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FIGURE DRAWINGS**

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THE POWER OF ART: THE EMOTIONAL AND
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Dedications

I dedicate my years in graduate school and time to complete this project to my family.

To Dad, Grandma, Auntie Stella, Zorro, and Cartman

Being away in Michigan for graduate school has not been easy. I would not have gotten this far in life without your support, love, and for believing in me. Thank you for always being there and for helping me pursue my dreams. I love you all.

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TABLE OF CONTENTS

List of Tables.....	viii
List of Figures.....	x
CHAPTER I: Introduction.....	1
CHAPTER II: Literature Review.....	11
Anthropological Views of Art.....	11
Psychological Views of Art.....	15
Psychological Uses of Art.....	17
Art as an Assessment Measurement.....	24
Florence Goodenough.....	25
Dale Harris.....	26
John Buck.....	27
Karen Manchover.....	29
Eileen Berryman.....	30
Critique of Methodology.....	32
Art as a Treatment Intervention.....	33
Self-Portraits.....	39
Current Research.....	41
Children.....	41
Adults.....	43
Mandala Art Therapy.....	47
Joan Kellogg.....	48
Susanne Fincher.....	51

Current Research.....	53
Children.....	53
Art-Based Intervention Efficacy.....	55
Current Research.....	55
Children.....	55
Adults.....	56
Understanding the Impact of Anxiety.....	63
Trait and State Anxiety.....	64
Anxiety and Physiological Effects.....	66
Measuring Anxiety.....	68
Statement of the Problem.....	69
Statement of Purpose.....	70
Hypotheses.....	71
Significance of the Study.....	71
CHAPTER III: Method.....	73
Research Design.....	73
Participants.....	74
Measures.....	74
Procedure.....	77
Protection of Participants and Ethical Concerns.....	82
CHAPTER IV: Analytic Procedures.....	84
Quantitative Analysis.....	84
Qualitative Analysis.....	86

CHAPTER V: Results.....	92
Participants.....	92
Descriptive Statistics.....	95
Hypothesis Testing.....	100
Qualitative Themes.....	112
Drawing Task Rating Questionnaire.....	123
CHAPTER VI: Discussion.....	125
Overview.....	125
Discussion of Participants.....	126
Discussion of Hypotheses.....	129
Qualitative Themes.....	134
Drawing Task Rating Questionnaire.....	138
Discussion of Previous Research.....	139
Limitations.....	147
Directions for Future Research.....	151
Clinical Practice Implications.....	153
Summary and Conclusions.....	157
Appendix A: Consent Form.....	160
Appendix B: Background Questionnaire.....	165
Appendix C: Symptom Checklist-90 –Revised (SCL-90-R).....	167
Appendix D: State-Trait Anxiety Inventory (STAI).....	169
Appendix E: Qualitative Drawing Questions.....	171
Appendix F: Drawing Task Rating Questionnaire.....	175

References.....	177
Abstract.....	186
Autobiographical Statement.....	188

List of Tables

Table 1: Pre-Determined Themes and Descriptions for Qualitative Analysis..... 87

Table 2: Final Analysis of Emerging Themes and Descriptions..... 89

Table 3: Demographic Characteristics: Gender, Ethnicity, and Level of Education..... 93

Table 4: Demographic Characteristics: Art Interest, Art Background, and Handedness..... 94

Table 5: Means and Standard Deviations of T Scores from the Symptom Checklist -90 –Revised (SCL-90-R): Primary Symptom Dimensions and Global Severity Index..... 97

Table 6: Baseline Characteristics: Global Severity Index (GSI), the State-Trait Anxiety Inventory (STAI) –Trait and State, and Pulse Rate among Drawing Groups (Mandala, Human Figure, and Free Drawing)..... 100

Table 7: Intercorrelations for Global Severity Index (GSI) and the State-Trait Anxiety Inventory (STAI) at Baseline, Pre-Drawing, and Post-Drawing..... 101

Table 8: Intercorrelations for Global Severity Index (GSI) and Pulse Rate (PR) at Baseline, Pre-Drawing, and Post-Drawing..... 102

Table 9: Intercorrelations for the State-Trait Anxiety Inventory (STAI) –Trait and State (S) and Pulse Rate (PR) at Baseline (Base), Pre-Drawing (Pre), and Post-Drawing (Post)..... 104

Table 10: Analysis of Variance Results for Drawing Group and the State-Trait Anxiety Inventory (STAI) at Baseline, Pre-Drawing, and Post-Drawing (Time Point)..... 108

Table 11: Analysis of Variance Results for Drawing Group and Pulse Rate (PR) at Baseline, Pre-Drawing, and Post-Drawing (Time Point).....	111
Table 12: Qualitative Themes: Total Frequency of Each Theme and Frequency within Each Drawing Group.....	121

List of Figures

Figure 1.	Study design: Drawing Group X Time Point.....	74
Figure 2.	Means of State-Trait Anxiety (STAI) –State Scores for Three Drawing Groups at Baseline (1), Pre-Drawing (2), and Post-Drawing (3) Time Points.....	106
Figure 3.	Means of Pulse Rate for Three Drawing Groups at Baseline (1), Pre-Drawing (2), and Post-Drawing (3) Time Points.....	109
Figure 4.	An Illustration of a Mandala Drawing that was Re-Drawn by the Examiner.....	114
Figure 5.	An Illustration of a Human Figure Drawing that was Re-Drawn by the Examiner.....	116
Figure 6.	An illustration of a Free Drawing that was Re-Drawn by the Examiner.....	118

CHAPTER I

Introduction

Drawing lines, shapes, images, and using colors have served as the earliest documentations of humans engaged in a nonverbal form of communication. Such ways of communicating are often referred to as the language of visual art (Malchiodi, 2007). The use of visual art for early humans went beyond a mere need to decorate their caves and living spaces. The images had a functional purpose that enabled people to protect their communities, to communicate with one another, to pass down myths and traditions about the origins of their culture, and to heal themselves and others. In addition to having a functional significance that facilitated the survival of the human species, the ascribed meaning and use of art also appears to be shared universally and cross-culturally in history and in contemporary times (Malchiodi, 2007).

As art moved beyond its primitive uses as a means of survival, humans gradually began adopting more aesthetic ways of creating art as a powerful form of nonverbal self-expression, which is reflected by the varying art movements throughout history. Understanding the psychological impact of art gradually emerged as an area of interest for many researchers and clinicians during the 20th century (Malchiodi, 2012). Clinicians became interested in understanding how art may reflect individuals' perceptions of themselves and others, their thoughts and emotions, and even pathological symptoms. Creating human figure drawings became an area of interest in the field of psychology, specifically for assessment and diagnostic purposes. For example, it was assumed that drawn images of people were direct reflections of the individuals who created them, even if they were not self-portraits (Buck, 1948; Manchover, 1949). Many attempts had been made to

create formalized instructions, scoring criteria with standardized means, and systematic interpretations (Lilienfeld, Wood, & Garb, 2000). One of the first uses of human figure drawings as an assessment test involved evaluating nonverbal intelligence, with Florence Goodenough's (1926) "Draw-a-Man Test;" which was modified decades later by Dale Harris (1963) to become an assessment of developmental and intellectual maturity. Over time, the use of human figure drawings developed into projective tests that attempted to determine an individual's personality characteristics, psychopathology, interpersonal relationship patterns, conflicts, and desires and wishes (Lilienfeld et al., 2000). John Buck (1948) created one of the first projective tests known as the "House-Tree-Person (H-T-P) Technique," Karen Manchover (1949) formulated the "Draw-a-Person Test," and Eileen Berryman (1959) added a self-portrait drawing task to the "H-T-P Technique." Although the use of drawings as an assessment measure and diagnostic tool appeared promising, there were many inconsistencies in their validity and reliability (Lilienfeld et al., 2000). The scoring and interpretations of the drawings often varied from clinician-to-clinician and appeared to reflect subjective clinical judgment (Lilienfeld et al., 2000). Regardless, clinicians noticed that using drawings was beneficial in providing supplemental information; developing rapport with clients; allowing clients to express difficult topics nonverbally (Berryman, 1959; Garb, Wood, Lilienfeld, & Nezworski, 2002); and they often reflected an individual's progress throughout treatment (Garb et al., 2002; Malchiodi, 2007).

The thought of using art as a psychotherapeutic intervention that could promote healing also emerged. Art therapy became a technique that integrated psychotherapy with a variety of art mediums and methods to promote self-expression; communication; and improve overall mental health and well-being for children, adolescents, and adults (Wadeson,

1987). The ideas of Edith Kramer and Margaret Naumburg emerged at similar times and they became known as the pioneers of art therapy in the United States (Dilawari & Tripathi, 2014). Although they were both influenced by the Freudian psychoanalytic approach, Kramer placed an emphasis on viewing art *as* therapy, while Naumburg viewed art *in* therapy (Dilawari & Tripathi, 2004). The art as therapy perspective argued that the art process itself was therapeutic and did not require much verbalization in order to be therapeutically beneficial (Dilawari & Tripathi, 2014). The art in therapy perspective explained that the therapist used the images as a way to help the individual explore the meaning of their drawings in order to gain insight. Although the two perspectives are often described as polarities, art therapists generally use both perspectives in their practice (Malchiodi, 2007; Wadeson, 1987).

As with assessments, art therapists were interested in exploring an individual's self-portraits as a way of understanding how individuals perceived themselves. Self-portraits have often been described as self-reflections that may depict an individual's emotional, spiritual, and/or physical self (Muri, 2007). There are a variety of ways that clients can be instructed to create a self-portrait, but it is often the case that techniques focus on either a literal human figure drawing or an abstract drawing using symbols and colors to represent themselves, such as mandalas.

Self-portraits have been used as an intervention for both children and adults experiencing a variety of mental health issues, such as mood disorders, anxiety disorders, and histories of sexual abuse. The vast majority of research that has explored the therapeutic impact of using human figure drawings to create self-portraits has consisted of either case studies (Cockle, 1994; Dufrene, 1994; Wallace, 1997) or small samples sizes (Glaister, 1996;

Kelley, 1984; Wilson, 1998). Studies with sexual abuse victims have often utilized human figure drawings as a way to help individuals nonverbally share their experiences in a less threatening way (Dufrene, 1994; Glaister, 1996; Kelley, 1984). Clinicians have assessed an individual's overall progress in treatment by using their clinical judgment and by focusing on various aspects and qualities of the drawings including: the size of the images, the line quality, over or underemphasized body parts, and omitted and presented images (Dufrene, 1994; Glaister, 1996; Kelley, 1984). Studies with sexually abused children have found that the overall quality of their initial portraits were often disorganized, reflected low self-esteem, some consisted of images of genitalia, and most were below the expected age range of the children's drawing abilities (Kelley, 1984). Such initial drawings have often been interpreted as reflecting low self-esteem and poor self-regard (Dufrene, 1994). Adults who have experienced childhood sexual abuse have also created self-portraits that were generally small in size, lacked many details, consisted of limited colors; and reflected themes surrounding self-hatred, shame, low self-esteem, and lacking self-identity (Glaister, 1996). For some adults, the use of symbols provided them with an indirect way of describing their sexual abuse (Bowers, 1992). Over a span of treatment, children's self-portraits often gradually appeared more age appropriate, more positive, and without genitalia (Kelley, 1984); and adults' self-portraits generally became larger in size, consisted of brighter colors, were more detailed, and the quality of the lines became clearer and more symmetrical (Glaister, 1996). Such changes in the quality of the images have often been interpreted as reflecting more self-esteem, an increase in sense of security and strength, and developing a greater sense of self (Glaister, 1996). The drawings appeared to provide both children and adults a nonverbal way of describing the events in order to work through their traumatic

experiences, which enabled them to eventually move forward in treatment (Bowers, 1992; Dufrene, 1994; Glaister, 1996; Kelley, 1984).

With regard to other mental health concerns, case studies have used human figure drawing self-portraits to treat symptoms of anxiety and depression in children (Cockle, 1994); symptoms of obsessive compulsive disorder (OCD) in adults (Wallace, 1997); and in group therapy settings to treat adult sexual addictions (Wilson, 1998). A child with anxiety and depression found the use of symbols in his self-portraits as a useful way to nonverbally express how he felt about himself, others, and his environment (Cockle, 1994). Being able to repeatedly draw the same symbols to reflect his anxieties allowed him to work through his fears and to nonverbally express his insecurities in order to enhance his self-confidence. An adult with obsessive compulsive disorder (OCD) was provided with a mirror and was instructed to limit how often she looked down at her paper while drawing herself (Wallace, 1997). The technique helped her to not only be attuned to her facial expressions and current emotional states but also to gradually accept imperfections about herself and her environment. Finally, the use of self-portraits provided adults with sexual addictions a nonverbal way to disclose their thoughts, feelings, obsessions, and behaviors metaphorically and within a supporting environment (Wilson, 1998). The group setting appeared beneficial for adults to feel safe in revealing vulnerable information about themselves and their sexual addictions that were often considered socially and culturally unacceptable.

In addition to exploring the positive impact of human figure drawings, research has also observed the therapeutic benefits of creating mandalas for both children and adults. Studies with small sample sizes and case studies have focused mostly on children and adolescents with medical and mental health issues. Although clinical judgment was often

used in determining each case's overall progress in treatment, clinicians asked their clients questions about their drawings in order to understand the themes and meaning of their symbols and colors. In other words, researchers were interested in understanding and interpreting the overall art product based on individual differences. Such studies have explored the use of mandalas with children with the Human Immunodeficiency Virus (HIV) (Wiener & Battles, 2002); with histories of abuse and Fetal Alcohol Spectrum Disorder (FASD) (Gerteisen, 2008); and with symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) (Green, Drewes, & Kominski, 2013). When asked to focus on their personal issues, children with HIV often created mandalas with images, themes, and colors revolving around their HIV symptoms, social relationships, and the consequences of HIV in their personal lives (Wiener & Battles, 2002). For instance, red and black often symbolized HIV or the consequences of HIV, and yellow often symbolized positive social relationships. For children with traumatic experiences, the use of symbols provided a safe way of depicting their feelings and experiences in a less threatening manner (Gerteisan, 2008). Finally, the process of creating a mandala enabled an adolescent with ADHD to contemplate on his drawing, which helped him to strengthen his ability to maintain his attention on the task (Green et al., 2013). The use of symbols and colors in the mandalas appeared to provide the children and adolescents with a nonthreatening way of depicting their symptoms and traumatic experiences in order to enhance their ability to cope.

The majority of research studies that have focused on the impact of art have generally been case studies. However, there has been a growing interest in conducting more controlled ways to experimentally observe and understand the impact of art. Researchers have designed their studies to consider a variety of art conditions while focusing on anxiety through self-

report measures (Curry & Kasser, 2005; Henderson, Rosen, & Mascaro, 2007; Kersten & Van der Vennet, 2010; Small, 2006; Van der Vennet & Serice, 2012) and physiological measures (DeLue, 1999; Schrade, Tronsky, & Kaiser, 2011). Interestingly, most of these studies have only focused on either drawing mandalas or coloring pre-drawn mandalas. One of the earliest experimentally designed studies observed the use of mandalas to reduce pulse rate and skin temperature of children between the ages of 5 to 10 years (DeLue, 1999). The children were asked to either draw a mandala or to complete problem-solving puzzles. Those who drew mandalas had a significant reduction in pulse rate compared to those who completed problem-solving puzzles.

Studies with adults have generally placed an emphasis on using either self-report measures or physiological data to measure anxiety. Studies using self-report measures often use Spielberger, Gorsuch, Lushene, Vagg, and Jacobs' (1983) State-Trait Anxiety Inventory (STAI) in order to measure participants' pre and post anxiety levels (Curry & Kasser, 2005; Kersten & Van der Vennet, 2010; Van der Vennet & Serice, 2012). Curry and Kasser (2005) developed an experimental design that has been modified and/or replicated by many researchers (Small, 2006; Van der Vennet & Serice, 2012; Kersten & Van der Vennet, 2010). Participants were first induced into an anxious state with a writing task and then were asked to color a pre-drawn mandala, a plaid design, or a blank piece of paper. Curry and Kasser (2005) found that although there was no significant difference in anxiety reduction between the pre-drawn mandala and the plaid design conditions; both drawing tasks significantly reduced anxiety more than the free coloring task. Researchers Van der Vennet and Serice (2012) and Kersten and Van der Vennet (2010) only found a significant reduction in anxiety

from individuals who colored pre-drawn mandalas, and no significant difference between coloring a plaid design or the free coloring task.

Two studies (Small, 2006; Henderson et al., 2007) were interested in preserving the art therapeutic process in their research designs in order to determine if the use of instructions and/or obtaining qualitative descriptions of the mandalas had a stronger impact than just asking people to color or draw mandalas. Small (2006) added a fourth condition to Curry and Kasser's (2005) design, which included giving participants a brief mandala synopsis that explained the spiritual and religious significance of mandalas. Additionally, Small (2006) measured anxiety with the Tallis, Eysenck, and Mathews' (1992) Worry Domains Questionnaire instead of Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI). Results indicated that anxiety reduction was experienced by all drawing conditions and there were no significant differences among the drawing tasks (Small, 2006). It was inferred that the act of coloring, regardless of the subject-matter and spiritual meaning behind the task, may generally reduce anxiety.

Another study focused on using mandalas to reduce symptoms of posttraumatic stress disorder (PTSD), depression, and anxiety while also increasing spiritual meaning in undergraduate students who were screened for symptoms of PTSD (Henderson et al., 2007). Participants were asked to either draw a mandala or draw an object in the room for three consecutive days, and then again one month later. Both state and trait anxiety were measured using Spielberger et al.'s (1983) STAI. Those in the mandala condition were instructed to draw a large circle, to reflect on their thoughts and feelings associated with their traumatic experiences, and to use symbols and colors to depict their feelings (Henderson et al., 2007). During the follow-up visit, participants were asked to write a description about the symbolic

meaning of their mandala drawings, and to complete an outcome questionnaire about their overall satisfaction with the study (Henderson et al., 2007). Results indicated that only PTSD symptoms were reduced, which suggested that mandalas helped individuals focus on their traumatic experiences. Qualitatively, the researchers noticed a common use of images and colors that symbolized certain affective states. Additionally, many participants reported in the outcome questionnaire that drawing mandalas was a helpful way to express their traumatic experiences.

Finally, Schrade et al. (2011) were interested in determining the physiological impact of drawing mandalas for adults diagnosed with an intellectual disability by measuring pulse rate, systolic blood pressure, and diastolic blood pressure. All participants drew a mandala, a free drawing, or assembled a puzzle on three separate days. Drawing a mandala reduced both diastolic and systolic blood pressure slightly more than engaging in a free drawing or a puzzle. However, there were no significant reductions in pulse rate among the three drawing tasks (Schrade et al., 2011).

The previous studies have generally focused on observing one art therapeutic technique at a time. Research on human figure drawings has focused solely on figure drawings; while studies on mandala drawings have focused almost exclusively on mandalas. Additionally, anxiety has also been measured either exclusively through self-report measures or through physiological measures alone. The purpose of the proposed study involves assessing the impact on anxiety of two art therapeutic techniques that focus on the same subject matter, creating an image of the self. Both human figure drawings and mandala drawings are art therapeutic techniques that involve drawing an image of the self; yet, the two techniques have not been explored or compared within a single study. Anxiety will be

measured using both self-report questionnaires and physiological recordings. This study will not only attempt to understand the emotional and physiological impact of art, but also to understand how engaging in the role of art can potentially be healing.

CHAPTER II

Literature Review

Art has served both a creative and functional purpose since the beginning of humankind. Starting as a primitive survival tool that provided protection and preserved cultural and religious traditions and experiences, art gradually became used as a device that promoted healing that would rid individuals from their physical and emotional sufferings. By the 20th century, art gained prominence in the psychology field by starting as an assessment measure and diagnostic tool. Over time, clinicians began to recognize art as a tool that facilitated healing, communication, and self-expression for individuals suffering from emotional and medical ailments. Despite its longstanding presence and significant influence as a visual language across societies and cultures, research on the emotional and physiological impact of art is surprisingly limited.

Anthropological Views of Art

Humans have used art since ancient times as a means of expression, communication, and for healing purposes. Throughout Africa and Western Europe, the earliest documentation of humans creating art has dated back to 30,000 BCE during the Stone Age, specifically the Paleolithic, Mesolithic, and Neolithic periods (Kleiner & Mamiya, 2005). When such early art was discovered on cave walls, on stones, and as figurines, it was initially assumed that early humans appreciated art as a form of decoration. However, there were repeated images of animals, animals with human body parts, and animals being hunted or trapped by men. When observing art in other cultures and throughout different time periods, there were repeated images, colors, and themes found in living spaces, sacred areas of worship, and burial sites.

There appeared to be more of a functional purpose for the artwork that went beyond the mere need to decorate cave walls and living spaces. Shamanism is considered a worldwide human tradition that has been practiced in all cultures and dates back to the Paleolithic period (Harner, 1988; Kleiner & Mamiya, 2005). Shamans served an important role within their communities. Through drumming, rattling, singing, dancing, and sometimes psychotropic drugs, a shaman could enter into a trance or an altered-state of consciousness that enabled them to heal others, see into the future, guide souls of the dead to their proper resting places, and ward off evil spirits (Harner, 1988). An individual became a shaman either by inheriting the role through their family, or by experiencing a miraculous recovery from a serious or life-threatening illness. Individuals who experienced miraculous recoveries were believed to have had a healing power that enabled them to survive. Such an ability may have provided them with a power to heal others with similar illnesses, which was known as being a wounded healer (Harner, 1988).

When reflecting on cave paintings, it has been assumed that shamans were able to foresee a successful hunt, and may have created an image that communicated to hunters what type of prey to hunt and how to capture their prey (Harner, 1988). Art, therefore, provided a survival purpose that was communicated through imagery.

The use of art to serve as a form of protection was embraced and practiced in all cultures and religions (Segy, 1969). Animism consists of viewing all objects and beings (i.e., animals, humans, minerals, vegetation, water, the earth) as having a soul (Segy, 1969). Fetishism involved attributing magical powers to objects (i.e., amulets, charms, statues, beads, fabric, and other materials) that could promote healing, provide protection, or ward off evil spirits when displayed, worn, or carried around (Segy, 1969).

With regard to protection, African cultures often created carvings of figures intended to ward off evil spirits (Segy, 1969). Such figures had a mirror to blind the spirits, nails that were driven into the figure, and a dagger in the figure's hand in order to defend against the evil spirits. With regard to healing purposes, Native American tribes, specifically the Zuni tribe, created animal carvings that could be placed in a small bag and worn around an individual's neck (Cushing, 1970). Each animal reflected a specific power or ability that healed, protected, or motivated an individual. In Tibetan cultures, the use of sand paintings to create mandalas have been used for meditative practices and to heal individuals from their sufferings (Malchiodi, 2007).

Art has also helped in capturing and retelling mythological stories of all cultures and religions. Myths originally started as dreams that were recited by the dreamer or narrator to their audiences (Segy, 1969). Myths reflected stories about humans, animals, and natural forces with spirits that incorporated morals, lessons, and ideological and spiritual concepts. Most importantly, myths provided stories about the origin or creation of a community's tribe (Segy, 1969). Using art to depict such myths was a way of documenting the stories, so they could be retold by future members within the community.

In Aboriginal Australian cultures, myths were interpreted through colorful paintings of landscapes and animals that were called "dreamings" (Sutton, 1988). Dreamings reflected both conscious and spiritual experiences that involved stories about ancestors and sacred places that influenced their origins. Like Aboriginal Australian paintings, the Huichol Indians in Mexico created colorful yarn paintings that retold myths of their ancestors, origins of their culture, and shamanic journeys (Furst, 1979). The paintings were completed with yarn that had been dyed and dipped in beeswax. African cultures often created elaborate

masks that were used to perform rituals that reflected myths about their origins and spiritual ancestors (Segy, 1969). Additionally, the majority of cultures, such as African, Native American, Australian, and Latin American to name a few, also used totems to reflect their lineage, ancestors, and connection with nature (Harner, 1988; Kleiner & Mamiya, 2005; Miller, 2006; Segy, 1969; Sutton, 1988).

Finally, art has been used for burial purposes in order to ensure that the spirits of the deceased will go to their proper resting places in the afterlife (Harner, 1988). The majority of cultures, such as Latin American, Asian, Egyptian, and African cultures carved sculptures or created images of the deceased that would be buried with them (Kleiner & Mamiya, 2005; Miller, 2006; Segy, 1969). For leaders, kings, pharaohs, and rulers, almost all cultures created large statues, scrolls, and/or murals that honored the deceased (Kleiner & Mamiya, 2005; Miller, 2006; Segy, 1969).

Not only has art served many functional purposes, but the meaning and use of art appears to be shared universally (Malchiodi, 2007). There have been repeated images, symbols, colors, and themes that have been created throughout a variety of time periods and cross-culturally. During the Stone Age, small stones that reflected figurines of women with large hips and breasts have been found in a variety of regions (Kleiner & Mamiya, 2005). It has been suspected that the figurines may have represented a mother goddess that promoted fertility (Kleiner & Mamiya, 2005). Images of goddesses have been repeatedly found in Egyptian, Latin American, African, and European cultures and have generally represented mother nature and fertility (Kleiner & Mamiya, 2005; Miller, 2006). The use of circles and circles within squares have often reflected spirituality and a sacred space within paintings, sculptures, carvings, and architecture in European, Australian, Latin American, and African

cultures (Adams, 2001; Kleiner & Mamiya, 2005; Malchiodi, 2007). Such occurrences highlight the significance art has had on humanity in providing a visual language that has promoted communication across societies and cultures.

Psychological Views of Art

The idea of images, symbols, and colors having universal meanings has been of interest in the realm of psychology. Sigmund Freud (1900), founding father of the psychoanalytic approach, attempted to understand his own dreams in order to interpret other people's dreams. He explained that dreams were distorted into symbols that reflected unconscious thoughts, feelings, and conflicts. Freud attempted to understand the meaning of images based on his knowledge about symbols from folklore, myths, legends, proverbs, linguistic idioms, and jokes. By asking clients to retell their dreams, Freud attempted to uncover the meanings based on their use of symbols and themes.

Carl Jung (1963), who studied under Freud and later developed the analytic psychological approach, integrated different cultural and religious perspectives so he could fully comprehend the human psyche from a holistic perspective. Jung (1963) believed that individuals had unconscious material that could be categorized within the personal unconscious and the collective unconscious. The personal unconscious reflected an individual's thoughts and feelings based on their unique experiences. In contrast, the collective unconscious reflected universal human experiences, such as emotions, use of symbols and language to communicate with others, and familial and societal roles (Jung, 1953). Within the collective unconscious were archetypes. Archetypes are unconscious universal experiences that emerged into conscious awareness through universal symbols, images, dreams, art, myths, rituals, or even symptoms (Engler, 2009). Jung also identified

and defined a variety of specific symbols or archetypal images that contained universal meanings (Engler, 2009).

Freud's understandings of dreams and Jung's descriptions of the collective unconscious and archetypes significantly influenced artists and art therapists during the 20th Century (Malchiodi, 2007). Freud (1914) wrote about art in which he described the act as a subliminal form of expressing repressed desires (Dalley, 1987). His writings about art often focused on understanding the artist as opposed to understanding their artwork (Dalley, 1987). Even so, Freud's explanations about the unconscious, use of free associations, and interpretations of dreams significantly influenced a variety of art movements, especially the Dada and Surreal art movements (Hunter, Jacobus, & Wheeler, 2004). Dadaists and Surrealists were both interested in "Symbolist poetry," which involved using the visual arts to depict irrationality among reality, dreams, and metaphysics (Hunter et al., 2004). In other words, symbolism and the use of misshaped images that appeared biomorphic, warped, or merged with other images became embraced. The Surrealists began placing more of an emphasis on visually recreating their dreams using symbolic images and "automatism," which was a drawing technique based on Freud's use of free associations (Hunter et al., 2004). Automatism was a drawing technique that involved drawing whatever came to mind spontaneously and at that moment in order to liberate the psyche from reason. Artists often focused on their dreams while engaged in automatism. The act was a way of tapping into the unconscious by drawing in a trance-like state.

Jung (1963, 1973) explored his own dreams and would write, draw pictures, and create mandalas in notebooks. After observing his drawings, he noticed repeated and central themes that changed over time based on his state of mind and his life experiences. He

connected his symbols and themes to a variety of religious and philosophical understandings and interpretations. Over time, Jung (1973) created *The Red Book*, which contained his mandala drawings and fantasies that he felt reflected unconscious images. When working with clients, Jung (1973) would have his clients interpret their drawings based on what they noticed and thought their images may have symbolized. Jung (1953) used mandalas in psychotherapy as a way to depict the archetype that symbolized a sense of wholeness and individuation. Jung's therapeutic use of mandalas and interpretations using archetypes gradually became recognized as a useful art technique that could be used with a variety of clients in many settings (MacRae, 1980). Art therapists attempted to create formalized instructions and interpretations based on Jung's ideas and concepts; and the practice of mandala art therapy became recognized by the 1980s (MacRae, 1980).

Psychological Uses of Art

As art became recognized for its importance in understanding human functioning, researchers and clinicians became interested in using art for psychological assessments and treatment interventions. Many attempts had been made throughout the years to create formalized instructions, scoring criteria, and interpretations so art could be used for both assessment and therapeutic purposes. As an assessment measure, attempts had been made to use art for diagnostic purposes and to assess intellectual functioning. As a psychotherapeutic intervention, the field of art therapy emerged as a way to provide a nonverbal means of self-expression. However, the use of art as both an assessment measure and as a psychotherapeutic intervention had a variety of strengths and limitations, which will be discussed in a later section.

