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Running and Art as Therapy: A Combined Approach to Reduce State Anxiety

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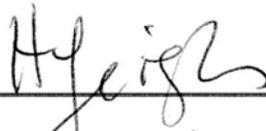
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Running and Art as Therapy: A Combined Approach to Reduce State Anxiety

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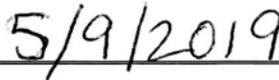
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### ABSTRACT

This study is a one-group pre-/post-test design that uses a self-report to measure anxiety levels. It seeks to determine if running and kinesthetic art making can have an impact on decreasing symptoms of anxiety and whether combining art making and running will have a greater impact on reduction in symptoms. To date, little research has been done combining treatment methods to help decrease symptoms of anxiety. This research also looks at how anxiety is experienced in the mind (cognitive) and the body (somatic) and how treatment can be adapted to target specific symptoms. This research utilized the State Trait Inventory for Cognitive and Somatic Anxiety (STICSA) to determine what types of anxiety experienced by the researcher and what type of intervention, running or art making, would have a greater impact in reducing types of anxiety. Results showed an overall decrease in STICSA scores over the three-week study period. Running decreased both cognitive and somatic scores and art making showed the greatest decrease in cognitive scores. When running and art making were combined, results demonstrated further reduction in the somatic symptom category. The results indicated that both art as therapy and running as therapy have an impact on anxiety. Additional research would be beneficial to understand how these combined therapies could be applied to reduce the cognitive and somatic symptoms of anxiety.

*Keywords:* Art therapy, running, anxiety, somatic, cognitive, kinesthetic, trait anxiety, state anxiety.

**DEDICATION**

This work is dedicated to my precious family who tolerated a big change in all of our lives as I pursued a passion that I have wanted to accomplish for 17 years. They not only tolerated change, but they supported me and encouraged me with every step. Morgan, Sophie and James, thank you for trusting me through this process and thank you for being my inspiration every day, always. You're the reason for why I do what I do and why I try to keep learning and growing. To my husband Marc, thank you for believing in me even when I didn't believe in myself. I could have never done this without your love and support, your constant strength gets us all through life's toughest challenges and this was no exception. To my parents Linda and David, our family couldn't function without your constant and unwavering support. You enhance our lives with your presence, stories, knowledge, joy and love. Lastly, to Dad and Mary, who are a positive force in all of our lives and are always teaching us to learn. Mary Oliver (1994) said, "We can know a lot. And still no doubt, there are rash and wonderful ideas brewing somewhere; There are many surprises yet to come" (p. 91).

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Lastly to Heather, who has patiently helped me shape this research even when I lost faith in it. You were kind in your criticism and patient with your advice. This research is a small contribution in the growing issue of anxiety, and you helped me to make it something of which I am proud of.

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## CHAPTER I

### INTRODUCTION

Brown (2016) stated, “There is so much wisdom in our bodies. We just need to learn how to listen and trust what we are hearing” (p. 65). There is often a disconnect between what we are feeling in our bodies and what we are experiencing in our minds. Research has also shown that our experiences can transform how our body reacts to the situations that we encounter. Van der Kolk (2014) stated, “Being able to perceive visceral sensations is the very foundation of emotional awareness” (p. 240). Heightening emotional awareness can bring a greater understanding of the experience of the body, and vice versa. Anxiety, the focus of this study, is a complex mood state that effects the body and its experience, including thoughts and behaviors. Treating this mood state can often be difficult and requires multiple treatment approaches. Often times, the body is overlooked when treatment options are considered. To be able to better understand and treat the complexity of anxiety, the body must also be considered. The affect of emotions on the body has been investigated in the research on anxiety and other disorders involving mood states, such as depression and trauma (Byrne & Byrne, 1993; Crowe, 2009; Salmon, 2001; Walkenhorst & Van Der Kolk, 2014; Vukomanovic et al., 2018). Understanding this important relationship between the body and mood states is paramount to how clinicians treat symptoms of anxiety, because anxiety is experienced in the body as well as the mind (Van Der Kolk, 2014).

Research studies have explored running as therapy to treat anxiety (Broman-Fulks & Storey, 2008; Edwards et al., 2018; Hays, 1994; Salmon, 2001; Schuch et al., 2016) and art as therapy to treat anxiety (Hinz, 2009; Sandmire, Gorham, Rankin, & Grimm, 2012), yet there has been no research found that includes the combination of running and art making to reduce

anxiety. Based on the findings of these separate areas of research, it is hypothesized that anxiety treatment integrating running and art-making, both body-based approaches, could provide added symptom relief for clients interested and able to combine them in the context of therapy. This self-study combined running and art making, specifically large-scale painting that required full body movements to examine whether the combination of running and art making resulted in a greater decrease in anxious symptoms when compared to running or art making alone.

### **Operational Definitions of Terms and Concepts**

**Art as therapy:** Malchiodi (2007) defined art as therapy as “the idea that the process of making art is therapeutic; this process is sometimes referred to as art as therapy” (p. 6).

**Art therapy:** The American Art Therapy Association (2018) defines art therapy as:

An integrative mental health and human services profession that enriches the lives of

individuals, families, and communities through active art-making, creative process,

applied psychological theory, and human experience within a psychotherapeutic

relationship. Art therapy, facilitated by a professional art therapist, effectively supports

personal and relational treatment goals as well as community concerns. Art therapy is

used to improve cognitive and sensory-motor functions, foster self-esteem and self-

awareness, cultivate emotional resilience, promote insight, enhance social skills, reduce

and resolve conflicts and distress, and advance societal and ecological change”

**Anxiety:** The DSM-5 (2013) defines anxiety as the “excessive anxiety and worry (apprehensive expectation) about a number of events or activities” (p. 222) .

