Mindfulness-based Art Therapy: The Effects of Art Media on Mindfulness and Stress Reduction in College Students

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Mindfulness-based Art Therapy: The Effects of Art Media on Mindfulness and Stress Reduction in College Students

By

Isabella G. Sziraczky

A culminating thesis submitted to the faculty of Dominican University of California in partial fulfillment of the requirements for the degree of Master of Arts in Marriage and Family Therapy

Dominican University of California
San Rafael, CA
August 2024
Abstract

This mixed-methods, mindfulness-based art therapy (MBAT) study explores how different art media and tools affect mindfulness and stress reduction in university students. Undergraduate and graduate university students (N = 11) were recruited to participate in the single-session art therapy study. Participants engaged in a brief mindfulness exercise, known as a body-scan meditation, followed by 20 minutes of art-making. The students who volunteered to participate in this study were randomly assigned to one of two groups — collage or acrylic paint — which determined the media they used for the MBAT portion of the study. Data was collected from students before and after participating in the procedures of the study. Participants provided pre-test and post-test ratings of their current stress levels, written responses to questions about their experiences during the body-scan meditation and MBAT activity, and verbal answers to semi-structured interview questions about their art-making process. Overall, the results support prior art therapy research, indicating that both mindfulness exercises and MBAT interventions can effectively reduce stress levels in university students.

Keywords: Mindfulness-based Art Therapy, Art Media, Stress Reduction, University Students, Art Media Interactions in Art Therapy.
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Chapter I. Introduction

Stress in Adults

In recent years, adults in the United States have dealt with a variety of stressors including the COVID-19 pandemic, political polarization, racial injustice, and financial strains due to inflation (APA, 2022). According to the American Psychological Association (2022), the current sociopolitical issues in our country have contributed to an increase in reported stress levels in adults since 2020 when the COVID-19 pandemic began. Stress is defined as an evolutionary response to perceived threats that all humans experience to some extent (WHO, 2023). Although stress is a natural response it can impact our overall health and wellbeing, both psychologically and physiologically, if not effectively managed. Unmanaged stress levels can contribute to problems with concentration, muscle tension, difficulty sleeping, increased use of substances, as well as intensify mental health conditions, specifically anxiety and depression (NCCIH, 2024).

Research suggests that students in college are more susceptible to experiencing mental health issues, specifically related to managing stress (Xiao, 2017). The American College Health Association (ACHA) conducted a health survey with 54,000 college students across the United States, 76.6% of which reported experiencing moderate to severe levels of psychological distress (ACHA, 2022). According to the ACHA 2022 report, the most significant contributing factors of distress in college students include problems related to academic performance, finances, interpersonal relationships, personal appearance, and procrastination. Perhaps the most pertinent factor contributing to stress in college students are pressures related to academic success, as this aspect of their college experience impacts future opportunities related to career success and financial security (Baum et al., 2013). In addition to the sociopolitical and
economic stressors that exist in the United States today, individuals seeking higher education endure numerous stressors that come along with the post-secondary schooling experience. According to Baum et al. (2013), these stressors related to the pressures of college contribute to the psychological distress experienced by the majority of students in recent years.

**Stress Reduction**

Research has determined that stress has detrimental impacts on one’s physical and mental health, which can be prevented and managed using evidence-based stress reduction coping mechanisms including diaphragmatic breathing, meditation, and mindfulness-based stress reduction (MBSR) (Varvogli & Darvini, 2011). Jon Kabat-Zinn developed the eight-week MBSR program to facilitate individuals’ ability to manage their stress levels by utilizing mindfulness meditation practices. Kabat-Zinn defines mindfulness as “the awareness that emerges through having attention on purpose, in the present moment, and non-judgmentally, to the unfolding of experience moment by moment” (Kabat-Zinn, 2003). Research has proven that practicing mindfulness has several psychological benefits including reducing chronic physical pain, improving self-regulation of emotions, and decreasing levels of anxiety and stress (Aguirre & Galen, 2013; Newberg & Iverson, 2003). Research suggests that MBSR training can lead to beneficial changes in the brain, specifically related to an individual’s ability to manage negative emotions during a state of stress (Kabat-Zinn, 2003). By focusing on the present moment and cultivating a sense of acceptance, mindfulness practices can facilitate one’s ability to observe both external experiences and internal emotional responses.
Another approach to stress reduction includes art-based practices, such as drawing activities, which can be utilized to promote a sense of relaxation to cope with feelings of stress (Malchiodi, 2003). Although art-making can facilitate the process of stress reduction on its own, the creative process can be more effective in reducing stress when conducted under the guidance of a licensed art therapist. Research suggests that art therapy interventions can significantly decrease levels of stress and anxiety (Martin, 2017). One modality of art therapy in particular, mindfulness-based art therapy (MBAT), employs elements of Kabat-Zinn’s MBSR program with art therapy interventions to facilitate individuals’ ability to self-regulate their emotional states, specifically stress levels (Monti et al., 2006). Mindfulness meditation practices used in combination with the art therapy component of MBAT allow individuals to express their experiences and emotions through a non-verbal, art making process. This process of creating art and practicing mindfulness exercises facilitates meaningful self-discovery and representation, which can increase positive emotions while decreasing negative emotions. Engaging in the art-making process offers the opportunity for individuals to witness their internal experience while also promoting present-moment awareness, therefore fostering a sense of mindful awareness.

**Art Media & The Expressive Therapies Continuum**

Art therapists carefully select art materials to utilize in art therapy interventions based on each client’s needs and abilities. The Expressive Therapies Continuum (ETC) model organizes differing art media and art-making processes based on how they affect sensory perception and neurological processing (Hinz, 2009; Lusebrink, 1990). The ETC diagram represents the neurological pathway processing that occurs in the right and left hemispheres of the brain during the art-making process. This study focuses on
the Kinesthetic/Sensory level of the ETC which encompasses art therapy interventions that bring awareness to the sensations and movements that arise during the art-making process, rather than focusing on the creation of a final product. Art directives in the Kinesthetic/Sensory level of the ETC can promote mindful awareness as the focus of the intervention is placed on the movements and sensations experienced while interacting with the art media. Based on previous research, art therapists have determined that certain art media elicit more soothing emotional responses than others. For example, clay sculpting has been proven to facilitate meditative and emotional states during the art-making process (Kruk et al., 2014). Prior art therapy research has also found that engaging with various art media can activate different regions in the brain (Beerse et al., 2020; Kaimal et al., 2017; Kaimal, Ray, & Muniz, 2016; Kruk et al., 2014).

**Purpose**

Prior research conducted in the field of art therapy has determined the effectiveness of combining mindfulness practices with art therapy interventions (Beerse et al., 2020; Clay et al., 2023; Isis et al., 2023; Joshi et al., 2021; Meghani et al., 2018; Monti et al., 2006; Stanko-Kaczmarek & Kaczmarek, 2016; Van Lith et al., 2021). However, few studies have focused on the impact that art media has on one’s ability to engage in mindfulness. Previous MBAT research has mainly worked with samples of participants in hospitals and has proven the positive effects of MBAT on reducing chronic pain as well as increasing positive effects (Monti et al., 2006). The present study expanded upon prior research that focused on utilizing MBAT to reduce stress in college students (Beerse et al., 2020; Van Lith et al., 2021). Existing research on MBAT has primarily focused on how different art media used during art therapy interventions impact levels of stress in participants. These studies have focused on art media that is
considered to be fluid or restrictive, for example comparing the effects of graphite pencil versus natural clay. This study utilized art materials that have not been thoroughly utilized in MBAT research, specifically collage and acrylic paint. Additionally, this study compared how collage and acrylic paint impact individuals' ability to engage in mindful awareness during the creative process, expanding on the study conducted by Stanko-Kaczmarek and Kaczmarek in 2016.

Participants for this research study were undergraduate and graduate student volunteers from a private university in the San Francisco Bay Area. The students were invited to participate in an MBAT intervention to better manage their stress levels. Participants were asked to meet with the researcher individually where they engaged in a brief mindfulness exercise known as a body-scan as well as an MBAT art intervention. The participants were each randomly assigned to one of two groups, collage or acrylic paint, which they utilized during the MBAT art-making process. The participants were instructed to engage with the art media provided to them for 20 minutes and were encouraged to focus on exploring the qualities of the art media, rather than attempting to create a final product. Lastly, participants were asked to respond to a series of questions in the form of written responses reflecting on their personal experiences during the mindfulness exercise and the MBAT intervention. Data collected from the pre-test and post-test questionnaires were analyzed to determine changes in levels of mindful awareness as well as stress levels in each of the participants. Analyzing the changes in each participant’s self-reported stress levels, thoughts, emotions, and physical sensations that arose during the mindfulness exercise and MBAT intervention assisted in determining how the differing art media affected their ability to engage in mindful awareness. Additionally, the written responses collected during the post-test
questionnaire and semi-structured interview questions following the MBAT intervention provided greater insight into common themes that arose in the participants’ personal experiences during their participation in the study.
Chapter II. Literature Review

Stress

Stress is a survival mechanism designed to protect humans against perceived threats of danger that are experienced throughout the human lifespan (Shahsavarani et al., 2015). Early researchers who contributed to the evolution of concepts of stress include Claude Bernard, Walter B. Cannon, and Hans Seyle (Goldstein & Kopin, 2007). Hans Selye is considered to be the founder of stress theory concerning physiological responses to stressors and is credited with popularizing the concept of stress in humans (Goldstein & Kopin, 2007; Tan & Yip, 2018). Seyle’s theory defines stress as a response pattern that occurs in response to life stressors that can potentially impact an individual’s physical health (Seyle, 1956). Seyle’s contributions to the field of medicine led to further research on the conceptualization of stress in the context of psychology which led to a greater understanding of how stress impacts an individual’s overall health. In 1988, Sterling and Eyer published studies expanding upon Seyle’s theory of stress by adding the crucial component of the brain’s involvement in managing responses to stressors by initiating behavioral and hormonal responses within the body (Sterling & Eyer, 1988).

This modern conceptualization of stress established by Sterling and Eyer’s research catalyzed psychological research of stress responses, specifically related to how stress impacts psychological processing and physiological changes in humans. Within the field of psychology, stress can have both positive and negative effects on human functioning depending on the duration of stress as well as the frequency of stressors experienced by an individual (Shahsavarani et al., 2015). Positive stress, or eustress, can contribute to motivation in the context of learning, facilitate adaptation to change, and
promote alertness to surrounding environments. Although stress is an essential factor in our ability to deal with change both internally and externally, it can become harmful if we are exposed to high levels of stress over an extended period. Stress that impacts our ability to function cognitively, emotionally, and behaviorally is defined as distress.

Experiencing high levels of distress can negatively affect our mental and physical health as well as our overall ability to function. The American Psychological Association reports that stress responses “affect nearly every system of the body, influencing how people feel and behave” (APA, 2023). Common physiological and psychological symptoms related to experiencing distress include increased heart rate, negative emotions, muscle tension, difficulty concentrating, and trouble sleeping (NCCIH, 2022). Each individual manages stress differently, which impacts the severity of their experienced symptoms related to the stress factors in their lives. Long-term exposure to stress, also known as compound or chronic stress, can lead to hypertension and cardiovascular disease (Lambert et al., 2010; Spruill, 2010), disordered eating (Adam & Empel, 2007), obesity (Brunner et al., 2007), sleep disorders, emotional dysregulation, and can exacerbate mental health disorders, specifically anxiety and depression (Nemeroff & Vale, 2005; Varvolgli & Draviri, 2011).

