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The Relationship Between Eating Disorders, Attachment Styles and the Uses of Art Materials

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CHAPTER I

INTRODUCTION

Food is an indispensable part of people's daily life. It not only fuels body functioning, but also culture, social connection, and so much more. Everyone has a different relationship with food, yet some of them are maladaptive. This could impact their self-esteem, interpersonal relationships, and can even become life-threatening.

Eating disorders (EDs) are mental and physical illnesses that have the potential to affect people of all ages, religions, ethnicities, sexual orientations, genders, body shapes, and weights (National Eating Disorders Association [NEDA], n.d.). Anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and avoidant/restrictive food intake disorder (ARFID) are some of the common types of EDs. ED behaviors, such as restricting, binging, and purging, can cause severe damage to patients' organ systems that result in lots of health consequences. According to recent estimations, over 3.3 million people die from EDs each year (van Hoeken & Hoek, 2020). Chesney et al. (2014) even concluded that AN has one of the highest all-cause mortality rates among all mental disorders.

Due to the serious impact on patients and the community, researchers and clinicians have drawn attention to causes, symptoms, courses, as well as effective interventions for EDs. Some of them form their conceptualization through John Bowlby's attachment theory (Bowlby, 1969). Those researchers discuss how the meanings patients make from parental behaviors relate to their maladaptive beliefs systems (Zachrisson & Skårderud, 2010). As people's right hemisphere of brain is deeply involved with these early memories and emotional information (Schore, 2000), art therapy offers a valuable opportunity to explore and access patients' thoughts/feelings via the use of art materials and non-verbal techniques (Malchiodi, 2014).

Overview of the Literature

Attachment is an emotional bond that first develops between an infant and their primary caregiver, which is one of the most basic human needs (Bowlby, 1969). Based on their experiences of interactions, infants form an understanding of themselves and others (Blaustein & Kinniburgh, 2010). Their characteristic way of relating to their attachment figure further serves as a symbolic template for other relationships. Researchers have classified these attachment patterns into four attachment styles (ASs), including secure, anxious-resistant/preoccupied, avoidant/dismissing, and disorganized/disoriented/unresolved (Ainsworth et al., 1978; Main & Solomon, 1986). These classifications are still widely used today (Levy et al., 2010).

Secure attachment develops when the caregiver is sensitive, available, and attunes to the infant's needs in consistent ways (Haeyen & Hinz, 2020; Main, 2000). Individuals with secure attachment can modulate their distress constructively during times of stress and use their attachment figure as a secure base for exploring unfamiliar environments (Levy et al., 2010; Main, 2000). In comparison, insecure attachment develops when the caregiver is inconsistent, unavailable, and/or insensitive to the infant's need (Main, 2000; Snir et al., 2017). Individuals with a preoccupied attachment style may have excessive concerns of rejection/loss of relationship and tend to up-regulate their emotional experiences (Tasca, 2019). Individuals with avoidant attachment may adopt a strategy of detachment and restrict acknowledgement of distress (Kobak & Sceery, 1988), as many down-regulate their emotional experiences. Disorganized attachment is often related to unresolved attachment-related traumas or loss of an attachment figure (Main & Solomon, 1990). Individuals with disorganized/disoriented attachment may present incoherent/disoriented behaviors with

unclear goals/intentions (Main & Solomon, 1990) and often struggle with overriding guilt, absorption, or dissociation (Tasca, 2019).

Tasca (2019) stressed the importance of doing attachment research in the ED population. Some researchers theorized patients' ED behaviors as maladaptive coping strategies they employed to meet attachment needs. Recent studies also put forth more effort into the investigation of the mediators between EDs and attachment. Emotion regulation is constantly mentioned as a treatment focus (Tasca & Balfour, 2014), which the use of art materials can help improve (Hinz, 2020).

Art therapy, characterized by using art materials to achieve therapeutic aims, has long been utilized as a treatment approach for people with an ED. Unlike traditional talk therapy centering on the therapist and the client, art materials serve as the third component in the therapeutic relationship. The expressive therapies continuum (ETC) is a model that incorporates the main existing approaches to art therapy and includes the connection between visual expression and brain functions (Lusebrink, 2015). It organizes people's interaction with art materials from simple to complex based on a developmental continuum of information processing and image formation, including four levels with a total of seven components: Kinesthetic/Sensory, Perceptual/Affective, Cognitive/Symbolic, and Creative (Hinz, 2020). According to Hinz (2020), "the first three levels are bipolar or complementary… the extreme ends of each level represent possible pathological variations in visual expression on the level" (p. 4). The fourth level, creative, can occur with any other component/level, representing optimal functioning or the integration of functioning of all components (Hinz, 2020).

Art materials each have their unique characteristics, or media properties, that can be classified from resistive to fluid (Kagin & Lusebrink, 1978; Hinz, 2020). According to the ETC, resistive materials, such as pencils, provide a sense of control that elicit cognitive processes, whereas the fluid ones, such as watercolor, have the potential to evoke emotions (Hinz, 2020). Researchers further pointed out that not only the fluidity of the art material itself, but the flexibility of the way in which it is used can enrich individuals' experience and support the expression of emotion (Haiblum-Itskovitch et al., 2018; Haeyen & Hinz, 2020; Pesso-Aviv et al., 2014; Snir & Regev, 2013). For example, even though paints may be generally considered as fluid, they can be used in a more controlled way by using minimal water such that the brush carries a ratio of more paint than water. This could look much like drawing rather than painting, which may limit affective expression.

Clients' interactions with art materials provide valuable information in addition to their verbal expressions. Frustration tolerance, risk-taking tendencies, and problem-solving skills can all be observed in the creative processes. In fact, people with different types of EDs have historically been noticed for their distinct ways of using art materials (Hinz, 2006; Johnson & Parkinson, 1999; Matto, 1997; Schaverien, 1994). Researchers also highlighted that individuals' relationships with art materials may reflect some characteristics of their other relationships. That is to say, people with different ASs could experience art materials and creative process differently (Corem et al., 2015; Cormier, 1999; Haeyen & Hinz, 2020; Snir et al., 2017).

Gap in Literature

As numerous studies have demonstrated thus far, both EDs (Betts, 2008; Hinz, 2006; Johnson & Parkinson, 1999; Matto, 1997; Schaverien, 1994) and ASs (Corem et al., 2015;

Cormier, 1999; Haeyen & Hinz, 2020; Snir et al., 2017) are likely to play out in people's choices of art materials, as well as their manner of use. However, studies in the art therapy field rarely discuss the role of art materials in the treatment for people with an ED (Griffin et al., 2021). Even when they do, very few of them explore clients' subjective experience in the use of ETC components.

Research Aim

This study sought to fill this gap and investigated how people with an ED and their AS responded to art materials. Through a mixed methods approach, I intended to understand the correlation between ED diagnoses and ASs, patients' materials of choice and the use of ETC components, as well as the congruence between patients' experiences and clinicians' observations. By drawing attention to how the relationship with food, with other people, and with art materials interact, art therapists may be able to attune to patients' needs and structure therapeutic interventions accordingly.

CHAPTER II

REVIEW OF LITERATURE

In order to explore how people with an ED and their AS respond to art materials, I used the search terms "eating disorders," "attachment," and "art materials." I consolidated the literature that addressed the intersection of these terms (see Figure 1). Table 1 presents some alternative search terms that I used in each of these fields. The following databases were used to search for literature related to this research: Academic Search Complete, APA PsycArticles, APA PsycInfo, Art Full Text, eBook Collection (EBSCOhost), ERIC, MEDLINE Complete, and Primary search. I also utilized web search engines including Google Scholar and RefSeek. To learn more about different art materials' unique characteristics, I looked into literature that compared participants' responses to them. This helped me gain a broader understanding of art materials' effects and further develop a solid research concept. The search terms I applied for this purpose are "art materials effect" and "art materials emotion."

Figure 1

Intersection of Search Terms

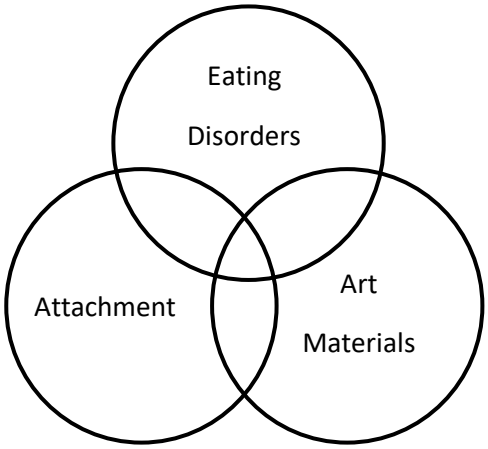


Table 1

Alternative Search Terms

Eating disorders	Attachment	Art materials
Anorexia	Attachment theory	Art media
Bulimia	Attachment style	Art therapy or ETC
Binge eating disorder	Attachment framework	Paints
Disordered eating	Secure attachment	Clay
Other specified feeding or eating disorder (OSFED)	Insecure attachment	Pastels
Eating disorders not otherwise specified (EDNOS)	Preoccupied or anxious	Markers
	Avoidant or dismissing	
	Disorganized attachment	

Eating Disorders and Attachment

Understanding EDs from a relational perspective and investigating the connections between ED behaviors and parental relationships are not new notions. Since the late 1980s, scholars had started to link difficulties in separation-individuation processes (Friedlander & Siegel, 1990), disturbance with object relationships (Heesacker & Neimeyer, 1990), and affectively negative parental relationships (Kenny & Hart, 1992) with the development and maintenance of an ED. Insecure attachment was also surmised as a risk factor for EDs (Faber et al., 2018; Manaj, 2016; Milan & Acker, 2014; O'Shaughnessy & Dallos, 2009; Sharpe et al., 1998; Tasca & Balfour, 2014) and/or for general psychopathologies, considering the common comorbidities of EDs (Jewell et al., 2023).

Previous studies generally indicated a high prevalence of insecure attachment in the ED population but were inconsistent on specific classification (Ringer & Crittenden, 2007; Gander et al., 2015; Tasca & Balfour, 2014; Tasca, 2019; Zachrisson & Skårderud, 2010). For example, Armstrong and Roth (1989) found that 96% of their sample had an anxious attachment style. Other researchers suggested dismissing (Barone & Guiducci, 2009; Cole-

Detke & Kobak, 1996; Ramacciotti et al., 2001) and/or disorganized attachment (Delvecchio et al., 2014; Zachrisson & Kulbotten, 2006) as being more prevalent in the ED population. Several researchers theorized that restricted types of ED were associated with avoidant attachment and binging/purging types of ED were related to preoccupied attachment (Dias et al., 2011; Ward et al., 2000; Zachrisson & Skårderud, 2010), yet the results were inconclusive (Cortes-Garcia et al., 2019; Gander et al., 2015; O'Shaughnessy & Dallos, 2009; Salcuni et al., 2017; Tasca, 2019; Tasca & Balfour, 2014; Zachrisson & Kulbotten, 2006).

Despite a lack of clarity in this domain, past literature did suggest that people with an ED have higher chances to have an insecure attachment (Gander et al., 2015; Jewell et al., 2023; Ramacciotti et al., 2001; Zachrisson & Skårderud, 2010) and have greater attachment insecurity (Illing et al., 2010; Tasca & Balfour, 2014) than those without an ED. Jewell et al. (2023) concluded that age was not a moderator, indicating that the association between ED and insecure attachment may not be affected by developmental factors. Additionally, insecure attachment transdiagnostically leads to more severe ED symptoms (Dakanalis et al., 2014; Illing et al., 2010; Keating et al., 2013; Tasca, 2019; Tasca et al., 2011).

Some researchers sought to develop theoretical explanations for the existence of the relationship between insecure attachment and EDs. Orzolek-Kronner (2002) tied ED behaviors, such as restricting, binging, and purging, with proximity-seeking in attachment theory that could bring forth both physical and psychological closeness between an adolescent and their mother. In their study, half of the participants reported a closer relationship with their mother since the onset of their ED (Orzolek-Kronner, 2002). Similarly, Cole-Detke and Kobak (1996) proposed how avoidant attachment in the ED population could look like patients shifting their attention to appearance to make themselves

more acceptable. On this note, ED behaviors were conceptualized as strategies to meet individuals' attachment needs.

