Attention to the benefits of mindfulness practice transcends the fields of mental health and medicine. Extensive research has explored the use of mindfulness-based practices in counseling and psychotherapy. Benefits of mindfulness practice, both during session and in cases in which mindfulness was only practiced by the therapist outside of session, have included improved physical and mental well-being. Notably, mindfulness practice has been linked with stress reduction. The application of mindfulness to art therapy is intrinsic. As interest in applying mindfulness to art therapy increases, the practice of combined art therapy and mindfulness interventions expands. Research exploring the effects of combined art therapy and mindfulness interventions suggest positive emotional, physiological, and neurological benefits for participating subjects. However, there is a distinct gap in the literature exploring the impact of the art process on mindfulness, which has implications for art therapists utilizing mindfulness-based art therapy interventions.
The current state of flux of the American health care system, coupled with the challenges of working within a managed care health system, add tension to an already strained environment for today’s physicians, patients and patient caregivers. Medical students and informal caregivers are among those well acquainted with increased levels of stress. Combined, mindfulness and art therapy interventions have been studied in a variety of populations and have proven effective in subjective reports from participants as well as in neurological and physiological measurements. Mindfulness based art therapy is a feasible intervention to address distress among medical students and informal caregivers and promote a positive form of self-care through mindful meditation and art making. Currently, there is no research measuring the impact of adding art therapy to a mindfulness enhancement training for informal caregivers and medical students. Without evidence that adding art therapy to mindfulness enhancement training is beneficial, art therapists may fail to fully harness effective strategies to promote client well-being.

This study focuses on two distinct health care worker populations. Arm 1 of the study examines medical students and Arm 2 of the study informal caregivers. Both were guided by the same four research questions. The first question asks, “What is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in the participant?” The second question asks, “What is the impact of adding an art therapy component to mindfulness enhancement training on coherence in the participant?” The third question is, “In mindfulness enhancement training and mindfulness-based art therapy, how does the participant rank satisfaction with different aspects of the intervention?” The final question explores, “In mindfulness-based art therapy, what media did the participant employ and how did the participant rank satisfaction with employed media?”
An ABAB reversal single subject research design was used in this study to evaluate the impact of adding an art therapy intervention to treatment as usual (TAU) in a mindfulness enhancement training for participants. The independent variable in Phase A was TAU mindfulness enhancement training. The independent variable in Phase B was a mindfulness-based art therapy intervention. Two dependent variables were measured in this study: mindfulness as measured by the Mindfulness Attention Awareness Scale Short (MAAS-S) and coherence as measured by the University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS). Two adult participants participated in this study: one informal caregiver and one medical student.

Results from the two studies presented in this dissertation demonstrate adding an art therapy component to mindfulness enhancement training had a moderate effect on mindfulness scores in a medical student and an informal caregiver. A weak effect was found for sense of coherence scores in both the medical student and informal caregiver when art therapy was added to mindfulness enhancement training. The studies presented also reveal varied satisfaction with the intervention and art materials provided that encourage continued consideration among art therapists of individualized client experience. These findings may support art therapists in applying MBAT interventions to promote mindfulness, not only with medical students and informal caregivers but across populations, as well as considerations for promoting coherence with clients.
An Investigation of the Impact of Adding Art Therapy to Mindfulness Enhancement Training

by

Eileen K. Douglas

A DISSEERATION

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

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APPROVED:

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Major Professor, representing Counseling

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Dean of the College of Education

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Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes the release of my dissertation to any reader upon request.

________________________________________________________________________

Eileen K. Douglas, Author
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CONTRIBUTION OF AUTHORS

Dr. Cass Dykeman assisted with the methodology, research design, data analysis, and editing of this dissertation.
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DEDICATION

This dissertation is dedicated to the two participants who allowed me to witness and participate in their mindfulness journey. Their investment and willingness to be present encourages me to continue growing.
CHAPTER ONE

GENERAL INTRODUCTION
Conduct a brief search of “mindfulness” in your chosen smart phone’s app store or search the term “mindfulness app” online, and hundreds of options and apps will be revealed. The paradox of practicing mindful meditation with devices that have become a mainstay distraction is hard to overlook, and yet mindfulness apps continue to build in popularity and accessibility (Rosenberg, 2017). Sixteen million users have downloaded the mindfulness app Headspace, which has been credited for creating a $250 million-dollar industry through selling mindfulness. The benefits of practicing mindfulness are linked to decreased stress, increased happiness, and increased health. The rising popularity of mindfulness apps suggests a growing number of people worldwide have sought support in addressing stress, happiness, and health.

Many informal caregivers interact with numerous health care professionals and physicians during routine and emergency visits with their loved ones to doctor’s appointments and hospitals. Physicians play a central role in the American health care system and delivery of high-quality care. The relationship between physician wellness and quality of patient care has emerged in recent research (Firth-Cozens & Greenhalgh, 1997; Shanafelt et al., 2005; Wallace, Lemaire, & Ghali, 2009). Unfortunately, many physicians experience exhaustion, burnout, stress, depression, and other psychological distress (Shanafelt et al., 2005; Wallace, Lemaire, & Ghali, 2009). Younger physicians have reported twice the amount of burnout than older physicians (Shanafelt, Bradley, & Back, 2002). Physician distress is reported as early as residency and medical school, suggesting a need for early interventions aimed at promoting physician well-being to ultimately improve patient care.

Concurrently, the prevalence of informal caregiving is expected to rise as the population ages. Mindfulness-based interventions have demonstrated positive effects on health and well-being among both medical students and informal caregivers. Mindfulness interventions
combined with art therapy have been studied with a variety of populations (Ando & Ito, 2016; Kim & Ki, 2014; Monti et al., 2006). Studies utilizing mindfulness and art therapy with informal caregivers are sparse; however, one formative evaluation report by Peterson (2015) presented a promising modality to address the negative impact of caregiving.

The purpose of this study is to address this dearth of literature by examining the impact of adding art therapy to treatment as usual (TAU) in an individual mindfulness enhancement training program for two distinct health care worker populations. Arm 1 of the study will examine a medical student, and Arm 2 of the study an informal caregiver.

Current State of Scientific Knowledge

A review of the literature relating to art therapy and mindfulness exposed four themes. Themes included (1) the interconnection of mindfulness and art therapy, (2) the broad use of mindfulness-based interventions, (3) populations exposed to mindfulness combined with art therapy, and (4) the efficacy of mindfulness-based art therapy.

The Interconnection of Mindfulness and Art Therapy

Three essential features of mindfulness practice have been identified in the literature. The first essential feature is awareness of the present moment without judgement (Kabat-Zinn, 1994; Peterson, 2014). Attention to non-judgmental awareness by observation of thoughts, body sensations, and feeling tone is the second essential feature of mindfulness (Kabat-Zinn, 1994; Peterson, 2014). Third, attitudinal foundations of trust, patience, non-judging, non-striving, acceptance, beginner’s mind, and letting be are vital for mindfulness practice (Kabat-Zinn, 1994; Peterson, 2015). Mindfulness is thus fostered through attention to present moment awareness with attitudinal foundations. Art therapy supports these essential features.
The connection between art therapy and mindfulness is described in the literature. Rappaport (2014) described the inherent process of mindfulness in the arts. Allen (2014) connected the role of witnessing and intention in art making during art therapy to mindfulness practice. McNiff (2014) further suggested the function of the art therapist in fostering the role of witness and application to integrating mindfulness into art therapy. The interrelatedness of art therapy and mindfulness yields opportunities for application with diverse populations.

**Mindfulness-Based Interventions**

Current research demonstrates encouraging outcomes for mindfulness practices in psychotherapy (Brown, Marquis, & Guiffrida, 2013). A meta-analysis of mindfulness-based therapy (MBT) by Khoury et al. (2013) identified MBT as successful in reducing stress, depression, and anxiety. Hoffman et al.’s (2010) meta-analysis indicated improvements in anxiety and depression were found in populations suffering from a variety of medical and psychiatric conditions. These meta-analytic reviews suggest that combined, mindfulness-based practices and psychotherapy may result in a positive impact on emotional health for a variety of medical conditions and psychological disorders. Remarkably, direct participation in MBT is not required for the alleviation of distressing symptoms.

Therapist practice of mindfulness is linked to client benefit even in instances when clients are not alert to the practice. Grepmair et al. (2007) noted that clients working with therapists who practiced meditation experienced greater symptom reduction than clients whose therapists did not practice meditation. End of treatment clinical outcomes were observed by Khoury et al. (2013) to be impacted by therapists experienced with mindfulness-based practices more than general clinical training. These studies suggest therapists’ experience with mindfulness practice may directly and indirectly impact clinical outcomes. This direct and indirect impact identified
with clinician mindfulness practice suggests mindfulness practice may benefit patients of other healthcare providers.

Mindfulness practice among health care providers may indirectly promote patient well-being. Fernando, Skinner, and Consedine’s (2017) study explored the impact of a brief mindfulness intervention on compassion in medical decision-making. Results demonstrated greater helping behavior with mindfulness practice; however, this was only reported with participants reporting higher self-compassion. Beach et al. (2013) investigated the impact of physician mindfulness on patient care and found physicians with high mindfulness scores were rated higher in satisfaction, rapport building, and communication. Together, these studies suggest indirect benefits of physician mindfulness practice. The literature has also identified mindfulness-based interventions for medical students, who are the physicians of tomorrow.

Mindfulness-based interventions with medical students are noted in the literature. Dobkin and Hutchinson (2013) conducted a literature review of mindfulness programs in medical schools and found 14 medical schools which engaged medical and dental students and residents in a variety of mindfulness teaching formats. Daya and Hearn’s (2018) systematic review of mindfulness-based interventions in medical education specifically aimed at medical student distress, and found a dozen studies with mixed outcomes. When considered collectively, these reviews indicated mindfulness interventions utilized with medical student populations, but also highlighted a need for further research. Informal caregivers have also been identified among the diverse populations potentially benefiting from mindfulness-based interventions.

Included within the diverse populations benefiting from mindfulness-based interventions are informal caregivers. Literature exploring mindfulness-based interventions with informal caregivers demonstrates positive outcomes. A systematic review by Jaffray, Bridgman,
Stephens, and Skinner (2016) found mindfulness-based interventions significantly impacted a reduction in caregiver burden and depression and increase in quality of life among informal palliative caregivers. Jaffray et al.’s (2016) study further identified that among informal caregivers studied, those providing care for individuals suffering from dementia were most prevalent. Mindfulness-based stress reduction (MBSR) is one of the most widely used programs incorporating mindfulness into psychotherapy.

Mindfulness-based stress reduction (MBSR) has been utilized extensively with a plethora of populations (Kabat-Zinn, 1982; 1990). Initially, this standardized, multimodal group meditation program was developed by Kabat-Zinn (1982, 1990) for individuals suffering from chronic pain. Since its inception, MBSR as an intervention has been applied to address stress, emotional and psychological disorders, and chronic medical diseases (Bolhmeijer, Prenger, Taal, & Cujpers, 2009; Chiesa & Serretti, 2009; Grossman, Niemann, Schmidt, & Walach, 2004). MBSR has demonstrated a positive impact along a continuum from serious medical disorders to daily-life distress (Grossman, Niemann, Schmidt, & Walach, 2004). Thus, the positive outcomes of MBSR are not limited to chronic conditions but have proven effective in promoting benefits among healthy individuals.

Healthy populations not suffering from chronic medical conditions or clinical diagnoses have also benefitted from practicing MBSR. A meta-analysis of MBSR studies with healthy populations by Cheisa and Serretti’s (2009) found that MBSR was associated with reducing stress levels. The domains of physical and mental health were positively impacted by MBSR according to Irving, Dobkin, and Park’s (2009) review of MBSR with healthcare professionals. The broad range of populations positively impacted by MBSR are demonstrated by these two
analyses. Current literature also points towards MBSR’s effectiveness with informal caregiving populations.

Multiple studies indicate that MBSR is effective for various caregiver populations. In a randomized controlled trial of MBSR with family caregivers, Whitebird et al. (2012) determined MBSR was more effective in decreasing depression, reducing stress, and improving overall mental health for caregivers of individuals suffering from dementia. A significant increase in well-being, mindfulness, and compassion was found in Bazzano et al.’s (2015) study exploring the impact of MBSR with parental caregivers of children with developmental disabilities. Together, these studies demonstrate the potential for MBSR as an effective, long-term intervention for the well-being of informal caregivers. Likewise, combining art therapy with mindfulness has also indicated benefits for diverse populations.

**Mindfulness Combined with Art Therapy Interventions**

Combined art therapy and mindfulness interventions have been utilized with a wide variety of populations. Ando and Ito (2016) explored the impact of a mindfulness-based art therapy program with college students in Japan. A creative art therapy program with walking and stretching meditation has also been studied with adolescents suffering from anxiety and depression (Kim & Ki, 2014; Kim, Kim, & Ki, 2014). These studies demonstrate the positive impact of MBSR for adolescent and college student populations. Combining art therapy and mindfulness has also been demonstrated to promote positive outcomes for individuals experiencing on-going hospitalizations and chronic pain.

Several studies have investigated mindfulness integrated with art therapy with individuals suffering from chronic pain and individuals undergoing long-term treatment and hospitalizations. A hospital-based community outreach program was implemented by Isis (2014), incorporating
creative arts therapy with MBSR. Fritsche’s (2014) case study with an individual experiencing chronic pain explored mind-body awareness with art therapy. Isis (2014) and Fritsche’s (2014) research presents the potential for effective mindfulness-based art therapy interventions with individuals experiencing physical and emotional suffering. Mindfulness-based art therapy interventions have also been recognized as beneficial for individuals suffering from cancer.

Combined art therapy and mindfulness interventions have benefited individuals suffering from cancer. A mindfulness-based art therapy (MBAT) program was developed by Monti et al. (2006) for women with a variety of cancer diagnoses. Monti et al. (2012) further explored MBAT with women diagnosed with breast cancer. Peterson’s (2014) research also demonstrated the potential benefit of MBAT for women with a history of cancer. Not only have various populations been explored with MBAT, but current literature also demonstrates the efficacy of combining art therapy and mindfulness.

**Efficacy of Mindfulness-Based Art Therapy**

Researching the efficacy of combined art therapy and mindfulness interventions is important for the field of art therapy and those who could benefit from practice. Improved emotional expression and decreased somatization were identified as positive outcomes in Kim and Ki’s (2014) study exploring the effect of stretching and walking meditation combined with creative art therapy with an adolescent. In a study investigating an art therapy and breath meditation intervention with adolescents experiencing anxiety and depression, Kim, Kim, and Ki (2014) found significantly higher scores in subjective well-being among participating adolescents. These studies suggest mindfulness and art therapy combined may promote physical and emotional wellness in adolescents. Evidence for the effectiveness of combined mindfulness
and art therapy interventions have also been studied with the collection of neurological responses.

Important research investigating the impact of mindfulness and art therapy offers a neurological perspective on the impact of this intervention on the brain. Among women diagnosed with breast cancer participating in an eight-week MBAT program, Monti et al. (2012) found significant increases in cerebral blood flow in multiple areas of the brain. Monti et al’s (2012) study also suggested a correlation between increased cerebral blood flow in the left caudate and decreased anxiety. This work highlights neurophysiological changes after participating in an MBAT program. Combined, mindfulness and art therapy interventions have also demonstrated an effect on automated nervous system (ANS) responses.

A physiological effect of mindfulness-based art therapy has been found within the research. Changes in ANS responses among Japanese college students participating in mindfulness-based art therapy were found in Ando and Ito’s (2016) study. Greater increases in ANS activity were found for participants considered low-risk according to General Health Questionnaire responses compared with those considered high-risk (Ando & Ito, 2016). This research suggested ANS responses occurred differently for students experiencing different states of mental health. Additional research on student populations have explored the impact of mindfulness-based interventions with medical students; however, exploration of the effects of mindfulness-based art therapy interventions is notably absent.

A review of the literature exploring mindfulness and art therapy uncovers the interconnection between art therapy and mindfulness. Extensive research on mindfulness-based interventions suggests mindfulness may be used as a tool to benefit diverse populations. Mindfulness-based art therapy has also demonstrated positive outcomes with various
populations. This study aims to inform the field of art therapy and counseling by exploring the impact of adding art to mindfulness training. Given the challenges faced by healthcare workers, medical students, and informal caregivers were identified as populations that could benefit from mindfulness-based art therapy. This dissertation aimed to fill a gap in the literature by exploring the impact of adding art to mindfulness training with a medical student and an informal caregiver.

**Description of Manuscript One**

The first manuscript of this dissertation explores the impact of adding art therapy to mindfulness enhancement training with a medical student. This study is guided by four research questions. First, this study focuses on the question, “What is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in the medical student?” Second, this study aims to answer the question, “What is the impact of adding an art therapy component to mindfulness enhancement training on coherence in the medical student?” The third question is, “In mindfulness enhancement training and mindfulness-based art therapy, how does the medical student rank satisfaction with different aspects of the intervention?” Finally, this study explores media choice by addressing the question, “In mindfulness-based art therapy, what media did the medical student employ and how was media utilized ranked by the medical student?”

An ABAB reversal single subject research design was used in the first study to evaluate the impact of adding an art therapy intervention to treatment as usual (TAU) in a mindfulness-enhancement training for one medical student. The ABAB reversal design embraces a longitudinal perspective by way of repeated measurement and observation over time which substantiates the study of human behavior (Heppner, Wampold, & Kivighan, 2008). Steeped
within the postpositivist paradigm, the ABAB reversal design supports an epistemology conceptualizing behavior as an ongoing phenomenon to be explored (Morgan & Morgan, 2001). Unlike traditional group designs, behavior observed is compared to only to the participant and not with other participants or groups. Thus, the ABAB reversal design offers a sensitive, inductive examination of behavior contrasting with deductive, positivist approaches found in traditionally researched group designs.

Within the ABAB reversal single subject design, mindfulness enhancement training was the independent variable in Phase A and mindfulness enhancement training with art therapy utilizing mindfulness-based art therapy (MBAT) was the independent variable in Phase B. The two dependent variables were mindfulness as measured by the Mindfulness Attention Awareness Scale Short (MAAS-S) and coherence as measured by the University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS). In addition to single-subject design, quantitative questions pertaining to the participant’s experience with mindfulness training and mindfulness-based art therapy were explored in a post-intervention questionnaire. The post-intervention questionnaire supports a constructivist paradigm seeking the experience of the individual participant.

Data analysis for the first study will include scores from MAAS-S and SOC-3-UTHS, which will be collected at the end of each session and graphed over all four phases (Spriggs & Gast, 2010). The impact of the intervention will be examined by conducting a visual analysis of graphs (Spriggs & Gast, 2010). The percentage of non-overlapping of all pairs (NAP) will be calculated to expound the extent of impact of the intervention (Parker & Vannest, 2009). NAP for all AB phases combined and each AB phase will be computed by using a NAP online calculator (Vannest, Parker, & Gonen, 2011). Participant satisfaction of MBAT and
mindfulness-enhancement training as well as materials used and participant experience with identified materials will be evaluated through responses to a post-intervention questionnaire collected at the end of the final MBAT session.

