indifferent or antisocial (Ellis, 2014; Nunn, Hanstick, & Lask , 2008; Hazzard, et al., 2003; Brower & Price, 2001). Dysfunction of the executive type is often caused by damage to the frontal lobe either as a result of disease, birth defects, trauma, or aging (Hazzard, et al., 2003). For example, age-related cognitive decline can impact quality of life and executive functioning for older adults. Some research suggests that education levels of parents can impact levels of executive function in their children as well (Ardila, et al., 2005). A music therapy intervention incorporating individualized piano lessons has demonstrated the ability to strengthen executive functioning and memory ability in older adults (Bugos, et al., 2007).

Previously known as frontal lobe syndrome, executive function is a several step neurologic process requiring an individual's ability to: 1) to create a plan and identify the steps needed to achieve it; 2) identify the necessary elements with which to make the idea successful, and; 3) carry out the plan. The final step can be the most complicated because it requires continuous re-evaluation of the goal, the ability to adapt, and the aptitude to creatively problem

solve unforeseen challenges (Hazzard, et al., 2003). Dysfunctions of this type are not specific to any age, population, or socioeconomic category. Executive dysfunction is, however, associated with substance abuse, anxiety, chronic stress, and depression (Murgia, 2015; Rocha, et al., 2014; Anderson, et al., 2001), four of the primary mental health issues found in inmate populations (James & Glaze, 2006).

Research literature has shown that diminished executive function is a common thread in individuals with criminal backgrounds and appears to be higher in those that are repeat offenders. It can often times predict the occurrence and harshness of crimes (Meijers, et. al., 2015; Vera & Sosa, 2015; Rocha, et al., 2014 Greenfield & Valliant, 2007; Pham, Philippot, & Vanderlinden, 2003; Portia, 2002). Improvements pertaining to executive function such as goal planning and acknowledging inappropriate behavior may contribute to reducing recidivistic behaviors, easing the transition experience, and improving experiences while incarcerated (Meijers, et. al., 2015; Vera & Sosa, 2015; Rocha, et al., 2014; Greenfield & Valliant, 2007; Seruca & Silva, 2005; Pham, Philippot, & Vanderlinden, 2003). For inmates, identifying these areas of need can play an important role in their future rehabilitation.

Researchers Seruca and Silva (2005) explored a subset of executive functioning abilities with recidivist offenders, primary offenders, and non-offenders. Although no differences were found between the two groups of offenders, significant differences were found when compared to the non-offenders. Models of dysfunctional patterns were associated with criminal records of the offenders. Levels of executive function were found as indicators of violence, reaction to provocation, and aggression as evidenced by assessments such as the Novaco's *Inventory of Reaction Provocation* and the *Battery for Frontal Lobe and Executive Function* by Flores, Ostrosky & Lozano (Vera & Sosa, 2015). Results of the regression analysis confirmed that

executive function plays a role as a predictor in criminal behavior. While research suggests that a relationship exists between levels of executive functioning and criminal behavior, research also reflects encouraging outcomes regarding one's ability to regain executive functioning.

Cognitive Remediation Therapy (CRM) addresses the fundamental neuropsychological roles that assist one in thinking: attention, memory, planning, organization, and abstract thinking (Medalia, 2015). CRM and Cognitive Behavior Therapy (CBT) are similar in that they are both therapies aimed at helping individuals achieve their highest level of functioning through behavior modification interventions. Although widely utilized with patients who have schizophrenia, Rocha, et al., (2014) explored the effects of how a CRM program for female inmates might enhance their recovery process. Results of the CRM approach demonstrated significant improvements regarding the neurocognitive domains of attention, processing speed, memory and verbal learning in the prison context – three primary components of executive function. Aspects of emotional states such as depression, anxiety, and stress also decreased. As a result, outcomes of this research are beneficial not only for the inmate but they also enhance the environment for correctional staff. The first of its kind, this research corroborates the plausibility of CRM in the prison context. Music therapy offers promising outcomes for enhancing executive function for the inmate population.

Music Therapy and Executive Function. Ellis (2014) explored the effect of a group music therapy intervention on levels of executive function in an adult male correctional facility. Inmates in a county jail were recruited and assigned to either an experimental group / music therapy or a control group / talk therapy. Results of the intervention demonstrated raw score improvements of all those who participated in the music therapy group and 40% for the control group. Participants in the music therapy group demonstrated a higher retention rate when

compared to the control group. Results of the analysis supported the further investigation of the interaction between music therapy and executive function within this population. Transfer technique is another component of inmate recovery with the potential to meaningfully contribute to an inmate's recovery process.

Transfer of Learning

Transfer technique is the ability to apply knowledge learned from one environment to a different environment (Madsen & Madsen, 2016). Synonyms for the concept of transfer include: application, association, generalization, or use (Riley, 2013; Cormier & Hagman, 1987). Transfer of learning is crucial for two reasons. First, it requires problem solving skills, creative thinking, and higher level mental functioning. And, implementing new information to solve current and future problems eliminates the need for constantly re-learning concepts. Second, it allows an individual to either notably increase or decrease his efficiency and amount of learning (Hunter, 1971). Clients engaged in music therapy are able to transfer newly acquired skills into different contexts of their lives, a crucial concept for inmates facing the challenges of re-integration (Tague, 2012; de l'Etoile, 2002; AMTA, 2008; Madsen, 1986)

Music Therapy and Transfer. Music therapy research has shown that music interventions incorporating transfer positively impact reading skills (Standley, 2008; Register, et al., 2007). First graders learning new vocabulary demonstrated an increased number of words learned and transferred when gesture was paired with music in comparison to the group receiving gesture only (Madsen, 1991). A variety of music interventions have shown effectiveness in addressing learning of phonetic patterns, building sound blending skills, and promoting rapid decoding skills. Music interventions to improve reading were shown to be most effective when they complemented music education coursework already in use. Length of intervention, whether

daily or weekly, appeared to be of no consequence (Standley, 2008). Music therapy teaching for transfer interventions also enhances psycho-social development.

Hakvoort, et al. (2015) explored how music therapy may enhance the development of coping skills, anger management techniques, and the impaired behavior of correctional psychiatric patients. While both groups indicated improvement regarding anger management skills, participants in the music therapy group demonstrated enhanced growth in positive coping skills and less use of avoidance as a method of coping. The number of treatment hours for each group also suggested that the music therapy intervention made changes more quickly (Hakvoort, et al., 2015). Music has the capacity to serve not only as subject but also as reinforcement of behavior and participation (Standley, 1996).

Music has been utilized to create an effective learning environment, teach non-musical concepts, and encourage compliance (Riley, 2013; AMTA 2008). For patients with severe mental illness, live music interventions such as songwriting, lyric analysis, singing, and percussion interventions stimulated the interest of more participants than passive music interventions. Active music making was more beneficial in affecting participant perceptions of knowledge gained, showing enjoyment of services, and producing a higher percentage of attendance (Silverman & Leonard, 2012). Daveson and Edwards (2001) found that music therapy increased inmates' ties to reality and motivation to participate. Music therapy's capacity to create an environment for safe expression and the meaningful sharing of thoughts lends itself to increased levels of participation for many inmates. Often times these goals are achieved through a group singing intervention.

Group Singing

Group singing has demonstrated desirable therapeutic outcomes in a variety of populations (Carpenter, 2015; Grocke, et al., 2014; Dassa & Amir, 2014; Davidson et al., 2014; Cohen, 2009). It has been used to diminish the effects of cognitive dissonance, alter perceptions of old and young adults, and improve swallow function in people with Parkinson's disease (Harris & Caporella, 2014; Belgrave, 2011; Yinger & LaPointe, 2012). Bailey and Davidson (2002) explored how a group singing intervention for a group of men who were homeless might assist in developing adaptive behaviors. Results of the qualitative data introduced several themes related to the engagement between the audience and the choir, therapeutic objectives, mental stimulation, and inter-group interaction. Data indicated that this active group participation may assist in alleviating depression, increasing self-esteem, enhancing cognitive engagement, and improving social skills. Group singing interventions such as these are particularly advantageous because of their adaptability and feasibility in many environments. Research of this type yields encouraging evidence that group singing promotes opportunities to enhance adaptive behavior development for individuals who are isolated from mainstream interaction. Inmates are another population isolated from society and would benefit from behavior modification programs (Cohen, 2012; Cohen, 2009, Silber, 2005).

Two prison choirs were compared to examine the differences in well-being via the *Friedman Well-Being Scale* (Cohen, 2009). Choir one was an inmate only choir that performed inside the correctional institute. Choir two was comprised of inmates with volunteers from outside the facility and performed in the community setting. Significant differences were found in choir two regarding four primary areas of emotional well-being: emotional stability, sociability, happiness, and joviality. A multi-voice choir served to enhance the recovery of

female inmates (Silber, 2005) through offering opportunities in the areas “...relating to authority, peers, and self-empowerment.” Group music making activities provide opportunities to develop inter-personal skills, self-expression, and self-control through active listening, building confidence, and receiving constructive comments (Silber, 2005). Inmates may be concerned with not only how their peers perceive them, or how they perceive themselves, but also with how society may view them (Cohen, 2009).