**Cognitive anxiety:** Sachs and Buffone (1984) defined symptoms of cognitive anxiety as “worry, inability to concentrate, and insomnia” (p. 145).

**Internal feedback:** “Information from the inside of the body. This includes information such as heart rate, breathing, sensations of pain or fatigue, balance, proprioception, muscle tension or contractions, to name a few. Internal information also includes mental processes such as thoughts, attitudes, beliefs and strategies” (Csikszentmihalyi, Latter, & Duranso, 2017, p. 169).

**Kinesthetic:** Hinz (2009) defined kinesthetic as “the sensations that inform people of and accompany bodily movement, rhythms, and actions” (p. 39).

**Kinesthetic art making:** Hinz (2009) stated that kinesthetic art making involves activities that “that emphasize rhythm, action, movement, and the release of energy” (p. 42).

**Mood:** “A pervasive and sustained emotion that colors the perception of the world” (APA, 2013, p. 824).

**One-group pre-/post design:** “A single-case study in which measures are taken at two points in time, pre- and post-intervention.” (Kapitan, 2018, p. 315)

**Psychomotor agitation:** “Excessive motor activity associated with a feeling of inner tension. The activity is usually nonproductive and repetitious and consists of behaviors such as pacing, fidgeting, wringing of the hands, pulling of clothes, and inability to sit still” (APA, 2013, p. 827)

**Running therapy:** As defined by Sachs and Buffone (1984), “running therapy is the use of running as a mode of psychotherapy, alone or more frequently as an adjunct to other modes of therapy, by a trained mental health professional to promote physical or psychological adjustment (or both). This supervision by a professional, with specific therapeutic goals in mind, distinguishes running therapy from simpler forms of running” (p. xi).

**Somatic symptoms:** Specific sensations, such as pain or shortness of breath, or more general symptoms, such as fatigue or weakness that are unrelated to any medical cause. (Mayo Clinic, n.d.)

**State anxiety:** Walkenhorst and Crowe (2009) stated that state anxiety, “is the actual situational stress experienced” (p. 169).

**Trait anxiety:** Walkenhorst and Crowe (2009) defined trait anxiety as “the level of susceptibility to stress that an individual brings to a situation” (p. 169).

## CHAPTER II

### LITERATURE REVIEW

In order to understand the complexities of anxiety it needs to be defined and differentiated. Anxiety can present differently in many areas of functioning. For the purposes of this research, anxiety is looked at from both a somatic (body) and cognitive (mind) perspective. In addition, state versus trait anxiety is defined below. This research focused on the state anxiety specifically. Combining the perspectives of cognitive and somatic symptoms on state anxiety, this research aims to define running as therapy and art making as therapy and how these interventions effect anxiety.

#### **Anxiety**

Anxiety is defined in the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition (2013) as the “excessive anxiety and worry (apprehensive expectation) about a number of events or activities” although each individual person experiences anxiety in a different way (p. 222). To understand anxiety and its many manifestations, it is important to identify how it can present. It can appear in the form of somatic symptoms in the body, behavioral symptoms in individual actions and pervasive anxious thoughts in the mind (DSM-5, 2013). The distinction between these manifestations of how anxiety is experienced is important in understanding causality and treatment approaches. The most effective treatment approaches address the type of symptom or symptoms that are being experienced. Understanding the complexities of where in the mind or body anxiety is being experienced is the way to understanding how to treat it (Bekhuis, Boschloo, Rosmalen, & Schoevers, 2014). In conjunction with how and where anxiety is experienced, it is also important to understand when anxiety occurs.

### **State Anxiety Versus Trait Anxiety**

Anxiety can be a persistent personality trait, or it can be a feeling state that occurs periodically and circumstantially. The DSM-V describes anxiety and its symptomology when qualifying it as a diagnosis, however, anxiety can be experienced by an individual without it qualifying as a diagnosis. State anxiety is defined as situational stress that is experienced by an individual in the moment (Walkenhorst & Crowe, 2009). Trait anxiety is defined by how prone a certain individual is to stress and the base level of anxiety that they bring to a situation (Sorg & Whitney, 1992). Damasio discussed that commonly occurring feelings can create mood states (Damasio, 1999). When a mood is persistent, it can create a mood state which can lead to changes in behavior, thoughts and general feelings. The DSM-V (2013) delineates that a clinical diagnosis of an anxiety disorder is made when mood symptoms are persistent, severe and reoccurring (APA, 2013, p. 156). Damasio (1999) explained that these moods can include “fatigue, energy; excitement; wellness; sickness; tension; relaxation; surging; dragging; stability; instability; balance; imbalance; harmony; discord” (p. 286). However, anxiety can be present in mood states without resulting in a clinical diagnosis of a mood disorder. In other words, anxiety can be experienced as state anxiety (an experience in the moment) but not necessarily as a trait anxiety (a consistent level of anxiety that a person brings to most situations).

### **Running as Therapy**

Regular exercise has been studied to be effective in decreasing symptoms of anxiety (van Minnen, Hendriks, & Olf, 2010). Running is a form of exercise that can be done anywhere, at any time, with ease and without special instruction, equipment or skill. Therefore, running can be an easy addition to the routine of mental health treatment (Sachs & Buffone, 1984). Running therapy is the practice of running that uses psychotherapy by a mental health professional to

promote both physical and mental health (Sachs & Buffone, 1984). This form of therapy can be used to treat targeted clinical concerns or as therapy for depression and anxiety (Sachs & Buffone, 1984). Specific types of psychotherapy such as cognitive behavioral therapy have been used to address the cognitive symptoms of anxiety, with significant success (Barrowclough et al., 2001). However, these therapies do not address the somatic symptoms. Combining psychotherapy with an exercise, such a running can provide maximum benefits to target both cognitive and somatic symptoms (Hays, 1994).