Recently, literature focuses more on exploring the mediators between insecure attachment and EDs, such as poor self-concept (Demidenko et al., 2010), neuroticism (Eggert et al., 2007), maladaptive perfectionism (Dakanalis et al., 2014), emotional reactivity/cutoff (Han & Kahn, 2017; Tasca et al., 2009), alexithymia (Keating et al., 2013; Redondo & Luyten, 2021), and reduced capacity for mindfulness (Pepping et al., 2015). Cortes-Garcia et al. (2019) conducted a meta-analytic review and concluded that emotion dysregulation and depressive symptoms had the largest effect size. However, they also found the effect sizes were even larger in general population, indicating that there might be other stronger mediators and/or a stronger direct relationship between insecure attachment and EDs (Cortes-Garcia et al., 2019). These results further provided suggestions for treatment foci/outcomes.

Attachment and Art Materials

Art therapy has been reported to be beneficial in improving attachment outcomes (Armstrong & Ross, 2023; Chetu, 2015). Uses of art materials help process adverse childhood experiences by bringing the non-verbal materials to behavioral/somatic level, which provides an opportunity to further form them into thoughts (O'Brien, 2004). Researchers generally agree that individuals' ASs can be reflected in the art material they choose, the way they use it, and their experience with it through their internal working models of attachment (Corem et al., 2015; Cormier, 1999; Haeyen & Hinz, 2020; Snir et al., 2017). That is to say, focusing on clients' autonomous art material choices and how they use them can be a way of understanding their emotional regulation strategies (Haeyen & Hinz, 2020).

Individuals with secure attachment are able to regulate their emotions more effectively, which manifests as comfort in exploring art materials to express themselves (Haeyen & Hinz, 2020; Shaver & Mikulincer, 2014). Corem et al. (2015) found that the higher security of attachment people had, the more positive their experiences of art materials and art products were. Haeyen and Hinz (2020) further theorized that individuals with secure attachment would enjoy the sensual aspect of art materials and freely use the elements on the right side of the ETC to access their emotional experience.

People with avoidant/dismissing attachments are associated with negative experiences with art materials and artwork (Corem et al., 2015), especially fluid media (Snir et al., 2017). Although more research is needed on whether this result is caused by fear of emotional arousal (Snir et al., 2017), these individuals did appear to deactivate their emotion states in treatment (Haeyen & Hinz, 2020). They may rely on and overuse cognitive and perceptual components of the ETC to avoid in-depth exploration (Haeyen & Hinz, 2020). Cormier (1999) observed that children with avoidant attachment tended to use art materials in protective ways. For example, their art making processes might encourage the therapist to act as a follower, which could be a way of distancing the therapist (Cormier, 1999).

The research results on people with anxious-resistant/preoccupied attachment and their feelings about art materials, artworks, and creative experiences were mostly insignificant (Corem et al., 2015; Snir et al., 2017). A possible explanation is that these individuals perceive others as ambivalent, which reflects in their responses towards art materials (Corem et al., 2015; Haeyen & Hinz, 2020; Snir et al., 2017). Nonetheless, Snir et al. (2017) found a positive correlation between women with anxious attachment and their positive feelings preceding the use of markers. They speculated that the use of markers

fulfills the need for control, which is a characteristic of people with anxious attachment (Snir et al., 2017). However, they also revealed that the opposite was true for men, suggesting more research is needed to consider gender as a factor (Snir et al., 2017). Haeyen and Hinz (2020) also mentioned that people with anxious attachment might demonstrate little exploration of art materials and underuse the affective component of the ETC. This could look like low color use and/or decreased use of space (Haeyen & Hinz, 2020). Cormier (1999) discussed that people with anxious attachment were attracted to aggressive materials, such as stapler and scissors, and used them in an aggressive manner.

Haeyen and Hinz (2020) hypothesized that people with disorganized attachment would likely use art materials in an expansive way as well as overuse kinesthetic and sensory components of the ETC. Other researchers discussed insecure attachment in the context of trauma and explored these individuals' responses to art materials. Duncan (2019) shared their findings about children aged 0-5 years old with complex trauma. These children appeared to react in aggressive and controlling ways when using art materials. Their results demonstrated high scores for sensory seeking, excitement, and repetition (Duncan, 2019). Similarly, O'Brien (2004) described how children with insecure attachment and trauma history may create a mess in creative processes and use art materials with sensation-based methods rather than cognitive. Their chaos in early life could be reflected through pouring, smearing, and spilling (O'Brien, 2004).

Furman (2020) found no statistical differences in the choice of adhesive materials, such as glue, tape, and staples, across attachment styles. However, when employing a three-dimensional model of attachment, they discovered a three-way interaction effect between adhesive choice, gender, and trauma on participants' capacity to feel comfortable asking for

help and relying on others for support (Furman, 2020). They further discussed how differences in gender and trauma history play a role in the development/formation of ASs.

Art Materials and Eating Disorders

For people with an ED, their relationship with food may be reflected in the use of art materials (Betts, 2008; Hinz, 2006; Johnson & Parkinson, 1999; Matto, 1997; Schaverien, 1994). Schaverien (1994) elaborated how food served to negotiate/mediate clients' inner and outer worlds, which, in the context of art therapy, would be the role of their artwork. It is important for people with an ED to create shapes as an extension of self to bridge inner and outer reality (Wolf et al., 1985), considering their difficulties relating to their own body and shape (Levens, 1990).

Art therapists providing art materials could be conceptualized as parents offering food and nurturance/nourishment (Makin, 2000; Schaverien, 1994). Understanding how people with an ED interact with art materials can help us understand their relationship to their own bodies and their interactions with others (Jeong & Kim, 2006). Several researchers pointed out the utilization of ED behaviors as evidence of the lack of symbolic function (Levens, 1990; Schaverien, 1994). Clients using art materials instead of food to express their experience could be a start to form this ability (Schaverien, 1994; Johnson & Parkinson, 1999).

Both Levens (1990) and Schaverien (1994) pointed out that people with AN might struggle to engage with art materials and/or start the creative process initially. Some researchers have observed that they use art materials in more restricted ways (Betts, 2008), prefer more controlled materials (Diamond-Raab & Orrell-Valente, 2002; Garcia, 2008; Makin, 2000; Matto, 1997), and tend to make tiny/faint marks (Diamond-Raab & Orrell-

Valente, 2002; Makin, 2000; Matto, 1997; Schaverien, 1994). They may pay more attention to creating fine details, using fine brushes, and selecting smaller paper sizes (Beck, 2007; Makin, 2000). Using limited colors/media (Beck, 2007; Makin, 2000) and space of the page (Diamond-Raab & Orrell-Valente, 2002) could be observed.

In contrast, people with BN use art materials and resources in maladaptive ways that was described as similar to binging/purging or messy/chaotic (Betts, 2008; Diamond-Raab & Orrell-Valente, 2002; Matto, 1997; Johnson & Parkinson, 1999; Levens, 1995; Schaverien, 1994). They may favor larger paper/sculpture sizes, wider brushes, and generally demonstrate more comfortability in having physical contact with art materials (Makin, 2000). Researchers noted their preference of unstructured art materials, creating multi-media artwork, using bold strokes/colors, and extending through the page (Beck, 2007; Makin, 2000).

Not many articles described how people with other ED diagnoses use art materials (Beck, 2007). One exception was a case study describing a client with AN-BP working on a large sheet of paper and filling the entire page with marks (Acharya et al., 1995). Researchers also cautioned that art making, although seemingly creative, may not be therapeutic if unorganized patterns were acted out in art forms (Levens, 1990; Schaverien, 1994; Wood, 1996).

The use of art materials can address issues of control and perfectionism in people with an ED (Betts, 2008; Hinz, 2006; Matto, 1997). Optimal functioning is demonstrated by a balanced and flexible use of all ETC components (Haeyen & Hinz, 2020; Hinz, 2020). Additionally, researchers pointed out that practicing with unfamiliar materials promotes acceptance of imperfection and builds mastery as well as self-efficacy in people with an ED

(Betts, 2008; Hinz, 2006). Matto (1997) mentioned that incorporating a variety of art materials in sessions can challenge clients' dysfunctional beliefs system. Beck (2007) also stressed the importance of encouraging clients to broaden their range of color used, media choices, and space. Modifying their relationship with art materials can help this population practice different information processing patterns and confront their maladaptive beliefs about food and body (Betts, 2008; Griffin et al., 2021; Hinz, 2006).

Summary

Previous studies consistently showed a relationship between EDs and insecure attachment; some further theorized how maladaptive ED behaviors could be explained through attachment theory. Attachment patterns and patients' relationship with food appeared to be reflected on their art materials of choice, their experiences in the creative process, and how they interact with art materials in general. Therefore, how clients use art materials becomes essential information when designing treatment for this population. This research study sought to increase understanding of the inner dynamics between ED, ASs, and the uses of art materials.

CHAPTER III

METHODOLOGY

The purpose of this research was to explore how people with an ED and their AS respond to art materials. I focused on their choices and experiences of art materials to capture this relationship, with the intention of providing professionals a better understanding of the population to design treatment plans accordingly. My research questions included the following: (a) Is there a correlation between different ED diagnoses and ASs? (b) Do different ED diagnoses and/or ASs relate to individuals' propensity for selecting art materials, tendency to try unfamiliar materials, and the use of ETC components? and (c) how congruent are clients' self-reports of media interactions with the therapist's clinical observations?

I used a mixed method approach, nesting qualitative data in a quantitative design. The primary tools for this research were surveys. As defined by Glasow (2005), Leavy (2017), and Visser et al. (2000), surveys are used to collect quantitative data from a specific population to answer questions of interest. In this study, I surveyed people with an ED on their use of art materials. I also collected direct observational data in a survey format to provide another perspective. Direct observation refers to collecting data in a real-life context that can enrich the understanding of a phenomenon (Yin, 2014). By comparing participants' subjective experiences of interacting with art materials and the observations made by the therapist, a well-rounded understanding of the population's use of art materials can be gained. I gathered data on the two categorical variables, ED diagnoses and ASs, from each participant's medical charts and their primary therapists respectively. A pragmatic research paradigm was utilized considering this methodology and the focus on investigating

outcomes. This paradigm emphasizes the usefulness of various tools in different research contexts instead of relying on one specific theory and/or a set of rules (Leavy, 2017).

Sampling

This study was conducted in the residential adult unit of an eating disorder treatment center in the Midwest, heretofore referred to as the ED Facility. All residential adult patients who signed the informed consent form for the duration of this research were considered as participants. The setting is a Healthcare Information Portability and Accountability Act (HIPAA) compliant facility that provides care for adolescents and adults of all genders, ethnicities, sexualities, religions, and a variety of ED symptoms. Each patient has a treatment team consisting of a psychiatrist, a dietitian, and a therapist. On average, patients stay at the ED facility for six weeks.

Instruments

A total of three surveys were used in this study, including the demographic information survey, the ETC assessment tool, and the client questionnaire. The ETC assessment tool was filled out by the therapist and the others were collected from participants.

Demographic Information Survey

I utilized a survey to capture the demographic information of participants. I selected some of the items from the survey that the ED facility has already been using for their record (see Appendix A). These include age, assigned gender at birth, gender identity, education levels, ethnicity, marital status, age of onset, and times in treatment. Considering that the participants were in a residential treatment setting, I did not collect individual participants'

income information. Instead, I gathered the general socioeconomic status of the population accessing this facility.

ETC Assessment Tool

Wartenberg (2016) tested an ETC assessment tool with a new rating scale. This unpublished, 26-item measure is based on the ETC framework and was presented by Hinz in 2014 (Wartenberg, 2016). The full assessment consists of four categories, including (a) preferred medium, (b) interaction with medium, (c) stylistic or expressive elements of the final art product, and (d) verbal communication. Therapists make observations of the client's creative process and fill out the assessment.

For the purpose of this research, I used a modified version of this ETC assessment. I selected items 1 through 11 and item 22 of the original assessment to document clients' material choices and their general interaction with them (see Appendix B). These items cover most of the first two categories from the original assessment and part of the third category as well. I also added an open-ended, short answer item asking if the client made any significant verbalizations in place of the fourth category. Given that clients had a better understanding of their own familiarities with art materials, item 1 was moved to the modified client questionnaire. Most of these items were rated with Likert scales, ranging from three to five options. However, the ETC level was rated more like a multiple-choice format. Therapists were also instructed to add their free notes.

Client Questionnaire

Wartenberg (2016) also created a client questionnaire in order to understand clients' preferred methods for information processing. This self-report questionnaire is based on the ETC theory and the information presented by Hinz in a workshop in 2015 (Wartenberg,

2016). The full questionnaire consists of seven questions, with question 5 consisting of a 25-item table.