Using art in the realm of psychology was greatly influenced by Freud and Jung. In fact, the origins of art therapy utilize both Freud's psychoanalytic approach and Jung's analytic psychological approach. Freud (1900, 1917, 1923) developed his theory of pathology and treatment throughout his career and placed an emphasis on the libido as pleasure-seeking. He first developed the Topographical Model (unconscious, preconscious, conscious), which described pathology as resulting from repressed unconscious drives attempting to break into conscious awareness (Freud, 1900). The goals for treatment involved undoing the repression by bringing the unconscious material into conscious awareness. Freud (1923) then developed the Structural Model (id, ego, superego), which explained pathology as resulting from faulty compromise formations and unconscious intrapsychic conflicts. The id represented unconscious libidinal and aggressive drives that operated on the pleasure principle. The pleasure principle consisted of satisfying id impulses by seeking immediate gratification in order to reduce tension. The ego, which operated on the reality principle, served as a mediator between id impulses and the superego. The superego represented internalized or introjected parental and societal values and morals. The reality principle consisted of satisfying id impulses in an appropriate manner based on the external environment. When id impulses threatened to break into conscious awareness, the harsh superego would condemn such urges. This left the ego to either defend against the urges or to appropriately release the urges based on the external environment, the latter of which was known as a compromise formation (Freud, 1923). As id impulses increased, the ego required more psychic energy and eventually perceived internal and external cues as causing anxiety. The process was known as signal anxiety (Freud, 1923).

Freud (1905) also described pathology as resulting from fixations during psychosexual stages of development. Fixations were unresolved conflicts due to over or undergratification during a specific psychosexual stage that predisposed a child to express pathology in adulthood. The psychosexual stages of development consisted of the oral stage (primary source of pleasure and conflict revolved around the mouth), the anal stage (primary source of pleasure and conflict revolved around the anus in terms of controlling and releasing feces), the phallic stage (primary source of pleasure and conflict revolved around the genitals in terms of oedipal complex issues), and the latency stage (a period when sexual impulses were directed in socially appropriate activities).

In terms of treatment, the goals of psychoanalysis primarily involved bringing repressed unconscious materials into conscious awareness, developing healthy compromise formations, and using the reality principle rather than the pleasure principle (Auld, Hyman, & Rudzinski, 2005). The role of the therapist involved being a neutral blank slate. Clients were often instructed to say whatever came to mind and without censorship in order to bring unconscious impulses into conscious awareness through free associations. When starting treatment, it was often difficult for clients to feel comfortable in making free associations. The therapist would therefore confront the client by bringing any resistances to the client's attention. As the client gradually felt comfortable in making associations, the therapist attempted to help the client become aware of the hidden unconscious meaning of their associations through clarifications and interpretations. Over time, the client experienced transference, which involved experiencing their relationship with the therapist like a relationship from their early childhood experiences. Through transference neurosis, the client projected their unconscious dreams, fantasies, wants, and needs onto the therapist and

without any resistances (Auld et al., 2005). The therapist then helped the client work through their unconscious processes by making the client aware of how the repressed material may have related to their childhood experiences.

As part of the treatment process in making repressed unconscious material conscious, Freud (1900) was interested in interpreting dreams. Freud's understanding of dreams derived from interpreting his own dreams. Over time, Freud (1900) created *The Interpretation of Dreams*, which provided a detailed explanation about how dreams were formed and could be analyzed. He explained that the true meaning of dreams or latent dream thoughts underwent an elaborate process of distortion, because the true meaning of dreams often reflected unconscious material that was too threatening to consciously experience. What the dreamer experienced reflected the manifest content of the dream. Through condensation, displacement, and symbolism, the latent dream thoughts become distorted into a string of seemingly meaningless contents that formed a story. This process was known as a secondary elaboration of the latent dream, which was intended to throw the dreamer further off track from the true meaning of the dream. Freud treated dreams like free associations by asking clients to retell their dreams and to give meaning to the images, symbols, and themes as a way to uncover unconscious meanings. Freud attempted to understand the images in dreams as symbols that were often found in folklore, myths, legends, proverbs, linguistic idioms, and jokes.

Jung was greatly influenced by Freud's study of the unconscious and his analysis of dreams, and even studied closely under Freud. Freud stressed that psychosexual experiences and repressed sexual drives had some influence in contributing to an individual's personality and psychosis (Dunne, 2000). Jung gradually began to disagree with Freud's ideas,

especially when Freud attributed sexuality to explain all human experiences and that spirituality was a repressed form of sexuality (Jung, 1963). Rather than focusing on individuals being driven by repressed sexual impulses, Jung placed an emphasis on the ego, personal unconscious, and collective unconscious as influencing an individual's structure of personality.

Jung believed that the only way he could fully understand and treat his patients was to explore, heal, and analyze himself (Jung, 1963). He devoted his life to analyzing and understanding the dreams he had throughout his life, while also integrating different cultural perspectives so he could fully comprehend himself and others. His understandings about different cultures and their beliefs developed from his travels to North Africa, New Mexico, and India. From his travels, he learned about the wounded healer concept and was able to apply the notion to himself and the role of the therapist. He began to view the significance of the clinician's role and believed the clinician needed a healthy internal psyche in order to treat and understand a patient's sufferings and mental illness (Dunne, 2000). Jung explained, "... in the end, only the wounded physician heals and even he, in the last analysis, cannot heal beyond the extent to which he has healed himself" (Dunne, 2000, p. 92). In other words, healing one's self was a lifelong process for everyone.

Throughout his career, Jung studied, wrote, and integrated his interests and understandings of Western and Eastern religions, philosophies, anthropology, and mythology (Jung, 1963). He was also highly influenced by early primitive lifestyles, and by the philosophy and psychology of alchemy. His theory of analytical psychology synthesized all of these interests in order to understand an individual with a holistic perspective. Jung also

greatly believed that his own personal growth facilitated his ability to develop and effectively use analytical psychology as treatment (Jung, 1963).

Jung (1953) believed that the structure of personality strived to achieve balance and harmony within individuals and involved a complex network of three interacting systems: the ego, the personal unconscious with complexes, and the collective unconscious with archetypes. The ego represented how an individual consciously identified and perceived the self (Jung, 1953). The personal unconscious consisted of unconscious thoughts, feelings, perceptions, and memories that were repressed or forgotten over time, but could actively be remembered and retrieved into conscious awareness. Such unconscious materials were often organized into groups of experiences, which were known as complexes. Unlike the personal unconscious, the collective unconscious was “transpersonal” and consisted of human experiences that were shared by others (Jung, 1953, p. 125). All humans shared certain emotions (i.e., love, anger, happiness, and grief), developed a form of language and symbols to communicate with one another, and had roles within their families or societies (Jung, 1953). Within the collective unconscious were a variety of culturally universal images, symbols, and meanings known as archetypes. Archetypes were universal thoughts and experiences that were hidden within the unconscious, but appeared in conscious awareness through universal symbols, images, dreams, art, myths, rituals, or even symptoms (Engler, 2009). Jung explained that not only did using symbols provide a safe way of expressing unconscious material, but many of the symbols themselves were universally shared across cultures (Jung, 1953). Although there were many archetypes, Jung often discussed archetypes that involved the persona (the conflict between one’s role in society and their true identity), the shadow (an individual’s thoughts, feelings, and behaviors that were not

considered socially appropriate or ideal), the anima (feminine thoughts, feelings, and characteristics of the male psyche), the animus (masculine thoughts, feelings, and characteristics of the female psyche), and the self (part of the psyche between the conscious and unconscious that attempted to unify and balance all archetypes in order to feel whole) (Dunne, 2000; Engler, 2009; Jung, 1953).

Most of Jung's (1953) beliefs placed an emphasis on balancing polarities in order to feel whole. He believed that an individual's total personality or psyche embraced both conscious and unconscious processes that included thoughts, feelings, desires, and sensations. Jung explained that the psyche contributed to a variety of personality or psychological types that were based on two primary attitudes and four basic functions (Engler, 2009). These attitudes included extraversion and introversion; while the four functions included sensation, intuition, thinking, and feeling.

Finally, although Jung did not create specific developmental stages of personality, he explained that the process of self-realization was a lifelong process that started in adolescence and continued into middle to late adulthood (Jacobi, 1962). He used the term libido to reflect a need for life energy, which included desires to fulfill balance and equilibrium in order to move forward in gaining self-realization (Engler, 2009). Unlike Freud's thoughts of the libido referring to repressed sexual drives, Jung conceptualized libido as including sexual urges symbolically rather than literally. He also believed the libido included other urges for intellectual development, spiritual development, and as a means for survival (Jacobi, 1962).

Jung's interest in primitive cultures and understanding of universal archetypes greatly impacted his perspective of dreams and art. He practiced his ideas by documenting some of

his dreams in creative and artistic ways, specifically with mandalas (Dunne, 2000). He viewed the mandalas as ways to observe his psyche on a daily basis and to understand the self as a whole personality (Jung, 1963). By 1918 to 1920, Jung also began to understand that "...the goal of psychic development is the self. There is no linear evolution; there is only a circumambulation of the self" (Jung, 1963, p. 196). After analyzing one of his dreams, Jung began to realize that "the self is the principle and archetype of orientation and meaning," which provided its own "healing function" (Jung, 1963, p. 199). Although Jung's mandalas and pictures were later published in his book, *The Red Book*, he stopped creating mandalas and started focusing on the inner images from his dreams as a way to understand an individual's whole development of their personal consciousness (Jung, 1963).

Art as an Assessment Measurement

Before art therapy became developed as its own psychotherapeutic discipline, researchers and clinicians began using it as an assessment measure. Clinicians attempted to create standardized instructions, scoring criteria with standardized norms, and systematic ways of interpreting the drawings in order to validate the use of drawings for assessment purposes (Lilienfeld et al., 2000; Rubin, 2010). One of the first uses of human figure drawings as an assessment test was through Florence Goodenough's (1926) "Draw-a-Man Test." The "Draw-a-Man Test" initially facilitated the evaluation of nonverbal intelligence, but was modified decades later by Dale Harris (1963) to become an assessment of developmental and intellectual maturity. Over time, the use of human figure drawings developed into projective tests with standardized instructions, scoring criteria with standardized norms, and systematic ways of interpreting the drawings in order to determine an individual's personality characteristics, psychopathology, interpersonal relationship

patterns, conflicts, and desires and wishes (Lilienfeld et al., 2000). John Buck (1948) created one of the first projective tests known as the “House-Tree-Person (H-T-P) Technique,” and Karen Manchover (1949) formulated the “Draw-a-Person Test.” Although it was often implied that drawing a human figure was considered a self-portrait, the idea of directly telling clients to draw a portrait of themselves was considered “too direct” and “threatening” (Berryman, 1959). Eileen Berryman (1959) challenged this assumption by adding a self-portrait drawing task to the “H-T-P Technique.”

Florence Goodenough. Goodenough (1926) created a highly structured and standardized drawing test, the “Draw-a-Man Test,” which served as a nonverbal intelligence test for young children between the ages of 4 and 12 years. Goodenough’s (1926) instructions included:

On these papers I want you to make a picture of a man. Make the very best picture that you can. Take your time and work very carefully. I want to see whether the boys and girls in _____ school can do as well as those in other schools. Try very hard and see what good pictures you can make. (p. 85)

Participants were provided with pencils and a blank piece of paper (Goodenough, 1926). She stated that crayons were not allowed for the task. For scoring and interpretation of the drawings, Goodenough provided detailed instructions that involved observing body parts and clothing items presented or omitted; the level of detail of the drawings; and the proportion and position of the images. She then compared the drawing scores with each child’s reported intellectual functioning –which were obtained using the Stanford-Binet Intelligence Scale –and found that those with higher intelligence scores often obtained higher scores on the drawing test. It was concluded that a relationship between nonverbal

intellectual maturity and concept development related with intellectual functioning (Goodenough, 1926). In other words, an individual's overall cognitive development related with the content and quality of their drawings, as well as their overall intellectual abilities (Goodenough, 1926; Harris, 1963).

Dale Harris. After reviewing research about other drawing tests, Harris (1963) modified the "Draw-a-Man Test" in order to obtain more spontaneous creativity from the children; to make the drawing test applicable for both children and adolescents; and to update the scoring criteria in order to gain a sense of overall cognitive development and intellectual maturity for both children and adolescents between the ages of 5 and 15 years. Harris (1963) observed the overall quality of the drawings in order to understand the child's general conceptual maturity, which was divided into three stages of development in drawings. The earliest stage involved a child being primarily interested in the pleasure of making marks on paper rather than obtaining pleasure from the overall product. The second stage consisted of imitative and reproductive drawings, which involved "depicting the human figure as it appears to the eye... [which is] a progression in conceptual maturity" (Harris, 1963, p. 229). Finally, the third stage involved using learned techniques and drawing principles to create aesthetically pleasing effects that also conceptually communicated a deeper understanding about the drawing.

The modified drawing test, which became known as the "Goodenough-Harris Drawing Test," required three figure drawings: a man, a woman, and the self (Harris, 1963). Each task was presented with similar instructions as the "Draw-a-Man Test," but explicitly stated to draw a whole man or woman. Participants were provided with a pencil and a test booklet that consisted of demographic questions and blank sheets of paper for the drawings.

Crayons were not allowed for the task (Harris, 1963). For the drawing of the self, Harris' (1963) instructions included:

This picture is to be someone you know very well, so it should be the best of all. I want each of you to make a picture of yourself –your whole self –not just your face. Perhaps you don't know it but many of the greatest artists liked to make their own portraits, and these are often among their best and most famous pictures. So take care and make this last one the very best of the three. (p. 241)

John Buck. Buck (1948) created the “House-Tree-Person (H-T-P) Technique,” which has been recognized as one of the earliest drawing tests used as a projective measurement for both children and adults (Hammer, 1958; Kelley, 1984). Specific age restrictions were not mentioned. Unlike the previous drawing tests, the “H-T-P Technique” attempted to reflect an individual's self-concept and perception of their environment (Buck, 1948; Hammer, 1958; Kelley, 1984). Buck (1948) explained that the items that needed to be drawn were familiar, accepting, and considered less threatening by individuals of all ages. Additionally, the images could be drawn in a variety of ways, which liberated creative expression to emerge in order to capture an individual's personality, self-concept, emotional state, interpersonal experiences, and ideational experiences.

The drawing test involved asking individuals to first draw a picture of a house; afterwards a picture of a tree; then a picture of a person; and finally a picture of a person of the opposite gender (Buck, 1948). The order of presentation of the drawings was important because the procedure started with a neutral drawing task, and gradually moved towards more difficult tasks that aroused more conscious and unconscious associations (Hammer, 1958). The image of the house reflected how individuals perceived themselves within their

interpersonal relationships and external environments, specifically their familial relationships and home environment (Hammer, 1958). The image of the tree involved creating a symbol that reflected an individual's body image and self-concept. Because the tree was not a direct image of the self, individuals could project more unconscious feelings about themselves through the image. The two images of a person often elicited three types of drawings: a self-portrait, an ideal-self, and/or an image of a significant figure in the individual's life (Hammer, 1958). Because the images of the person were most direct, it was often common to find omitted details in the drawings.

Participants were provided with a pencil with an eraser, and a booklet that consisted of four pages of 7" X 8 ½" paper (Hammer, 1958). Individuals were reassured to do the best that they could and that the task was not testing their drawing abilities. Additionally, they were allowed to erase. To facilitate the drawing process, the drawing paper for the house task was presented horizontally; while the drawing paper for the tree and person tasks were presented vertically. Individuals were instructed to draw the image however they chose and without time constraints. For the first person task, individuals were instructed to draw a whole person the best that they could. For the second person task, individuals were presented with similar instructions, but were informed to draw a person of the opposite gender to the first person they drew.

After drawing the images, individuals were asked a series of questions in order to qualitatively understand the nature and content of each image (Hammer, 1958). Questions also elicited free associations and unconscious thought processing, which helped to comprehend how the images may have related with the individual's environment and interpersonal relationships (Buck, 1948; Hammer, 1958). Buck (1948) also provided detailed

descriptions to help interpret the drawings based on details that were presented or omitted; the level of detail of the drawings; and the proportion and position of the images (Buck, 1948).

Karen Manchover. Manchover (1949) devised the “Draw-a-Person Technique,” which served as a projective measurement for children, adolescents, and adults that reflected an individual’s projected conflicts, mood, motivation, and physical body. Specific age restrictions were not mentioned. Manchover attempted to provide a standardized way to understand the meaning of drawings and how they reflected the actual individual based on the detail, size, proportion, shading, texture, presence and omission of details, and suggested motion of the drawings. She explained that she was not necessarily interested in using the drawings to assess or diagnose individuals; rather, she was interested in observing the “drawing traits” of the images that appeared to reflect the conflicts and personality traits of the individual (Manchover, 1949, p. 22).

Manchover (1949) instructed both children, adolescents, and adults to simply “draw a person” (p. 28). Individuals were reassured that the test was not assessing their artistic abilities. Each individual was provided with 8 ½” X 11” paper, a pencil with medium-soft lead, and an eraser (Manchover, 1949). She would take notes on a separate sheet of paper indicating the gender of the figure, and a list of any omitted body parts. If body parts were omitted, she would ask the individual to add the details and to create a whole figure. After the first figure was completed, Manchover gave individuals another piece of paper and instructed them to create a drawing of a figure of the opposite gender from their first drawing with, “now draw a man/male” or “now draw a woman/female” (p. 29). The instructions and drawing process for the first figure was repeated with the second figure (Manchover, 1949).

After drawing the images, individuals were asked a series of questions in order to obtain free associations about the meanings, wishes, and conflicts in their images (Manchover, 1949). Manchover (1949) instructed, “Let’s make up a story about this person as if he were a character in a novel or a play” (p. 30). Questions revolved around understanding the figure’s social attitudes, sexual attitudes, and self-perceptions (Manchover, 1949). After asking the questions about the figure, individuals were asked more direct questions that included: did their drawings remind them of themselves or anyone they knew; would they like to be the figures they drew; would they like to marry a person similar to their figures; and which responses they provided about the figure may have been referring to themselves.

After the drawings were completed, Manchover (1949) observed and interpreted the drawings based on the size and proportion of the whole body and each body part; details that were omitted or incomplete; the level of detail (i.e., texture, shading, or emphasis) in specific areas; the overall symmetry of the images; the facial expressions and posture of the images; and the number of erasures and changes. Manchover emphasized that it was important to observe the details of the figures because the drawings were projected images of individuals that reflected their personal characteristics, impulses, anxieties, conflicts, and how they perceived themselves in their environment.

Eileen Berryman. Berryman (1959) reviewed both Buck (1948) and Manchover’s (1949) projective drawing tests and extended the “House-Tree-Person (H-T-P) Technique” by adding a self-portrait drawing task for children, adolescents, and adults. There were no reported age restrictions. Berryman (1959) argued that although Buck explained that each H-

T-P drawing represented a self-portrait, such understandings were based on a clinician's subjective interpretations. She explained:

These drawings are projections but of *what* we're often not sure. It is easy to jump too far from the projected material to the interpretation, to use our free associations instead of the patient's. When we ask a patient to 'Draw a self-portrait, a picture of yourself,' we have, in effect, a definition of the drawing. It is not just any projection –it is the self. (Berryman, 1959, p. 411)

As reviewed by Berryman (1959), she stated that Manchover had considered asking individuals to “draw one figure which gives their impression of themselves and one indicating how they look to their friends” (pp. 411-412). However, Berryman (1959) commented that Manchover either did not conduct a future study or results were not reported.

Berryman (1959) went into detail about the advantages of directly asking individuals to draw self-portraits. It was often assumed that requesting individuals to draw a self-portrait would be too threatening and that they would refuse. If the individual did comply with the drawing task, it was believed that they would be highly guarded and would create a superficial drawing. Berryman challenged the ideas by administering the “H-T-P Technique” with the added self-portrait task to children, adolescents, and adults at an outpatient clinic and private practice office for over 10 years. She followed the same administration and scoring procedures as indicated by Buck (1948). Berryman (1959) concluded that the majority of clients followed through with the self-portrait task, which challenged the assumption that the drawing would be too threatening. She explained that although rare, refusing to draw a self-portrait was seen in cases with severely disturbed clients, specifically those with a diagnosis of schizophrenia. Berryman (1959) added that clients often displayed

interest in the task by spending the longest time engaged, and drawing with “greater care” for their self-portraits than the other drawing tasks (p. 413). She also provided case examples of children and adults who revealed more information about themselves through their drawings than verbally, or through other objective and projective personality measurements (Berryman, 1959).

This section covered five investigations of using art as an assessment measurement. Other investigations can be found in Malchiodi (2012) and Rubin (2010).

Critique of Methodology

Despite efforts to standardize instructions, scoring criteria and norms, and interpretations, the reliability and validity of such drawing tasks have been variable and inconsistent (Lilienfeld et al., 2000). For instance, inter-rater reliability of scoring and interpretations of the drawings often varied from clinician-to-clinician (Lilienfeld et al., 2000). Second, there was a poor relationship between the quality of the drawings accurately determining symptoms of specific pathological disorders or personality characteristics (Lilienfeld et al., 2000). In other words, the line quality, number of erasures, size of images, and omitted or presented details did not accurately or consistently reflect unique symptoms or personality traits. Additionally, an individual’s artistic abilities served as a confound that often negatively affected the scoring and interpretations of the drawings when attempting to determine if an individual had severe psychopathological symptoms (i.e., schizophrenia) (Lilienfeld et al., 2000). Consequently, clinicians often made false positive diagnostic inferences (Lilienfeld et al., 2000).

Although using the human figure drawing tests was often not reliable or consistent in diagnosing specific disorders, there appeared to be a moderate relationship between the

overall quality of the drawings with an individual's intellectual maturity (Lilienfeld et al., 2000). Regardless of an individual's artistic abilities, individuals with lower intellectual abilities often created drawings of poor quality, while individuals with normal or higher intellectual abilities often created images that were better in quality. Such findings suggested that line qualities and the level of detail of images may have reflected an individual's overall developmental and intellectual maturity (Lilienfeld et al., 2000).

As an assessment and projective test, human figure drawings alone did not yield sufficient information about an individual for diagnostic purposes. However, clinicians noticed the drawing tasks were beneficial techniques that could be used to supplement information gathered during a full battery assessment (Garb et al., 2002). The drawings could help support a clinician's assumptions about how individuals perceived themselves, others, and their environment while considering information collected from objective personality measures. Other benefits of using drawings involved rapport-development for individuals who were difficult to engage; providing a nonverbal form of self-expression for individuals with limited verbal abilities; and utilizing a nonverbal way to disclose topics that individuals found difficult or threatening (Berryman 1959; Garb et al., 2002). Researchers and clinicians gradually became interested in focusing on how the drawing process itself was a useful treatment intervention. As such, clinicians began finding ways to formally understand and utilize art as a psychotherapeutic technique rather than as a projective test (Lilienfeld et al., 2000).

Art as a Treatment Intervention

By the late 1940s, art therapy became established and practiced in the United States (Dilawari & Tripathi, 2014; Rubin, 2010). Art therapy did not replace psychotherapy; rather,

it was considered a field or discipline within psychotherapeutic practices (Wadeson, 1987). Art therapy is a technique that integrates psychotherapy with a variety of art mediums and methods to promote self-expression, communication, and improve overall mental health and well-being. Art therapy is considered a nonverbal form of communication that can help children, adolescents, and adults express their thoughts and feelings, resolve conflicts, reduce stress, and enhance self-esteem and self-awareness (Dilawari & Tripathi, 2014).

When considering the personal qualities of an art therapist, it is important that the clinician has studied and practiced using a variety of art materials and techniques in order to help clients channel their experiences with appropriate art mediums (Wadeson, 1987). Another essential quality involves being highly empathic, which is a characteristic that develops from an individual's personal experiences. The concept of the wounded healer is embraced in the art therapeutic practice (Wadeson, 1987). An individual who has overcome and survived obstacles in life may have experienced being emotionally, physically, or spiritually wounded. A wounded healer refers to their own challenging life experiences as a way of being highly sensitive and empathic when helping others overcome similar obstacles (Wadeson, 1987).

All psychotherapeutic orientations, such as psychoanalysis and analytic psychology, have a formalized understanding of human development, personality, and intrapsychic organization (Rubin, 2016; Wadeson, 1987). The field of art therapy focuses on the importance of creativity rather than explaining how humans develop, behave, and function intrapersonally and interpersonally (Wadeson, 1987). It is therefore recommended that art therapists are trained to understand a variety of psychotherapeutic frameworks, and to consider either specializing in an orientation or utilizing an eclectic approach. The art

therapist, therefore, synchronizes the use of creativity with one or a variety of theoretical orientations to serve as their foundation (Rubin, 2016; Wadeson, 1987). Although it is not always the case, most art therapists utilize the Freudian psychoanalytic approach or the Jungian analytic psychological approach as their central theoretical foundation to understand human behavior, development, and intrapersonal and interpersonal functioning (Feder & Feder, 1981; Wadeson, 1987).

Before asking people to draw images, it is often suggested that art therapists keep in mind how the request may initially make people uncomfortable (Malchiodi, 2007). Because people are rarely asked to draw what they are thinking or feeling, coming up with a nonverbal way to describe their emotions may feel odd to most people (Malchiodi, 2007). Even if an individual has artistic abilities, being asked to draw may be challenging and can make people feel as though their artwork may be judged or evaluated by the art therapist (Malchiodi, 2007). Such feelings could impact the transference that the individual is experiencing towards the therapist. For instance, the individual may feel as though the art therapist is a critical parent that they need to please or seek approval from through their drawings (Malchiodi, 2007). Another form of transference involves the individual experiencing the art therapist as a mind-reader or someone who knows the hidden meaning behind their artwork, which is similar to how children perceive their parents as mind-readers (Malchiodi, 2007). Finally, some individuals may experience the art therapist as a messenger who interprets and communicates the meaning of their drawings to others, such as other professionals or their parents (Malchiodi, 2007). With regard to countertransference, the therapist should be aware of their body language and suggestions in order to avoid praising individuals on the quality or content of their images (Malchiodi, 2007).

When interpreting an individual's use of images and colors, there have been many attempts to formalize universal meanings based on Freud's analysis of dreams and Jung's archetypal images (Malchiodi, 2007). However, it is often suggested that art therapists should focus on what the images and colors mean to the individual who created them (Malchiodi, 2007). The traditional meaning of symbols may not relate with an individual's personal experiences and, therefore, would interfere with an accurate understanding of the individual's artwork (Feder & Feder, 1981; Malchiodi, 2007; Rubin, 2016; Wadeson, 1987). As an individual engages in different drawing sessions, the art therapist should gradually notice that a repeated use of images and colors often symbolizes specific feelings or experiences that are unique to that individual (Wadeson, 1987). Over time, the art therapist becomes familiar with an individual's visual language (Wadeson, 1987).

Edith Kramer and Margaret Naumburg became known as the pioneers of art therapy in the United States (Dilawari & Tripathi, 2014; Rubin, 2010). Although they emerged at similar times and were greatly influenced by the Freudian psychoanalytic approach, they attempted to define art therapy based on two differing perspectives. Kramer placed an emphasis on viewing art *as* therapy, while Naumburg viewed art *in* therapy (Dilawari & Tripathi, 2014; Rubin, 2010). The art as therapy perspective argued that the art process itself was therapeutic and did not require much verbalization in order to be therapeutically beneficial. The art in therapy perspective explained that the therapist used the images as a way of helping individuals explore the meaning of their drawings in order to gain insight about themselves. Although the two perspectives were often described as separate practices, viewing the two approaches as polarities was often misleading (Wadeson, 1987). Art therapists may have a preference in practicing one approach, but it was generally the case

that both perspectives were practiced (Malchiodi, 2007). Clients who were verbal and mentally capable of exploring themselves through insight may generally have been able to talk about the meaning of their images and colors serving as metaphors of their personal experiences (Wadeson, 1987). However, there may have been sessions when the same clients created images without a reason or explanation for the images that they drew. Such an instance would then be considered using art as therapy. When working with children or adults with limited cognitive abilities, using insight-oriented therapy was less practical and appropriate (Wadeson, 1987). Exploring the underlying metaphoric meanings of their drawings was often more challenging than therapeutically beneficial for such clients. Instead, the act of drawing and nonverbally expressing themselves would be considered using art as therapy (Wadeson, 1987).

Kramer (1971) practiced art therapy with children and understood child development through Freud's psychoanalytic approach. She has been recognized for her art therapy work at the Wiltwyck School in New York with emotionally and behaviorally disturbed boys (Kramer, 1977). Kramer's (1971) approach was also greatly influenced by Freud's explanations about repressed aggressive impulses being hidden within the unconscious. Kramer stated that she was interested in using her knowledge about the unconscious to help an individual be engaged in the art-making process, rather than focusing on uncovering and interpreting the meaning of unconscious material in their artwork. The process, therefore, involved strengthening ego functioning by helping individuals improve their creative techniques as a means of enhancing their self-esteem, sense of identity, and reality-testing abilities (Crespo, 2003). Kramer (1971) compared the process of creating art with Freud's explanation of sublimation by calling the act "substitution" (Kramer, 1977). She explained

that art was a way of transforming unconscious id impulses (i.e., aggression) into socially acceptable and productive acts, which provided an individual with a sense of gratification after seeing the final art product (Kramer, 1977).

Kramer (1971) initially perceived herself as an “art teacher” and referred to her clients as her “students.” She later described herself as having a “third hand” that facilitated and enhanced an individual’s creativity in order to strengthen their healing potential (Kramer, 2000). The concept of having a “third hand” involved the art therapist being attuned to what an individual was attempting to accomplish in their artwork. As such, the art therapist would provide artistic suggestions that enhanced the creative process without sacrificing the individual’s artistic style or meaning.