### **Addressing Somatic Symptoms**

Physiologically brain chemistry is changed when an individual exercises. Regular exercise has shown an increase in serotonergic and noradrenergic levels in the brain (Anderson & Shivakumar, 2013) These findings are similar to the findings of the effects of anti-depressants on the brain (Anderson & Shivakumar, 2013). Research has also shown that exercise increases endorphins that are released in the brain. These endorphins can reduce pain symptoms and create an elevated mood state (Anderson & Shivakumar, 2013).

Anxiety can be felt throughout the body as rapid heartbeat, sweating and chest pain. Van Minnen, Hendriks and Olff (2010) found that by exposing patients to these physiological symptoms through exercise they could develop a better tolerance to these symptoms (p. 2). Not only is exercise and running therapy an outlet to express anxious energy but it can help to reduce fear of the somatic symptoms of anxiety (van Minnen et al., 2010), such as chest pain, rapid heartbeat, sweating and feeling out of breath. Exercise and running can also induce these same physical sensations in the body. Broman-Fulks and Storey (2008) found that exposing patients to these physical sensations through exercise helped to reduce sensitivity to these sensations when they are experienced during an anxiety attack (p. 124).

Running also brings a heightened awareness of bodily sensations that are being experienced which can also heighten awareness of emotions. In a case study by Hays (1994) a patient describes “being aware of my body has helped me be aware of my feelings” (Hays, 1994, p. 732). Being aware of body sensations allows the runner to connect body feelings with emotional feelings, therefore creating insight to implement change (Hays, 1994).

### **Addressing Cognitive Symptoms**

Sachs and Buffone (1984) stated that pervasive thoughts in anxiety can present as worry, trouble concentrating and lack of sleep (p.145). These pervasive thoughts can be improved with running. Hays (1994) describes a phenomenon known as “centering” that occurs while running (Hays, 1994). This is described as creating a clarity in thought processes and then being able to more clearly integrate that thought process. Through the centering process and clarity of thought, the client is brought back to the present moment. Centering back into the moment can help to silence pervasive thoughts and help to decrease anxiety in the moment it is being experienced (Hays, 1994).

Pervasive thoughts can also be improved by increasing neuroplasticity in the brain. Scientists have found that aerobic exercise increases brain neuroplasticity (Havey, 2017). Pathways in our brain can be rewired by repetitive activity and by hormones and proteins that are released during aerobic activity (Havey, 2017). By using the benefits of neuroplasticity during aerobic activity and applying them to negative thought patterns, greater changes in pervasive thinking could be observed (Havey, 2017).

Running as therapy has been shown to create positive correlations when decreasing symptoms of anxiety (Sachs & Buffone, 1984). Findings have shown that the most significant effects have been observed when using a combination of therapies such as running therapy and

psychotherapy (Gasiewski, 2017). In addition, a systematic approach to running therapy is important to provide consistency of treatment and maximum benefit (Schuch et al., 2016). A systematic approach involves specifically scheduled prescriptions of running that are consistent and executed in a defined period of time (Sachs & Buffone, 1984). While brief bouts of aerobic activity have been shown to improve symptoms of anxiety (Broman-Fulks & Storey, 2008), research suggests that a long term adherence to a running treatment plan may provide consistent and long term anxiety maintenance (Sachs & Buffone, 1984).

### **Art as Therapy**

Art as therapy offers individuals a way to express thoughts and feelings through the therapeutic process of making art (Blomdahl et al., 2016). Allowing for this expression not only provides an outlet for patients to express feelings but it also allows them to practice making decisions, tolerate frustrations, create mindfulness and explore a sense of internal self (Drass, 2015). These are the common themes that present a challenge for patients experiencing anxiety. There is evidence in the research, that art therapy provides benefits that help relieve symptoms of anxiety (Sandmire et al., 2012). Art therapy has also been shown to elevate mood and reduce stress levels (Rubin, 2016).

### **Kinesthetic Art Making**

As discussed in running as therapy, being in touch with bodily sensations is important when addressing symptoms of anxiety. Kinesthetic sensations are movements, rhythms and actions that are experienced by the body (Hinz, 2009). Art making can be a kinesthetic process that brings attention to the body and its responses as a way to better understand the symptoms of anxiety (Hinz, 2009). Art activities that use movement, action and rhythm allow a release of physical energy from the body (Hinz, 2009). Art making that uses throwing or rolling clay,

tearing paper or large-scale painting are examples of types of art that use kinesthetic movements. Physical release of energy and bringing awareness to the body can address somatic symptoms of anxiety.

### **Addressing Somatic Symptoms**

Art making as a form of therapy has the ability to address somatic symptoms of anxiety. Blomdahl et. al (2016) found that art therapy helped patients cope with physical symptoms of anxiety and be more aware and accepting of their activity levels and abilities. Movement and medium choice are important factors when consider art making as therapy. The art therapist carefully chooses art directives and art materials based on the need of the client (Hinz, 2009). If reducing anxiety is the treatment goal, art directives and materials would be targeted to look at specific symptoms associated with anxiety. Many activities such as painting, clay work and sculpture require movement, pressure and positioning. These elements of art making can make the client aware of how the body feels and incorporate that feeling into the art making process. This allows for a release of tension, movement of muscles and an increase in energy (Hinz, 2009). This release and awareness that is brought through the art process can help decrease somatic symptoms of anxiety.