The first study will be submitted to Academic Medicine: Journal of the Association of American Medical Colleges. This journal acts as an international forum within the academic medicine community focusing on “health and science policy; institutional policy, management, and values; research practice; and clinical practice in academic settings” (Academic Medicine, 2019a, p. 1). Academic Medicine has an impact factor of 4.801 and ranks one out of 41 in Education, Scientific Disciplines and five out of 90 in Health Care Sciences & Services (Academic Medicine, 2019b). The journal has published several articles on mindfulness in education and clinical practice, including a recent article titled, “Well-Being in Graduate Medical Education: A Call for Action” (Ripp et al., 2017, p. 914). Ripp et al. (2017) argue a need for improving well-being in medical students and recommend evidenced-based interventions for medical education programs, including mindfulness training.

**Description of Manuscript Two**

The second study mirrors the first by utilizing the same research questions and methodology, but applying them to a different health care worker population: the informal caregiver. This study fills a gap in the literature exploring the impact of adding art therapy to mindfulness enhancement training, building upon the research explored by Peterson (2015) in the article “‘Walkabout: Looking in, Looking out’: A Mindfulness-Based Art Therapy Program.” Four research questions guide this study. The first is “What is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in the informal caregiver?” Secondly, “What is the impact of adding an art therapy component to mindfulness training on...
enhancement training on coherence in the informal caregiver?” Third, “In mindfulness enhancement training and mindfulness-based art therapy, how does the informal caregiver rank satisfaction with different aspects of the intervention?” Lastly, “In mindfulness-based art therapy, what media did the informal caregiver employ?”

The second study will utilize an ABAB reversal single-subject research design to evaluate the impact of adding an art therapy intervention to treatment as usual (TAU) in a mindfulness-enhancement training for one informal caregiver. Repeated measurement central to the ABAB reversal design support a longitudinal perspective ideal for studying human behavior (Heppner, Wampold, & Kivighan, 2008). The ABAB reversal design fosters a postpositivist paradigm supporting an epistemology in which behavior is a continuous phenomenon (Morgan & Morgan, 2001). Within single subject design, participant behavior is compared only with the participant. Unlike traditional group designs, the ABAB reversal design presents an inductive and sensitive examination of behavior (Morgan & Morgan, 2001).

The independent variable in Phase A was mindfulness enhancement training in this ABAB reversal design. Mindfulness enhancement training with art therapy utilizing mindfulness-based art therapy (MBAT) was the independent variable in Phase B. This study had two dependent variables: mindfulness as measured by the Mindfulness Attention Awareness Scale Short (MAAS-S) and coherence as measured by the University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS; Togari, Yamazaki, Nakayama, & Shimizu, 2007). The participant’s experience with mindfulness training and mindfulness-based art therapy were explored through quantitative questions in a post-intervention questionnaire embracing a constructivist paradigm in addition to the single subject design.
Data analysis for the second study will include MAAS-S and SOC-3-UTHS scores collected at the end of each session which will be graphed over all four phases of the study (Spriggs & Gast, 2010). A visual analysis of graphs will evaluate the impact of sessions (Spriggs & Gast, 2010). The magnitude of impact of the intervention will be detailed by calculating the percentage of non-overlapping of all pairs (NAP; Parker & Vannest, 2009). An online NAP calculated will be employed to compute NAP scores for each AB phase and all AB phases combined (Vannest, Parker, & Gonen, 2011). Participant responses to a post-intervention questionnaire will be collected during the final MBAT session to evaluate participant satisfaction of the intervention and materials used.

Manuscript two will be submitted to *Art Therapy: Journal of the American Art Therapy Association*. The journal is the official journal of the American Art Therapy Association and extends to an audience of professional art therapists, art therapy students, and art therapy educators. There is no impact factor for *Art Therapy*. This study fulfills a continued call by the journal to promote research within the field of art therapy.

**Glossary of Specialized Terms**

*Art Media.* Materials used to create art.

*Art Therapist.* Master-level clinician trained in facilitating art therapy services.

*Art Therapy.* Art therapy is an integrative mental health and human services profession that utilizes art-making, the creative process, applied psychological theory, and human experience to promote self-awareness, emotional resilience, insight, and resolve conflicts and distress (American Art Therapy Association, 2018).
**Feeling-tone.** Feeling-tone is a component of awareness in which an individual labels an experience as positive, negative, or neutral (Kabat-Zinn, 1994; Peterson, 2014; Weik & Putnam, 2006).

**Kinesthetic.** Sensation of bodily movement that both informs an individual of movement and accompanies the movement (Hinz, 2009).

**Informal Caregiver.** Informal caregivers provide unpaid care to friends, relatives, or partners suffering from chronic or disabling conditions (National Center on Caregivers, 2016).

**Mindfulness.** Mindfulness is the practice of focusing on non-judgmental awareness of the present moment (Kabat-Zinn, 1994). Attention to awareness of the present moment occurs through individual observation of body sensations, thoughts, and feeling-tone (Kabat-Zinn, 1994; Peterson, 2014).

**Mindfulness-Based Art Therapy (MBAT).** The practice of non-judgmental awareness of the present moment through art-making and the creative process facilitated by an art therapist.

**Mindfulness Based Stress Reduction (MBSR).** MBSR is a standardized, multimodal group meditation program developed by Kabat-Zinn (1982, 1990).

**Mindfulness Enhancement.** In this study, mindfulness enhancement refers to instruction of mindfulness practice through guidance of mindfulness principles and repeated practice.

**Sense of Coherence.** A salutogenic theory proposed by Antonovsky (1979) that provides a global orientation to view the world and one’s internal and external environment as comprehensible, manageable, meaningful. Kabat-Zinn (2013) summarized sense of coherence with the following statement:

People who have a high sense of coherence have a strong feeling of confidence that they can make sense of their internal and external experience (that it is basically
comprehensible), they have the resources available to meet and manage the demands they encounter (manageability), and that these demands are challenges in which they can find meaning and to which they can commit themselves (meaningfulness). (p. 248)

**Stress.** Kabat-Zinn (2013) reiterated stress acts on multiple levels, which include a physiological level, psychological level, and social level. Within the context of these studies, Lazarus and Folkman’s (1984) definition of psychological stress will be used. Psychological stress is defined as “a particular relationship between a person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, p. 19).

**Thematic Links for the Two Studies**

The two studies presented in this dissertation are thematically linked through a shared focus on the impact of adding art therapy to mindfulness-based enhancement training. The two studies differ in population, with the first study exploring the impact of adding art therapy to a mindfulness enhancement training program with a medical student and the second study exploring the impact of adding art therapy to a mindfulness enhancement training program with an informal caregiver.

**Organization of the Dissertation**

This dissertation is organized into four chapters: an introduction to the two studies, review of the literature associated with mindfulness-based art therapy and mindfulness enhancement training, and a thematic link between both manuscripts are outlined in Chapter One.

Chapters Two and Three report the original research for study one and two, respectively, and serve as manuscripts for journal submission. Chapter wo reviews the literature, methods,
and results of adding art therapy to mindfulness enhancement training with a medical student. Chapter Three focuses on the impact of adding art therapy to mindfulness enhancement training with an informal caregiver with a separate review of the literature, methods, and results. Chapter Four summarizes results from the two manuscripts and provides a general conclusion for the dissertation.
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CHAPTER TWO

THE IMPACT OF ADDING ART THERAPY TO A MINDFULNESS ENHANCEMENT TRAINING WITH A MEDICAL STUDENT
The Impact of Adding Art Therapy to a Mindfulness Enhancement Training with a Medical Student

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The research contained in this manuscript was conducted under the approval of the Oregon State University Institutional Review Board (Study ID 8416) and was part of the first author’s dissertation research project.

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Abstract

Healthcare professionals play an important role in the delivery of high-quality patient care. The medical students of today are the physicians of tomorrow, although medical student training is notably challenging. Increased rates of suicidal ideation and self-reported distress during medical school training have been identified in the literature. Mindfulness-based interventions have been explored with various populations, including medical students. Mindfulness-based art therapy interventions have also been found to be effective among various populations; however, no study has explored the impact of adding art to mindfulness enhancement training with medical students specifically. This is the first study to investigate the impact of adding art to mindfulness enhancement training with a medical student. Four research questions guided this study. First, when an art therapy component is added to mindfulness enhancement training with a medical student, what is the impact on mindfulness? Second, when an art therapy component is added to mindfulness enhancement training with a medical student, what is the impact on coherence? A third research question explored how the medical student ranks satisfaction with different aspects of the intervention in mindfulness enhancement training and mindfulness-based art therapy. The fourth research question explored what media was employed by the medical student during mindfulness-based art therapy. Results from this study found mindfulness-based art therapy had a moderate effect on mindfulness scores. Mindfulness-based art therapy also demonstrated a slight, though not significant, increase in sense of coherence scores. Results indicated the medical student found mindfulness practice with art and without art equally helpful in promoting mindfulness. Materials identified as helpful in promoting mindfulness were chalk pastels, watercolor, graphite pencils, and tissue paper. Analysis of results suggest mindfulness based-art therapy may be used to increase mindfulness and sense of coherence in medical
students. Further research is necessary and this study presents implications for future research and practice in art therapy.

*Keywords:* art therapy, mindfulness, mindfulness-based art therapy, stress, medical student
The Impact of Adding Art Therapy to a Mindfulness Enhancement Training with a Medical Student

Uncertainty occludes the American health care system with proposed health care reform. Changes to health care have been met by sharp criticism from leading associations representing insurers, physicians, hospitals, and the elderly. The American Medical Association (2017) described proposed revisions to health care as “critically flawed” with potential to result in millions of uninsured Americans and dramatic cuts to Medicaid and other safety-net programs (p. 1). A recent review by the Congressional Budget Office (2017) suggested health care reform may result in a reduction of $321 billion to federal deficits and an increase of 22 million uninsured Americans by 2026. Implications associated with the American health care system in a state of flux, coupled with the challenges of working within a managed care health system, add tension to an already strained environment for today’s physicians.

Medical students face increased rates of suicidal ideation and self-reported distress during training (Dyrbye et al., 2008; Dyrbye & Shanafelt, 2011; Greeson, Toohey, & Pearce, 2015). Mindfulness has been explored in numerous studies as a method to address these concerns (e.g., Dobie, Tucker, Ferrari, & Rogers, 2016; Greeson, Toohey, & Pearce, 2015; Slonim, Kienhuis, Benedetto, & Reece, 2015; Warnecke, Quinn, Ogden, Towle, & Nelson, 2011). The power of mindfulness lies within its application, which is broadly available for professionals and laypersons alike to discover and practice (Bishop et al., 2004; Brown & Ryan, 2003; Miller et al., 1995). Art is both applicable to and inherent within mindfulness (Rappaport, 2014). Combined, mindfulness and art therapy interventions have been studied in a variety of populations and have proven effective in subjective reports from participants as well as in neurological and physiological measurements (Ando & Ito, 2016; Kim & Ki, 2014; Monti et al., 2006). Further
research is necessary to evaluate the impact of art making on mindfulness among medical students.

This study examines the impact of art making on mindfulness utilizing the principles of mindfulness based stress reduction and art therapy with medical students. When reviewing the scholarly literature related to art therapy and mindfulness, three themes emerged. The themes are: (1) inter-relatedness of the art therapy process and mindfulness, (2) populations exposed to art therapy and mindfulness, and (3) efficacy of mindfulness-based art therapy (MBAT) interventions. After the aforementioned themes are examined, the research questions will be detailed.

There are three essential aspects of mindfulness practice. First, mindfulness practice focuses on non-judgmental awareness of the present moment (Kabat-Zinn, 1994; Peterson, 2014). Second, a significant aspect of the practice of mindfulness is attention to awareness through individual observation of body sensations, thoughts, and feeling tone (Kabat-Zinn, 1994; Peterson, 2014). Third, attitudinal foundations including “non-judging, trust, patience, non-striving, beginner’s mind, acceptance, and letting be” are critical to mindfulness practice (Peterson, 2015, p. 79). In sum, attention to awareness in combination with these attitudinal foundations cultivate mindfulness. Art therapy both supports and interplays with these aspects of mindfulness.

The application of mindfulness to the arts is organic. Creating art is a kinesthetic and somatic event, offering an opportunity to practice non-judgmental attention to awareness while upholding the attitudinal foundations during the creative process. Rappaport (2014) identified mindfulness as “the process inherent within the arts” through “witnessing and immersion in the moment of the arts therapy experience” (p. 32.). Art therapy provides a fertile ground to practice
mindfulness within the creative process. Given the essential features of mindfulness and the interconnection of mindfulness within the arts, numerous studies have explored the efficacy of mindfulness-based interventions with various populations.

The current body of literature exploring mindfulness practices in psychotherapy demonstrates utilizing this approach with clients yields positive outcomes (Brown, Marquis, & Guiffrida, 2013). Khoury et al.’s (2013) meta-analysis of mindfulness-based therapy (MBT), which included 209 studies and 12,145 participants with a variety of disorders, concluded that MBT was effective in reducing anxiety, depression, and stress. Hofmann et al.’s (2010) meta-analysis demonstrated improvements in depression and anxiety among populations with a variety of psychiatric and medical conditions, and found these positive effects were maintained through an average 27-week follow-up period. These meta-analytic reviews suggest that combining mindfulness-based practices with psychotherapy may have a positive impact on the emotional health of clients experiencing a variety of psychological disorders and medical conditions. Remarkably, alleviation of distressing symptoms among clients is not limited to direct participation in MBT.

Clients benefit from therapists practicing mindfulness, even when clients are not aware of these practices. Grepmair et al. (2007) found greater symptom reduction among clients working with therapists practicing meditation than those with therapists not practicing meditation. Khoury et al. (2013) observed therapists’ experience with mindfulness-based practices impacted end of treatment clinical outcomes more than general clinical training substantiating earlier research by Pradhan et al. (2007). These studies suggest direct and indirect impacts of therapists’ experience with mindfulness practice on clinical outcomes. When mindfulness
practices are incorporated directly into psychotherapy, mindfulness-based stress reduction (MBSR) is one of the most widely used programs.

Mindfulness-based stress reduction (MBSR) is a standardized, multimodal group meditation program developed by Kabat-Zinn (1982, 1990) that has been used with diverse populations. Initially developed for individuals suffering from chronic pain, MBSR has since been applied as an intervention for individuals suffering from stress, emotional and psychological disorders, as well as individuals suffering from chronic medical diseases (Bolhmeijer, Prenger, Taal, & Cujpers, 2009; Chiesa & Serretti, 2009; Grossman, Niemann, Schmidt, & Walach, 2004). Grossman, Niemann, Schmidt, and Walach’s (2004) meta-analysis of the health benefits associated with MBSR found relatively strong effect sizes among very different populations suggesting MBSR has a positive impact on individuals coping with distress and disability from more serious medical disorders as well as in everyday life (p.39). MBSR’s multi-model approach has proved effective in promoting positive outcomes for various populations and is not limited to chronic conditions. MBSR with healthy people has also demonstrated positive outcomes.

Populations without clinical diagnoses or suffering from chronic medical conditions have been shown to benefit from participation in MBSR. Chiesa and Serretti’s (2009) meta-analysis of MBSR with health people found significant positive, nonspecific effects on reducing stress levels among participants when compared with a waiting list. Irving, Dobkin, and Park’s (2009) review of MBSR with health care professionals indicate participation in MBSR is beneficial for physicians in the domains of physical and mental health. These reviews suggest a broad range of populations that can benefit from MBSR. Mindfulness in combination with art therapy has also demonstrated positive outcomes among heterogeneous populations.
A wide variety of populations have been exposed to combined art therapy and mindfulness interventions. Ando and Ito (2016) investigated the impact of a mindfulness-based art therapy (MBAT) program with twenty Japanese college students. The effects of a creative art therapy program combined with walking and stretching meditation on adolescents suffering from depression and anxiety has also been explored (Kim & Ki, 2014; Kim, Kim, & Ki, 2014). The positive impacts of combining art therapy and mindfulness with adolescents and college student populations are demonstrated in these studies. Current literature indicates the efficacy of combining art therapy and mindfulness.

The efficacy of mindfulness combined with art therapy is important to research. Kim and Ki’s (2014) study on the effect of creative art therapy with stretching and walking meditation found that this intervention provided improved emotional expression and decreased somatization in a neurasthenic adolescent. Kim, Kim, and Ki’s (2014) study found significantly higher scores of subjective well-being among depressed and anxious adolescents participating in an art therapy and breath meditation intervention. These studies suggest the combination of art therapy with mindfulness may promote emotional and physical wellness in adolescents. Further evidence for the effectiveness of mindfulness and art therapy interventions has been demonstrated through the collection of neurological responses.

Exciting current research explores the impact of mindfulness and art therapy on brain functioning among women diagnosed with breast cancer. Monti et al.’s (2012) study on the impact of an eight-week MBAT program with women diagnosed with breast cancer found significant increases in cerebral blood flow (CBF) in multiple brain areas during MBAT as indicated by functional magnetic resonance imaging (fMRI). Notably, Monti et al.’s (2012) study suggests subjects participating in MBAT had significant correlations between increased
CBF in the left caudate and decreased SCL-90-R anxiety scores. Through fMRI scans, significant physiological and neurophysiological changes in response to an MBAT program have been demonstrated. Mindfulness and art therapy interventions have also been found to impact automated nervous system responses (ANS).

Further exploration on the impact of mindfulness-based art therapy indicates a physiological effect of this intervention. Ando and Ito’s (2016) study on the impact of mindfulness-based art therapy with Japanese college students demonstrated changes in ANS responses which occurred differently for participants with different states of mental health. Specifically, individuals considered low-risk according to their responses to the General Health Questionnaire (GHQ) experienced greater increases in ANS activity compared with those considered high-risk participants (Ando & Ito, 2016). This research indicates MBAT interventions impacted physiological responses. Additional research is needed to explore the impact of the art process on mindfulness.

Current research has examined the impact of stress on medical students. Patients benefitting from professionals practicing mindfulness have also been identified. Interventions aimed at addressing medical student distress may provide benefits not only for medical professionals, but also their patients. Mindfulness-based interventions and art therapy have been utilized with various populations and present a feasible approach to improving self-care and well-being among medical students. There is an absence of research measuring the impact of incorporating art therapy into a mindfulness enhancement training program on mindfulness and coping.

Given the aforementioned gaps in the literature, the purpose of this study was to examine the impact of adding art therapy to treatment as usual (TAU) in a mindfulness enhancement
training program with a medical student. Four research questions guided this study. First, what is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in a medical student? Second, what is the impact of adding an art therapy component to mindfulness enhancement training on coherence in a medical student? Third, how does the medical student rank satisfaction with different aspects of the intervention in mindfulness enhancement training and mindfulness-based art therapy? Fourth, what media did the medical student employ in mindfulness-based art therapy and how did the medical student rank satisfaction with employed media?

**Method**

**Design**

An ABAB single subject research design was employed to evaluate the impact of adding an art intervention to treatment as usual (TAU) in a mindfulness enhancement training for a medical student. For this study, mindfulness enhancement training was A and B was a mindfulness-enhancement training with art therapy utilizing mindfulness-based art therapy (MBAT). In an ABAB research design, a baseline measurement is followed by an intervention (Long & Hollin, 1995). An intervention is presented and withdrawn over the course of four phases. Repetition strengthens internal validity in this design (Kazdin, 2003).

Continuous baseline data was collected from a participant over three sessions during the initial phase of mindfulness enhancement. Following the first three sessions, an art therapy intervention was introduced during three sessions of MBAT and continuous data was collected. Continuous data was then collected for a second baseline after the art therapy intervention was withdrawn for the final three sessions of mindfulness enhancement training. Data was collected for the final three sessions after the art therapy intervention was reintroduced. Quantitative
questions seeking the participant’s experience with mindfulness training and mindfulness-based art therapy was explored in a post-intervention questionnaire administered at the end of the final MBAT session in addition to single subject design.