For the purpose of this research, I only utilized the 25-item table (see Appendix C). Each item asks clients to rate their experience of each of the ETC components during the art making process. Wartenberg (2016) used this scale to gather retrospective data where clients reported on their experiences using art materials over a 4-month period. While it was originally used to assess the frequency with which each component was utilized, I adjusted it to score the degree to which the components' function was helped by the chosen material, on a scale of 1 to 5. For example, a rating of 1 for items in the kinesthetic component's function means the material of choice did not help the client experience this process at all. A greater score meant the client experienced the component's function to a greater degree on account of the chosen material. I did change some of the wording of the items for easier understanding per the facility's request, such as changing "perceiving order out of chaos of emotions" to "organizing my emotions." Additionally, item 1 from the original ETC assessment tool was included in this questionnaire.

Procedure

Before starting the data collecting process, I discussed the ETC assessment tool with the three art therapists who worked at the ED facility. Only one of the art therapists ended up being a co-investigator for this research but we all went through each item to gain consensus on scoring criteria. After getting Institutional Review Board approval (see Appendix D), the study was conducted between March and May in 2023 for a total of 7 weeks. It took place in the art therapy group that ran weekly for 50 min in the residential adult unit. The group was cancelled for the second week due to the group leader, a credentialed art therapist and my co-

investigator, having a day off. However, the group ran twice in the last week of data collection.

The art therapy group in the treatment program was designed in an open studio format. I asked the group leader to keep this non-structure and nondirective format for the duration of this research so that patients were free to choose art materials and tasks. According to Hinz (2020), this design allows clients to demonstrate their preferred ways of processing information. At the beginning of each group, the informed consent form was made available to all patients. During group time, the group leader filled out the ETC assessment tool based on their clinical observations for each patient who decided to participate in this research. By the end of each group, the client questionnaire and the demographic information survey were both provided to research participants. The group leader and I had discussed and confirmed that conducting this research would not affect patients' treatment negatively.

After obtaining their consent, I did a chart review for each participant's ED diagnosis. Additionally, I discussed with their primary therapist individually to identify their AS. All the paper surveys were stored in a locked drawer in a private office at the ED facility during the data collecting process. Once the data were sorted out, I assigned a number for each participant and removed all the identifiable information immediately to maintain confidentiality. Signed informed consent forms were also filed in each participant's chart and never left the ED facility. Only coded data existed on my password protected laptop.

Data Analysis

Descriptive statistics were used to describe the demographic characteristics of the participants in this study. Subsequently, participants were assigned to subgroups based on

their ED diagnosis and AS to answer my research questions. Due to the nature of the treatment setting, neither the numbers of groups nor the numbers of participants in each group were controlled.

Correlation Between ED Diagnoses and ASs

The percentages of participants in each ED diagnosis group were listed, as well as in each AS group. To observe whether there was a correlation between the two, I created a table and did a frequency count for all subgroups. Due to the small sample size, other statistical analyses were not utilized.

Interaction Between ED Diagnoses, ASs, and Art Materials

Due to the characteristic of the treatment setting, some patients left or joined the group in the middle of the 7 weeks that this research was being conducted. The data that were collected in their first 3 weeks of attendance were the main analytical focus for this research. Three times were chosen since the ETC assessment tool is designed to be carried out for three sessions to form the basis for information processing and look for a trend (Hinz, 2020; Kaplan, 2012; Wartenberg, 2016).

The open studio group format allowed participants to choose all kinds of materials. To explore participants' experience while recognizing materials' physical characteristics, I classified materials into three media property categories. The classification was based on Hinz (2020) as well as Kagin and Lusebrink (1978), including resistive materials, fluid materials, and "middle materials," which referred to those that fell in between. This classification was utilized for all analyses regarding material interactions in this research.

Propensity for Selecting Art Materials. Using the above material classification method, for each subgroup of participants, I counted the frequency with which participants

chose resistive, middle, and/or fluid materials. Since each subgroup had a different total number of sessions in which they had participated, I converted all numbers into percentages. I created a 100% stacked bar graph to present how ED diagnoses and ASs were related to participants' frequency of choosing each media property category. Due to the small sample size, other statistical analyses were not utilized.

Tendency to Try Unfamiliar Materials. The first question on the client questionnaire asked participants' familiarity with the art material chosen for the day, rating in a 5-point Likert scale, where 1 indicated unknown and 5 represented familiar (see Appendix C). Using the above material classification method, I described mean scores and standard deviation scores in each subgroup for each media property category. I also made these statistics into a stacked bar graph. Comparing participants' familiarity and propensity of selecting art materials, insights of their tendency to try unfamiliar materials and/or risk taking in material choices could be obtained.

The Use of the ETC Components. The second part of the client questionnaire asked for participants' experience in working with different ETC components on a 5-point Likert scale, where 1 indicated the material did not help at all with the component and 5 represented the material extremely helped experience the component (see Appendix C). Each component had three to five questions on the questionnaire. The mean score and the standard deviation score on each component for each subgroup were calculated. Considering the influence of media' physical characteristics, I analyzed each media property category respectively. A total of six multiple bar graphs were created to present the results.

Congruence Between Self-Reports and Clinical Observations

I intended to study how participants' self-report of their internal experiences with art materials were connected to their external expressions. Each participant's external expressions in each group session were observed by the group leader and documented on the ETC assessment tool.

Therapist's Quantitative Ratings. Like client questionnaires, I classified all ETC assessment tool surveys into three media property categories. The first item on the ETC assessment tool asked the therapist to rate the property of the participant's material of choice. This was utilized as a validity check. The mean score and the standard deviation score of the therapist's rating for each media property category was provided. The second to the 10th item on the ETC assessment tool were all in a Likert scale format. I converted all descriptions into numerals, with 1 representing the option on the farthest to the left for each item. Since these items had a range of three to five options, I presented both the mean score and the percentages on tables.

ETC Level. The 11th item on the ETC assessment tool asked the therapist to mark the ETC component that the participant was mainly using in the session. I did a frequency count and described the observed patterns. Comparing these assessments to participants' experience of ETC components provided an opportunity to observe congruence, or the lack thereof.

Therapist's Qualitative Comments. The last two items on the ETC assessment tool brought forth the qualitative aspect of this research. The therapist was asked to document significant verbalizations made by the participant and to provide free notes about any

behaviors that stood out. I drew themes from what the therapist highlighted in their comments and looked for patterns in subgroups.

CHAPTER IV

RESULTS

This mixed methods research study was designed to explore the relationship between EDs, ASs, and art materials. I sought to investigate whether there was a correlation between ED diagnoses and ASs, as well as how they might relate to clients' choices and experiences with art materials. The data were collected in the residential adult unit at the ED facility.

Participant Demographics

A total of 13 participants enrolled in the study. Their ages ranged from 20 to 32 (M = 24.69, SD = 4.03). All of them were assigned female at birth, with about 85% (n = 11) identifying as cisgender and 15% (n = 2) as non-binary. With respect to race/ethnicity, White/Caucasian participants made up the majority (n = 11), the rest (n = 2) were multiracial. In terms of educational level, 46% (n = 6) received some college education, 23% (n = 3) earned their master's, 15% (n = 2) got their bachelor's, 8% (n = 1) had a doctorate degree, and 8% (n =1) owned a certificate. Eighty-five percent of the participants were single and had never been married (n = 11). The other two participants were married and living with a significant other, respectively. The age of onset of their ED ranged from 9 to 20 years old (M = 15.30, SD = 3.43). As for the times in intensive ED treatment, except for one missing data and one extreme value with 11 times, the remaining participants (n = 11) ranged from one to three times (M = 1.73, SD = .79). This calculation included the treatment they received at the time they were participating in this research.

According to the pre-existing data from the ED facility, 10.4% of patients reported that their household income was under $20,000 ($n$ = 35), 4.2% was between $20,000 and $34,999 ($n$ = 14), 4.2% was between $35,000 and $49,999 ($n$ = 14,), 5.0% was between

$50,000 and $74,999 (*n* = 17, 5.0%), 5.9% was between $75,000 and $99,999 (*n* = 20), 7.7% was between $100,000 and $149,999 (*n* = 26), 4.2% was between $150,000 and $199,999 (*n* = 14), 10.4% had $200,000 or more (*n* = 35), and 48.1% reported didn't know (*n* = 162; J. Rapp & J. Hamm, personal communication, August 17, 2023). This is the overall socioeconomic status of patients of the ED facility rather than the participants in this research specifically.

Correlation Between ED Diagnoses and ASs

Sixty-two percent of the participants were diagnosed with AN restricting type (AN-R; *n* = 8), 15% with AN binge eating/purging type (AN-BP; *n* = 2), and 23% with other specified feeding or eating disorder (OSFED; *n* = 3). As for ASs, 31% (*n* = 4) of the participants were categorized into disorganized, 31% (*n* = 4) were preoccupied, 23% (*n* = 3) were avoidant, and 15% (*n* = 2) were secure styles of attachment. Table 2 presents the number of participants in each subgroup as well as the number of times they participated in the art therapy group.

Table 2

Number of Participants in Subgroups

	Secure	Preoccupied	Avoidant	Disorganized
AN-R	2(3)	3(8 [a])	1(2)	2(4)
AN-BP	-	-	1(2)	1(4 [b])
OSFED	-	1(2)	1(3)	1(1)

Note. Total times of each subgroup's participation are presented in parentheses. A dash was inserted for unobtained data.

[a] Times within analytical focus were five. [b] Times within analytical focus were three.

Interaction Between ED Diagnoses, ASs, and Art Materials

Since the analytical focus of this research is participants' first 3 weeks of attendance, a total of 24 survey responses were analyzed. All chosen materials were classified into three media property categories. Resistive materials that were chosen by participants included clay, collage, and colored pencils. Middle materials included markers and print making, specifically using natural materials to imprint with paint. Fluid materials included acrylic paint, chalk pastels, and watercolor.

Propensity for Selecting Art Materials

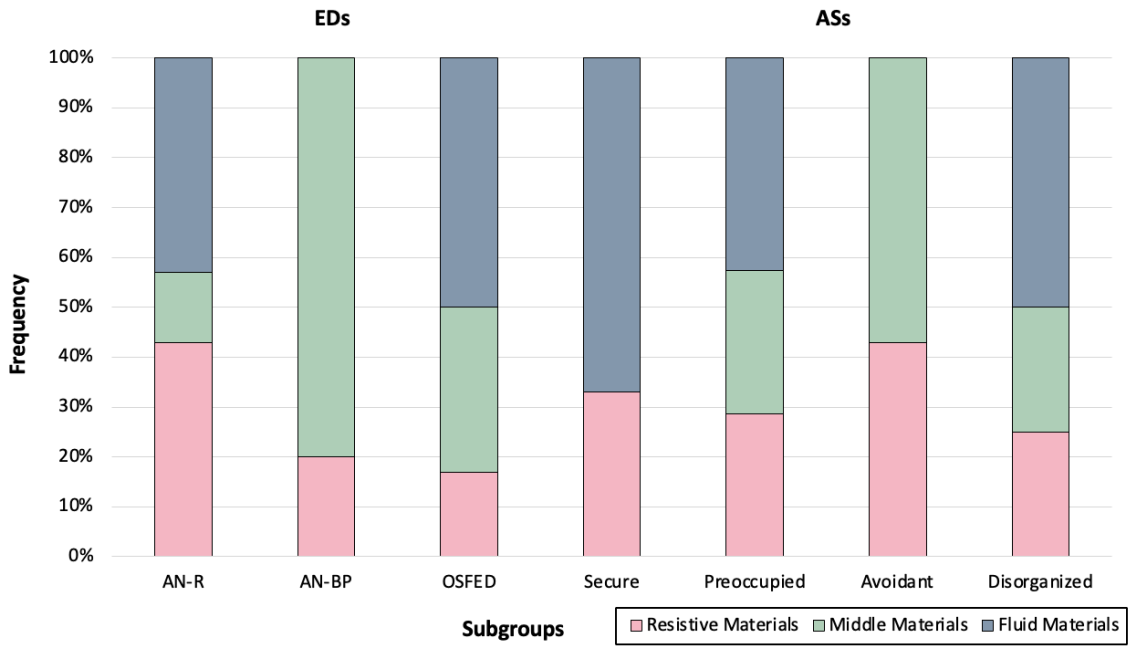
Across the 7 weeks of data collection and during their first 3 weeks of attendance, participants with AN-R selected both resistive and fluid materials 43% of the time. This was more frequent than their selection of middle materials. Participants with AN-BP did not select any fluid materials. Instead, they selected middle materials 80% of the time, which was way more frequent than selecting resistive materials. Participants with OSFED selected materials more evenly, with a slightly higher frequency of 50% for fluid materials. They selected middle materials 33% of the time and resistive materials the last.