Cohen (2009) implemented a 12-week choral program for inmates and community volunteers to measure community members’ perceptions of inmates and inmates’ perceptions of their social proficiency. Variables were measured quantitatively by the *Attitudes Toward Prisoners Scale* (ATPS) and qualitatively through open-ended questions. Prisoners’ open-ended questions resulted in the identification of several themes relating to feeling respected, making friends, improving relationships with family members, and enhancing relationships with fellow inmates. Community members reported feeling enhanced enjoyment and appreciation of their own lives.

Rationale for Research

With 2.2 million people currently incarcerated and most of them preparing to return to communities, it seems imperative that inmates have opportunities to participate in evidence-based interventions that foster personal growth, ease the transition experience, and ultimately reduce the potential for recidivism. Existing research states that issues concerning executive function and stress contribute to inmate health and likelihood of achieving success beyond bars (Meijers, et al., 2015; Kristofferson & Maas, 2013; Haney, 2012; Matt & Fromader, 2010; Samuelson, et al., 2007; Seruca & Silva). Research also suggests that these issues can be improved with evidence-based treatment modalities such as CBT (Clark, 2010; Lipsey, 2009).

Music therapy treatment techniques involving group singing interventions have demonstrated promising benefits (Cohen, 2012; Cohen, 2009, Silba, 2005). Although not explored with this population, the theory of transfer has benefitted a diverse set of populations and is worthy of continued examination. Music therapy has demonstrated the ability to address the rehabilitative effects of stress, executive function, and transfer technique and continued exploration of its effectiveness is worthy. Therefore, the purpose of this research is to determine if a music therapy teaching for transfer intervention in a group singing context affects inmates' levels of executive function and perceived levels of stress. Exploring the impact of a music therapy protocol within the prison environment may enhance the rehabilitative experience during incarceration and lower the incidence of recidivating once released.

Research Question #1 “Does a group music therapy teaching for transfer in a singing context impact inmates’ levels of executive function?”

Research Question #2 “Does a group music therapy teaching for transfer in a singing context impact inmates’ levels of perceived stress?”

CHAPTER 3

METHODS

Facility and Participants

Inmates from a state faith and character based correctional facility in North West Florida were invited to participate in this study. The facility, which houses nearly 1,400 male inmates, is divided into three sections based on custody level: the Annex which houses all inmates under medical care, the Main Unit which encompasses higher custody inmates, and the Work Camp which houses minimum security inmates. Many members of the work camp have jobs outside the prison gates, experience community interaction, and will complete their sentences in a relatively short period of time. Only inmates in the Work Camp were eligible to participate in this study. One hundred inmates from the Work Camp signed up to attend the research information session, 64 were identified as appropriate to participate, and 60 completed the study in its entirety. Participants were then randomly assigned by a computer generated program to either the experimental group ($n = 30$) or the no contact control / wait list group ($n = 30$). (See Table 1). This study was approved by the Florida State University Human Subjects Review Board (Appendix E) and the Department of Corrections Research and Analysis Committee. (Appendix D).

Inclusion Criteria

To satisfy the criteria for the dependent measures, a 5th grade reading level or higher was required for participation. Reading level was determined by the *Test of Adult Basic Education* (TABE) which is administered to each individual upon admission to the correctional system (FDOC Handbook). The researcher collaborated with the senior education coordinator in the facility to determine satisfaction of inclusion criteria. Participants had to have received no music

therapy services prior to this study and had to demonstrate a 60% attendance rate during the study to be included in data analysis.

Table 1
Group Demographics

Demographic	Experimental Group (<i>n</i> = 20)	Control / Wait List Group (<i>n</i>= 20)
Age		
Mean	30.87	35.8
Education Level		
(TABE) ^a	7.43	8.02
Race		
Caucasian	16	17
Black	7	8
Hispanic	7	5
Conviction Type ^b		
Drug possession/trafficking	10	6
DUI Manslaughter	4	2
Burglary / Assault	2	9
Arson	1	1
Grand Theft	2	1
Fraud	1	1
Sentence Length ^b		
Mean in years	8.1	9.2

^aThe TABE (Test of Adult Basic Education) assessment is given to every inmate upon entry into the department of corrections.

^bThis information is according to the Department of Corrections Inmate Look-Up computerized system. Information is updated regularly and can be accessed by the public at anytime.

Design

This study utilized a pretest-posttest design. The experimental group received the music therapy intervention while the no contact control / wait list group underwent standard incarceration routines during the five-week treatment period. The control / wait list group received the music therapy intervention upon completion of data collection in the interest of allowing as many individuals as possible to participate.

Measures

The Behavior Rating Scale for Executive Function / Adult Version (BRIEF-A) is a standardized inventory that observes an individual's executive function in an everyday environment (Appendix C). Composed of 75 questions, the BRIEF-A requires approximately 15 minutes to complete and requires a 5th grade reading level (Roth, Isquith, & Gioia, 2005). The BRIEF-A can be administered through a Self-Report Form or in conjunction with the Informant/Observer Report Form. For the purposes of this study, only the Self-Report Form was utilized.

The BRIEF-A identifies nine clinical scales representing different aspects of behavior associated with executive function. The nine clinical scales are: Inhibit, Shift, Emotional Control, Initiate, Working Memory, Self-Monitor, Plan/Organize, Task Monitor, and Organization of Materials. Table 2 outlines and defines the nine clinical scales as described in the BRIEF-A Professional Manual.

These nine clinical scales are further subdivided into two indexes: the Behavior Rating Inventory (BRI) and the Metacognition Index (MI). A Global Executive Composite (GEC) score provides overall interpretation of the two indexes. The MI describes an individual's capacity to "solve problems through planning and organization, while sustaining these task-completion

efforts in active working memory” (Roth, Isquith, & Gioia, 2005, p. 23). It examines an individual’s cognitive capacity to manage attention while solving problems and consists of the Initiate, Working Memory, Plan/Organize, Task Monitor, and Organization of Materials clinical scales (Roth, Isquith, & Gioia, 2005). The BRI index details an individual’s ability to sustain appropriate control of behavioral and emotional responses. The clinical scales Inhibit, Shift, Emotional Control, and Self-Monitor make up the BRI index. Levels of the BRI relate to performance in the MI as it supports metacognitive processing in addition to maintaining self-regulation.

Table 2
BRIEF-A Clinical Scale Descriptions

Index	Clinical Scale	Definition^a
BRI ^b	Inhibit	This scale measures an individual’s ability to not act impulsively. Characteristics of this behavior can include inappropriate physical responses and a tendency to interrupt others.
BRI	Shift	This scale measures an adult’s ability to easily move from one activity to another. Shifting might include one’s capacity to make transitions, problem solving, and alternate attention.
BRI	Emotional Control	This scale measures an adult’s ability to navigate emotional regulation. Characteristics of this deficit include “overreacting”, crying easily, or laughing without goading.
BRI	Self-Monitor	This scale measures an individual’s awareness of his/her own behavior and how behavior impacts other people.
MI ^c	Initiate	Adults with poor initiation generally have a desire to complete a task, but have limited skill in getting started. They often require prompting.

Table 2 - continued
BRIEF-A Clinical Scale Descriptions

Index	Clinical Scale	Definition^a
MI	Working Memory	Working Memory describes an individual's ability to retain information long enough to complete a task. This is important as executive function requires carrying out multi-step projects or following directions.
MI	Plan Organize	<p>“Planning” requires an individual to maintain a sense of time, set goals, and to seek out potential materials that may be needed.</p> <p>“Organizing” refers to the capacity of one to organize information, materials, and personnel needed to carry out a goal. This is a cognitive emphasis on task completion.</p>
MI	Task Monitor	The task monitor scale measures the ability of one to maintain awareness of his ability to monitor problem solving skills. Those who struggle with task monitoring make careless errors.
MI	Organization of Materials	Organization of materials is the physical representation of organization in an individual's life. Those weak in this area may often misplace items or have difficulty finding items when they are needed.

^a Definitions as provided by the *BRIEF-A Professional Manual* (Roth, Isquith, and Gioia, 2005)

^b The BRI index is the Behavior Rating Inventory

^c The MI index is the Metacognition Inventory

Reliability for the BRIEF-A is based on three factors: 1) internal consistency, 2) test-retest stability, and 3) inter-rater reliability (Roth, Isquith, & Gioia, 2005). Interrater agreement pertains only to assessment protocol engaging both the individual through the self-report and the informant report. Measures for Internal Consistency for the normative sample were characterized as moderate (Cronbach's alpha .73 to .90) for the clinical scales and (.93 to .96) for the clinical

scales and the indexes. For the clinical/healthy sample, alpha coefficients ranged from .80 to .94 for the clinical scales and .96 to .98 for the indexes and composite outcomes.

Test-retest stability indicates how stable a measure is over a period of time regarding behaviors that are relatively constant. For the self-report form, test-retest stability demonstrated correlations across the clinical scales from .82 to .93 over a 4.22 week average. For the indexes correlations for the BRI and MI were .93 and .94 for the GEC.

Measures validating the interpretation of the BRIEF-A are based on four scores. They are: 1) item content, 2) “convergence and divergence of the BRIEF-A scores with other measures, 3) internal structure, and 4) “profiles of BRIEF-A clinical scale and index scores within and between various diagnostic groups expected to have difficulties with executive function” (i.e. attention deficit hyperactivity disorder, mild cognitive impairment, Alzheimer’s disease, multiple sclerosis) (Roth, Isquith, & Gioia, 2005).