**Participant**

The participant in this study was the first medical student recruited who met the following criteria: (1) enrolled in a medical school program, (2) no previous experience with art therapy or mindfulness enhancement training. The participant responded to an electronic flyer requesting volunteers emailed to all medical students at a medical school. Participant A was a 22-year-old Indian-American female medical student. The participant was given two $25 VISA gift cards upon completion of the study.

**Measures**

**Mindful Attention Awareness Scale Short (MAAS-S).** Black, Sussman, Johnson, and Milam (2012) developed a short version of Brown and Ryan’s (2003) 15-item Mindful Attention Awareness Scale (MAAS). The original 15-item MAAS is a self-report measure intended to assess individual differences in attention to and awareness of present-moment experiences in daily life over time (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003). Items are scored on a six-point Likert-type scale ranging from 1 (almost always) to 6 (almost always). Higher scores indicate more mindfulness (Brown & Ryan, 2003). MAAS-S is a fully anchored, six-item scale utilizing items 7, 8, 9, 10, 13, and 14 from the original MAAS. Black et al. (2012) found these six items maintained the highest factor loadings. Item 9, “I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there,” had the highest factor loading of all 15 questions. Black et al. (2012) reported a Cronbach’s alpha at
The MAAS-S also demonstrated excellent convergent and discriminant validity (Black et al., 2012).

**University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS).**

Togari, Yamazaki, Nakayama, and Shimizu (2007) developed a short three-item version of Antonovsky’s (1987) Sense of Coherence Scale (SOC) for use in population surveys. The SOC is a self-report measure intended to assess an individual’s capacity to respond to stress (Eriksson & Lindström, 2005). Antonovsky (1987) originally conceptualized the SOC within a foundation of salutogenic theory. Rather than view stress with a pathogenic orientation, Antonovsky’s SOC explores “the ability for people to understand what happens around them, to what extent they were able to manage the situation on their own or through significant others in their social network, and the ability to find meaning in the situation” (Eriksson & Lindström, 2005, p. 460).

Items in the SOC-3-UTHS measure three elements: comprehensibility, manageability, and meaningfulness. Responses to three statements are rated on a seven-point Likert-type-scale ranging from 1 (almost always) to 7 (never). Statements include “I am able to find a solution to everyday problems and difficulties,” “I think that it’s worthwhile to take some of life’s problems and difficulties head-on,” and “I think that I understand and can predict everyday problems and difficulties” (Togari, 2015, p. 33). Togari and Yamasaki (2016) reported Cronbach’s alpha coefficients between .80 and .84. A one-year stability coefficient among a young Japanese cohort was found to be .70 (Togari & Yamasaki, 2016).

**Post-Intervention Questionnaire.** The primary investigator developed an eight-item satisfaction to assess the participant’s experience with mindfulness training and mindfulness-based art therapy. Participant’s satisfaction with mindfulness and mindfulness-based art therapy are evaluated by the first seven items and are scored on a five-point Likert-type scale ranging
from 1 (strongly agree) to 5 (strongly disagree). Item 8 identifies art materials utilized and participant satisfaction with art materials.

**Procedures**

Volunteers responded to a recruitment flyer sent out by email and were screened for eligibility. The first volunteer to meet criteria was selected as a participant. During an initial meeting with the participant, informed consent was obtained and demographic information was gathered.

To examine the effects of the intervention, an ABAB single subject research design was used. Session length for mindfulness enhancement training and MBAT was 90 minutes. Twelve sessions were conducted in total. Minfulness principles garnered from Kabat-Zinn (1990) were employed during the first three mindfulness enhancement sessions followed by three sessions employing MBAT directives integrating art therapy tasks with mindfulness meditation training found in Peterson’s (2009) instruction manual. Replication of the first three mindfulness enhancement sessions were then followed by replication of the first three MBAT sessions. Immediately following each session, participants completed the Mindful Attention Awareness Scale Short (MAAS-S) and University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS) by hand. The post-intervention questionnaire was also completed by hand after the final MBAT session. Responses to the SOC-3-UTHS, MAAS-S, and post-intervention questionnaire were retrieved by the researcher after being sealed in an envelope by the participant.
Intervention

**Mindfulness Enhancement.** The principles of mindfulness outlined by Kabat-Zinn (1990) were used during three sessions which comprised the mindfulness enhancement intervention.

**Mindfulness Enhancement Session 1.** Session began with a five-minute seated meditation followed by a 20-minute introduction and orientation to the principles of mindfulness. A 45-minute body scan was then conducted with a 20-minute discussion of the body scan experience and outline of weekly practice following practice. The participant was instructed to practice at least 15 minutes of mindfulness each day as well as complete a pleasant events calendar in between the three mindfulness enhancement sessions.

**Mindfulness Enhancement Session 2.** Session began with a five-minute seated meditation. A 25-minute discussion of the participant’s experience meditating in between sessions followed by a review of the pleasant events calendar. A 30-minute walking meditation was introduced and practiced. Following the walking meditation, a 15-minute meditation position experiential and 15-minute discussion concluded the session. The participant was advised to continue meditating for at least 15 minutes each day and complete an unpleasant events calendar.

**Mindfulness Enhancement Session 3.** A five-minute seated meditation began the session. Following the meditation, a 25-minute discussion explored the experience of the participant between session and the completed unpleasant events calendar. The medical student then completed a 40-minute seated breath as object of awareness experiential. A 10-minute movement meditation followed by a 10-minute discussion concluded the final 20 minutes of
session three. Instructions for the participant to continue meditating for at least 15 minutes each day were provided.

**MBAT.** MBAT sessions included art therapy directives developed by Peterson (2009, 2014; personal communication, August 21, 2016). Each MBAT session included the following materials: various paper consistencies including smooth, rough, watercolor, and tissue paper along with oil pastels, acrylic paint, chalk pastels, graphite pencils, crayons, and charcoal. Also available were 18” x 24” white paper and tape.

**MBAT Session 1.** A 30-minute Mindful Exploration of Art Materials (MEAM) began the session (Peterson, 2009). Following the MEAM, a 45-minute Exploring the Mind Body Experience in the Here and Now was completed (Peterson, 2009). A 15-minute discussion concluded the session. The medical student was instructed to meditate for at least 15 minutes each day and complete a mandala after each meditation. The medical student was also instructed to bring their pleasant and unpleasant events log to the next session.

**MBAT Session 2.** The session began with a 10-minute discussion of the medical student’s experience between session and sharing of mandalas. The Pleasant and Unpleasant/Stressful Event Pictures was then completed for 30 minutes, after which the medical student completed The Feeling Vocabulary in the Body directive for 35 minutes (Peterson, 2009). A 15-minute discussion concluded the session. The medical student was instructed to again complete daily meditation and mandala practice.

**MBAT Session 3.** The session began with a 10-minute discussion of participant’s experience over the last week and sharing mandalas. Exploring Mindfulness Meditation Practice directive was introduced followed by creating an Image of a Healing Place (Peterson, 2009). Both directives were 40 minutes in length. The medical student was advised to continue to
meditate for 15 minutes each day and discontinue mandalas at the end of Phase One. At the end of Phase Two, the medical student was advised the study was over but she could continue to practice mindfulness and mindful art making if desired.

**Intervention Fidelity**

**Mindfulness Enhancement Session Treatment Fidelity.** The first author completed an eight-week MBSR Intensive course instructed by an MBSR teacher certified through the Center for Mindfulness at University of Massachusetts Medical School. Therapist adherence to mindfulness enhancement was evaluated with a treatment fidelity checklist. The mindfulness-enhancement treatment fidelity checklist was developed to include essential features of mindfulness. These essential features and aspects were listed for each session, and the first author evaluated whether these elements were covered (i.e., yes/no, 1/0) at the end of each mindfulness enhancement session.

**MBAT Session Treatment Fidelity.** The first author attended Peterson’s (2016, August) MBAT training, *Integrating Mindfulness and Creativity Practices: A Retreat and Workshop for Art Therapists*. The first author received instruction on and a copy of Peterson’s (2009) *Integrating Art Therapy Tasks with Mindfulness Meditation Training* manual and Peterson’s (2014) *Creativity-Based Mindfulness Skills Training* manual. A treatment fidelity checklist was developed for MBAT sessions utilizing the principles of Peterson’s (2009, 2014) manuals and essential aspects of mindfulness. The first author completed a corresponding fidelity checklist at the end of each session. Principles and essential features were listed for each session, and the first author evaluated whether these elements were covered (i.e., yes/no, 1/0) at the end of each MBAT session.
Data Analysis

Over the four phases of this study, scores from MAAS-S and SOC-3-UTHS were collected and graphed (Spriggs & Gast, 2010). A visual analysis of graphs was conducted to evaluate the impact of the intervention (Spriggs & Gast, 2010). In order to detail the magnitude of impact of the intervention, percentage of non-overlapping of all pairs was calculated (Parker & Vannest, 2009). A NAP online calculator was employed to compute NAP for each AB phase and all AB phases combined (Vannest, Parker, & Gonen, 2011). The post-intervention questionnaire collected participant satisfaction during the final MBAT session and was evaluated by the art therapist.

Results

Results of the medical student’s SOC-3 scores and MAAS-S scores were collected at the end of each session and are represented in graphic form as shown in Figures 1.1 and 1.2.

Reported mindfulness scores during the first three mindfulness-enhancement training sessions of Phase A1 were 23, 21, and 22. The median score for Phase A1 was 22. Mindfulness scores reported after the first three MBAT sessions of Phase B1 were 23, 23, and 24. Following replication of the first three mindfulness enhancement training sessions during Phase A2, scores for mindfulness were 25, 26, and 27. The median score for Phase A2 was 26. Reported mindfulness scores during the second three MBAT sessions of Phase B2 were 27, 28, and 27. The median score of 24 was found for Phase B2. A graphical representation of obtained results is found in Figure 1.1.

NAP scores for mindfulness in each AB phase included 1.00 comparing A1 to A2, 0.8889 comparing A1 to B1, 1.00 comparing B1 to A2, and 0.8889 comparing A2 to B2. The
NAP score for mindfulness across all AB phases combined was 0.6944, indicating a medium effect size.

Reported sense of coherence scores during Phase A1 were 15, 15, and 16. The median score for this phase was 15. The medical student reported scores for sense of coherence of 13, 17, and 16 during Phase B1 sessions with a median of 16. Following replication of mindfulness enhancement training sessions, sense of coherence scores for Phase A2 were 14, 16, and 13. A median score for this phase was 14. Reported scores for Phase B2 were 16, 14, and 16, with a median score of 16. A graph of these findings are presented in Figure 1.2.

NAP scores for sense of coherence over each AB phase included 0.2778 comparing A1 to A2, 0.6111 comparing A1 to B1, 0.3333 comparing B1 to A2, and 0.7222 comparing A2 to B2. The total sense of coherence across all AB phases combined NAP score was 0.6389, reflecting a small effect size for sense of coherence.

The first seven questions of the post-intervention questionnaire documented the medical student’s satisfaction with aspects of mindfulness enhancement training and mindfulness-based art therapy. In response to the first statement, mindfulness practice without art was helpful, the medical student responded 2 (Agree). The medical student responded 2 (Agree) to the second statement, mindfulness practice with art was helpful. In response to the third statement, practicing mindfulness between sessions was helpful, the medical student responded 1 (Strongly Agree). The medical student responded 2 (Agree) to statement four, practicing mindfulness-based art between sessions was helpful. In response to statement five, discussion was helpful, the medical student reported 1 (Strongly Agree). The medical student responded 1 (Strongly Agree) in response to statement six, the art therapist promoted mindfulness. In response to statement seven, the product promoted mindfulness, the medical student reported 3 (Neutral).
Media utilized by the participant during MBAT sessions was identified by the participant in the eighth question of the post-intervention questionnaire. Results are presented in Table 1.1. The participant reported affirmative to using acrylic paint, watercolor paint, oil pastels, color pencils, graphite pencils, color markers, and tissue paper. Crayons were not used during mindfulness-based art therapy. In addition to identifying what materials were used and not used during mindfulness-based art therapy sessions, the participant identified her experience with each material used. The participant reported 3 (Neutral) to the statement using acrylic paint promoted mindfulness, using oil pastels promoted mindfulness, using colored pencils promoted mindfulness, and using colored markers promoted mindfulness. The participant reported 2 (Agree) with the statements using watercolor paint promoted mindfulness, using chalk pastels promoted mindfulness, using graphite pencils promoted mindfulness, and using tissue paper promoted mindfulness.

The art therapist completed an intervention fidelity checklist for mindfulness enhancement training sessions and MBAT sessions at the end of each respective session. Mindfulness training sessions maintained 100% fidelity to the principles of mindfulness. MBAT sessions also upheld 100% fidelity to principles and essential features of MBAT and mindfulness.

**Discussion**

This study is the first of its kind to explore the impact of adding art to mindfulness enhancement training with a medical student and was guided by four research questions. The first research question investigated the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in a medical student. Examination of mindfulness NAP scores spanning all AB phases combined revealed a medium effect size.
Increased mindfulness during MBAT phases is apparent upon visual analysis of the median mindfulness scores for each phase. The addition of art therapy to mindfulness enhancement training with a medical student contributed to a moderate increase in mindfulness. One possible explanation for this result is that MBAT did not have a pejorative effect on the medical student’s upward trajectory of mindfulness. It may be the case that once introduced, principles of mindfulness could not be unlearned and MBAT did not detract from the medical student’s experience of mindfulness. Kember (2016) and Cavanagh et al. (2013) studied brief online mindfulness interventions and found even brief mindfulness interventions increased mindfulness. Furthermore, the medical student reported continuing to actively practicing mindfulness through guided meditations and nonjudgmental awareness of the present moment during examinations and challenging experiences during her day.

A second explanation for this result may be related to longer gaps in mindfulness enhancement training session meetings due to unforeseen circumstances. A one week gap occurred between mindfulness enhancement training Phase One Sessions Two and Three due to weather. Another week gap between MBAT Phase One Session Three and mindfulness enhancement training phase two session one occurred due to conflicting schedules of student and art therapist. Gaps in sessions may have impacted the medical student’s training and overall experience of mindfulness during mindfulness enhancement training phases. Scores between interrupted sessions one and two demonstrate a very small drop in mindfulness, from 23 to 21. In addition, the second interruption occurred between phases, not impacting frequency of either MBAT phase one of mindfulness enhancement training Phase Two.

A third explanation for this result may be that MBAT fosters the principles of mindfulness through art making and facilitation of art directives by an art therapist. McNiff
(2014) postulated the inter-relatedness of mindfulness and the art therapy process, suggesting focus on breath during meditation is mirrored by focus on movement and expression during art making. Further support for the inter-relatedness of mindfulness and art therapy which may result in increase in mindfulness during MBAT may be found in the Expressive Therapies Continuum (ETC) (Hinz, 2009; Kagin & Lusebrink, 1978). The ETC is a conceptual model employed by art therapists to classify media interactions and art therapy processes. Applying the Kinesthetic/Sensory Level (KS) during MBAT may focus the participant’s attention to both physical and sensory experiences and may be harnessed to further promote mindfulness. The KS was emphasized during the MEAM (Peterson, 2009). Moving up the ETC to the Perceptual/Affective Level (PA), Cognitive/Symbolic Level (CS), and Creative Level (C) may further promote the principles of mindfulness, increasing mindfulness for the participant. Examples of an integration of PA, CS, and C can be found in the medical student’s completion of The Feeling Vocabulary in the Body, Exploring Mindfulness Meditation Practice, and Image of a Healing Place (Peterson, 2009).

Of the three explanations presented for the moderate increase in mindfulness found in this study, the most likely explanation is MBAT did not detract from the medical student’s upward trajectory of mindfulness. This is likely the case because the student actively reported engaging in mindfulness enhancement training practice, paired with MBAT, and visual analysis of mindfulness scores indicated only a one-point increase between mindfulness enhancement training scores and MBAT scores. The second research question guiding this study explored the impact of adding an art therapy component to mindfulness enhancement training on coherence in a medical student. Combined NAP scores across AB phases demonstrated a small effect size. Median scores for
sense of coherence analyzed visually for each phase indicated a slight increase during MBAT. Three possible explanations for the slight increase in sense of coherence during MBAT are present. First, the impact of interruptions during mindfulness enhancement training may have impacted scores. Because phases one and two of MBAT did not have any interruptions in session meetings, the student may have experienced increased sense of coherence. Weather-related challenges and resulting displacement of the medical student presented during the first week of mindfulness training may have directly impacted the student’s confidence in comprehensibility, manageability, and meaning of external experiences beyond her control. However, SOC-3-UTHS scores between the first interruption do not indicate a significant change in score. In fact, the reported sense of coherence score of 15 remained stable between mindfulness enhancement training Phase One Sessions One and Two. The second interruption occurred at a natural stopping point between phases.

A second possibility for the slight increase in sense of coherence presented in this study is that MBAT may promote a slight increase in sense of coherence by moving the student through higher levels of the ETC (Kagan & Lusebrink, 1978). MBAT Sessions Two and Three employed art processes incorporating higher levels of the ETC including the Perceptual/Affective Level as well as the Cognitive/Symbolic and Creative Levels. Within these higher levels, the medical student was able to identify, symbolically represent, and discuss feelings, pleasant and unpleasant experiences, and the experience of mindfulness.

Meghani et al. (2018) identified a salutogenic effect of MBAT, specifically within the constructs of comprehensibility and meaning. Results from Meghani et al.’s (2018) study found no significant change in the construct of manageability. In the current study, it is possible that MBAT provided an opportunity to foster comprehensibility and meaning through the
employment of art directives designed to promote order and understanding of life events. The medical student followed directions and reflected upon feelings and experiences during each MBAT directive. MBAT may have offered the medical student reinforcement of sense of coherence by engaging in higher levels of the ETC.

Lastly, a third possibility for the slight increase in sense of coherence is the role of discussion that accompanied art making. The student actively participated in discussion of artwork and verbally processing thoughts, feelings, challenges, and experiences through the lens of mindfulness as came up from the art work. Discussion of artwork in MBAT may have provided additional promotion of sense of coherence. Dobkin and Zhao (2011) noted the reported importance of large group discussion as one of several aspects that may attribute to benefits observed in MBSR, including increased sense of coherence. Although this study included one participant rather than a group, discussion between art therapist and the medical student was reported to be very important to the participant. Of the three explanations, it is likely that MBAT promoted a slight, though not significant, increase in sense of coherence by advancing the student along the ETC. Discussion also occurred during mindfulness enhancement training; however, visual analysis indicated a slight drop in median sense of coherence scores.

The third question guiding this study explored how the medical student ranked satisfaction with different aspects of the intervention during mindfulness enhancement training and mindfulness-based art therapy. Overall, the participant’s responses indicated mindfulness practice with art and without art were both helpful, as was practicing mindfulness with art between sessions. Practicing mindfulness between sessions and discussion were strongly agreed to be helpful, and the art therapist was strongly agreed to promote mindfulness. A neutral
response was provided for the product being helpful in promoting mindfulness. One explanation for these results may be the therapeutic alliance built between the art therapist and medical student. Bordin (1979) defined the therapeutic alliance as an agreement on goals of therapy, tasks of therapy, and the positive bond between therapist and client. Results from Goldberg, Davis, and Hoyt’s (2013) analysis of the effect of the therapeutic relationship on outcomes of a mindfulness-based smoking cessation intervention suggested therapeutic alliance measured midtreatment predicted improvement in mindfulness scores. It may be that the therapeutic relationship created by the medical student and art therapist fostered discussion during MBAT and mindfulness enhancement training, thus promoting medical student satisfaction.