Although chronic stress can negatively impact our overall health and functioning, there are distinct differences between objective cumulative stress and what is known as perceived stress (Cohen et al., 1983). Objective cumulative stress is the accumulation of global and event-specific stressors that trigger an individual’s physiological stress responses and subsequent negative psychological symptoms (Dohrenwend & Dohrenwend, 1974; 1981). Although objective cumulative stress helps gather a measurement of stressful life events and understanding associated health risks, this
approach to understanding stress suggests that the stressful events themselves are the source of maladaptive behaviors and health conditions related to stress (Cohen et al., 1983). In contrast, perceived stress takes into account how an individual’s coping strategies, personality, and responses to stressful events contribute to their experienced stress levels (Lazarus, 1977; Mason, 1971). These contextual factors of how an individual manages and responds to stressful events acknowledge internal processes that influence the extent to which stress affects one’s overall functioning and well-being.

Within the last few years, there has been an increase in external stressors, outside of an individual’s control, that have contributed to higher stress levels in American adults. The American Psychological Association (APA) conducted a poll in 2022 that inquired about stressful events and other indicators of stress within modern American society (APA, 2022). Of the stressors addressed in the APA poll, the following factors were reported to be the most impactful on adult stress levels in the United States: racial and social injustice, political divisiveness, financial stress related to inflation, and increasing rates of violence. Over 70% of the adults who responded to this poll reported that “they do not think the government cares about the public population”. Additionally, 64% of adults who are a part of the LGBTQIA+ community, adults with disabilities, women, and adults of ethnic minority groups reported that they are stressed about their rights being threatened by government policies. The highest reported stressors in the United States were related to the future of the United States and rates of inflation leading to financial instability.

The majority of adults (76%) who responded to the APA poll report that considering the future of the United States is a significant stressor in their lives. Perhaps the most telling data point gathered from this poll reflects upon the increasing rates of
inflation that 83% of American adults report to be a significant factor contributing to their overall stress. Additionally, this poll found that 46% of adults under the age of 35 in the United States report that their feelings of stress impact their overall ability to function daily. According to prior research, individuals who have low socioeconomic status tend to have higher levels of stress, perceive their control over their situation to be lower, and also report higher rates of stress-induced physical and psychological health issues (Adler et al., 2000; Black et al., 2022; Gallo et al., 2005; McLaughlin et al., 2011; Reiss, 2013; Singh-Manoux et al., 2003). On top of the multitude of sociopolitical and financial stressors that exist within the United States’ current climate, our society is still recovering from and managing the impact of the COVID-19 pandemic (APA, 2023). Since the beginning of the pandemic in 2020, stress levels in American adults have remained slightly higher compared to years prior to the pandemic (APA, 2022).

**Stress in College Students**

On top of the external stress factors in the United States today, individuals pursuing higher education face a multitude of additional stressors that represent a demographic with an increased risk of developing mental health problems (Xiao, 2017). Prior research has determined that college students are more likely to develop mood disorders, specifically anxiety and depression, behavioral disorders, and substance disorders (Siegel et al., 2022). The added vulnerability factor of students developing mental health disorders during their college experience has generated a greater need for counseling resources on campuses, which most colleges and universities are unable to accommodate (Nails et al., 2023). The increasing population of college students in the United States are “more likely than the general population to experience excess stress due to their competing academic, financial, relational, and career-related demands.
The American College Health Association (ACHA) conducted a National College Health Assessment in the spring of 2022 with 54,000 undergraduate students in the United States. The ACHA survey results determined that over 75% of students report experiencing moderate to serious psychological distress. As the majority of undergraduate students struggle to manage both internal and external stressors, 50% of individuals who participated in the survey report difficulties managing academic stress, 89% of which report that academic stress causes moderate to high levels of stress (ACHA, 2022). The National College Health Assessment of 2022 determined that in addition to academic stress factors, numerous external and internal factors contribute to levels of distress within student populations including procrastination, personal appearance, family relations, intimate relationships, and finances (NCHA, 2022). Previous years of the ACHA surveys have found that rates of lifetime depression diagnoses have increased from 10% to 20% from the years 2000 to 2015 (ACHA, 2001, 2014). This statistic unfortunately confirms that the stressors endured during an individual’s college experience can lead to long-term detrimental psychological symptoms and health conditions.

In addition to the multiple internal and external stress factors that students face during their college experience, they also face daily stressors such as academic deadlines and exams. Daily stressors are defined as “relatively minor events” that we encounter in our everyday lives (Almeida, 2005). A research study conducted in 2023 determined that experiencing daily stressors can contribute to more severe physical symptoms of stress compared to symptoms experienced in response to cumulative stress (Haight et al., 2023). That being said, college students consistently manage daily stressors related to their academic deadlines which generates a more significant sense of perceived stress.
during their time in college. Furthermore, individuals who pursue their college education later in life make up one-third of college enrollment; these “non-traditional” adult students face additional obstacles of balancing their academic workload with their “jobs, family, and personal responsibilities” (Giancola, Grawitch & Borchert, 2009).

Many prior studies have focused on assessing stress levels in undergraduate students. That being said, graduate students are a population that has not been thoroughly researched in the context of stress (Hancock, 2002). According to Offstein et al. (2004), a majority of graduate students experience stress, in varying degrees of intensity. Furthermore, graduate students stated that their academic workloads were “intensive” and “demanding” (Offstein et al., 2004). In addition to managing a greater academic workload, graduate students who participated in the Offstein et al. (2004) study reported experiencing a variety of internal conflicts including finding a balance between their academic, work, and personal lives, specifically dealing with “competing demands, unrealized expectations, and a sense of responsibility to significant others, classmates, and employers”. Offstein et al. (2004) also examined personality traits that most of the graduate student participants shared including: “highly committed, persevering or tenacious, exhibiting perfectionistic tendencies, holding high standards for quality, exhibiting a passion for their field, and achievement-oriented”. Although these personality traits facilitate the mental endurance and personal commitment needed to complete a graduate program, they can also lead to over-commitment and burnout (Offstein et al., 2004).

Overall, Offstein et al. (2004) determined that graduate students face “intensely stressful” circumstances throughout their programs due to a combination of internal and external stress factors in addition to the academic stressors of attending a graduate
program. On top of the multitude of life stressors and academic stressors that exist for most graduate students, the financial burden of attending a graduate program is another significant source of stress for students (Lang & Haugen, 2023). In particular, there appears to be “increasing educational debt accrued by psychology graduate student trainees” (Wilcox et al., 2021). The median loan debt of graduate psychology students was found to be around $100,000. A study conducted by Lang & Haugen (2023) revealed that the student loan debt attributed to African American graduate psychology students was even higher in comparison to their white peers ($165,575 vs. $99,777 respectively). The increasing amount of educational debt has become a significant obstacle to graduate students entering the field of psychology. Stress factors related to obtaining a higher education degree greatly impact the lives of undergraduate and graduate students throughout the United States.

In addition to the multitude of stress factors that impact both undergraduate and graduate university students in the United States, the COVID-19 pandemic further contributed to external stress factors. According to Biber et al. (2020), the start of the pandemic brought about “severe environmental changes” that negatively influenced the overall mental health of students. Among the many changes brought about by the COVID-19 pandemic, the most significant was the shift from in-person to online classes. The transition to fully online courses negatively impacted the overall sense of social connectivity and support that many students received from their in-person academic settings (Birmingham et al., 2021). According to Ickes et al. (2015), graduate students rely more on the social support they experience in their programs compared to undergraduate students. This abrupt change in academic setting and structure ultimately lead to an increase in anxiety in both undergraduate and graduate university
students (Birmingham et al., 2021; Cao et al., 2020). Furthermore, many college students experienced job insecurity during the start of the pandemic which further contributed to their increase in anxiety levels and uncertainty about the future (Birmingham et al., 2021; Coibion et al., 2020; Rajkumar, 2020). The overall impact of the COVID-19 pandemic contributed to mental health problems in university students around the world (Cao et al., 2023). The results of a 2020 survey conducted with students in the United States revealed that “71% of college students reported increased psychological stress and anxiety” in response to the onset of the pandemic (Son et al., 2020).

Although the COVID-19 pandemic began over four years ago, the effects of the pandemic are still impacting both the physical and mental health of college students (Cao et al., 2023; Kavvadas et al., 2023). A recent study revealed that female students are more likely to portray symptoms of distress and negative emotions compared to their male student counterparts (Browning et al., 2021). Furthermore, prior research determined that university students who were in treatment for mental health disorders during the pandemic experienced “extremely severe stress, anxiety, and depression” (Kavvadas et al., 2023). A study conducted with university students in Greece over the first three years of the pandemic found that stress, anxiety, and depression levels of students in 2022 were similar to levels reported during the start of the pandemic in 2020 (Kavvadas et al., 2023). To address the many contributing stress factors that university students experience, it is crucial to determine which stress-reduction techniques are the most effective for this growing population.
Stress Reduction Techniques

As discussed, exposure to stress can have significant, detrimental impacts on an individual’s well-being both mentally and physically, as well as impact one’s overall quality of life (American Psychology Association, 2023). That being said, it is of utmost importance that daily stressors and compounded stress are directly addressed to minimize the negative impacts on one’s health and livelihood. A systematic review of thirteen studies revealed that students pursuing higher education had higher levels of self-reported stress which negatively impacted their overall quality of life and well-being (Ribeiro et al., 2017). Over the years, a variety of stress reduction techniques have been studied leading to a greater understanding of stress management and coping mechanisms. Lazarus and Folkman (1984) describe coping as “constantly changing cognitive and behavioral efforts aimed to master specific external and internal expectation, evaluated by a person as aggravating or exceeding their resources”. For stress coping mechanisms to be effective, they must be adaptable to the specific circumstances of the stressful situation (Lazarus & Folkman, 1984).

Varvogli & Darvini (2011) published a collection of evidence-based stress reduction techniques including progressive muscle relaxation (Jacobson, 1938), diaphragmatic breathing, transcendental meditation, and mindfulness-based stress reduction (MBSR). Prior research has found that when practiced regularly, these stress reduction techniques can not only decrease feelings of stress but also counteract the negative physiological responses to stressors. For example, progressive muscle relaxation (PMR) has been found to lower cortisol levels (Pawlow & Jones, 2002), improve blood pressure and heart rate (Sheu et al., 2003), and decrease the occurrence of headaches (Anderson & Seniscal, 2001). Similarly, diaphragmatic breathing also
known as deep breathing or belly breathing, is an exceptionally effective stress coping mechanism that can manage the body’s physiological and psychological responses to stressful situations. The benefits of practicing diaphragmatic breathing regularly can decrease rates of hypertension (Joseph et al., 2005) and also activate the parasympathetic nervous system (Jerath et al., 2006).

Both diaphragmatic breathing and PMR are stress reduction techniques that are regularly utilized in mindfulness-based therapy (MBT) interventions. The use of mindfulness-based practices within the context of treatment has been found to not only increase self-regulation but also encourage cognitive flexibility (Shapiro, 2009). It is commonly believed that mindfulness is an ancient concept derived from Buddhist philosophy, however, the notion of mindfulness is evident in many different religions and ideologies (Brown & Cordon, 2009; Shapiro, 2009; Walsh, 2000). The concept of mindfulness is a practice that entails paying attention, intentionally, to one’s present-moment awareness while also accepting whatever comes up in that moment (Shapiro & Carlson, 2009). Utilizing mindfulness-based exercises, specifically meditation, can not only lessen an individual’s rates of anxiety but also promote a sense of hope (Sears & Kraus, 2009; Shapiro, 2009).