Item content was determined by the “degree to which experts in the field of psychology agree on membership of each item in the nine clinical scales and can serve as an index of validity based on content” (Roth, Isquith, & Gioia, 2005. Page 66). Ten experienced neuropsychologists expert in the field of executive function assigned all 146 questions of the original assessment to the identified scales. Agreement among the raters was: 1) Inhibit, 86% 2) Shift, 92% 3) Emotional Control, 98% 4) Self-Monitor, 35% 5) Initiate, 81% 6) Working Memory, 79%, 7) Plan-Organize, 77% 8) Task Monitor, 88% and 9) Organization of Materials, 85%.

The fourth element of determining validity is in the assessment’s relationship with similar measures. For the BRIEF-A “correlations with rating scales of executive function, anxiety, and mood within a clinical and healthy adult sample” were explored (p. 66). Campbell and Fiske (1959) created a multitrait-multimethod matrix to explore the connections between measures that

were both related and unrelated. Correlations between the BRIEF-A and standardized assessments such as the *Beck's Depression Inventory*, *State Trait Anxiety Inventory*, *Geriatric Depression Scale*, *Clinical Assessment of Depression*, and the *Cognitive Failures Questionnaire* further describe its validity within clinical assessment applications. Validity of the BRIEF-A in comparison with other clinically similar groups was explored by comparing scores from clinical populations with those obtained from healthy control populations. Populations utilized for comparison were: Alzheimer's disease, mild cognitive impairment, traumatic brain injury, multiple sclerosis, and epilepsy. Although findings from the comparison indicate that the BRIEF-A is sensitive to the strengths and weaknesses of the identified populations, the researchers emphasize that results regarding these populations should not be considered characteristic.

In addition to the aforementioned scales, three additional validity scales were created: The Negativity scale, Infrequency scale, and the Inconsistency scale. The negativity scale aims to highlight any assessment indicating a noticeably high negative response pattern. Individuals with ratings of higher than six negatively labeled responses are identified as having increased negative attributes and ratings should be interpreted with care. The infrequency scale identifies unique response patterns that would unlikely be found in a population. Scores are rated between 0-5. Any score above 3 should be closely evaluated and considered during data interpretation. Occurrences of the infrequency type represent < 1% of the data in combined normative and clinical/healthy adult samples. The inconsistency scale highlights issues between inter-rater response patterns. Scores are calculated by taking the sum of the differences between raters in response to 10 identified questions on the assessment. Difference scores higher than 8 indicate high levels of inconsistency. This score occurs < 1% of the time in combined normative and clinical/healthy adult samples. Inter-rator validity scales apply when both the self-report and

informant reports are utilized. Since the self-report form was the only assessment utilized in this study, the inconsistency scale was not measured.

Cohen's *Perceived Stress Scale* (PSS) is a 10 question self-report questionnaire evaluating an individual's perceived level of stress (Appendix B). The PSS is one of the most widely utilized questionnaires measuring psychological stress. It measures an individual's perceived level of three life descriptors (unpredictable, uncontrollable, and overloaded) within the past month (Eun-Hyun, 2012). Each question is answered utilizing a Likert-type five point scale with answers ranging from 0 (never) to 4 (almost always). The questionnaire takes approximately 5-10 minutes to complete and requires a reading level of "at least a junior high school education" (Cohen, Kamarck, & Mermelstein, 1983). Assessment protocol allows verbal administration of this assessment; therefore, reading level is of no consequence. During pre-test/post-test administration of this study, I conducted the test verbally to accommodate those who may have needed verbal administration because of reading levels. Scores for the PSS are calculated by summing the totals of all questions with reverse scoring of the four positively worded statements. Higher cumulative ratings indicate higher levels of perceived stress. Average stress scores are around 13 and high stress scores are around 20.

Normative data of nearly 2,400 individuals were utilized to determine validity of the PSS. Strong correlations were found between the PSS and depressive symptomology (.76 and .65) (Cohen et al., 1983). Associations between outcomes of the PSS and other findings such as self-reported health and health services measures have been explored (Cohen, et al. 1988). Three separate tests utilizing three different samples were used to obtain reliability for the PSS. Coefficient alpha levels for each of the three tests were .84, .85, and .86. College students from

the University of Oregon provided test-retest correlation measures. These results reported a correlation of .85 (Cohen, 1983).

Procedures

Ten 90 minute sessions were scheduled twice weekly over a five week period. Sessions were held in the same room at the same time and were conducted by the same person throughout. Sessions included 5-15 minutes of vocal warm-ups emphasizing vocalizes, posture exercises, and breath strengthening exercises to acquaint participants with the pedagogical aspects of singing. This was followed by a one hour intervention that concentrated on learning music and applying therapeutic techniques such as lyric analysis, group discussion, movement, and transfer of learning through song writing. Varying levels of music reading knowledge within the group made teaching by rote the most efficient means of instruction. Repertoire applied during this study can be found in Table 3. Lyric sheets were provided for study outside of the therapy session. Inmates not included in the study provided accompanying services on piano and guitar. The final 15 minutes included session closure, final words, and collection of materials.

Participants were assigned weekly responsibilities necessitating preparation outside the therapy session. Responsibilities included: preparing warm-ups, devoting time to thoughtful reflection about the therapy session for group discussion, and filling the role of a peer-mentor where appropriate. Peer-mentor roles involved assisting a fellow participant in learning his vocal part, explaining prior class material, or offering encouragement during rehearsals.

A final concert featuring the work of the participants over the intervention period was given for staff and fellow inmates. As a group, participants planned, organized, and produced the final performance. Objectives included: designing the program cover, arranging song order, creating special readings, and suggesting additional ideas.

Table 3
Repertoire

Title	Composer / Arranger
<i>Hey, Ungua</i>	Traditional African Song
<i>Tshotsholoza</i>	Traditional South African Freedom Song / Arr. by Jeffrey Ames
<i>Man In the Mirror</i>	Siedah Garrett and Glen Ballard
<i>Wade In the Water</i>	Traditional African American Spiritual
<i>Lion Sleeps Tonight</i>	Solomon Linda
<i>Hello My Name Is</i>	Matthew West
<i>Solved</i>	Experimental Group Songwriting Project (Appendix E)

Curriculum

At the time of this study, no curriculum for this type of intervention was available. Therefore, I designed the following curriculum based on existing applicable research, evidence-based therapeutic teaching techniques, and professional experience as a music therapist in this environment. Goals and objectives were identified for development of specific music, variables, and session content. Table 4 outlines the specific goals and objectives for each session as they relate to executive function, perceived stress, and transfer of learning. The curriculum included twice weekly sessions across a five-week timeline since analysis of the strong BRIEF-A reliability measures shows change after an average of a 4.22 weeks.

A group singing intervention was utilized to address content related to the dependent measures. Multiple aspects of executive function and perceived levels of stress relating to tolerance of others, improved listening skills, and cultural understanding were best addressed in the group sessions. Activities incorporated into the intervention were appropriate regarding age

and education level of participants. Participants were encouraged to move, sing confidently, listen to others, offer solos, make brave mistakes, and engage in songwriting activities.

Group therapeutic teaching techniques utilized throughout the intervention included: choral rehearsal techniques, positive feedback, demonstration, group discussion, performance, small group work, and opportunities for transfer through songwriting in group sessions or as homework for individuals.

Table 4

Curriculum Guide by Week: Goals, Objectives – Executive Function

	Week #1	Week #2	Week #3	Week #4	Week #5
Session #1	Pre-Test Warm-Up Learn: Hey, Ungua Tshotsholoza Introduction of transfer	Warm-Up Hey, Ungua Review: Lion Sleeps Tonight Wade in the Water Learn: Man in the Mirror	Warm-Up Review: Lion Sleeps tonight Wade in the Water Tshotsholoza Man in the Mirror Group Songwriting #1 (see Appendix)	Warm-Up Review: All Plan: Program Name of program Order of pieces Graphic Design	Run through
Session #2	Warm-Up Hey, Ungua Review: Tshotsholoza Learn: Wade in the Water Lion Sleeps tonight	Warm-Up Review: Tshotsholoza Lion Sleeps Tonight Man in the Mirror Hello My Name Is	Warm-Up Review: Tshotsholoza Lion Sleeps tonight Wade in the Water Man in the Mirror	Warm-Up Review: Tshotsholoza Lion Sleeps Tonight Wade in the Water Man in the Mirror Solved	Performance Post-Test
Goals	Establish rapport Introduce transfer Vocal pedagogy Create group awareness	Mood elevation Self-expression Acceptance of others Social awareness	Spiritual support Active listening skills Increase tolerance	Respect for others Collaboration Compromise Patience	Self-Confidence Achievement
Objectives	2 part harmony / unison Singing in ‘rounds’ Call and response Physical movement Transfer	Lyric analysis Storytelling Songwriting Dynamics / Shaping Transfer	Memorization Increased expression Increased musicality Transfer	Design program graphics (Appendix H) Song order Assign roles Transfer	Perform in front of peers
Executive Function Content	Working Memory, Shift, Emotional Control, Self Monitor,	Emotional Control, Working Memory Inhibit, Shift	Working Memory, Emotional Control , Shift, Task Monitor	Plan / Organize Organization of Materials Initiate	All

CHAPTER 4

RESULTS

Outcome measures for this study included levels of executive function and perceived stress. Statistical analyses were calculated utilizing IBM's Statistics 21 software program with α levels set at .05. Sixty-four inmates were identified as meeting criteria for this study. Thirty two inmates were assigned randomly to the experimental group, and 32 to the control group. One week into the intervention three inmates in the experimental group were given new job assignments and, therefore, were unable to continue attending sessions. The control group decreased by four participants as a result of: transfer to another facility (1), absence on post-test day (2), and job re-assignment (1). No inmate requested to be removed from the study once the intervention began. During data analysis the researcher eliminated assessments based on lack of completion or inconsistent response patterns, leaving group totals at an $n = 20$ for each condition.