Another explanation for the medical student’s reported satisfaction may be the result of repetition of practice. Mindfulness practice was emphasized in both mindfulness enhancement training and MBAT sessions, with discussion in each revolving around the experiences of practice. Though the product created during MBAT sessions represented the experience and feelings associated to practice by the medical student, the product itself was reported to be neither helpful nor unhelpful in promoting mindfulness. However, Ribeiro, Atchley, and Oken (2018) highlight conflicting results found in the literature pertaining to optimal dosing of practice and the potential for effects to be due to other rationale rather than practice time. Thus, given the former and latter explanations for the medical student’s reported satisfaction with elements of the intervention the most likely explanation is the former.

The fourth question explored in this study was which media type did the medical student employ in mindfulness-based art therapy, and what was their experience with media used? The medical student reported using all materials but crayons. Watercolor, chalk pastel, graphite pencil, and tissue paper were agreed to being helpful in promoting mindfulness. Acrylic, oil
pastel, colored pencil, and colored marker were reported neutral in being helpful in promoting mindfulness. These results indicate the medical student found watercolor, chalk pastel, graphite pencil, and tissue paper helpful in promoting mindfulness of all materials used.

Art therapists conceptualize art materials along a continuum of fluid to resistive and incorporate this continuum into considerations for the ETC (Hinz, 2006, 2009; Kagin & Lusebrink, 1978). Watercolors and acrylic paint comprise the more fluid end of the continuum, providing users with a more affective experience. Graphite pencils and colored pencils are found on the resistive end of the continuum and provide users with a more cognitive experience. The medical student identified some fluid materials to be helpful in promoting mindfulness. These included watercolor and chalk pastel. Graphite pencil was also identified as helpful in promoting mindfulness and can be found on the opposite end of the continuum.

One explanation for the medical student’s media choice is preference of material and potential positive association as a connection to mindfulness. The medical student reported familiarity with art materials and a history of art making during MBAT. During the MEAM (Peterson, 2009), the student engaged in all materials and noted the differences in sensory experiences when using art media on tissue paper. The student also acknowledged positive associations with watercolor and chalk pastel. The most frequent materials used by the student during MBAT sessions were chalk pastel, oil pastel, and colored marker. Frequency of materials used does not align with the report of materials helpful in promoting mindfulness; however, the medical student may have associated pleasant experience of material usage to promotion of mindfulness. Acrylic paint provided to the medical student was observed by the medical student to be different than acrylic paint used in the past, and more challenging to mix due to viscosity.
A second explanation for the medical student’s experience with the media may be the connection of media use with prescribed art directives during MBAT sessions. Chalk pastel was used in both phases of the Pleasant and Unpleasant/Stressful Event Pictures (Peterson, 2009). Watercolor and acrylic paint were used twice over the course of MBAT, first during the first phase of Exploring Mindfulness Meditation Practice and next during the second phase of Pleasant and Unpleasant/Stressful Event Pictures (Peterson, 2009). Graphite pencil was during the first phase of The Feeling Vocabulary in the Body (Peterson, 2009). All materials were used during both phases of the MEAM (Peterson, 2009). It is likely that that of the two explanations presented, the most plausible explanation is the medical student’s preference for art materials because of the positive association described during the MEAM (Peterson, 2009).

Limitations

Results from this study must be considered in relation with several limitations. Generalizability across populations and multiple treatment effects are two potential threats to external validity present. The nature of an ABAB single-subject research design with one participant means generalizability of results across all medical students is limited. Replication aims to increase reliability within the ABAB design. Multiple treatment effects are possible due to the exposure of the medical student to two treatments: mindfulness enhancement training and MBAT. The medical student reported actively engaging in guided mindfulness practice through the use of applications on her phone and embracing practices learned during mindfulness enhancement training during the MBAT phases. It is possible that information and behaviors learned during A phases, mindfulness enhancement training, were not reversed during B phases, MBAT (Gast & Hammond, 2010).
Threats to internal validity presented in this study include testing, instrumentation, and history. The SOC-3-UTHS and MAAS-S were completed at the end of each session and may have resulted in the medical student’s familiarity with questions. Additionally, the SOC-3-UTHS was developed in Japanese and its translation may impact validity. Both are shorter versions of original tests, which was considered an asset when designing the study due to ease of use and time, but may have limited validity. The time of study should also be noted as a potential limit to internal validity. The study took place during the first half of the semester and regular schedule of weekly sessions were interrupted on two occasions. Depending on the medical student’s experience with her external environment, including course work, social life, and examinations, the semester may have presented a gradual decrease in stress or increase in stress, impacting MAAS and SOC-3-UTHS scores. In addition, the post-intervention questionnaire developed for this study has not been validated and questions may have been unclear for the participant.

Implications for Future Research

This study is the first to explore the impact of adding art to mindfulness enhancement training with a medical student. Results indicate that MBAT had a moderate effect on mindfulness and a slight though not significant effect on coherence. The medical student strongly agreed that practicing mindfulness between sessions, discussions, and the art therapist were helpful in promoting mindfulness. The medical student agreed that mindfulness practice with art and without art were equally helpful in promoting mindfulness. Of materials used, the medical student agreed that watercolor, chalk pastel, graphite pencil, and tissue paper were helpful in promoting mindfulness. Analysis of these results have uncovered four implications for future research.
First, continued research is necessary in the field of art therapy and specifically in applications of art therapy to mindfulness and sense of coherence. The potential use for single-subject research design in art therapy research is copious. Due to the threats to internal and external validity presented in this study, a multiple baseline design may be considered for future studies. Furthermore, qualitative research exploring the experience of participants in MBAT and with specific art materials will provide deeper insight into the role of art in promoting mindfulness and sense of coherence. Expanding research to a wider range of health care professionals, not just medical students, is also needed. Researching MBAT with healthcare professionals will promote greater understanding of the impact of MBAT for various populations and potentially promote well-being that can impact healthcare professionals and their patients.

A second implication for future MBAT research is the use of data collection tools. Meghani et al. (2018) identified the salutogenic effects of MBAT for outpatients with cancer by utilizing The Sense of Coherence Orientation to Life Questionnaire 29 (Antonovsky, 1993). Use of this measure with future MBAT studies can continue to build an understanding of the impact of adding art on the three constructs of coherence: comprehensibility, manageability, and meaning. There is a dearth in research in art therapy utilizing the MAAS, which presents an opportunity for future research into art therapy and MBAT on mindfulness among various populations.

The third implication for future research involves studying the impact of the therapeutic alliance in art therapy. The medical student strongly agreed that the art therapist, discussion, and mindfulness practice were helpful in promoting mindfulness. The therapeutic alliance may have increased the medical student’s engagement in sessions. One question presented from this study is as follows: What impact does art making have in building a therapeutic alliance? Future
research is suggested to explore the impact of therapeutic alliance on the experience of the participant in art therapy as well as the impact of art making on the therapeutic alliance.

Research into applications of the ETC to MBAT is a stimulating fourth implication for future research in art therapy presented by this study. Given the prominent role the ETC plays in art therapist’s conceptualization of media and processes within art therapy, it may be plausible that utilization of various levels of the ETC can amplify mindfulness and sense of coherence not only during MBAT but in art therapy practice in general.

**Implications for Practice**

Analysis of results from this study call attention to three important implications for future practice. These include application of MBAT with clients, the role of the ETC in supporting mindfulness and sense of coherence, and the role of the therapeutic alliance. First, application of MBAT to work with clients should be considered. Utilizing a salutogenic approach to art therapy with clients, increasing client comprehensibility, manageability, and meaning may be helpful in attaining treatment goals. Thus, art therapists can consider incorporating MBAT into work with clients to promote mindfulness and sense of coherence.

A second exciting implication for the practice of art therapy relates to the role of the ETC. Art therapists regularly apply the ETC to work with clients; however, this study suggests considerations for the ETC may be applied to promote mindfulness and sense of coherence among clients. Consideration of client preference for materials is further supported by this study. A client may associate materials as helpful in promoting mindfulness that do not directly align with a certain region along the continuum from fluid to rigid. Continued self-reflection of personal preference and art therapist engagement with client in exploring materials is further supported by this study.
The third implication for art therapy practice presented in this study is the role of the therapeutic alliance in art therapy. The therapeutic alliance emphasizes the role of aligning goal, task, and bond between therapist and client (Bordin, 1979). The therapeutic task in art therapy is typically an art task. Art therapists should consider the therapeutic alliance in art therapy, and specifically when applying MBAT, to further support a salutogenic effect for the client.

This study initiates a base for exploring the impact of adding art to mindfulness-enhancement training with a medical student. Results demonstrate MBAT moderately increased mindfulness and had a small effect on sense of coherence. Results also demonstrate the medical student found mindfulness training with art and without art equally helpful in promoting mindfulness. The art therapist, discussion, and practicing mindfulness without art between sessions were found by the medical student to be most helpful in promoting mindfulness. Considerations for applying the ETC to foster mindfulness and sense of coherence as well as the role of art making in developing a therapeutic alliance in art therapy arise from this study, supporting the need for further research for art therapy.
References


Figure 1.1. This figure shows MAAS-S scores across mindfulness enhancement training phases and MBAT phases. Presented are the medical student’s mindfulness scores during each phase and includes a median line.
Figure 1.2. This figure shows sense of coherence scores across all phases of mindfulness enhancement training and MBAT. The medical student’s SOC-3-UTHS responses for each phase of treatment along with the median score line for each phase are presented.
Table 1.1

*Materials Used by Medical Students During MBAT*

<table>
<thead>
<tr>
<th>Material</th>
<th>Used</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tr>
<td>Acrylic Paint</td>
<td>Yes</td>
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<td>Oil Pastels</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Chalk Pastels</td>
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<td></td>
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<tr>
<td>Colored Pencils</td>
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<td></td>
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<tr>
<td>Graphite Pencils</td>
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<td></td>
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<td>Crayons</td>
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<td>Color Markers</td>
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<td></td>
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<tr>
<td>Tissue Paper</td>
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<td></td>
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CHAPTER THREE

THE IMPACT OF ADDING ART THERAPY TO A MINDFULNESS ENHANCEMENT TRAINING WITH AN INFORMAL CAREGIVER
The Impact of Adding Art Therapy to a Mindfulness Enhancement Training with an Informal Caregiver

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Abstract

As the population in the United States ages an increase in individuals taking on the role of caregiver to a loved one grows. Although caregiving is associated with positive aspects including an increased confidence through providing care, sense of meaning, and fostering a connection with the individual being cared for, negative outcomes including increased financial, emotional, and physical stress may also be experienced. Mindfulness has proven effective in promoting wellness with various populations. Likewise, mindfulness-based art therapy has been explored with multiple populations. This was the first study to explore the impact of adding art to mindfulness enhancement training with an informal caregiver. Four questions guided the study, including what is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in an informal caregiver? Second, what is the impact of adding an art therapy component to mindfulness enhancement training on coherence in an informal caregiver? Third, in mindfulness enhancement training and mindfulness-based art therapy, how does the informal caregiver rank satisfaction with different aspects of the intervention? Fourth what media did the informal caregiver employ during mindfulness-based art therapy? Results demonstrate MBAT slightly increased mindfulness and had no effect on sense of coherence. The informal caregiver also reported mindfulness training with art was helpful; however, mindfulness training, practice without art, discussion, and the art therapist were more helpful. These findings suggest MBAT may be utilized to increase mindfulness among informal caregivers. Implications for future research and practice in the field of art therapy as a result of these findings are presented.
Keywords: art therapy, mindfulness, mindfulness-based art therapy, stress, caregiver, sense of coherence
The Impact of Adding Art Therapy to a Mindfulness Enhancement Training with an Informal Caregiver

Scottish author Johanna Basford released *Secret Garden: An Inky Treasure Hunt and Colouring Book* in 2013, which jumped to the top of bestseller lists and ignited world-wide interest in a new genre of adult coloring books. Many coloring books are marketed as tools for stress relief and relaxation. Reports of a “global pencil shortage” and skyrocketing sales of coloring books accentuate the international draw to this phenomenon (Sims, 2016, p. 1). The popularity of coloring books may suggest a collective desire for stress relief and relaxation.

Stress is a ubiquitous experience. Among those well acquainted with increased levels of stress are informal caregivers. Informal caregivers provide unpaid care to a friend, relative, or partner suffering from a chronic or disabling condition that requires assistance with at least one activity of daily living (National Center on Caregivers, 2016).

The prevalence of informal caregiving is expected to rise as the population gets older. Approximately 43.5 million adults provided informal care for an adult or child in the United States in 2014 (National Alliance for Caregiving, 2015). Providing informal care is associated with both positive and negative outcomes for caregivers (Boerner, Schulz, & Horowitz, 2004; Cohen, Colantonio, & Vernich, 2002; HHS, 2014). Notably, the National Alliance for Caregiving (2015) found “the longer a caregiver has been providing care, the more likely she or he is to report *fair to poor* health” (p. 10). Exploration of interventions to support informal caregivers is evident in the literature (Harding, List, Epiphaniou, & Jones, 2011). Mindfulness-based interventions have demonstrated positive effects on health and well-being among informal caregivers (Bazzano et al., 2015; Jaffray, Bridgman, Stephens, & Skinner, 2016; Kögler et al., 2015; Li, Yuan, & Zhang, 2016). Mindfulness interventions combined with art therapy have
been studied with a variety of populations (Ando & Ito, 2016; Kim & Ki, 2014; Monti et al., 2006). Studies utilizing mindfulness and art therapy with informal caregivers are sparse; however, one formative evaluation report by Peterson (2015) presented a promising modality to address the negative impact of caregiving. Further research on mindfulness-based art therapy interventions with informal caregivers is needed.

This study examined the impact of art making on mindfulness utilizing the principles of mindfulness-based stress reduction and art therapy with informal caregivers. Three themes emerged when reviewing the scholarly literature related to art therapy and mindfulness. These themes are (1) the inter-relatedness of the art therapy process and mindfulness, (2) populations exposed to art therapy and mindfulness, and (3) efficacy of mindfulness-based art therapy (MBAT) interventions. After the aforementioned themes are examined, the research questions are detailed.

Mindfulness practice encompasses three essential features. First, the practice of mindfulness requires an intentional focus on non-judgmental awareness within the present moment (Kabat-Zinn, 1990; Peterson, 2014; Shapiro, Carlson, Astin, & Freedman, 2006). Second, the practice of mindfulness requires attention to awareness through an individual’s observation of thoughts, feeling-tone, and body sensations (Peterson, 2014; Shapiro et al., 2006). Third, attitudinal foundations vital to mindful practice including nonjudging, trust, patience, non-striving, beginner’s mind, acceptance, and letting be are embraced (Kabat-Zinn, 1990; Peterson, 2015; Shapiro et al., 2006). Mindfulness is cultivated through regular practice utilizing these attitudinal foundations in combination with non-judgmental attention to awareness. Art therapy provides a natural container for the essential features of mindfulness.
Art therapy and mindfulness are intrinsically connected. The universality of art making and the positive physical and psychological benefits associated with creating art are established in the literature (Abbott, Shanahan, & Neufeld, 2013; Bell & Robbins, 2007; De Petrillo & Winner, 2011; Rubin, 2010; Sandmire, Gorham, Rankin, & Grimm, 2012). Similarly, universality and healing are associated with the practice of mindfulness (Brown, Marquies, & Guiffrida, 2013). Peterson (2014) suggested a dance between mindfulness practices and expressive therapies which “is exceptionally promising as a path for healing, fostering the evolution of coping skills born of embodied presence, authentic meaning-making, and intentional action” (p. 78). Art therapy further connects with mindfulness practice through aspects of witnessing and immersion.

Witnessing and immersion are two key features of art therapy inherent within mindfulness practice. McNiff (2014) described a singular role in the art therapy process in which the art therapist holds “a safe place where another person can express, explore, and understand the depths of the present moment and their relationship to the complex of the psyche” (p. 43). Allen (2014) reiterated the function of intention and witness, linking mindfulness to the art experience in an open studio setting. Both authors suggest the role of an art therapist augments the cultivation of mindfulness through art making. Given the interrelatedness of art and mindfulness, both interventions have been utilized with diverse populations to address a variety of concerns.

Current research supports the efficacy of incorporating mindfulness-based interventions with diverse participant populations. Hoffman, Sawyer, Witt, and Oh’s (2010) meta-analysis of mindfulness-based therapy with individuals experiencing anxiety and depression included participants suffering from various psychological and medical conditions. Khoury et al.’s (2014)
extensive meta-analysis of mindfulness-based therapy reviewed 209 studies and 12,145 participants suffering from a variety of psychological disorders. Both meta-analyses suggested improvements in anxiety and depression among diverse populations following mindfulness-based psychotherapy interventions. Among the diverse breadth of populations benefitting from mindfulness-based interventions are informal caregivers.

Mindfulness-based interventions with informal caregivers have demonstrated positive outcomes. Jaffray, Bridgman, Stephens, and Skinner’s (2016) systematic review evaluating the effects of mindfulness-based interventions for informal palliative caregivers identified 10 studies with 432 participants and found mindfulness-based interventions had a significant impact on reducing depression, increasing quality of life, and reducing caregiver burden. Among informal caregiver populations included in Jaffray et al.’s (2016) review, those caring for individuals suffering from dementia related disorders were most prevalent. The current literature suggests mindfulness-based stress reduction (MBSR) is the most frequently used mindfulness-based intervention with informal caregivers.

Mindfulness-based stress reduction (MBSR) has been utilized with various populations, including informal caregivers. Developed by Kabat-Zinn (1982, 1990), MBSR is a standardized, multimodal group meditation program. Initially designed to address pain management for individuals suffering from chronic pain, MBSR is currently employed with populations experiencing stress, emotional and psychological disorders, and chronic medical conditions (Bolhmeijer, Prenger, Taal, & Cujpers, 2009; Chiesa & Serretti, 2009; Grossman, Niemann, Schmidt, & Walach, 2004). Family caregivers of individuals awaiting transplants and/or suffering from dementia, functional impairments, chronic medical conditions, and disabilities are among the various populations benefiting from MBSR (Bazzano et al., 2015; Jaffray et al., 2016;
Li, Yuan, & Zhang, 2016; Whitebird et al., 2012). MBSR has proven effective in reducing stress and depression and improving overall well-being among diverse populations. The effectiveness of utilizing MBSR with informal caregivers is evident in the literature.

Studies indicate the effectiveness of MBSR with informal caregivers caring for various populations. Whitebird et al.’s (2012) randomized controlled trial of MBSR with family caregivers of individuals suffering from dementia demonstrated MBSR was more effective than a community caregiver education and support program in improving overall mental health, reducing stress, and decreasing depression. Bazzano et al. (2015) explored the impact of MBSR with parental caregivers of individuals with developmental disabilities and found a significant reduction in perceived stress and significant increase in mindfulness, compassion, and well-being among participants. These studies indicate the potential for MBSR as an effective, long-term intervention for informal caregiver well-being. Art therapy in combination with mindfulness also offers promise as an intervention aimed at improving health and wellbeing among various populations.