As for ASs, participants with secure attachment did not select middle materials but selected fluid materials 67% of the time, which was slightly more frequent than their selection of resistive materials. Participants with preoccupied attachment selected fluid materials slightly more often at 43% and the others were the same. Participants with avoidant attachment did not select fluid materials at all. They selected middle materials 57% of the time. Participants with disorganized attachment selected materials in a similar frequency as the preoccupied subgroup. They selected fluid materials 50% of the time and the rest were

the same. Figure 2 presents a stacked bar chart that captured the relationship between EDs, ASs, and participants' propensity for selecting art materials.

Figure 2

EDs, ASs, and Propensity for Selecting Art Materials



Tendency to Try Unfamiliar Materials

Due to the small sample size, the treatment setting, and some missing data in participants' response, some standard deviation scores could not be calculated. Based on the data collected from a 5-point Likert scale, participants with AN-R expressed being more familiar with middle materials (M = 5.00) than with resistive (M = 2.70, SD = 1.10) and fluid materials (M = 3.00, SD = .89). Participants with AN-BP reported similar familiarity as well, with a mean of 4.00 for middle materials (SD = 1.15) and 2.00 for resistive materials. Participants with OSFED also reported being most familiar with middle materials (M = 5.00,

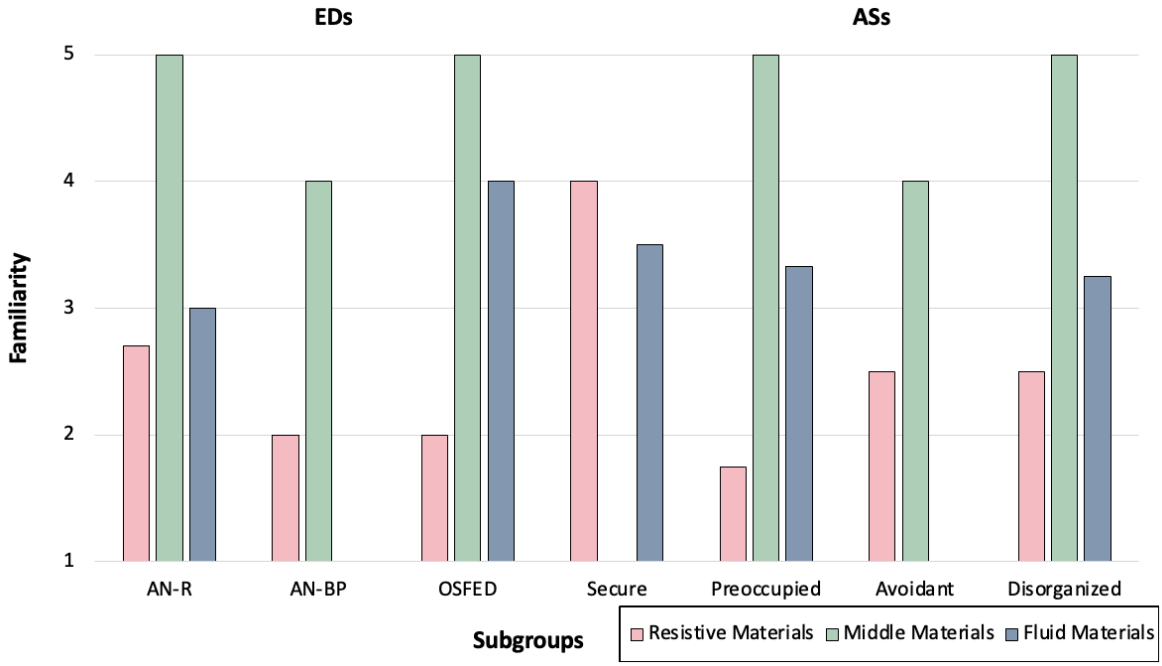
SD = .00). They rated a mean of 4.00 for fluid materials (*SD* = 1.00) and 2.00 for resistive materials.

As for ASs, participants with secure attachment expressed similar familiarity with resistive (*M* = 4.00) and fluid materials (*M* = 3.50, *SD* = .71). They did not select middle materials during this study. Participants with preoccupied attachment reported being most familiar with middle materials (*M* = 5.00), followed by fluid materials (*M* = 3.33, *SD* = .58) and finally resistive materials (*M* = 1.75, *SD* = 1.06). Participants with avoidant attachment rated being more familiar with middle materials (*M* = 4.00, S*D* = 1.15) and less familiar with resistive materials (*M* = 2.50, *SD* = .71). Finally, participants with disorganized attachment expressed similar familiarity as the preoccupied subgroup. They were more familiar with middle materials (*M* = 5.00, *SD* = .00) than fluid (*M* = 3.25, *SD* = 1.50) and resistive materials (*M* = 2.50, *SD* = .71).

In general, most participants expressed being more familiar with middle materials. When comparing resistive materials to fluid materials, participants tended to report a higher familiarity with the latter. That being said, both the AN-BP and avoidant attachment subgroup didn't select fluid materials at all during the time this research was conducted. Figure 3 presents a stacked bar graph for the relationship between EDs, ASs, and participants' familiarity with art materials.

Figure 3

EDs, ASs, and Familiarity With Art Materials



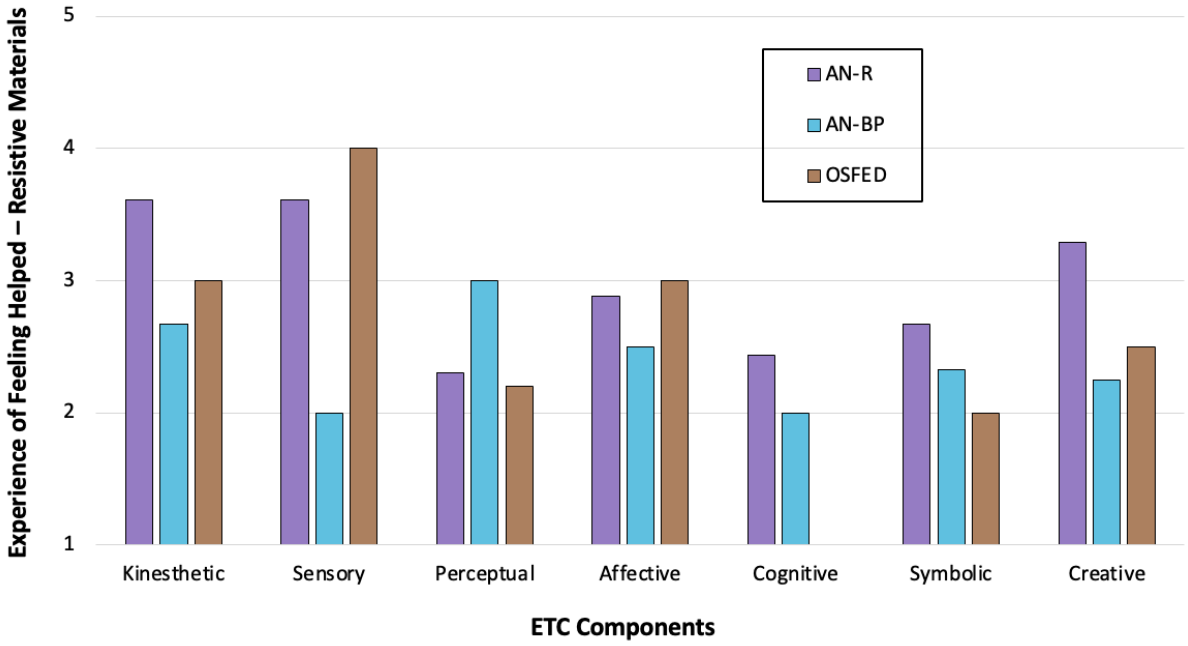
The Use of the ETC Components

Participants rated how much the material had helped them experience ETC components in a 5-point Likert scale, where 1 indicated not at all and 5 represented extremely. When working with resistive materials, participants with AN-R reported experiencing kinesthetic (M = 3.61, SD = 1.14) and sensory (M = 3.61, SD = 1.20) components the most, followed by creative (M = 3.29, SD = 1.27), affective (M = 2.88, SD = 1.15), symbolic (M = 2.67, SD = 1.41), cognitive (M = 2.44, SD =.98), and finally perceptual (M = 2.30, SD = .99). Participants with AN-BP, while mostly giving lower ratings when using resistive materials, experienced the perceptual component the most (M = 3.00, SD = 1.00). Their ratings for other components demonstrated few differences, including kinesthetic (M = 2.67, SD = .58), affective (M = 2.50, SD = 1.00), symbolic (M = 2.33, SD = .58), creative (M = 2.25, SD = .50), sensory (M = 2.00, SD = 1.00), and cognitive (M = 2.00, SD

= .00). Participants with OSFED rated their experiences in a wider range compared with the other ED subgroups. Resistive materials helped them experience sensory component the most (M = 4.00, SD = 1.00), followed by kinesthetic (M = 3.00, SD = 1.00), affective (M = 3.00, SD = 1.83), creative (M = 2.50, SD = 1.29), perceptual (M = 2.20, SD = .84), symbolic (M = 2.00, SD = 1.00), and finally cognitive (M = 1.00, SD = .00). Figure 4 presents ED subgroups and their uses of the ETC components with resistive materials in a multiple bar graph.

Figure 4

EDs and Uses of the ETC Components With Resistive Materials

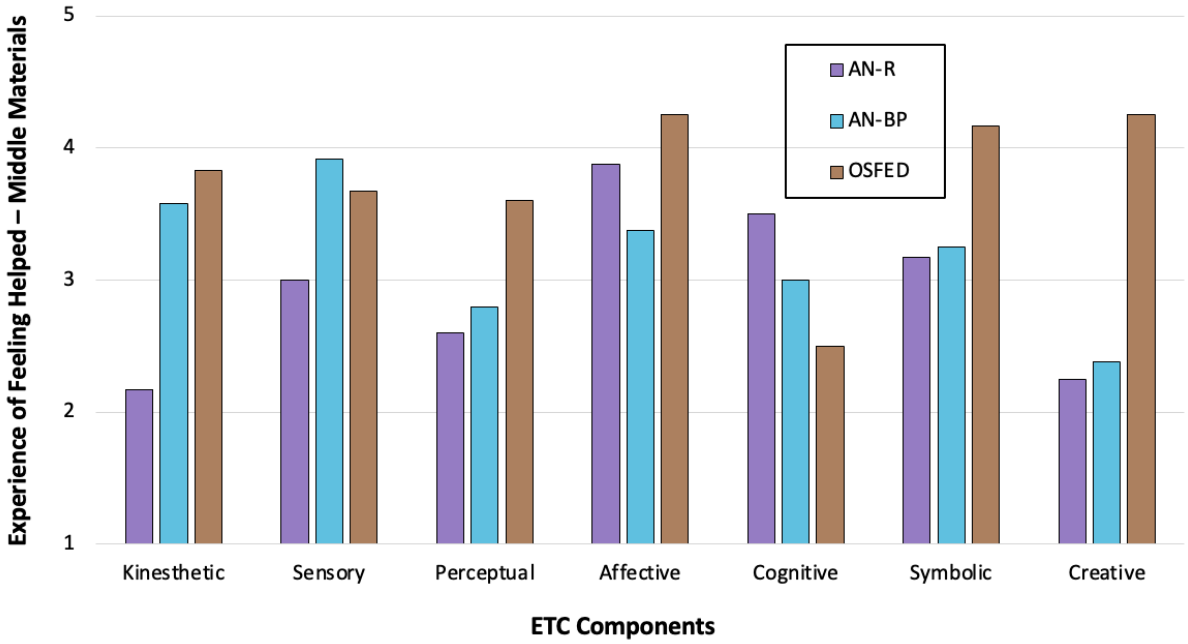


When working with middle materials, participants with AN-R experienced the affective component the most (M = 3.88, SD = 1.13), followed by cognitive (M = 3.50, SD = 1.22), symbolic (M = 3.17, SD = 1.72), sensory (M = 3.00, SD = .89), perceptual (M = 2.60, SD = 1.51), creative (M = 2.25, SD = 1.49), and finally kinesthetic (M = 2.17, SD = .98). Participants with AN-BP reported their sensory (M = 3.92, SD = 1.24) experience was helped

by middle materials more than kinesthetic (*M* = 3.58, *SD* = 1.00), affective (*M* = 3.38, *SD* = 1.67), symbolic (*M* = 3.25, *SD* = 1.60), cognitive (*M* = 3.00, *SD* = 1.35), perceptual (*M* = 2.80, *SD* = 1.51), and creative (*M* = 2.38, *SD* = 1.31) components. Participants with OSFED generally gave higher ratings when using middle materials. They expressed experiencing creative (*M* = 4.25, *SD* = .89) and affective (*M* = 4.25, *SD* = 1.49) component the most, followed by symbolic (*M* = 4.17, *SD* = .75), kinesthetic (*M* = 3.83, *SD* = .41), sensory (*M* = 3.67, *SD* = 1.51), perceptual (*M* = 3.60, *SD* = 1.51), and finally cognitive (*M* = 2.50, *SD* = 1.05). Figure 5 presents ED subgroups and their uses of the ETC components with middle materials in a multiple bar graph.