Singh (2021) discusses the origins of MBTs and how these treatment modalities integrate mindfulness philosophy within the context of Western psychological treatment. MBTs rose to popularity within the field of psychology following the third wave of behaviorism, which included cognitive behavioral therapy (CBT) (Hofmann & Asmundson, 2008). This approach to psychological treatment began in 1979 when Jon Kabat-Zinn, a professor at the University of Massachusetts, founded the treatment program known as mindfulness-based stress reduction or MBSR (Kabat-Zinn, 2003).
MBSR is a structured program that teaches clients mindfulness meditation techniques to increase individuals’ present moment awareness which can decrease suffering related to physical illness and psychological disorders (Kabat-Zinn, 1982, 1990). Kabat-Zinn (1994) defines mindfulness as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally”. Several other theoretical orientations that utilize mindfulness-based interventions within treatment include dialectical behavior therapy or DBT (Linehan, 1993a), acceptance and commitment therapy or ACT (Hayes, Strosahl and Wilson, 1999; 2012), and mindfulness-based art therapy or MBAT (Monti et al., 2006, 2012). Previous meta-analyses and systematic reviews of MBTs determined that they are similarly effective to CBT in the treatment of mood disorders, chronic pain, addictions, and post-traumatic stress (Creswell, 2017; Hofmann & Gómez, 2017; Khoury et al., 2013; Lindsay & Creswell, 2017).

Within MBT treatment, clinicians teach clients how to increase their present-moment awareness through mindfulness-based practices such as breathing, reciting a mantra, or simply observing their internal experiences and external surroundings (Singh, 2022). Within DBT treatment, Linehan (2015) proposed a mindfulness-based therapeutic skill known as “opening the mind” which invites clients to experience their emotions, thoughts, and sensations in a non-reactive manner. This process of “opening the mind” can increase an individual’s awareness, which subsequently facilitates clients’ ability to objectively understand personal cognitive and emotional patterns that arise moment-by-moment (Linehan, 2015). This mindfulness-based skill of DBT treatment not only encourages mindful awareness and attention but also facilitates the process of clients’ ability to observe internal experiences with curiosity rather than judgment (Smalley & Winston, 2010).
Overall, MBTs focus on the mind-body connection within treatment and assist clients in the process of better understanding their physiological and psychological states of being. Previous research has determined that stress levels experienced among populations of undergraduate and graduate students have led to an increasing need for counseling services on university campuses, specifically addressing ways in which students can effectively manage and reduce their stress levels (Hunt & Eisenberg, 2009). With a plethora of evidence-based research surrounding the topic of stress reduction and stress management, many prior studies have focused on the effectiveness of short-term, stress reduction interventions within the context of university students, specifically utilizing mindfulness-based practices (Beerse et al., 2019; Clay et al., 2023; Van Lith et al., 2021).

**Art Therapy and Mindfulness**

As previously mentioned, engaging in the art-making process is an effective stress-reduction mechanism (Malchiodi, 2003). Art therapy is “a mental health profession that enriches the lives of individuals, families, and communities through active art-making, creative process, applied psychological theory and human experience within a psychotherapeutic relationship” (AATA, 2017). Art therapy combines elements of both creativity and psychotherapy, which encourages clients to express their thoughts and feelings through the use of art materials in the creative process (Lusebrink, 1990). The emphasis on the structural qualities of art materials and visual expression processes that occur within the context of art therapy treatment differentiates art therapy from other modalities of psychotherapy (Lusebrink, 1990).

Furthermore, art therapy utilizes creative processes to facilitate the overall process of healing in treatment by allowing clients to communicate their thoughts and
feelings in a non-verbal manner (AATA, 1996; Malchiodi, 2003). By engaging in the art-making process with the guidance of an art therapist, clients can externalize their internal experiences which can lead to introspective insight and assist in processing emotional experiences (Allen, 1985; Malchiodi, 1998). Malchiodi (2003) states that art therapy allows individuals to communicate their personal beliefs and perspectives within the context of a therapeutic relationship. Additionally, the art-making process in itself can be a therapeutic experience during which individuals harness their creativity to process their emotions and express themselves (Malchiodi, 2003). The creative processes of art therapy treatment promote a state of mindfulness by engaging the senses in a variety of ways including visualization, tactile stimulation and feeling, physical movements, and even auditory processing that can all occur while interacting with art materials (Clark, 2017). That being said, several prior studies have examined the connection between the art-making process and experiencing mindful awareness or attention. The non-verbal, creative process that takes place during art therapy treatment can promote heightened attention and awareness of the present moment which parallels experiencing a state of flow (Csikszentmihalyi, 1990). Mindfulness that occurs as a result of engaging in the creative process has been referred to as “witnessing consciousness or reflection of present moment awareness through both mind and body sensations” (McNiff, 2014).

Mindfulness-based art therapy (MBAT) is a form of therapeutic treatment that combines elements of the art-making process of art therapy with the mindfulness-based practices of MBSR (Monti et al., 2006). Utilized in a variety of different settings and with a wide range of populations, MBAT is typically structured as an eight-week program that allows clients the opportunity to express themselves both verbally and
non-verbally through the art-making process and also increases clients’ understanding of mindfulness-based stress reduction coping skills. Monti et al. (2006) discuss how the conceptual basis of MBAT applies elements of self-regulation theory (Leventhal et al., 1984, 1992), which explains how individuals manage and adapt to sources of stress. Originally utilized with cancer patients, MBAT is intended to focus on “health-promoting skills... to decrease distress and improve quality of life” (Monti et al., 2006). Therefore, MBAT has been applied to several other populations, including college students, to improve individuals’ ability to manage stress-related symptoms by using both art therapy interventions and mindfulness-based practices.

Prior research that has utilized mindfulness-based art therapy with college student populations has determined that it is especially effective in addressing daily stressors (Beerse, Van Lith & Stanwood, 2019; Van Lith et al., 2021). Van Lith et al. (2021) found that MBAT interventions have the potential to decrease physiological stress responses in college students. Furthermore, MBAT has been found to have greater stress-reducing effects when utilized within college student populations compared to solely art therapy-based interventions or solely mindfulness-based interventions (Beerse, Van Lith & Stanwood, 2019). The use of MBAT interventions for college students has determined that brief meditation interventions have the potential to reduce symptoms related to stress responses, like fatigue, as well as increase a sense of mindfulness and uplift mood in participants (Zeidan et al., 2010). Additionally, several previous studies have researched the effects of a single-session MBAT intervention, which were found to be significantly effective in decreasing negative emotions while also increasing participants’ rates of mindfulness and creativity (Isis et al., 2023). Clay, Kane and Zabeline (2023) found that utilizing brief, online mindfulness practices with college
students leads to an improvement in creativity during the art-making process. That being said, how can different art materials utilized in MBAT interventions impact mindfulness and stress reduction in college students?

**Art Media and The Expressive Therapies Continuum**

Within art therapy treatment, the consideration of art materials, or art media, provided to clients is a fundamental aspect of individualized treatment. Art media can be identified by the characteristics presented during the art-making process (Moon, 2010). Margaret Naumburg, often referred to as the mother of art therapy in the United States, discussed how art media can be categorized on a spectrum of controlled versus fluid based on how easily they can be manipulated or how easily they are applied (Junge & Asawa, 1994). This notion that art media can range from fluid to resistive as well as have specific therapeutic qualities has been discussed by many authors within the field of art therapy (Betensky, 1983; Graves (Kagin), 1983; Kagin, 1969, Kagin & Lusebrink, 1978; Rubin, 1978, 1983, 1984). Materials like watercolor and wet clay are considered to be fluid as they are difficult to contain, whereas materials like graphite pencils and colored pencils are more rigid since they are highly controllable and easily manipulated (Hinz, 2009; Malchiodi, 2003). Schnetz (2005) states that some art materials are “dense and slow to apply” while others have a “lighter, simplistic touch”, furthering the distinction between fluid and restrictive media.

Taking into consideration the variety of characteristics that exist within the spectrum of art media, art therapists are responsible for catering to each client’s needs and abilities throughout different points in treatment when providing art media during sessions. Moon (2015) explains how materials utilized in art therapy treatment can be potentially harmful depending on the circumstances, therefore art therapists are required to
carefully select the art media that they provide to clients. The use of art media within the context of art therapy treatment is considered to be an added component to the therapeutic relationship between the therapist and clients (Kramer, 1986). Furthermore, providing high-quality but also accessible art materials is an essential aspect of art therapy treatment that can cultivate a sense of self-respect in clients (Henley, 1991; Schaverien, 1992). Malchiodi (1998) and McNiff (1995, 1999) discuss how the varying characteristics of art materials, as well as the quality and quantity of art materials, can impact the therapeutic process by eliciting different sensory and emotional experiences.

Depending on how an individual chooses to control and manipulate art materials during their creative process, the structural elements of an image are subject to change. Lusebrink (1990) describes how the structural elements of an artistic image include how the image is organized in terms of how the lines, forms, and colors are placed on a page. Kagin and Lusebrink (1978) published a model of organization for art media and perceptual processing that occurs while engaging in a variety of art-making activities, referred to as interventions or directives within art therapy, known as the Expressive Therapies Continuum (ETC). The ETC was developed based on previous concepts of cognitive and image processing published by Bruner (1964) and Horowitz (1970). The ETC consists of four levels that represent a range of information processing that occurs during the art-making process including Kinesthetic/Sensory, Perceptual/Affective, Cognitive/Symbolic, and the Creative level.

The Kinesthetic/Sensory level of the ETC promotes mindful awareness and has the potential to facilitate emotional processing and expression in clients (Lacroix, Peterson & Verrier, 2001; Meijer-Degen & Lansen, 2006). This study will primarily focus on the Kinesthetic/Sensory level which focuses on the release of energy and tactile
sensations that arise from interacting with art materials. According to Karin & Lusebrink (1978b), kinesthetic interactions with art materials are defined by dynamic, physical movements of the body. The sensory component of this level of the ETC encompasses the tactile experiences that surface when an individual interacts with a range of art media, specifically referring to the differing perceptual sensations that one experiences when creating art.

As mentioned, the consideration of art materials has a significant impact on both the therapeutic and creative processes of art therapy (Henley, 1991; Malchiodi, 1998; McNiff, 1995, 1999; Schaverien, 1992). Hinz (2009) describes a variety of art media that can be especially useful in eliciting the Kinesthetic/Sensory level of the ETC including wet clay, finger paint, oil pastels, and watercolors. Kagin and Lusebrink (1978b) state that art media considered to be fluid, which is generally utilized in Kinesthetic/Sensory level art therapy processes, can promote experimentation and evoke emotional responses while engaging in art making. Prior research found that finger painting was more effective in facilitating a state of mindfulness when compared to painting with paintbrushes (Stanko-Kaczmarek & Kaczmarek, 2016). This study explains how finger painting was reported to be a more expressive art experience due to the heightened tactile and sensory processing that allowed participants to experience greater levels of mindfulness. Several MBAT studies that examined how different art media impact stress reduction typically compared the effects of art media on opposite ends of the art media continuum, like graphic pencil versus natural clay (Crane, 2010; Penzes et al., 2023).