### **Addressing Cognitive Symptoms**

The process of art making can also provide a place to challenge pervasive thoughts, explore motivations and create a better understanding of self. Creating a space to become present during the art making process can encourage mindfulness and bring a greater sense of the whole experience: body and mind. This brings the patient or client to the “here and now” which then can break the cycle of ruminating thoughts. Sandmire et al., (2012) stated that “art therapy, with its actual manipulation of art materials, offers a bottom-up approach to anxiety in a

nonverbal, tactile visual manner” (p. 72). In addition, this process creates a deeper exploration of these anxious and pervasive thoughts and can help change the patient’s perspective through exploration (Blomdahl et al., 2016).

### **Combined Treatment: Running and Art as Therapy**

While the benefits of both running as therapy and art as therapy as separate treatment modalities have been documented in the literature, they are both applicable to the treatment of symptoms of anxiety. Research combining both art making and running as treatment for anxiety has not been found in the research thus far. Sachs and Buffone (1984) stated that clinical issues do not only occur within one aspect of a client. When experiencing anxiety, symptoms occur physically, cognitively, emotionally and behaviorally (Sachs & Buffone, 1984). If this is in fact the case, then a client should be treated holistically with a combination of therapeutic modalities and running is one option to address physical symptoms:

Thus, if the organism are to be an effective whole, running must be integrated into a therapeutic program. Using running and psychotherapy together makes it possible to release new creative energy. Together they create a synergistic union, demonstrating a basic tenet of Gestalt psychology-the whole is greater than the sum of its parts. (Sachs & Buffone, 1984, p. 94)

Schwartz, Davidson and Goleman (1976) created a psychobiological model of anxiety (Schwartz, Davidson, & Goleman, 1978). In this model, they studied the concept that anxiety must be accessed by type (somatic or cognitive) in order to find the best treatment for the client. Treating the anxiety through mindfulness (cognitive) and by treating the body (somatic) is a combined and targeted technique. Art therapy can be applied as a targeted technique as well.

Using kinesthetic art making that engages the whole body in large movements helps the individual engage both mind and body in the process. Art therapy and running can be applied to create mindfulness and awareness of the body, therefore treating symptoms in a combined effort for maximum benefit to clients who are interested and able.

### **Limitations of Running as Therapy**

Sachs and Buffone (1984) stated, “A patient must gradually develop a capacity for running if therapeutic effects are to result, but running may be contraindicated for some, perhaps because of physical problems or medications” (p. xi). Gasiewski (2017) found that studies have not outlined specific training programs for exercise therapy: therefore, there is a lack of data to define specifically frequency, duration and type of exercise is beneficial (p. 65). In addition, clients must be physically fit enough to participate in running therapy. This fact limits the research in this field of study to only physically capable individuals who can participate in running (Hays, 1994).

### **Barriers to Treatment**

Society can be more openly accepting of treating physical symptoms than mental disorders. This could discourage the sufferer from seeking therapy and instead leading them to seek medical care where the distress caused by mental symptoms is given less emphasis. The somatic symptom may worsen if the mental health issue is not addressed (Vukomanovic et al., 2018). The symptoms that manifest in the body can often be explained away in physical terms when they are actually a manifestation of the the mind.

In addition, socio-economic factors can also affect treatment of somatic symptoms related to anxiety. A lack of coverage for mental health service by insurance companies or a lack of health insurance due to unemployment can prevent sufferers from seeking or gaining treatment

(Clarke et al., 2009). Another reason that these symptoms may not be treated from a psychological perspective is in how they are approached. If a patient seeks help from a physician for physical pain, it may be recognized by a physician that the physical pain is causing depressive or anxious symptoms (Clarke et al., 2009).

In many cultures including faith cultures, familial cultures, ethnic cultures and socioeconomic cultures, it is more accepted to report physical symptoms than psychological symptoms (Wyeth Pharmaceuticals, 2009). It is more socially acceptable in many environments to accept a physical manifestation and treat it with medication; however, that will not treat the underlying issue of depression and or anxiety. It is important in treating the mind and the body as a whole in a disorder than can be so complex and experienced in both the brain and the body. Treating such disorders with combined therapies can yield the best results in managing and treating symptoms. As discussed above, running as therapy as well as art as therapy have been presented in the literature as successful interventions for treating these symptoms.

## **CHAPTER III**

### **METHODOLOGY**

#### **Design of the Study**

This study is a one-group pre-/post-test design that uses a self-report to gather pre-test and post-test data (Kapitan, 2018). The goal of this research is to explore whether the combined activities of kinesthetic art making and running decrease the symptoms of anxiety as measured by The State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA) over each of these activities alone. Data will be collected by using self-reported scores from the STICSA before and after a weekly session of three specified activities: running, kinesthetic art making and combined running and kinesthetic art making.

#### **Location**

This study was done in Indianapolis, Indiana through Herron School of Art and Design, Indiana University Purdue University Indianapolis. The research was done independently by the researcher and data was collected at the time of the research.

#### **Time Period for Study**

The research was done in 12 sessions over a three-week period beginning in January 2019. During the first week, the researcher engaged in four sessions of running. Running sessions were completed four times for a duration of 30 minutes each. In the second week, the researcher engaged in four 30-minute sessions of kinesthetic art making. In the third week, the researcher engaged in one week of a combination of both kinesthetic art-making and running that consisted of, two 30-minute sessions of running and two 30-minutes session of art making.

**Subject Type**

This research is a single subject design. The subject in this methodology is the researcher, a 39-year old, Caucasian female who commonly experiences anxious mood states. The researcher is a runner and is currently enrolled in a master's in art therapy program at Herron School of Art and Design in Indianapolis, IN.

**Investigational Methods and Procedures**

Methods and procedures were conducted over a three-week period and divided into three groups of one week per intervention. The State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA) was taken by the researcher to record an initial baseline and then taken after each intervention period to establish a new baseline. A STICSA was completed four times during the study period: Prior to the start of Week One, after Week One, after Week Two and after Week Three for a total of four completed STICSA's each serving as a new baseline.