Figure 5

EDs and Uses of the ETC Components With Middle Materials

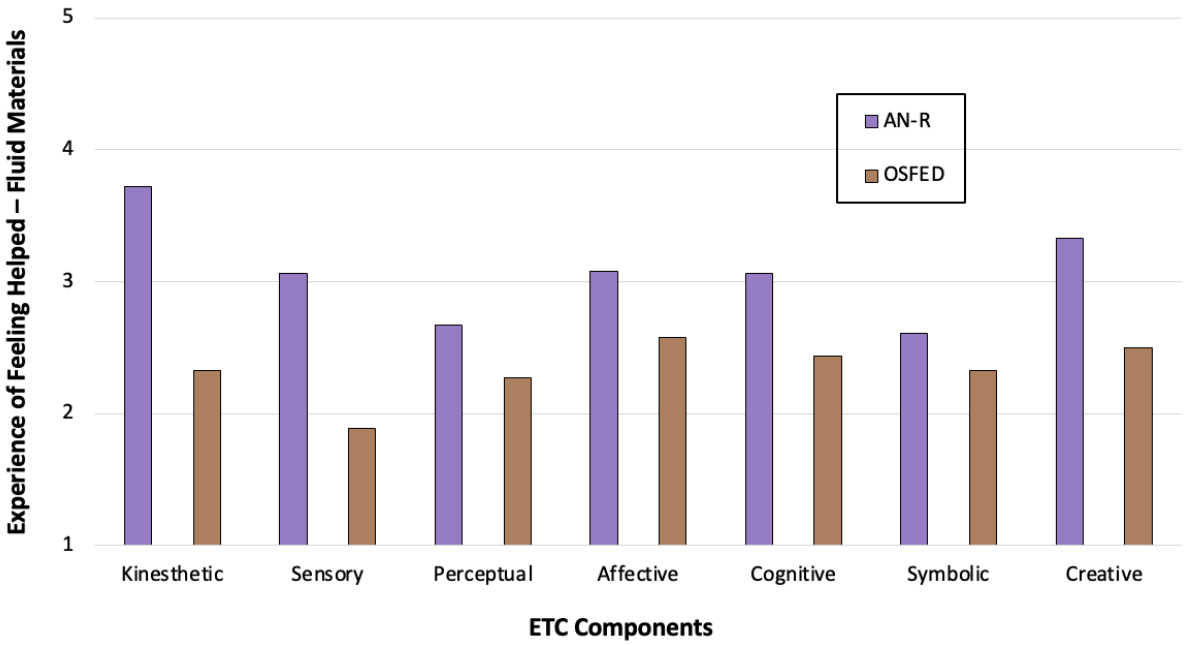


Since there were no participants with AN-BP who selected fluid materials during the time this research was conducted, their experiences with the ETC components using fluid

materials were unavailable. Nevertheless, a double bar graph was created to present the uses of the ETC components with fluid materials received from other ED subgroups (see Figure 6). Participants with AN-R reported experienced kinesthetic component the most (M = 3.71, SD = 1.02), followed by creative (M = 3.33, SD = 1.37), affective (M = 3.08, SD = 1.32), cognitive (M = 3.06, SD = .80), sensory (M = 3.06, SD = 1.26), perceptual (M = 2.67, SD = .99), and finally symbolic (M = 2.61, SD = 1.61). Participants with OSFED gave low ratings and with minor difference in how they experienced all components when working with fluid materials. The highest one was affective (M = 2.58, SD = 1.38), followed by creative (M = 2.50, SD = 1.09), cognitive (M = 2.44, SD = 1.51), kinesthetic (M = 2.33, SD = 1.00), symbolic (M = 2.33, SD = 1.50), perceptual (M = 2.27, SD = 1.33), and finally sensory (M = 1.89, SD = .93).

Figure 6

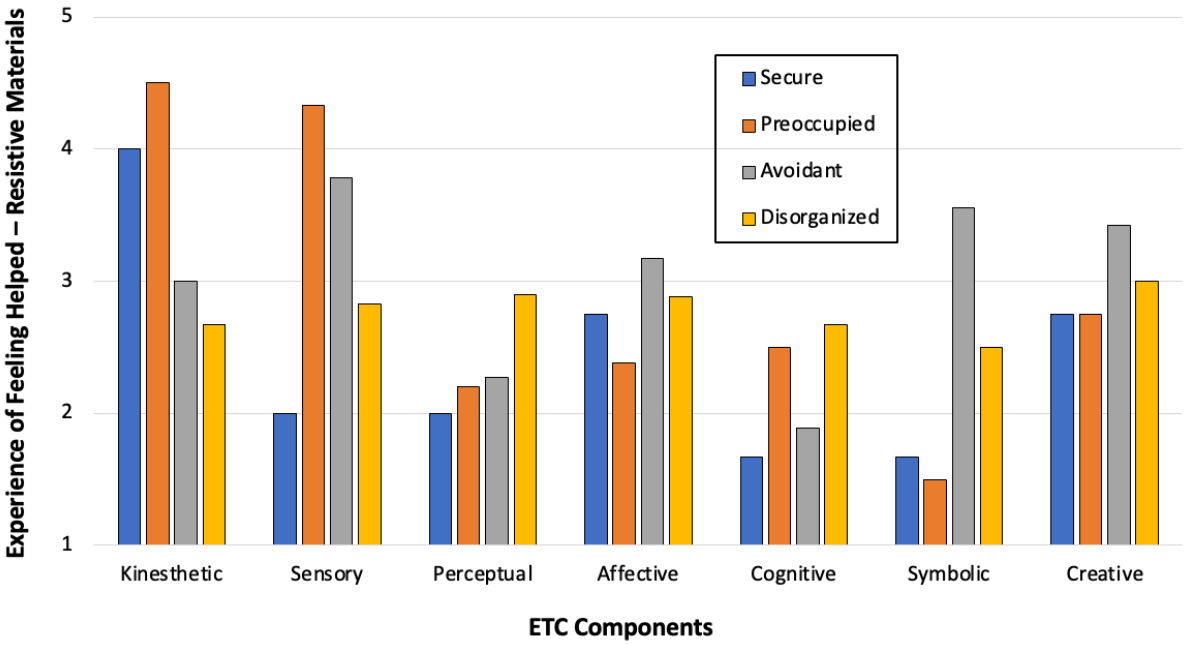
EDs and Uses of the ETC Components With Fluid Materials



As for comparing the AS subgroups, participants with secure attachment reported experiencing kinesthetic component the most when using resistive materials (M = 4.00, SD = 1.00). All the other components were rated toward the lower end, including affective (M = 2.75, SD = .96), creative (M = 2.75, SD = 1.26), sensory (M = 2.00, SD = 1.00), perceptual (M = 2.00, SD = 1.00), cognitive (M = 1.67, SD = .58), and symbolic (M = 1.67, SD = .58). Participants with preoccupied attachment experienced kinesthetic (M = 4.5, SD = .55) and sensory (M = 4.33, SD = .82) components way more than the others, including creative (M = 2.75, SD = 1.16), cognitive (M = 2.50, SD = 1.05), affective (M = 2.38, SD = 1.19), perceptual (M = 2.20, SD = 1.23), and symbolic (M = 1.50, SD = .84). Participants with avoidant attachment experienced components on the right side of the ETC more than the ones on the left side. They rated the sensory (M = 3.78, SD = 1.09) component was helped by resistive materials the most, followed by symbolic (M = 3.56, SD = 1.33), creative (M = 3.42, SD = 1.38), affective (M = 3.17, SD = 1.40), kinesthetic (M = 3.00, SD = 1.12), perceptual, (M = 2.27, SD = .80), and finally cognitive (M = 1.89, SD = 1.05). Participants with disorganized attachment expressed minor differences in experiencing all components when working with resistive materials. They rated the highest on creative component (M = 3.00, SD = 1.20), followed by perceptual (M = 2.90, SD = .88), affective (M = 2.88, SD = .99), sensory (M = 2.83, SD = 1.17), kinesthetic (M = 2.67, SD = .52), cognitive (M =2.67, SD = .82), and finally symbolic (M = 2.50, SD = .55). Figure 7 presents AS subgroups and their uses of the ETC components with resistive materials in a multiple bar graph.

Figure 7

ASs and Uses of the ETC Components With Resistive Materials

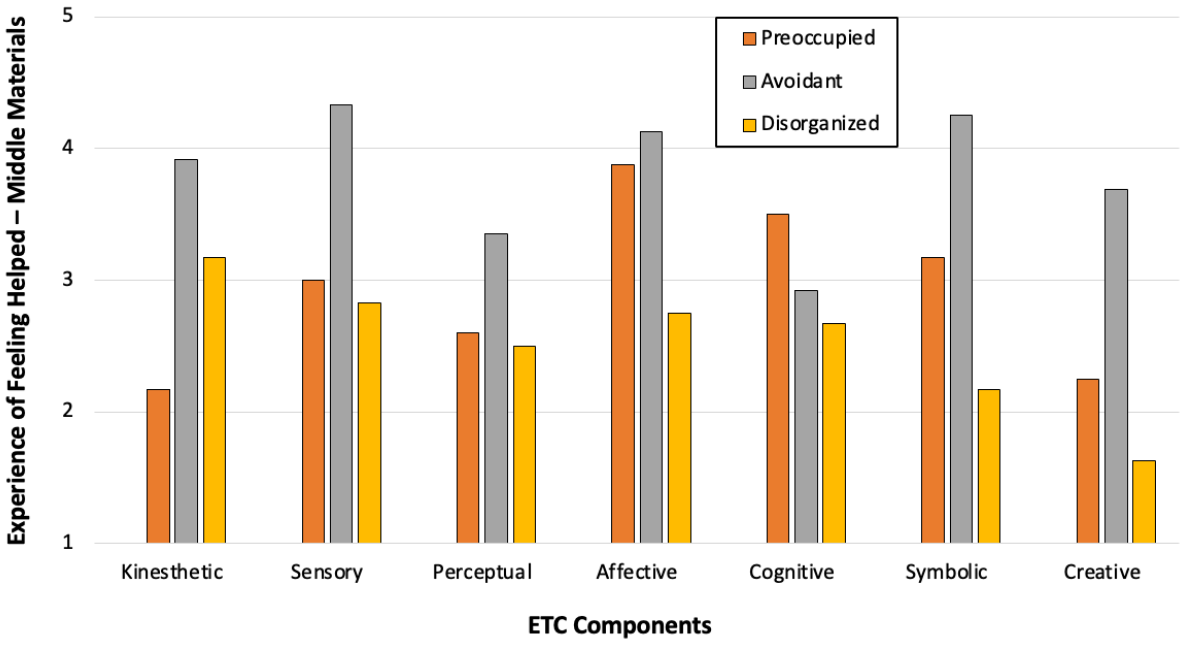


There were no participants with secure attachment who selected middle materials. However, participants with preoccupied attachment reported that their experience with affective component was helped by middle materials the most (M = 3.88, SD = 1.13). Their ratings for the other components, from high to low, were cognitive (M = 3.50, SD = 1.22), symbolic (M = 3.17, SD = 1.72), sensory (M = 3.00, SD = .89), perceptual (M = 2.60, SD = 1.51), creative (M = 2.25, SD = 1.49), and finally kinesthetic (M = 2.17, SD = .98). Participants with avoidant attachment generally gave high ratings for their experiences with middle materials. They rated the sensory component the highest, (M = 4.33, SD = 1.23), followed by symbolic (M = 4.25, SD = .97), affective (M = 4.13, SD = 1.63), kinesthetic (M = 3.92, SD = .79), creative (M = 3.69, SD = 1.30), perceptual (M =3.35, SD = 1.66), and finally cognitive (M = 2.92, SD = 1.51). This was similar to their ratings for resistive materials, characterized by components on the right side of the ETC scoring higher than the left side.