Mindfulness and art therapy interventions have been utilized with diverse populations. Ando and Ito (2016) explored the impact of a mindfulness-based art therapy program with Japanese college students. Adolescents suffering from depression and anxiety participated in a creative art therapy program combined with walking and stretching meditation (Kim & Ki, 2014; Kim, Kim, & Ki, 2014). Results from these studies indicate combing art therapy with mindfulness promotes positive mental health outcomes among adolescents and college student populations. The positive impact of combining art therapy and mindfulness is also demonstrated among individuals suffering from chronic pain and on-going hospitalizations.
Combined, art therapy and mindfulness interventions have been explored with individuals with on-going treatment and hospitalizations as well as persons suffering from chronic pain. Isis (2014) developed a hospital-based community outreach program incorporating MBSR with creative arts therapy. Fritsche (2014) explored a case study of mind-body awareness in art therapy with an individual suffering from chronic pain. Both authors lay the foundation for an effective mindfulness-based art therapy intervention for individuals experiencing physical and emotional suffering. Positive outcomes from mindfulness-based art therapy interventions have also been suggested for individuals suffering from cancer.

Individuals suffering from cancer benefit from combining mindfulness and art therapy interventions. Monti et al. (2006) developed a mindfulness-based art therapy (MBAT) program for women suffering from a variety of cancer diagnoses. Narrowing the focus from a general cancer population, Monti et al. (2012) researched the impact of MBAT with women diagnosed with breast cancer. Women with a history of cancer continued to benefit from combined art therapy and mindfulness interventions, as evidenced in Peterson’s (2014) research. The efficacy of combining mindfulness and art therapy is evident in the literature.

Mindfulness-based art therapy has proven effective in impacting brain functioning and physiological responses. Ando and Ito’s (2016) study found Japanese college students considered low-risk due to responses to the General Health Questionnaire (GHQ) experienced greater increased automated nervous system responses (ANS) compared with high-risk participants participating in MBAT. Monti et al.’s (2012) study demonstrated significant physiological and neurophysiological changes through functional magnetic resonance imaging (fMRI) among women diagnosed with breast cancer participating in MBAT. Both studies indicated mindfulness combined with art therapy positively impacted physiological responses.
and neurological functioning. The positive effects of mindfulness-based art therapy interventions are not limited to physiological and neurophysiological changes, but also impacts quality of life and mood.

Additional benefits from combining mindfulness and art therapy include increased quality of life and decreased symptoms of anxiety and depression. Monti et al.’s (2006) study on an eight-week MBAT intervention with women diagnosed with a variety of cancers demonstrated significant improvements in general health, mental health, social functioning, and vitality subscales of the Medical Outcomes Study Short-Form Health Survey (SF-36). This study also found a significant decrease in symptoms of anxiety and depression according to the Symptoms Checklist Revised (SCL-90-R; Monti et al., 2006). Overall, results from this randomized, controlled, clinical study demonstrates encouraging data on MBAT as an effective intervention for increasing quality of life and decreasing distress for women with cancer. Research on the impact of MBAT with informal caregivers is limited.

After reviewing the literature for mindfulness-based art therapy interventions with informal caregivers, one intervention was identified. In a formative evaluation report, Peterson (2015) described a new MBAT intervention with both male and female participants comprised of individuals with “various cancer types, diagnosis, and stages” (p. 78). Also participating in the MBAT intervention were “care partner participants” (Peterson, 2015, p. 78). Results from this study have yet to be published; however, Peterson (2015) presents a promising MBAT intervention that may be used with informal caregivers. Additional research exploring the impact of an MBAT intervention with informal caregivers is necessary.

Caregiving impact emotional, social, financial, and spiritual functioning in caregivers. Zarit, Todd, and Zarit (1986) identified caregiver burden as the perceived negative effect of
caregiving on emotional, social, financial, and spiritual functioning. The National Alliance for Caregiving estimated 43.5 million informal caregivers in the United States provided care for a loved one in 2014 and anticipated these numbers will grow as the population ages. Interventions aimed at addressing adverse effects of caregiving on informal caregivers is vital. Mindfulness-based interventions and art therapy have been explored with various populations and proven effective in increasing positive mood and decreasing perceived stress. Combined, mindfulness and art therapy interventions present a feasible approach to addressing caregiver burden.

Given the aforesaid gaps in the literature, this study was designed to examine the impact of adding art therapy to treatment as usual (TAU) in a mindfulness enhancement training program for informal caregivers. The study was guided by four research questions. The first question was: What is the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in informal caregivers? The second question was: What is the impact of adding an art therapy component to mindfulness enhancement training on coherence in informal caregivers? Third, in mindfulness enhancement training and mindfulness-based art therapy, how does the informal caregiver rank satisfaction with different aspects of the intervention? Lastly, in mindfulness-based art therapy, what media did the informal caregiver employ and how did the informal caregiver rank satisfaction with utilized media?

Method

Design

This study utilized an ABAB single subject research design to evaluate the impact of adding an art intervention to treatment as usual (TAU) in a mindfulness enhancement training for informal caregivers. For the purpose of this study, A was a mindfulness enhancement training and B was a mindfulness enhancement training with art therapy utilizing mindfulness-based art
therapy (MBAT). The ABAB research design is comprised of a baseline measurement followed by an intervention (Long & Hollin, 1995). Over the course of four phases, an intervention is presented and withdrawn. Internal validity is strengthened through repetition (Kazdin, 2003).

During the initial phase of mindfulness enhancement, continuous baseline data was collected from the participant over three sessions. An art therapy intervention was introduced and continuous data was collected during three sessions of MBAT. The art therapy intervention was withdrawn for the final three sessions of mindfulness enhancement training and continuous data was collected for a second baseline. The art therapy intervention was then reintroduced and data was collected for the final three sessions. In addition to single subject design, quantitative questions pertaining to the participant’s experience with mindfulness training and mindfulness-based art therapy was explored in a post-intervention questionnaire that was administered at the end of the final MBAT session.

Participant

The participant in this study was the first informal caregiver recruited who met the following criteria: (1) age 18 to 75 years old, (2) caring for a family member or loved one suffering from emotional and/or physical condition requiring assistance with at least one activity of daily living, (3) no previous experience with art therapy or mindfulness enhancement training. The participant responded to a flyer requesting volunteers posted in a medical office frequented by individuals suffering from dementia and their caregivers. Participant B was a 72-year-old White female caring for her husband suffering from Alzheimer’s disease. Upon completion of the study, the participant received two $25 VISA gift cards.
Measures

Mindful Attention Awareness Scale Short (MAAS-S). The MAAS-S is a short version of Brown and Ryan’s (2003) 15-item MAAS developed by Black, Sussman, Johnson, and Milam (2012). Brown and Ryan’s (2003) 15-item MAAS is a self-report measure intended used to assess in daily life over time individual differences in attention to and awareness of present-moment experiences (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003). A six-point Likert-type scale is used to score items, ranging from 1 (almost always) to 6 (almost always). More mindfulness is denoted by higher scores (Brown & Ryan, 2003). The MAAS-S utilizes items 7, 8, 9, 10, 13, and 14 from the original MAAS and is a fully anchored, six-item scale. Items chosen by Black et al. (2014) maintained the highest factor loadings. A Cronbach’s alpha at .89 for the MAAS-S was found by Black et al. (2012), along with excellent convergent and discriminant validity.

University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS). This three-item scale was developed by Togari, Yamazaki, Nakayama, and Shimizu (2007) based upon Antonovsky’s (1987) 29-item Sense of Coherence Scale (SOC). The SOC assesses an individual’s capacity to respond to stress via self-report (Eriksson & Lindström, 2005). Antonovsky’s (1987) SOC embraced salutogenic theory and identified three constructs for coherence: comprehensibility, manageability, and meaningfulness. These three constructs are measured by the SOC-3-UTHS. A seven-point Likert-type scale is used to rate responses to three statements, ranging from 1 (almost always) to 7 (never). Cronbach’s alpha coefficients between .80 and .84. were reported for the SOC-3-UTHS by Togari and Yamasaki (2016), along with a 1-year stability coefficient of .70 in a Japanese cohort.
**Post-Intervention Questionnaire.** An eight-item satisfaction survey was developed by the primary investigator to assess the participant’s experience with mindfulness training and mindfulness-based art therapy. The first seven items evaluate the participant’s satisfaction with mindfulness and mindfulness-based art therapy and are scored on a five-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree). Item 8 identifies art materials used by the participant and participant satisfaction with art materials.

**Procedures**

Volunteers responded to a recruitment flyer and were screened for eligibility. The first volunteer to meet criteria was selected as a participant. Informed consent was obtained and demographic information was gathered during an initial meeting with the participant.

An ABAB single subject research design was used to examine the effects of the intervention. Each session was 90 minutes in length. A total of 12 sessions were conducted in the informal caregiver’s home. The first three mindfulness enhancement sessions utilized mindfulness principles garnered from Kabat-Zinn (1990) followed by three sessions utilizing MBAT directives found in Peterson’s (2009) instruction manual for integrating art therapy tasks with mindfulness meditation training. The first three mindfulness-enhancement sessions were then replicated followed by the first three sessions utilizing MBAT. The participant completed the Mindful Attention Awareness Scale Short (MAAS-S) and University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS) by hand immediately following each session. A post-intervention questionnaire was completed by the participant by hand after the completion of the final MBAT session. Responses to MAAS-S, SOC-3-UTHS, and post-intervention questionnaire were sealed in an envelope by the participant and retrieved by the researcher.
Intervention

**Mindfulness Enhancement.** The mindfulness enhancement intervention was comprised of three sessions utilizing the principles of mindfulness outlined by Kabat-Zinn (1990).

**Mindfulness Enhancement Session 1.** Began with a five-minute seated meditation. Following seated meditation, the first author led a 20-minute introduction and orientation to the principles of mindfulness. After orientation to mindfulness, a 45-minute body scan was completed and followed by a 20-minute discussion of the body scan experience and outline of weekly practice. In between each of the three mindfulness enhancement sessions, the participant was instructed to practice at least 15 minutes of mindfulness each day and complete a pleasant events calendar.

**Mindfulness Enhancement Session 2.** Began with a five-minute seated meditation followed by a 25-minute discussion of the participant’s experience meditating over the last week and review of her pleasant events calendar. The participant engaged in a 30-minute walking meditation introduction and experience. The session concluded with a 15-minute meditation position experiential followed by a 15-minute discussion. The participant was instructed to complete an unpleasant events calendar and meditate for at least 15 minutes each day.

**Mindfulness Enhancement Session 3.** Began with a five-minute seated meditation followed by a 25-minute discussion of the experience of the participant over the last week and her unpleasant events calendar. The participant participated in a 40-minute seated breath as object of awareness experiential. The final 20 minutes included a 10-minute movement meditation followed by a 10-minute discussion. The session concluded with instructions for the participant to continue to meditate for at least 15 minutes each day.
**MBAT.** Art therapy directives presented in MBAT sessions were developed by Peterson (2009; 2014; personal communication, August 21, 2016). Materials available during each MBAT session included: graphite pencils, crayons, oil pastels, acrylic paint, chalk pastels, charcoal, and various paper consistencies including smooth, rough, watercolor, and tissue paper. 18” x 24” white paper and tape were also available.

**MBAT Session 1.** This first session began with a 30-minute Mindful Exploration of Art Materials (MEAM) (Peterson, 2009), followed by a 45 minute Exploring the Mind Body Experience in the Here and Now (Peterson, 2009). The session concluded with a 15-minute discussion and instruction to meditate for at least 15 minutes each day and complete a mandala after each meditation. Participants were also instructed to bring their pleasant and unpleasant events log to the next session.

**MBAT Session 2.** The second session began with a 10-minute discussion of participant’s experience over the last week and sharing of mandalas. Following discussion, the Pleasant and Unpleasant/Stressful Event Pictures (Peterson, 2009) was completed for 30 minutes. The participant was then provided 35 minutes to complete The Feeling Vocabulary in the Body (Peterson, 2009) directive. Session Two concluded with a 15-minute discussion and instruction to complete 15 minutes of daily meditation/mandala practice.

**MBAT Session 3.** Began with a 10-minute discussion of participant’s experience over the last week and sharing mandalas. The participant was introduced to the Exploring Mindfulness Meditation Practice (Peterson, 2009) directive followed by creating an Image of a Healing Place (Peterson, 2009). Each directive is 40 minutes in length. The session concluded with instructions to meditate for 15 minutes each day and discontinue mandalas.
Intervention Fidelity

Mindfulness Enhancement Session Treatment Fidelity. The first author completed an eight-week MBSR Intensive course instructed by an MBSR teacher certified through the Center for Mindfulness at University of Massachusetts Medical School. Therapist adherence to mindfulness enhancement was evaluated with a treatment fidelity checklist. The mindfulness enhancement treatment fidelity checklist was developed to include essential features of mindfulness. These essential features and aspects were listed for each session, and the first author evaluated whether these elements were covered (i.e., yes/no, 1/0) at the end of each mindfulness enhancement session.

MBAT Session Treatment Fidelity. The first author attended Peterson’s (2016, August) MBAT training, Integrating Mindfulness and Creativity Practices: A Retreat and Workshop for Art Therapists. The first author received instruction on and a copy of Peterson’s (2009) Integrating Art Therapy Tasks with Mindfulness Meditation Training manual and Peterson’s (2014) Creativity-Based Mindfulness Skills Training manual. A treatment fidelity checklist was developed for MBAT sessions utilizing the principles of Peterson’s (2009; 2014) manuals and essential aspects of mindfulness. The first author completed a corresponding fidelity checklist at the end of each session. Principles and essential features were listed for each session, and the first author evaluated whether these elements were covered (i.e., yes/no, 1/0) at the end of each MBAT session.

Data Analysis

Scores from MAAS-S and SOC-3-UTHS were collected at the end of each session and graphed over all four phases of this study (Spriggs & Gast, 2010). The impact of the intervention was evaluated by conducting a visual analysis of graphs (Spriggs & Gast, 2010).
Percentage of non-overlapping of all pairs was calculated to detail the magnitude of impact of the intervention (Parker & Vannest, 2009). NAP for each AB phase and all AB phases combined was computed employing a NAP online calculator (Vannest, Parker, & Gonen, 2011). Participant satisfaction was evaluated through responses to a post-intervention questionnaire collected during the final MBAT session.

**Results**

One informal caregiver met the criteria and was enrolled in this study. Results of SOC-3 scores and MAAS-S scores collected at the end of each session are represented in graphic form as shown in Figures 2.1 and 2.2.

Mindfulness scores for the first three mindfulness enhancement training sessions of Phase A1 were 17, 14, and 16. The median for Phase A1 was 16. Scores for mindfulness reported during the first three MBAT sessions of Phase B1 were 21, 21, and 23, with a median score of 21. Upon replication of the first three mindfulness enhancement training sessions during Phase A2, scores for mindfulness were 23, 22, and 22 and the median score for Phase A2 was 22. Mindfulness scores during the second three MBAT sessions of Phase B2 were 24, 24, and 24 with a median score of 24. Figure 2.1 contains a graphical representation of obtained results.

NAP scores for each AB phase included 1.00 comparing A1 to A2, 1.00 comparing A1 to B1, 0.7222 comparing B1 to A2, and 1.00 comparing A2 to B2. The NAP score for mindfulness across all AB phases combined was 0.8194, indicating a medium effect size.

Sense of coherence scores during Phase A1 were 20, 20, and 13, and the median was 20. Scores for sense of coherence during Phase B1 sessions were 14, 15, and 14. The median for Phase B1 was 14. After replicating the first three mindfulness enhancement training sessions, sense of coherence scores for Phase A2 were 16, 15, and 16, with a median score of 16. Scores
for Phase B2 were 15, 15, and 15, and the median score was 15. Figure 2.2 graphs these findings.

Sense of coherence NAP scores for each AB phase included 0.3333 comparing A1 to A2, 0.3333 comparing A1 to B1, 0.9444 comparing B1 to A2, and 0.1667 comparing A2 to B2. The total NAP score for coherence across all AB phases combined was 0.2222. This total NAP score reflects a weak effect size for sense of coherence.

Participant’s satisfaction with aspects of mindfulness enhancement training and mindfulness-based art therapy were reported in the first seven questions of the post-intervention questionnaire. The participant responded 1 (Strongly Agree) that mindfulness practice without art was helpful. In response to the second statement, mindfulness practice with art was helpful, the participant reported 2 (Agree). The participant responded 1 (Strongly Agree) to statement three, practicing mindfulness between sessions was helpful. In response to statement 4, practicing mindfulness-based art between sessions, the participant reported 3 (Neutral). The participant reported 1 (Strongly Agree) with statement five, discussion was helpful. In response to statement 6, the participant reported 1 (Strongly Agree) that the art therapist promoted mindfulness. The participant reported 2 (Agree) in response to statement 7, the product promoted mindfulness.

Media utilized by the participant during MBAT sessions was identified by the participant in the eighth question of the post-intervention questionnaire. Table 2.1 provides a graphic representation of responses to question eight. The participant reported affirmative to using acrylic paint, watercolor paint, oil pastels, color pencils, graphite pencils, crayons, and color markers. The patient reported tissue paper was not used during mindfulness-based art therapy. In addition to identifying what materials were used during mindfulness-based art therapy
sessions, the participant identified her experience with each material used. The participant reported 3 (Neutral) to the statement using acrylic paint promoted mindfulness as well as the statement using watercolor paint promoted mindfulness. The participant reported 1 (Strongly Agree) with the statement using oil pastels promoted mindfulness. In response to the statements using chalk pastels promoted mindfulness and using color pencils promoted mindfulness, the participant responded 2 (Agree). The participant responded 3 (Neutral) to the following statements: using graphite pencils promoted mindfulness, using crayons promoted mindfulness, and using color markers promoted mindfulness.

Intervention fidelity checklists for mindfulness enhancement training sessions and MBAT sessions were completed at the end of each session, respectively. All mindfulness training sessions upheld 100% fidelity to the principles of mindfulness. MBAT sessions also maintained 100% fidelity to principles and essential features of MBAT and mindfulness.

**Discussion**

This study aimed to fill a gap in the literature by exploring the impact of adding art therapy to mindfulness enhancement training with an informal caregiver. Four research questions guided the study. First, this study explored the impact of adding an art therapy component to mindfulness enhancement training on mindfulness in the informal caregiver. An analysis of the NAP score for mindfulness across all AB phases combined indicated MBAT had a medium effect size. Visual analysis of median mindfulness scores indicated greater increase in mindfulness during MBAT phases. These results suggest adding art therapy to mindfulness enhancement training promoted an increase in mindfulness for the participant. This is the first study exploring the impact of adding art therapy to mindfulness-enhancement training on mindfulness. Utilization of art materials and guided creative process by an art therapist during
MBAT may enhance participant attention to the present moment. This explanation is not supported by much literature; however, McNiff (2014) posited a connection between focusing on movement and expression during art making with focusing on breath during meditation. In addition, the Expressive Therapies Continuum (ETC), a conceptual model utilized by art therapists to classify interactions with art media, has conveyed art materials may be harnessed to elicit kinesthetic and sensory experiences at the Kinesthetic/ Sensory Level (Hinz, 2009; Kagin & Lusebrink, 1978). Engaging the participant in the Kinesthetic/ Sensory Level during MBAT may reinforce mindfulness practice by focusing attention to physical and sensory experience.

An alternative explanation is that MBAT did not deteriorate the informal caregiver’s gains in mindfulness. Once the foundational principles of mindfulness and instruction for practice were introduced, the informal caregiver could not unlearn these principles and practices and may have increased mindfulness through following directions to practice. Both Cavanagh et al. (2013) and Kemper (2016) found that even a brief online mindfulness intervention increased mindfulness among participants. Between the former and latter explanations, the most likely is the former because visual analysis of median scores for mindfulness indicate larger increases in mindfulness scores during MBAT phases (see Figure 2.1).