**Expanding On Prior MBAT Research**

Although prior research suggests that highly tactile art media promote a sense of mindfulness, this study compared the mindfulness and stress reducing effects of using
collage versus acrylic paint in a MBAT intervention. Therefore, this study revolved around the research question: can painting with a variety of tools and creating collage using only colored and textured paper promote a sense of mindfulness during the art-making process? Several art therapy studies have examined a variety of art media in relation to stress reduction and mindfulness. Crane (2010) compared the differences in using clay, pencil, and paint for the purpose of stress reduction and ultimately determined that clay was that most effective art media in reducing stress. Some prior studies conducted with college student subjects examined the differences between a MBAT clay intervention and a neutral clay task (Beerse et al., 2019; Van Lith et al., 2021). Ando & Ito (2014) utilized a wide variety of art media in a modified MBAT study including clay, collage, drawing and watercolor painting. That being said, Ando & Ito (2014) did not analyze the differences between art media utilized by participants during their research. This study expands upon prior research that examined how different art media impact levels of stress in participants by focusing on media that has not been thoroughly researched within the context of stress reduction in college students: collage and acrylic paint.
Chapter III. Methodology

Research Question

How do differing art materials impact mindfulness during the art-making process? How are stress levels affected by art media during mindfulness-based art therapy (MBAT) interventions? This mixed methods, art-based study explored the effect of differing art media on state mindfulness as well as stress reduction in university students. The present study aimed to expand upon prior MBAT research by utilizing art media that has not been thoroughly researched in the context of stress-reduction including acrylic paint and collage. The inclusion of art media not used in prior MBAT research for stress-reduction interventions may offer additional insight into experiencing mindfulness and decreasing stress levels by engaging in an art-making process. Prior research has determined that MBAT interventions are more effective in reducing stress levels in university students compared to interventions that solely utilize mindfulness-based interventions or art-only interventions. Therefore, it was predicted that if students were able to engage in mindfulness during the creative process, their stress levels would decrease after participating in the MBAT intervention.

Participants and Location

The participants for this study included undergraduate and graduate students from the Dominican University of California (DUC) in San Rafael. For students to qualify for participation, they had to be over the age of 18 and were enrolled at DUC as full-time students. Participants were recruited for this study through fliers that were posted throughout the DUC campus (see Appendix A). Additionally, digital copies of the fliers were distributed through emails to students in the undergraduate psychology department, the graduate occupational therapy department, and the graduate
Participants were required to sign an informed consent document that described the process of the research study, including the requirements to participate, and agreed to share digital reproductions of their artwork created during the study. The artwork, written responses, and signed consent forms were stored digitally and anonymously under a password-protected file on a protected device, the researcher’s personal computer. Participants met with the researcher individually on the campus of DUC to ensure accessibility and convenience.

**Procedures, Materials, and Interventions**

Students interested in participating in the study reached out to the researcher via email stating their interest or through the Google form which they accessed through the recruitment flier QR code (see Appendix A). The Google form included three questions related to the requirements for participation including age requirement, current enrollment at DUC, and ability to meet in person for the study. The researcher responded to interested students with more information on the study and also included documents for the students to sign and return before their participation (see Appendix B and C). Once participants completed the preliminary paperwork, the researcher scheduled an individual, in-person meeting time during which the participants completed a guided mindfulness exercise known as a body-scan meditation followed by a 20-minute Mindfulness-based Art Therapy (MBAT) intervention. As each participant arrived at their scheduled meeting, the researcher provided a verbal overview of the research process.

Following this overview of the study’s process, participants followed along with a brief body-scan meditation exercise that the researcher verbally guided them through. The script for the body-scan meditation, inspired by Kabat-Zinn’s MBSR body-scan
meditations, was created by the researcher to fit the context of the study (see Appendix E). After completing the body-scan meditation, participants were provided with a set of art materials and tools (see Appendix F). Participants were instructed to interact with the art materials without attempting to create a final product or image. The purpose of the art directive was to explore the physical qualities of the art media including colors, textures, mark-making with different tools, and tactile experiences like ripping paper. The participants were randomly assigned to one of two groups, acrylic paint or collage, to complete the MBAT intervention. The participants using acrylic paint were provided with six colors including yellow ochre, primary yellow, primary red, primary blue, hooker’s green hue, and burnt umber. Additionally, participants were provided with titanium white and Mars black to alter the values of the colors. A variety of painting tools were also provided including natural and synthetic sponges, a palette knife, a variety of paint brushes, a paint palette, water, paper towels, and unscented hand wipes. The participants will also be provided with a plastic paint palette to mix colors if they so desire.

The participants who were randomly assigned to the collage group for the MBAT activity were provided with a variety of colored tissue paper, construction paper, printed card stock, scissors, and unscented hand wipes. The paper provided to the collage group did not include images to ensure that participants could focus solely on the art-making process of collage, rather than focusing on the image content or message of the collage. Additionally, the participants working with collage were provided with liquid glue, a glue stick, and double-sided tape. The variety of adhesive materials provided to participants in the collage group allowed them to choose whichever adhesive they preferred, as some individuals are apprehensive about working with liquid glue. All
participants were provided with 14 x 17” mixed media paper to work on for the 20-minute duration of the art activity. The researcher provided participants with verbal instructions for the mindfulness-based art directive (see Appendix F). Once participants completed the MBAT intervention, they were asked to complete the post-test questionnaire in the form of written responses via Google Forms (see Appendix G). Lastly, the researcher asked each participant a set of semi-structured interview questions related to the artwork they created during the MBAT intervention as well as their overall experience of participating in the study.

**Measurements, Interviews, and Written Responses**

Participant data was recorded in the form of written responses through both pre-test and post-test questionnaires. The pre-test questionnaire included questions related to each participant’s demographic information as well as a self-reported rating of their current stress levels on a scale of 0-7 (0 = no stress, 7 = high stress) for the pre-test and post-test questionnaires. A portion of the pre-test questionnaire also included a self-reported understanding and prior experience with mindfulness by indicating “yes” or “no” in response to statements such as “I have practiced mindfulness on my own” and “I am familiar with the concept of mindfulness”. As participants arrived at the study, the researcher gave an overview of the process of the study, ensuring that each participant clearly understood the procedures. The process of the study began with a 5-minute guided body-scan meditation exercise, followed by a 20-minute Mindfulness-based Art Therapy (MBAT) intervention.

The post-test questions were completed by participants in a combination of written responses as well as interview questions that asked participants to reflect upon their art-making experiences. The post-test questions asked participants to self-report
their stress levels once again on a scale of 0-7 (0 = no stress, 7 = high-stress level). Additionally, the post-test questionnaire asked participants to describe their thoughts, feelings, and physical sensations that they experienced during the body-scan and art activity, related to their ability or lack thereof to engage in mindfulness throughout the study. The interview questions asked at the end of the study revolved around each participant’s art which they created during the MBAT directive (see Appendix H). The researcher asked participants to describe their art piece, title their art piece, and reflect upon their experience interacting with the art materials they were provided with.

**Data Analysis**

The data collected from the participant’s written responses was analyzed by comparing the differences in responses from participants who used collage versus acrylic paint during the MBAT activity. The qualitative data related to mindfulness and stress reduction was further analyzed by the researcher in terms of themes that emerged in the participants’ written responses to the pre-test and post-test questionnaires, as well as the verbal responses collected during the interview questions. The artwork created during this study provided additional qualitative data in regard to each participant’s unique experience, specifically reflecting upon their thoughts, emotions, and physical sensations that arose during the creative process. Additionally, the researcher analyzed and grouped the given titles of participants’ art pieces in terms of related words and themes. The interview questions also allowed participants the opportunity to further explain their chosen title, offering the researcher greater insight into their thought process during the MBAT intervention. In terms of quantitative data, the self-reported stress levels of each participant in the painting and collage groups were compared through their pre-test and post-test responses. The researcher analyzed
whether or not there were changes in each participant’s stress levels and which art material, collage or acrylic painting, elicited a greater stress-reducing response. The data collected from this study directly addressed the research question: How are stress levels affected by art media during mindfulness-based art therapy (MBAT) interventions?

In regard to data analysis of the artwork created during the study, the researcher referred to both the written and verbal responses from participants. Each participant disclosed the thoughts and feelings that arose during their art-making process in their written responses and verbally discussed the objective content of their artwork in response to the semi-structured interview questions. How participants verbally described their art-making process provided insight into how they interacted with the art materials, which was also evident by observations made by the researcher of each participant’s engagement with the art materials and tools provided to them. The insights gathered from the qualitative data in this study directly addressed the research question: How do differing art materials impact mindfulness during the art-making process?

**Risks and Benefits**

Although the art directives do not instruct participants to produce a specific image, engaging with art materials of any kind could potentially lead to emotional discomfort or emotional vulnerability within participants. Additionally, participants who were unfamiliar or inexperienced in working with the art materials provided for the art directives experienced some level of frustration. Each participant was provided with accessible resources for nearby mental health organizations as well as several hotlines to contact if they felt overwhelmed or had an increase in stress levels as a result of their participation in the study. These resources were shared with participants through the
informed consent document as well as at the end of the interview questions to ensure that each participant had physical copies of these accessible resources.

Several benefits arose for participants who chose to take part in this research study. For participants who did not have prior experience with mindfulness-based exercises, this study introduced students to a new stress-reduction and stress-management technique. Furthermore, the participant’s engagement in the art-making process during the MBAT intervention also served as a stress-reduction activity that students can utilize in the future to manage their daily stress levels.

**Protection of Participants**

Each participant’s identity remained anonymous in the data collected from this study to ensure confidentiality and privacy. Following each volunteer’s participation in the study, their name and initials were replaced with a participant ID to avoid the retention of any personal information during data storage. The artwork created during the study was sent home with each participant leaving the researcher with only digital copies of each art piece, which is stored on a password-protected device, the researcher’s personal computer. This research study follows the ethical guidelines of the California Association of Marriage and Family Therapists and/or the California Association for Licensed Professional Clinical Counselors, the American Art Therapy Association, and the Dominican University of California.
Chapter IV. Results

Introduction

This mixed-methods, art-based study explored the relationship between mindfulness, stress reduction, and art media — specifically acrylic paint and collage. The participants for this study were undergraduate and graduate students (N=11) from the Dominican University of California in San Rafael, California. The researcher met with students in person on campus for individual sessions. The individual meetings were held throughout March and April during which several participants reported that they had midterm exams and presentations, which may have contributed to their overall stress levels. The students who volunteered to participate in this study included 10 female participants and 1 male participant ranging in age from 20-64 years old. The racial background of participants included 6 White students, 3 Latina students, and 2 Asian students. Of the 11 participants, 3 were full-time undergraduate students and 8 were full-time graduate students. Of the 8 graduate students, 4 were art therapy students, 2 were occupational therapy students, 1 was a counseling psychology student, and 1 was a physician assistant student. Of the 3 undergraduate students, 1 was a psychology student, 1 was a chemistry student, and 1 was a communication and media studies student. The students were randomly assigned to 2 groups: (N=5) students were assigned to the acrylic paint group and the other (N=6) participants were assigned to the collage group.

Before engaging in the mindfulness exercise and art intervention, each student filled out a pre-test questionnaire in which they reported any prior experience with mindfulness. 82% of the student participants reported that they both understood the concept of mindfulness and also had experience practicing mindfulness. There was one
participant from each group who reported they either did not have experience practicing mindfulness or that they did not understand the concept of mindfulness. Participant F, in the collage group, stated that they had prior experience practicing mindfulness, but had never participated in a guided meditation. In the painting group, Participant J stated that although they had heard of mindfulness they did not understand the concept of mindfulness, nor had they ever participated in a mindfulness-based exercise. Additionally, students reported whether or not they had prior experience working with the art media to which they were randomly assigned — acrylic paint or collage. Overall 91% of the students reported that they had prior experience working with the art media that was provided to them. There was one participant, Participant B in the collage group, who reported that they did not have prior experience working with collage materials. Student participants were also asked to score their current state of stress on a scale of 0-7 (0 = no stress, 7 = high stress) in both the pre-test and post-test questionnaires. The average pre-test stress score reported by the 11 participants was 4 out of 7, while the average reported stress score of participants in the post-test was 2 out of 7. Overall, 9 out of the 11 participants reported a decrease in their stress score from pre-test to post-test rating by at least one point. The pre-test and post-test stress scores are depicted below in Table 1 and Figure 1.
Table 1 Collective Results of Pre-Test and Post-Test Stress Scores

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Test Stress Score</th>
<th>Post-Test Stress Score</th>
<th>Difference in Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>4</td>
<td>-2</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>0</td>
<td>-3</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>G</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>H</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>J</td>
<td>7</td>
<td>3</td>
<td>-4</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

Average decrease in stress scores: 1.727272727

Figure 1 Graph of Pre-Test and Post-Test Stress Scores

Guided Body-Scan Meditation Experiences

Participants provided both written and verbal responses to questions related to their experiences during the guided body-scan meditation and art-making process.
Overall, the participants from both the acrylic paint and collage groups reported having positive experiences during the guided body-scan meditation. In the post-test questionnaire, participants were instructed to describe their experience during the body-scan meditation using three words or phrases. The words and phrases that came up the most in participants’ responses for describing the body-scan meditation were “relaxing” or “calming”, which 8 of the 11 participants reported experiencing. The second most recurring words for describing the body-scan meditation with 4 out of the 11 participants were “awareness” or “focused”. Additionally, 3 of the 11 participants reported that the body-scan meditation was “grounding”. Other words that appeared in participants’ descriptions of their body-scan experiences were “releasing” or “sensations”, which were reported by 4 of the 11 participants.