**Week One: Running**

The STICSA was completed before the first running session of Week One. Running consisted of 30 minutes of indoor running on a treadmill. The researcher ran at a pace of ten minutes per mile for a duration of 30 minutes. This time frame allowed the researcher to complete three miles per session. The researcher completed four sessions of running in Week One and then completed a second STICSA at the conclusion of Week One. This second STICSA served as a new baseline.

**Week Two: Art Making**

Art making consisted of 30-minute sessions in an in-home art studio. Thirty-minute sessions excluded preparation and clean up time. Art materials consisted of acrylic paints, large paint brushes and a large canvas measuring 88 inches x 62 inches hung on the wall. The subject

engaged in abstract painting working on the same canvas with the same materials each session. Large and pressured brush strokes were incorporated to create full body movements. The large scale allowed the researcher to involve her entire body in the process of making art. The researcher completed four sessions of art making in Week Two and then completed a third STICSA at the end of the fourth session to establish a new baseline score.

### **Week Three: Running and Art Making**

During the final one-week period, a combination of kinesthetic art making and running were completed. The researcher engaged in two sessions of running and two sessions of art making in Week Three, using the same procedures described above. At the conclusion of this third and final week the researcher completed a fourth and final STICSA to establish a new baseline.

### **Instrumentation**

The State-Trait for Cognitive and Somatic Anxiety (STICSA), focuses on both cognitive symptoms and somatic symptoms of anxiety. The STICSA was adapted from the State-Trait Anxiety Inventory (STAI). The original inventory has proven to demonstrate consistent validity and reliability in its data collection (Gros, Antony, Simms, & McCabe, 2007). However, research findings have concluded that this original inventory has not been able to effectively separate symptoms of depression from the symptoms of anxiety (Gros et al., 2007). The STICSA was adapted to more directly identify symptoms of anxiety by defining them into two categories cognitive and somatic. The research thus far has shown that the STICSA has a greater reliability and validity than the STAI when looking specifically at anxiety levels (Roberts, Hart, & Eastwood, 2016). This more specific version of its predecessor was used in this study because it addresses both the somatic and cognitive symptoms of anxiety.

The inventory consists of 21 self-reported items on a 4-point Likert scale, scored as follows: 1 = not at all, 2 = a little, 3 = moderately, and 4 = very much so (Ree, French, MacLeod, & Locke, 2008). The instructions ask respondents to take the inventory two times. First, participants are prompted with the statement, “how often, in general, the statement is true of you,” to gauge trait anxiety (Ree et al., 2008). Second, participants are prompted to answer the questions in terms of how they “feel right now, at this very moment, even if this is not how you usually feel” (Ree et al., 2008), thus accessing for state anxiety. For the purpose of this study the researcher used the inventory to address state anxiety and therefore completed all 21 questions for the second prompt only. Studies were not found in this research that specifically separated out cognitive symptoms versus somatic symptoms. For the purpose of this study the researcher wanted to focus on which type of anxiety were being improved by the specified interventions.

Literature published on the STICSA to date does not delineate exact scoring procedures or define the meaning of the scores related to levels of anxiety. However, Balsamo, Cataldi, Carlucci, & Fairfield (2018) indicated that a higher score on the STICSA indicates higher levels of anxiety and a lower score indicates lesser anxiety (2018). Van Dam, Gros, Earleywine and Antony (2013) found that a cut-off score of 40 was a possible indicator of anxiety disorders. The tables below show the questions that address cognitive symptoms (Table 1), and questions that address somatic symptoms (Table 2). These questions were easily differentiated by the language used in the questions. The researcher separated them into the somatic and cognitive categories. There are 10 questions pertaining to cognitive symptoms and 11 questions pertaining to somatic symptoms.

Table 1  
*Cognitive Questions*

---

I feel agonized over my problems.  
 I think that others won't approve of me.  
 I feel like I'm missing out on things because I can't make up my mind soon.  
 I picture some future misfortune.  
 I can't get some thought out of my mind.  
 I have trouble remembering things.  
 I think that the worst will happen.  
 I keep busy to avoid uncomfortable thoughts.  
 I cannot concentrate without irrelevant thoughts intruding.  
 I worry that I cannot control my thoughts as I would like to.

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Table 2  
*Somatic Questions*

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My heart beats fast.  
 My muscles feel tense.  
 I feel dizzy.  
 My muscles feel weak.  
 I feel trembly and shaky.  
 My face feels hot.  
 My arms and legs feel stiff.  
 My throat feels dry.  
 My breathing is fast and shallow.  
 I have butterflies in the stomach.  
 My palms feel clammy.

---

**Informed Consent**

Informed consent is not needed in this study because the researcher is the sole participant in this single subject design study.

**Data Analysis**

Data from the STICSA was descriptively analyzed to determine differences between the scores gathered before and after the three varying interventions. Because of the uneven number

of questions between cognitive symptoms and somatic symptoms (10 and 11 respectively), percentages were used to interpret differences in scores from week to week. In the full 21-question inventory, questions that address both cognitive and somatic symptoms can be clearly differentiated based on the questions asked (see Tables 2 and Table 3). A mathematical equation was used to determine the percentage decrease in scores. The difference was calculated between the first STICSA (taken prior to Week One) and the second STICSA (taken after Week One) and then the score was divided by the original number. The result was multiplied by 100 to determine the percentage decrease in scores. This process was repeated for the data from the remaining STICSA's.

This set of calculations was completed three times. First to determine percentage decrease in scores for the overall 21-question STICSA inventory for each week, followed by a second time to determine decrease in scores for just the cognitive questions, and a third time to determine a decrease in scores for just the somatic questions. Raw data scores were also documented.