Second, this study examined the impact of adding an art therapy component to mindfulness enhancement training on informal caregiver sense of coherence. Analysis of combined NAP scores across AB phases indicate a weak effect size and suggest adding art therapy to mindfulness-enhancement training had no effect on sense of coherence. Visual analysis of results indicate an initial drop in sense of coherence following the first two sessions of mindfulness enhancement training. During the third session, the participant received an emergency call which resulted in stopping and rescheduling the session. One possible
explanation for the initial drop in coherence may be the participant’s capacity to cope with life’s stressors was negatively impacted following the emergency. It may also be possible that the participant’s initial scores created a ceiling effect in which self-reported sense of coherence could not improve. It is likely the emergency call and rescheduling of session three impacted the participant’s sense of their capacity to cope because of the compounding impact of external stressors with the daily challenges of caregiving, resulting in a significant drop in coherence.

Following the initial drop, sense of coherence appears to have stabilized after the first phase of MBAT. Visual analysis indicates a slight decrease in sense of coherence during MBAT phase two. One possible explanation for this result is the dose-effect of prescribed MBAT art directives and time allotted for processing. Howard, Kopta, Krause, and Orlinsky (1986) proposed a dosage model in psychotherapy supported by a dose-effect methodology in which dose is the number of therapy sessions and effect is percentage of patient improvement. There is no literature exploring dosing in art therapy and MBAT. The slight decrease in sense of coherence observed in this study may be related to dosing of MBAT, in which two art directives were included during each 90-minute MBAT session which may have been too many directives in a short period of time.

MBAT combines the use of art media and visual representation through art making with principles of mindfulness. A salutogenic effect of MBAT was identified by Meghani et al. (2018), which found that within the three constructs of comprehensibility, manageability, and meaning that there was highly significant improvement in comprehensibility, moderately significant improvement in meaning, and no significant change in manageability. Meghani et al. (2018) suggested that improvements in comprehensibility may be linked with the promotion of order and understanding of life events through the practice of creativity and mindfulness during
MBAT in outpatients with cancer. Although a salutogenic effect was identified by Meghani et al. (2018), it is possible that in this study, MBAT sessions brought more awareness to the participant’s life stressors than mindfulness enhancement training sessions. It is also possible that due to the time frame of each session and limit of three MBAT sessions repeated only once, dosing of MBAT did not allow for adequate time to reinforce mindful exploration of art making and process the artwork created.

A second explanation for the slight decrease in sense of coherence during MBAT phases is the impact of moving through higher levels of ETC on coherence. Throughout MBAT sessions with the informal caregiver, the participant created representations of and described her feelings and experiences. Applying the ETC, the participant moved from the Kinesthetic/Sensory Level through the Perceptual/Affective Level, Cognitive/Symbolic Level, and Creative Level during MBAT sessions (Kagin & Lusebrink, 1978). It is possible that by moving through higher levels of the ETC, MBAT may have brought daily challenges and stressors the participant was experiencing to her awareness as well as her ability to cope with these challenges, resulting in an initial antidote to the drop-in coherence following the emergency and slight drop during MBAT Phase Two.

A third possible explanation for this slight drop in coherence during MBAT was the participant’s self-reported disinclination for art making and self-reported lack of mastery with the art making process. Of these three explanations, it is most likely that the process of visually representing challenges and stressors created an initial flood of awareness that slightly decreased the participant’s sense of coherence because there was not adequate time provided by the art therapist for the participant to be present with the art directive. MBAT sessions were designed in the same time frame as mindfulness enhancement training sessions; however, the participant may
have benefitted from longer MBAT sessions or only completing one art directive per session rather than two.

This study investigated a third research question of How does the informal caregiver rank satisfaction with different aspects of the intervention in mindfulness enhancement training and mindfulness-based art therapy? Results from the post-intervention questionnaire demonstrate the participant strongly agreed that mindfulness practice without art, practicing mindfulness between sessions and discussion were helpful and the art therapist promoted mindfulness. The participant agreed that mindfulness practice with art was helpful and that the product promoted mindfulness. A neutral response was given to practicing mindfulness-based art between sessions was helpful.

One explanation for these results may be the informal caregiver’s resistance to art making in response to self-reported preference for mindfulness practice without art and critical judgement of her artistic ability. During MBAT sessions, the participant reported difficulty completing mindfulness-based art making between sessions and periodically made self-depreciating statements about her artwork. Several art therapists have explored resistance to art making in the literature (e.g., Buchalter, 2011; Malchiodi, 2012; Nelson, 2018; Robbins & Cooper, 1993; Stewart, 2004). Resistance to art making, especially with adults, may relate to past experiences with art making such as associating art making with children or a challenging art class (Malchiodi, 2012). Judgement about artistic ability may also play a role in art making resistance, creating fear for the individual participating in art therapy (Buchalter, 2011; Stewart, 2004). Past experience with art making, fear of not making good enough art, and social constructions of art as a practice for children may have inhibited the participant’s investment in art making.
Another explanation for the participant’s self-reported preference for mindfulness practice without art is the dosing of MBAT sessions designed for this study. Completing two art directives per session may not have offered the participant enough time to practice mindfulness in combination with art therapy. Of the two explanations posited, it is likely that the participant self-reported preference for mindfulness enhancement training without art was due to resistance to art making. Self-criticism and judgement before, during, and after art making likely detracted from the participant’s experience of making mindful art in between sessions as helpful in promoting mindfulness. However, the participant agreed that mindfulness practice with art and the product were helpful in promoting mindfulness, which is likely connected with the discussion and art therapist guiding the practice during MBAT sessions, which the participant strongly agreed were helpful in promoting mindfulness.

Finally, this study identified media employed by the informal caregiver during mindfulness-based art therapy. Of materials used during MBAT, the participant strongly agreed that oil pastels promoted mindfulness. The participant agreed that chalk pastels and colored pencils promoted mindfulness. A neutral response was provided for acrylic and watercolor paint, graphite pencils, crayons, and colored markers. These results suggest the participant found oil pastels, chalk pastels, and colored pencils the most helpful in promoting mindfulness. In fact, the participant utilized oil pastels and colored pencils the most during MBAT sessions. Oil pastels were used in all art directives except one, MBAT phase two session two Pleasant and Unpleasant/Stressful Event Pictures (Peterson, 2009). Colored pencils were used in both phases of the Pleasant and Unpleasant/Stressful Event Pictures (Peterson, 2009), both phases of The Feeling Vocabulary in the Body (Peterson, 2009), and both phases of Image of a Healing Place (Peterson, 2009).
Art materials can be conceptualized along a continuum from fluid to resistive, with graphite pencils and color pencils providing the most resistive and thus cognitive experience and watercolor paints the most fluid and thus affective experience (Kagin & Lusebrink, 1978; Hinz, 2009, 2006). The participant’s preference for materials that promoted mindfulness does not coincide with one particular side of the continuum. Oil and chalk pastels offered the participant an opportunity for a more fluid and affective experience while maintaining some resistive control whereas colored pencils provided a more resistive and cognitive experience for the participant. Similarly restrictive materials such as graphite pencil and crayon and similarly fluid material such as colored marker were found to be neutral in promoting mindfulness, as were the most fluid materials of acrylic and watercolor paint. One explanation for oil pastels, chalk pastels, and color pencils being the most helpful in promoting mindfulness may be the participant’s preference for these materials. It is possible that the participant’s preference for certain materials made for a more pleasant experience in making art, which in itself may have been uncomfortable due to self-doubt in artistic ability, therefore resulting in relationship between preference and promotion of mindfulness.

Another explanation for these results may be related to the participant’s connection of art material with prescribed art directive. The participant used all identified materials during the first art directive of MBAT session one during phase one and two. Oil pastels, color pencils, and chalk pastels were utilized most frequently during MBAT sessions and were most used in mandalas created between sessions. The most likely explanation of the two presented is the likelihood that the participant’s preference for materials and pleasant experience using the materials became associated with mindfulness because of the frequency with which the materials are observed in the artwork.
Limitations

Results discussed must be considered with limitations present within this study. Three potential threats to external validity have been identified: generalizability across populations, multiple treatment effects, and disruptive effects. This study utilize an ABAB single subject research design with one participant. Due to the nature of this study’s design, generalizability of results across all informal caregiving populations is limited; however, replication inherent in the ABAB design aimed to increase reliability. Both mindfulness enhancement training and mindfulness-based art therapy were introduced during this study, which may pose a threat to external validity due to multiple treatment effects. Because two treatments were used, behaviors learned during mindfulness enhancement training may not have been reversed (Gast & Hammond, 2010).

In addition, completing research within the home of the participant was accompanied by disruptions during sessions. Although the decision to offer the informal caregiver an opportunity to participate in the study from the comfort and practicality of home, sessions were continuously interrupted. These interruptions offer a real-life experience for informal caregivers who may be faced with regular disruptions by the individuals with whom they are caring and responsibilities of daily life; however, these disruptions may have impacted results due to the participant being distracted.

Two threats to internal validity should also be considered: testing and instrumentation. The participant completed the SOC-3-UTHS and MAAS-S at the end of each session, which may have impacted responses over the course of the study. Also, the participant asked questions about the wording of the SOC-3-UTHS on several occasions. The SOC-3-UTHS was developed in Japanese and translation to English, potentially impacting the participant’s understanding of
questions. Both the SOC-3-UTHS and MAAS-S are short versions of original SOC and MAAS tests. The decision to use short forms of each test was made in consideration of time and ease of participant use; however, using these shorter measures may have limited validity. The post-intervention questionnaire was developed for this study and questions have not been validated. Language used may have been unclear for the participant.

**Implications for Researchers**

This is the first study of its kind to investigate the impact of adding art to mindfulness enhancement training with an informal caregiver. Continued research is vital not only to the field of art therapy but also specifically towards understanding the role art therapy may play in promoting mindfulness and coherence. Results from this study indicate that for the participating informal caregiver, MBAT slightly improved mindfulness and had no effect on sense of coherence. The informal caregiver also strongly agreed that mindfulness practice without art, discussion, mindfulness practice without art between sessions, and the art therapist were helpful in promoting mindfulness. Material preference in this study emphasized oil pastel, chalk pastel, and colored pencil as helpful in promoting mindfulness. Four implications for future research have been illuminated by analysis of this study.

First, future research design should be considered. Art therapy research relies heavily upon case studies and pre-post test designs. Applications for single subject research designs abound for the field and for further research on MBAT. Continued use of ABAB single subject design with multiple informal caregivers and groups of informal caregivers should be considered. A multiple baseline design may also be considered in an effort to address threats to external validity that were present in this study. Likewise, qualitative design informing researchers of participant experience in their own words would supply rich information about the
impact of adding art to mindfulness enhancement training with an informal caregiver. Exploring the impact of adding art to mindfulness training on multiple populations, not just informal caregivers, will also broaden the field’s understanding of MBAT and potential benefits for various populations.

Secondly, data collection tools used to continue researching MBAT should be considered. Salutogenic effects for outpatients with cancer participating in an MBAT intervention have been identified in a previous study (Meghani et al., 2018). The Sense of Coherence Orientation to Life Questionnaire 29 (Antonovsky, 1993) was utilized by Meghani et al. (2018) and may offer future researchers further insight into the impact of adding art to mindfulness training on the three constructs of comprehensibility, manageability, and meaning. The MAAS has not been used in any art therapy research to date and if employed in future research may provide subtle understanding of the impact of adding art to mindfulness training.

A third implication for future research is to explore dosing within the field of art therapy. The informal caregiver agreed that mindfulness practice with art and the product were helpful in promoting mindfulness but results demonstrated MBAT had no impact on sense of coherence. Further exploration into the impact of timing and frequency of art making during a session is necessary to answer a newly posed question of how much time is needed to make art and process art to promote benefits for the individual participating in art therapy? In addition, how can dosing of MBAT impact an individual participant’s experience of mindfulness and coherence?

Lastly, further research into applying the ETC to MBAT is warranted. The ETC conceptualizes media and process choice in art therapy and may present opportunities to further establish mindfulness and coherence through movement to various levels. It may be possible that mindfulness or coherence can be augmented by employing certain levels of the ETC.
Implications for Practice

Given the results of this study, implications for art therapy practice include applications of MBAT directives with informal caregivers as well as various populations over the course of treatment if mindfulness and sense of coherence are elements of treatment plan goals. Art therapists may consider utilizing MBAT with clients to increase mindfulness. MBAT may also be advisable for art therapists working with clients experiencing a sudden decrease in sense of coherence.

A second and potentially crucial implication for practice is dosing in art therapy. Consideration of dosing impacts not only art therapists that choose to practice MBAT with clients, but also the field as a whole. Many art therapists use standards of treatment time developed in psychotherapy, such as the 50-minute hour when meeting with clients. Art therapy is also not universally reimbursed by insurance. For art therapists that are reimbursed for art therapy services, the time allotted may not be sufficient for optimal client improvement. A 50-minute session may prevent adequate time for art making and processing. Further research on dosing in art therapy is needed to support best practices for client improvement.

Lastly, results from this study encourage art therapists to continue to be attuned to client preference in material choice and task selection. Attention to the ETC when utilizing MBAT may provide additional opportunity to foster mindfulness and sense of coherence in clients. Bordin (1979) emphasized the importance of aligning goals, tasks, and bond in order to build the therapeutic alliance with a client. In art therapy, the therapeutic task is often a prescribed art task. Art therapists should consider the client’s alignment with task, as the research participant in this study may have not been aligned with the task of MBAT directives compared with mindfulness directives due to resistance to art making.
Conclusion

This study establishes a foundation for research exploring the impact of art therapy on mindfulness enhancement training with an informal caregiver. Results suggest MBAT slightly increased mindfulness and had an insignificant effect on sense of coherence. Results also indicate the participant found mindfulness enhancement training more helpful than MBAT in promoting mindfulness. Considerations for dosing in MBAT and art therapy as well as applying the ETC to promote mindfulness and sense of coherence stem from the results of this study and encourage exciting future research for the field of art therapy.
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http://dx.doi.org/10.1080/07421656.2015.1028008


**Figure 2.1.** Mindfulness scores across all phases of mindfulness enhancement training and mindfulness-based art therapy. This figure shows the informal caregiver’s response to the MAAS-S and includes a median line for each phase.
Figure 2.2. Sense of coherence scores across mindfulness enhancement training and mindfulness-based art therapy phases. The informal caregiver’s SOC-3-UTHS responses are shown along with the median score line for each phase of treatment.
Table 2.1

*Media Utilized by Informal Caregiver during MBAT*

<table>
<thead>
<tr>
<th>Material</th>
<th>Used</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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CHAPTER FOUR

GENERAL CONCLUSIONS
Increasingly, attention has been brought to applications of mindfulness with various populations to promote well-being. Mindfulness-based interventions have been utilized with various populations to promote positive outcomes (Khoury et al., 2013). Remarkably, mindfulness practice is associated with both direct and indirect positive outcomes, suggesting potential to harness practice to promote ancillary patient well-being (Beach et al., 2013; Grepmaier et al., 2007; Khoury et al., 2013). When combined with art therapy, mindfulness-based interventions have been found effective in promoting emotional and physical health (Ando & Ito, 2016; Fritsche, 2014; Monti et al., 2012). Medical students and informal caregivers are known to experience stress that may directly benefit from mindfulness-based training. An indirect benefit to this practice could be the well-being of patients and those being cared for by these two distinct healthcare support populations. A review of the literature on mindfulness and art therapy indicated a distinct gap in exploring the impact of mindfulness-based art therapy (MBAT) with medical students and informal caregivers. The purpose of this dissertation is to fill this gap and examine the impact of adding art to mindfulness enhancement training with a medical student and an informal caregiver.

This chapter presents a summary of each study. For each study, the following is discussed: findings, limitations, discussion, and recommendations for future research and practice. After a summary of each study is presented, linkages between Manuscripts One and Two will be explored as well as imperatives for future research based on results from both studies.

**Summary of Findings for First Study**

Four research questions guided the first study. The first research question asked what is the impact of adding an art therapy component to mindfulness enhancement training on
mindfulness in a medical student? Visual analysis of median scores suggested an upward trajectory in mindfulness scores across all phases of the intervention. Analysis of NAP scores indicated a medium effect size, suggesting MBAT moderately improved mindfulness scores. Taken together, these results suggest that when compared to mindfulness enhancement training, mindfulness-based art therapy moderately increased mindfulness in a medical student.

The second research question asked what is the impact of adding an art therapy component to mindfulness enhancement training on coherence in a medical student? NAP scores presented a weak effect size for coherence. Visual analysis of median coherence scores indicated a slight but not significant increase in scores. These results suggest adding art to mindfulness enhancement training slightly increased sense of coherence in a medical student.

The third research question asked the following: In mindfulness enhancement training and mindfulness-based art therapy, how does the medical student rank satisfaction with different aspects of the intervention? Results from the post-intervention questionnaire demonstrated the medical student strongly agreed that practicing mindfulness between sessions and discussion were helpful, and that the art therapist promoted mindfulness. The medical student agreed that mindfulness practice with and without art was equally helpful, as was mindfulness practice with art between sessions. A neutral response to the statement art product promoted mindfulness was provided by the medical student. These results suggested the medical student found all aspects accept the art product helpful in promoting mindfulness.

Finally, the fourth research question explored the following question: In mindfulness-based art therapy, what media did the medical student employ? According to the post-intervention questionnaire responses made by the medical student, all materials but crayons were used during MBAT; of those supplies used, watercolor, chalk pastel, graphite pencil, and tissue
paper were agreed to have been helpful in promoting mindfulness. A neutral response was given to acrylic paint, oil pastel, colored pencil, and colored marker.

Summary of Limitations for First Study

Several limitations should be noted in the first study. External threats to validity included generalizability across populations and multiple treatment effects. Only one medical student participated in this study and was exposed to both mindfulness enhancement training and MBAT. Generalizing to the larger medical student population is discouraged. Replication through an ABAB single subject design aimed to increase reliability. It is possible that mindfulness practice behaviors and information learned during mindfulness enhancement training continued to impact the participant during MBAT.

In addition, three threats to internal validity were present in this study. Testing, instrumentation, and history may have impacted results. The participant repeatedly completed the MAAS-S and SOC-3-UTHS at the end of each session, and these tests are both shorter versions of wider used tests. The study also took place at the beginning of the semester, which may have resulted in increased stress due to course schedules and examinations among other external experiences for the medical student.

Discussion of Results of First Study

Findings presented in this study are the first attempt to explore the impact of adding art to mindfulness enhancement training with a medical student. This study was guided by four research questions. The first research question asked: When an art therapy component is added to mindfulness enhancement training with a medical student, what is the impact on mindfulness? Second, this study explored the impact of adding an art therapy component to mindfulness enhancement training on coherence in a medical student. The third research question asked:
How does the medical student rank satisfaction of different aspects of mindfulness enhancement training and mindfulness-based art therapy? Finally, this study explored medical student media choice during mindfulness-based art therapy.