In addition to describing their overall experience during the body-scan meditation, participants were asked to report any bodily sensations, thoughts, or emotions that arose during the mindfulness exercise. The written responses from the majority of participants revealed that the guided body-scan meditation was effective in increasing awareness of physical sensations throughout the body and also increased participants’ ability to redirect their focus to breathing and noticing when their thoughts wandered. A majority of the student participants, 10 out of the 11, reported that they noticed an increase in awareness of their bodily sensations during the guided body-scan meditation. This increase in bodily awareness was evident in several of the participants’ written responses to the post-test questionnaire. For example, Participant K reported: “I felt very connected and hyper-aware of my body. I felt grounded”. Many participants described an increased awareness of where they were holding tension, feeling pressure, heaviness, or clenching different parts of their bodies. Participant B wrote that “the
breathing connection and awareness helps me to feel immediate signs of relaxation... helps bring immediate understanding that I was holding my body tensely”. Additionally, the post-test questionnaire asked each participant to provide written responses related to their ability to maintain focus in the present moment or engage in mindfulness, during the body-scan meditation. The responses from participants varied, with some reporting they were able to focus on the body-scan meditation fully, while others reported having some difficulty maintaining focus due to external distractions or wandering thoughts. Although some participants stated that their present-moment awareness shifted throughout the guided body-scan meditation, most were able to redirect their focus to the task at hand. Participant H stated: “My thoughts drifted from time to time but following the guidance I returned to my breath and became aware of my body again”. Additionally, Participant D stated: “I noticed I had a harder time focusing and not worried about things outside the meditation. I felt my body become more calm as it went on”. Participants were also asked to describe any emotions that surfaced during the body-scan meditation, many of which paralleled the descriptive words used to describe their overall experiences. The overall results of participants’ written responses from their experiences during the body-scan meditation exercise are listed in Table 2 below.
Table 2 Overall Results of Body-Scan Descriptions (N=11)

<table>
<thead>
<tr>
<th>Description of Body-Scan Meditation</th>
<th>Number of Participants Who Reported</th>
<th>Overall Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing/ Calming</td>
<td>8</td>
<td>73%</td>
</tr>
<tr>
<td>Awareness/ Focused</td>
<td>4</td>
<td>37%</td>
</tr>
<tr>
<td>Grounding</td>
<td>3</td>
<td>28%</td>
</tr>
<tr>
<td>Releasing</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>Sensations</td>
<td>1</td>
<td>18%</td>
</tr>
</tbody>
</table>

**Mindful Art-Making Experiences**

The remainder of the post-test questionnaire prompted participants to respond to reflective questions related to their experiences during the art-making portion of the study. Participants were instructed to explore a variety of art media and tools provided to them and create art for 20 minutes. The researcher encouraged participants to maintain their focus on engaging with the art media and to redirect their attention if they became distracted. Every participant in both the acrylic paint and collage group utilized the entirety of the allotted time to engage in the art-making process. Once completed, participants were asked to reflect upon their art-making experience and title their art piece. Surprisingly, 10 out of the 11 participants titled their art pieces referencing nature in some capacity. 2 of the 5 participants in the painting group titled their artwork “Nature”. Figure 2 below depicts the artwork created by participants in both groups as well as their given titles highlighting the sole outlier, Participant E in the collage group, who titled their piece “Mending”.
### Figure 2 Participants' Artwork and Titles

<table>
<thead>
<tr>
<th>ACRYLIC PAINT</th>
<th>COLLAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme of nature</strong></td>
<td><strong>Theme of nature</strong></td>
</tr>
<tr>
<td><strong>Exception</strong></td>
<td><strong>Exception</strong></td>
</tr>
<tr>
<td>&quot;The fish friends&quot; - Participant A</td>
<td>&quot;Pink galaxy&quot; - Participant B</td>
</tr>
<tr>
<td>&quot;Nature&quot; - Participant C</td>
<td>&quot;Park day&quot; - Participant D</td>
</tr>
<tr>
<td>&quot;Nature&quot; - Participant G</td>
<td>&quot;Confined Sun&quot; — Participant F</td>
</tr>
<tr>
<td>&quot;Midnight blues&quot; - Participant J</td>
<td>&quot;Freeway fire&quot; - Participant H</td>
</tr>
<tr>
<td>&quot;Mending&quot; - Participant E</td>
<td>&quot;My garden&quot; - Participant I</td>
</tr>
<tr>
<td>&quot;Heaven&quot; - Participant K</td>
<td></td>
</tr>
</tbody>
</table>
Participants also responded to questions related to their overall ability to maintain their attention and reflect upon their ability to notice their thoughts and emotions during the mindfulness art-based intervention. Participants were asked to describe whether or not they were able to redirect their focus to engaging with the art materials during the mindful art activity. The majority of participants, 81.8%, stated that although their attention did shift at points during the art-making process, they were ultimately able to redirect their focus to engaging with the art media. For example, Participant D of the collage group wrote: “I felt myself shift attention to what I was hearing outside and looked up once to the window to look at the trees. For the most part, I felt very focused on the papers and what to do with them”. Additionally, Participant E of the acrylic paint group reported: “I was not really thinking about much other than the art material at first...I just felt more in the moment with the art and getting lost in the process as I am creating it and reaching completion. So yes, I was able to redirect my focus to engaging with the art materials”. Several participants reported that they were able to maintain focus on engaging with the art materials and art-making process, specifically 1 of the 5 participants of the acrylic paint group and 2 of the 6 participants of the collage group. Participant H of the collage group stated: “My attention did not drift during the art making. If anything, I was aware of the time limit so wanted to keep going, but even that distraction lessened as I engaged with the materials”. Participant J of the acrylic paint group reported: “I noticed that during the art-making process, my attention was completely on making the art. I have been struggling to focus on things because of how much I have going on. It was a relief to truly let my worries subside”.

Participants were also asked to reflect upon their ability to monitor their thoughts during the mindful art activity and describe if and how their thoughts impacted their creative process. A majority of the participants, 10 out of the 11, reported that they were aware of their thoughts during the art-making process, Participant I was the only participant who reported that their thoughts did not impact their art-making process. Overall, 6 out of the 11 participants reported having thoughts related directly to the use of the art media provided to them or the image that they were creating. Several participants reported thinking about what colors, tools, or paper to utilize during their art-making process, while others were reminded of previous experiences interacting with the art media they were assigned. Participant D reported: “I was remembering making other crafts or art projects in elementary school, as well as making other collages with a friend...which is a very fond memory for me”.

For some participants, the art-making process offered an opportunity to quiet thoughts and fully focus on the task at hand. Participant J reported: “I observed that my thoughts became quieter the longer I painted. I think I painted aspects of the night sky because that’s when I feel the most at ease, it was a place of comfort”. Some participants reported that their thoughts related to being perceived by the researcher during the art-making process were somewhat distracting, but ultimately they were able to redirect their focus to the art-making process. For example, Participants A and C describe that they both had thoughts related to how their art would be viewed and experienced some level of discomfort in being observed by the researcher during the art-making process. Furthermore, some participants reflected on their thoughts related to their artistic ability and desire for their artwork to turn out a certain way. Participant K reflected on their thoughts related to their artistic ability and a desire to improve stating: “I
remembered the instruction that the collage should just flow and I need not have any specific art image goal”. Participant G reported: “I think while I created I was fighting with myself to just let myself experiment with art versus trying to paint a picture. I often questioned my choices but went for it and tried to fix colors or images that were appearing when I didn’t like it”. Although these participants noticed their self-critical thoughts during the art-making process, towards the end of the 20-minute art process they were both able to make the most of the art media provided to them while also embracing the exploration element of the mindfulness-based art intervention. The overall results of participants’ ability to monitor their thoughts and redirect their focus during the mindfulness-based art therapy activity are listed in Table 3 below.

<table>
<thead>
<tr>
<th>Thought Awareness and Focus During Art Making</th>
<th>Number of Participants Who Reported</th>
<th>Overall Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoughts wandered during art-making</td>
<td>6</td>
<td>55%</td>
</tr>
<tr>
<td>Redirected focus during art-making</td>
<td>8</td>
<td>73%</td>
</tr>
<tr>
<td>Thoughts focused on art-making</td>
<td>5</td>
<td>45%</td>
</tr>
</tbody>
</table>

All of the 11 participants were able to report emotions that they experienced during the art-making process. Overall, the most commonly reported emotions were joy and excitement, which 6 of the 11 participants stated they had experienced while engaging with the art media. Additionally, 4 of the 11 participants reported feeling calm or relaxed during the mindfulness-based art activity. It appears as though the majority of participants experienced positive emotions during the art-making portion of this study, however several of these participants also reported experiencing anxiousness as well. Out of the 11 participants, 3 reported feeling anxious and 2 reported feeling frustrated during the art-making process. That being said, every participant who reported feeling anxious or frustrated at some point during the art-making
process also reported feeling joy or calm. For example, Participant E stated: “I felt slightly uncomfortable and frustrated when the artwork is in an unfinished state or when it’s not doing what I wish. However, as the art piece is finishing up nicely, I felt a sense of joy and accomplishment. I also felt a little sluggish at the beginning and picked up my mood...toward the end”. Similarly, Participant I reported: “During the process, I felt anxious about the work I was doing to be likable, then I felt that that didn’t matter, and then confident about my work’s progress”.