### **Limitations and Delimitations**

Limitations of this research may include bias of the researcher as there may be a desire for the researcher to conduct a successful study. The researcher is a runner and an artist and this may affect the results. In addition, state anxiety levels may have been elevated due to high levels of stress due to enrollment in graduate school. There was also no control for exposure to environmental factors to control state anxiety, therefore, environmental factors may have affected levels of state anxiety. In addition, there is no measurement included for residual effect of the previous week's intervention on the following week's interventions. This may have

skewed the data as the study progressed. Delimitations include the short time frame of the study and using only one participant in this single subject design.

## CHAPTER IV

### RESULTS

Results from each week were looked at in terms of overall scores on each individual STICSA and then separated by the researcher into the cognitive and somatic categories. Data was also converted to percentage scores to calculate percentage decrease from week to week to week. Scores and percentages were entered into Table 3 and Table 4 and a full list of raw scores were entered and reported in Appendix A.

Prior to starting the first week, the researcher completed the first STICSA inventory. Scores on this initial test showed an overall score for the 21-item questionnaire of 40 out of a possible score of 84 points. Research on the STICSA indicated that this score represents a moderate level of anxiety overall (Balsamo et al., 2018). When the scores were separated by question category, cognitive and somatic, scores for the cognitive questions were 22 points out of 40 points and scores for the somatic questions were 22 points out of a possible 44 points. These results indicate that on the first day of the study the researcher had a moderate level of state anxiety overall, as self-reported on the STICSA, with a slightly higher score on questions related to somatic anxiety symptoms.

#### **Week One**

Week One consisted of four days of 30-minute running sessions. The STICSA was taken again after the final session of running. The score for all questions was 34 out of a possible 84 points, indicating a decrease in anxiety level of six points from the initial baseline. This was an overall decrease of 15 percent. This score indicates a reduction in self-reported anxiety from a “moderate” level of anxiety to a lesser level of anxiety. The self-report score for cognitive questions was 18 points out of a possible 40 which showed a decrease in four points from the

initial inventory and a decrease of 18 percent. The score for the somatic questions was 16 points out of a possible 44 showing a decrease by two points and a decrease of 11 percent.

### **Week Two**

Week Two consisted of four days of kinesthetic art making. The third STICSA was taken after the final session of art making. The overall STICSA score was 28 points out of a possible 84 points which was a six-point decrease from the prior week. This was an overall decrease of 17 percent from the prior week. The cognitive questions score showed a decrease in six points with a total score of 12 out of 40 and a decrease of 33 percent. The score for the somatic questions showed no decrease remaining at a 16-point rating out of 44 and a zero percent decrease from the previous week.

### **Week Three**

Week Three consisted of two days of 30-minute running sessions and two days of kinesthetic art making. After the final session of the week, which was kinesthetic art making, the overall STICSA score was 24 out of 84. This score was a four-point decrease from the prior week and a decrease of 14 percent. Cognitive question scores showed no decrease from the previous week's baseline. Somatic question scores showed a decrease of four points from the previous week and a decrease of 25 percent from the previous week.

Data showed that there was a continual decrease in the overall score (both cognitive and somatic questions) on the STICSA inventory from the time of the initial baseline score to the final baseline score. These results show a reduction in anxiety of 16 points from the beginning to the end of the study and a 40 percent reduction in overall reported anxiety from the initial STICSA baseline to the final STICSA score. When separated into the two categories, cognitive and somatic, scores for both also decreased from the time of the first inventory to the last

inventory. Table 3 shows the raw scores week-by-week and Table 4 shows percentage decrease of the weekly scores.

Table 3

*Weekly Scores*

Week	Overall	Cognitive	Somatic
Initial Baseline	40	22	18
Week 1	34	18	16
Week 2	28	12	16
Week 3 (final baseline)	24	12	12

*Note.* Scores after each intervention

Table 4

*Weekly Score Percentage Decrease*

Week	Overall	Cognitive	Somatic
Week 1- Running	15%	18%	11%
Week 2- Art Making	17%	33%	0%
Week 3- Running & Art Making	14%	0%	25%

*Note.* Percentages are a decrease from the previous week

The data collected was analyzed to determine which intervention individually or combined, had a greater impact on self-reported anxiety scores as determined by the State Trait Inventory for Cognitive and Somatic Anxiety. Major findings revealed that running, art making and combined activities decreased STICSA scores overall. Data indicated that the combination of art making and running may have shown no further decrease on cognitive symptoms. However, the combination of both running and art making may have shown a continued decrease in somatic symptoms of anxiety. The individual intervention of running in Week One decreased both cognitive and somatic scores. Art making alone indicated a decrease in cognitive scores but did not affect somatic scores.

## CHAPTER V

### DISCUSSION

The overall purpose of this research was to explore the effects of running, art making, and their combination on anxiety using the STICSA self-report inventory to measure state anxiety levels before and after each type of activity. A major finding in this research was that for this participant, the initial week of four 30-minute sessions of running decreased both somatic and cognitive symptoms of anxiety by 6 points which was an overall decrease of 15 percent from the initial baseline. According to the limited literature on the meaning of STICSA scores, this change indicates that the participant's anxiety was reduced from a potentially clinical level to a potentially non-clinical level of state anxiety. There was a noted decrease of 18 percent in cognitive symptoms as compared with a decrease to 11 percent in somatic symptoms. Results also demonstrated a decrease in overall anxiety for the two remaining weeks of activities (art making alone and a combination of running and art making). Data from the STICSA revealed that the combination of running and art making resulted in no further reduction in scores for the cognitive questions; however, there was a decrease of 25 percent in scores for somatic questions.