In 1915, Naumburg (1987) first founded the Walden School in New York that enabled children to explore their natural abilities while engaging in free art expression. In the 1920s, she left the Walden School and focused on art therapy with inpatient adults and eventually children. She placed an emphasis of using art to explore an individual’s unconscious thoughts and feelings through the expression of images rather than words. Similar to psychoanalysis, an individual was encouraged to make free associations by drawing what came to mind (Naumburg, 1987). Their drawings often reflected images of unconscious dreams, fantasies, fears, and unresolved conflicts that may have stemmed from early childhood experiences. Individuals often drew symbols or symbolic images, which enabled an individual to release unconscious thoughts in a nonthreatening way. Freud (1900) would ask his clients to retell their dreams in order to access unconscious material through their verbal descriptions. Naumburg, in contrast, would ask her clients to draw their dreams, since dreams could be communicated differently verbally and nonverbally (Feder & Feder,

1981). Naumburg (1987) would ask the individual questions about the mood, use of colors and images, and the meaning of the pictures. She viewed her role as a “facilitator” rather than an “interpreter” of the drawings (Naumburg, 1987). As such, the individual was encouraged to verbally describe their images as a means of self-discovery. Naumburg viewed the transference experience as being visually shared through symbolic communication. Over time, the individual often became more comfortable with creating free associations through their images, which often related to the individual becoming more verbally expressive in describing their images to the therapist. Goals from treatment involved helping the individual work through their defenses, while enabling the individual to gradually strengthen their ego by becoming more verbally expressive and less dependent on the therapist. In other words, the individual would be expected to verbally express themselves and their artwork on their own.

This section covered two leading pioneers of art therapy and discussed art therapy from psychodynamic and analytic psychology orientations. Other influential figures in art therapy along with investigations of other theoretical orientations in art therapy can be found in Malchiodi (2012) and Rubin (2010, 2016).

Self-Portraits

Along with having different theoretical orientations, art therapy consists of different techniques and treatment interventions. One treatment intervention involves asking individuals to create portraits of themselves at the beginning of treatment, and over the course of treatment (Muri, 2007). Self-portraits have often been described as self-reflections that may depict an individual’s emotional, spiritual, and/or physical self (Muri, 2007). The

art therapist helps guide the individual through the process in order to promote self-expression, self-discovery, and self-acceptance (Muri, 2007).

Berryman (1959) went into detail about the advantages of directly asking individuals to draw self-portraits. It was initially assumed that requesting individuals to draw a self-portrait would be too threatening and that they would either refuse to draw or they would create superficial images. Berryman challenged the ideas by administering the “H-T-P Technique” with the added self-portrait task to children, adolescents, and adults and found that clients rarely refused to draw. In fact, clients often drew with much care and spent the longest time drawing their self-portraits than the other drawing tasks (Berryman, 1959).

There are varying techniques or ways to create a portrait based on how the task is presented and instructed to individuals. The types of art materials offered also facilitate each technique (Malchiodi, 2007; Rubin, 2010; Wadeson, 1987). One way to create self-portraits involves simply asking clients to draw an image of themselves (Berryman, 1959; Kelley, 1984; Glaister, 1996; Wallace, 1997). Such instructions may involve asking individuals to draw a self-portrait, an image of themselves with specific people (i.e., family), or in specific situations (Bowers, 1992; Cockle, 1994; Dufrene, 1994; Kelley, 1984; Wilson, 1998).

Self-portraits have been used as an intervention for both children and adults experiencing a variety of mental health issues, such as mood disorders, anxiety disorders, and histories of sexual abuse. For victims of sexual abuse, creating self-portraits and images of the traumatic events have often been beneficial in helping individuals nonverbally share their experiences (Dufrene, 1994; Kelley, 1984). It has been suggested that drawings provide a less threatening way for some individuals to communicate their experiences (Dufrene, 1994; Kelley, 1984). There have been many attempts to understand and interpret the quality of

drawings in order to detect individuals with histories of sexual abuse, and to determine how an individual is progressing throughout treatment (Dufrene, 1994; Kelley, 1984). Clinicians have attempted to make such inferences based on the size of the images, the quality of lines, over or underemphasized body parts, and omitted and presented images (Dufrene, 1994; Glaister, 1996; Kelley, 1984). However, like with using human figure drawings as assessment measures, research has shown many inconsistencies in such interpretations (Lilienfeld et al., 2000). When determining how an individual has progressed throughout treatment, it is important to take into consideration that progress is often subjectively based on the clinician's overall impression (Endler & Kocovski, 2001; Krause, 1961; Schachter, 1966). In order to avoid the risk of making false assumptions or accusations, it has therefore been advised that clinicians should rely on provided background information, and they should ask the individual questions about their drawings (Lilienfeld et al., 2000). Additionally, such interpretations could be improved by administering self-report measures or obtaining physiological data to objectively measure an individual's overall progress (Endler & Kocovski, 2001; Krause, 1961; Schachter, 1966).

Current Research

Previous research is limited, and the majority of research on the use of self-portraits as an art therapeutic technique consisted of small sample sizes and case studies observing children and adults. There appears to be a lack of quantitative studies on the subject matter.

Children. Studies with children have qualitatively assessed the use of self-portraits to treat victims of sexual abuse (Dufrene, 1994; Kelley, 1984), and children with symptoms of depression (Cockle, 1994). One study observed 10 sexually abused children between the ages of 3 to 10 years who met regularly with counselors and engaged in art therapy over the

span of six weeks (Kelley, 1984). During the initial session, participants were asked to complete a self-portrait, a portrait of themselves with their offender, and a portrait of the incident. The following sessions consisted of a variety of drawings and self-portraits without specific instructions. When observing the initial portraits, the researchers noticed that the overall quality of the drawings appeared below the expected age range of drawing abilities for most of the children. Additionally, the initial drawings were disorganized, reflected low self-esteem, and some consisted of images of genitalia. Over the span of six months, the researchers noticed that the self-portraits gradually appeared more age appropriate, more positive, and without genitalia (Kelley, 1984). The change in themes, patterns, and images over the course of treatment suggested that being engaged in the drawings helped the children work through their trauma because they were able to vent about their thoughts, feelings, and traumatic experiences in a nonthreatening way.

Another study of drawings and self-portraits of sexually abused children involved a case study of three siblings between the ages of 7 and 9 years (Dufrene, 1994). The three sisters were admitted to a psychiatric hospital and experienced issues with focusing and attention, appearing oppositional and defiant, and engaging in promiscuous behaviors. They also had histories of being physically abused by their biological father, and sexually abused by their stepfather and grandfather. Through art therapy, the siblings initially drew self-portraits that were interpreted as representing low self-esteem and poor self-regard. As therapy progressed, they were able to draw self-portraits that reflected their experiences of being sexually abused. As part of experiencing closure, the siblings drew self-portraits before and after going to trial to speak about their sexual abuse experiences. The findings suggested that the art therapy process enabled the siblings to gain self-confidence and self-

esteem, to gradually overcome their anxieties, and to work through their traumatic experiences by the time they went to court (Dufrene, 1994). It was inferred that the process of drawing their experiences through self-portraits provided the children with a nonverbal opportunity to disclose their stories on paper and to eventually discuss the trauma orally.

Finally, self-portraits were also used to help a child reduce his symptoms that reflected anxiety and depression. The case study involved a 6 year old Asian boy with poor social skills, and negative self-esteem and self-regard (Cockle, 1994). As part of treatment, he was participating in art therapy, play therapy, and a social skills group therapy program. The findings inferred that the process of drawing self-portraits enabled him to use symbols as a means of nonverbally expressing how he felt about himself, others, and his environment. Being able to repeatedly draw the same symbols to reflect his anxieties allowed him to work through his fears and to nonverbally express his insecurities. As treatment progressed, the overall quality of his drawings reflected images that became more developmentally expected of his age. Qualitatively, he began drawing a larger scaled image of himself, omitted fewer details, and drew fewer pictures that involved creating barriers around his figures. The researchers interpreted the overall quality of his drawings as a reflection of his emotional state, which consisted of feeling more secure and confident with himself and his environment.

Adults. Studies with adults have qualitatively focused on drawings of individuals exposed to sexual abuse (Bowers, 1992; Glaister, 1996), with sex addictions (Wilson, 1998), and with obsessive compulsive disorder (OCD) (Wallace, 1997). With regard to adults with histories of sexual abuse, one study focused on administering a series of self-portraits to female adults receiving therapy at an outpatient facility (Glaister, 1996). All participants had

a history of childhood sexual abuse and were experiencing symptoms reflecting posttraumatic stress disorder (PTSD) (Glaister, 1996). The researchers were interested in observing and interpreting the quality of the drawings in terms of the figures' overall size, use of color, and level of detail (i.e., symmetry and omitted items). Participants were also asked questions about their drawings in order to understand the meaning, themes, and images (Glaister, 1996). During the first four to six sessions, therapists administered a sentence completion task, the "House-Tree-Person Technique," and asked the participants to draw two self-portraits. The first self-portrait reflected an image of the participant as a child, and the following self-portrait reflected a current image of the participant. Afterwards, therapists asked participants to draw a self-portrait every six months or when a significant event occurred in their lives. The first two self-portraits served as a baseline that would be compared with their future self-portraits in order to observe any changes over time. The therapist would show the participants all of their self-portraits next to each other in order to reflect on any changes in the meaning and quality of the images. Qualitative analysis of the results indicated that the first two baseline self-portraits were generally small in size, lacked many details, consisted of limited use of colors, and often reflected themes surrounding self-hatred, shame, low self-esteem, and lacking self-identity. Over time, the last two images generally became larger in size, consisted of brighter colors, became more detailed, and the quality of lines became clearer and more symmetrical. The themes also indicated more self-esteem, an increase in sense of security and strength, and development of a greater sense of self (Glaister, 1996). This study suggested the benefits of using self-portraits as a tool to help victims of sexual abuse reflect on how they have grown and changed throughout the course

of therapy. Such self-reflections can help enhance an individual's insight, sense of self, feelings of empowerment, and may eventually promote a sense of resolution.

Another case study involved a 24-year old adult female who experienced symptoms of posttraumatic stress disorder (PTSD) from early childhood sexual abuse; however, she had great difficulty remembering and articulating her memories (Bowers, 1992). During the early stages of treatment, her therapist asked her to draw a self-portrait, a portrait of her family, and a portrait of the person who molested her. As therapy continued, the client continued drawing self-portraits and images of the traumatic event. Her self-portraits in the beginning stages of therapy involved drawing herself as a "bony, misshapen, sad-faced person in a defensive posture" with reoccurring images of "her eyes without pupils" (Bowers, 1992, p. 18). She often used symbols and colors as indirect ways of describing the sexual abuse. The therapist asked her questions about the use of colors, images, and themes (Bowers, 1992). Over the span of eight months of treatment, the client was gradually able to recall memories of the sexual abuse. Findings suggested that being able to draw and discuss the self-portraits facilitated the client's ability to talk about painful memories and her perception of herself. It was inferred that the client's drawings re-exposed her to the traumatic event in order for her to acknowledge the trauma, and to eventually move forward in treatment. It would have been interesting to know if the client noticed if drawing the images may have provided her with visual cues that helped her remember details that she forgot over time. When helping clients remember traumatic experiences, it may be useful to consider visual cues as a means of helping clients work through trauma.

Although self-portraits have often been used in an individual therapeutic setting, one study used self-portraits in a group therapy setting with adult sex addicts (Wilson, 1998).

Individuals with sex addictions often feel judged and have great anxiety about revealing their thoughts, feelings, fantasies, obsessions, and behaviors to others because their addictions are often culturally and socially criticized (Wilson, 1998). The researchers inferred that clients initially disclosed their thoughts, feelings, and behaviors metaphorically through their drawings (Wilson, 1998). Over time, they appeared more comfortable with drawing self-portraits. Being in a group therapy context appeared to help clients by creating an environment where they felt safe in revealing vulnerable information about themselves. Although this study appeared to focus more on the quality and content of the drawings, it would have been interesting to know if the clients noticed any changes in their levels of anxiety that may have enhanced their self-disclosure throughout treatment. It would have also been interesting to ask clients how drawing together in a group may have contributed to their reduced feelings of worry and anxiety while disclosing vulnerable information about themselves.

Finally, a study used self-portraits as a vehicle to help an adult female reduce her symptoms of obsessive compulsive disorder (OCD) (Wallace, 1997). Unlike other self-portrait techniques that asked clients to freely draw an image of themselves, the therapist utilized a “blind contour drawing” technique. The process entailed drawing a self-portrait with contour lines while looking in a mirror. The idea was to force the client to draw slowly, and to avoid looking down at her paper as much as possible. Results suggested that as the client became observant of her facial expressions, she gradually became attuned to her current emotional states. Additionally, the drawing process also helped her to accept imperfections about herself and her environment (Wallace, 1997).

Mandala Art Therapy

Another technique used to draw self-portraits involves creating mandalas. In Sanskrit, mandalas mean “circle” and are often associated with Eastern religions and philosophies, such as Buddhism and Tibetan Buddhism (Fincher, 2012; Kellogg, 1985). Although drawing mandalas is an ancient sacred practice, using mandalas as a form of art therapy has been gradually gaining recognition as a useful technique that can be used by a variety of clients and in many settings (MacRae, 1980).

When introducing mandala art therapy to clients, a variety of materials can be utilized. It is common for clients to use white or black drawing paper, oil pastels, markers, and paint (Fincher, 2010; Kellogg, 1984). Although clients often draw a circle freehanded, they can also trace a paper plate with a pencil in order to obtain a consistent shape for each drawing session. Clients are also encouraged to date their work and to keep a notebook. In their notebooks, clients often write down the colors, images, and themes of their drawings in order to understand the meaning of their mandalas (Fincher, 2010). To promote a state of relaxation, clinicians may have their clients engage in breathing techniques before starting and/or have their clients listen to music while working (Fincher, 2010).

The use of mandalas in a psychotherapeutic context was first utilized in Carl Jung’s analytic psychology, which placed an emphasis on individuation (Jung, 1963). Jung (1953) believed that an individual’s ultimate life goal involved experiencing the entire true self, which consisted of balancing the conscious with the unconscious and balancing all archetypes. Jung defined the process of individuation as developing an understanding of the self in order to achieve a sense of wholeness and identity. The collective unconscious was seen as shared human emotions and experiences, and archetypes were universal thoughts

reflecting the human psyche that appeared in consciousness through symbolized pictures that reflected dreams, symptoms, and issues (Jung, 1953).

In order to experience the true self, Jung (1963, 1973) would have his clients interpret their drawings based on their own interpretations of what their images may have symbolized. This would involve noticing any repeated and central themes and connecting such themes with an individual's current state of mind and life experiences. Because an individual's state of mind would shift over time, Jung also expected the use of themes and images to change. Jung used mandalas in psychotherapy as a way to depict the archetype that symbolized a sense of wholeness and individuation (Jung, 1953). Since Jung, mandalas have been used as both a therapeutic and assessment tool by Joan Kellogg (1984), whose technique was eventually modified and used extensively by Susanne Fincher (2010).

Joan Kellogg. Kellogg (1984) described mandalas as representing a mirror or reflection of an individual's inner psyche. Specific age restrictions were not mentioned. She described the psyche as a continuous flow of motion that metaphorically moved either clockwise or counterclockwise. Moving clockwise reflected a motion of moving forward and bringing unconscious material into conscious awareness; while moving counterclockwise reflected moving backwards and regressing. Kellogg explained that the psyche moved back-and-forth throughout one's lifetime, which reflected an individual's ego functioning. It was implied that when an individual's ego was strengthened, an individual was more inclined to move forward. However, when an individual's ego was weak, an individual may utilize defenses and experience regression.

Kellogg (1984) provided clients with a set of 24 oil pastels, a pencil, a white sheet of 12" X 18" paper, and a paper dinner plate with a 10 ½" diameter. Clients placed the paper

dinner plate on top of the sheet of paper, and traced the circle with a pencil. Not only did using a paper plate help maintain the same size of the circle for multiple drawings, but Kellogg (1984) wanted the circle to be the size of the human head in order for the circle to represent a mirror.

After instructing clients to outline the paper plate, Kellogg (1984) suggested filling in the circle by starting in the center and working outwards. She explained, “Make something in the center, put something there, then meditate on it or think about it, get into a dialogue with your work, let it suggest what comes next” (p. 17). While clients were drawing, Kellogg would often remind clients to reflect on their work; to center their internal energies; and to think of the process as a “healing ceremon[y]” (Kellogg, 1984, p. 17). She also informed clients that their mandalas were unique and would change over time. Kellogg (1984) would also provide clients with a kaleidoscope. The kaleidoscope was a tool that emphasized how their use of images and use of colors could have both obvious meanings and encrypted messages, which reflected both conscious and unconscious experiences. She explained that it was “...rather one’s way of looking at it (the mandala) which effects change” (Kellogg, 1984, p. 17).

After clients finished their mandalas, Kellogg (1984) instructed them to locate the top of their mandalas and to date their work. Kellogg explained that the top of the mandala represented an individual’s conscious awareness, while the bottom represented unconscious material. By dating their work, clients could see how their artwork changed over time in terms of their use of colors; where they placed their colors, shapes, and images within the circle; and how long they were using certain colors, shapes, and images over time.

Afterwards, clients put their mandalas in prominent places so they could reflect on their drawings (Kellogg, 1984).

By treating the activity as a sacred process, Kellogg (1984) believed it helped clients view their drawings as valuable representations or mirrors of themselves. While engaged in the drawings, clients were also inclined to experience a hypnotic or altered-state of consciousness while they focused intensively on what they were creating. Clients were encouraged to talk about their work throughout the process, but Kellogg (1984) emphasized that the activity was a nonverbal form of communication.

Like Jung, much of Kellogg's (1984) interpretations and understandings about mandalas were greatly influenced by the common use of colors, shapes, images, and numbers in a variety of cultures, philosophies, mythologies, and religions. Kellogg also emphasized that it was important to note if certain colors were either consistently used or consistently omitted from an individual's mandalas. Not using certain colors may have indicated that an individual was lacking a certain aspect in their identity or sense of self. Kellogg (1984) created a chart explaining traditional meanings and interpretations of colors and color combinations.

Kellogg (1984) also attempted to use mandalas as an assessment measure for diagnostic purposes by creating the Mandala Assessment Research Instrument (MARI) Cards. The MARI Cards consisted of a deck of 13 mandala forms that served as a guide when interpreting commonly used images and the location of images, which was influenced by Jung's use of archetypes and Kellogg's study of traditional archetypical images. However, there has not been sufficient evidence supporting the use of the MARI Cards as an assessment test.

Susanne Fincher. Fincher (2010), who was taught by Kellogg, modified some of Kellogg's techniques. Unlike Kellogg, Fincher placed an emphasis on focusing on the drawing process rather than focusing on the interpretation and assessment process. Additionally, Fincher used mandalas for children, adolescents, and adults in a variety of therapeutic settings, such as individual therapy, couples therapy, and group therapy. Specific age restrictions were not mentioned.

Fincher (2010) practiced drawing mandalas and became interested in how the actual drawing process enabled her to achieve a sense of unity or wholeness, self-discovery, and personal growth. She then became interested in studying and practicing mandala art therapy with her clients. Fincher described the mandala as a personal symbol that reflected an individual in the current moment. The process of drawing a mandala had a calming and tension-releasing effect, which may have been influenced by the circular shape of the mandala placed within a rectangular or squared piece of paper (Fincher, 2010). Fincher described the circle as a symbol of the space that was occupied by an individual's body. In other words, the mandala represented and symbolized an individual's personal sacred space, internal energy, sense of protection, and inner conflicts.

Fincher (2010) provided clients with a variety of materials, such as sets of oil pastels, chalk pastels, markers, and/or paints; a white or black sheet of 12" X 18" drawing paper; a paper dinner plate with a 10" diameter; a ruler; a compass; a notebook; and either a pen or pencil.

Before starting the drawing process, Fincher (2010) induced a state of relaxation by having her clients engage in meditative breathing techniques. Afterwards, clients were instructed to pick a color and to draw a circle freehanded, while tracing a paper plate, or with

a compass. Clients were then told to fill in the circle with colors, shapes, or patterns by starting either at the center or along the edge of the circle (Fincher, 2010). Throughout the drawing process, Fincher instructed clients to draw without feeling self-critical about their drawing skills or choices in color.

In terms of interpreting their mandalas, Fincher (2010) encouraged clients to explore their own word associations and personal meanings for certain colors, shapes, and images. In a notebook, clients were asked to date their work and to create a title for their mandala that summarized their first impression of their drawing after looking at it at a distance. Afterwards, clients were asked to list the colors they used by starting with the most predominant color and working to the least predominant color (Fincher, 2010). They were then encouraged to make word associations by writing down “words, feelings, images, or memories that [came] to mind” when looking at each color (Fincher, 2010, p. 29). After listing the colors, clients were asked to repeat the process with numbers, shapes, images, and the number of repeated images in their drawings (Fincher, 2010). Clients were then instructed to reread the title of their mandala and their list of word associations. In a few sentences, clients were asked to write about the central theme of their mandala based on the themes and patterns they noticed. This procedure helped clients to process the information visually and verbally into their conscious awareness by creating personal meaning for their colors and symbols (Fincher, 2010). To facilitate the interpretation process, Fincher also suggested referring to Kellogg and Jung’s explanations of traditional and archetypal understandings about colors, numbers, images, and the location of images. However, Fincher placed an emphasis on what the colors and images meant to the individual and wanted individuals to interpret their own drawings in order to achieve self-discovery.

Current Research

Although research on the therapeutic benefits of using mandalas is limited, qualitative and quantitative studies have been conducted on both children and adults. A few studies have focused on how the drawing process may have impacted children and adolescents with medical and mental health issues. The studies presented in this section generally asked children and adolescents questions about their drawings in order to understand and interpret the images. When determining each individual's overall progress, such interpretations were based on clinicians' subjective reports, which lacked additional data from self-report measures or parent-report measures.

Children. Qualitative research using small sample sizes and case studies with children and adolescents has used mandalas to treat a variety of medical and mental health issues, such as the Human Immunodeficiency Virus (HIV) (Wiener & Battles, 2002), Fetal Alcohol Spectrum Disorder (FASD) (Gerteisen, 2008), and Attention-Deficit/Hyperactivity Disorder (ADHD) (Green et al., 2013). Children and adolescents with HIV were between the ages of 9 to 20 years (Wiener & Battles, 2002). Participants were asked by their social workers to create mandalas based on their own personal topics that were relevant to them for that particular day. Afterwards, the mandalas were stored in their own personal workbooks. The researchers observed the themes and colors used in the mandalas. When ranking the most commonly used themes, the first theme involved somatic issues, medications, and hospitalization; the second theme involved social relationships with family and friends; the third theme involved optimism, hobbies, and past events; the fourth theme involved losing loved ones to HIV/AIDS; the fifth theme involved personal fears, worries, anxieties, and stresses; and the sixth theme involved HIV affecting their lives and hoping for a cure. The

researchers also noticed that certain colors had common symbolic meanings (Wiener & Battles, 2002). Red often symbolized HIV; yellow and purple often symbolized optimism, spirituality, and positive social relationships; black often symbolized the serious and threatening side of HIV; and blue often symbolized calmness. This study provided unique information about children and adolescents using nonverbal ways to communicate their feelings about living with HIV.

A couple of other studies consisted of case studies (Gerteisen, 2008; Green et al., 2013). One case study involved assessing drawings used in art therapy from an 11 year-old boy who was exposed to abuse trauma and Fetal Alcohol Spectrum Disorder (FASD) (Gerteisen, 2008). The child created a variety of drawings throughout treatment, which included mandala drawings. The findings suggested that using mandalas for art therapy enabled him to use symbols as a way to express his traumatic experiences. Another case study focused on a 13 year-old adolescent male who used mandalas to help manage his symptoms of attention-deficit/hyperactivity disorder (ADHD) (Green et al., 2013). The adolescent first colored a pre-drawn mandala while his therapist read a guided imagery script. Afterwards, the adolescent drew his own mandala while being read a guided imagery script. The adolescent was instructed to contemplate on his drawing for 15 to 30 seconds, and to then create a color key of what each color represented to him. He was then instructed to write down a story about his mandala. The clinician afterwards followed up with questions about what the story meant, how the adolescent felt during the process, and how the image related to the adolescent. Results indicated that the mandala drawings helped the adolescent maintain his attention on the task, while also helping him to cope with his personal experiences. Although both studies examined the use of mandalas for children with medical

and mental health issues who have had traumatic experiences, generalizability of both sets of findings is limited due to being case studies (Green et al., 2013). Observing more children and adolescents with mental health concerns would provide more information about the effectiveness of mandalas in treating mental disorders and issues derived from traumatic experiences.

Art-Based Intervention Efficacy

Although most case studies focused on the overall art product and interpreting the drawings based on each individual's personal experiences, some researchers conducted studies using experimental designs and placed an emphasis on measuring anxiety. These studies included a variety of art tasks or conditions, such as drawing mandalas, coloring pre-drawn mandalas, coloring plaid designs, creating free drawings, drawing still-life images, and assembling puzzles. Researchers were also interested in observing shifts in anxiety levels by utilizing either self-report measures (i.e., Spielberger et al.'s (1983) State-Trait Anxiety Inventory) or physiological measures (i.e., pulse rate, skin temperature, and blood pressure). However, some of these studies involved nonclinical samples and/or used small sample sizes, which limited generalizability of findings.

Current Research

Children. One of the earliest studies of the physiological impact of creating mandalas was on children, between the ages of 5 to 10 years, attending a daycare facility in an upper-middle class suburban area (DeLue, 1999). Participants were assigned into two conditions: drawing mandalas or completing problem-solving puzzles (i.e., dot-to-dot, matching, and hidden picture puzzles) for 12 to 14 minutes. The researchers were interested in measuring their peripheral skin temperature before, during, and after the task; and their

pulse rate before and after the task. Those in the mandala condition were instructed to draw whatever they would like and that they could draw symbols, shapes, lines, and use any colors (DeLue, 1999). After drawing the mandala, the participants were asked to provide a title for their mandalas and to describe their drawings. Results indicated that although changes in skin temperature were not significant, there was a significant reduction in pulse rate for children who drew mandalas compared to children who completed problem-solving puzzles. The researchers inferred that drawing mandalas reduced autonomic arousal. With regard to not finding significant changes in skin temperature, the researchers speculated that obtaining skin temperature through the participants' wrists may have been less sensitive than recording skin temperature through their fingers. Such findings are significant in providing some evidence of the overall physiological effectiveness of drawing mandalas. Conducting a similar study with children with mental health issues may support the effectiveness of using mandalas to reduce anxiety in children and adolescents who may have difficulty verbalizing their feelings and emotions.

Adults. Studies with adults have focused on reducing self-reported anxiety (Curry & Kasser, 2005; Small, 2006; Van der Venet & Serice, 2012; Kersten & Van der Venet, 2010); reducing self-reported anxiety and posttraumatic stress disorder (PTSD) symptoms (Henderson et al., 2007); and reducing physiological stress levels for adults with intellectual disabilities (Schrade et al., 2011). One study was interested in testing the impact of using “coloring therapy” to reduce anxiety in 84 undergraduate students (Curry & Kasser, 2005). Coloring therapy was described as a form of art therapy that entailed coloring complex geometric forms in order to induce a state similar to meditation. The researchers were interested in determining if there would be a difference in anxiety after coloring a pre-drawn

mandala, a plaid design, or a blank piece of paper. State anxiety was measured using a shortened version of Spielberger et al.'s (1983) State Anxiety Inventory (SAI). Participants were first administered the SAI in order to obtain a baseline measure of their current anxiety state (Curry & Kasser, 2005). To induce an anxious state, participants were asked to write for four minutes about a time when they felt most fearful on a blank piece of unlined 8.5" X 11" paper, which was followed by the administration of the SAI again. Finally, participants were randomly assigned to one of the three drawing conditions and were instructed to color for 20 minutes, which was also followed by an administration of the SAI. Results indicated that coloring a pre-drawn mandala and plaid design reduced anxiety more than free coloring. However, there was no significant difference in anxiety reduction between the pre-drawn mandala and plaid design conditions. Results also indicated that those asked to free color did not return to their baseline anxiety levels because they remained elevated (Curry & Kasser, 2005). It was inferred that the mandala and plaid designs may have provided enough detail and structure for participants to be able to color for 20 minutes without stopping to think about their designs. Those asked to color a blank piece of paper were noted by the researchers as appearing confused, asking for more instructions, and stopping throughout the task to think. It was suggested that having vague or less structured instructions may have elevated anxiety levels instead of reducing levels.

This study was replicated by researchers using the same pre-drawn mandalas and plaid designs with 50 undergraduate and graduate students (Van der Venet & Serice, 2012; Kersten & Van der Venet, 2010). All procedures remained the same; except that the researchers used Spielberger et al.'s (1983) State Anxiety Inventory as opposed to a modified version. Consistent with the previous study, results indicated that coloring a pre-drawn

mandala reduced anxiety more than free coloring (Van der Venet & Serice, 2012; Kersten & Van der Venet, 2010). Unlike the previous study, the researchers found no significant difference in anxiety reduction between coloring a plaid design or free coloring. In other words, coloring a mandala reduced anxiety more than coloring a plaid design or free coloring. Additionally, results also indicated that participants who engaged in the free coloring task experienced a reduction in anxiety levels, which was different from the previous study's findings that participants did not return to their baseline anxiety levels after the free coloring task. The researchers acknowledged that some differences in findings may have related to slight variations in their sample population with regard to education level and age range. The second study included both undergraduate and graduate students, unlike the previous study that focused on undergraduate students. Although the differences between the sample sizes were noted, the researchers did not report any findings or indicate that they investigated potential outcome differences that may have been influenced by age and education level.

A study that elaborated on Curry and Kasser's (2005) design added an additional drawing condition, and measured anxiety by administering pre and post Tallis et al.'s (1992) Worry Domains Questionnaire instead of Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI) (Small, 2006). The researcher was interested in observing the potential impact of providing 75 participants with a brief mandala synopsis that explained the spiritual and religious significance of mandalas. Participants were assigned to four coloring conditions: coloring a pre-drawn mandala with a brief mandala synopsis, coloring a pre-drawn mandala without a brief mandala synopsis, coloring a plaid design, and free coloring (Small, 2006). Unlike Curry and Kasser's (2005) study, mood was not induced and there

were no time limits on how long participants had to color. Results indicated that anxiety reduction was experienced by all drawing conditions and there were no significant differences among the drawing tasks (Small, 2006). It was inferred that the act of coloring, regardless of the subject-matter and spiritual meaning behind the task, may generally reduce anxiety. The researcher noted that not having time restrictions may have provided varied recordings of anxiety depending on how long participants engaged in the coloring task. When considering the previously mentioned studies, it appears as though having a structured task with time restrictions helps participants feel comfortable working alone and at a steady pace in order to reduce anxiety levels.