In addition, several participants reported experiencing a release of emotions during the art-making process, in particular, feeling at ease or comforted by their creative process. Participant J wrote: “I noticed that I did become more emotional, specifically calmer. I also experienced a wave of sadness that I could only assume has been pent up throughout my day”. Likewise, Participant K reported feeling a desire to improve their artistic ability and wanting their collage image to appear a certain way that they had pictured in their mind. However, Participant K stated: “I did realize that I should let the beautiful art flow with a decent goal in mind, but not to hold onto the image I made in my mind”. Overall, participants in both groups were able to reflect upon the emotions that surfaced for them individually during the art intervention. These reports suggest that although some participants experienced negative emotions such as anxiousness or frustration, they were ultimately able to feel a sense of accomplishment or calmness once they completed their artwork. The overall results of participants’ descriptions of their emotions during the mindfulness-based art therapy activity are listed in Table 4.
Table 4 Overall Results of Emotions Described During Art-Making (N=11)

<table>
<thead>
<tr>
<th>Description of Emotions During Art-Making</th>
<th>Number of Participants Who Reported</th>
<th>Overall Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>3</td>
<td>28%</td>
</tr>
<tr>
<td>Joy/ Excitement</td>
<td>6</td>
<td>55%</td>
</tr>
<tr>
<td>Frustration</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>Calm/ Relaxed</td>
<td>5</td>
<td>45%</td>
</tr>
<tr>
<td>Surprised</td>
<td>2</td>
<td>18%</td>
</tr>
</tbody>
</table>

Semi-Structured Interview Verbal Responses

Participants were asked to respond verbally to a handful of semi-structured interview questions related to their artwork as well as their overall experience of participating in the study. The researcher asked participants to describe their art pieces objectively which provided greater insight into each participant’s art-making process as well as context for the images they created. As mentioned previously, 10 out of the 11 participants described elements of nature that they had incorporated into their mindfulness-based art intervention. Many participants described scenes of nature including a variety of landscapes, animals, and plant life. Coincidentally, two of the participants in the acrylic paint group, Participant C and Participant G, titled their pieces “Nature”. Participant E, the only participant who did not report including any elements of nature, described their art-making to be more process-based which encompasses the mindfulness-based purpose of this study. Participant E reflected upon the painting they created as follows: “I just kind of picked whatever color attracted me. I didn’t really think it was going to go the direction that it eventually went but it turned out how I wanted it to” (Figure 3).
Many participants described the colors and textures that emerged in their artwork, explaining their deliberate choices or lack thereof. Furthermore, several participants described specific emotional responses that influenced their artistic choices as well as the affective response to their artwork once completed. For example, Participant B described their intention of utilizing certain materials in their collage piece titled “Pink Galaxy”: “Intent was to create a pink horizon a luxurious space. I was actually thinking about an entire pink galaxy, also stems from my love of pink. Plus some of those papers really inspired me” (Figure 4). Similarly, Participant C described their painting “Nature” as: “The tree and cliff area is a container for everything that’s inside of it. Shining light and energy in the center, radiating outward... it's all kind of connected. I really like the blue center, it feels very calming and cooling” (Figure 5). Additionally, some participants described how the art pieces created during the
mindfulness-based art intervention represented meaningful aspects of their everyday lives and personal beliefs. Participant J described how their painting titled “Midnight Blues” captured their favorite time of day: “I created multiple shades of blue to represent the midnight sky. That’s the time I can feel my emotions and stress release” (Figure 6). Participant K entitled their collage piece “Swarg”, the Sanskrit word for heaven, explaining: “The main part is the lotus right in the middle of the pond...Lotus to me, is really a symbol of calm and purity. And the golden, orange diamonds, I see it as divine light that is on top of the lotus” (Figure 7).
Figure 5 Participant C: Nature

Figure 6 Participant J: Midnight Blues
Participants were also asked to verbally describe their overall experience of interacting with the art media provided to them during the mindfulness-based art intervention portion of this study. The collage group was comprised of (N=6) students, and the remaining (N=5) students were randomly assigned to the acrylic paint group. The purpose of this study was to further explore the effect of differing art media on mindfulness and stress reduction, therefore this interview question provided greater insight into how each university student responded to the art media provided to them during their participation in this study. Of the 11 participants, 4 described experiencing some level of discomfort while interacting with the art media assigned to them. Some participants described that their lack of familiarity with the art media contributed to their discomfort during the art-making process, while others described how the open-ended nature of the mindfulness-based art intervention impacted their attitude towards
working with the art media provided to them. For example, Participant A described their initial reaction to the mindfulness-based art intervention: “At first, having the blank page was kind of hard for me especially because I don’t use paint a lot myself. But I liked having the sponges and playing around with them and got to a place where I saw an image in the art and it made me feel more comfortable”. Despite the initial discomfort that Participant A experienced, they were ultimately able to make the most of the art media they were assigned while also embracing the opportunity to explore the different paint tools provided. Similarly, Participant B described their initial apprehension to working with the collage materials provided to them: “I’m used to using sticky glue, the glue stick was not aesthetically pleasing to me to put the tissue paper on top... I don’t like getting my fingers messy, I usually use a paintbrush to put things down. Concerned about wasting materials and using fingers. I only just used tissue paper for the first time yesterday, so when I used the tissue paper and it tore a little bit, I really liked that”.

Although some participants experienced a certain level of discomfort interacting with the art media because they were unfamiliar or uncomfortable with the group they were randomly assigned to, several participants described their overall interaction with the art materials to be positive. Participant C described their experience interacting with the acrylic paint and painting tools provided to them as follows: “I like using the palette knife, I feel like you can manipulate the paint in a lot of ways which felt really fun... I like using the sponges to create texture and it’s a fun, different motion to use when painting. It was fun to just explore the different media options”. Participant H described their positive experience of interacting with the collage materials provided to them: “So I started with no idea...As soon as I started putting the pieces on the paper, they started to rise up and I stopped trying to make a picture, kind of dictated by how I cut the paper. I
was surprised by the way it rose up out of the white paper...I wanted it to be something rather than just glue pieces together, I wanted it to have life - to be alive” (Figure 8).

*Figure 8 Participant H: Freeway Fire*

Lastly, participants were asked if they would consider practicing mindfulness exercises in the future, following their participation in this mindfulness-based art therapy study. Every university student who participated in this study (N=11) reported that they would be interested in practicing mindfulness exercises outside of the present study. Of the 11 participants, 5 participants reported that they currently utilize some form of mindfulness practice in their everyday lives. These participants stated that they engage in mindfulness practices in a variety of ways including guided mindfulness meditation through YouTube or podcasts, yoga practices, and deep breathing exercises. Participant H described their relationship with mindfulness practices and expressed a desire to incorporate their practice with their art-making practice: “I do that (mindfulness practice) on a daily basis, I don’t think I do that enough with art... it’s nice
to have some type of visual to practice mindfulness. Usually, when I do mindful art it’s
drawing. I don’t think I’ve done a lot with acrylic in this way... I do enjoy paint”.

**Differences in Results Between Groups**

Participants reported either no change in stress scores or a decrease in stress
scores by at least 1 point between their pre-test and post-test ratings. However, there
were significant differences in stress scores reported from the participants in collage and
painting groups. The average decrease in stress scores for the participants in the
painting group (N=5) was 2.2 points, while the average decrease in stress scores for the
participants in the collage group (N=6) was 1.3 points. Therefore, based on the
quantitative responses from the 11 participants, there was a greater decrease in overall
stress in the participants who were assigned to the acrylic paint group. It should be
noted that although most participants in the collage group had a decrease in stress
scores by at least 1 point, Participant H and Participant I reported no change in their
stress levels from pre-test to post-test. The participants with the greatest decrease in
stress levels were Participant J from the painting group and Participant D in the collage
group. Participant J reported a 4-point decrease in stress scores, while Participant D
reported a decrease of 3 points in stress scores. Furthermore, the average pre-test stress
score for the painting group participants was 5 out of 7 and an average post-test stress
score of 2.8 out of 7. Participants in the collage group reported an average pre-test stress
score of 3.5 out of 7 and an average post-test stress score of 2.16 out of 7. Although the
participants in the painting group had a more significant decrease in stress scores, they
also reported higher pre-test scores compared to participants in the collage group. The
differences in pre-test and post-test stress scores of the painting and collage groups are
listed in Table 5 and Table 6.
There were several differences between the two groups regarding the number of participants who used specific words to describe their experiences during the body-scan meditation exercise and the MBAT activity. The words and phrases that reoccurred throughout participants’ responses to describe their experience during the body-scan exercise were: relaxing or calming, awareness or focused, grounding, releasing, and sensations. The most commonly used words were ‘relaxing’ and ‘calm’, which 8 out of the 11 participants listed in their written responses. In the painting group, 4 out of 5 participants described the body-scan with the words ‘relaxing’ or ‘calm’. Similarly, 4 out of 6 participants in the collage group used the same words to describe their experience during the body-scan. The second most recurring words used by participants were ‘awareness’ and ‘focus’. 4 out of the 11 participants used to describe the body-scan meditation; 3 of those participants belonged to the painting group and 1 to the collage group. Overall, more participants in the painting group used the words ‘relaxing’, ‘calming’, ‘awareness’, and ‘focused’ to describe their body-scan experience. The collage and painting group participants’ descriptions of their body-scan meditation experiences are listed in Table 7 and Table 8.

In addition, there were differences in how participants from either group described their emotions that arose during the MBAT activity. Overall, the most widely used words by participants to describe their emotions during the art-making process were ‘joy’ and ‘excitement’. These words were used by 6 out of the 11 participants listed in their written responses. In terms of differences between the two groups, 2 of the 5 participants in the painting group used the words ‘joy’ or ‘excitement’ to describe their art-making experience compared to 4 out of 6 participants in the collage group. Similar to the descriptions of the body-scan exercise, some of the most reported descriptions
were ‘calm’ and ‘relaxed’ which 5 of the 11 participants used to describe their emotional responses to the art-making portion of the study. Of those 5 participants, 3 were assigned to the painting group and 2 were assigned to the collage group. The collage and painting group participants’ descriptions of their emotional responses to the mindfulness-based art therapy activity are listed in Table 9 and Table 10.

Lastly, there were differences between the two groups concerning participants’ ability to maintain focus during the art-making activity and redirect their focus. Several participants in both groups reported that their thoughts were directly related to the task at hand, engaging in the art-making process. In the painting group, only 2 out of 5 participants stated that their thoughts wandered or they became distracted during their art-making process. In contrast, 4 of the 6 participants in the collage group reported that their thoughts wandered during art-making. Several participants in the painting group, 3 out of 5, stated that they observed their thoughts during the art-making process to be directly related to the art process in terms of making creative decisions. In the collage group, only 2 out of the 6 participants reported their thoughts to be directly related to their art-making process. In regards to redirecting focus during the MBAT intervention, 4 out of 5 participants in the painting group reported that they were able to redirect their focus to engaging with the art media and tools provided to them. Similarly, 4 out of 6 participants in the collage group reported that they were able to redirect their focus to art-making. The differences in thought monitoring and redirecting focus between the collage and painting group participants are listed in Table 11 and Table 12.
Table 5 Collage Group Stress Scores (N=6)

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Test Stress Score</th>
<th>Post-Test Stress Score</th>
<th>Difference in Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>6</td>
<td>4</td>
<td>-2</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>0</td>
<td>-3</td>
</tr>
<tr>
<td>F</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>H</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

Average Pre-Test Stress Score 3.5
Average Post-Test Stress Score 2.166666667
Average Decrease in Stress Scores 1.333333333

Table 6 Painting Group Stress Scores (N=5)

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Test Stress Score</th>
<th>Post-Test Stress Score</th>
<th>Difference in Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>G</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>J</td>
<td>7</td>
<td>3</td>
<td>-4</td>
</tr>
</tbody>
</table>

Average Pre-Test Stress Score 5
Average Post-Test Stress Score 2.8
Average Decrease in Stress Scores 2.2
Table 7 Collage Group Body-Scan Results (N=6)

<table>
<thead>
<tr>
<th>Description of Body-Scan Meditation</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing/ Calming</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Awareness/ Focused</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>Grounding</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td>Releasing</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>Sensations</td>
<td>1</td>
<td>17%</td>
</tr>
</tbody>
</table>

Table 8 Painting Group Body-Scan Results (N=5)

<table>
<thead>
<tr>
<th>Description of Body-Scan Meditation</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing/ Calming</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Awareness/ Focused</td>
<td>3</td>
<td>60%</td>
</tr>
<tr>
<td>Grounding</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Releasing</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Sensations</td>
<td>1</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 9 Collage Group Emotions Results (N=6)

<table>
<thead>
<tr>
<th>Description of Emotions During Art-making</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>Joy/ Excitement</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Frustration</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>Calm/ Relaxed</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td>Surprised</td>
<td>2</td>
<td>33%</td>
</tr>
</tbody>
</table>
Table 10 Painting Group Emotions Results (N=5)

<table>
<thead>
<tr>
<th>Description of Emotions During Art-making</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Joy/ Excitement</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Frustration</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Calm/ Relaxed</td>
<td>3</td>
<td>60%</td>
</tr>
<tr>
<td>Surprised</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 11 Collage Group Thought Monitoring Results (N=6)

<table>
<thead>
<tr>
<th>Thought Awareness and Focus During Art-Making</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoughts wandered during art-making</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Redirected focus during art-making</td>
<td>4</td>
<td>67%</td>
</tr>
<tr>
<td>Thoughts focused on art-making</td>
<td>2</td>
<td>33%</td>
</tr>
</tbody>
</table>

Table 12 Painting Group Thought Monitoring Results (N=5)

<table>
<thead>
<tr>
<th>Thought Awareness and Focus During Art-Making</th>
<th>Number of Participants Who Reported</th>
<th>Percentage in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoughts wandered during art-making</td>
<td>2</td>
<td>40%</td>
</tr>
<tr>
<td>Redirected focus during art-making</td>
<td>4</td>
<td>80%</td>
</tr>
<tr>
<td>Thoughts focused on art-making</td>
<td>3</td>
<td>60%</td>
</tr>
</tbody>
</table>

Summary of Results

Overall, this mixed methods MBAT study explored the relationship between differing art media, mindfulness, and stress reduction in university students. Evident by the written and verbal responses from the 11 university student participants, the sequence of engaging in the guided mindfulness body-scan meditation followed by the mindfulness-based art intervention appeared to be effective in lowering the stress scores
in the majority of participants, 9 out of 11. Additionally, participants reported positive experiences during the body-scan meditation as well as during the mindfulness-based art intervention. Despite several participants experiencing some level of anxiety or discomfort during the art-making process, every participant reported experiencing positive emotions or a reduction in stress levels following their participation in this study.