Research Question #1

Does a group music therapy teaching for transfer in a singing context impact inmates' levels of executive function?

Pre and post scale indexes (BRI and MI) of the BRIEF-A were compared utilizing a factorial ANOVA. Results from the analysis indicated significant differences between treatment groups $F(1, 38) = 14.74, p < .001, \text{partial } \eta^2 = .279$, and within groups regarding scale $F(1, 38) = 113.25, p < .001, \text{partial } \eta^2 = .749$, but not with pre post-test measures $F(1, 38) = 2.88, p = .10$. Table 5 outlines means and standard deviations by group and index. Lower scores indicate improvements in executive functioning. Significant two way interactions were found between group and scale $F(1, 38) = 8.82, p < .01, \text{partial } \eta^2 = .188$, as well as between group

and pre-posttest $F(1, 38) = 4.19, p < .05, \text{partial}\eta^2 = .099$. None of the other interactions between variables were significant.

Table 5
*Means and Standard Deviations for Executive Function Indexes BRI and MI**

Scale / Test	<i>M</i>		<i>SD</i>	
	Experimental <i>n=20</i>	Control <i>n=20</i>	Experimental <i>n=20</i>	Control <i>n=20</i>
Pre-BRI	48.15	48.00	7.93	12.67
Post-BRI	38.70	50.15	7.71	12.25
Pre MI	55.05	63.10	9.67	12.90
Post MI	47.30	62.55	9.67	13.47

*A lower score indicates an improvement in executive function

Table 6
Tests of Between Subjects-Executive Function Indexes BRI and MI

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Subjects					
Group	2992.90	1	2992.90	14.74	<.001
Error	7718.10	38	203.11		
Within Subjects					
Scale	4622.50	1	4622.50	113.25	<.001
Scale x Group	360.00	1	360.00	8.82	<.05
Error (Scale)	1551.00	38	40.82		
PrePost	608.40	1	608.40	2.88	.098
PrePost x Group	883.60	1	883.60	4.19	<.05
Error (PrePost)	8017.50	38	210.99		

Table 6 – continued

Tests of Between Subjects-Executive Function Indexes BRI and MI

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Scale x PrePost	2.50	1	2.50	.09	.77
Scale x PrePost	48.40	38	48.40	1.67	.20
x Group					
Error	1102.60	38	29.02		
(Scale PrePost)					

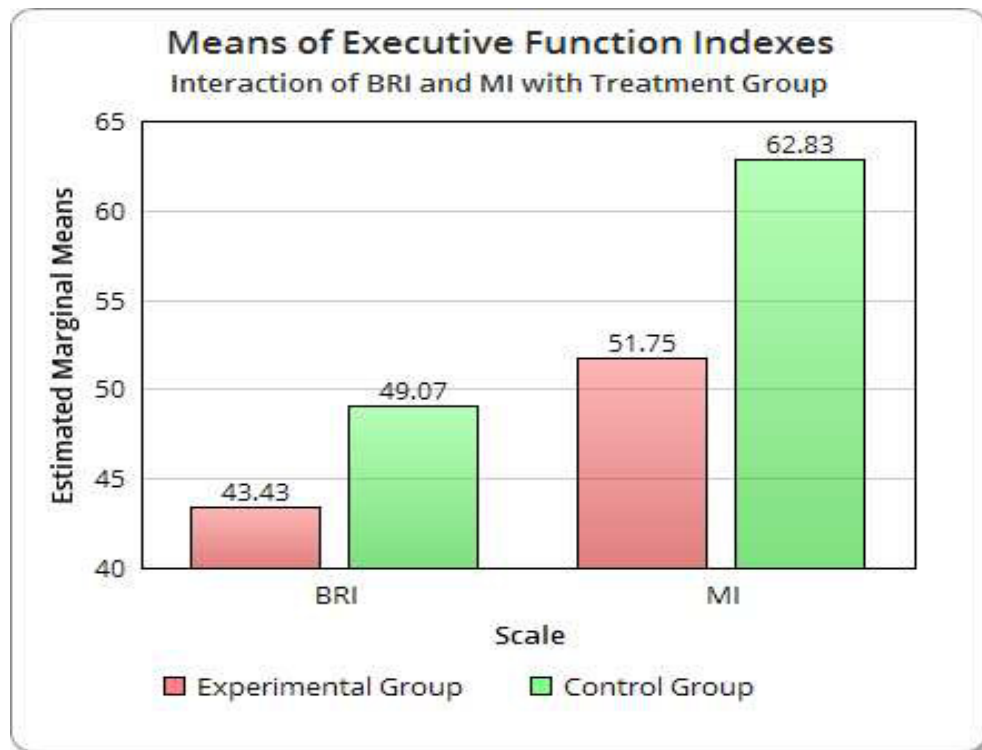


Figure 1 –Means of Executive Function Indexes: Interaction of BRI and MI by Treatment Group

Figure 2 demonstrates group outcomes for each executive function index. Although the between group differences were significant, the experimental group showed greater mean differences than the control group on the MI (11.08) than on the RI (5.64).

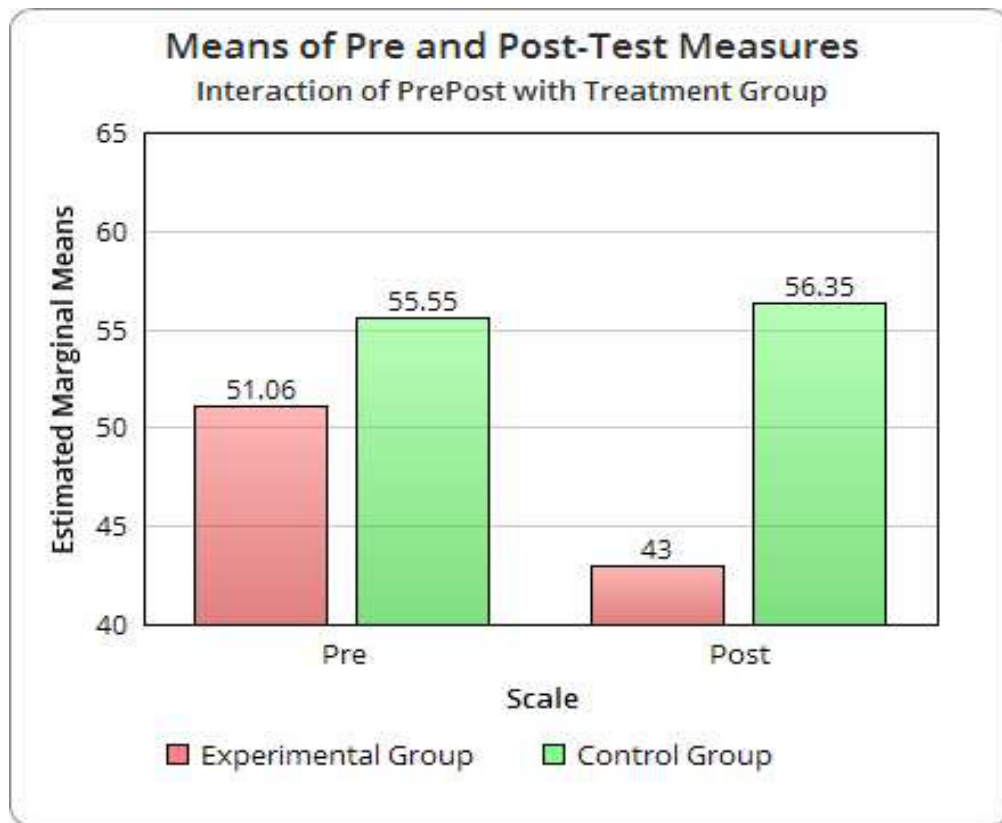


Figure2 –Means of Pre and Post-Test Measures: Interaction of Pre Post with Treatment Group

Figure 3 demonstrates outcomes for each group's executive function response to the intervention regarding pre and post-test measures. Although the experimental group began the intervention at a lower score than the control group, the experimental group made larger improvements ($M = 8.06$) in executive function scores at post-test. The control group post-test outcome did not decline from pre-test scores.

Research Question #2

Does a group music therapy teaching for transfer in a singing context impact inmates' levels of perceived stress?

A two-way analysis of variance showed no significant difference between the experimental and control group, ($F(1, 38) = .21, p > .5$). There was a significant difference between pre and posttest scores, $F(1, 38) = 8.78, p < .01, \eta_p^2 = .188$, both groups reduced levels of perceived stress on posttest. Table 8 outlines means and standard deviations of group raw data. The experimental group showed a mean difference of 5.2 between pre-posttest scores and the control group showed a mean difference of 1.7. There was not a significant interaction between treatment groups and pre-posttest.