#### **Running**

These results were somewhat unexpected. The researcher expected that the running intervention would more likely decrease somatic symptoms of anxiety, because running is an intensely physical activity, involving movement, breath, and energy, which are all somatic functions related to anxiety symptoms. However, Week One data revealed a decrease in the cognitive category that was slightly more (18 percent) than the decrease in the somatic category (11 percent) for the week of sessions using running alone. The decrease in cognitive symptoms may be due to chemical changes that occur during physical activity. This is consistent with the

research that states that physical activity can positively affect brain chemistry and help to make changes in mood, energy levels, physical pain and discomfort (Edwards et al., 2018). These changes may support the data decrease in cognitive symptoms assessed by STICSA questions such as “I can’t get some thought out of my mind” or “I feel agonized over my problems” (Ree, French, MacLeod, & Locke, 2008). The decrease of 11 percent in the somatic category scores for Week One is also consistent with the research that stated physical activity can improve mood and reduce anxiety (Anderson & Shivakumar, 2013). The effects of the running intervention could be due to a release of energy from the physical activity. In addition, the research has reported a positive effect of running and building a tolerance to the similar symptoms of anxiety that are similar to the body sensations experienced when running (van Minnen et al., 2010). The running intervention may have made the symptoms of anxiety more manageable through exposure to these symptoms while engaging in the running process.

The scores in Week Two did not indicate a change in the somatic category after art making was introduced. However, it is possible that there was a residual and lasting effect of the running that carried over from Week One to Week Two. In Week Three, where running was reintroduced, the somatic scores showed a further decrease of 25 percent from the previous week. This reduction, in comparison to no reduction in Week Two, could be due to the lack of ability of the art making alone to address the somatic symptoms. It is possible that once running was reintroduced, the scores again dropped. These results may suggest that art making is a better intervention to address cognitive symptoms and running is more effective in addressing somatic symptoms, however, more research is necessary to make these claims.

### **Art Making**

Art making has been found in the research literature to both elevate mood (Rubin, 2016) and reduce both the cognitive and somatic symptoms of anxiety on varying levels (Blomdahl et al., 2016; Sandmire et al., 2012). When art making was introduced in Week Two, there was a 33 percent decrease in the cognitive category, but no change in the somatic category. Again, this data is challenging to assess for validity because there is no method to determine how the previous weeks intervention affected the scores in the second week. There may be a residual effect of running that carried over to the data from Week One to Week Two. Possible reasons for the change in scores may be that running in Week One had already addressed the somatic category and therefore provided no change in Week Two in the somatic category. However, the data shows an additional decrease in the cognitive category from the previous week. This decrease may be due to a possible increased ability of art making to affect cognitive symptoms. Research supports art making as a treatment for anxiety, specifically cognitive symptoms of anxiety (Blomdahl et al., 2016) which supports the tentative hypothesis that art making may better address cognitive symptoms and running may better address somatic symptoms.

When running was re-introduced with art making in Week Three, somatic symptoms showed a 25 percent drop from Week Two. This result could further indicate that running has a greater effect on somatic symptoms of anxiety. It is possible that the kinesthetic component of the art making in this study was not somatically rigorous enough to create change within the body. Running more directly affects the body and therefore could be attributed to a larger decrease in somatic anxiety.

Another unexpected finding was that the week of art making decreased the cognitive symptom category questions by an additional reduction of six points, a 33 percent from Week

One scores. Art making involves decision making, mindfulness and release of thoughts and emotions: these processes are correlated with cognitive symptomology (Drass, 2015). The process of art making involves a deeper exploration of thoughts and feelings and may explain the effect on the cognitive symptoms (Blomdahl et al., 2016). These points from the research possibly explain the larger decrease in cognitive scores in Week Two of art making.

Art making involves the movement of the body in a similar way but to a lesser physical degree than running. The art making was large and kinesthetic to intentionally involve the body, like running, in each session. However, this movement was not to the same level that is involved in running. It was hypothesized that a lesser increase in physical activity would not have as large of an effect on chemicals released in the body, therefore not effecting the cognitive process in the same way. The decrease in cognitive symptoms may not have been caused by the physical movement involved in the art making but could possibly be a result of the cognitive involvement in problem solving and the process of art making.

Another unexpected finding was how kinesthetic art making affected anxiety based on the subjective experience. The researcher found that using her whole body in art making was personally beneficial in decreasing her anxiety as compared to the art making she has been done on a smaller scale. This may be explained by the incorporation of large movements, which may have provided a kinesthetic release of energy similar to the energy release from running. This subjective experience is supported in the research stating that kinesthetic art making can address anxious symptoms (Hinz, 2009). This finding was not indicated clearly in the data but was a subjective finding based on the researcher's experience of art making in this study.

### **Art Making and Running**

Art making and running has not been found in the research as a combined approach to reduce anxiety. Studies have shown that using a combination of therapies to treat anxious states can help reduce the occurrence of symptoms (Broman-Fulks & Storey, 2008; Edwards, Rosenbaum, & Loprinzi, 2018; Hays, 1994). When looking at the complex symptomology of anxiety it would benefit individuals experiencing anxiety to combine multiple treatment approaches to address both cognitive and somatic symptoms in a more specific and targeted way. Using a psychobiological model of anxiety that addressed both the body and the mind through a targeted and combined technique has been discussed in the literature as an optimal way to approach the treatment of anxiety (Schwartz, Davidson, & Goleman 1978). Hays (1994) advocated that combining psychotherapy with an exercise, such as running, can provide maximum benefits to target both cognitive and somatic symptoms of anxiety. This researcher hypothesized that art making and running as a combined approach could provide similar benefits.