Although there was a wide range of responses regarding participants’ overall experiences with the assigned art media, the majority of participants from both the collage and acrylic paint groups reported a decrease in stress scores. These findings suggest that collage and acrylic paint may be useful media choices to incorporate into MBAT interventions aimed at reducing stress levels and promoting mindful awareness and attention. This MBAT study also explored participants’ willingness to experiment with a variety of materials and tools in both the collage and acrylic paint groups. The responses suggest that the range of media offered opportunities for exploration during the art-making process, which may have enhanced their ability to engage in mindful attention.
Chapter V. Discussion

Introduction

This mindfulness-based art therapy (MBAT) study examined the effects of two different art media — collage and acrylic paint — on mindful awareness and stress reduction in university students. Utilizing a guided body-scan mindfulness meditation exercise and an MBAT intervention, the research volunteers were asked to rate their stress levels before and after participating in both mindfulness-based exercises. The student volunteers (N=11) met with the researcher individually for a single 60-minute session, during which they provided written responses to the pre-test and post-test questionnaires. Participants also provided verbal responses to a set of semi-structured interview questions related to their overall experience during the study. The participants for this study were randomly assigned to one of the two art media groups — collage or acrylic paint — to complete a 20-minute MBAT intervention. The collage group consisted of (N=6) university student volunteers, while the painting group had (N=5) participants. The researcher provided a variety of tools and materials to both groups, allowing participants to explore different options as they desired. This section will discuss the validity of the results, limitations of the study, and recommendations for future research.

Validity

Overall, the researcher is confident in the validity of the results from the present study. Each participant was provided with the same instructions for the body-scan meditation and MBAT activity. However, these instructions for several portions of the study were provided to participants verbally by the researcher including the overview of procedures, body-scan meditation and instructions for the MBAT intervention. Due to
human error, the verbal instructions given to each participant may have varied slightly for each participant. That being said, the pre-test and post-test questionnaires were administered to each participant in writing through Google Forms. Although each participant received identical pre-test and post-test questionnaires, it appears as though some participants interpreted the questions differently than intended based on their responses. For example, when asked to reflect upon emotions that came up during the art-making process, Participant F in the collage group stated that they were “sad for the tree” that they had created on the page. Similarly, Participant I in the collage group may have misinterpreted or misunderstood the rating scale used in the pre-test and post-test questionnaire as they reported no change in stress score yet stated that they found the body-scan meditation to be “connecting and calming” and enjoyed the mindfulness-based art therapy intervention.

Regarding external threats to validity, meeting with students individually on a university campus presented challenges. Since participants met with the researcher throughout the week, several external factors may have affected the validity of the study. For example, class lectures were often held in rooms adjacent to the art studio, which caused distractions for both the researcher and participants. The researcher posted signs on both sides of the art studio where she met with participants, stating: “Research in progress, please do not disturb”. Despite these signs, there was one occasion when university faculty interrupted a participant’s mindfulness-based art process. These external factors not only distracted participants but likely also impacted their ability to engage in mindfulness during the body-scan meditation exercise and the MBAT intervention.
Results and Findings in Context of Previous Research

As previously mentioned, many participants reported an increased awareness of their physical sensations, which aligns with the definition of mindfulness: present-moment attention to experiences from a nonjudgmental and accepting perspective (Baer et al., 2006; Brown & Ryan, 2003; Kabat-Zinn, 1990; Linehan, 1993a; Marlatt & Kristeller, 1999). Participants also responded to questions related to their ability to monitor thoughts and redirect their focus to engaging with the art materials during the MBAT interventions, which the researcher analyzed. These aspects of the participants’ experiences contributed to a greater understanding of how mindful awareness is affected by different art media.

The findings from this study were collected in the form of both quantitative and qualitative data based on each participant’s personal experience. The quantitative data included the pre-test and post-test stress scores, in which each participant rated their current state of stress on a scale of 0-7 (0 = no stress, 7 = high stress). Overall, the participants reported an average decrease in stress scores of 1.73 points from their pre-test to post-test ratings. That being said, there were two participants assigned to the collage group that had no change in stress score from pre-test to post-test. In the collage group, Participant H reported their pre-test stress score to be 0 out of 7 and also reported their post-test stress score to be 0 out of 7. Also in the collage group, Participant I reported their pre-test stress score to be 7 out of 7 and their post-test stress score as 7 out of 7. The validity of these stress scores may have been compromised due to human error. Although Participant H’s post-test stress score could not have decreased from 0 out of 7, Participant I’s post-test score of 7 does not correspond with their written and verbal responses collected in the qualitative portion of the results.
Overall, 82% of the participants in this study experienced a decrease in stress scores of at least 1 point, with the greatest decrease being 4 points. The overall reduction in stress scores is significant and suggests that combining body-scan meditation exercises and MBAT interventions can be effective in reducing stress in university students. These findings are supported by previous research that determined the efficacy of utilizing brief meditation interventions to decrease fatigue and anxiety in university students, while simultaneously promoting state mindfulness (Zeidan et al., 2010). Additionally, prior research determined that MBAT has the potential to decrease symptoms of stress and anxiety as it increases blood flow in the limbic system region of the brain (Monti et al., 2012; Beerse et al., 2020). The findings of the current study support the findings of prior art therapy research conducted by Beerse et al. (2020), which stated that “mindfulness-based art therapy interventions effectively reduce anxiety and stress in university students”. Even a slight decrease in stress scores for most participants (9 out of 11) provides substantial evidence for using MBAT in combination with mindfulness meditation exercises with university students. Additionally, prior research has found that art-making can potentially decrease cortisol levels (Kaimal et al., 2016).

The main focus of this study explored the effects of different art media in the context of MBAT — collage and painting. Within the field of art therapy, research suggests that different art materials activate various regions of the brain (Kaimal et al., 2017; Kaimal, Ray & Muniz, 2016; Kruk et al., 2014; Beerse et al., 2020). During each participant’s art-making process, the researcher observed which materials they chose to use. The researcher also observed how participants interacted with the art media they were provided with and which tools they utilized during their art process. Overall, all 11
participants created art for the entire 20 minutes they were allotted for the activity. In the painting group, the researcher observed that all 5 participants used every type of painting tool provided to them including sponges, paint brushes, and a palette knife. An exciting observation made during the art-making process was witnessing Participant E finger-paint with the acrylic paint provided. Although all participants were given the same verbal instructions to “interact with the art media however they desired”, Participant E was the only one who used their fingers to paint during their art-making process. This observation supports prior MBAT research conducted by Stanko-Kaczmarek & Kaczmarek (2016), which determined that finger-painting during the art-making process leads to participants experiencing greater levels of mindfulness. That being said, only 1 out of the 5 participants in the painting group finger-painted during the MBAT intervention. How individuals interact with more fluid art media, such as acrylic paint, appears to be subjective and based on personal preferences. According to Hinz (2018), art media that provide opportunities for kinesthetic or sensory experiences can promote mindful awareness, reduce stress, and even facilitate a state of flow during the art-making process.
Regarding participants randomly assigned to the collage group, the researcher observed that 5 out of the 6 participants used all three kinds of paper provided to them during the art-making process: construction paper, tissue paper, and abstract printed card stock. Participant H was the only participant in the collage group who solely utilized construction paper during their art-making process. Another observation of participants in the collage group was that 4 out of the 6 participants incorporated 3-dimensional elements created using the various types of paper provided, specifically tissue and construction paper. This inclusion of 3-dimensional elements in the collage artworks was an unexpected but welcome interaction, as paper collage is typically 2-dimensional. Furthermore, 4 out of the 6 participants in the collage group were observed ripping paper in addition to using the scissors to cut out specific shapes. Ripping paper provided another way for participants to incorporate sensory experiences.
and kinesthetic movements into their MBAT art-making process. Hinz (2018) states that: “using art, people can be immersed in tactile or visual sensation as a way to feel centered and calm”. A majority of the participants in both groups were observed interacting with the art media and tools at the Kinesthetic/Sensory level of the Expressive Therapies Continuum (ETC). For example, several participants in the acrylic paint group mixed their own colors on the page or the paint palette and used both natural and synthetic sponges for painting. As mentioned previously, Participant E engaged in finger-painting with acrylic paint, while Participant J created splattered marks on the page using the provided paint brushes.
Limitations and Implications for Future Research

The main limitation of this study was the small sample size (N=11) of university students who volunteered. Although there was a wide range in age of participants (20-64 years old), the sample included only 1 male participant and 10 female participants. Due to the limited sample size, the findings may not apply to the broader population of
university students throughout the United States or other countries. There was some
variety in the participants’ ethnic and racial backgrounds: 6 White students, 3 Latina
students, and 2 Asian students. However, research of this kind would be more valuable
with a larger sample size and a greater representation of diversity in students.
Additionally, this study was not conducted in a lab-controlled setting which may have
impacted the validity of the data collected. Another limitation of this study is that it was
conducted by a single researcher without funding, which limited data collection and
analysis. Previous research on the integration of mindfulness meditation with MBAT
interventions for stress reduction has used a variety of data collection techniques, such
as measuring cortisol levels in saliva samples (Beerse et al., 2020; Van Lith et al, 2021)
and using a rating dial to have participants rate changes in their state mindfulness
during art-making (Stanko-Kaczmarek & Kaczmarek, 2016). Employing these methods,
along with other biological measures or psychological rating scales, may yield more
accurate results in future MBAT research.

How do other art materials and processes, like oil pastels, ecological art,
printmaking, or found object sculptures/assemblages impact mindfulness and stress
reduction? Several prior studies have examined the differing effects of clay (Van Lith et
al, 2021), doodling ( Isis et al., 2023), and finger-painting (Stanko-Kaczmarek &
Kaczmarek, 2016) within MBAT interventions. The effects of interacting with media that
fall between rigid and fluid on the art media continuum require further research to
understand how they promote mindful awareness and can be used for stress reduction.
Additionally, this research could be expanded to include different populations, such as
school-aged children, adolescents, or working adults. Prior MBAT studies have
investigated the effectiveness of MBAT interventions in sample populations of individuals undergoing cancer treatment (Joshi et al., 2021; Meghani et al., 2018; Monti et al., 2006) and children experiencing testing anxiety (Carsley & Heath, 2018). Many other populations could benefit from learning about MBSR techniques and MBAT interventions to manage stress throughout their lives. Lastly, several students in this study reported wanting more time for art-making. While this study allocated 20 minutes for the MBAT intervention, future research could design studies with 20-40 minutes of art-making time. Providing participants with more time could potentially promote a state of flow, which has been found to occur during creative processes (Csikszentmihalyi, 1990; Hinz, 2018).