Although these studies provided an experimental design that consistently showed anxiety reduction after engaging in a variety of drawing tasks, generalizability of the findings were limited since the participants were college students. A replication of Curry and Kasser's (2005) study of individuals with mental health issues and/or at an inpatient setting might provide different results in terms of overall reported anxiety after engaging in a variety of drawing tasks. Another limitation involved researchers relying solely on self-report measures, which could potentially provide biased information about an individual's actual anxiety experiences. One issue would involve some participants possibly attempting to provide favorable responses based on what they assumed the researchers were studying. The other extreme would involve participants unintentionally providing inaccurate information because some individuals may not be attuned to their own emotional states.

Although the previously mentioned studies focused on anxiety reduction, one study was interested in exploring the impact of drawing mandalas to reduce other mental health symptoms, such as symptoms of posttraumatic stress disorder (PTSD), depression, and

anxiety, while also increasing spiritual meaning (Henderson et al., 2007). Participants were undergraduate students who were prescreened in order to determine the presence and severity of PTSD symptoms. Those who reported experiencing one or more traumatic stressors and had at least moderate levels of PTSD were included. Potential participants were excluded if they were receiving psychotherapy or taking psychopharmaceutical medications. Symptoms of PTSD, depression, anxiety, and spiritual meaning were measured through self-report questionnaires. Participants were exposed to the same drawing task for three consecutive days, and then one month later during a follow-up visit (Henderson et al., 2007). The drawing tasks consisted of either drawing a mandala or drawing an object in the room for 20 minutes. Participants completed the self-report questionnaires before the first drawing to serve as a baseline measure, on the third day after the drawing task, and then again during their one month follow-up visit after completing the drawing task. For standardization purposes, a research assistant gave participants envelopes that had instructions about the drawing tasks, which were read aloud by the research assistant. For the mandala condition, participants were instructed to draw a large circle, to reflect on “the most traumatic, upsetting experience” in their lives, and to “explore [their] deepest emotions and thoughts” by filling in the circle with symbols, designs, and colors that depicted their feelings (Henderson et al., 2007, p. 152). During the follow-up visit, participants were asked to write a description about the symbolic meaning of their mandala drawings, and to complete an outcome questionnaire about their overall satisfaction with the study (Henderson et al., 2007). Both state and trait anxiety were measured using Spielberger et al.’s (1983) State-Trait Anxiety Inventory. Results indicated that although individuals who drew mandalas often reported having severe traumatic symptoms during the first session, they also had significantly less

severe symptoms of PTSD one month later (Henderson et al., 2007). The researchers also noticed that only PTSD symptoms were reduced, which suggested that mandalas helped individuals focus on their traumatic experiences. There were no significant findings in terms of reducing symptoms of depression and anxiety and in increasing spiritual meaning. Qualitatively, the researchers noticed participants often used images of tears and broken hearts to symbolize feelings of sadness; dark colors to symbolize depression; images of sunshines and smiley faces to symbolize happiness; and brighter colors to symbolize hope (Henderson et al., 2007). Although the researchers did not go into great detail about the qualitative nature of the drawings, they provided a couple of examples of how participants used the mandalas to depict their traumatic experiences. Additionally, the outcome questionnaire revealed that many participants found drawing the mandalas as a helpful way to express their traumatic experiences. Although this study compared PTSD symptoms during different stages of treatment, participants only created drawings for the first three days of treatment and then one drawing a month later. It is unknown if other factors, such as having a support system or any lifestyle changes, may have influenced the reduction of PTSD symptoms and thus confounded the results of the study. Unlike the previously mentioned experimentally designed studies, this study attempted to mimic the art therapeutic technique by asking participants to draw their own mandalas and to describe the meaning of their use of symbols and images.

Unlike the previous studies that focused on self-report measures, one study was interested in reducing physiological stress levels for adults diagnosed with an intellectual disability (Schrade et al., 2011). The researchers measured physiological stress levels through pulse rate, systolic blood pressure (peak pressure in the arteries when the heart

contracts), and diastolic blood pressure (minimum pressure in the arteries when the heart rests between heartbeats) readings before and after the drawing tasks (Schrade et al., 2011). In a span of three days, participants were randomly assigned an order that required drawing a mandala, free drawing, or engaging in a table activity (i.e., puzzles and games) for 15 minutes on each day. Even though their assigned task for each day was different, all participants completed each drawing task. Results indicated that drawing a mandala reduced both diastolic and systolic blood pressure slightly more than engaging in a free drawing or a table activity. However, there were no significant reductions in pulse rate across the three drawing tasks (Schrade et al., 2011). One of the strengths of this study involved exposing all participants to all tasks, while obtaining readings of their pulse rate and blood pressure throughout each task. One of the major limitations involved using 15 participants in the study. Due to a small sample size, it may have been difficult to determine actual differences between drawing a mandala and free drawing. Another limitation involved the researchers experiencing technical issues with the blood pressure monitors. The researchers used home blood pressure monitors with arm cuffs. Although the researchers were able to collect the necessary data, they experienced about 17 errors and were required to immediately take another reading in order to collect data. Even though the delay in obtaining readings may not have affected the data, it is possible that participants may have been slightly startled or had elevations in anxiety when the researchers had to obtain another reading.

Finally, an unpublished study cited by Schrade et al. (2011) observed both the physiological and psychological effects of making mandalas for cardiac rehabilitation patients (Kuchta, 2008). Participants were assigned to either create a mandala or to be in a control condition –the task for the control condition was not reported. Physiological effects

were measured by heart rate pre and post creating a mandala (as cited by Schrade et al., 2011). Unlike the previous studies that assessed anxiety, the researcher was interested in assessing mood. Results indicated that participants in the mandala condition had significantly reduced heart rate, and significantly more positive mood compared to participants in the control condition.

Understanding the Impact of Anxiety

Experiencing anxiety, fear, and worry are emotional states that vary in severity based on differing situations. Nearly everyone has experienced feeling anxious from time-to-time (Williams, 2008); however, experiencing excessive anxiety that impairs an individual's ability to function is recognized as an anxiety disorder (American Psychiatric Association, 2013). Based on lifetime prevalence estimates for anxiety disorders using diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders –Fourth Edition –Text Revision* (DSM-IV-TR), about 28.8% of adults (Kessler et al., 2005) and 31.9% adolescents (Merikangas et al., 2010) in the United States have met criteria for an anxiety disorder. According to the *Diagnostic and Statistical Manual of Mental Disorders –Fifth Edition* (DSM-5), most anxiety disorders share symptoms that include excessive fear and anxiety, and behavioral disturbances (APA, 2013). Fear is defined as an emotional response after being exposed to an actual or perceived threat; while anxiety is defined as the anticipation of a future threat (APA, 2013). In order to minimize feelings of fear and anxiety, an individual may engage in behaviors that involve actively avoiding the actual or perceived threat. Consequently, excessive anxiety, fear, and worry can become so distressing that the constant thoughts and feelings interfere with an individual's psychosocial functioning (i.e., social, occupational, and/or academic functioning) (APA, 2013).

Although experiencing excessive anxiety is often associated with anxiety disorders, it is important to note that high levels of anxiety "...are typically found in almost all emotional disorders" (Spielberger & Reheiser, 2009, p. 272). In fact, anxiety, anger, and depression are considered "critical psychological vital signs that are strongly related to an individual's well-being" (Spielberger & Reheiser, 2009, p. 272). The intensity and duration of such emotional experiences provide critical information about an individual's overall mental health and level of general mental distress (Spielberger & Reheiser, 2009).

Varying states of anxiety can have both emotional and physiological effects that can become problematic over time if an individual is repeatedly exposed to stressful events (APA, 2013). Because of the emotional and physiological effects, anxiety can be measured and observed both subjectively and objectively through self-report measures and physiological measures.

Trait and State Anxiety. Expressing symptoms of anxiety can vary among individuals and can be experienced as either an emotional trait or an emotional state (Cattell, 1966; Cattell & Scheier, 1961; Spielberger, 1966; Spielberger et al., 1983). Trait anxiety is an acquired or learned behavioral disposition that makes an individual characteristically more susceptible to perceiving actual or perceived threats as dangerous (Spielberger, 1966; Spielberger et al, 1983). Because this reflects a stable and consistent perception and response to a variety of situations, trait anxiety has often been characterized as a personality trait (Cattell, 1966; Cattell & Scheier, 1961; Spielberger, 1966; Spielberger et al., 1983). Having a history of experiencing multiple anxiety-provoking situations enhances the likelihood of an individual becoming vulnerable to perceiving a variety of similar future situations as dangerous (Spielberger, 1966). Because an individual with high levels of anxiety has a

consistent way of perceiving and behaviorally responding to certain situations, they often resemble characteristics of a stable personality trait (Spielberger, 1966).

In contrast, state anxiety is a temporary or transitory emotional state of arousal after experiencing an actual or perceived threat (Spielberger, 1966; Spielberger et al., 1983). State anxiety is a subjectively conscious perception of an individual's current experiences that can fluctuate and change in intensity over time (Spielberger, 1966; Spielberger et al., 1983).

Such moment-to-moment experiences are often associated with physiological changes (i.e., increased respiration rate and systolic blood pressure) that result from activating the autonomic nervous system, which motivates an individual to avoid or respond appropriately to dangerous situations (Cattell, 1966; Cattell & Scheier, 1961; Spielberger, 1966).

Spielberger et al. (1983) viewed state and trait anxiety as unidimensional experiences (i.e., experiencing high or low levels of anxiety).

Although certain levels of trait anxiety can influence state anxiety experiences, researchers have noticed a distinction between healthy and pathological ways of responding to nonthreatening situations. When exposed to a stressful situation, individuals with higher levels of trait anxiety generally experience more frequent and higher levels of state anxiety than individuals with lower levels of trait anxiety (Spence & Spence, 1966; Spielberger, 1966). When exposed to a nonthreatening situation, healthy individuals with higher levels of trait anxiety often do not report experiencing elevated levels of state anxiety (Spence & Spence, 1966; Spielberger, 1966). In contrast, individuals with pathological conditions, such as schizophrenia or anxiety disorders, are more likely to report higher levels of state anxiety in both threatening and nonthreatening situations (Spielberger, 1966). This may reflect

symptoms of consistently worrying or feeling paranoid in a variety of situations (APA, 2013; Spielberger, 1966).

Anxiety and Physiological Effects. Physiologically, an individual may experience much stress within the body. Stress is defined as a physiological reaction or response that occurs after perceiving an aversive or threatening situation (Carlson, 2010). Threatening situations may also include exposure to highly crowded social situations (Regoeczi, 2002). This physiological reaction is often referred to as the fight-or-flight response (Cannon, 1932; Carlson, 2010; Olpin & Hesson, 2007). During the fight-or-flight response, the body experiences increased central nervous system activity, heart rate, blood pressure, cardiac output, sweat production, breathing rate, stress hormone secretion, metabolism, oxygen consumption, and dilation of airways (Olpin & Hesson, 2007). While certain bodily responses increase, activation of the fight-or-flight response also decreases pain perception and kidney output; reduces metabolism rates; constricts blood vessels; suppresses the immune system; and prevents the reproductive and sexual systems from functioning properly (Olpin & Hesson, 2007).

When the autonomic nervous system becomes activated, stress hormones, such as epinephrine and cortisol, are secreted from the adrenal glands (Carlson, 2010). Both epinephrine and cortisol affect glucose metabolism by supplying the body with energy in order to respond to a threatening situation. Epinephrine supplies the muscles with nutrients and increased blood flow; while cortisol is a type of glucocorticoid that converts protein into glucose, increases blood flow throughout the body, and makes fats available for energy. Although both serve a functional purpose that enables an individual to quickly respond to a situation, excessively secreting stress hormones can negatively affect the body. As such, an

individual may experience gastrointestinal issues, weakening of the immune system, constricted blood vessels, and increased blood pressure (Olpin & Hesson, 2007).

Once the individual no longer perceives a threat or potential pain, the parasympathetic nervous system attempts to return the body to its homeostatic state (Carlson, 2010). During this time, the body attempts to counterbalance the sympathetic activity by promoting relaxation, reducing blood pressure and body temperature, facilitating digestive functions, repairing tissues and energy storage, and decreasing muscle tension, all in order to regenerate the body for a future stressful event (Olpin & Hesson, 2007).

Some individuals may be genetically vulnerable to having an overly active autonomic system if their parents were anxious, experienced symptoms of depression, or had elevated levels of blood pressure (Chorpita & Barlow, 1998; Dougherty, Tolep, Smith, & Rose, 2013). Other individuals may have been exposed to stressful environments during their early childhood experiences (Chorpita & Barlow, 1998). Being predisposed to both biological factors and environmental factors enhances the likelihood of an individual experiencing chronic physiological stress within the body (Berry, Blair, Ursache, Willoughby, & Granger, 2014; Chorpita & Barlow, 1998; Dougherty et al., 2013; Zubin & Spring, 1977). Chronic stress keeps the sympathetic nervous system activated for an extended period of time, which prevents the body from returning to a homeostatic state in order to recover (Olpin & Hesson, 2007). Not returning to a homeostatic state can make the body become prone to experiencing great physical exhaustion, which prevents the body from functioning optimally, and ultimately threatens an individual's overall physical health and emotional wellbeing. Having chronic states of increased cortisol and glucose production can lead to renovascular hypertension, increased appetite, and increased body fat; chronically elevated blood pressure

and heart rate can cause blood clotting and increase the risk for a heart attack or stroke; and chronic elevations in stress hormones can negatively affect memory and neurotransmitters (Olpin & Hesson, 2007).

Measuring Anxiety. Reviewing the current research, studies relied on only self-report measures (i.e., the State-Trait Anxiety Inventory) or only physiological measures (i.e., pulse rate, skin temperature, blood pressure), rather than combining both measures. Self-report measures can provide information about an individual's subjective experiences; however, a self-report measure alone may not give sufficient information (Kazdin, 2003; Krause, 1961; Schachter, 1966). An individual would need to be able to distinguish between different feeling states; be cognitively aware of their emotional experiences; have the same definition of emotional states as the clinician; and feel comfortable with providing accurate and honest responses (Krause, 1961; Schachter, 1966). Otherwise, there could be a potential risk of an individual intentionally or unintentionally over- or under-pathologize their symptoms (Krause, 1961; Schachter, 1966).

Physiological measures often provide objective data about any elevations or declinations that may be experienced through heart rate, blood pressure, respiration rate, skin temperature, muscular tension, sweat production, adrenocortical secretion, startle responses, and electroencephalogram (EEG) readings (Deane, 1961; Derakshan & Eysenck, 1997; Jenks & Deane, 1966; Lazarus & Opton, 1966; Grinker, 1966; Krause, 1961; Malmö, 1957; Martin, 1961; Oetting, 1966; Schneider, 1976). Using physiological data can be useful when working with children and adults who have difficulty communicating their experiences, or who may not be attuned to subtle internal changes (Schachter, 1966). However, relying on physiological data alone could provide misinterpretations about an individual's subjective

experiences, such as anxiety. It is possible that elevations or declinations in the physiological readings may actually reflect other positive or negative arousal experiences, such as feeling happy, surprised, sad, angry, fearful, or disgusted (Ekman, 1999; Ekman, 1992; Lang, Bradley, & Cuthbert, 1998; Mikels, Fredrickson, Lindberg, Maglio, & Reuter-Lorenz, 2005; Schachter, 1966). Because of this potential error, it is often recommended to measure anxiety using more than one instrument (Endler & Kocovski, 2001; Krause, 1961; Spielberger, 1966). Using both subjective and objective measures can help enhance interpretations and findings about what an individual may actually be experiencing (Schachter, 1966).

Statement of Problem

Previous studies have generally focused on one art therapeutic technique at a time. Research on human figure drawings has focused solely on figure drawings; while studies on mandala drawings have focused almost exclusively on mandalas. Both human figure drawings and mandala drawings are art therapeutic techniques that involve drawing an image of the self; yet, the two techniques have not been explored or compared within a single study.

When determining the overall impact of engaging in drawing tasks, specifically anxiety reduction, previous studies relied on either subjective information or objective information rather than combining both. Case studies using human figure drawings and mandala drawings have generally relied on the clinician's subjective opinion about an individual's overall progress in treatment and anxiety reduction over time. There also appears to be a lack of research exploring the physiological impact of creating human figure drawings. Experimentally designed studies using mandala drawings have relied exclusively on self-report measures or physiological measures. When attempting to measure anxiety, it

is often recommended that clinicians use more than one measurement (Endler & Kocovski, 2001; Krause, 1961; Spielberger, 1966). Using both subjective and objective measures can help enhance interpretations and strengthen the findings (Schachter, 1966).

For some of the experimentally designed studies, few investigations attempted to maintain the art therapeutic process (Henderson et al., 2007; Small, 2006) by asking qualitative questions about the drawings and/or by providing instructions consistent with art therapeutic practices. There are also variations in studies instructing participants to either color in pre-drawn mandalas (Curry & Kasser, 2005; Small, 2006; Van der Vennet & Serice, 2012; Kersten & Van der Vennet, 2010) or to draw their own mandalas (DeLue, 1999; Henderson et al., 2007; Schrade et al., 2011). The differing instructions and approaches to the mandala task on such a limited area of research points to a need to explore the art therapeutic technique further in order to understand the actual benefits and to enhance findings.

Statement of Purpose

The purpose of this proposed research involves assessing the impact on anxiety of two art therapeutic techniques that focus on the same subject matter, creating an image of the self. The self-portrait task is one technique that involves being instructed to create a human figure drawing of the self. The mandala task is another technique that involves being instructed to create an image of the self using symbols, images, and colors. The control condition, a free drawing task, will provide consistency by instructing participants to engage in a drawing of their choosing. To maintain the art therapeutic process, instructions will be provided for each task and participants will be followed-up with qualitative questions about the meaning of their drawings.

Finally, anxiety will be measured using both subjective and objective measurements. Participants will be asked to complete self-report questionnaires about their reported level of anxiety, and their pulse rate will be recorded as an objective measure.

Hypotheses

For this study, the following hypotheses have been developed to investigate the relationships that pertain to this research:

Hypothesis 1: It is hypothesized that general mental distress, as per ratings of a measure of psychological dysfunction, will positively and significantly correlate with higher levels of self-reported trait and state anxiety on the State-Trait Anxiety Inventory (STAI).

Hypothesis 2: It is hypothesized that general mental distress will positively and significantly correlate with physiological arousal (pulse rate).

Hypothesis 3: It is hypothesized that self-reported trait and state anxiety will positively and significantly correlate with physiological arousal (pulse rate) on all drawing groups.

Hypothesis 4: It is hypothesized that there will be an effect of mood induction on self-reported state anxiety and physiological arousal (pulse rate).

Hypothesis 5: It is hypothesized that self-reported state anxiety and physiological arousal (pulse rate) will decrease after the drawing period in the mandala and the human figure drawing groups, but not in the free drawing (control) group. Furthermore, it is predicted that the amount of change will be the highest in the mandala group, the next highest in the human figure drawing group, and the least in the free-drawing group.

Significance of the Study

There has been an interest in using art as a psychotherapeutic intervention for decades. Clinicians have noticed the positive impact of art in helping children, adolescents,

and adults nonverbally express themselves, resolve conflicts, reduce stress, and enhance self-esteem and self-awareness. Art therapy has many therapeutic techniques that have recently been explored through research in order to attempt to understand the emotional and physiological impact of creating art. Although most clinicians have suspected that an individual's drawings often reflects images of themselves, asking individuals to draw self-portraits either literally or symbolically is relatively new and lacks empirical evidence supporting its effectiveness. This study is unique in comparing two art therapeutic processes while obtaining subjective and objective recordings of shifts in anxiety. Findings may enhance the awareness of using nonverbal psychotherapeutic methods as an effective treatment intervention in the mental health field.

CHAPTER III

Method

Research Design

The overall research design was a mixed methods sequential explanatory design. The study was a true experiment; participants were randomly assigned to one of three drawing conditions: the mandala group, a human figure drawing group, and a free coloring group. Quantitatively, pulse rate and self-reported state anxiety after each drawing task were compared with their baseline scores and their mood induced scores in order to determine any differences among the drawing conditions.

Qualitatively, participants were asked to describe their drawings and use of images and colors. Not only did this provide a subjective understanding of their drawings, but more importantly, it preserved the art therapy process. The qualitative descriptions of the drawings were categorized based on pre-determined themes. Additional categories were added as themes emerged during the qualitative analysis. Finally, participants completed a questionnaire to provide feedback about their experience with the assigned drawing task.

		DRAWING GROUP		
		Mandala	Human Figure	Free Drawing
TIME POINT	Baseline	1. Background 2. SCL-90-R 3. STAI 4. Pulse Rate	1. Background 2. SCL-90-R 3. STAI 4. Pulse Rate	1. Background 2. SCL-90-R 3. STAI 4. Pulse Rate
	Pre Drawing	1. Pulse Rate 2. STAI	1. Pulse Rate 2. STAI	1. Pulse Rate 2. STAI
	Post Drawing	1. Pulse Rate 2. STAI	1. Pulse Rate 2. STAI	1. Pulse Rate 2. STAI
	Last Task	1. Qualitative 2. Rating	1. Qualitative 2. Rating	1. Qualitative 2. Rating

Key:

Background = Background Questionnaire
 SCL-90-R = Symptom Checklist-90 –Revised
 STAI = State-Trait Anxiety Inventory
 Qualitative = Qualitative Drawing Questions
 Rating = Drawing Task Rating Questionnaire

Figure 1. Study design: Drawing Group X Time Point.

Participants

This study obtained a sample of 60 participants attending the University of Detroit Mercy who were 18 years of age and older. Although 61 individuals volunteered to participate, one individual was excluded before starting the study because they expressed feeling overly anxious and reported having a history of severe anxiety. Having an interest in art or previous artistic experiences were not necessary for this study. Vision or colorblindness issues did not exclude participants, but such information was obtained in the background questionnaire. There were no other exclusion criteria for this study. Refer to Appendix B for the background questionnaire.

Measures

Physiological Data. Recordings of pulse rate were obtained as an objective measurement of physiological changes. A baseline of pulse rate was recorded using a finger

pulse oximeter before exposure to the assigned drawing condition. Following the baseline recording, participants were exposed to a mood induction task for four minutes. A second pulse recording followed the mood induction task. Finally, a third pulse recording was taken immediately after participants completed the drawing task. Pulse rate was measured using the Acc U Rate® CMS 500DL Generator 2 Fingertip Pulse Oximeter model. This particular model had recently been upgraded and had both a CE Mark and FDA Approval.

Additionally, this model was reported by the manufacturer as being capable of accurately and consistently measuring pulse rate at +/- 2 beats per minute, and blood oxygen saturation levels ranging from 75% to 100% precision (Summit Durable Medical Equipment, 2014).

Symptom Checklist. The Symptom Checklist-90 –Revised (SCL-90-R) was used to measure a broad range of psychological symptoms and problems, such as anxiety, depression, and aggression, in order to determine general psychological distress (Derogatis, 1994). The SCL-90-R was administered in the beginning of the experiment. This current study was primarily interested in the Global Severity Index (GSI). The GSI is the average rating of an individual's overall psychological symptoms, which reflected an individual's general psychological distress. The SCL-90-R is a self-report measure for adults that consists of 90 items used to describe various symptoms that have been experienced over the past week. The items were rated on a Likert scale with 0 representing "not at all" and 4 representing "extremely." Internal consistency has ranged from .79 to .90, and test-retest reliability has ranged from .79 to .90 (Derogatis, 1994; Derogatis & Savitz, 1999). Refer to Appendix C for the questionnaire.

State and Trait Anxiety. Participants were provided with the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1983) in order to determine their state and trait anxiety.

The STAI is a self-report measurement for adolescents and adults that consists of 20 questions observing state anxiety and 20 questions observing trait anxiety. The questions were based on a Likert scale with 1 representing “not at all” and 4 representing “very much so.” For trait anxiety, test-retest reliability has ranged from .73 to .86; and internal consistency as ranged from .92 to .94 (Spielberger et al., 1983). Because state anxiety is a construct that changes over time, test-retest reliability is lower and has ranged from .36 for females to .51 for males (Spielberger et al., 1983). Internal consistency for state anxiety has ranged from .88 to .93 (Spielberger et al., 1983). Refer to Appendix D for the questionnaire.

Qualitative Interview. In order to mimic as much of the art therapy process as possible, participants were administered six questions that have often been measured after an art therapy session (Buck, 1948; Fincher, 2010; Kellogg, 1984). For all drawing groups, participants were asked to identify the top and bottom of their drawing; to provide a title for their drawing; to describe their drawing and the meaning of their shapes, images, symbols, and colors; and to indicate which color they used the most. Refer to Appendix E for the questions.

Additionally, such questions also provided additional information about the subjective nature of the drawings. Understanding the images, colors, and meaning of the drawings provided additional information about their current affective states. All responses were written down and audio recorded. The examiner also made field notes after each interview. This study coded themes and categories based on the methods of Henderson et al. (2007) and Wiener and Battles (2008). Categories that consisted of positive and negative emotional states, such as feeling happy, sad, or angry, were based on Ekman’s (1999; 1992) classifications of positive and negative arousal experiences. During the qualitative

analysis, additional categories were added as themes emerged and any themes that were not used were discarded. Two independent raters, whom were blind to the drawing manipulation, coded the themes and categories of the drawings in order to enhance interrater reliability.

Drawing Task Rating. Participants were provided with a four-item questionnaire that involved providing feedback about their experience with the assigned drawing task. This questionnaire was created by the examiner for this study. Participants were also asked to indicate how much they enjoyed creating the drawing. The questions were based on a Likert scale with 1 representing “I did not enjoy it at all” and 4 representing “I enjoyed it a lot.” Participants were then asked two questions that involved circling how much the drawing influenced their affective states based on a Likert scale with 1 representing “not at all” and 4 representing “a lot.” The last question concerned the degree to which the drawings may have influenced their affective states after the mood induction task. The question was based on a Likert scale with 1 representing “not at all” and 4 representing “a lot.” Refer to Appendix F for the questionnaire.

Procedure

Participants were recruited through class announcements in undergraduate psychology classes. Recruitment started during the second month of the Winter Term (mid-February of 2016) and ended one week before the end of the same term (April 16, 2016), which was a week before Final exams. During the recruitment process, students were informed about the nature of the study and the mood induction class, and that they would be compensated with extra credit in their psychology class. All professors pre-approved the compensation. The examiner followed-up with emails and reminded interested students

about the nature of the study and the mood induction task. Participants scheduled their appointments online and the study was conducted in a quiet room in the UDM Psychology Clinic.

Before starting the study, participants were informed that the study involved observing the impact that certain art therapeutic techniques may have on an individual emotionally and physiologically. Participants were informed that their pulse rate would be recorded throughout the study, and that the examiner would audio record their responses to questions nearing the end of the study. Additionally, participants were informed about a mood induction task that may be distressing, but would have temporary effects. After describing the nature of the study and what to potentially expect, participants were asked if they felt comfortable having their pulse rate recorded, their responses audio recorded, and with their mood temporarily induced. They were informed that they could withdraw from the study at any time. After signing a consent form, the examiner cleaned the pulse rate monitor with a sanitizing wipe. Participants were then provided with a packet that included a background questionnaire, the Symptom Checklist-90 –Revised (SCL-90-R), and the State-Trait Anxiety Inventory (STAI). Once participants completed the packet, a recording of their pulse rate was taken by the examiner.

Following the procedures of previous studies (Curry & Kasser, 2005; Kersten & Van der Vennet, 2010; Van der Vennet & Serice, 2012), mood was induced by asking participants to write on a blank piece of unlined 8.5” X 11” paper for four minutes about a time when they felt most fearful. Afterwards, a recording of their pulse rate was taken, and participants completed the state anxiety portion of the STAI. The writing responses were collected and

reviewed for compliance with instructions. Two independent raters measured the degree of how anxiety-provoking the writing responses were by using a Likert scale.

Using a random number generator, participants were assigned to one of the three drawing conditions (Haahr, 1998). The randomization was stratified by gender and previous artistic experiences. Participants were assigned a research number that was written on the packet of surveys and their drawing. Consistent with previous studies (DeLue, 1999), participants were then handed one white sheet of 12" X 18" drawing paper along with 12 oil pastels. For the mandala task, there was a 10" pre-drawn circle in the center of the paper that was drawn in pencil (Fincher, 2010). Circles were drawn with a template of a pre-cut circle in order to maintain consistency. How the sheet of paper was presented to participants was also consistent with previous studies. For the mandala task, the paper was presented horizontally (Fincher, 2010). For the human figure drawing task, a blank sheet of drawing paper was presented vertically (Buck, 1948). For the free drawing task, a blank sheet of drawing paper was presented horizontally.

For each drawing group, a script was read that provided instructions about what to draw for 12 to 15 minutes. Instructions were based on how each drawing task is typically presented as an art therapy technique; and the range in time to complete the drawings was based on previous studies. Participants were informed that they had 12 minutes to complete their drawing, but could have an additional few minutes to finish if needed. If they finished their drawing earlier, they were instructed to either spend more time on their drawing or they could create a new drawing (DeLue, 1999; Schrade et al., 2011). They were also informed that the examiner would let them know when five minutes remained. For the mandala task, instructions were based on the methods of Kellogg (1984) and Fincher (2010):

A mandala represents a mirror or reflection of an individual's inner self. The circle symbolizes you. I would like you to fill in the circle with colors, shapes, and/or patterns. You can create this however you want. This is not a test about your drawing abilities, so do not feel critical of your drawing skills or color choices. You will have 12 minutes to complete your drawing, so take your time. I will let you know when you have five minutes left. If you finish before the end of 12 minutes, you can either spend more time on your drawing or you can create another drawing. If you are still working on your drawing at 12 minutes, you can have a few minutes to finish your drawing.