Participants with disorganized attachment also demonstrated similar ratings to their own experiences with resistive materials. Their ratings from high to low included kinesthetic (M = 3.17, SD = .75), sensory (M = 2.83, SD = .75), affective (M = 2.75, SD = 1.28), cognitive (M = 2.67, SD = .52), perceptual (M = 2.50, SD = 1.08), symbolic (M = 2.17, SD = 1.17), and finally creative (M = 1.63, SD = .52). Figure 8 presents AS subgroups and their uses of the ETC components with middle materials in a multiple bar graph.

Figure 8

ASs and Uses of the ETC Components With Middle Materials

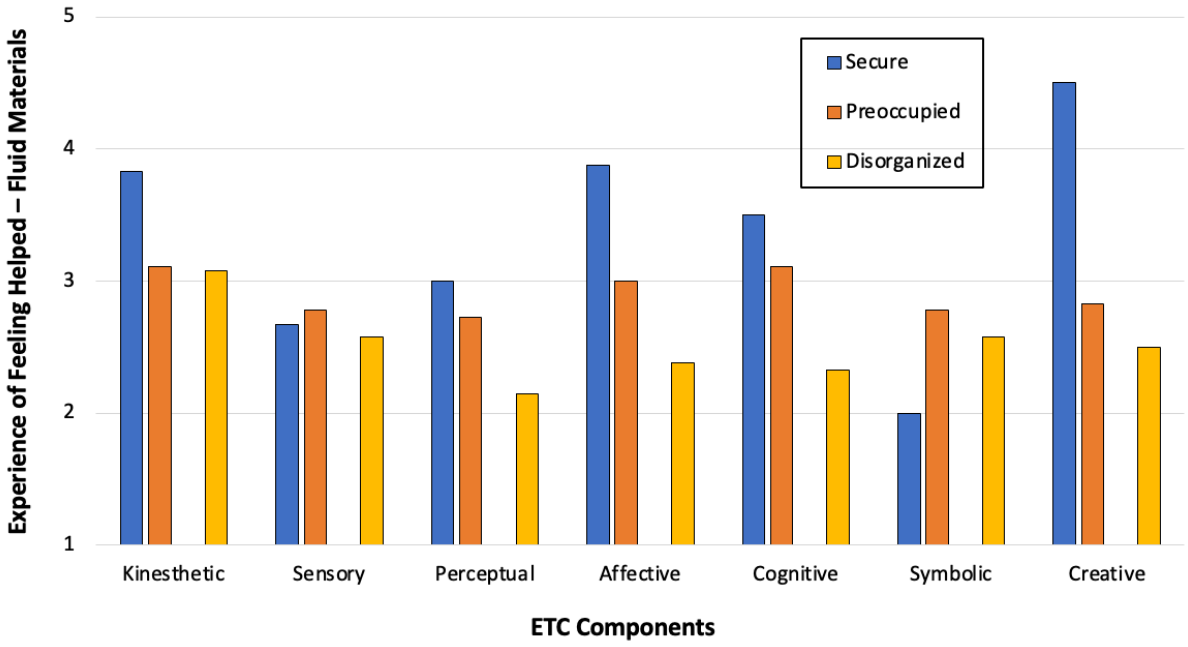


When using fluid materials, participants with secure attachment experienced the creative component the most (M = 4.50, SD = 1.07). Their other ratings, from high to low, included affective (M = 3.88, SD = 1.55), kinesthetic (M = 3.83, SD = 1.33), cognitive (M = 3.50, SD = .84), perceptual (M = 3.00, SD = 1.15), sensory (M = 2.67, SD = 1.37), and symbolic (M = 2.00, SD = 1.55). Participants with preoccupied attachment reported minor

differences among all components. They reported that the kinesthetic (*M* = 3.11, *SD* = 1.05) and cognitive (*M* = 3.11, *SD* = 1.17) components were helped by fluid materials the most, followed by affective (*M* = 3.00, *SD* = 1.04), creative (*M* = 2.83, *SD* = .83), sensory (*M* = 2.78, *SD* = 1.20), symbolic (*M* = 2.78, *SD* = 1.39), and finally perceptual (*M* = 2.73, *SD* = 1.03) components. Data for participants with avoidant were unobtained since they did not select fluid materials when this research was conducted. Participants with disorganized attachment expressed experiencing the kinesthetic component the most with fluid materials (M = 3.08, SD = 1.24). Their rating for the other components, like their ratings when working with resistive and/or middle materials, showed trivial differences. These included sensory (M = 2.58, SD = 1.38), symbolic (M = 2.58, SD = 1.73), creative (M = 2.50, SD = 1.26), affective (M = 2.38, SD = 1.20), cognitive (M = 2.33, SD = .98), and perceptual (M = 2.15, SD = 1.09) components. Figure 9 presents AS subgroups and their uses of the ETC components with fluid materials in a multiple bar graph.

Figure 9

ASs and Uses of the ETC Components With Fluid Materials



Congruence Between Self-reports and Clinical Observations

Therapist's Quantitative Ratings

There was one occasion when a participant worked on multiple tasks in a single group session. The selected art material they reported on the client questionnaire did not match the material they were using when the therapist was observing. Therefore, I excluded the ETC assessment tool for this interaction in the analysis. For media properties, the therapist rated fluid materials with the highest fluidity (M = 3.63, SD = 1.06). However, middle materials (M = 1.63, SD = .74) and resistive materials (M = 1.67, SD = 1.00) were rated only with slight differences. This means that the therapist's understanding of media properties was not exactly in line with the theory. However, most of the discrepancies came from clay and markers where the physical characteristics were a little vague and the classification could be controversial.

When using resistive materials, participants with OSFED were observed selecting a larger paper/sculpture size to begin with (M = 4.00) yet were also the most constricted when it came to the amount of medium used (M = 1.00). Participants with AN-BP were noted as being expansive with materials (M = 3.00) and had the most excited energy in the creative process (M = 5.00). They also demonstrated risk taking by experimenting freely (M = 3.00) while the other two subgroups tended to stick to the familiar. There were little differences in other aspects. Table 3 summarizes the therapist's observations for ED subgroups when using resistive materials. Since all items were designed to be rated with different numbers of options, I provided percentages to help explain/compare the magnitude of these interactions. Generally, lower numbers indicate more constricted presentations whereas higher numbers represent more expansive presentations (see Appendix B).

Table 3

Therapist's Observations for ED subgroups (Resistive Materials)

	AN-R		AN-BP		OSFED	
	M	%	*M*	%	*M*	%
Interaction with medium	2.33	33.25	3.00	50.00	2.00	25.00
Paper or sculpture size	2.33	33.25	2.00	25.00	4.00	75.00
Amount of medium used	2.00	50.00	3.00	100.00	1.00	0.00
Respect of time limits	2.00	50.00	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	2.00	50.00	2.00	50.00
Response to directions and instructions	1.83	41.50	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	2.50	50.00	2.00	33.33	2.00	33.33
Risk taking	1.17	8.50	3.00	100.00	1.00	0.00
Level of energy	3.83	70.75	5.00	100.00	3.00	50.00

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

When using middle materials, differences among all ED subgroups were little. However, participants with OSFED still appeared to work on a slightly bigger scale (*M* = 2.50) than the others. They also had a higher energy level as noted for being more engaged (*M* = 4.00). Participants with AN-R interacted with middle materials in a resistive way (*M* = 1.00), used a constricted amount of medium (*M* = 1.00), were more likely to give up in the process (*M* = 1.50), and had the lowest energy level (*M* = 3.00) compared to the other subgroups. Table 4 summarizes the therapist's observations for ED subgroups when using middle materials.

Table 4

Therapist's Observations for ED subgroups (Middle Materials)

	AN-R		AN-BP		OSFED	
	M	%	*M*	%	*M*	%
Interaction with medium	1.00	0.00	2.00	25.00	2.00	25.00
Paper or sculpture size	2.00	25.00	1.75	18.75	2.50	37.50
Amount of medium used	1.00	0.00	1.75	37.50	2.00	50.00
Respect of time limits	2.00	50.00	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	1.75	37.50	2.00	50.00
Response to directions and instructions	2.00	50.00	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	1.50	16.67	2.25	41.67	2.00	33.33
Risk taking	1.50	25.00	1.50	25.00	1.00	0.00
Level of energy	3.00	50.00	3.50	62.50	4.00	75.00

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

No participants with AN-BP selected fluid materials. Among the other two ED subgroups, participants with OSFED interacted with medium in a slightly more fluid way (*M* = 3.33). Participants with AN-R were observed to stick to familiar in the creative process (*M*

= 1.20). Table 5 summarizes the therapist's observations for ED subgroups when using fluid materials.

Table 5

Therapist's Observations for ED subgroups (Fluid Materials)

	AN-R		OSFED	
	M	%	*M*	%
Interaction with medium	2.00	25.00	3.33	58.25
Paper or sculpture size	2.20	30.00	2.67	41.75
Amount of medium used	2.00	50.00	2.33	66.50
Respect of time limits	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	2.00	50.00
Response to directions and instructions	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	2.40	46.67	2.33	44.33
Risk taking	1.20	10.00	2.00	50.00
Level of energy	3.60	65.00	3.33	58.25

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

When comparing AS subgroups' interactions with resistive materials, participants with secure attachment (*M* = 3.00) and participants with disorganized attachment (*M* = 3.00) were noted as being more expansive in terms of the amount of medium used. The avoidant subgroup was the most constricted in this regard (*M* = 1.33) and had the lowest energy in the creative process (*M* = 3.33). While most subgroups stick to familiar, participants with disorganized attachment demonstrated more risk-taking behaviors by trying out new things (*M* = 2.50). They also had the highest energy level (*M* = 4.50). Table 6 summarizes the therapist's observations for AS subgroups when using resistive materials.

Table 6

Therapist's Observations for AS subgroups (Resistive Materials)

	Secure		Preoccupied		Avoidant		Disorganized	
	M	%	*M*	%	*M*	%	*M*	%
Interaction with medium	2.00	25.00	2.50	37.50	2.33	33.25	2.50	37.50
Paper or sculpture size	2.00	25.00	2.50	37.50	2.67	41.75	2.50	37.50
Amount of medium used	3.00	100.00	1.50	25.00	1.33	16.50	3.00	100.00
Respect of time limits	2.00	50.00	2.00	50.00	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	2.00	50.00	2.00	50.00	2.00	50.00
Response to directions and instructions	2.00	50.00	1.50	25.00	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	3.00	66.67	2.50	50.00	2.00	33.33	2.50	50.00
Risk taking	1.00	0.00	1.00	0.00	1.00	0.00	2.50	75.00
Level of energy	4.00	75.00	4.00	75.00	3.33	58.25	4.50	87.50

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

No participants with secure attachment selected middle materials and the insecure attachment subgroups featured little differences in this media property category. All of them interacted with medium resistively, yet participants with avoidant attachment seemed to be the least extreme ($M = 2.25$) and appeared to be more engaged in the process ($M = 4.00$). Participants with disorganized attachment were noted working on a smaller scale ($M = 1.50$) than the other two insecure attachment subgroups. Compared to the others, participants with preoccupied attachment used the most constricted amount of medium ($M = 1.00$) and were more likely to give up in the creative process ($M = 1.50$). Table 7 summarizes the therapist's observations for AS subgroups when using middle materials.

Table 7

Therapist's Observations for AS subgroups (Middle Materials)

	Preoccupied		Avoidant		Disorganized	
	M	%	*M*	%	*M*	%
Interaction with medium	1.00	0.00	2.25	31.25	1.50	12.50
Paper or sculpture size	2.00	25.00	2.25	31.25	1.50	12.50
Amount of medium used	1.00	0.00	2.00	50.00	1.50	25.00
Respect of time limits	2.00	50.00	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	2.00	50.00	1.50	25.00
Response to directions and instructions	2.00	50.00	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	1.50	16.67	2.25	41.67	2.00	33.33
Risk taking	1.50	25.00	1.50	25.00	1.00	0.00
Level of energy	3.00	50.00	4.00	75.00	3.00	50.00

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

No participants with avoidant attachment selected fluid materials. Little differences were observed among the other AS subgroups in this media property category. However, participants with secure attachment appeared to interact with medium in a slightly more fluid way ($M = 3.00$) compared to the other two subgroups. Participants with disorganized attachment had a marginally higher energy level ($M = 3.75$). All of them were noted as sticking to familiar in the creative process, with the preoccupied subgroup being the least extreme ($M = 1.67$). Table 8 summarizes the therapist's observations for AS subgroups when using fluid materials.