Table 7
Tests of Between Subjects-Perceived Stress Scale

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Group	12.8	1	12.80	.21	.652
Error Between	2352.00	38	61.90		
Pre Post	238.05	1	238.05	8.78	.005
Pre Post x Group	61.25	1	61.25	2.26	.141
Error Within	1030.70	38	27.12		

Table 8
Means and Standard Deviations for Perceived Stress Scale

<i>M</i>			<i>SD</i>	
Test	Experimental <i>n=20</i>	Control <i>n=20</i>	Experimental <i>n=20</i>	Control <i>n=20</i>
Pre	19.30	16.75	3.66	8.41
Post	14.10	15.05	5.35	8.08

CHAPTER 5

DISCUSSION

Music therapy within the correctional environment is recognized as a particularly valuable and preferable intervention strategy because of its ability to facilitate therapeutic group interactions, inspire insightful emotional expression, alter mood, and offer adaptability (Maguire & Merrick, 2013; Clair & Heller, 2007; Coddling, 2002; Davies & Richards; Thaut, 1989). Results of this study provided further support. The group singing intervention described here engaged 20-30 members per session, encouraged participation/expression, and allowed application within the environmental limitations. Specifically, this study explored how a group singing intervention impacted inmate levels of executive function and perceived levels of stress. Quantitative assessments were utilized to explore music's effect on the experimental group.

Executive Function

Outcomes of the statistical analysis indicated significant differences between groups regarding the BRI and the MI indexes. The data indicate that the experimental group improved not only from pre to posttest but also out performed the control group. Furthermore, experimental outcomes indicated that scores of the BRI index demonstrated greater improvement than scores of the MI index. Remembering that lower scores point toward improvement, control group scores were higher at post-test. The data support the idea that a music therapy teaching for transfer group music singing intervention improved executive functioning of inmates. These findings may have meaningful implications with respect to rehabilitation and recidivism rates.

Because of its integral role in civilian life, executive function plays an important part in the current and future well-being of inmates. In the highly structured prison environment, inmates are told when to eat, what to wear, where to stand, where to walk, and when to sleep, for

example. Opportunities for making basic decisions or planning are minimized or, in some cases, eliminated. Prison culture further denies civility by referring to individuals as ‘inmates’ or by their last name. During the initial session, the researcher asked each participant to introduce himself by stating what he preferred to be called and to share an interesting fact about himself. This was done in an effort to expedite the researcher’s learning of names and to foster a sense of individuality within the group. Many had difficulty answering the question. Some were able to share an interesting fact; others responded that they could not think of anything. One participant shared, “I like being called by my first name. I haven’t been called that in a long time. Thank you.” Another stated, “I don’t know. Just decide and let me know.” One participant shared with the researcher that it is difficult to think about yourself as an individual in this environment. “That’s taken away from you in here. We forget who we are.” Sentiments such as these are reflective of existing research describing prison as a “dehumanizing environment” (Center for Substance Abuse Treatment, 2005).

Thus, opportunities to practice behavior related to executive function are infrequent and almost unnecessary in the prison environment – yet are immediately required upon release. Many of the obstacles that accompany reintegration such as finding housing, securing employment, and establishing relationships are paramount to post-incarceration success. These responsibilities incorporate several tasks of executive function that include making plans, exercising perseverance, transferring knowledge, regulating personal behavior, and solving problems creatively. The intervention described here introduced opportunities to put these behaviors into practice. Examples of how music as a therapeutic tool for addressing aspects of the executive function clinical scales are described below. Although they are described individually, it should

be noted that elements of executive function work closely together. The definition of each scale is provided.

Shift. *An adult's ability to easily move from one activity to another. Shifting might include one's capacity to make transitions, solve problems, or alternate attention.*

Each session consisted of various music styles, therapeutic and musical objectives, music and activities. Session objectives may have included learning new material, exercising memory, reviewing movement, completing songwriting activities, and analyzing lyrics. Group singing techniques such as two-part harmony, call and response, and singing rounds were incorporated. The researcher quickly moved from each objective to develop participant ability to shift from one objective to the next while continuing to actively and successfully participate.

Inhibit. *The ability to not act impulsively. This behavior might be characterized by inappropriate physical responses or interrupting others.*

Group discussions and songwriting interventions required participants to actively listen, meaningfully respond, and to patiently wait to respond without interrupting others. Respecting a fellow participant's time to speak and waiting for his own turn were part of this intervention focusing on the inhibit element of executive function. Group singing objectives like two-part harmony and call and response patterns forced participants to maintain awareness of their own part, while also being attentive of others. It created an awareness of when to sing (speak) and when not to sing (speak).

As the music began to focus on self-expression, tolerance of others, and social awareness, session objectives incorporated participant storytelling and songwriting. Songs like *Man in the Mirror* and *Hello, My Name Is* inspired thoughtful sharing of viewpoints, opinions, and personal experiences by members of the group and required an increased need for inhibition and behavior

awareness. These two songs in particular provided challenging opportunities for active listening and group respect because of the strong emotions tied to each one. Opportunities for practicing inhibition also occur outside of the therapy session. The dorm is one of those places.

From casual conversation and observation throughout the intervention, the researcher learned much about the frustrations of dorm life. One individual commented, “The dorm is so loud. It’s hard to find peace in the dorm, to get away, or sometimes even stay focused.” Another described the dorm “like a farm with many different smells and attitudes.” Living with a variety of people in a large space can be challenging. Furthermore, like most of the prisons in Florida, it is not equipped with air-conditioning which poses additional frustrations during hot, humid Florida summers.

Songwriting Transfer. The songwriting transfer task for this session addressed how singing in the choir can impact life outside the therapy session. Many mentioned that the dorm presented endless opportunities for transfer. “The choir is like the dorm in that when we are singing the same notes things are great, but when someone gets off tune, it changes the vibe. I just ignore those singing off-key or acting up and stick to my own line.” Another wrote, “To sing with a group of people you have to be comfortable with the people around you. In the dorm you learn how to blend in and get comfortable with your surroundings. This makes the class and the dorm alike to me.” “We are our best when we are singing the same notes on the same page at the same time,” one added. “This class shows how to have unity, no matter the race, color, or creed. That we can all use our talents to better humanity. We don’t have to be selfish, or critical of each other because we may have come from different walks of life, we all are special, and play a part in this world, so why not do it as one voice.”

Emotional Control. *The ability to navigate emotions. This might be characterized as “overreacting” or crying easily.*

Emotional control took on several variations throughout the intervention during lyric analysis activities and musical interpretation. Songs such as *Wade in the Water*, *Man in the Mirror* (Appendix F), *Hello, My Name Is* (Appendix G), and *Tshotsholoza* (Figure 4) introduced platforms pertaining to meaningful topics for the participants. Topics regarding moving forward, solidarity, faith, and personal evolution were topics the group felt passionately about.

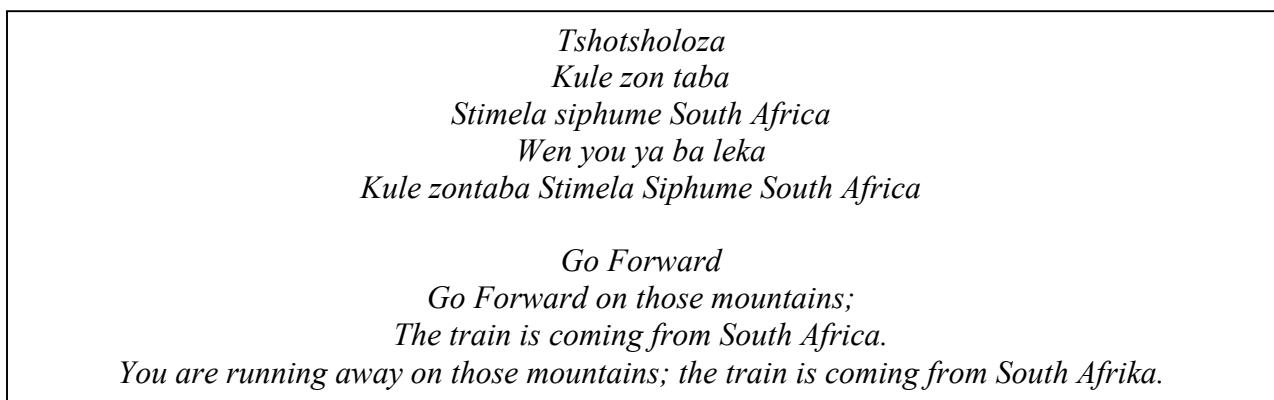


Figure 3 - Tshotsholoza lyrics and translation

Emphasizing the idea of moving forward despite present challenges, *Tshotsholoza* originated as a freedom song sung by miners who worked in diamond and gold mines in South Africa. Despite its roots, its meaning has evolved to reflect a feeling of unanimity and is often associated with Nelson Mandela’s release from prison in 1990 (Ames, 2005). This subject matter was deeply meaningful to the participants as they shared thematic applications to their individual experiences both past and present. Group discussion ideas were reflected in their songwriting transfers. When participants were prompted to write about what it means to move forward, three primary themes emerged: letting go of the past, setting future goals, and spending time with those who would be supportive.

Many responded that one must “let go of the past, but to let the past be a learning experience.” Several identified the need for “setting reasonable goals” and to “just put your mind to it.” Another mentioned that moving forward meant “...manning up to the decisions that I made.” “I feel we all need help in life” one shared. “We all need each other. I guess I could do it alone, but it would be more enjoyable to share it with someone for support.” For some it was a combination, “Yes, I feel I can move forward on my own because I must first believe in myself before I can trust or believe in anyone else to help me, I have to make that first step on my own.” Only one member suggested that he did not need help.