Results of this study showed that there was an overall decrease in anxiety after the combined approach of art making and running in Week Three. However, the residual effects from the previous weeks could have impacted these results. The re-introduction of running in combination with the art making could account for the additional decreases in somatic symptoms in Week Three. A residual effect from the art making in Week Two could explain why there was no further decrease in cognitive anxiety scores for Week Three. The ability of art making to address cognitive symptoms through the expression of thoughts and emotions may explain lasting decrease in scores. Based on these results it is possible that the somatic symptoms were more affected by the running intervention and that the cognitive symptoms were more affected

by the art making. More research is needed to validate if these combined interventions would be a successful tool for treating both cognitive and somatic symptoms of anxiety.

### **Measurement Tool**

The STICSA as a measurement tool was successful in separating out cognitive and somatic symptoms and specifically addressing state anxiety. The tool was easy to use and the questions were clearly stated as cognitive and somatic. However, because it is a newer measurement instrument it is not as heavily researched as its predecessor the State Trait Inventory Questionnaire (STIA). The research has indicated that the STICSA is more effective when specifically looking at the symptoms of anxiety, but research suggests that more studies should be done to further define this measurement tool (Deacy, Gayes, De Lurgio, & Wallace, 2016).

### **Conclusion**

The data showed that both running and art making had a possible effect on the symptoms of anxiety, both cognitive and somatic. It was unclear how the residual effect of the previous week's interventions affected the baseline scores from week to week. The subjective experience of the researcher was an overall decrease in anxiety each week and an added benefit of combined interventions to address multiple symptoms of anxiety. More research that addresses the limitations of this study would be beneficial to finding stronger results.

## CHAPTER VI

### CONCLUSIONS AND RECOMMENDATIONS

In conclusion, this study aimed to find how anxiety may be affected by running as therapy and art making as therapy. Data showed that both had an effect on the cognitive and somatic forms of anxiety as shown by using the STICSA. The results indicated that running decreased both cognitive and somatic symptoms of anxiety. It also indicated that art making alone showed the greatest decrease in cognitive symptoms. Combining both of the interventions continued to decrease somatic symptoms but did not show a further decrease in cognitive scores. The data indicates that further research could be done to show how these interventions could be adapted to better understand how to manage and decrease the symptoms of anxiety.

The findings and limitations of this study, as well as the subjective experience of the researcher while conducting the study, bring forward several possible areas for further research. These include: replication of the study over a longer period of time; specific adaptations of the study (e.g., using more than one participant and using the STICSA inventory to access trait as well as state anxiety); and exploration and comparison of specific kinds of art tasks to reduce anxiety.

The first recommendation would be to replicate this research design but increase the length of the study. The current study was limited by the short time period that the participant had to collect the data. Three weeks were allotted to complete the data collection. As indicated in previous research, especially related to the running component, longer time frames and prescribed schedules of exercise would have a greater effect on results (Sachs & Buffone, 1984). Replicating this research and extending it could provide stronger results and greater insight on the efficacy of combining running and art as therapy to reduce state anxiety.

A second area of recommendations for further research involve specific adaptations of the study components. First, in future studies this 3-session model of combined therapies could be replicated using a larger participant size. The current study was completed using only one participant, and that was the researcher herself. This design limited the applicability of the results due to being a single-case study and the subjectivity of analyzing one's own-self report data. Because the researcher is a runner and an artist, similar results may not be achieved by people who do not have experience with running and art making. In addition, the researcher had previously used running and art-making to reduce anxiety, which increased her subjectivity and bias. Results could possibly yield differently depending on many participant variables such as a larger sample size and those who have different experience with running and art making.

Another possible adaptation of this study would be to use the STICSA inventory as it was intended, to measure both trait and state anxiety. As explained in the method section, the current study only addressed state anxiety. The STICSA was designed to look at both state and trait anxiety. Using the STICSA to include self-reports of both types of anxiety could broaden the implications of the study.

Lastly, the subjective experience of the research showed the researcher that kinesthetic art making was personally beneficial in decreasing personal anxiety as compared to art making on a smaller scale. A study that looks at art making and anxiety specifically related to size and energy of body movements during the art activities might provide greater insight into using art as therapy in the treatment of anxiety.

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APPENDIX A

*STICSA Weekly Scores*

Questions	Baseline 1	Baseline 2	Baseline 3	Baseline 4
1. My heart beats fast	2	2	3	1
2. My muscles are tense.	3	2	3	2
3. I feel agonized over my problems.	2	2	1	2
4. I think that others won't approve of me.	3	2	1	2
5. I feel like I'm missing out on things because I can't make up my mind soon.	1	1	1	1
6. I feel dizzy.	1	1	1	1
7. My muscles feel week.	1	1	1	1
8. I feel trembly and shaky.	1	1	1	1
9. I picture some future misfortune.	2	2	1	1
10. I can't get some thought out of my mind.	3	1	1	1
11. I have trouble remembering things.	3	2	2	1
12. My face feels hot.	2	2	1	1
13. I think that the worst will happen.	3	2	1	1
14. My arms and legs feel stiff.	1	1	1	1
15. My throat feels dry.	2	2	2	1
16. I keep busy to avoid uncomfortable thoughts.	2	2	1	1
17. I cannot concentrate without irrelevant thoughts intruding.	2	2	2	1
18. My breathing is fast and shallow.	1	1	1	1
19. I worry that I cannot control my thoughts as well as I would like to.	1	2	1	1
20. I have butterflies in my stomach.	2	2	1	1
21. My palms feel clammy.	2	2	1	1
Totals	40	34	28	24

*Note.* Ree, M. J., French, D., MacLeod, C., & Locke, V. (2008). *State-Trait Inventory for Cognitive and Somatic Anxiety* [Measurement instrument]. American Psychological Association.