Table 8

Therapist's Observations for AS subgroups (Fluid Materials)

	Secure		Preoccupied		Disorganized	
	M	%	*M*	%	*M*	%
Interaction with medium	3.00	50.00	2.67	41.75	2.25	31.25
Paper or sculpture size	2.00	25.00	2.33	33.25	2.50	37.50
Amount of medium used	2.00	50.00	2.00	50.00	2.25	62.50
Respect of time limits	2.00	50.00	2.00	50.00	2.00	50.00
Response to limits of creative process	2.00	50.00	2.00	50.00	2.00	50.00
Response to directions and instructions	2.00	50.00	2.00	50.00	2.00	50.00
Commitment and frustration tolerance	2.00	33.33	2.33	44.33	2.50	50.00
Risk taking	1.00	0.00	1.67	33.50	1.50	25.00
Level of energy	3.00	50.00	3.33	58.25	3.75	68.75

Note. Interaction with medium, paper or sculpture size, and level of energy were rated in a 5-point Likert scale. Commitment and frustration tolerance was rated in a 4-point Likert scale. The rest of the items were rated in a 3-point Likert scale.

ETC Level

Participants with AN-R were noted using kinesthetic (30.77%) or perceptual (23.08%) components to process information more, especially when using resistive materials (83.33%). However, when using fluid materials, they demonstrated some creative functioning (40.00%). Due to missing data, participants with AN-BP were only rated for their ETC level when using middle materials. The therapist marked most of them as using kinesthetic (25.00%) or perceptual (50.00%) functioning, and sometimes even fixated/overused those components (50.00%). One participant with AN-BP was noted for using symbolic component (25.00%). The therapist also identified that participants with OSFED were mostly functioning at the first two levels of the ETC (83.33%) and used kinesthetic (33.33%) or perceptual (33.33%) components the most. They were noticed using

the creative component (16.67%) when working with middle materials and moved to affective (16.67%) when using fluid materials.

The therapist observed participants with secure attachment using the symbolic component (100.00%) with resistive materials and creative component (100.00%) with fluid materials. Participants with preoccupied attachment were mostly functioning at the first two levels of the ETC (85.71%), and seemed to especially rely on the kinesthetic component (42.86%). They were marked as using affective (33.33%) and creative (33.33%) modes of information processing when using fluid materials. Participants with avoidant attachment were all observed using the perceptual component (100.00%) to process information when using resistive materials. However, they demonstrated symbolic (25.00%), creative (25.00%), and even fixated on kinesthetic (25.00%) component when using middle materials. Participants with disorganized attachment seemed to rely heavily (85.71%) and even fixated (42.86%) on the left side of the ETC. It appeared that the fluidity of the materials helped them access to the next level above. Although one participant was marked as using affective component (25.00%) with fluid materials, it was documented that the therapist prompted them to use art "to express and identify emotion."

Therapist's Qualitative Comments

The following themes were present in the therapist's free notes when observing participants' use of art materials: tools, space usage, marks/stokes, movements, attention, the content of art, and body postures.

Tools. A stencil, a ruler, and reference pictures were noted in the therapist's observations. No participants with AN-BP or disorganized attachment used tools to assist their creative process when this research was being conducted. Participants with AN-R

appeared to use tools more directly on the page while participants with OSFED used it as a reference. For a participant with AN-R and preoccupied attachment, the therapist documented “struggles with free-hand because of ‘imperfections.’"

Space Usage. Aside from the sizes of paper, the therapist noticed how much space participants utilized on the paper. Participants with secure or disorganized attachment were noted to “fill/cover the page entirely” while participants with preoccupied or avoidant attachment “did not use most of canvas” and “uses small portion of space available.” The data did not show a clear difference between ED subgroups for their space usage.

Marks/stokes. Participants with AN-R were observed making small marks in their artwork. The therapist described them “making fine detail additions,” “makes small marks on paper,” “using tiny brush,” and “painting small, perfectly straight lines.” On the contrary, participants with OSFED were noted as “fully engaged in large stokes.” No observation of marks for participants with AN-BP were highlighted. When comparing ASs, the observations of small marks were almost all concentrated in the preoccupied attachment subgroup. Participants with disorganized attachment engaged in both small lines and large strokes.

Movements. All ED and insecure attachment subgroups were observed demonstrating “very precise movements.” A participant with AN-BP and avoidant attachment also made “large sweeping movements.” No movements for participants with secure attachment were documented. Participants with disorganized attachment exhibited various movements, such as “rigid movements (pressing hard on clay, forcing it to be exactly how she wants),” “wide motions with arms, pressing very hard, moving hand very quickly,” “slow movements,” and “controlled and precise movements.”

Attention. While most participants were noted as "fully engaged" in the creative process, some were observed "staring into space," which the therapist explained as "brain fog… indicative of malnourishment." No clear pattern emerged when comparing ED subgroups. Participants with secure attachment were "very involved in mixing colors." Participants with preoccupied attachment demonstrated fluctuation of attention. The therapist noted "stared at blank page for a few minutes before starting," "oscillates between engaged and staring at the page without making marks," and "fully engaged in art making process; disregard for time limits of clean up." Participants with avoidant attachment appeared to focus on the preparation of art making more than the creative process itself, as evidenced by notes such as "invested in placing natural materials on paper" and "spent most of time looking through magazines for images." Participants with disorganized attachment seemed to need the most help from the therapist. The therapist noticed them verbalizing "I don't know what to do" and observed them to "not engage with materials until 30 minutes had passed, asked therapist to repeat instructions for survey multiple times."

The Content of Art. Two participants with AN-R were noted for their content of art. One of them with secure attachment was described "drawing the same shape over and over" while the other with avoidant attachment drew "figures who are voicing body image concerns ('I feel bloated;' 'oh my God make it stop.')."

Body Postures. Two participants were noted for their body postures. A participant with AN-R and disorganized attachment was described as "brows furrowed; posture hunched." The other participant was from the OSFED and avoidant attachment subgroup, "focused with face extremely close to page (about 2 in. from paper)."

Summary

Most research participants were identified as having insecure attachment by their primary therapist. The majority reported being most familiar with middle materials and least familiar with resistive materials, with some unknown due to missing data. That being said, participants demonstrated separate frequencies of selecting materials. Reportedly, each subgroup also used/experienced art materials differently.

CHAPTER V

DISCUSSION

This mixed-method research study intended to explore the relationship between EDs, ASs, and the use of art materials. I focused on the correlation between EDs and ASs, participants' propensity to for selecting art materials, tendency to try unfamiliar materials, the use of ETC components, and the congruence between self-report and the therapist's observations. Research participants included 13 adults receiving residential eating disorder treatment in Midwestern United States.

Correlation Between ED Diagnoses and Attachment Styles

To answer the first research question, I reviewed the patient charts for participants' ED diagnosis and discussed with their individual therapist to identify their AS. The sample size was too small to suggest, if any, evidence of an AS's correlation with an ED diagnosis, neither did it show a remarkable prevalence of a specific AS in the ED population. However, 85% of the participants were identified as having insecure attachment by their therapist. This result was in line with the conclusion of most literature (Gander et al., 2015; Jewell et al., 2023; Ramacciotti et al., 2001; Zachrisson & Skårderud, 2010). Two out of 13 participants were classified as having secure attachment which Cole-Detke and Kobak (1996) discussed as having "earned security" as a potential explanation. Earned security defines the process by which people with insecure attachment develop a secure state of mind later in life (Roisman et al., 2002; Saunders et al., 2011).

Participants' Use of Art Materials

To answer the second research question, surveys were utilized to collect data from both participants and the art therapist who was the leader of the art therapy group. For the

purpose of data analysis, art materials were put into resistive, middle, and fluid categories based on their properties.

ED Subgroups

Participants with AN-R selected resistive and fluid materials more frequently while they reported being most familiar with middle materials. When looking at the frequency of choosing art materials, unlike the past literature (Diamond-Raab & Orrell-Valente, 2002; Garcia, 2008; Makin, 2000), I did not find a distinct preference for controlled materials. However, when looking at the ways these art materials were being used, participants were generally noted to interact with materials resistively and to stick to the familiar during the creative process, which were highlighted in previous studies (Betts, 2008; Diamond-Raab & Orrell-Valente, 2002; Makin, 2000; Matto, 1997; Schaverien, 1994). These results stressed that not only what participants chose to use, but also how they used it could reflect their specific needs. In fact, the therapist quoted a participant with AN-R stating "I feel like I am not making any progress" while noting the following: "using a ruler for making lines. Struggle with free hand because of 'imperfections.'" Even though the participant was using middle materials instead of the resistive ones, their ways of doing art told a story of their pursuit of control.

On the same note, compared to other media property categories, participants with AN-R used the most constricted amount of middle materials, were most likely to give up in the process, and had the lowest energy level. This limitation in media use was also reported by Beck (2007) and Makin (2000) and hesitation in art making process by Levens (1990) and Schaverien (1994). The therapist also documented their use of tiny brushes, making fine details, and creating small marks, also noted by Beck (2007), Makin (2000), and Schaverien

(1994). Although some researchers suggested little use of space (Diamond-Raab & Orrell-Valente, 2002) and small paper sizes (Beck, 2007; Makin, 2000), no significant differences between participants with AN-R and other ED subgroups were observed.

Participants with AN-BP did not select fluid materials throughout the time this research was conducted. They chose middle materials more frequently and reported to be more familiar with them as well. The way they used art materials seemed to depend on the properties of media. With middle materials, participants with AN-BP used less than average amount of medium, barely tried new things, and had lower energy level. On the contrary, when using resistive materials, they were observed to be expansive with the amount of medium used, experimented freely in the creative process, and had excited energies. Participants with AN-BP were the only ED subgroups that did not use any tools to support their art making processes. They demonstrated both controlled/precise movements as well as large sweeping movements. Some of these results were parallel to researchers' descriptions of art making processes of people with AN and/or BN (Beck, 2007; Betts, 2008; Diamond-Raab & Orrell-Valente, 2002; Johnson & Parkinson, 1999; Makin, 2000). Nonetheless, they displayed some distinct characteristics that appeared to reflect a combination of both. There were not many articles specifically discussing people with AN-BP and their use of art materials. Acharya et al. (1995) found them using larger paper sizes and filling the page entirely, yet this study did not reach these conclusions.

Previous studies rarely discussed how individuals with OSFED utilized art materials (Beck, 2007). This research found participants with OSFED rating resistive materials as unknown and selecting them least often. They were noted to have the most engaged energy with middle materials with which they reported being most familiar. Participants with

OSFED selected fluid materials half of the time in the group and tried something new with them. Compared to the other ED subgroups, participants with OSFED seemed to create their artwork on a bigger scale. This was especially true when they were using resistive materials, although they were observed to use constricted amounts of media at the same time. They were also noted to be fully engaged with large strokes during the creative process.

Attachment Style Subgroups

Participants with secure attachment did not select middle materials when this research was conducted. They expressed as much familiarity with the other two media property categories and selected fluid materials more often. As fluid materials are likely to elicit emotional responses (Hinz, 2020), this tendency appeared to support literature regarding their comfortability of accessing emotional experiences and exploring art materials (Haeyen & Hinz, 2020). During the creative process, participants with secure attachment were observed to stick to the familiar. They also used expansive amounts of resistive materials. The therapist noted them drawing the same shape over and over, filling the page entirely, and getting involved in mixing colors. The engagement in the sensual aspects of art materials seemed to align with past studies (Haeyen & Hinz, 2020).

Participants with preoccupied attachment selected fluid materials slightly more often than the other media property categories. In their interactions with middle materials with which they were most familiar, participants were observed using constricted amounts of medium, more likely to give up, and using them in resistive ways. Participants with preoccupied attachment rated resistive materials toward the unknown end and were observed sticking to the familiar in the process of using them. They were observed using a small portion of space available on paper, using tiny brushes, making small marks and fine details.