Having participants write their thoughts/lyrics expedited group songwriting and rapport building and highlighted the common themes among the group members. Sentiments shared through songwriting transfers were reflected in the final song inspired by *Tshotsholoza*. The group titled it *Solved*. It was written to the 12-bar blues progression (Figure 5).

Working Memory. *An individual’s ability to retain information long enough to complete a task. This is an important part of executive function as it requires carrying out multi-step projects or following directions.*

The researcher created lyric sheets for each participant. Participants were encouraged to keep their lyric sheets with them outside of the session in order to memorize songs. In preparation for the final concert, they were urged to internalize the order of pieces to anticipate the need for stage movement. Participants were only provided lyrics, so songs were learned by rote. Participants were required to memorize not only the melody but also the lyrics, and, in some cases, movement as well.

Solved

Written by the Experimental Group

Verse #1

For no one time will wait
I need strength and patience to make it through
Lord, show me your vision of what to do and
Guide me in the right direction

Chorus

Without God we can't make it. He solves all our problems
So we can let go of the past. Before we can move forward
We gotta hold on tight and stay strong before we can move forward

Verse #2

Trying to move forward isn't the easiest thing to do
When you find yourself a pauper and you thought you were a king
A life of strife and struggle you know it can't last
If you wanna make real progress you gotta let go of the past
It's time to move forward gonna move forward consistently
It's time to move forward gonna get right spiritually
When you start moving forward you truly become free

Chorus

End

Figure 4 – Experimental Group Songwriting Transfer

Self-Monitor – *A measure of how an individual monitors the impact of his behavior on others. Self-awareness.*

Michael Jackson's *Man in the Mirror* talks about how changing the world starts with the individual and promotes social awareness and tolerance of others. These lyrical themes are addressed musically through part and unison singing and the incorporation of melodic shaping. Both of these techniques required participants to be confident not only in their own part but to also be aware of others. This larger understanding of the relationship between melodic lines re-emphasizes self-awareness and how each individual's role impacts others. "Sometimes by being soft, you can get just as much attention as yelling," commented one participant. Similarly, songs like *Wade in the Water* and *Hey, Ungua* incorporated elements of melodic shaping and dynamics to reinforce participant understanding of social awareness, increased tolerance, and self-expression. Additionally, the researcher faded cues throughout the intervention to further encourage confidence and group cohesion. Choral formation also contributed to achieving goals and objectives.

Physical placement such as singing in a circle, with eyes closed, or standing next to someone singing a different part further emphasized musical and behavioral goals. Participants were aware when "something was off" with the piece. "I'm forgetting my line now that I'm not standing around my group," one singer commented. The researcher encouraged and assisted frustrated choir members in listening discriminately to identify stumbling blocks, devise solutions, and implement them. Furthermore, it enhanced group awareness and encouraged collaboration and creative problem solving.

Songwriting Transfer. For this songwriting transfer exercise, participants were prompted with three questions.

1) *What do you see in the mirror?* Responses ranged from complimentary to negative. One individual described his image as “a real waste” and “a man who is lost and looking for something”. Another said he looked “mad, ambitious, very strong, smart, and talented.” “I see an old man in the mirror who wasted his life away,” commented one while others described themselves as generous, kind, and funny.

2) *What do you want to change?* The primary changes that individuals identified were to develop patience, control temper, and change habits. The researcher observed that individuals could name what they wanted to change but identifying a plan to accomplish that was less manageable. One individual said, “I can’t think my way back into the streets.”

3) *How will you accomplish these goals?* Many referred to their faith as their primary method of improvement. One added, “I’m not sure. I’ve never done the right thing before.” Another added, “I’m going to try to find my motivation and to work toward a better way of living.” Some specified the need to change thought patterns, but added, “I don’t know how to do that.” Similar to the song, one participant said, “I’m gonna start with myself and how my kids see me. Maybe through them I can change the world and it may not be in a massive way, but every little bit counts.” Another added, “Like we do in class, I will slow down and breathe.”

Initiate. *Those with poor initiation generally have a desire to complete a task, but have limited skill in getting started. They often require prompting.*

Participants began initiating their own songs as inspired by various elements of the music intervention. Unprompted, one individual wrote a transfer of how the song *Wade in the Water* helped him to reframe his negative thoughts toward an experience he encountered earlier in the week. During a session, he asked fellow group members for permission to share his transfer (Figure 6). The group welcomed his experience and provided positive feedback. Another

participant composed his own rap and included a chorus to be sung by the choir. (Figure 7). The group proposed that the song be included in the final concert, and it was. Additionally, many of those in the study worked on songwriting activities outside of the session and brought their compositions back to the session to share with the rest of the group.

Other forms of initiation transpired within the group. Participants began to speak up when they did not understand a concept, needed a melodic line re-visited, or had a suggestion regarding group performance. One suggested simple choreography to be used during *Lion Sleeps Tonight*, another indicated a need for clarification of the bass line in *Wade in the Water*, and another suggested a melodic accommodation to the melodic line to *Man in the Mirror*. Each of these suggestions was discussed by the group and implemented based on the group's decision.

Plan/Organize, Task Monitoring, and Organization of Materials are, perhaps, the most inter-related of the nine clinical executive function scales. These three scales pertain to an adult's ability to be both behaviorally and cognitively organized, maintain self-awareness regarding personal error, and be able to identify smaller goals within a larger context.

Each participant was responsible to bring their lyric sheets to each session and have prepared appropriate out-of-class assignments when applicable. Participants in the study were encouraged to bring a pen/pencil for note taking purposes. For example, some individuals notated arrows to designate melodic direction, short sentences to denote entrances and rests, and musical symbols indicating dynamics (i.e. *p*, *mf*, or *f*). In the case of absences, the researcher encouraged participants to collaborate with their peers regarding new material and procedures.

In music class we learned the song Wade In the Water. It reminds me of scripture and inspires me to be faithful. ①

During the second week in January of 2016 this song, Wade In the Water, was stuck in my head for 2 or 3 days. I walked around singing this song early in the morning, at breakfast, in the bathroom, outside the dorm, in the shower, everywhere. Then I thought, "why am I singing this song?"

My name is [REDACTED], I am 48 years old and currently an inmate at Wakulla Work Camp. On January 12th I got up, went to breakfast, came back for study time, all the while sing this song in my head. I started to sing it out loud. After awhile I noticed other people started singing with me.

I also went to the dog program on this day where we bond and care for dogs that have heart worms and take care of them. We also train them to be a pet that someone would love and adore.

To get to the class I have to walk through the prison which isn't very pleasant. It's like the waters are very troubled here. There are many different attitudes and beliefs, and everybody thinks they're right. I get frustrated dealing with so many people around me or sometimes the officers.

During class on this day I pointed out the dog was having a behavior problem to the Sergeant. When I got back from lunch Sarg. told me to pack it up and fired me from the dog program.

Figure 5 – Wade in the Water Transfer

at first I wanted to question her, but then
the song 'Wade In the Water' came to mind. The words
of that song and the Spirit told me to be humble.
My new dorm was dirty and smelled like smoke -
way different. Another challenge!

This song also reminds me of a story in
the Bible, John chapter 5. Those who were diseased
and trusted the troubled water in Jerusalem were
healed.

Sometimes we have to wade through the
troubled water and humble ourselves before we
are rewarded.

"Moving Forward"

chorus:

Half of my life I struggled, spent a lot
of my time getting in trouble, but
now that my eyes are open, I don't
even let nobody else try to stop me

I got to move forward daily, because
I know that times not waiting,
so I calculate my movement, so stay
out my way when I heading to
the top please

VERSE #1

I'm chasing in my life for the better
I got to get out these streets, and
find another way to chase this checker
because it keeps on calling me, you
got to have patients, it will all work
out, if it feels like it ain't working
find another route just please stay
strong and don't give up it'll only
get easier you don't have to rush
I'm reaching for the best of life
(An) I know that it will be alright
(when) you give it your everything
Yeah I'm gonna change get out
this game, I'm moving forward,

Figure 6 – Tshotsholoza inspired songwriting.

Letting go of the past, I gotta
change my ways first for success
is my last

(REPEAT)
Chorus:

It's inside of me to which it sticks
I know I got to be on my "Grown Man"
nobody's gonna give you a damn
thing, so you better go and chase
your own change, it's all about
survival, keep your head above water
this is your time to shine just take
it one step at a time, you give
it all of your best (for) you can be
young, go successful I'm at the
top of my game and I'm destined
to make it, a change, nobody
can't stop me (stop me) I'm feeling
myself found another way to clock
change, until my last breath

Chorus:

Figure 6 – cont'd.

Perceived Stress

Although both groups demonstrated significantly lower levels of perceived stress, there were no statistical significance between the two groups. Mean scores, however, showed that the experimental group exhibited more improvement in perceived stress levels than the control group, suggesting that participation in the music group may have addressed perceived stress levels (Table 8). There are several reasons why participants in the control group also may have demonstrated a decline in stress perception.

Control Group. Perceived stress is a subjective measure of well-being that changes moment by moment. One participant in the control group learned prior to the day of the post-test that the court had granted him a five year reduction in sentence length. This would certainly cause a lower stress rate on his post-test measures. While this was the only occurrence of this kind known to the researcher, similar situations may have occurred with others. During pre-test evaluations, those in the control group were disappointed after having learned that they would not be receiving music therapy services immediately. Many members of the control group during post-test measures verbalized excitement toward finally getting to receive music therapy. “I’m so glad the wait is over,” stated one participant, and, “I’ve really been looking forward to this,” added another. This immediate excitement may have influenced their responses. Although instructions on the assessment directed participants to “rate their level of stress within the *past month*,” events like the ones described above may have biased responses.