Ultimately, the findings from this study confirm that the combination of mindfulness-based exercises, such as body-scan meditations, and MBAT interventions are effective in decreasing stress levels in university students. Although the participants’ experiences of engaging with their assigned art media — collage or acrylic paint — varied, all 11 participants completed the 20-minute MBAT intervention. Even though several participants reported feeling a sense of discomfort, frustration, or anxiousness during the body-scan meditation or the MBAT intervention, they were all able to identify some positive effects in participating in this study. Lastly, all 11 participants stated that they were interested in participating in mindfulness-based exercises outside of the present study which could be utilized in their daily lives to manage their stress levels.
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Appendix A — Recruitment Flier
PARTICIPANTS NEEDED

Seeking volunteers to participate in a research study that explores the relationship between Mindfulness-based Stress Reduction & art making

Interested in participating?
Scan the QR code & fill out the Google form

For more information email:
duc.mbat.study@gmail.com

Requirements to Participate
Age 18 or older
Currently enrolled at DUC
Meet in-person on campus

This study is part of the Art Therapy department at Dominican University of California
Appendix B — Recruitment Email
Dear Participant,

My name is Isabella Sziraczky and I am a graduate Art Therapy student at Dominican University of California. I am conducting a research project as part of my graduate thesis requirement, and this work is being supervised by Dr. Richard Carolan, Department Chair of Art Therapy Psychology at Dominican University of California. I am requesting your voluntary participation in my study, which will investigate the relationship between stress levels, mindfulness, and art making.

Participation in this study involves attending a 90-minute, in person meeting on the campus of Dominican University of California to engage in a mindfulness exercise followed by an art-based activity. Additionally, you will complete a pre-test questionnaire, which includes demographics questions to be used for statistical purposes, as well as a post-test questionnaire in the form of written responses (via Google forms) and interview questions. Please note that your participation is completely voluntary and you are free to withdraw your participation at any time. In addition your written responses to the pre and post-questionnaires are designed to be completed anonymously. Anonymity cannot be guaranteed, however, and in the unlikely event an identity becomes known, all information will be held as completely confidential.

If you choose to participate in this study, please respond to this email stating your decision to participate as soon as possible (email: duc.mbat.study@gmail.com). If you choose not to participate, you do not need to respond to this email.

If you have questions about the research you may contact me at at the email address below. If you have further questions you may contact my research supervisor, Richard Carolan at richard.carolan@dominican.edu or the Dominican University of California Institutional Review Board for the Protection of Human Participants (IRBPHP), which is concerned with protection of volunteers in research projects. You may reach the IRBPHP Office by calling (415) 482-3547 and leaving a voicemail message, or FAX at (415) 257-0165, or by writing to IRBPHP, Office of Associate Vice President for Academic Affairs, Dominican University of California, 50 Acacia Avenue, San Rafael, CA 95901.

Thank you in advance for your participation.

Sincerely,

Isabella Sziraczky
Graduate Art Therapy Student Research
Dominican University of California
50 Acacia Avenue
San Rafael, CA 94901
Email address: duc.mbat.study@gmail.com
Appendix C — Informed Consent
1. I understand that I am being asked to participate as a Participant in a research study designed to explore the relationship between stress levels, mindfulness, and art making. This research is part of Isabella Sziraczky’s graduate thesis research project at Dominican University of California, California. This research project is being supervised by Dr. Richard Carolan, Department Chair of Art Therapy Psychology at Dominican University of California.

2. I understand that participation in this research will involve taking part in a 90-minute, in-person meeting on Dominican’s campus. This study will include a meditation exercise, an art activity, as well as discussion of feelings of stress. I have been made aware that I will provide written responses as well verbally answer interview questions.

3. I understand that my participation in this study is completely voluntary and I am free to withdraw my participation at any time.

4. I have been made aware that my written responses and artwork will be recorded by the researcher. All personal references and identifying information will be eliminated when these recordings are saved, and all participants will be identified by numerical code only; the master list for these codes will be kept by Isabella Sziraczky in a password protected file, on a password protected device. The responses collected will be seen only by the researcher and her faculty advisors. One year after the completion of the research, all written material and digital copies of artwork will be destroyed.

5. I understand that I will be discussing topics of a personal nature and that I may refuse to answer any question that causes me distress or seems an invasion of my privacy. I may elect to stop the interview at any time.

6. I understand that my participation involves no physical risk, but may involve some emotional discomfort. If I experience any problems or serious distress due to my participation, Isabella Sziraczky will provide a variety of local mental health resources and crisis hotline numbers. Isabella Sziraczky may be contacted at isabella.sziraczky@students.dominican.edu.

7. I understand that if I have any further questions about the study, I may contact Isabella Sziraczky at isabella.sziraczky@students.dominican.edu or her research supervisor, Richard Carolan at richard.carolan@dominican.edu. If I have further questions or comments about participation in this study, I may contact the Dominican University of California Institutional Review Board for the Protection of Human Participants (IRBPHP), which is concerned with the protection of volunteers in research projects. I may reach the IRBPHP Office by calling (415) 482-3547 and leaving a voicemail message, by FAX at (415) 257-0165 or by writing to the IRBPHP, Office of the Associate Vice President for Academic Affairs, Dominican University of California, 50 Acacia Avenue, San Rafael, CA 94901.

8. All procedures related to this research project have been satisfactorily explained to me prior to my voluntary election to participate.

I HAVE READ AND UNDERSTAND ALL OF THE ABOVE EXPLANATION REGARDING THIS STUDY. I VOLUNTARILY GIVE MY CONSENT TO PARTICIPATE. A COPY OF THIS FORM HAS BEEN GIVEN TO ME FOR MY FUTURE REFERENCE.

_________________________________________________ _____________
Signature Date
Appendix D — Pre-Test Questionnaire
Pre-Test Questionnaire— Respond to the following questions.

**Demographic Information**

Initials: ________________

Gender: ________________

Age: ________________

Ethnicity/Race: ________________

Are you a part-time or full-time student at DUC?

Are you an undergraduate or graduate student at DUC?

What is your major/program?

**Respond to the questions below based on your current experience:**

Indicate the level of stress you are experiencing at this point in time by circling one of the following (0 = no stress, 7 = high stress level)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low stress level</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

**Mindfulness Experience: Indicate yes or no to the following statements:**

1. I have heard of mindfulness (Y/N)
2. I understand the concept of mindfulness (Y/N)
3. I have experience practicing mindfulness (Y/N)
4. I have participated in a guided mindfulness meditation (Y/N)
Appendix E — Body-Scan Script
Body Scan Meditation
Over the next 5 minutes you will be guided through a mindfulness meditation called a body-scan. You will be instructed to bring your attention to your breath and sensations throughout the body. During the body-scan, notice and observe your physical sensations without judgment.

Sitting straight up in your chair, place your feet flat on the floor and place your hands in your lap.

If you are comfortable closing your eyes, you may do so now.
If not, soften your gaze towards the floor.

Begin by taking a few long, deep breathes.
Inhaling through your nose, notice the sensation of air flowing through your nostrils. Exhale slowly through your mouth, as you relax your body into the chair.
Once again, take a deep breathe in through your nose, feeling your stomach expand filling up with air.
Exhale slowly, through your mouth.

Return to a natural flow of breathe throughout the remainder of the body scan.
If your mind begins to wander, redirect your attention to your breathing and noticing your bodily sensations.

Now bring your attention to your feet.
Observe the sensation of your feet resting on the floor.
Notice any tightness or tension, if you don’t feel anything that’s okay too.

Continuing onto the legs, notice any sensations present here.
Observe where your legs are touching the chair.
Notice how your clothing feels covering your legs.

Moving up the body, notice your back resting against the chair.
Release any tension from your stomach area by relaxing into your breath.
Observe how your clothing feels around your torso.
Notice your chest rising and falling with each breath you take.

Observe your hands placed on your lap.
Notice any tightness or tension in your hands and gently relax them.

Moving on to the upper body, notice any sensations in your arms.
Relax your shoulders.
Notice any tension or tightness around your neck.
Notice any tension or tightness in your jaw.
Soften your jaw, relax your face muscles around your forehead.

Now take a moment to observe the sensations throughout your body as a whole.
Bring your awareness back to your breath.

Take one last long, deep breath. Inhaling through the nose, exhaling through the mouth.
Whenever you are ready, you may open your eyes.
Appendix F — Mindfulness-Based Art Therapy Intervention
Verbal instructions:

“You will now be provided with a set of art materials for the art activity. You will have 20 minutes to complete the art activity. I will let you know when you have 5 minutes remaining. Please feel free to engage with the art materials in any way you desire. The purpose of this art activity is to explore the different qualities of the art materials. If your attention begins to wander or you become distracted while creating art, redirect your focus to engaging with the art materials. I encourage you to experiment with the art materials rather than focusing on creating an end product or image. If an image emerges, you can develop it further if you so desire. Once you have completed the art activity, take a moment to come up with a title for your art piece. Please let me know if you have any questions.”

<table>
<thead>
<tr>
<th>Materials Provided to Collage Group</th>
<th>Materials Provided to Painting Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction paper</td>
<td>Acrylic paint (8 colors)</td>
</tr>
<tr>
<td>Tissue paper</td>
<td>Paint palette</td>
</tr>
<tr>
<td>Printed card stock</td>
<td>Variety of paint brushes</td>
</tr>
<tr>
<td>Glue stick</td>
<td>Synthetic and natural sponges</td>
</tr>
<tr>
<td>Liquid glue</td>
<td>Palette knife</td>
</tr>
<tr>
<td>Double sided tape</td>
<td>Water cup</td>
</tr>
<tr>
<td>Scissors</td>
<td>Paper towels</td>
</tr>
<tr>
<td>Unscented hand wipes</td>
<td>Unscented hand wipes</td>
</tr>
<tr>
<td>14 x 17” mixed media paper</td>
<td>14 x 17” mixed media paper</td>
</tr>
</tbody>
</table>
Appendix G — Post-Test Questionnaire
Post-Test Questionnaire — Reflective questions based on your overall experience.

Please enter your initials: __________

Indicate the level of stress you are experiencing at this point in time by circling one of the following (0 = no stress and 7 = high stress level)

Respond to the following 7 questions in a few short sentences.
Please answer these questions honestly based on your personal subjective experience.

1. Did you notice or observe bodily sensations, thoughts, or emotions during the body-scan meditation? Describe your experience.
2. Please describe your body-scan experience using three words or phrases.
3. Did you notice your attention or focus shift during the art making process? If so, were you able to redirect your focus to engaging with the art materials?
4. Did you notice or observe any thoughts enter your mind during the art activity? If so, did your thoughts impact your art making process?
5. Did you notice or observe any emotions come up during the art activity? If so, describe the emotions you experienced while creating art.
6. Did you notice or observe any bodily sensations during the art activity? If so, describe the sensations and where you noticed them in your body.
7. Do you have previous experience working with the art material you used today? If so, please describe.
Appendix H — Semi-Structured Interview Questions
**Interview Questions** — answered verbally following completion of post-test questionnaire.

1. Please describe your art piece that you created. What is the title of your piece?
2. Please describe your experience interacting with the art materials.
3. Would you consider practicing mindfulness exercises in the future after participating in this study?