For the human figure drawing task, instructions were based on how human figure drawing tasks have been presented over time (Berryman, 1959; Buck, 1948; Hammer, 1958; Harris, 1963). Instructions included:

A self-portrait represents a reflection of an individual. I would like you to draw a picture of yourself –not just your face, but your whole self. You can create this however you want. This is not a test about your drawing abilities, so do not feel critical of your drawing skills or color choices. You will have 12 minutes to complete your drawing, so take your time. I will let you know when you have five minutes left. If you finish before the end of 12 minutes, you can either spend more time on your drawing or you can create another drawing. If you are still working on your drawing at 12 minutes, you can have a few minutes to finish your drawing.

For the free drawing task, instructions included:

I would like you to draw a picture of whatever comes to mind. You can create this however you want. This is not a test about your drawing abilities, so do not feel

critical of your drawing skills or color choices. You will have 12 minutes to complete your drawing, so take your time. I will let you know when you have five minutes left. If you finish before the end of 12 minutes, you can either spend more time on your drawing or you can create another drawing. If you're still working on your drawing at 12 minutes, you can have a few minutes to finish your drawing.

After reading the instructions, the examiner re-read the beginning of the instructions in order to remind participants about what they were drawing. If participants had questions about what to draw after hearing the instructions, the examiner re-read the instructions that specified what they needed to draw and reassured them that they could draw their picture however they chose. For the mandala task, if participants drew a landscape instead of drawing an image that reflected themselves, the examiner noted the observations but did not intervene. For the human figure drawing task, if participants only drew a face or omitted details instead of drawing a whole figure, the examiner noted the observations but did not intervene. After completing each drawing task, the examiner recorded the participants' pulse rate and then administered the state anxiety portion of the State-Trait Anxiety Inventory (STAI). In order to mimic the art therapeutic technique, the examiner asked participants a series of qualitative questions about their drawings. All responses were audio recorded and written down by the examiner. Finally, participants completed the Drawing Task Rating Questionnaire as a means of providing feedback about their experience, and to see if they noticed any shifts in their affective states while engaged in the drawing task. Responses about noticing changes in their affective states were compared with their objective pulse rate recordings and subjective self-reports of state anxiety.

Protection of Participants and Ethical Concerns

Ethical concerns for this study addressed institutional approval, informed consent, confidentiality, and potential benefits and risks of participation. Before the study was conducted, institutional approval from the University of Detroit Mercy was required and obtained.

With regard to informed consent, participants were informed that the study involved inducing mood, and observing the physiological and emotional impact of art therapeutic techniques (the consent form is in Appendix A). Participants were screened and only those comfortable with having their pulse rate recorded, having their responses audio recorded, and having their mood induced could participate. If the examiner felt at any point during the study that a participant was overly anxious, the examiner immediately stopped the study and did not continue. Since pulse rate recordings were obtained from their finger, the procedure was not invasive and had minimal risks. The mood induction task involved writing about a personal experience for four minutes. Although minimally invasive, the shifts in anxiety were temporary. Participants were informed at least three times before starting the study about the mood induction task and they were reassured that they could withdraw from the study at any time. The examiner also asked participants before leaving the experimental setting if they were experiencing any distress. If participants were experiencing distress, the examiner conducted a relaxation exercise to make sure participants were not distressed when leaving. When needed, the examiner also referred participants to the University of Detroit Mercy's Wellness Center. One participant expressed feeling distressed and was provided with a referral, and three participants requested a referral even though they were not experiencing distress. The one participant who felt distressed stated that he/she was also

experiencing symptoms of the stomach flu. In terms of confidentiality, participants were assigned numbers that were used to code their data, measurements, drawings, and responses.

The potential benefits exceeded the minimal risks in the proposed study. Some participants reported not feeling confident about their drawing skills which may have potentially elevated their levels of anxiety. The examiner reassured them that the study was not a drawing test and that they could create their image however they chose. Even so, the changes in altered levels of anxiety were temporary and minimal in terms of potential risk factors.

CHAPTER IV

Analytic Procedures

Quantitative Analysis

The data analysis was completed using a SPSS statistical software program. Before conducting the actual data analysis, data was examined for evidence of any problems such as missing data, and indications of response bias (e.g., acquiescent, negative, or perseverative responding). Also for continuous variables, univariate and where appropriate, multivariate normality was also examined. There were no data points that were outliers. All categories for nominal variables were assigned numerical codes. Descriptive statistics were run for all continuous variables, while frequencies and cross-tabulations were generated for all categorical variables. Continuous variables that did not conform to basic assumptions of normality were transformed appropriately.

Hypothesis 1: It is hypothesized that general mental distress, as per ratings of a measure of psychological dysfunction, will positively and significantly correlate with higher levels of self-reported trait and state anxiety on the State-Trait Anxiety Inventory (STAI).

The relationship between general mental distress and self-reported anxiety was evaluated using product-moment correlations. It was expected that statistically significant associations of moderate strength would be obtained.

Hypothesis 2: It is hypothesized that general mental distress will positively and significantly correlate with physiological arousal (pulse rate).

The relationship between general mental distress and physiological arousal were evaluated using product-moment correlations. Pulse rate recordings from pre and post

drawing tasks were included. Refer to Figure 1. It was expected that statistically significant associations of moderate strength would be obtained.

Hypothesis 3: It is hypothesized that self-reported trait and state anxiety will positively and significantly correlate with physiological arousal (pulse rate) on all drawing groups.

Product-moment correlations were calculated between the two measures of anxiety (trait and state) and the physiological arousal variable at the start of the study and after the completion of each drawing condition. It was expected that statistically significant correlations among all variables would be obtained.

Hypothesis 4: It is hypothesized that there will be an effect of mood induction on self-reported state anxiety and physiological arousal (pulse rate).

The effect of mood induction on state anxiety and the physiological arousal variable was measured using two 3 X 3 mixed model ANOVAs (also called “between-within”). Drawing group (i.e., mandala, human figure, and free drawing) served as the independent variable. Level of anxiety (state anxiety and pulse rate) measured during the baseline recording, after the mood induction task, and after the drawing task was used as the dependent variables. It was expected that anxiety scores would be significantly higher after the mood induction task (i.e., a significant effect of time point). State anxiety and pulse rate were analyzed separately. Contrasts were conducted to compare time points with each other.

Hypothesis 5: It is hypothesized that self-reported state anxiety and physiological arousal (pulse rate) will decrease after the drawing period in the mandala and the human figure drawing groups, but not in the free drawing (control) group. Furthermore, it is predicted that the amount of change will be the highest in the mandala group, the next highest in the human figure drawing group, and the least in the free-drawing group.

The overall relationship among drawing groups and level of anxiety was measured using two 3 X 3 mixed model ANOVAs. Drawing group (i.e., mandala, human figure, and free drawing) served as the independent variable. Level of anxiety (state anxiety and pulse rate) was used as the dependent variables. It was expected that the type of drawing task would have a significant interaction with time point on level of anxiety after the mood induction task. Specifically, it was expected that the mandala and human figure drawing groups would show significantly lower levels of anxiety as compared to those in the free drawing group. A simple effects test was planned if there was a significant drawing group X time point interaction. It was expected that there would be a significant decrease in anxiety (comparing pre and post drawing time points) for the mandala and human figure drawing groups but not for the free drawing group. Further, the magnitude of change from pre-to-post drawing was compared among the three groups using post-hoc tests, specifically repeated contrasts (group 1 vs. 2, group 2 vs. group 3) (Field, 2009, p. 371).

Qualitative Analysis

The qualitative analysis consisted of both deductive and inductive coding strategies. The examiner randomly selected 12 drawings (4 per group) to code using a random number generator (Haahr, 1998). Prior to starting the study, descriptions of the drawings were coded using pre-determined themes, which reflected deductive coding (Creswell & Clark, 2011). The pre-determined themes were based on the research of Henderson et al. (2007), Wiener and Battles (2008), and Ekman's (1999; 1992) positive and negative emotional states. Refer to Table 1 for the pre-determined themes and descriptions.

Table 1

Pre-Determined Themes and Descriptions for Qualitative Analysis.

Theme	Description
None	no response; untitled; no elaboration at all
Literal Self	just states “self-portrait” or “me”; no further elaboration
Fearful Event	reported from writing task
Personal Activities	talents; activities; hobbies; memories; leisure; vacation
Employment/School	past or current employment or school
Future	future plans (positive or negative); future goals
Social Relationships	family, friends, significant others, teammates, coworkers
Somatic Complaints	physical symptoms; medical issues
Anxiety	worried; concerned; nervous; mistrust
Hope	anticipation; belief; desire; optimism; positive
Happiness	joy; peaceful; cheerful; lively
Surprise	shocked; bewildered (positive or negative)
Sadness	depressed; unhappy; mournful
Anger	rage; vengeful; furious; hatred; violence
Fear	scared; terrified; frightened
Disgust	dislike; offended; distaste

During the coding process, the examiner deliberately sought to identify emerging themes that served as additional categories, which reflected inductive coding (Creswell & Clark, 2011). Any themes that were not coded were discarded. After adding new categories, the examiner reviewed the responses to ensure that the new categories were applicable for 12 drawings in order to enhance interrater reliability. The 12 drawings were randomly selected using a random number generator (Haahr, 1998). The examiner trained two independent raters before having them code the 12 drawings. Both raters were blind to the drawing manipulation conditions. After the 12 drawings were coded, the examiner tested the interrater reliability between the two raters. The percentage agreement averaged over all of the themes was .943, and kappa was .811. Nevertheless, there were a couple of proposed themes that were not as reliable (i.e., the concordance rate was low) and two themes were collapsed for the final analysis. Additionally, any themes that were not coded were not

included in the final analysis. Refer to Table 2 for emerged themes and descriptions at the final analysis.

Table 2

Final Analysis of Emerging Themes and Descriptions

Theme	Description
Self	Me; it's about me; it shows me; it's a self-portrait; even if they never say "it's about me," the descriptions of their drawings sound like it's about them/their interests/who they are/their personality/their emotions.
Writing Task Influence	Created a drawing that appears to be influenced by the writing task. For instance, the drawing may depict the actual fearful event, may include a person (may be a symbol of that person) from the writing task, may reflect a setting or situation they wrote about, or may show how their current situation or anticipated future situation may have/will change because of the fearful event.
Personal Interests	Images, symbols, or colors of personal interests; talents; activities; hobbies; things they personally "like" or consider their "favorite" (i.e., favorite animal, favorite color, animals they like, colors they like, etc.)
Physical Characteristics	Describes physical characteristics (external only) of themselves or others, such as eyes, hair, nose, facial expressions, hands, facial hair, or posture.
Employment/School	Images, symbols, or colors of past or current employment or school; what they are studying in school (i.e., major).
Future	Future plans (positive or negative); future goals; being successful; how they envision themselves in the future; describing themselves in the future-tense (i.e., "I will have," "I'm going to").
Social Relationships	Drawing includes either images, symbols, or colors that represents family, friends, significant others, teammates, coworkers, and any other relationships involving people.
Animals/Insects	Created images of animals, insects, birds, or fish (includes pets, animals they like, favorite animals).
Nature	Created images of flowers, trees, grass, water/ocean, rainbows, hills, sky, sun, sand, rain, seasons, or describes images, symbols, and/or colors as "nature."
Automobiles/Boats	Created images of cars, trucks, or boats.
Architecture	Created images of buildings or houses.
Outer Space	Created images of space, planets, stars, the moon, the galaxy.
Memories	Created images that reflect past memories (positive or negative); this may include memories related to their writing task or they may talk about their image as something that happened using the past tense (i.e., "we used to," "there was," "I remember," "when I was").
Lucky	Images, symbols, or colors reflecting luck, good luck, lucky, feeling lucky.

Spirituality/ Religion	Images, symbols, jewelry, or colors reflecting spirituality, religion, philosophical ways of living (i.e., karma, meaning of life, cyclical/cycle of life, journey of life, each day is a new day).
Clothing	Describes clothing they or others are wearing, such as shirts, shoes, jewelry, watches, belts, hats, purses/clutches, swimsuits; discusses fashion or having a fashion style.
Obstacles	Images, symbols, or colors reflecting challenges, obstacles, distractions, barriers.
Holidays	Images, symbols, or colors of holidays (i.e., Christmas, Easter, St. Patrick's Day, etc.).
Money	Images, symbols, or colors of money and finances.
Freedom	Images, symbols, or colors reflecting freedom, feeling free, not restrained; no restrictions.
Peacefulness	Images, symbols, or colors reflecting calm/calming; relaxed/relaxing; peace/peaceful; easygoing; cool; going with the flow.
Love	Images, symbols, or colors reflecting love; passion (for others or one's self).
Compassion/ Caring	Images, symbols, or colors reflecting sympathy; feeling sorry for someone; caring for others; healing others; empathy.
Lonely	Images, symbols, or colors reflecting feeling lonely; alone.
Manic	Images, symbols, or colors reflecting feeling manic; hyper; out of control. (Not the same as energy).
Energy	Images, symbols, or colors reflecting energy/energetic.
Confident	Images, symbols, or colors reflecting confident/confidence.
Security/ Comfort	Images, symbols, or colors reflecting security (literal or financial); comfort; safe.
Hope	Images, symbols, or colors reflecting hope/hopeful; positive outlook. (These will be described using the words "hope" and "hopeful" rather than simply talking about the future. It is possible that you may code both "future" and "hope" together if both are used to describe an image.)
Happiness	Images, symbols, or colors reflecting happy; joy/joyful; cheerful; warmth; bright; pleasant; good mood; brightens my day.
Sadness	Images, symbols, or colors reflecting sad; unhappy; mournful; experiencing loss; missing someone; depressed; unhappy; gloomy; feeling blue; feeling down.
Anger	Images, symbols, or colors reflecting anger/angry; rage; vengeful; furious; hatred; violence.

The two raters also rated the mood induction writing responses that were completed for the 12 randomly selected drawings in order to determine how scary the writing responses were for mood manipulation. The raters rated the writing responses twice: once before reading the drawing descriptions and a second time after reading the drawing descriptions. The ratings were based on a Likert scale with 1 representing “not at all anxiety-provoking” and 10 representing “severely anxiety-provoking.” The interrater reliability was high for the first rating, $r = .928$, and the second rating, $r = .897$.

The sample size target of 60 participants was determined using G*Power (Faul et al., 2009). For sample size calculations, the expected effect size was set to medium, and the expected correlation between repeated measures was set to .50. The best case scenario involved using a sample size of 36 participants (12 participants per group) in order to get a medium effect size of 80% power, with alpha at .05. However, given that it was unknown what the correlation would be, getting 90% power required obtaining 60 participants (20 participants per group). Effect sizes were based on Cohen (1992).

CHAPTER V

Results

Participants

This study consisted of a total sample of 60 undergraduate students ($M = 19.77$ years of age; $SD = 1.80$) attending the University of Detroit Mercy. Participants in their freshman year of undergraduate studies represented the majority of the sample, which was followed by those in their sophomore year (Table 3). The sample was predominantly female and Caucasian, but other diverse ethnic groups were represented. Regarding marital status, all participants were single. Finally, none of the participants reported colorblindness issues.

Table 3

Demographic Characteristics: Gender, Ethnicity, and Level of Education

Characteristic	<i>N</i>	%
Gender		
Male	15	25
Female	45	75
Ethnicity		
African American	9	15
Caucasian	38	63
Middle Eastern/Arab American	6	10
Latino/Hispanic	1	2
Asian	3	5
Biracial/Multiracial	3	5
Level of Education		
Freshman	23	38
Sophomore	18	30
Junior	11	18
Senior	8	13

In terms of having an interest in art, participants were generally equally distributed (Table 4). The majority reported having an artistic background (i.e., having taken art classes). The sample was predominantly right-handed and most participants reported having corrected vision (i.e., wearing contact lenses or eyeglasses).

Table 4

Demographic Characteristics: Art Interest, Art Background, and Handedness

Characteristic	<i>n</i>	%
Art Interest		
Yes	29	48
No	31	52
Art Background		
Yes	37	62
No	23	38
Vision		
Normal Vision	27	45
Corrected Vision	33	55
Handedness		
Left-Handed	9	15
Right-Handed	48	80
Ambidextrous	3	5

Descriptive Statistics

Participants completed the Symptom Checklist-90 –Revised (SCL-90-R) in order to measure a broad range of psychological symptoms and problems to determine general psychological distress (Derogatis, 1994). General psychological symptoms were measured using nine symptom dimensions, such as somatization, interpersonal sensitivity, depression, and anxiety. General psychological distress was measured using the Global Severity Index (GSI), which is the average rating of an individual’s overall psychological symptoms. Because this study recruited undergraduate students who volunteered to participate at a university setting, the nonpatient norms were used instead of the inpatient and outpatient norms. Additionally, both adolescent and adult norms were used, based on the participants’ age.

With regard to general psychological symptoms, participants on average generated elevated T scores (T score > 60) on almost all symptom dimensions (Table 5). The nonpatient norms reflected a sample of individuals without any mental health issues (Derogatis, 1994). Because participants were not screened or excluded from this study for having pre-existing mental health issues, this sample may have included a combination of individuals with and without mental health issues. Previous studies have reported that undergraduate student populations that have not been screened or excluded for pre-existing mental health issues typically reported higher symptomology when using the nonpatient adult norms (Todd, Deane, & McKenna, 1997). In general, the adolescent norms on the SCL-90-R “reflect higher average levels of reported symptoms than do adult norms, so scores that suggest pathology on adult norms are more likely to be in the normal range on adolescent norms” (Todd et al., 1997, p. 294). Because the age of undergraduate students typically

range from late adolescence to early or mid-20s, they often struggle with typical developmental issues in college that involve becoming autonomous individuals (Johnson, Ellison, & Heikkinen, 1989). As such, Todd et al.'s (1997) study indicated that undergraduate nonpatients are more appropriately compared with the norms for nonpatient adolescents than for nonpatient adults. Another factor was that the sample included predominantly female participants. Studies have indicated that females often reported more frequent and more severe psychological symptoms on the SCL-90-R than males (Derogatis, 1994; Johnson et al., 1989; Porter, Wilson, & Frisch, 1994; Todd et al., 1997). Additionally, Derogatis (1994) reported that the symptom dimensions on the SCL-90-R are sensitive to individual factors, such as medical issues, anxiety, and depressive symptoms, which could elevate an individual's T scores. Finally, because the SCL-90-R does not have validity scales (Derogatis, 1994), it is unknown if participants may have intentionally or unintentionally under- or over reported their symptoms.

In terms of general psychological distress, participants generated an average Global Severity Index (GSI) T-score within the normal range (Table 5). Despite having elevated T scores on most of the symptom dimensions, this measure reflected participants with normal levels of general psychological distress.

Table 5

Means and Standard Deviations of T Scores from the Symptom Checklist-90 –Revised (SCL-90-R): Primary Symptom Dimensions and Global Severity Index

Symptom Dimensions	<i>M</i>	<i>SD</i>
Somatization	66.73	9.73
Obsessive Compulsive	66.55	9.45
Interpersonal Sensitivity	61.13	11.19
Depression	64.33	9.85
Anxiety	63.30	12.66
Hostility	62.73	11.84
Phobic Anxiety	52.35	14.36
Paranoid Ideation	59.32	13.14
Psychoticism	62.82	14.90
Global Severity Index	54.03	12.12

All 60 participants were randomly assigned to one of three drawing conditions: the mandala group ($n = 20$), the human figure drawing group ($n = 20$), and the free drawing group ($n = 20$). The randomization process involved stratifying participants by gender and previous artistic experiences. Regarding gender, there were 25% ($n = 5$) males and 75 % ($n = 15$) females in the mandala group; 25% ($n = 5$) males and 75 % ($n = 15$) females in the human figure drawing group; and 25% ($n = 5$) males and 75 % ($n = 15$) females in the free drawing group. Regarding previous artistic experiences, there were 55% ($n = 11$) with

artistic experiences and 45 % ($n = 9$) without artistic experiences in the mandala group; 65% ($n = 13$) with artistic experiences and 35 % ($n = 7$) without artistic experiences in the human figure drawing group; and 65% ($n = 13$) with artistic experiences and 35 % ($n = 7$) without artistic experiences in the free drawing group. With regard to gender and artistic experiences, the three drawing groups were equally distributed.

Each drawing group had relatively similar baseline scores and characteristics, which were measured using the Global Severity Index (GSI), the State-Trait Anxiety Inventory (STAI) –Trait and State, and pulse rate recordings (Table 6). Although the mandala group tended to have a lower pulse rate recording at baseline than the human figure drawing and free drawing groups, their overall pulse rate was also generally lower throughout testing and at different time points. The group differences did not reach statistical significance.

When observing the STAI –Trait and State baseline scores (Table 6), the overall means and standard deviations are higher than Spielberger et al.'s (1983) average means and standard deviations for male undergraduate students ($M = 38.30$; $SD = 9.18$) and female undergraduate students ($M = 40.40$; $SD = 10.15$). It is important to note that Spielberger et al.'s (1983) norms were based on a sample of undergraduate students taking an introduction to psychology course at one university.

Unfortunately, research on current STAI norms for undergraduates students is lacking. However, current studies have focused on comparing the STAI with other measures (Field, Diego, Pelaez, Deeds, & Delgado, 2012; Gnilka, Ashby, & Noble, 2012; Lindsey, 2014). One study (Lindsey, 2014) observed potential predicting factors that related to elevated levels of anxiety in undergraduate students. Lindsey (2014) reported the means and standard deviations of the STAI –Trait scores for Caucasian undergraduate students ($M =$

40.02; $SD = 10.11$) and African American undergraduate students ($M = 37.70$; $SD = 8.73$).

Another study (Field et al., 2012) observed potential factors that related to elevated levels of anxiety and depression in undergraduate students. Based on their level of depression, undergraduate students who exceeded the cutoff score for depression had higher self-reported STAI –Trait scores ($M = 51.06$; $SD = 9.39$) than undergraduate students who did not endorse symptoms of depression ($M = 34.50$; $SD = 9.70$). Finally, Gnilka, Ashby, and Noble (2012) examined levels of anxiety and coping strategies of undergraduate students with different levels of perfectionism (i.e., maladaptive perfectionism, adaptive perfectionism, and nonperfectionism). Based on their level of perfectionism, undergraduate students with maladaptive perfectionism had higher self-reported STAI –Trait scores ($M = 50.77$; $SD = 7.07$) than undergraduate students with adaptive perfectionism ($M = 46.22$; $SD = 4.42$). Undergraduate students with maladaptive perfectionism had slightly higher STAI –Trait scores than undergraduate students identified as nonperfectionist ($M = 48.22$; $SD = 5.67$). Because this study did not screen nor exclude participants with pre-existing mental health issues, this sample may reflect undergraduate students both with and without mental health issues.

Table 6

Baseline Characteristics: Global Severity Index (GSI), the State-Trait Anxiety Inventory (STAI) –Trait and State, and Pulse Rate among Drawing Groups (Mandala, Human Figure, and Free Drawing)

Measures	Mandala		Human Figure		Free Drawing		P-Value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
GSI	55.40	10.25	52.20	13.33	54.50	12.95	.697
STAI –Trait	55.85	9.50	49.60	10.04	52.45	10.95	.160
STAI –State	50.60	7.91	46.85	6.86	47.05	9.90	.284
Pulse Rate	69.85	8.67	78.05	14.91	77.45	13.49	.082

Note. Each drawing group had a sample size of 20 participants.

Hypothesis Testing

Hypothesis I: It is hypothesized that general mental distress, as per ratings of a measure of psychological dysfunction, will positively and significantly correlate with higher levels of self-reported trait and state anxiety on the State-Trait Anxiety Inventory (STAI). The relationship between general mental distress and self-reported anxiety was evaluated using product-moment correlations.

Overall, the Global Severity Index (GSI) had the strongest relationships with the STAI –Trait and STAI –State for baseline and pre-drawing time points (Table 7). The GSI had a moderate, but weaker relationship with the STAI –State at the post-drawing time point. The weaker relationship may relate to participants experiencing a reduction in self-reported state anxiety after the drawing task. The STAI –Trait had strong relationships with the STAI

–State at all time points (baseline, pre-drawing, and post-drawing). This suggested that an individual’s trait anxiety generally related with their self-reported state anxiety at various time points. For instance, if an individual had high scores on the STAI –Trait at baseline, they generally had high scores on the STAI –State across the various time points. The STAI –State at baseline had strong relationships with the STAI –State at both the pre-drawing and post-drawing time points. Finally, the STAI –State at the pre-drawing time point had a moderate, but weak relationship with the STAI –State at the post-drawing time point. This weaker relationship may have related to participants experiencing a reduction in self-reported state anxiety after the drawing task.

Table 7

Intercorrelations for Global Severity Index (GSI) and the State-Trait Anxiety Inventory (STAI) at Baseline, Pre-Drawing, and Post-Drawing

Measures	1	2	3	4	5
1. GSI	_____				
2. STAI –Trait	.60***	_____			
3. STAI -State (Baseline)	.50***	.75***	_____		
4. STAI -State (Pre-Drawing)	.42***	.70***	.74***	_____	
5. STAI -State (Post-Drawing)	.31*	.71***	.73***	.56***	_____

*** $p < .001$

** $p < .01$

* $p < .05$

Hypothesis 2: It is hypothesized that general mental distress will positively and significantly correlate with physiological arousal (pulse rate). The overall relationship between general mental distress and physiological arousal was evaluated using product-moment correlations. Pulse rate recordings from pre and post drawing tasks were included.

Overall, the Global Severity Index (GSI) was not correlated with pulse rate at any time point (baseline, pre-drawing, and post-drawing), as shown in Table 8. Pulse rate at baseline was highly correlated with pulse rate at pre-drawing and post-drawing time points. Additionally, pulse rate at the pre-drawing time point was highly correlated with pulse rate at the post-drawing time point. This suggested that pulse rate was relatively consistent among time points. For instance, if an individual had a high pulse rate at baseline, they generally had high pulse rate recordings across the various time points.

Table 8

Intercorrelations for Global Severity Index (GSI) and Pulse Rate (PR) at Baseline, Pre-Drawing, and Post-Drawing

Measures	1	2	3	4
1. GSI	_____			
2. PR (Baseline)	.16	_____		
3. PR (Pre-Drawing)	.14	.93***	_____	
4. PR (Post-Drawing)	.15	.93***	.91***	_____

*** $p < .001$

** $p < .01$

* $p < .05$

Hypothesis 3: It is hypothesized that self-reported trait and state anxiety will positively and significantly correlate with physiological arousal (pulse rate) on all drawing groups.

Product-moment correlations were calculated between the two measures of anxiety (trait and state) and the physiological arousal variable at the start of the study and after the completion of each drawing condition.

Overall, the trait and state measures on the State-Trait Anxiety Inventory (STAI) were highly correlated with each other (Table 9). Specifically, the STAI –Trait was highly correlated with the STAI –State across all time points (baseline, pre-drawing, and post-drawing). Across all time points, pulse rate was also overall highly correlated with each other.

The State-Trait Anxiety Inventory (STAI) was generally not highly correlated with pulse rate. The STAI –Trait had a significant, but weak correlation with pulse rate at the post-drawing time point. The STAI –State at baseline had a significant, but weak correlation with pulse rate at the pre-drawing (after the writing task) time point and at the post-drawing time point.

Table 9

Intercorrelations for the State-Trait Anxiety Inventory (STAI) –Trait and State (S) and Pulse Rate (PR) at Baseline (Base), Pre-Drawing (Pre), and Post-Drawing (Post)

Measures	1	2	3	4	5	6	7
1. STAI –Trait	_____						
2. STAI -S (Base)	.75***	_____					
3. STAI -S (Pre)	.69***	.74***	_____				
4. STAI -S (Post)	.71***	.73***	.56***	_____			
5. PR (Base)	.21	.23	.20	.11	_____		
6. PR (Pre)	.23	.28*	.20	.19	.93***	_____	
7. PR (Post)	.26*	.29*	.22	.19	.93***	.91***	_____

*** $p < .001$

** $p < .01$

* $p < .05$

Hypothesis 4: It is hypothesized that there will be an effect of mood induction on self-reported state anxiety and physiological arousal (pulse rate). The overall effect of mood induction on state anxiety and the physiological arousal variable was measured using two 3 X 3 mixed model ANOVAs (also called “between-within”).

Hypothesis 5: It is hypothesized that self-reported state anxiety and physiological arousal (pulse rate) will decrease after the drawing period in the mandala and the human figure drawing groups, but not in the free drawing (control) group. Furthermore, it is predicted that the amount of change will be the highest in the mandala group, the next highest in the human

figure drawing group, and the least in the free-drawing group. The relationship among drawing groups and level of anxiety was measured using a 3 X 3 mixed model ANOVA.

Two ANOVAs were conducted, one for the State-Trait Anxiety Inventory (STAI) – State and the other for pulse rate. The results will be presented for both hypotheses together, first for the STAI –State, then pulse rate.

Recall that mood induction involved writing about a time when each participant felt most fearful for four minutes. Two independent raters rated the writing responses twice: once before reading the drawing descriptions and a second time after reading the drawing descriptions. The ratings were based on a Likert scale with 1 representing “not at all anxiety-provoking” and 10 representing “severely anxiety-provoking.” The two raters considered the mood induction as effective. They gave the writing samples an average rating of 5 for the first rating ($SD = 2.13$, minimum rating = 2, maximum rating = 9), and an average rating of 5 for the second rating ($SD = 2.13$, minimum rating = 2, maximum rating = 9). Participants wrote about various events, such as experiencing or witnessing car accidents, actual or near death experiences of a parent or family member, medical issues, and house fires.