A cornerstone of the faith and character based initiative is the wide offering of programs made available to inmates. The research facility offers programming relating to spiritual health, meditation, dog training, GED, and personal growth classes. Participation in these courses may have provided stress reducing outcomes for those participants.

Experimental Group. Post-test administration of the experimental group included two free response questions. Question #1: “What techniques did you take from this class and use in your daily life?” Question #2: “What activities were done in class that helped you to manage your stress outside of class?”

Response to question #1. “What techniques did you take from this class and use in your daily life?” Several themes emerged regarding how the physical and psychosocial effects of the intervention shaped daily living. The physical act of singing itself reduced stress and increased focus of attention. Understanding the pedagogical aspects of healthy singing through diaphragmatic breathing contributed to the participants’ stress reduction skill set. One participant wrote, “Now when I get stressed I’ll take deep singing breaths and maybe sing a little to vent and ease my mind.” Another wrote, “I’m better at listening for a longer time and staying focused because of this class.”

The living spaces of many facilities, including this one, are designed in dorms or pods and interactions between different areas are infrequent. Even though the work camp section of this correctional facility houses only 400 inmates, one should not assume that everyone knows each other. Having the opportunity to be one’s self in a ‘tough’ environment was mentioned by several participants. “Class taught me to open up more, even when you’re not sure of yourself” and to “loosen up and go with the flow.” One added that it taught him to “Just get up and do it!” For many the act of singing in a classical/healthy manner was new and different. “I think the awkwardness of singing in front of other people in this environment of machoism helped me open up to people I normally wouldn’t. It has also helped me build and strengthen some relationships, and I get strength sometimes from people I associate with.”

Class discussions, lyric analysis, and observation lead me to believe that one of the primary negatives of prison life include: absence of friends, family, and loved ones. Friendships in prison are difficult and fraught with agendas and ulterior motives often reinforcing feelings of isolation and hopelessness (Center for Substance Abuse, 2015). These feelings of isolation and depersonalization are further emphasized as a result of exploitation by fellow inmates and/or correctional staff. These experiences can have strong psychological and physiological consequences. The experience of being incarcerated alone can create feelings characteristic of post-traumatic stress disorder. Opportunities for inmates to engage in positive interactions with others are meaningful (Center for Substance Abuse, 2015). “For the first time in a long time I felt like I had a family” one participant shared.

Response to question #2. What was done in class that helped you manage your stress outside of class? Many participants mentioned that music therapy helped them to be more outgoing. One wrote “I’m a little more outgoing, and share more with people. I sing more out loud even tho I know I suck! But that helps out a lot with any little stress.”

The effects of class stayed with many participants even after sessions ended and helped them get through other times of the day. “Singing puts me in a good mood. I can feel my stress go down afterward, too. It also keeps me happy in the less happy times.” Another said, “I love music with a passion, and being a part of something that I love has relieved a lot of stress off my mind that I pick up in here.”

Feelings of community were also expressed. The song *Tshotsholoza* became a signature anthem for the choir. A notable anecdote shared by one of the participants was, “I hear *Tshotsholoza* sung by someone in the shower every night it seems! I even hear people who aren’t even in the group singing it walking across the yard. They don’t even know the words, just the

melody. They just make up random words that don't make sense. One of them said to me, "Hey, can you teach me the words to that *Tshotsholoza* song?"

Limitations

The primary limitations of the current study were challenges relating to the unpredictable nature of the environment. Investigating real-world situations affords its own frustrations and opportunities. Specific to this environment were issues relating to consistency of attendance, timeliness, institutional transfer, work re-assignments, and the weather. Constantly changing environments and the individuality of the human condition invite distinctive implications in the researcher's process. Inmates are a protected population and require thoughtful consideration by institutional research review boards regarding methodology and independent measures. Defining research protocol may require compromise and adjustment on behalf of the researcher.

Structuring the intervention twice weekly over a five week period proved beneficial as it allowed those who were absent one day the opportunity to participate again within a relatively short period of time. Issues such as the ones mentioned above are unavoidable and inherent to the environment. Such challenges of clinical research deserve consideration when developing future design.

Relationship to Extant Literature

Particularly in relationship to executive dysfunction and the prison population, research is limited. Outcomes of this study, however, corroborate findings from Vera & Sosa (2015) that a relationship between criminal behavior and executive function exists and that improvements relating to executive function can be regained.

Ellis's 2014 study examining a music therapy intervention in a men's jail facility showed raw score improvement regarding executive function scores, but no statistically

significant differences were found. While many differences exist between the current study and Ellis' research, improvement in executive function and similar challenges relating to performing research within the correctional environment are shared.

Interestingly, research regarding the role of coping with stress and the inmate population is limited. Results of the current study corroborate those of Daveson and Edwards (2001) who examined female inmates' perceptions of the role music plays in the prison setting. The current study presented similar findings stating that music therapy was a valuable tool for lowering stress levels and increasing opportunities for self-expression and relaxation.

Implications for Practice

Results of the current study hold meaningful implications for music therapists. Outcomes of this study indicate that a music therapy teaching for transfer group singing intervention can improve levels of executive function and may develop coping mechanisms to manage perceived levels of stress. Although not addressed in this study, how participants apply this information into their daily routine should be more thoroughly explored. Repeated application of this protocol with different populations and larger sample sizes may further clarify how each clinical scale responds to the music intervention.

The Bureau of Justice (2014) reports that 6,899,000 people are under some form of supervision by the correctional system. This includes not only those incarcerated in jails and prisons but also those who are on probation or parole. Each week nearly 10,000 inmates are released back into our communities and are faced with the challenges of a second chance (United States Department of Justice). As this population continues to grow, music therapists may be more likely to engage with this population. For this reason, increased awareness of music's

effectiveness within the prison population, education on the subtleties of working in corrections, and continued assessment of response to services are imperative.

Further consideration must be given to the fact that 90% of currently practicing music therapists are females and nearly 36% of them are between the ages of 20-29 (AMTA, 2011). Of those who responded to the 2011 AMTA Member Survey and Workforce Analysis, 13% indicated working in mental health facilities. This number must be considered with care as mental health facilities include community mental health centers, child adolescent treatment centers, drug/alcohol programs, inpatient psychiatric units, and forensic facilities (AMTA, 2011). A specific number of those working in forensics is unknown. Clarifying the nuances of working within this special population is needed as are identifying reasons why such a small percentage of music therapists work in corrections. Identification and examination of existing music therapy correctional programs could shed light on the role music plays in the rehabilitation of inmates.

Suggestions for Future Research

Since this study is the first using this protocol, repeated application of the protocol is needed with larger sample sizes in an effort to validate its outcomes. Replications of this study should also be conducted with different types of inmates such as those residing in higher level security environments, juvenile detention centers, re-entry programs, and female correctional facilities. Research indicates that programs which run the span of the inmate's experience are the most effective (James, 2015). Longitudinal analysis of protocol outcome would offer insight on its long-term effects and refine procedural application. As prisons and jails can be transitory environments the short-term impacts of a protocol such as the one described here are equally valuable.

To date, no research currently exists investigating ideal treatment length for executive function. Therefore, future research should explore the relationship between treatment period, music therapy, and extent of treatment effects. The length of treatment protocol and quantity of session warrant further investigation.

While part of the current protocol, but not included as an independent variable the role of performance may play a part in achieving therapeutic outcomes. Aspects of executive function such as inhibition, organize/plan, emotional control, and working memory would seem necessary skills to perform successfully. For some, performance may require incorporating stress management techniques.

Stress reduction within the prison environment is beneficial not only for the overall well-being of inmates but also for its positive effect on acts of violence and use of health services in response to stress induced physical and psychological symptomology (Kristofferson & Maas, 2013). Future research could explore how appropriate stress levels influence inmate medical care, prescription costs, and the utilization of mental health services.

Conclusions

Results of this study indicate the effectiveness of music therapy teaching for transfer intervention through a group singing protocol for a prison population. Incorporating methods of effective rehabilitation are important in the interest of future inmate success, improving communities, and reducing recidivism rates nationwide. Interventions like group singing address multiple objectives concurrently, treat large groups, use minimal materials, and accommodate diverse preferences, education levels, and musical ability. Implementing methods of rehabilitation for those incarcerated is gaining importance as congressional discussion regarding

mandatory sentencing, prison overcrowding, and drug policies are currently being re-evaluated and are part of the national conversation.

Studies of this kind offer valuable insight into the rehabilitative process of those in the prison system. Existing research, while limited, demonstrates encouraging outcomes not only relating to therapeutic protocol, but also reflects the enthusiasm of federal and state agencies interested in improving care for their inmates. Throughout this study, I was supported enthusiastically by the warden, prison administrators, lieutenants, and correctional officers. Specific to my experience, I can say that many of the officers demonstrated a concern for the well-being of the inmates and showed respect for their process. It should be noted that the often negative reputation prisons receive is not always accurate and should be considered with care.