Based on results from this study, adding an art therapy component to mindfulness enhancement training with a medical student promoted a moderate increase in mindfulness. A moderate increase in mindfulness is likely because adding an art therapy component did not detract from the medical student’s upward trajectory of mindfulness. MBAT phases were designed to mirror mindfulness training phases with art therapy comprising the independent variable. During MBAT phases, the medical student reported continuing to maintain regular mindfulness practice initially begun during mindfulness enhancement training. An alternative explanation for the increase in mindfulness scores was the interconnection of art making in art therapy with mindfulness. Applying the Expressive Therapies Continuum (ETC) (Hinz, 2009; Kagin & Lusebrink, 1978), art materials and processes prescribed during MBAT may further support mindfulness for the participant; however, no research has explored the impact of the ETC on mindfulness. In this study, art making and art therapy did not decrease mindfulness. A visual analysis of mindfulness scores demonstrated upward movement in mindfulness scores across phases and not limited to MBAT.

This study also found that scores for coherence slightly, though not significantly, increased during MBAT. These results were also matched by visual analysis of median coherence scores indicating slightly increased scores during MBAT. Results may have been due to interruptions in scheduling sessions which impacted sessions during phase one of mindfulness enhancement training; however, coherence scores remained stable across Sessions One and Two that occurred over a week apart due to weather. Another possible explanation for the slight
increase in coherence discussed was the role of discussion during MBAT in facilitating participant comprehensibility, manageability, and meaning of events. However, discussion occurred during mindfulness enhancement training and MBAT. The most probable explanation for the slight increase in coherence during MBAT is movement to higher levels of the ETC through prescribed art directives facilitated sense of coherence. This explanation is supported by Meghani et al.’s (2018) study which also identified a salutogenic effect of MBAT, specifically in the constructs of comprehensibility and meaning.

In addition to demonstrating the impact of MBAT on mindfulness and coherence for a medical student, this study also explored the participant’s satisfaction with aspects of mindfulness enhancement training and MBAT. The medical student strongly agreed that the art therapist promoted mindfulness and discussion and practicing mindfulness between sessions were helpful. The medical student agreed that mindfulness practice with art and without art were helpful along with mindfulness practice with art between sessions. This study found one explanation for the results from the post-intervention questionnaire was repetition of practice. However, the role of the therapeutic alliance is more likely to explain results, which further supports Goldberg, Davis, and Hoyt’s (2013) findings that therapeutic alliance measured mid-treatment predicted improvement in mindfulness scores during a smoking cessation mindfulness-based intervention.

Lastly, this study identified materials used by the medical student and which materials were found to be helpful in promoting mindfulness. The medical student reported using all materials aside from crayons. Of those materials used, the medical student agreed that watercolor, chalk pastel, graphite pencil, and tissue paper were helpful in promoting mindfulness. One explanation for the medical student’s association of materials used and art
directives prescribed during MBAT. However, the student identified feeling tone associated with material use during Mindful Exploration of Art Materials (Peterson, 2009). It is likely that materials continued to be associated with feeling tone and thus linked to a positive experience which may have been connected to promoting mindfulness.

**Recommendations for Future Research Based on First Study**

Results from the first study encourage several recommendations for future research. Overall, continued research is needed in the field of art therapy. Applications of art therapy to mindfulness and sense of coherence in various populations should be explored, including larger groups of medical students and healthcare professionals. Incorporating a multiple baseline design could address some of the threats to external validity that were identified in this study. In addition, developing a qualitative approach to researching the impact of MBAT on mindfulness and sense of coherence will provide a rich perspective on the participant’s experience.

In line with continued research in the field of art therapy and MBAT, the use of data collection tools is an additional recommendation. Specifically, use of the original 29-item SOC will provide an opportunity to further examine the impact of MBAT on the three constructs of comprehensibility, manageability, and meaning. Lastly, this study highlighted the need for additional research on applications of the ETC to MBAT. The ETC is a fundamental model used by art therapists and research may offer additional insight into how materials and art processes guided by the ETC can foster mindfulness and coherence among clients.

**Summary of Findings for Second Study**

The second study mirrored the first study in research questions, method, and data analysis, but explored the impact of adding mindfulness-based art therapy with a different healthcare worker population: an informal caregiver.
The first research question examined the impact of adding an art therapy component to mindfulness enhancement training on mindfulness with an informal caregiver. Results of the second study indicated a medium effect size for MBAT sessions on mindfulness. Visual analysis of median mindfulness scores confirmed an increase in mindfulness during MBAT phases.

The second research question examined the impact of adding an art therapy component to mindfulness enhancement training on coherence in an informal caregiver? NAP scores presented a weak effect size for coherence with the informal caregiver, and visual analysis of median coherence scores indicated a slight drop in coherence during MBAT.

The third research question asked how the informal caregiver ranks satisfaction with different aspects of the intervention in mindfulness enhancement training and mindfulness-based art therapy. Results from the post-intervention questionnaire identified that the informal caregiver strongly agreed that mindfulness practice without art, practicing mindfulness between sessions, and discussion were helpful, and also strongly agreed that the art therapist promoted mindfulness. Practicing mindfulness with art was agreed to be helpful as was the product in promoting mindfulness. A neutral response was provided for the statement practicing mindfulness-based art between sessions was helpful.

Finally, the fourth research question explored the following question: In mindfulness-based art therapy, what media did the informal caregiver employ? All materials except tissue paper were reported to be used. The informal caregiver strongly agreed that oil pastel promoted mindfulness. Chalk and colored pencil were agreed to promote mindfulness. A neutral response was given for acrylic paint, watercolor, graphite pencil, crayons, and colored marker.
Summary of Limitations for Second Study

Results from this study should be considered with presented threats to internal and external validity. Two threats to internal validity include testing and instrumentation. Results may have been impacted by repeated testing of the SOC-3-UTHS and MAAS-S. The SOC-3-UTHS was originally developed in Japanese and may have impacted results due to translation. Along with the tests used in this study, validity of the post-intervention questionnaire should be considered due to its initial conception for this study and lack of validation.

Three threats to external validity are also considered with results from this study, including generalizability, multiple treatment effects, and disruptive effects. Due to the nature of the design of this ABAB single-subject design and single participant, generalizability is limited though replication aimed to increase reliability. The study also involved multiple treatments and it is possible that information learned during mindfulness enhancement training could not be unlearned during MBAT. Because this study was completed in the informal caregiver’s home, real-life experiences of interruptions occurred during sessions. Although interruptions offered an authentic experience for an informal caregiver, distraction may have impacted results.

Discussion of Results of Second Study

Results presented in this study are the first to explore the impact of adding art therapy to mindfulness enhancement training with an informal caregiver. Four research questions directed this study. First, what is the impact on mindfulness when an art therapy component is added to mindfulness enhancement training with an informal caregiver? Second, what is the impact on coherence when an art therapy component is added to mindfulness enhancement training with a medical student? Third, how does the informal caregiver rank satisfaction of different aspects of
mindfulness enhancement training and mindfulness-based art therapy? Finally, what media to the informal caregiver employ during mindfulness-based art therapy?

Adding art therapy to mindfulness enhancement training in MBAT with an informal caregiver was found to have a moderate effect size on mindfulness. Visual analysis confirmed this result and highlighted increases in median mindfulness scores during MBAT phases and suggests that this increase is due to an inherent aspect within the addition of art therapy to mindfulness enhancement training. Art therapy incorporates the use of art materials and prescribed art directives that, in combination with the art therapist, may be harnessed to foster mindfulness. The innate connection between art therapy and mindfulness is supported by McNiff (2014), Rappaport (2014), and Allen (2014).

No effect was found for adding art therapy to mindfulness enhancement training on coherence in an informal caregiver. An initial drop in coherence following the first two sessions of mindfulness training is visible upon visual analysis of median coherence scores. Visual analysis also indicated a slight drop in coherence during MBAT phase two. By applying higher levels of the ETC to MBAT through prescribed directives, the informal caregiver may have initially recovered coherence following the emergency cancellation of session three of mindfulness enhancement training. However, time allotted to complete prescribed directives during MBAT sessions may have been too short for the informal caregiver, or having two directives per session was too many. The observed decrease in coherence is contradictory to findings presented by Meghani et al. (2018), in which a salutogenic effect was found for MBAT with outpatients with cancer. Results from this study present fertile ground for exploring dosing in MBAT with informal caregivers.
A third research question guiding this study explored informal caregiver rank satisfaction with different aspects of the intervention in mindfulness enhancement training and mindfulness-based art therapy. Results suggested the informal caregiver found mindfulness practice without art, practicing mindfulness between sessions, and discussion more helpful than mindfulness practice with art, practicing mindfulness with art between sessions. The informal caregiver strongly agreed that the art therapist was helpful in promoting mindfulness and agreed the product was helpful in promoting mindfulness. An important consideration for art therapists is presented by these results: preference for and resistance to art making. The informal caregiver self-reported challenges in completing mindfulness practice with art between sessions and made several self-deprecating comments about her artistic ability during MBAT sessions. Resistance to art making has been examined by Buchalter, (2011), Malchiodi, (2012), and Nelson, (2018). In this study, the informal caregiver’s possible fear of not making good enough art, past experience with art making, and social constructions as art as a practice for children may have impacted her MBAT experience.

Lastly, the informal caregiver identified all materials except for tissue paper were used. Of materials used, oil pastel, chalk pastel and colored pencil were identified as promoters of mindfulness, with oil pastels found to be most helpful in promoting mindfulness. The participant used the identified materials most frequently during MBAT phases. Given the participant’s resistance to art-making, it is likely that her preference for certain materials may be associated with a more pleasant art making experience, which was then associated with promotion of mindfulness.
Recommendations for Future Research Based on Second Study

Four recommendations for future research were underscored by results presented in this study. First, analysis of limitations and results provides several recommendations for future research design. Replicating this study with multiple caregivers and groups of informal caregivers will promote generalizability. Limits to external validity due to the nature of an ABAB single subject design can also be addressed by utilization of a multiple-baseline design. Qualitative research exploring the impact of MBAT on sense of coherence and mindfulness with informal caregivers is also recommended in an effort to increase the field’s understanding of the participant’s experience in art therapy.

In addition to design, use of data collection tools is recommended to be reconsidered with replication or for further research exploring mindfulness and coherence with art therapy. Specifically, employing the 29-item SOC can bring forth important understanding of the relationship among the three constructs of coherence and MBAT. A third and exciting recommendation for future research based on the second study is to explore dosing in art therapy and MBAT. Results from this study raise two new questions pertaining to dosing in art therapy. First, in order to promote benefits for the individual participating in art therapy, how much time is needed to make art and process art? Second, what is the impact of dosing of MBAT on an individual’s experience of mindfulness and coherence?

The fourth recommendation for future research presented by the second study is the application of the ETC to MBAT. Based on results from this study, employment of certain levels of the ETC and choice materials may augment mindfulness and sense of coherence, and future research is necessary to explore these possibilities.
Linkages Between the Two Studies

The two studies that comprise this dissertation share the thematic link of exploring the impact of adding an art therapy component to mindfulness enhancement training on mindfulness and coherence. The first study found that mindfulness scores increased and coherence scores slightly increased when art therapy was added to mindfulness-enhancement training with a medical student. The second study established that when art therapy was added to mindfulness enhancement training with an informal caregiver, mindfulness scores increased and coherence scores slightly decreased. As a whole, these studies present new knowledge for the field of art therapy about the impact of adding art therapy to mindfulness enhancement training to mindfulness and coherence. These results may direct art therapists to consider utilizing MBAT with clients demonstrating need for increased mindfulness or coherence.

Both studies uncovered new data pertaining to satisfaction with elements of mindfulness enhancement training and mindfulness-based art therapy. The first study demonstrated the medical student found mindfulness practice with and without equally helpful. The first study also identified the medical student found discussion and mindfulness practice between sessions most helpful and called attention to the role of the art therapist in promoting mindfulness. The role of the art therapist in promoting mindfulness was also emphasized in second study. Another element highlighted by the second study is the potential impact of preference and resistance to art making with the informal caregiver’s satisfaction of MBAT. The potential impact of preference and resistance combined with considerations for dosing in art therapy uncovered by the first study present notable implications for clinical art therapy practice.

Finally, both studies exposed varying experiences of art materials as promoters of mindfulness. Results from study one and two reveal the significance of individual preference
and experience with materials and are a reminder to art therapists to refrain from assuming certain art materials promote mindfulness over others.

**Future Research Agenda Based on Two Studies**

Inferences presented by the two studies in this dissertation cultivate a sundry of possibilities for my future research agenda. Combined together, both studies demonstrate a need for additional research exploring the therapeutic alliance not only in MBAT but also in art therapy. The therapeutic alliance is defined by Bordin (1979) as the agreement between client and therapist on the goals of therapy, tasks of therapy, and positive therapeutic bond. In art therapy and specifically MBAT, the task of therapy involved art-making, material use, and a prescribed structured or unstructured art task. There is a dearth of research exploring the therapeutic alliance in art therapy, nor is there any research exploring the impact of the therapeutic alliance on coherence and mindfulness. Future research can explore the impact of ruptures due to client art material preference and prescribed art tasks on the art therapy therapeutic alliance. In addition to the unique ruptures associated with art therapy and resulting impact on the therapeutic alliance, additional research into the impact of therapeutic alliance on coherence and mindfulness is also warranted.

One future research imperative discovered by completing these two studies about which I am most excited is exploring applications of the ETC to mindfulness and coherence. The ETC is a core conceptual model used by art therapists to classify interactions with art media and considered when prescribing art directives based on client needs. Two questions arose from my analysis of the two studies. First, how does movement up the ETC effect mindfulness and coherence? Second, can art materials and processes be prescribed with consideration of the ETC
to promote mindfulness and coherence? This research will inform art therapists in potential applications of the ETC for promoting mindfulness and coherence.

Another invigorating research agenda unveiled by these two studies is exploring dosing in art therapy and MBAT. The second study revealed the possibility that MBAT sessions were not designed with enough time allotted for art making and processing. One possibility was that two art directives in a 90-minute session was simply not enough time to complete both art tasks. Another possibility is that one art directive would have sufficed in promoting positive outcomes for the participant. The concern for dosing presented in the second study is in stark contrast with the first study, in which did an obvious problem with dosing is not present. However, the two studies together implore additional research into dosing in order to answer two questions. First, how much time is needed to make art and process art in order to accelerate positive outcomes in art therapy? Second, what is the impact of dosing of MBAT interventions on a client’s experience of mindfulness and coherence? Research on dosing in art therapy and MBAT can impact efforts for the field to attain licensure and reimbursement for services across the country. Investigating evidenced-based practice as well as dose-effect standards for time allotted and reimbursed, will address a critical need for the field and offer paramount implications for practice.

Lastly, in my role as an assistant professor in an art therapy and counseling program, insight garnered from conducting these two studies will guide my capacity as a research advisor for students, teacher, and researcher. I will continue educating students on the potential application of single subject research design, including ABAB design, in art therapy. Results from the two studies presented in this dissertation will be incorporated into courses I teach on art therapy and counseling skills with adult populations and mindfulness-based art therapy training.
for art therapists. I intend to continue studying the impact of MBAT with various healthcare professional populations along with my aforementioned research agenda.

Conclusion

Mindfulness practice is associated with the promotion of well-being and utilized as an intervention in psychotherapy, education, and beyond. Art therapy combined with mindfulness, known as mindfulness-based art therapy (MBAT), has demonstrated efficacy with a variety of populations. In this dissertation, medical students and informal caregivers were identified as two healthcare worker populations found to experience increased stress that could benefit from MBAT. A review of the literature on mindfulness and art therapy uncovered a gap in the exploration of MBAT with medical students and informal caregivers. Moreover, no study has explored the impact of adding an art therapy component to mindfulness enhancement training. The two studies presented in this dissertation mirrored each other in research questions, method, and data analysis, with the first study exploring the impact of adding art therapy to mindfulness enhancement training with a medical student and the second study an informal caregiver.

Results from the first study found MBAT increased mindfulness and slightly increased coherence. The second study demonstrated MBAT increased mindfulness but had no effect on coherence. Participant satisfaction with the interventions and experience with art materials was also presented and demonstrated the unique preference and experience of the individual. Future research generating from analysis of the two studies will include applications of the ETC to mindfulness and coherence, dosing in MBAT and art therapy, and the role of the therapeutic alliance in the field of art therapy as well as promotion of coherence and mindfulness in MBAT.
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https://doi.org/10.1093/geront/26.3.260
Appendix A

Copy of EVMS IRB Approval

June 18, 2018

Eileen Douglas, MS
Graduate Art Therapy and Counseling Program
EVMS
PO Box 1980
Norfolk, VA 23501

RE: IRB # 17-12-EX-0252

This form provides additional information to the Amendment Assessment by the Investigator form that accompanies this letter. The amendment assessment is the official document that confirms IRB review and type of approval and includes the IRB study title, summary of the changes, IRB stamp that includes approval and expiration dates, and an appropriate chair, vice-chair, or IRB member signature.

- Amendment Identifier: Protocol change, recruitment and art materials amendment  Date Submitted: June 4, 2018
- IRB Study Title: An Investigation of the Impact of Adding Art to Mindfulness Enhancement Training  Protocol: Version 4  Version Date: 05/24/18
- Unsupported, no funding has been identified for this study or project.
- Consent Form: Subject Consent (Version 4)  Your consent form has been stamped with the approval date and is enclosed for your use until a different consent supersedes it.  Dated: 05/22/18
- Other Materials: Flyers (2); Post-Intervention Questionnaire

The Amendment was reviewed and approved by David Propert, MD, FACP, FACC, Vice-Chair of the 1st Thursday Institutional Review Board, Eastern Virginia Medical School on June 7, 2018.

- This approval is a result of an Expedited action per §46.110 (b)(2) An IRB may use the expedited review procedure to review minor changes in previously approved research during the period (of one year or less) for which approval is authorized.

As a reminder, your protocol expiration date is December 6, 2018. Please see the attached form for the due date of the next continuing review submission.

Please remember that prompt reporting to the IRB of proposed changes in a research activity (e.g., changes to the protocol, consent form(s), advertisements, or other study-related material) is required. This includes information related to funding sources. In addition, the changes must be reviewed and approved by an EVMS IRB before the changes can be initiated except when necessary to eliminate apparent immediate hazards to the subject.

Remember that a copy of all correspondence relating to any visit or regulatory visit must be submitted to the IRB office within five (5) days of receipt by the EVMS site. Refer to the 2007 EVMS IRB SOPs Section 22.0 for more information.

Eastern Virginia Medical School (EVMS) has a Federal wide Assurance (FWA 00003956) from OHRP. The Institutional Review Boards (IRB 00000460 and IRB 00001345) are registered with OHRP and are in compliance with 45 CFR 46, 21 CFR 50, and 21 CFR 56.

Please reference the IRB number, principal investigator and study title in any correspondence regarding this protocol.

P.O. BOX 1980
NORFOLK, VA 23501-1980
t: 757.446.8223
t: 757.624.2275
www.evms.edu

Community focus. World impact.
Thank you for your continued cooperation with the Institutional Review Board.

Sincerely,

Daniel Sullivan, PhD, CPI
IRB Assistant Manager
DMSleem
Appendix B

Copy of OSU Deferral

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When OSU is the relying institution, the expiration date of the deferral will mirror the expiration date selected by the external institution. In the absence of an expiration date set forth by the reviewing institution, deferrals will expire after five years.

The IRB has reviewed your submission of external IRB documents dated 12/06/2018. No further action is required at this time.

The agreement which permits OSU to rely on Eastern Virginia Medical School’s IRB remains in place. You may proceed with the project without further OSU IRB review.