The statistical assumption of equality of variance across all drawing groups was met (Levene’s Test p -values were all $> .05$). The assumption of sphericity was tested, and the assumption was not met (*Mauchly’s $W = .775$, $p = .001$*), thus the Greenhouse-Geisser correction was used for the tests of within-subjects effects (repeated measures).

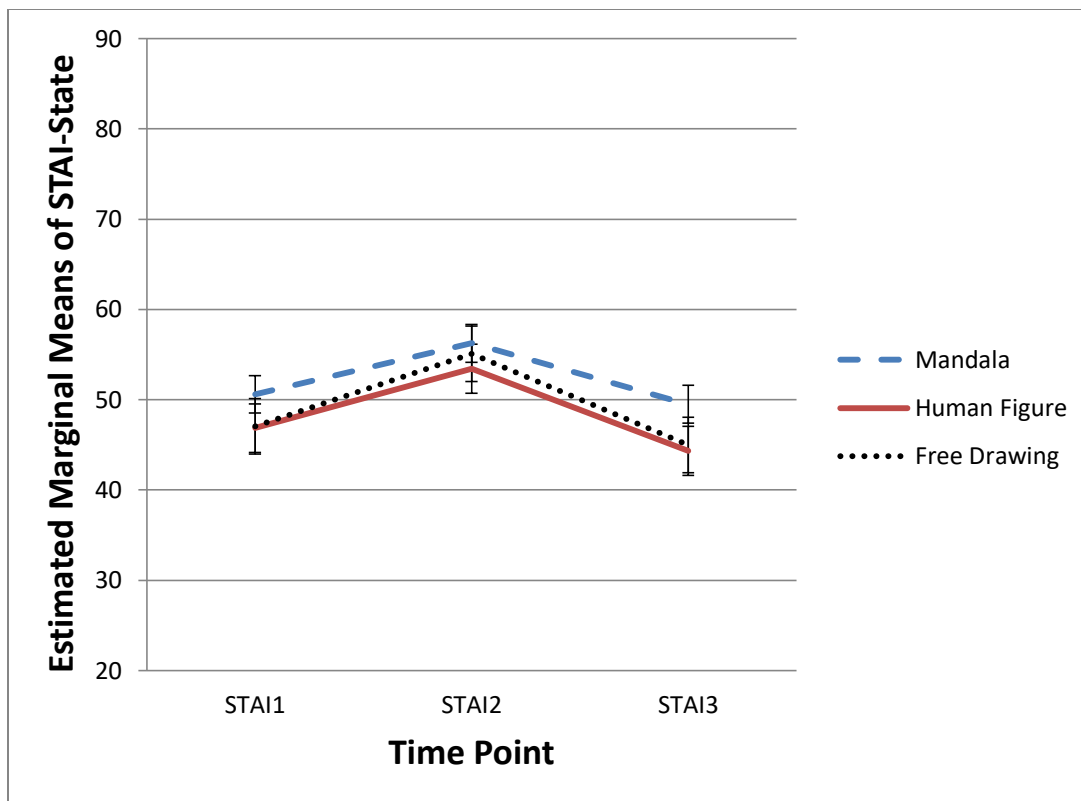


Figure 2. Means of State-Trait Anxiety (STAI) –State scores for three drawing groups at baseline (1), pre-drawing (2), and post-drawing (3) time points.

Figure 2 illustrates that the mandala group generally appeared to have higher self-report ratings of state anxiety than the human figure drawing and free drawing groups. Even so, all drawing groups had elevated self-report state anxiety ratings after the mood induction task or pre-drawing time point. Regardless of drawing condition, all groups had reduced their self-reported state anxiety ratings after the drawing task. Interestingly, the self-reported state anxiety ratings after the drawing task appeared to either be lower than or returned to the baseline ratings.

A 3 X 3 mixed model ANOVA on state anxiety was conducted with drawing group (mandala, human figure drawing, and free drawing) as the between-subjects factor and time point (baseline, pre-drawing, post-drawing) as the within-subjects factor, which tested the

overall effect of the mood induction task. The results indicated that there was no significant main effect for drawing group on self-reported state anxiety (Table 10). For time point, there was a significant main effect on self-reported state anxiety. However, there was not a significant drawing group X self-reported state anxiety interaction. Post-hoc tests using repeated contrasts were conducted for time point. The results of the repeated contrasts tests indicated that the change in self-reported state anxiety ratings from baseline ($M = 48.17$, $SD = 8.36$) to post-mood induction task ($M = 54.93$, $SD = 11.17$) were statistically significant, $F(1, 57) = 47.05$, $p < .001$. Additionally, the change in self-reported state anxiety ratings from post-mood induction task to post-drawing task ($M = 46.28$, $SD = 8.73$) were also statistically significant, $F(1, 57) = 48.66$, $p < .001$.

In other words, the drawing groups did not differ significantly on their self-reported state anxiety ratings. However, the self-reported state anxiety ratings were significantly different over time, averaged over drawing groups. Specifically, the changes in self-reported state anxiety ratings after the mood induction task and after the drawing task were significant, which supported the hypothesis.

Table 10

Analysis of Variance Results for Drawing Group and the State-Trait Anxiety Inventory (STAI) at Baseline, Pre-Drawing, and Post-Drawing (Time Point)

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	η^2
Between-Subjects					
Drawing Group	2	168.73	84.36	1.23	.04
Error 1	57	3922.41	68.81		
Within-Subjects					
Time Point	1.63	2483.14	1521.42	38.94***	.41
Drawing Group X STAI	3.26	65.72	20.13	0.52	.02
Error 2	93.03	3635.13	39.08		

*** $p < .001$

** $p < .01$

* $p < .05$

The pattern of results for pulse rate was similar to the analysis of the State-Trait Anxiety Inventory (STAI) –State. The statistical assumption of equality of variance across all drawing groups was met (Levene’s Test p -values were all $> .05$). The assumption of sphericity was also met (*Mauchly’s W* = .972, $p = .45$).

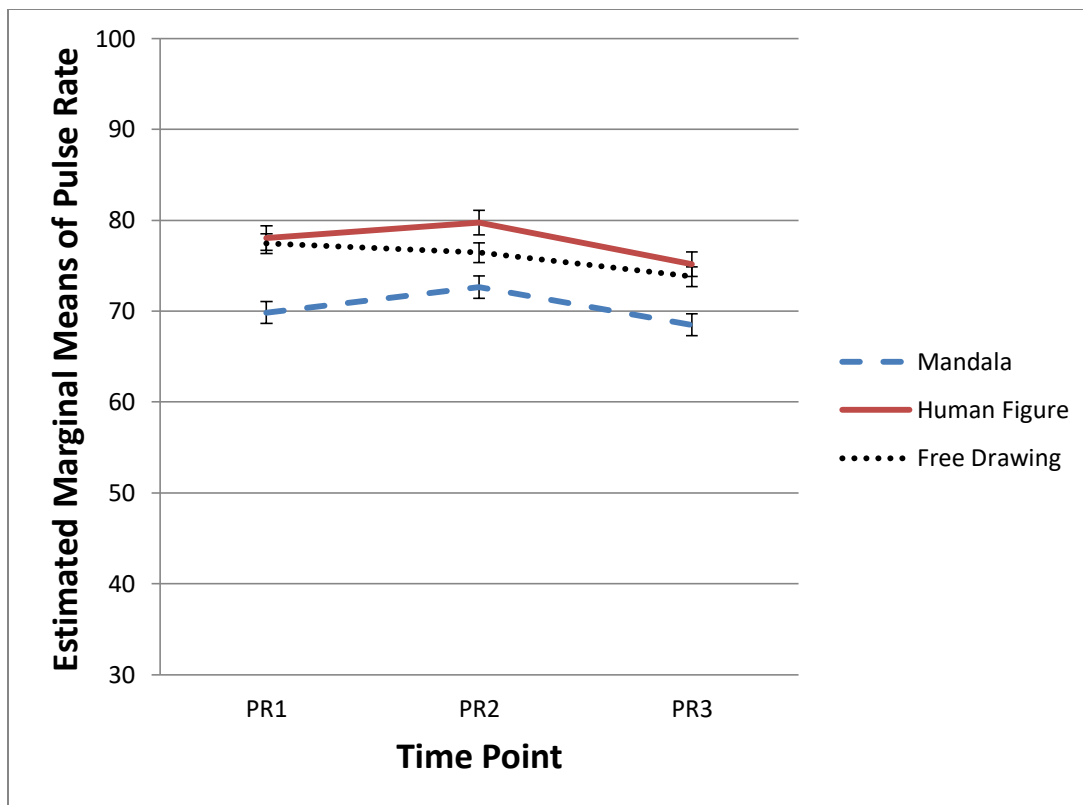


Figure 3. Means of pulse rate for three drawing groups at baseline (1), pre-drawing (2), and post-drawing (3) time points.

Figure 3 illustrates that the mandala group apparently appeared to have lower pulse rate recordings than the human figure drawing and free drawing groups. Unlike the mandala and human figure drawing groups, the free drawing group did not display an increase in pulse rate after the mood induction task or pre-drawing time point. Overall, the pulse rate recordings appeared to either be lower than or returned to the baseline pulse rate recordings.

A 3 X 3 mixed model ANOVA on pulse rate was conducted with drawing group (mandala, human figure drawing, and free drawing) as the between-subjects factor and time point (baseline, pre-drawing, post-drawing) as the within-subjects factor. The results indicated that there was no significant main effect for drawing group on pulse rate (Table 11). For time point, there was a significant main effect on pulse rate. However, there was

not a significant drawing group X pulse rate interaction. Post-hoc tests using repeated contrasts were conducted for time point. Although the results of the repeated contrasts tests indicated that the change in pulse rate recordings from baseline ($M = 75.12$, $SD = 12.98$) to post-mood induction task ($M = 76.28$, $SD = 13.71$) were not statistically significant, $F(1, 57) = 3.20$, $p = .08$, there was a statistical trend. This appeared to relate to the pulse rate recordings in the free drawing group not being elevated after the mood induction task. Additionally, the change in pulse rate recordings from post-mood induction task to post-drawing task ($M = 72.48$, $SD = 13.20$) were statistically significant, $F(1, 57) = 26.73$, $p < .001$.

In other words, the drawing groups did not differ significantly on their pulse rate recordings, which did not support the hypothesis. However, the pulse rate recordings averaged over the drawing groups were significantly different over time points, specifically comparing post mood induction to after completion of the drawing task.

Table 11

Analysis of Variance Results for Drawing Group and Pulse Rate (PR) at Baseline, Pre-Drawing, and Post-Drawing (Time Point)

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	η^2
Between-Subjects					
Drawing Group	2	583.89	291.95	1.79	.06
Error 1	57	9300.79	163.17		
Within-Subjects					
Time Point	2	454.71	227.36	16.36***	.22
Drawing Group X PR	4	83.22	20.81	1.50	.05
Error 2	114	1584.07	13.90		

*** $p < .001$

** $p < .01$

* $p < .05$

Qualitative Themes

The qualitative analysis consisted of both deductive and inductive coding strategies. The examiner randomly selected 12 drawings (4 per group) to code. Prior to starting the study, descriptions of the drawings were coded using pre-determined themes, which reflected deductive coding (Creswell & Clark, 2011). During the coding process, the examiner deliberately sought to identify emerging themes that served as additional categories, which reflected inductive coding (Creswell & Clark, 2011). Any themes that were not coded were discarded. After adding new categories, the examiner reviewed the responses to ensure that the new categories were applicable for 12 drawings in order to enhance interrater reliability. The examiner trained two independent raters before having them code the 12 drawings. After the 12 drawing were coded, the examiner tested the interrater reliability between the two raters. Nevertheless, there were a couple of proposed themes that were not as reliable (i.e., the concordance rate was low) and two themes were collapsed for the final analysis. Additionally, any themes that were not coded were not included in the final analysis.

When observing the total frequency of each theme and frequency within each drawing group, some themes were shared among all drawing groups while some were more common in specific drawing groups (see Table 12). When ranking the themes that appeared to be equally shared across all drawing groups, the most common theme involved nature, the second most common themes involved personal interests and happiness, and the third most common theme involved social relationships.

With regard to each specific drawing group, a total of 19 themes were coded for the mandala group which consisted of the self, personal interests, physical characteristics, employment/school, social relationships, animals/insects, nature, outer space,

spirituality/religion, obstacles, peacefulness, love, compassion/caring, lonely, manic, confident, happiness, sadness, and anger. Of those themes, the most commonly used themes for the mandala group involved spirituality/religion, personal interests, nature, and peacefulness; and the second most common themes involved love, the self, physical characteristics, social relationships, animals/insects, and sadness. The mandala group also generated themes that were not present in the other drawing groups, which included spirituality/religion, sadness, outer space, lonely, manic, confident, and anger.

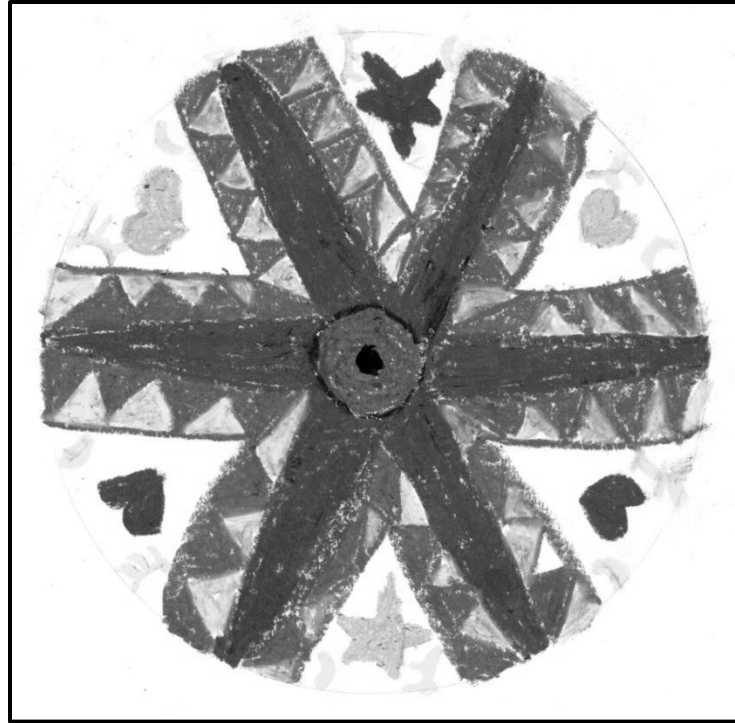


Figure 4. An illustration of a mandala drawing that was re-drawn by the examiner.

The illustration in Figure 4 is an example of a mandala drawing that was titled, *A Wheel of Different Feelings*. The individual described the drawing as an image of herself. She explained, “I have some days... [when I] feel loved and happy... and confident, but some of those days... [I] feel sad or lonely... I have a sun and moon in each triangle, so it’s like a new day, each day... you can’t predict what each day is like, but each day is a new day.” The bright colors reflected “happiness,” “love,” and “confidence,” while the different shades of blue were described as “different degrees of sadness.” The color black also reflected feeling “angry.” She explained, “But it’s small because I’m not usually an angry person.” She explained that the majority of her picture involved using bright colors in order to reflect her general mood, which was positive. Using the emerged themes and descriptions listed in Table 2, the description of the image as a reflection of herself was coded as “self;” feeling happy was coded as “happiness;” feeling loved was coded as “love;” feeling confident was

coded as “confident;” feeling lonely was coded as “lonely;” feeling angry was coded as “anger;” feeling sad was coded as “sadness;” her image of the sun was coded as “nature;” and her depiction of each day reflecting a new day was coded as “spirituality/religion.”

For the human figure drawing group, a total of 15 themes were coded which consisted of the self, personal interests, physical characteristics, future, social relationships, animals/insects, nature, clothing, money, freedom, peacefulness, love, security/comfort, hope, and happiness. Of those themes, the most commonly used themes for the human figure drawing group involved the self, physical characteristics, and clothing; and the second most commonly used themes involved personal interests and happiness. The human figure drawing group also generated themes that were not present in the other drawing groups, which included clothing, money, and security/comfort.

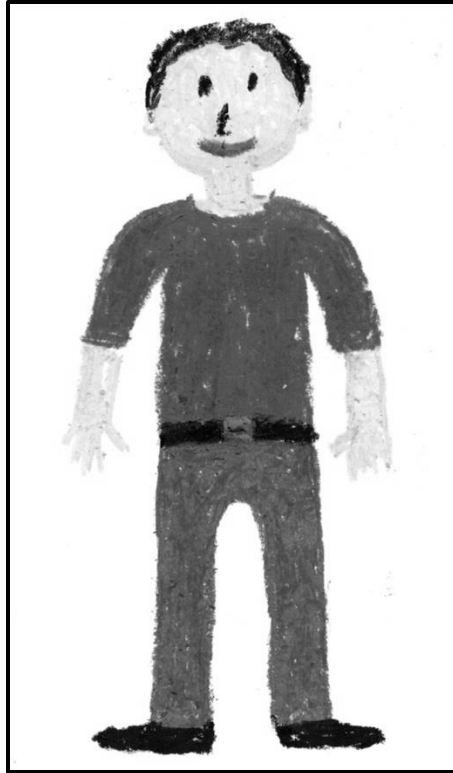


Figure 5. An illustration of a human figure drawing that was re-drawn by the examiner.

The illustration in Figure 5 is an example of a human figure drawing that was titled, *Me*. The individual described his image as a drawing of himself that was based primarily on his physical characteristics, such as his hair color, eye color, and skin tone. He also described his drawing based on the image's clothes, such as wearing a shirt, shoes, and belt. Because he drew himself with a smiling face, he described his image as feeling "happy." Using the emerged themes and description listed in Table 2, the description of the image as a reflection of himself was coded as "self;" the physical features (i.e., hair, eyes, and skin tone) were coded as "physical characteristics;" the clothes (i.e., shirt, shoes, and belt) were coded as "clothing;" and feeling happy was coded as "happiness."

For the free drawing group, a total of 19 themes were coded which consisted of the writing task influence, personal interests, physical characteristics, employment/school, social

relationships, animals/insects, nature, automobiles/boats, architecture, memories, lucky, obstacles, holidays, freedom, love, compassion/caring, energy, hope, and happiness. Of those themes, the most commonly used theme for the free drawing group involved nature; and the second most commonly used themes involved personal interests, social relationships, animals/insects, memories, lucky, and happiness. The free drawing group also generated themes that were not present in the other drawing groups, which included the writing task influence, automobiles/boats, architecture, memories, lucky, holidays, and energy. Refer to Table 12 for the frequencies of the emerged themes and descriptions at the final analysis.

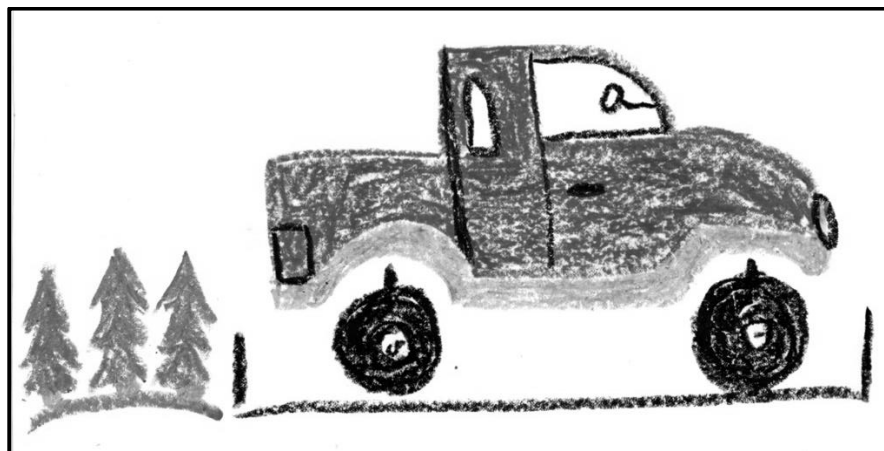


Figure 6. An illustration of a free drawing that was re-drawn by the examiner.

The illustration in Figure 6 is an example of a free drawing that was titled, *Things that are Gone*. The individual stated that this image was “on their mind” since it was inspired by an event that he wrote about during the mood induction task. During the mood induction task, he wrote about hearing about his father’s death. The drawing was described as a memory of his father... “the entire thing. It was the only thing I could think about drawing. It was just drawing that I was back there with him.” The image of the truck was a depiction of his father’s truck, and the trees represented an old house that he used to live in when his father was alive. The individual never described this drawing as a sad memory. It was primarily a memory of his father and it was influenced by what he wrote for the mood induction task. Using the emerged themes and description listed in Table 2, the truck was coded as “automobile/boats;” the trees were coded as “nature;” and “social relationships” was coded because the drawing represented his father. Given the description of the drawing, the “memories” and “writing task influence” themes were also coded.

In summary, the most commonly used themes across all drawing groups involved nature, personal interests, happiness, and social relationships. The mandala group and the free drawing group both had an equal number of themes that were coded, while the human

figure drawing group had the least number of themes. Despite having a similar number of themes, the type of themes coded between the mandala and free drawing groups were different. The free drawing group consisted of various themes that included automobiles/boats, architecture, holidays, and memories. This was expected given that participants had the least directed instructions and were asked to draw whatever came to mind. Surprisingly, the free drawing group had a tendency to create drawings that reflected the writing task. Participants often commented that their drawings reflected the writing task because that was an event that they were currently thinking about and “came to mind.” The mandala group consisted of themes that reflected various emotional experiences. Although the other drawing groups also depicted emotional experiences, the mandala group was the only drawing condition that consisted of both positive and negative emotional experiences, such as love, anger, lonely, sadness, manic, peacefulness, confident, and compassion/caring. In contrast, the human figure drawing and free drawing groups only consisted of positive emotional experiences, such as happiness, hope, and love. The mandala group was also the only drawing condition where spirituality/religion was coded as a theme. It is possible that being instructed to create an image of one’s self using only symbols, images, and colors may have enabled participants to reflect on their true inner thoughts, feelings, and beliefs without filtering negative aspects of themselves.

Finally, the human figure drawing group generated more themes that revolved around the self, which included physical characteristics, personal interests, and clothing. This was expected given that participants were instructed to draw an image of their whole self. Interestingly, one participant also included themes that involved money and achieving financial security/comfort, which was how she portrayed herself in the future. Unlike the

mandala and free drawing groups, the human figure drawing group often consisted of literal descriptions of the image's physical appearance and positive facial expressions. In other words, those in the human figure drawing group were generally less likely to share deep inner thoughts, feelings, beliefs, and memories than the other drawing groups.

While asking follow-up questions about the 12 drawings, four participants commented that they were not aware of the meaning of their images or use of colors until they were asked to reflect on their drawings by answering questions. Of the four, three were in the mandala condition while one was in the free drawing condition.

Table 12

Qualitative Themes: Total Frequency of Each Theme and Frequency within Each Drawing Group

Themes	Overall <i>f</i> (<i>n</i> = 12)	Mandala (<i>n</i> = 4)	Human Figure (<i>n</i> = 4)	Free Drawing (<i>n</i> = 4)
Self	6	2	4	0
Writing Task Influence	1	0	0	1
Personal Interests	8	3	3	2
Physical Characteristics	7	2	4	1
Employment/School	2	1	0	1
Future	1	0	1	0
Social Relationships	5	2	1	2
Animals/Insects	5	2	1	2
Nature	9	3	2	4
Automobiles/Boats	1	0	0	1
Architecture	1	0	0	1
Outer Space	1	1	0	0
Memories	2	0	0	2
Lucky	2	0	0	2
Spirituality/Religion	3	3	0	0

Clothing	4	0	4	0
Obstacles	2	1	0	1
Holidays	1	0	0	1
Money	1	0	1	0
Freedom	2	0	1	1
Peacefulness	4	3	1	0
Love	4	2	1	1
Compassion/Caring	2	1	0	1
Lonely	1	1	0	0
Manic	1	1	0	0
Energy	1	0	0	1
Confident	1	1	0	0
Security/Comfort	1	0	1	0
Hope	2	0	1	1
Happiness	8	3	3	2
Sadness	2	2	0	0
Anger	1	1	0	0

Drawing Task Rating Questionnaire

Participants completed the Drawing Task Rating Questionnaire as a means of providing feedback about their experience, and to see if they noticed any shifts in their affective states while engaged in the assigned drawing task. Responses about noticing changes in their affective states were compared with their objective pulse rate recordings and subjective self-reports of state anxiety. Responses for the 4-item questionnaire used Likert scales with 1 representing “I did not enjoy it at all” or “not at all,” and 4 representing “I enjoyed it a lot” or “a lot.”

An analysis of variance compared the responses for all of the drawing conditions and there were no significant differences among the drawing groups. All drawing groups on average reported that being asked to draw made them feel a little anxious ($M = 1.52$, $SD = .73$). Despite feeling a little anxious, all drawing groups on average reported that they found the assigned drawing task enjoyable ($M = 3.32$, $SD = .73$), perceived the drawing task as making them feel relaxed ($M = 3.18$, $SD = .85$), and believed that the drawing task helped them to feel relaxed after the mood induction task ($M = 3.05$, $SD = .96$). Correlations were conducted to compare the feedback questionnaire responses with the pulse rate recordings and the State-Trait Anxiety Inventory (STAI) –State ratings that were obtained at the post-drawing time point for all drawing groups. Overall, the feedback questionnaire responses were not correlated with pulse rate recordings for all drawing groups. The feedback questionnaire responses were highly correlated with the STAI –State for all drawing groups. For example, respondents’ ratings of how much the assigned drawing task made them feel anxious was a high correlation with their STAI –State rating for the time point after completing the drawing task ($r = .671$), but there was no correlation with pulse rate ($r =$

.053). This suggested that participants provided consistent self-reporting on the STAI –State and the Drawing Task Rating Questionnaire.

CHAPTER VI

Discussion

Overview

The purpose of this study was to assess the impact on anxiety of two art therapeutic techniques that focused on the same subject matter, creating an image of the self.

Participants were randomly assigned to one of three drawing conditions (the mandala group, the human figure drawing group, and the free drawing group which served as the control).

Shifts in state anxiety were assessed both subjectively through self-report measures and objectively through pulse rate recordings at various time points (i.e., at baseline, after the mood induction task, and after the drawing task). Because shifts in state anxiety may have been influenced by other factors, participants also completed surveys at baseline that measured their trait anxiety and their general mental distress. To mimic the art therapeutic process, instructions were provided for each drawing task, and participants were followed-up with qualitative questions about the meaning of their drawings.

In order to investigate the potential relationships pertaining to this study, the first hypothesis was designed to assess a potential relationship among general mental distress and self-reported state and trait anxiety. The second hypothesis was designed to assess the relationship between general mental distress and pulse rate recordings. The third hypothesis was designed to assess the relationship among self-reported trait and state anxiety and pulse rate. The fourth hypothesis was designed to assess the effect of the mood induction task on self-reported state anxiety and pulse rate. Finally, the fifth hypothesis was designed to assess any differences among the three drawing groups based on self-reported state anxiety and pulse rate after completing the drawing task.

The results of this study supported a relationship among general mental distress and self-reported state and trait anxiety. When observing potential relationships among subjective measurements with objective measurements (pulse rate), neither general mental distress nor self-reported state and trait anxiety had strong relationships with pulse rate recordings. Although there were significant shifts in self-reported state anxiety after the mood induction task and after the drawing task for all drawing groups, there were no significant differences among the drawings conditions. In other words, all three drawing groups generally had elevated shifts in state anxiety after the mood induction task, and decreased shifts in state anxiety after the drawing task. Finally, although all drawing groups generally had reduced pulse rate recordings after completing the assigned drawing task, there were no significant differences among the drawing conditions at any time point when observing pulse rate recordings alone.

Discussion of Participants

The current study recruited undergraduate students taking psychology courses who volunteered to participate. Given the age of the participants, undergraduate norms were used to measure levels of trait and state anxiety, and both adolescent and adult norms were used to measure psychological distress. Additionally, because participants were not screened or excluded for pre-existing mental health issues, the nonpatient norms were also used when measuring psychological distress. Although the participants reflected a sample that experienced general psychological distress within the average or normal range, the sample generated elevated scores on most of the symptom dimensions, specifically: somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, and psychoticism. With regard to anxiety, the current sample's baseline levels of trait and state

anxiety generated scores that were higher than Spielberger et al.'s (1983) average trait and state anxiety scores for undergraduate students.

A variety of factors may potentially explain the elevated levels of psychological symptoms and elevated levels of trait and state anxiety such as: generational changes in the sociocultural environment, developmental issues, gender differences, and academic stressors. Researchers have explored how changes within the larger sociocultural environment could potentially impact various generations, specifically birth cohorts (Twenge, 2000). Birth cohorts consist of groups of people born within the same time period who share similar experiences based on historical, social, and cultural life events (Twenge, 2000). Twenge (2000) conducted two meta-analyses by gathering and analyzing data from two samples: one sample consisted of American college students from 1952 to 1993 (p. 1010), and the second sample consisted of American children from 1942 to 1983 (p. 1014) to represent the college students when they may have been about 10 years younger (i.e., between 9 to 17 years of age). The results from the meta-analysis of college students concluded that self-reported levels of anxiety and neuroticism increased considerably from 1952 to 1993 (Twenge, 2000, p. 1017). When observing potential explanations for the rise in anxiety, there was an increase in college students experiencing more crime, specifically being victims of crime. Such findings were consistent with Vrana and Lauterbach's (1994) study that discovered that 84% of a nonclinical sample of undergraduate students had experienced at least one traumatic event in their lifetime, and one-third had reported experiencing multiple traumatic events in their lifetime (p. 293). Twenge (2000) also concluded that college students were displaying a decline in social connectedness with others over the decades. With divorce rates being higher, more college students appeared to have grown up with divorced parents and

more people were reportedly single while in college, which related to a decline in social connectedness (Twenge, 2000). For the second meta-analysis on children, although the sample did not reflect the same participants in the college student sample, findings interestingly paralleled the college students in terms of reflecting an increase in self-reported anxiety from 1942 to 1983 (Twenge, 2000). Similar to the college students, the sample of children also displayed an increase in experiencing crime and a decrease in social connectedness. When comparing the mean score differences across the decades, self-reported anxiety that was once considered within the normal range for children in the 1980s, was significantly higher than self-reported anxiety for children with psychiatric problems in the 1950s (Twenge, 2000, p. 1017). The current study's higher symptoms of general psychological distress and self-reported trait and state anxiety may reflect gradual changes over time within the American sociocultural environment.