APPENDIX A

PARTICIPANT CONSENT FORM

Participant Consent Form

My name is Lorna Segall and I am a board certified music therapist and doctoral student at Florida State University in the College of Music. This project is part of my doctoral work exploring how group singing enhances executive function and feelings of stress. This is an invitation for you to be a part of this project. Your involvement is completely voluntary and you are not required to participate. Even if you agree to participate, you are free to withdraw at any time. Should you choose not to participate it will have no impact on your institutional experience or day to day activities.

Procedures

Should you agree to participate in this study, you will meet with me to complete pre-test surveys about executive function and your perceived levels of stress. These surveys will be taken two times: once at the beginning of the project (session #1) and once at the end (session #10). Completion of the two surveys takes 20-25 minutes. All surveys will be anonymous. This project will meet once a week for ten weeks. Each session will last for 90 minutes.

BRIEF- A: Behavior Rating Scale for Executive Function / Adult Version. This is a standardized inventory that observes an individual's executive function in an everyday environment. It is composed of 75 short questions and takes about 10-15 minutes to complete.

Cohen's Perceived Stress Scale – This scale consists of 10 questions. It takes less than five minutes to complete.

Should you choose to participate it is requested that you attend as many sessions as you can. Music sessions will involve group singing, songwriting, and performing in a group singing presentation at the end of the project.

Risks and Benefits

The potential risk due to participation in this study is minimal. Some may feel nervous singing around other people. To help you not feel nervous, you will not be asked to sing by yourself. Participants may benefit from participating by having learning more about music, meeting new people in a positive environment, and learning more about yourself from interacting with others. You may also learn new ways of coping with stress and improving thinking skills. Results from this project may help the researcher understand the role music plays in the correctional environment.

After the project is over the surveys will be destroyed. If the study is published, no identifiable information will be included. If, at any time, you feel the need for additional mental health support, you are encouraged to speak with your assigned classification officer. If you feel you need to speak with the mental health counselor, you are directed to make these arrangements with your assigned classification officer. If none of these individuals are available at your time of need, speak with a correctional officer to initiate a request for assistance. Please review attached material and guidelines for reporting.

Attached to this consent form are the policies, procedures, and guidelines for reporting any instances of battery, intent to harm, and issues relating to PREA. Please review the attached guidelines for reporting as they relate to staff, volunteers, and inmates. Please utilize posted materials in the facility regarding rights, guidelines, protocols, and procedures for reporting instances of PREA. These materials are also posted outside of the classification offices in the administration building.

Cost and Compensation

No charge exists for participating in this study and no compensation will be provided.

Participation and Withdrawal

Your participation in this study is your choice. Your participation is welcome and you may stop at any time. Should you choose to withdraw no questions will be asked of you and there will be no consequences. Should you choose to withdraw, the data collected from your participation will be utilized in data analysis.

By signing below I agree to participate and complete the project protocol. I also acknowledge that I may withdraw at any time and am under no obligation to answer all questions asked to me. By signing this form, I also confirm that I understand the risks and benefits of the study, have had all of my questions answered, and that I am 18 years and older.

Printed Name of Participant

Date:

Signed Name of Participant

FSU Human Subjects Committee approved on 11/19/15. Void 8/10/16. HSC # 2015.15899

APPENDIX B

PERCEIVED STRESS SCALE

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (*Circle*): **M** **F** Other _____

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset
because of something that happened unexpectedly?..... **0 1 2 3 4**
2. In the last month, how often have you felt that you were unable
to control the important things in your life? **0 1 2 3 4**
3. In the last month, how often have you felt nervous and “stressed”? **0 1 2 3 4**
4. In the last month, how often have you felt confident about your ability
to handle your personal problems? **0 1 2 3 4**
5. In the last month, how often have you felt that things
were going your way?..... **0 1 2 3 4**
6. In the last month, how often have you found that you could not cope
with all the things that you had to do? **0 1 2 3 4**
7. In the last month, how often have you been able
to control irritations in your life?..... **0 1 2 3 4**
8. In the last month, how often have you felt that you were on top of things? **0 1 2 3 4**
9. In the last month, how often have you been angered
because of things that were outside of your control?..... **0 1 2 3 4**
10. In the last month, how often have you felt difficulties
were piling up so high that you could not overcome them? **0 1 2 3 4**

Please feel free to use the *Perceived Stress Scale* for your research.

Mind Garden, Inc.

info@mindgarden.com

www.mindgarden.com

References

- The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.
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APPENDIX C

BRIEF-A SAMPLE



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SAMPLE ASSESSMENT ITEMS

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BRIEF-A

Behavior Rating Inventory of Executive Function[®]— Adult Version

SELF-REPORT FORM

Robert M. Roth, PhD, Peter K. Isquith, PhD, and Gerard A. Gioia, PhD

Your Name _____		Today's Date ____/____/____	
Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	Age _____	Date of Birth ____/____/____	
Years of Education _____	Level of Education: <input type="checkbox"/> Less than High School <input type="checkbox"/> High School <input type="checkbox"/> College		
	<input type="checkbox"/> Master's degree <input type="checkbox"/> Doctorate <input type="checkbox"/> Other		
During the past month, how often has each of the following behaviors been a problem?			
N = Never S = Sometimes O = Often			
1. I have angry outbursts.	N	S	O
2. I make careless errors when completing tasks.	N	S	O
3. I am disorganized.	N	S	O
4. I have trouble concentrating on tasks (such as chores, reading, or work).	N	S	O
5. I tap my fingers or bounce my legs.	N	S	O

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APPENDIX D

FLORIDA DEPARTMENT OF CORRECTIONS APPROVAL LETTER



FLORIDA
DEPARTMENT of
CORRECTIONS

Governor

RICK SCOTT

Director

JULIE L. JONES

301 South Calhoun Street Tallahassee, FL 32309-3000

<http://www.floridacorrections.com>

October 14, 2015

Lorna Segall
Ph.D. Candidate
Florida State University
RE: The Effect of Music on Inmate Executive Function and Perceived Levels of Stress

Dear Mr. Segall:

By this letter, the Research Review Committee and Institutions office has approved your request to conduct research within the Florida Department of Corrections. You may contact the Warden's office at the individual institution to set up date and time for your research. Please ask what type of identification the institution will require to enter the facility. Signed inmate consent will be required to obtain any confidential medical records.

No laptops or recording devices are to be brought into the institution for interview purposes unless the Warden's office pre-approves these devices.

No telephone interviews will be permitted.

For department rules, the inmates are not allowed to receive compensation for their participation in a study.

Please see the DC website for help to determine what is deemed appropriate clothing to visit the facility. <http://www.floridacorrections.com/legal/ch33/chp33-601.PDF> see page 601-76.

Should you have other questions pertaining to this matter, please contact J [REDACTED]
or [REDACTED]

Sincerely,

David Enaley, Bureau Chief
Florida Department of Corrections
Bureau of Research and Data Analysis

[REDACTED]
[REDACTED]
[REDACTED]

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APPENDIX E

FSU IRB APPROVAL LETTER



Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 11/19/2015

To: Lorna Segall [REDACTED]

Address: [REDACTED]

Dept.: MUSIC SCHOOL

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Effect of Music on Inmate Executive Function, AND PERCEIVED LEVELS OF STRESS. *PLEASE NOTE
THE DISCIPLINARY INFRACTIONS VARIABLE HAS BEEN REMOVED

The application that you submitted to this office in regard to the use of human subjects in the research proposal referenced above has been reviewed by the Human Subjects Committee at its meeting on 08/12/2015. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 08/10/2016 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Jayne Standley [REDACTED]
HSC No. 2015.15899

APPENDIX F

MAN IN THE MIRROR - LYRICS

Man in the Mirror

Written by Siedah Garrett

*I'm gonna make a change for once in my life
It's gonna feel real good
Gonna make a difference. Gonna make it right*

*As I turn up the collar on my favorite winter coat
This wind is blowing my mind
I see the kids in the streets with not enough to eat
Who am I to be blind? Pretending not to see their needs*

*A summer disregard, a broken bottle top, and a one man soul
They follow each other on the wind ya know
Cause they go nowhere to go
That's why I want you to know*

CHORUS

*I'm starting with the man in the mirror
I'm asking him to change his ways
And no message could have been any clearer
If you want to make the world a better place
Take a look at yourself and then make a change*

*I've been a victim of a selfish kind of love. It's time that I realize
That there are some with no home, not a nickel to loan
Could it be really me, pretending that they're not alone?
A willow deeply scarred, somebody's broken heart
And a washed-out dream
They follow the pattern of the wind ya' see
'Cause they got no place to be
That's why I'm starting with me*

CHORUS

APPENDIX G

HELLO, MY NAME IS – LYRICS

Hello, My Name Is

Written and Performed by Matthew West

*Hello, my name is regret
I'm pretty sure we have met
Every single day of your life
I'm the whisper inside
That won't let you forget*

*Hello, my name is defeat
I know you recognize me
Just when you think you can win
I'll drag you right back down again 'til you've lost all belief*

*Oh, these are the voices. Oh, these are the lies
And I have believed them for the very last time*

*Hello, my name is child of the one true King
I've been saved, I've been changed, I have been set free
"Amazing Grace" is the song I sing
Hello, my name is child of the one true King*

*I am no longer defined
By all the wreckage behind
The one who makes all things new
Has proven it's true
Just take a look at my life*

CHORUS

*What love the Father has lavished upon us that we should be called His children
I am a child of the one true King
I am the Child of the one true King*

APPENDIX H

PROGRAM COVER



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