It is the responsibility of the OSU investigator to ensure that the OSU IRB file for this study matches the external IRB file. Please provide OSU’s HRPP office with pdf versions of all approval documents issued by Eastern Virginia Medical School and all study documents approved by Eastern Virginia Medical School within 30 days of approval for all submission types (i.e., initial, revisions, annual reviews, adverse events).

**Note that revisions to this project may impact this agreement.**
Appendix C

Informed Consent

Subject Consent Form
Eastern Virginia Medical School (EVMS) Institutional Review Board

STUDY TITLE
AN INVESTIGATION OF THE IMPACT OF ADDING ART TO MINDFULNESS ENHANCEMENT TRAINING

INVESTIGATORS
Eileen Douglas, LPC, ATR-BC

SPONSOR
No Sponsor

WHY IS THIS STUDY BEING DONE?
The purpose of the research project is to examine the impact of adding art therapy to treatment as usual (TAU) in an individual mindfulness enhancement training program for two distinct health care worker populations. Arm 1 of this study will examine a medical student and Arm 2 of this study an informal caregiver.

WHY ARE YOU BEING ASKED TO TAKE PART?
You are being asked to participate in this research project because you have identified as either (a) a medical student or (b) an informal caregiver caring for an individual over the age of 18 years.

This is a research study. This study includes only people who choose to take part. Please take your time to make your decision and feel free to ask any questions you might have.

WHAT ARE SOME IMPORTANT DETAILS ABOUT THIS STUDY?
This study is being completed at Eastern Virginia Medical School. A total of about 2 people are expected to take part in this study. We will need you to be in the study for a total of 12 sessions.

WHEN SHOULD YOU NOT TAKE PART?
You should not take part in this study if you:
- Are currently receiving mental health services such as therapy or counseling
- Have current or prior experience with art therapy
- Have current or prior experience with regular mindfulness practice
- Are an informal caregiver caring for an individual under the age of 18 years

WHAT IS INVOLVED IN THE STUDY?
You are being asked to participate in a research study involving participation in six mindfulness enhancement sessions and six mindfulness-based art therapy (MBAT) sessions, for a total of 12 sessions. This study will involve the collection of information in the form of data collected from the Mindfulness Attention Awareness Scale -Short (MAAS-S) and the University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS). This study will also involve the collection of artwork completed during six MBAT sessions and artwork completed in between MBAT sessions.
Research Intervention Chart:

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<td>X</td>
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</tr>
<tr>
<td>SOC-1-UTHS</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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</tr>
<tr>
<td>Post Int. Quest.</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Enhancement</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
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<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>MBAT</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
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</tbody>
</table>

X = Participant Treatment and Assessment
F = Fidelity Assessment Checklist

Activity, Location, and Time Chart:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Meeting</td>
<td>Lester Hall, Room 305, EVMS</td>
<td>1 hour</td>
</tr>
<tr>
<td>Six Mindfulness Enhancement Sessions</td>
<td>Lester Hall, Room 305, EVMS</td>
<td>1.5 hours/session</td>
</tr>
<tr>
<td>Mindfulness Practice In Between Mindfulness Enhancement Sessions</td>
<td>At Home</td>
<td>15 minutes/day</td>
</tr>
<tr>
<td>Six MBAT Sessions</td>
<td>Lester Hall, Room 305, EVMS</td>
<td>1.5 hours/session</td>
</tr>
<tr>
<td>Mindfulness Practice In Between MBAT Sessions</td>
<td>At Home</td>
<td>15 minutes/day</td>
</tr>
<tr>
<td>Total Time:</td>
<td></td>
<td>26.5 hours</td>
</tr>
</tbody>
</table>

The study will utilize an ABA single subject research design to evaluate the impact of adding an art therapy intervention to treatment as usual (TAU) in a mindfulness enhancement training for one medical student and one informal caregiver. For the purpose of this study, A will be a mindfulness enhancement training and B will be a mindfulness enhancement training with art therapy utilizing mindfulness-based art therapy (MBAT).

Mindfulness enhancement training involves developing nonjudgmental awareness of the present moment. During mindfulness enhancement training, you will be educated about mindfulness theory and participate in mindfulness practice facilitated by Eileen Douglas, MS, LPC, ATR-BC. Mindfulness-based art therapy incorporates the principles of nonjudgmental awareness of the present moment by using art making and creative self-expression to increase self-awareness and address problems in the presence of a professional art therapist. Mindfulness-based art therapy will be facilitated by Eileen Douglas. Eileen Douglas is an Assistant Professor in the Graduate Art Therapy and Counseling Program at Eastern Virginia Medical School.

For the participating medical student, each mindfulness enhancement training session and each MBAT session will be conducted in Lester Hall room 305. The participating informal caregiver is offered the choice of competing mindfulness enhancement training sessions and MBAT sessions in Lester Hall room 305 or, if leaving the home is difficult due to caregiving responsibilities, completing all mindfulness enhancement training sessions and MBAT sessions at their home. If the home is chosen, the informal caregiver and principal investigator will schedule
mindfulness enhancement training sessions and MBAT sessions during times and in a location within the home which will allow for privacy. Each session will be 1.5 hours in length. You will participate in a total of 12 sessions requiring approximately 18 hours of your time. In addition, you will be asked to practice at least 15 minutes of mindfulness per day in between mindfulness enhancement sessions and at least 15 minutes of mindful art making in between MBAT sessions. Anticipated total time required for personal mindfulness and mindful art making practice is 7.5 hours. Total time required for this study is approximately 26.5 hours, including 1 hour for this initial meeting.

Sessions will be scheduled at regular intervals meeting twice a week based on an agreed upon schedule with Eileen Douglas. The first three mindfulness enhancement sessions will utilize Mindfulness Based Stress Reduction principles followed by three sessions utilizing mindfulness-based art therapy. The first three mindfulness enhancement sessions will then be replicated followed by replication of the first three sessions utilizing MBAT. During mindfulness enhancement sessions, you will be introduced to the principles of mindfulness and participate in seated, walking, and movement mindful practice. During MBAT sessions, you will be introduced to mindful art making and participate in seated, walking, and movement based mindful practice in combination with art making. You will be provided with art materials to complete mindful art making on your own. You may also use materials of your choice to complete mindful art making on your own.

The following materials will be provided to you for completion of art making at home:

- 9" X 12" mix media drawing pad
- 1 pack of colored markers (50 count Crayola Super Tips Washable Markers)
- 1 pack of colored pencils (24 count Crayola Colored Pencils)
- 1 pack of oil pastels (24 count Crayola Portfolio Series Oil Pastels)

Immediately following each mindfulness enhancement training and MBAT session, you will complete the Mindful Attention Awareness Scale Short (MAAS-S) and University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS) by hand. You will complete a post intervention questionnaire by hand after the completion of the final MBAT session. Responses to MAAS-S, SOC-3-UTHS, will be sealed in an envelope by you and retrieved by the researcher at the end of each session. The post intervention questionnaire will be sealed in an envelope by you and retrieved by the research at the end of the last MBAT session. All data will be secured in a locked cabinet in the principal investigator’s locked office located in Lester Hall room 301. Artwork will be photographed and digitally stored on a password protected flashdrive. Artwork completed during all six MBAT sessions will be returned to you at the end of the last MBAT session. Art materials provided for this study will be returned by you to the principal investigator upon completion of this study. Upon completion of data analysis and this study, paper copies of your data will be shredded and digital photographs will be destroyed.

The following are standard mindfulness procedures that will be done because you will be in this study:

- Introduction to principles of mindfulness
- Seated meditation
- Body scan
- Walking meditation
- Movement meditation
- Mindfulness practice in between sessions

The following are experimental mindfulness-based art therapy procedures that are being tested in this study:

- Mindful exploration of art materials
- Art making in response to body scan and seated, movement, and walking meditation
- Creation of mandalas in between sessions using the provided materials or materials of your choice
WHAT ARE THE RISKS OF THE STUDY?

A risk associated with allowing your data to be saved is the release of personal information from your study record. We will strive to protect your records so that your personal information (like name, age, and phone number) will remain private.

ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this study, there may or may not be direct benefit to you. There is no guarantee that you will personally benefit from taking part in this study. We hope the information learned from this study will benefit other medical students and informal caregivers in the future.

WHAT OTHER OPTIONS DO YOU HAVE?

You may choose not to participate in this research study.

WHAT ABOUT CONFIDENTIALITY?

Information learned from this research may be used in reports, presentations and publications. None of these will personally identify you.

WHAT WILL PARTICIPATION IN THE STUDY COST OR PAY?

There are no additional costs to you associated with taking part in this study. Upon completion of all 12 sessions of this study, including six mindfulness enhancement training sessions and six mindfulness-based art therapy sessions, you will receive two $25 VISA gift cards for your time.

WHAT IF YOU GET INJURED?

Eastern Virginia Medical School will not provide free medical care for any sickness or injury resulting from being in this study. Financial compensation for a research related injury or illness, lost wages, disability, or discomfort is not available. However, you do not waive any legal rights by signing this consent form.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Taking part in this study is your choice. If you decide not to take part, your choice will not affect any medical benefits to which you are entitled. You may choose to leave the study at any time. If you do leave the study, discuss it with the investigator who will help you do so in the safest way. If you leave, the study will not result in any penalty or loss of benefits to you.

The investigator may decide to take you off this study if you cancel your approval or you are unable to attend all 12 sessions or maintain a regular practice of at least 15 minutes per day.

We will tell you about new information that may affect your health, welfare, or willingness to stay in this study.
WHOM DO YOU CALL IF YOU HAVE QUESTIONS OR PROBLEMS?
For questions about the study, contact the investigator, Eileen Douglas, at 516-510-3157.

For questions about your rights as a research participant, contact a member of the Institutional Review Board through the Institutional Review Board office at (757) 446-8423.

If you believe you have suffered an injury as a result of your participation in this study, you should contact the principal investigator, Eileen Douglas, at 516-510-3157. You may also contact Betsy Conner, Director, EVMS Human Subjects' Protection Program & IRB office, (757) 446-5854.

SIGNATURE
You will get a copy of this signed form. You may also request information from the investigator. By signing your name on the line below, you agree to take part in this study and accept the risks. A child who is a ward of the state cannot be enrolled until the IRB has assigned an individual advocate, relative to this potential enrollment, to act on behalf of the child in addition to the guardian or in loco parentis.

Signature of Participant ____________________________ Typed or Printed Name ____________________________ MM/DD/YY

STATEMENT OF THE INVESTIGATOR OR APPROVED DESIGNEE
I certify that I have explained to the above individual the nature and purpose of the study, potential benefits, and possible risks associated with participation in this study. I have answered any questions that have been raised and have witnessed the above signature. I have explained the above to the volunteer on the date stated on this consent form.

Signature of Investigator or Approved Designee __________________________________________ MM/DD/YY

Sufficient space for the IRB stamp should be included on the 1st page or on the last page of the consent form.

IRB APPROVAL
DATE 06/02/18
EXPIRES
DATE 12/02/18
IRB # 17-12-EX-0482

Page 5 of 5
Appendix D

Student Addendum Informed Consent

Douglas Employee/Student Addendum Consent Form V3 12/14/17

Employee/Student Addendum Consent Form
Eastern Virginia Medical School (EVMS) Institutional Review Board

Study Title: An Investigation of the Impact of Adding Art to Mindfulness Enhancement Training
Name of Investigator: Eileen Douglas, LPC, ATR-BC
Sponsor: No Sponsor
Name of Subject:

You are being asked to participate in the above research study, which is being conducted at Eastern Virginia Medical School (EVMS), where you are an employee or student. The research study has been described to you, in writing, on the attached consent form. You have also had the opportunity to ask the investigators conducting this study any questions that you may have regarding participation in this study.

The purpose of this addendum consent form is to inform you that you have the right to choose not to participate in this research study. If you choose not to participate, or to withdraw at any time, it will not affect your standing as an employee or student.

If you are an employee, your participation will not place you in good favor with the investigator, your supervisor, or EVMS (e.g., increase in salary, promotion, extra vacation, or the like). Not participating will not adversely affect your employment with EVMS, in particular the position that you currently hold. If you are a student, your participation will not place you in good favor with the investigator or other faculty (e.g., receiving better grades, recommendations, employment). Also, not participating in this study will not adversely affect your relationship with the investigator or other faculty.

If you suffer a physical injury or illness as a result of participating in this research study, you will not receive a financial payment. Treatment for such injury or illness is not covered under Workmen's Compensation. Any immediate emergency medical treatment you may need as a result of participating in this study will be provided as outlined in the attached consent form. Eastern Virginia Medical School provides no compensation plan or free medical care plan to compensate you for such injuries. If you believe you have suffered an injury as a result of your participation in this study, you should contact the principal investigator, Eileen Douglas, LPC, ATR-BC at 516-510-3157. You may also contact Betsy Conner, Director, EVMS Human Subjects' Protection Program & IRB office, (757) 446-5854. If you have any questions pertaining to your rights as a research subject you may contact a member of the Institutional Review Board through the Institutional Review Board office at (757) 446-8423.

SIGNATURE
You will get a copy of this signed form. You may also request information from the investigator. By signing your name on the line below, you agree to take part in this study and accept the risks.

Page 1 of 2
Douglas Employee/Student Addendum Consent Form V3 12/14/17

<table>
<thead>
<tr>
<th>Signature of Participant</th>
<th>Typed or Printed Name</th>
<th>MM/DD/YY</th>
</tr>
</thead>
</table>

**STATEMENT OF THE INVESTIGATOR OR APPROVED DESIGNEE**

I certify that I have explained to the above individual the nature and purpose of the study, potential benefits, and possible risks associated with participation in this study. I have answered any questions that have been raised and have witnessed the above signature. I have explained the above to the volunteer on the date stated on this consent form.

<table>
<thead>
<tr>
<th>Signature of Investigator or Approved Designee</th>
<th>MM/DD/YY</th>
</tr>
</thead>
</table>

**IRB APPROVAL**

DATE 12/11/17

EXPIRES DATE 12/11/18

IRB # 17-12-EX-08537
Appendix E

Mindfulness Attention Awareness Scale - Short

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

<table>
<thead>
<tr>
<th></th>
<th>Almost</th>
<th>Very</th>
<th>Somewhat</th>
<th>Somewhat</th>
<th>Very</th>
<th>Almost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>Frequently</td>
<td>Frequently</td>
<td>Infrequently</td>
<td>Infrequently</td>
<td>Never</td>
</tr>
</tbody>
</table>

It seems I am “running on automatic,” without much awareness of what I’m doing.  
1 2 3 4 5 6

I rush through activities without being really attentive to them.  
1 2 3 4 5 6

I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there.  
1 2 3 4 5 6

I do jobs or tasks automatically, without being aware of what I’m doing.  
1 2 3 4 5 6

I find myself preoccupied with the future or the past.  
1 2 3 4 5 6

I find myself doing things without paying attention.  
1 2 3 4 5 6
Appendix F

University of Tokyo Health Sociology Sense of Coherence Scale

*University of Tokyo Health Sociology Sense of Coherence Scale (SOC-3-UTHS)*

<table>
<thead>
<tr>
<th>University of Tokyo Health Sociology version of the SOC3 Scale (SOC3-UTHS)</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>These questions are about how you feel your life. Please circle the number which best expresses your feeling. Please give only one answer to each question.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 I am able to find solutions to various problems and hardships that I face in my daily life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 I am able to find value in confronting various hardships and problems that I face in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 I am able to understand and predict various hardships and problems that come up in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Strongly agree</td>
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Appendix G

Post-Intervention Questionnaire

*Post-intervention Questionnaire*

1. **Mindfulness practice without art was helpful.**

<table>
<thead>
<tr>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
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<tr>
<td>Neutral</td>
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<tr>
<td>Disagree</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
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</tbody>
</table>

2. **Mindfulness practice with art was helpful.**

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<tr>
<th></th>
<th>1</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
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<tr>
<td>Neutral</td>
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<tr>
<td>Disagree</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
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</tbody>
</table>

3. **Practicing mindfulness between sessions was helpful.**

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<tbody>
<tr>
<td>Strongly Agree</td>
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<tr>
<td>Agree</td>
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<tr>
<td>Disagree</td>
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<tr>
<td>Strongly Disagree</td>
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</tbody>
</table>

4. **Practicing mindfulness-based art between sessions was helpful.**

<table>
<thead>
<tr>
<th></th>
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<th>3</th>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
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<tr>
<td>Agree</td>
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<tr>
<td>Disagree</td>
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</tr>
<tr>
<td>Strongly Disagree</td>
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</table>

5. **Discussion was helpful.**

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<tbody>
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<tr>
<td>Agree</td>
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<td>Neutral</td>
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<td>Disagree</td>
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<td></td>
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<tr>
<td>Strongly Disagree</td>
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6. **The art therapist promoted mindfulness.**

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<tbody>
<tr>
<td>Strongly Agree</td>
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<tr>
<td>Agree</td>
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<tr>
<td>Disagree</td>
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<tr>
<td>Strongly Disagree</td>
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</table>
7. The product promoted mindfulness

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<th>5</th>
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<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
<td></td>
</tr>
</tbody>
</table>

8. Were the following art materials used? Circle Yes or No. If a material was used, please rate your experience with each material.

**Acrylic Paint:**
- Yes
- No

**Using acrylic paint promoted mindfulness.**

<table>
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<tr>
<th></th>
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<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
<td></td>
</tr>
</tbody>
</table>

**Water Color Paint:**
- Yes
- No

**Using water color paint promoted mindfulness.**

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<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
<td></td>
</tr>
</tbody>
</table>

**Oil Pastels:**
- Yes
- No

**Using oil pastels promoted mindfulness.**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Agree</td>
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**Chalk Pastels:**
- Yes
- No

**Using chalk pastels promoted mindfulness.**

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Using **color pencils** promoted mindfulness.

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Using **graphite pencils** promoted mindfulness.

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Using **crayons** promoted mindfulness.

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Using **color markers** promoted mindfulness.

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Using **tissue paper** promoted mindfulness.

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Appendix H

Medical Student Flyer

RESEARCH PARTICIPANT NEEDED

CONTACT INFORMATION

To find out more about this study, please contact:

- Principal Investigator: Eileen Douglas, LPC, ATR-BC
- Phone: (516) 510-3157
- Email: douglack@evms.edu

Mindfulness Enhancement Training & Mindfulness-Based Art Therapy

The purpose of this research study is to examine the impact of adding art to a mindfulness enhancement training program with a medical student.

To participate in this research you must be:

- Age 18-75
- Enrolled in medical school

Participation in this study requires:

- 12 total sessions
- 6 sessions of mindfulness enhancement training
- 6 sessions of mindfulness enhancement training with art therapy

Receive two VISA gift cards for participation in this study.

This advertisement has been approved by the EVMS IRB (#17-12-EX-0252)
Appendix I

Informal Caregiver Flyer

RESEARCH PARTICIPANT NEEDED

CONTACT INFORMATION

To find out more about this study, please contact:

- **Principal Investigator:**
  Eileen Douglas, LPC, ATR-BC
- **Phone:** (516) 510-3157
- **Email:** douglak@evms.edu

Mindfulness Enhancement Training & Mindfulness-Based Art Therapy

The purpose of this research study is to examine the impact of adding art to a mindfulness enhancement training program for an informal caregiver.

To participate in this research you must be:

- Age 18-75
- Caregiving for an individual age 18 or older

Participation in this study requires:

- 12 total sessions
- 6 sessions of mindfulness enhancement training
- 6 sessions of mindfulness enhancement training with art therapy

Receive two VISA gift cards for participation in this study.

This advertisement has been approved by the EVMS IRB (#17-12-EX-0252)