Another potential factor that may have contributed to elevated scores of psychological symptoms and anxiety reflects the developmental issues that undergraduate students typically encounter. The average age of this study's sample was about 19 years of age. Between late adolescence and early adulthood, individuals typically become more autonomous, gradually separate and individuate from their parents, adopt and adjust to new social roles, develop new relationships, and think more about their futures (Johnson et al., 1989; Kreig, 2013). For some individuals, the pressure to overcome such developmental issues could potentially relate to increased stress, anxiety, depression, and physical illness (Johnson et al., 1989; Kreig, 2013; Rawson, Bloomer, & Kendall, 1994), especially if they lack appropriate coping skills and positive social support systems (Rawson et al., 1994).

Such external and internal pressures may have related to elevated levels in psychological symptoms and levels of anxiety in this study.

With regard to gender, females generally report more frequent and more severe symptoms of psychological distress (Derogatis, 1994; Johnson et al, 1989; Porter et al., 1994, Todd et al., 1997) and anxiety (Misra & McKean, 2000; Spielberger et al., 1983; Vrana & Lauterbach, 1994) than males, which have been consistent patterns throughout the decades (Twenge, 2000). This study's sample was predominantly female, which may have related to elevations in psychological symptoms and anxiety.

Finally, academic stressors may have related to elevated scores in this study. Academic stressors include studying, taking exams, feeling competitive about grades, and time management skills (Misra & McKean, 2000). This study recruited participants between the second month of the Winter Term and the last week of classes, which was one week before Final exams. Participants also had Midterm exams throughout the study. Some participants informed the examiner that they were experiencing distress because they had an exam following their participation in the experiment. Additionally, the building where testing took place was undergoing construction which involved loud drilling. It is possible that the time of testing may have generally occurred around typically stressful moments during the semester, which could have consequently influenced the self-report measures of psychological symptoms and anxiety.

Discussion of Hypotheses

Hypothesis I: It was hypothesized that general mental distress, as per ratings of a measure of psychological dysfunction, would positively and significantly correlate with higher levels of self-reported trait and state anxiety on the State-Trait Anxiety Inventory (STAI). The

relationship between general mental distress and self-reported anxiety was evaluated using product-moment correlations.

Overall, general mental distress had the strongest relationships with self-reported trait anxiety and state anxiety at baseline and after the mood induction task. Consistent with previous research and literature, it was inferred that individuals experiencing general mental distress or pre-existing mental health issues were not only more likely to experience symptoms of worry and anxiety in various situations (APA, 2013; Spielberger, 1996), but they were also more likely to report higher levels of state anxiety in both threatening and nonthreatening situations (Spielberger, 1966). However, general mental distress had a moderate, but weaker relationship with state anxiety after the drawing task. The weaker relationship may have related to participants experiencing a reduction in state anxiety after the drawing task because they were more relaxed. Self-reported trait anxiety had strong relationships with state anxiety at all time points (baseline, post-mood induction, and post-drawing). Consistent with previous research on Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI), this suggested that an individual's trait anxiety generally related with their state anxiety at various time points (Spence & Spence, 1966; Spielberger, 1966). For instance, if an individual had high trait anxiety scores at baseline, they generally had high state anxiety scores across the various time points. Self-reported state anxiety at baseline had strong relationships with state anxiety both after the mood induction task and after the drawing task. Finally, state anxiety after the mood induction task had a moderate, but weak relationship with state anxiety after the drawing task. This weaker relationship may have related to participants experiencing relaxation after the drawing task.

Hypothesis 2: It was hypothesized that general mental distress will positively and significantly correlate with physiological arousal (pulse rate). The overall relationship between general mental distress and physiological arousal was evaluated using product-moment correlations. Pulse rate recordings from pre and post drawing tasks were included.

Overall, general mental distress was not correlated with pulse rate at any time point (baseline, post-mood induction, and post-drawing). Pulse rate recordings alone were relatively consistent among various time points. Pulse rate at baseline was highly correlated with pulse rate post-mood induction and post-drawing time points. Additionally, pulse rate at the post-mood induction time point was highly correlated with pulse rate at the post-drawing time point. In other words, if an individual had a high pulse rate at baseline, they generally had high pulse rate recordings across the various time points.

Hypothesis 3: It was hypothesized that self-reported trait and state anxiety will positively and significantly correlate with physiological arousal (pulse rate) on all drawing groups. Product-moment correlations were calculated between the two measures of anxiety (trait and state) and the physiological arousal variable at the start of the study and after the completion of each drawing condition.

Self-reported trait and state anxiety were highly correlated with each other. Specifically, trait anxiety was highly correlated with state anxiety across all time points (baseline, post-mood induction, and post-drawing). Across all time points, pulse rate was also overall highly correlated with each other.

Self-reported state anxiety was generally not highly correlated with pulse rate. Self-reported trait anxiety had a significant, but weak correlation with pulse rate at the post-drawing time point. State anxiety at baseline had a significant, but weak correlation with

pulse rate after the mood induction task and after the drawing task. Thus, the hypothesis was not supported. It is possible that any elevations or declinations in the physiological recordings may have included or reflected other positive or negative arousal experiences, such as feeling happy, surprised, sad, angry, fearful, or disgusted (Ekman, 1999; Ekman, 1992; Lang et al., 1998; Mikels et al., 2005; Schachter, 1966).

Hypothesis 4: It was hypothesized that there would be an effect of mood induction on self-reported state anxiety and physiological arousal (pulse rate). The overall effect of mood induction on state anxiety and the physiological arousal variable was measured using two 3 X 3 mixed model ANOVAs (also called “between-within”).

Hypothesis 5: It was hypothesized that self-reported state anxiety and physiological arousal (pulse rate) would decrease after the drawing period in the mandala and the human figure drawing groups, but not in the free drawing (control) group. Furthermore, it was predicted that the amount of change would be the highest in the mandala group, the next highest in the human figure drawing group, and the least in the free-drawing group. The overall relationship among drawing groups and level of anxiety was measured using a 3 X 3 mixed model ANOVA.

Two ANOVAs were conducted, one for self-reported state anxiety and another for pulse rate. The results will be presented for both hypotheses together, first for state anxiety, then for pulse rate.

Two independent raters rated the writing responses for the mood induction task and considered the manipulation as effective in altering mood. The mandala group appeared to have higher self-report ratings of state anxiety than the human figure drawing and free drawing groups. Even so, all drawing groups had elevated self-report state anxiety ratings

after the mood induction task. Regardless of drawing condition, all groups had reduced their self-reported state anxiety ratings after the drawing task. Interestingly, the self-reported state anxiety ratings after the drawing task appeared to either be lower than or returned to their baseline ratings.

The results indicated that there was no significant main effect for drawing group on self-reported state anxiety. For time point, there was a significant main effect on self-reported state anxiety. However, there was not a significant drawing group X self-reported state anxiety interaction. When looking specifically at time point, the results of the repeated contrasts tests indicated that the change in self-reported state anxiety ratings from baseline to post-mood induction were statistically significant. Additionally, the change in state anxiety ratings from post-mood induction task to post-drawing task were also statistically significant. In other words, the drawing groups did not differ significantly on their self-reported state anxiety ratings. However, the state anxiety ratings were significantly different over time, averaged over drawing groups. Specifically, the changes in state anxiety ratings after the mood induction task and after the drawing task were significant, which supported the hypothesis.

The pattern of results for pulse rate was similar to the analysis of self-reported state anxiety. The mandala group appeared to have lower pulse rate recordings than the human figure drawing and free drawing groups. Unlike the mandala and human figure drawing groups, the free drawing group did not display an increase in pulse rate after the mood induction task. It is possible that either the baseline pulse rate recordings for the free drawing groups may not have been accurate recordings, or the mood induction task was not

anxiety-provoking for the free drawing group. Overall, the pulse rate recordings appeared to either be lower than or returned to the baseline pulse rate recordings.

The results indicated that there was no significant main effect for drawing group on pulse rate. For time point, there was a significant main effect on pulse rate. However, there was not a significant drawing group X pulse rate interaction. When looking specifically at time point, the results of the repeated contrasts tests indicated that the change in pulse rate recordings from baseline to post-mood induction task were not statistically significant. However, there was a statistical trend. This appeared to relate to the pulse rate recordings in the free drawing group not being elevated after the mood induction task. Additionally, the change in pulse rate recordings from post-mood induction task to post-drawing task were statistically significant.

In other words, the drawing groups did not differ significantly on their pulse rate recordings, which did not support the hypothesis. However, the pulse rate recordings averaged over the groups were significantly different over time points, specifically comparing post mood induction to after completion of the drawing task.

Qualitative Themes

The qualitative analysis consisted of both deductive and inductive coding strategies. The examiner randomly selected 12 drawings (4 per group) to code. Prior to starting the study, descriptions of the drawings were coded using pre-determined themes, which reflected deductive coding (Creswell & Clark, 2011). During the coding process, the examiner deliberately sought to identify emerging themes that served as additional categories, which reflected inductive coding (Creswell & Clark, 2011). Any themes that were not coded were discarded. After adding new categories, the examiner reviewed the responses to ensure that

the new categories were applicable for 12 drawings in order to enhance interrater reliability. The examiner trained two independent raters before having them code the 12 drawings. After the 12 drawing were coded, the examiner tested the interrater reliability between the two raters. There were a couple of proposed themes that were not as reliable and some of those were collapsed for the final analysis. Additionally, any themes that were not coded were not included in the final analysis.

When observing the total frequency of each theme and frequency within each drawing group, some themes were shared among all drawing groups while some were more common in specific drawing groups. When ranking the themes that appeared to be equally shared across all drawing groups, the most common theme involved nature, the second most common themes involved personal interests and happiness, and the third most common theme involved social relationships.

With regard to each specific drawing group, a total of 19 themes were coded for the mandala group. Of those themes, the most commonly used themes for the mandala group involved spirituality/religion, personal interests, nature, and peacefulness; and the second most common themes involved love, the self, physical characteristics, social relationships, animals/insects, and sadness. The mandala group also generated themes that were not present in the other drawing groups, which included spirituality/religion, sadness, outer space, lonely, manic, confident, and anger.

For the human figure drawing group, a total of 15 themes were coded. Of those themes, the most commonly used themes for the human figure drawing group involved the self, physical characteristics, and clothing; and the second most commonly used themes involved personal interests and happiness. The human figure drawing group also generated

themes that were not present in the other drawing groups, which included clothing, money, and security/comfort.

For the free drawing group, a total of 19 themes were coded. Of those themes, the most commonly used theme for the free drawing group involved nature; and the second most commonly used themes involved personal interests, social relationships, animals/insects, memories, lucky, and happiness. The free drawing group also generated themes that were not present in the other drawing groups, which included the writing task influence, automobiles/boats, architecture, memories, lucky, holidays, and energy.

In summary, the mandala group and the free drawing group both had an equal number of themes that were coded, while the human figure drawing group had the least number of themes. Despite having a similar number of themes, the type of themes coded between the mandala and free drawing groups were different. The free drawing group consisted of various themes that included automobiles/boats, architecture, holidays, and memories. This was expected given that participants had the least directed instructions and were asked to draw whatever came to mind. Surprisingly, the free drawing group had a tendency to create drawings that reflected the writing task. Participants often commented that their drawings reflected the writing task because that was an event that they were currently thinking about and “came to mind.” The mandala group consisted of themes that reflected various emotional experiences. Although the other drawing groups also depicted emotional experiences, the mandala group was the only drawing condition that consisted of both positive and negative emotional experiences, such as love, anger, lonely, sadness, manic, peacefulness, confident, and compassion/caring. Given the various emotional experiences in the mandala group, it is possible that their pulse rate may have reflected other positive or

negative arousal experiences (Ekman, 1999; Ekman, 1992; Lang et al., 1998; Mikels et al., 2005; Schachter, 1996). In contrast, the human figure drawing and free drawing groups only consisted of positive emotional experiences, such as happiness, hope, and love. The mandala group was also the only drawing condition where spirituality/religion was coded as a theme. It is possible that the art making process and being instructed to create an image of one's self using only symbols, images, and colors may have enabled participants to reflect on their true inner or unconscious thoughts, feelings, and beliefs without filtering negative aspects of themselves (Jung, 1953; Kellogg, 1984; Kramer, 1971; Fincher, 2010; Naumburg, 1987; Rubin, 2016). While asking follow-up questions about the drawings, three participants in the mandala group and one participant in the free drawing group commented that they were not aware of the meaning of their images or use of colors until they were asked to reflect on their drawings by answering questions.

Finally, the human figure drawing group generated more themes that revolved around the self, which included physical characteristics, personal interests, and clothing. This was expected given that participants were instructed to draw an image of their whole self. Interestingly, one participant also included themes that involved money and achieving financial security/comfort, which was how she portrayed herself in the future. Unlike the mandala and free drawing groups, the human figure drawing group often consisted of literal descriptions of the image's physical appearance and positive facial expressions. In other words, those in the human figure drawing group were generally less likely to share deep inner thoughts, feelings, beliefs, and memories than the other drawing groups.

It is important to note that the summary of themes among drawing conditions was based on 12 drawings. It is possible that such findings about the themes could change after

observing more drawings. However, the reported themes reflected general patterns in this sample.

Drawing Task Rating Questionnaire

Participants completed the Drawing Task Rating Questionnaire as a means of providing feedback about their experience, and to see if they noticed any shifts in their affective states while engaged in the assigned drawing task. Responses about noticing changes in their affective states were compared with their objective pulse rate recordings and subjective self-reports of state anxiety.

An analysis of variance compared the responses for all of the drawing conditions, and there were no significant differences among the drawing groups. All drawing groups on average reported that being asked to draw made them feel a little anxious, which was expected. Previous literature on art therapy has indicated that regardless of an individual's artistic abilities, people may initially feel uncomfortable drawing in front of someone because they rarely draw what they are thinking or feeling, and/or they fear that their artwork might be judged or evaluated (Malchiodi, 2007). Despite feeling a little anxious, all drawing groups on average reported that they found the assigned drawing task enjoyable, perceived the drawing task as making them feel relaxed, and believed that the drawing task helped them to feel relaxed after the mood induction task. Correlations were conducted to compare the feedback responses with their pulse rate recordings and their self-reported state anxiety ratings that were obtained at the post-drawing time point for all drawing groups. Overall, the feedback responses were not correlated with pulse rate recordings for all drawing groups. The feedback responses were highly correlated with self-reported state anxiety for all drawing groups. This suggested that participants provided consistent self-reporting on the

self-reported state anxiety and feedback questionnaires. This also supported the need to use both subjective and objective measures to help enhance interpretations and findings about what an individual may actually be experiencing (Schachter, 1996).

Discussion of Previous Research

The findings from this study both supported and contradicted previous research. One study observed children and measured their peripheral skin temperature and pulse rate before, during, and after drawing a mandala or completing problem-solving puzzles (DeLue, 1999). Although changes in skin temperature were not significant, there was a significant reduction in pulse rate for children who drew mandalas than for children who completed problem-solving puzzles. The current study not only focused on adults, but also exposed all participants to different drawing conditions instead of a puzzle condition. Unlike the previous study, the current study did not find a significant reduction in pulse rate for the mandala condition when compared with the other drawing conditions. Rather, the current study's findings did support a significant reduction in pulse rate across all drawing conditions. Because the conditions being observed in the current study all involved drawing, it is possible that the conditions were too similar unlike the conditions in the previous study. Additionally, it is possible that completing problem-solving problems may be challenging for some individuals, which could elevate their pulse rates.

Another study that focused on measuring physiological changes in stress levels, specifically pulse rate, systolic blood pressure, and diastolic blood pressure, observed adults diagnosed with an intellectual disability (Schrade et al, 2011). In a span of three days, participants were randomly assigned an order that required drawing a mandala, free drawing, or engaging in a table activity (i.e., puzzles and games) for 15 minutes on each day. Mood

was not induced in the study. Results indicated that drawing a mandala reduced both diastolic and systolic blood pressure slightly more than engaging in the free drawing or table activity (Schrade et al, 2011). Although the current study had slightly different experimental conditions, the mandala and free drawing conditions were similar. In the previous study, there were no significant reductions in pulse rate across the conditions. Such findings were consistent with the current study. However, the current study also found a significant reduction in pulse rate for all drawing conditions, which may have been impacted by having a mood induction task.

The current study's procedures were replicated from previous studies that randomly assigned college students to different coloring therapy conditions, which involved coloring a pre-drawn mandala, a plaid design, or a blank piece of paper for 20 minutes. The previous studies induced mood with a writing task and measured shifts in self-reported state anxiety at various time points, specifically at baseline, after the mood induction task, and after the coloring task. Curry and Kasser (2005) observed undergraduate students and used a shortened version of Spielberger et al.'s (1983) State Anxiety Inventory (SAI). Results indicated that coloring a pre-drawn mandala and a plaid design reduced anxiety more than free coloring (Curry and Kasser, 2005). However, there was no significant difference in anxiety reduction between the pre-drawn mandala and the plaid design conditions. Results also indicated that those asked to free color did not return to their baseline state anxiety levels because they remained elevated. Unlike the previous study that focused on coloring therapy, the current study had participants create their own drawings and for a shorter duration of time. Additionally, the current study used Spielberger et al.'s (1983) full version of the State Anxiety Inventory rather than a modified version. In contrast to the previous study's

findings (Curry & Kasser, 2005), the current study did not find a significant difference in self-reported state anxiety among the drawing conditions. Rather, there was a significant reduction in state anxiety among all three conditions after the drawing task. Additionally, those in the free drawing condition returned to their baseline state anxiety levels unlike the previous study. In the previous study, coloring pre-drawn mandalas and plaid designs may have been similar conditions, while instructing people to free color a piece of paper may have been slightly more anxiety-provoking. Coloring pre-drawn mandalas may also promote a state of relaxation because people are able to concentrate and focus more on coloring, which may simulate a meditative experience (Hass-Cohen & Findlay, 2015). The current study instructed all participants to create a drawing. For all drawing conditions, participants, on average, indicated on the feedback questionnaire that being asked to draw was slightly anxiety-provoking. Regardless of the drawing instructions or conditions, the act of creating a drawing may have balanced any elevated state anxiety levels for all participants in the current study.

Researchers Van der Venet and Serice (2012) and Kersten and Van der Venet (2010) replicated Curry and Kasser's (2005) procedures. However, the researchers (Van der Venet & Serice, 2012; Kersten and Van der Venet, 2010) observed both undergraduate and graduate students, and used Spielberger et al.'s (1983) State Anxiety Inventory as opposed to a modified version. Results indicated that coloring a pre-drawn mandala reduced state anxiety more than free coloring (Van der Venet & Serice, 2012; Kersten & Van der Venet, 2010), which was inconsistent with findings from the current study. The researchers did not find a significant difference in anxiety reduction between coloring a plaid design or free coloring. Additionally, results indicated that participants who engaged in the free coloring

task experienced a reduction in state anxiety levels. Such findings were consistent with the current study's control group returning to baseline state anxiety levels.

A study that elaborated on Curry and Kasser's (2005) design used Tallis et al.'s (1992) Worry Domains Questionnaire instead of Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI) (Small, 2006). The researcher also added a fourth coloring condition, which involved coloring a pre-drawn mandala with a brief mandala synopsis that explained the spiritual and religious significance of mandalas. However, mood was not induced and there were no time limits on how long participants had to color. Results indicated that state anxiety reduction was experienced by all coloring conditions and there were no significant differences among the coloring tasks, which was consistent with the current study. It is possible that regardless of the subject-matter or spiritual meaning, the act of coloring and drawing may generally reduce state anxiety.

Although the previously mentioned studies focused on state anxiety reduction, one study was interested in exploring the impact of drawing mandalas to reduce other mental health symptoms, such as symptoms of posttraumatic stress disorder (PTSD), depression, and anxiety, while also increasing spiritual meaning (Henderson et al., 2007). Symptoms of PTSD, depression, anxiety, and spiritual meaning were measured through self-report questionnaires at baseline, on the third day, and then again during a one month follow-up visit. Both state and trait anxiety were measured using Spielberger et al.'s (1983) State-Trait Anxiety Inventory (STAI). Participants were assigned to two drawing conditions: drawing a mandala or drawing an object in the room for 20 minutes (Henderson et al., 2007). Those in the mandala condition were instructed to focus on their traumatic experiences. Results indicated that although individuals who drew mandalas often reported having severe

traumatic symptoms during the first session, they also had significantly less severe symptoms of PTSD one month later. The researchers also noticed that only PTSD symptoms were reduced. There were no significant findings in terms of reducing symptoms of depression and anxiety and in increasing spiritual meaning. Although the current study was able to find a reduction in state anxiety for all drawing tasks, it is possible that being instructed to focus the drawings specifically on traumatic experiences may be essential in helping individuals work through their trauma. Interestingly, the researchers noticed that posttraumatic stress disorder (PTSD) symptoms were often more severe during the first session (Henderson et al., 2007). Such results may relate to the current study's lack of finding a difference in reductions of state anxiety for the drawing groups, specifically the mandala group having the most reduction. When observing the current study's drawings qualitatively, individuals in the mandala group described both positive and negative experiences. The other drawing groups, in contrast, only reflected on positive emotional experiences. It is possible that being instructed to create an image of themselves using symbols may have enabled individuals in the mandala group to express their inner positive and negative thoughts and feelings with less censorship. Although the researchers in the previous study did not go into great detail about the qualitative nature of the drawings, they asked participants to write a description about the symbolic meaning of their mandala drawings (Henderson et al., 2007). From the drawings, the researchers observed commonly used colors, images, and symbols and provided a couple of examples of how participants used the mandalas to depict their traumatic experiences. The current study asked participants questions, which were audio-recorded and written down, instead of having the participants write about their drawings. It is possible that participants may have felt more comfortable disclosing personal information about themselves by

providing written descriptions of their drawings. However, it is unknown if the previous researchers were able to clarify any question about the written descriptions of the drawings. Although the current study did not focus on the meaning of commonly used colors, images, or symbols, two independent raters coded commonly used themes from a sample of the drawings and found that those in the mandala group had a tendency to report more vulnerable information about themselves than the other drawing conditions. Finally, the previous study asked participants to complete an outcome or feedback questionnaire about their overall satisfaction with the study (Henderson et al., 2007). Results indicated that many participants found drawing the mandalas as a helpful way to express their traumatic experiences. Similar to the previous study, participants in the current study also generally reported that they enjoyed their assigned drawing task, that they felt relaxed after the drawing task, and that they found the drawing task helpful in making them feel more relaxed after the mood induction task.

Finally, a qualitative study with children and adolescents with Human Immunodeficiency Virus (HIV) who were asked to create mandalas based on their own personal topics that were relevant to them for that particular day (Wiener & Battles, 2002). Afterwards, the mandalas were stored in their own personal workbooks. The researchers observed the themes and colors used in the mandalas. When ranking the most commonly used themes, the first theme involved somatic issues, medications, and hospitalization; the second theme involved social relationships with family and friends; the third theme involved optimism, hobbies, and past events; the fourth theme involved losing loved ones to HIV/AIDs; the fifth theme involved personal fears, worries, anxieties, and stresses; and the sixth theme involved HIV affecting their lives and hoping for a cure. Although the current

study focused on adults without serious medical or mental health issues, there were commonly used themes that emerged in the mandala condition that were similar to the previous study. Like the previous study, the most commonly used theme in the mandala group involved personal interests, and the second most common theme involved social relationships. Although the mandala group did not report emotional experiences that involved feeling anxious, worried, or stressed, those in the mandala condition reported other negative experiences, such as feeling sadness, loneliness, mania, and anger. Unlike the previous study (Wiener & Battles, 2002) that instructed participants to create a mandala reflecting personal topics that were relevant to them for that particular day, participants in the current study were instructed to create a mandala that reflected themselves. As such, the commonly reported themes in the current study appeared to revolve more around positive and negative attributes of themselves than necessarily any current life stressors that they were preoccupied with that day.

In summary, although there have been variations in previous studies regarding the research method and designs, experimental and control conditions, use of subjective and objective measurements, and participants in terms of age and medical/mental health issues, the findings from the current study both supported and contradicted previous research. With regard to pulse rate, one study (DeLue, 1999) found a significant reduction in pulse rate for the mandala condition when compared with other experimental conditions, which was inconsistent with the current study. The current study's lack of finding a significant reduction in pulse rate for the mandala condition was, however, consistent with another previous study (Schrade et al., 2011). Unlike one study (Schrade et al., 2011) that did not find any significant reductions in pulse rate, the current study found a significant reduction in

pulse rate across all drawing conditions. In other words, the act of drawing, regardless of the instructions, appeared to reduce pulse rate in the current study.

Similar to the pulse rate findings, the current study did not find a significant difference in self-reported state anxiety among the drawing conditions, which was consistent with two studies that focused on drawing mandalas (Henderson et al, 2007) and coloring therapy (Small, 2006). However, the findings were inconsistent with other studies (Curry & Kasser, 2005; Kersten & Van der Venet, 2010; Van der Venet & Serice, 2012) that focused on coloring therapy. A few coloring therapy studies (Curry & Kasser, 2005; Kersten & Van der Venet, 2010; Van der Venet & Serice, 2012) found that coloring a pre-drawn mandala and a plaid design reduced state anxiety more than free coloring, which was inconsistent with the current study. Unlike one study (Henderson et al., 2007) that did not find any significant reductions in self-reported state anxiety, the current study found a significant reduction in state anxiety across all drawing conditions, which was consistent with another study (Small, 2006). In other words, the act of drawing, regardless of instructions, appeared to reduce self-reported state anxiety in the current study. Additionally, the current study's control condition returned to their baseline state anxiety levels, which was consistent with a few coloring therapy studies (Kersten & Van der Venet, 2010; Van der Venet & Serice, 2012; Small, 2006) and inconsistent with one coloring therapy study (Curry & Kasser, 2005).

When examining the qualitative descriptions of the drawings, a couple of commonly used themes for the mandala group in the current study involved personal interests and social relationships. Such findings were consistent with a previous study (Wiener & Battles, 2002) that focused on commonly used themes that children with Human Immunodeficiency Virus

(HIV) used in their mandala drawings. Additionally, the mandala group in the current study reported both positive and negative emotional experiences, which was consistent with the same previous study (Wiener & Battles, 2002). It appeared as though drawing a mandala enabled people to disclose vulnerable information about themselves.

Finally, participants were asked for their feedback about their overall experience with the drawing conditions. One previous study (Henderson et al., 2007) asked participants with posttraumatic stress disorder (PTSD) symptoms to draw mandalas. The researchers reported that participants found drawing the mandalas as a helpful way to express their traumatic experiences, which was consistent with the current study. Participants in the current study generally reported that they enjoyed their assigned drawing task, that they felt relaxed after the drawing task, and that they found the drawing task helpful in making them feel more relaxed after the mood induction task.

Limitations

The limitations in the current study involved the experimental and control conditions, the measurements being used, how the drawings are being observed qualitatively, and the generalizability of the findings. First, the examiner was not blind to the drawing conditions presented to each participant. However, the drawing conditions were randomly selected prior starting the study. Additionally, the examiner read instructions for each drawing condition from a script, which standardized the examiner's interaction with each participant. Even though the examiner read a script, the examiner noticed a couple of people in the mandala condition who created landscape scenes that did not reflect personal information about themselves. This would consequently affect how the themes would be coded. After discovering the issue, the examiner re-read the beginning of the instructions for all drawing

conditions to serve as a reminder for participants about what they were drawing. If participants had questions about what to draw after hearing the instructions, the examiner re-read the instructions that specified what they needed to draw and reassured them that they could draw their picture however they chose. In addition to the limitations with the experimental conditions, the control condition in this study involved asking participants to create a free drawing. Although the control group had less direct instructions than the other two drawing groups, the condition did not reflect a true control that would not have exposed participants to any drawing tasks. Having a true control condition, such as asking participants to sit quietly, could enhance findings in determining if any reductions in state anxiety related to the assigned drawing condition or to a general passage of time.

In terms of the measurements themselves, there were limitations with both objective and subjective instruments. With the pulse rate monitor, there were technical issues that could have affected the obtained recordings. Because the pulse rate monitor did not provide a single reading, the examiner often had to wait 5 to 10 seconds for the monitor to stabilize with each reading. The examiner informed participants that readings took a while and instructed them to not stare at the monitor. However, it is possible that participants may have either been slightly startled or had time to relax which could have affected the recordings. Additionally, it is also possible that the baseline pulse rate recordings may not have been accurate readings. For instance, the free drawing group was the only drawing condition that did not have elevated pulse rate recordings after the mood induction task. Although it is possible that the mood induction task may not have been anxiety-provoking, the other two drawing conditions both displayed elevated pulse rate recordings after the mood induction

task. Having a longer rest period before obtaining baseline readings may have reduced the risk of obtaining inaccurate pulse rate recordings.

With regard to the subjective measurements, the Symptom Checklist-90 –Revised (SCL-90-R) and the State-Trait Anxiety Inventory (STAI) were both self-report measures. It is possible that participants may have attempted to provide favorable responses or may not have been attuned to their emotional experiences (Krause, 1961; Schachter, 1966).

Participants may have, consequently, over or under reported their symptoms and levels of state and trait anxiety. In order to enhance the findings, objective data obtained from the pulse rate recordings was compared with the self-reported state anxiety measurements.

Another issue that could have impacted the reported levels of state anxiety involved simply asking participants to draw. Regardless of art interest or previous art experiences, participants generally reported on the feedback questionnaire that being asked to draw made them feel a little anxious. This was expected given previous literature on art therapy (Malchiodi, 2007). Likewise, there were participants who also reported to the examiner that they enjoyed their assigned drawing task. As such, it is unknown if individuals may have reported higher levels of state anxiety because they felt insecure about their drawing abilities or were anxious about being asked to draw (Malchiodi, 2007), which may not have related to the actual drawing process itself.

Another limitation pertained to the qualitative analysis of the drawings. Because the qualitative analysis was based on a small sample of 12 drawings, making generalizations about the themes is limited. However, the sample of drawings was randomly selected prior starting the qualitative analysis. Secondly, although participants were college students, they had varying personal experiences which may have included histories of trauma or mental

health issues. Each individual's unique experiences may have affected the images, themes, and colors used in their drawings. The diversity of the participants may have related to the variation in measures. However, this sample may be more representative than would a sample of only comprised of people without any mental distress.

Finally, generalizability of the findings is limited due to using undergraduate college students as participants. The participants represented a nonclinical population of adults with varying personal experiences. Participants in this study were also predominantly Caucasian females. Even though findings may not generalize to children, clinical populations, various ethnic groups, and equally for both men and women, this study supplemented previous studies that supported the use of art therapeutic techniques to reduce symptoms of anxiety. Testing emotional and physiological effects with a nonclinical population hopefully supported a need to conduct future studies with a similar experimental design, with populations of varying ages and ethnicities, and/or in a clinical setting.

Given the limitations of the current study, it would be beneficial for future studies to consider using similar experimental and control conditions, and using both subjective and objective measurements. The current study did not find significant differences among the drawing conditions like previous studies. Some studies focused on coloring therapy with pre-drawn images, and others asked participants to create their own drawings. With regard to the control condition, the current study is the only known study that used an art therapeutic technique as the control. As such, this may have balanced any elevations in state anxiety when participants were asked to draw. Control conditions in other studies involved free coloring a blank piece of paper, drawing an object in the room, or completing a puzzle, which may have related to different findings. Regarding measurements, most experimental

research consisted of using only objective or only subjective measurements. It would be beneficial for future studies to obtain both objective and subjective data while using a similar experimental design in order to compare consistencies or differences in findings among studies.

Directions for Future Research

Future research should consider the measurements being used, the experimental conditions, and the generalizability of the findings. Given the technical issues with the pulse rate monitor, future studies should consider using a pulse rate monitor that gives a single reading as opposed to a monitor that needs a few seconds to adjust. Having a single and immediate reading may provide more accurate data. Additionally, future studies should consider having a longer rest period while obtaining multiple pulse rate recordings in order to obtain accurate baseline readings. For instance, having participants sit quietly for 20 minutes while intermittently taking pulse rate recordings to ensure that their pulse rate has stabilized. It would also be recommended to obtain medical and medication information while obtaining background information about participants because pulse rate could be influenced by such factors. Such medical factors could potentially impact the data, especially if an individual's pulse rate is much higher or lower than most individuals not taking medications or without similar medical conditions.

Regarding the experimental conditions, the current study did not find significant differences among the drawing conditions like the previous studies. However, the experimental conditions have not been consistently similar across studies. Some studies focused on coloring therapy with pre-drawn images, and others asked participants to create their own drawings. Another inconsistency involved variations in the control condition.

Control conditions in previous studies have involved free coloring a blank piece of paper, drawings an object in the room, or completing a puzzle. The current study was the only known study that used various art therapeutic techniques for each condition, including the control condition, which may have balanced any elevations in state anxiety when participants were asked to draw. Also, the length of time that participants have been allowed to draw or color has varied among studies. It would be beneficial for future research to compare various art therapeutic interventions while using a free drawing task to serve as a control condition. It would also be interesting to obtain qualitative information about the themes of the drawings to determine if they varied based on the art therapeutic instructions. Another experimental condition that could be compared with art therapeutic techniques may involve tasks that promote written expression, such as writing a poem or writing as a cathartic release. Writing may potentially be more relaxing for some individuals than drawing. Finally, most studies have lacked the use of a true control condition which would involve participants not being assigned to do anything. Having a true control condition would be beneficial in determining if reductions in anxiety related to specific experimental conditions or to a general passage of time. To determine if a passage of time is reducing anxiety levels, it would be beneficial to obtain recordings of anxiety after asking questions about their drawings to see if their level of anxiety continued to decrease.

Finally, the majority of experimental research has been conducted on college students and has consisted of using only objective or only subjective measurements. It would be especially beneficial for future studies to use a similar experimental design that tested both the emotional and physiological effects and with populations of varying ages, ethnicities, and/or clinical settings. Because anxiety may not be the only emotional experience

impacted, using measures to assess various mood states and emotional expressions may also be beneficial. Additionally, obtaining qualitative data to supplement the objective and subjective measurements would also support any differences or lack of differences among various art therapeutic conditions. More research in this field and with various populations, such as clinical populations with various mental health issues, would not only enhance the generalizability of the findings, but may also help determine what populations of clients may benefit more from art therapeutic techniques.

Clinical and Practice Implications

The findings from this study appear to have a variety of clinical and practice implications. Focusing on the results pertaining to anxiety, the findings supported a relationship among experiencing general mental distress and levels of trait and state anxiety. This supports current research and literature that high levels of anxiety "... are typically found in almost all emotional disorders" (Spielberger & Reheiser, 2009, p. 272). In fact, anxiety, anger, and depression are considered "critical psychological vital signs that are strongly related to an individual's well-being (Spielberger & Reheiser, 2008, p. 272). Even though this study focused on a nonclinical population, responses on the self-reported surveys indicated that some individuals in the sample may have experienced features of pre-existing mental health issues. This study attempted to find a relationship among the self-reported surveys with physiological shifts in pulse rate. It is possible that even though some individuals in the current study may have experienced general mental distress, symptoms may not be clearly noticeable through pulse rate. However, because the sample consisted of a nonclinical population, it is unknown if changes in pulse rate may be more obvious in a clinical population. Additionally, physiological changes may actually reflect other arousal or

emotional experiences, such as anger, happiness, or sadness (Ekman, 1999; Ekman, 1992; Lang et al., 1998; Mikels et al., 2005; Schachter, 1966). The qualitative descriptions of the drawings supported these varying emotional experiences, especially for individuals who drew mandalas. Because physiological shifts may not be obvious for some individuals, it is possible that some individuals with milder symptoms in treatment may not necessarily be aware or attuned to physiological changes that may be occurring while they are experiencing anxiety, stress, relaxation, or other emotional experiences.

Regarding art therapeutic practices, findings from this study supported the emotional and physiological impact of art therapeutic techniques. Gathered from self-report surveys and individuals who voluntarily spoke about their experiences, asking people to draw did slightly elevate levels of state anxiety, which was expected (Malchiodi, 2007). Despite feeling slightly more anxious, this did not prevent people from complying with the request or from completing the drawing task, which was also expected (Berryman, 1959). In fact, all drawing conditions in this study displayed a decrease in self-reported state anxiety and pulse rate after completing their assigned task, which suggests that art therapeutic techniques in general may be effective interventions to promote a state of relaxation. Despite feeling a little anxious, all drawing groups on average reported that they found the assigned drawing task enjoyable, perceived the drawing task as making them feel relaxed, and believed that the drawing task helped them to feel relaxed after the mood induction task.

It is also important to note that all drawing conditions were provided with instructions about what to draw. Even the free drawing condition, which had the least amount of instructions, informed people to draw whatever came to mind, which reflected a psychodynamic approach to art therapy (Naumberg, 1987). Previous studies that asked

people to free color a piece of paper reported in their behavioral observations that participants often displayed anxiety by stopping to think about what to draw, appearing confused, or by asking the researchers for more instructions (Curry & Kasser, 2005). In clinical practice, providing instructions about what to draw may give individuals some guidance about what to create, especially when they are in the early stages of treatment and are not used to drawing in front of a clinician.

Although the free drawing task served as the control condition, the art therapeutic technique surprisingly appeared as effective as the mandala and human figure drawing techniques. Individuals in the free drawing condition were more likely to create drawings that were influenced by the mood induction task, which suggested that they were either consciously or unconsciously drawing their most immediate thoughts and feelings that “came to mind.” In order to mimic the art therapeutic practice, follow-up qualitative questions about the meaning of the drawings were asked by the examiner. People often expressed feeling surprised and unaware of the meaning of their images, symbols, and use of colors until they were asked to reflect and provide responses about their drawings. By attempting to mimic the art therapeutic process, people were able to gain insight about their drawings and to reflect on their own personal experiences, which have been described as essential objectives in art therapy that gradually help individuals enhance their self-awareness and self-discovery, increase their self-identity and self-esteem, resolve conflicts, reduce stress, and improve their overall well-being (Dilawari & Tripathi, 2014; Fincher, 2012; Kellogg, 1985; Kramer, 1971; Malchiodi, 2007; Naumburg, 1987; Rubin, 2016; Wadson, 1987).

When observing the qualitative differences between the drawing conditions that focused on creating an image of the self, those in the mandala condition generally provided

more varying emotional experiences than those in the human figure drawing condition. Interestingly, those in the mandala condition described both positive and negative emotional experiences, while those in the human figure drawing condition often depicted positive emotional experiences. Descriptions provided by those in the mandala condition were also typically longer and filled with more detailed information about themselves, while descriptions provided by those in the human figure drawing condition were typically less detailed and focused more on their physical appearance, physical characteristics, and personal interests. However, it is important to note that the qualitative differences among the drawing conditions were based on a small sample of drawings which limits generalizability.

In clinical practice, the findings greatly support the emotional and physiological impact of the drawing process itself as being therapeutic, and the role of the clinician as being essential in helping individuals explore the meaning of their drawings in order to gain insight about themselves (Dilawari & Tripathi, 2014; Fincher, 2012; Kellogg, 1985; Kramer, 1971; Malchiodi, 2007; Naumburg, 1987; Rubin, 2016; Wadeson, 1987). Having clients create drawings in clinical settings appears to be greatly beneficial in gathering supplemental information about how an individual perceives themselves, others, and their environment; it can facilitate rapport-development for individuals who may be difficult to engage; and it can be utilized as a nonverbal way to disclose topics that individuals find threatening or difficult to discuss (Berryman, 1959; Garb et al., 2002). Finally, this study supports previous literature that suggests focusing on what the images and colors mean to the individual who created them (Malchiodi, 2007). Attempting to understand the meaning of drawings solely using traditional meanings of symbols may not relate with an individual's personal

experiences and, therefore, would interfere with an accurate understanding of the individual's artwork (Feder & Feder, 1981; Fincher, 2012; Malchiodi, 2007; Wadeson, 1987).

Summary and Conclusion

This study assessed the emotional and physiological impact of art therapeutic techniques by measuring shifts in state anxiety through subjective self-report measures and objectively through pulse rate. Participants were randomly assigned to an art therapeutic condition: the mandala group, the human figure drawing group, and the free drawing group, which served as the control. Participants also completed surveys that measured their trait anxiety and their general mental distress. To mimic the art therapeutic process, instructions were provided for each art therapeutic condition and participants were followed-up with qualitative questions about the meaning of their drawings.

The results of this study supported a strong relationship among general mental distress and self-reported state and trait anxiety, especially at baseline and after the mood induction task. However, general mental distress had a moderate, but weaker relationship with state anxiety after the drawing task. The weaker relationship may have related to participants experiencing a reduction in state anxiety after the drawing task because they were more relaxed.

When observing potential relationships among the self-report measurements (general mental distress, state and trait anxiety) and pulse rate, neither general mental distress nor self-reported state and trait anxiety had strong relationships with pulse rate recordings. Despite the subjective and objective measurements not having strong correlations, pulse rate recordings alone were relatively consistent among various time points (at baseline, after the mood induction task, and after the drawing task).

When examining potential differences among the art therapeutic conditions, there were no differences in self-reported state anxiety or pulse rate recordings at any time point during the experiment. All art therapeutic groups averaged together demonstrated elevations in self-reported state anxiety after the mood induction task, and reductions in state anxiety after completing their assigned drawing task. For pulse rate recordings, all art therapeutic groups averaged together demonstrated a reduction in pulse rate after completing the assigned drawing task. Unlike with self-reported state anxiety, pulse rate recordings did not significantly increase after the mood induction task. Despite this, the mood induction task was generally effective in elevating self-reported state anxiety. Additionally, the process of drawing regardless of art therapeutic condition generally reduced state anxiety and pulse rate.

Qualitative, there were themes that were shared among all art therapeutic groups while some were more common in specific art therapeutic conditions. The most common themes that were shared equally across all art therapeutic conditions involved nature, personal interests and happiness, and social relationships. As expected, the free drawing condition, which had the least directed instructions, drew various themes that included automobiles/boats, architecture, holidays, and memories. Surprisingly, the free drawing group had a tendency to create drawings that were influenced by the mood induction task, because that was an event that they were currently thinking about and “came to mind.” The mandala group not only displayed themes that reflected various emotional experiences, but they were the only condition that drew both positive and negative emotional experiences while the other conditions only drew positive emotional experiences. As expected, the human figure drawing condition generated more themes that revolved around the self, which included physical appearances (i.e., clothing), physical characteristics, and personal interests.

Unlike the other conditions, those in the human figure drawing condition were generally less likely to share deep inner thoughts, feelings, beliefs, and memories.

Finally, participants provided feedback about their overall experience and if they noticed any shifts in their affective states while engaged in the assigned drawing task. As expected, participants on average reported that being asked to draw made them feel a little anxious. Despite feeling a little anxious, participants on average reported that they found the assigned drawing task enjoyable, perceived the drawing task as making them feel relaxed, and believed that the drawing task helped them to feel relaxed after the mood induction task. When observing potential relationships among the self-reported state anxiety ratings and pulse rate recordings with the feedback questionnaire, there was a high correlation with self-reported state anxiety but not for pulse rate recordings. This suggested that participants provided consistent self-reporting on the self-reported state anxiety and feedback questionnaires. This also supported the need to use both subjective and objective measures to help enhance interpretations and findings about what an individual may actually be experiencing (Schachter, 1996).

This study was unique in comparing various art therapeutic techniques together, in using both subjective and objective measurements to evaluate shifts and state anxiety, and in attempting to mimic the art therapeutic process with qualitative questions in order to understand the meaning of the drawings. Unlike previous studies, this study also compared similar conditions together that involved all participants engaging in a drawing activity and with standardized instructions. The findings from this study will supplement the current literature and hopefully encourage future research to explore various art therapeutic techniques with a similar experimental design.

Appendix A: Consent Form



INSTITUTIONAL REVIEW BOARD

MODEL INFORMED CONSENT FORM

GENERAL INFORMATION

On the following three pages is a model informed consent form. As it is based on federal regulations which must be met, it will be of advantage to you to pattern your consent form on this model.

In what follows, brackets [] have been used for two purposes. Where there is a choice of words given, include in your form only the choice that is appropriate; modify wording slightly if necessary. Secondly, brackets are used to give you instructions with regard to what information about your experiment/research you ought to include. Do not repeat instructions in your consent form, but simply put forth in your own words the information that the volunteer needs in order to provide an informed consent.

The Informed Consent Form is a legal document, which must include these three main elements:

- a. Explanation to the prospective volunteer of the nature of the research and the procedures involved as these pertain to the volunteer as outlined on page 2.
- b. A signature statement indicating that the volunteer has read and understands all of the explanations, and agrees to participate in the research.
- c. A signature statement by the investigator that the volunteer exercised full freedom in agreeing to participate in the project.

Although the assent of children over the age of seven years must be obtained, where the volunteer is a minor or under some other legal disability, the volunteer's consent must be given by a legally authorized representative; this is necessary even if the minor (less than eighteen years of age) is willing to participate. In such instances a modified version of this form (b, above – available from IRB) must be used; this must include an indication of the relationship to the volunteer (parent, legal guardian, etc.) and the full address of the representative if different from that of the volunteer. Provision for all this must be included on the form.

Be sure adequate space is provided on the blank lines (signature, address, date, etc.) and between lines so that the writing is fully legible.

The entire complete consent form (not just the signature page) is to be prepared in duplicate for each volunteer involved in the research. One complete form with signatures is to be given to the volunteer, the other complete form with signatures is to be retained by the investigator (or Department) for a period of not less than three years following the official termination of the project.

RESEARCH PROJECT DESCRIPTION

THE POWER OF ART: THE EMOTIONAL & PHYSIOLOGICAL IMPACT OF CREATING ART

TO _____
: [Full Name of Volunteer]

My name is Leslie Becerra. I am a student in the College of Liberal Arts, Clinical Psychology (Ph.D.) Program at the University of Detroit Mercy.

I have asked you to agree to be a volunteer in a research experiment I plan to conduct. Before I can accept your consent, I want to make known to you the following information pertaining to the project.

1. **Explanation of the Purpose.** The purpose of the proposed research involves assessing the emotional and physical impact of art therapeutic techniques. Findings may enhance the awareness of using nonverbal methods as an effective treatment intervention in the mental health field. This study will attempt to obtain a minimum sample of 60 participants who are 18 years of age and older.
2. **Explanation of the Procedures.** In order to assess the emotional impact of art therapeutic techniques, this study involves temporarily changing an individual's current mood or emotional state, which may involve temporarily feeling anxious, sad, afraid, or lonely. The physiological impact will be measured using a finger pulse rate monitor throughout the experiment. Additionally, the examiner will audio record responses to questions. Participants will randomly be selected to an art therapeutic intervention technique. Participation in this experiment should take less than 1 hour and 30 minutes. Only participants who feel comfortable having their mood temporarily induced, their pulse rate monitored, and their responses audio recorded could participate in this study. Having an interest in art or artistic experiences is not required for this study.
3. **Expected Risks. You may experience some distress during the mood-induction procedure.** Although changing an individual's current mood or emotional state is expected to be somewhat disturbing, any shifts in mood or emotions should be temporary or short-lived. Before leaving the experimental setting, the examiner will ask each participant if they are feeling any distress. In addition, pulse rate recordings will be obtained from an individual's finger, which is not invasive and has minimal risks. The monitor will be sanitized before use by each participant.
4. **Expected Benefits.** Participants might find the art therapeutic techniques enjoyable and/or useful to practice after the study. The potential benefits of the study to science are to understand better how nonverbal therapy techniques may serve as an effective treatment intervention in the mental health field.
5. **Appropriate Alternative Procedures.** Not applicable.
6. **Confidentiality.** Confidentiality of records will be maintained by assigning all participants a research number. The research number will be used to identify all surveys, drawings, pulse rate recordings, and audio recorded responses. Questionnaires and other documents will be kept in a locked file cabinet in Reno Hall. Any publication of results will include only aggregate data.

NOTE: In certain cases the FDA may inspect the records, the sponsor may inspect the records, and/or the IRB may inspect the records.

RESEARCH PROJECT DESCRIPTION (CONTINUED)

- 7. Offer To Answer Questions.** I hereby offer to answer any questions you might wish to ask concerning the procedures used in this research at this time. Furthermore, I may be reached during the hours of 9 AM until 5 PM at 313-915-0557 or by e-mail at lbecerra@udmercy.edu. You can also contact my advisor, Dr. Elizabeth M. Hill (313-578-0405; hillelm@udmercy.edu; 4001 W. McNichols Road, Detroit, MI 48221). If you have questions concerning your rights as a volunteer, you may contact Dr. Elizabeth M. Hill, Chair, UDM Institutional Review Board, 313-578-0405 or hillelm@udmercy.edu.
- 8. Freedom To Withdraw Consent.** If you consent to be a volunteer in this research project, you are nonetheless free to withdraw your consent and discontinue participation at any time without prejudice to you. This will include students participating in research projects within a course, and no penalty to a course grade or class standing will precipitate from withdrawal as a participant. You should also understand that the examiner has the right to withdraw you from the research project at any time. An example would be the failure of the volunteer to follow instructions given to them by the investigator.
- 9. Compensation.** Participants taking undergraduate psychology courses may be compensated through extra credit if their psychology professors provide permission. Although extra credit would be offered, all participants will be asked if they prefer to obtain extra credit, if permissible, or if they would prefer to have their name entered in a drawing for two \$25 gift cards. For the drawing, participants will write their name, phone number, and email address on a piece of paper, which will be placed in a box. For participants interested in obtaining extra credit, the examiner will notify their psychology professor via email immediately after the experiment about their participation. For participants interested in having their name entered in the drawing, the two winners will receive a phone call and email once data collection is complete. If participants withdraw from the study, they will not be compensated. If the examiner terminates the study, participants will still be compensated.
- 10. Availability of Compensation and Medical Treatment for Injury.** You understand that if you are injured, no form of compensation is available. Medical treatment may be provided at your own expense or at the expense of your health care insurer (i.e., Medical treatment may be provided at your own expense or at the expense of your health care insurer (i.e., Medicare, Medicaid, BC/B.S., etc.) which may or may not provide coverage. If you have questions, you should contact your insurer.
- 11. Additional Costs.** None
- 12. Significant New Findings.** Not applicable.
- 13. Future Data Use.** Occasionally, the same or another researcher will request the permission to review or use previously gathered data from a completed research project for a different project. If confidentiality of the data is protected and if the UDM Institutional Review Board has approved the study, would you be willing to give your permission to the release of your data collected from your participation in the current study without prior notification?

_____ Yes, I give my permission for the future use of data obtained in this study contingent on the preceding conditions.

initials

_____ No, I do not give my permission for the future use of data from this study.

initials

(Page 2 and page 3 constitute the informed consent and should be kept together.
The information contained on the next page, page 4, should appear on a single sheet of paper.)



INSTITUTIONAL REVIEW BOARD

ACKNOWLEDGMENT AND CONSENT

I, _____
 (Prospective Volunteer's Full Name)

of _____ hereby
 state:

(Street address, City, State, Zip Code)

1. I have read all of the statements above pertaining to the research project entitled "The Power of Art" and I understand them.
2. I have been given the opportunity to ask any questions I wish concerning this research project, and any questions I have asked have been answered to my satisfaction.
3. I understand a full copy, with signatures, of this document will be provided to me.
4. I hereby consent to be a volunteer in this research project.

 Full Signature of Prospective Volunteer

 Date

As the investigator in the research project entitled "The Power of Art," I hereby state to the best of my knowledge and belief that all of the statements made in the above consent form are true and that in consenting the prospective volunteer exercised free power of choice without undue inducement or any element of force, fraud, deceit, duress, or any other form of constraint or coercion. In addition to the participation by the volunteer being voluntary, the volunteer has been advised that he or she may discontinue participation at any time without penalty or loss of benefits to which the volunteer is entitled.

 Full Signature of Investigator

 Date

FINAL NOTE: *The completed Informed Consent Form to be used must be submitted in its intended form at the time the proposal is submitted to the Institutional Review Board for its approval.*

Appendix B: Background Questionnaire

Background Questionnaire

Directions: Please provide responses to the following questions.

1. GENDER (Please check one):

Female

Male

Other (please specify): _____

2. AGE (in years): _____

3. MARITAL STATUS (Please check one):

Single Divorced

Married Widowed

4. ETHNIC BACKGROUND (Please check one of the following options):

African or African American Latino/Hispanic (not European descent)

Caucasian (i.e., European descent) Asian (i.e., Chinese, Japanese, Indian)

Middle Eastern or Arab American Native American (i.e., American Indian)

Biracial or Multiracial (please specify): _____

Other (please specify): _____

5. EDUCATION (Specify if currently an undergraduate or graduate student): _____

Please specify grade level or year in program: _____

6. COLLEGE MAJOR (Please specify): _____

7. ARTISTIC INTERESTS (Do you like creating art?):

Yes (please specify what kind of art): _____

No

8. ARTISTIC BACKGROUND (Please check one of the following options):

Have taken/Currently taking art classes

Never taken art classes

9. VISION (Please check one of the following options):

I have normal vision

I wear glasses or contacts (Are you wearing them today?): _____

10. COLORBLINDNESS (Are you colorblind?)

No

Yes (please specify red-green or blue-yellow colorblind): _____

11. HANDEDNESS (Please check one of the following options):

I am completely or mostly left-handed

I am completely or mostly right-handed

I am ambidextrous

Appendix C: Symptom Checklist-90 –Revised (SCL-90-R)

SCL-90-R, available from:

Derogatis, L. R. (1994). *SCL-90-R: Administration, scoring, and procedures manual*.
Minneapolis, MN: National Computer Systems.

Appendix D: State-Trait Anxiety Inventory (STAI)

STAI, available from:

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, R., & Jacobs, G. A. (1983). *Manual for the state-trait anxiety inventory: STAI (form Y). Self-evaluation questionnaire*. Palo Alto, CA: Consulting Psychological Press.

Appendix E: Qualitative Drawing Questions

Mandala Drawing Questions

1) Tell me where the top is and where the bottom is (write in pencil on drawing).

2) What is the title of your drawing?

3) Describe your drawing.

4) What do the shapes, images, or symbols mean to you?

5) What do the colors mean to you?

6) Which color did you use the most? Why?

Self-Portrait Drawing Questions

1) Tell me where the top is and where the bottom is (write in pencil on drawing).

2) What is the title of your drawing?

3) Describe your drawing.

4) What do the shapes, images, or symbols mean to you?

5) What do the colors mean to you?

6) Which color did you use the most? Why?

Free Drawing Questions

1) Tell me where the top is and where the bottom is (write in pencil on drawing).

2) What is the title of your drawing?

3) Describe your drawing.

4) What do the shapes, images, or symbols mean to you?

5) What do the colors mean to you?

6) Which color did you use the most? Why?

Appendix F: Drawing Task Rating Questionnaire

Drawing Task Rating Questionnaire

Directions: Below is a list of questions about how much you enjoyed the drawing task. Please answer each item honestly and as best as you can.

1. Circle how much you liked creating this drawing based on this rating scale:

1 = I did not enjoy it at all.

2 = I enjoyed it a little.

3 = It was somewhat enjoyable, more than a little.

4 = I enjoyed it a lot.

2. Circle how much this drawing made you feel relaxed or calm.

1 = Not at all.

2 = A little.

3 = Somewhat.

4 = A lot.

3. Circle how much this drawing made you feel anxious or stressed.

1 = Not at all.

2 = A little.

3 = Somewhat.

4 = A lot.

4. Circle how much you felt this drawing was helpful in making you feel calm after the writing task.

1 = Not at all.

2 = A little.

3 = Somewhat.

4 = A lot.

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Abstract**THE POWER OF ART: THE EMOTIONAL AND PHYSIOLOGICAL IMPACT OF
CREATING SELF-PORTRAITS USING MANDALAS AND HUMAN FIGURE
DRAWINGS**

By

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Art therapy, a nonverbal intervention, promotes self-expression and healing. Previous research has generally not compared art therapeutic techniques together. Although human figure drawings and mandala drawings both involve creating an image of the self, the two art therapeutic techniques have not been explored or compared within a single study. When determining the overall impact of engaging in drawings, specifically anxiety reduction, previous studies relied on either subjective or objective measures rather than combining both. Only a few experimentally designed studies have attempted to maintain the art therapeutic process through their drawing instructions and/or by asking qualitative questions about the drawings. There are also variations in studies instructing participants to either color pre-drawn mandalas or to draw their own mandalas.

This study assessed the emotional and physiological impact of art therapeutic techniques by measuring shifts in state anxiety subjectively through self-report measures and objectively through pulse rate. Participants were randomly assigned to drawing conditions: the mandala group, the human figure drawing group, and the free drawing group (control).

Participants also completed surveys that measured trait anxiety and general mental distress. To mimic the art therapeutic process, instructions were provided for each drawing condition and participants were followed-up with qualitative questions about the meaning of their drawings.

The results of this study supported a strong relationship among general mental distress and self-reported state and trait anxiety, especially at baseline and after a mood induction task. However, general mental distress, state anxiety, and trait anxiety did not have strong relationships with pulse rate recordings. When comparing drawing conditions, there were no differences in state anxiety or pulse rate at any time point during the experiment. Rather, all drawing groups on average demonstrated elevations in state anxiety after mood was induced, and reductions in state anxiety after completing their assigned drawing. For pulse rates, all drawing groups on average demonstrated a reduction in pulse rate after completing their assigned drawing. Qualitatively, there were shared themes among all drawing groups, while some were more common in specific groups. In conclusion, the process of drawing regardless of drawing condition generally reduced state anxiety and pulse rate.

Autobiographical Statement

My passion for art stemmed from my early childhood. Although I enjoyed drawing and painting throughout my childhood, art was also an activity that provided me with an opportunity to interact with my older brother with autism. Engaging in art together enabled me to gradually become attuned to his emotions through his nonverbal gestures, and to patiently learn about his repetitive interests which opened his world up to me.

While in high school, I volunteered at the Gorilla Foundation. The foundation has been recognized worldwide for their research with Koko, the sign language-speaking gorilla. To my surprise, Koko also created artwork. I began appreciating the universality of art as a nonverbal form of self-expression and communication. This early exposure to the world of comparative psychology fascinated and propelled me to learn more about the intersection of art and psychology. I attended college at California State University, East Bay where I obtained my B.A. in Art History and Psychology, and minored in Art Studio.

While attending college, most of my work experiences were at a nonprofit organization that provided services to underserved families. I worked with children in foster care who were severely abused, neglected, and exposed to trauma. I also worked as a case manager for court-ordered families to have supervised visitation. Although becoming an art therapist was my dream career, I realized that pursuing a future career as a clinical psychologist would provide me substantially more opportunities to help children, adolescents, and families.

As a doctoral student at the University of Detroit Mercy, I have gained experiences conducting therapy and assessments with infants, children, adolescents, and adults. My practicum experiences involved working at: the University of Detroit Mercy's Psychology Clinic with children, adolescents, and adults at an outpatient setting; Walnut Lake Preschool and Developmental Kindergarten with young children with severe emotional and behavioral issues and on the autism spectrum; the Third Circuit Court: Clinic for Child Study with adjudicated youth and adolescents on delinquency charges; and Children's Hospital of Michigan: Project Challenge with a pediatric population infected with or affected by HIV/AIDS. My predoctoral internship involved working at Hawthorn Center with children and adolescents at an inpatient psychiatric hospital.