These results aligned with previous findings of little exploration of art materials and decreased use of space (Haeyen & Hinz, 2020). The therapist also noted a fluctuation of attention during creative processes. Although Cormier (1999) suggested that people with preoccupied attachment demonstrated aggression with art materials, this research did not find supportive evidence.

Participants with avoidant attachment did not select fluid materials when this research was conducted. This appeared to be in line with researchers' finding of their negative feelings about fluid materials (Snir et al., 2017). They selected middle materials a little more often than resistive ones and reported to be more familiar with them too. When using middle materials, they appeared to be engaged and used them in slightly more fluid ways than the other AS subgroups. As for resistive materials, they were observed using constricted amounts of medium and sticking to the familiar in the process. They did not use most of the space and seemed to focus on the preparation of art making. These results could be interpreted as an avoidance of in-depth exploration (Haeyen & Hinz, 2020).

Participants with disorganized attachment selected fluid materials half of the time in the group. When using middle materials with which they reported to be the most familiar, they were noted to stick to the familiar in the process and worked on a smaller scale. When using resistive materials, they were observed to be the most expansive with the amount of medium used (Haeyen & Hinz, 2020), have the highest energy level (Duncan, 2019), and took risks to experiment with new things in the process. The therapist observed them covering the page entirely, painting small lines, and engaged in large strokes. They also demonstrated various movements, such as pressing hard, using wide motions with arms, moving the hand very quickly, slow movements, and controlled/precise movements. These

results were in line with literature that highlighted sensory experience (Duncan, 2019; Haeyen & Hinz, 2020; O'Brien, 2004) and presenting with inconsistent/conflicting behaviors (Haeyen & Hinz, 2020). Participants with disorganized attachment also appeared to request more help from the therapist than other subgroups. Haeyen and Hinz (2020) discussed the conflicting expectations individuals with disorganized attachment have regarding the therapist's availability.

In conclusion, the preoccupied and disorganized subgroups were found to select a wider range of art materials during the period this research was conducted, whereas the AN-BP and avoidant subgroups had clearer propensities for their media of choice. When Snir et al. (2017) found limited correlations between preoccupied attachment and the responses to art materials, they further discussed how it could be a reflection of the ambivalence in these individuals' relationships. After comparing the frequencies and familiarities of participants' materials of choice, I found that participants with AN-R selected unfamiliar materials more often than the other ED subgroups. That being said, the previously mentioned example of how participants with AN-R demonstrated a resistive use of middle materials suggests that one could not interpret these results without considering the whole picture, such as how the materials were being used. Therapists would also need to take the entire process into account and avoid making assumptions to understand clients' underlying needs.

Congruence Between Self-Reports and Clinical Observations

To answer the third research question, I compared participants' self-report of the level to which art materials helped them access ETC components with the therapist's observations of participants' information processing.

ED Subgroups

There was a limited amount of literature that discussed how people with an ED used art materials from the perspective of the ETC. Scholars theorized a lack of symbolic functioning in the population and proposed that using art materials instead of food to express experience as a start to form this ability (Levens, 1990; Schaverien, 1994). This research revealed that both participants with AN-BP and the therapist found that middle materials helped with kinesthetic and symbolic components. In fact, according to participants, only perceptual and creative components were not helped by these interactions as much. However, these participants also reported that resistive materials barely helped any mode of information processing.

Both participants with AN-R and the therapist expressed that the kinesthetic component was helped by resistive materials. The same congruence could be seen with fluid materials, as kinesthetic, creative, cognitive, and affective components were all reported and observed to be helpful. However, a disconnection emerged since none of the components that were self-reported to be more than moderately helped by middle materials, including affective, cognitive, and symbolic, were spotted by the therapist. Instead, the therapist noted their perceptual and sensory functioning.

Participants with OSFED barely got any help from fluid materials. However, the affective component was rated the highest, which was observed by the therapist as well. Reportedly, middle materials helped them with all the components. The therapist observed their creative function during these processes. Participants with OSFED reported that resistive materials helped them with the sensory component quite a bit while the therapist observed perceptual functioning.

There were some incongruences between clinical observations and participants' self-report, which highlighted the importance of both asking/listening to clients' views and discussing the mismatch of their internal experiences and external presentations. This is not to suggest that therapists' observations must always be consistent with clients' subjective experiences, as challenging clients' unconscious behaviors has its own therapeutic value, but that therapists need to keep an open mind and recognize that their observations may be different from clients' internal processes. Such discrepancies are fodder for the clinical mill.

Attachment Style Subgroups

Participants with secure attachment reported that resistive materials helped them experience the kinesthetic component. The therapist did not spot this but noted their symbolic function instead. This was surprising because participants reported that resistive materials helped the symbolic component the least. Having said that, both participants and the therapist found fluid materials to be helpful for the creative component. Haeyen and Hinz (2020) theorized that people with secure attachment would demonstrate a flexible use of the all the components with an emphasis on the ones on the right side of the ETC. This was partly supported by the results of this research, especially when the affective, kinesthetic, and cognitive components were also highlighted by participants when using fluid materials. However, sensory and symbolic methods of information processing did not appear to be helped as much. A potential explanation could be the lack of symbolic functioning in the general ED population (Levens, 1990; Schaverien, 1994).

When using resistive materials, participants with preoccupied attachment appeared to stay at the kinesthetic/sensory level of the ETC. This was both reported by participants and observed by the therapist. Participants with preoccupied attachment reported that affective,

cognitive, and symbolic components were more than moderately helped by middle materials. This appeared to be contradictory to the literature discussing their underuse of the affective component (Haeyen & Hinz, 2020). The therapist did not spot any of these functions either and noted sensory and perceptual components instead. According to participants, fluid materials helped all the components to a similar extent but helped kinesthetic and cognitive components slightly more. The therapist also highlighted their kinesthetic functioning. These results could be a little counterintuitive as fluid materials were thought to evoke emotions (Hinz, 2020), which, again, reveals the significance of looking at the ways materials are used as well as clients' subjective experiences.

The therapist noted that when using resistive materials, participants with avoidant attachment demonstrated the perceptual mode of information processing. However, participants reported that sensory, symbolic, creative, and affective components were helped the most. These components were mostly on the right side of the ETC, which were emotional and spiritual (Haeyen & Hinz, 2020; Hinz, 2020). Besides the concerns of incongruences that I have previously mentioned, the results could also be reflecting potential interpretation issues. For example, the therapist noted a participant with avoidant attachment drawing "figures who are voicing body image concerns ('I feel bloated;' 'oh my God make it stop.')" while she marked the perceptual component as their major mode of information processing. The percept/form of the drawing might have helped the participant access their feelings regarding their body image and convey an emotional experience.

Similar findings emerged in the use of middle materials. Although both participants with avoidant attachment and the therapist found most ETC components were helped, the therapist did not spot sensory nor affective components while participants reported being

helped quite a bit in those areas. Additionally, researchers mentioned that people with avoidant attachment may overuse cognitive and perceptual components (Haeyen & Hinz, 2020). Nevertheless, according to participants' self-report, these were the components which resistive and middle materials helped the least. Snir et al. (2017) discussed the possible fear of emotional arousal for people with avoidant attachment. A potential explanation for this mismatch of clients' internal processes and external presentations may be that a little stimulus already results in huge emotional responses for these participants. Compared to resistive materials, all the components were helped to greater degree with the middle materials. Perhaps fluid materials were too overwhelming for them to even select.

Based on self-reports by participants with disorganized attachment, barely any components were helped by art materials, regardless of media property categories. In fact, the only ETC component that was self-reported to be more than moderately helped by any art materials was kinesthetic. This result was consistent with the therapist's observations when noting participants' use of resistive and fluid materials. It was supported by literature with respect to an overuse of the kinesthetic component (Haeyen & Hinz, 2020). When participants with disorganized attachment were using middle materials, the therapist observed the perceptual mode of information processing. Although many researchers commented on the use of sensory/sensation for people with disorganized attachment (Duncan, 2019; Haeyen & Hinz, 2020; O'Brien, 2004), the results of this research did not find their experience with the sensory component remarkable.

Clinical Applications

Knowing how clients use art materials can help therapists design treatment plans (Hinz, 2020). For example, given that participants with AN-BP appeared to select middle

materials more often and were more familiar with them, these materials could be chosen as a starting point for creative processes as they might experience less resistance.

Art therapists also assess clients' predominant levels of the ETC that are shown in their artworks and processes to reinforce their strengths and further address their weaknesses (Lusebrink, 2010). As middle materials seemed to help participants with OSFED with most out of all the ETC components, slowly introducing different fluidity, such as switching markers to pastels, could be an example of building flexibility. The same principle could apply when observing an overuse/underuse of a certain ETC component/level. For instance, since participants with disorganized attachment appeared to be overly reliant on the kinesthetic component, therapists could adjust directives, mediators, or other variables to support the transitions to the right side of the ETC and/or to the levels above. This could look like slowing down the movements, adding tactile experiences, encouraging the formation of shapes, and so on. That said, nothing can quite replace the therapist's attunement to a client's experience of art materials and not inserting their agenda into the client's selection of art materials.

As previously mentioned, to gain a holistic view of a client, therapists could not make conclusions of the client's experiences solely based on their materials of choice, their diagnoses, and/or attachment styles. In fact, noting the discrepancies between clients' experiences and the therapist's observations can help professionals better attune to their clients' needs. To give an example, participants with avoidant attachment were thought to be avoiding feelings. However, knowing they may be experiencing more emotions than they physically present becomes an opportunity to further discuss their internal and external

processes. This research study highlights therapists' humility and continuous training as important aspects for providing treatment services to this complicated population.

Limitations and Suggestions for Future Research

Considering the small sample size and the specific location of recruitment, the participants in this research might not be the most representative of the broader population of clients with an eating disorder. The prevalence of having comorbid mental/physical illnesses within the ED population is also worth noticing. Additionally, the method of having the primary therapist perform the role of categorizing the ASs of participants had its limitations and may not be the most reliable as it was a subjective assessment as opposed to a validated clinical assessment such as the Adult Attachment Interview (George et al., 1985), for instance. Not all therapists on the treatment team were confident about their assignments and therapists as individuals had their biases or inconsistencies. Similarly, the art therapist group leader was also liable to make errors and was not objective. There were also other potential influences that could affect the validity of this research, such as nonresponse bias, the Hawthorne effect (Adair, 1984), central tendency error, and so on.

When searching literature in the field of EDs and art materials, most of them discussed AN and BN exclusively. Limited studies covered OSFED, ARFID, and/or specified the subtypes of AN. More explorations of how people with other ED diagnoses use art materials could be done in the future. Additionally, as the ETC grows to be a foundational framework in the art therapy profession, it will be helpful if future scholars continue this dialogue to gain further clarity on how people with an ED use these components. The same recommendation is also suggested for studies of ASs.

Previous studies rarely explored the use of the ETC components from the clients' point of view. This research modified a relatively newly developed survey tool and used a mixed methods approach to capture a multifaceted profile of participants. More research on the assessment tool itself and the use of it is suggested. In addition, as this study found some incongruences between participants' reports, the therapists' observations, and previous literature, further research is needed.

This research study investigated the relationship between EDs and ASs, as well as how clients used art materials. It is worth mentioning that "the attachment construct concerns the patient's experience and meaning-making of parental behaviour, not their parenting per se" (Zachrisson & Skårderud, 2010, p.103). Understanding how clients' diagnoses and AS can reflect on their uses of art materials while remaining curious of their subjective experiences is clinically important. Art therapists also need to distinguish between therapeutic enactment and simply acting out maladaptive behaviors (Levens, 1990). I hope professionals find the results of this study helpful in their clinical work with people with an ED. At the same time, I acknowledge that there are still more questions to be answered.

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Appendix A

Demographic Information Survey

1. **What is your age? _____**

2. **What is your gender identity?**

   - ○ Woman
   - ○ Man
   - ○ Other: _____
   - ○ I prefer not to respond

3. **What was your assigned sex at birth?**

   - ○ Female
   - ○ Male
   - ○ Undetermined
   - ○ I prefer not to respond

4. **With which race/ethnicity do you *most* identify?**

   - ○ White or Caucasian
   - ○ Black or African-American
   - ○ Hispanic or Latinx
   - ○ Asian
   - ○ Pacific Islander
   - ○ American Indian or Alaska Native
   - ○ Multiracial
   - ○ Other:_____

5. **What is your highest level of education completed?**

   - ○ Less than High School
   - ○ High School diploma/GED
   - ○ Some college
   - ○ Associate's degree
   - ○ Bachelor's degree
   - ○ Master's degree
   - ○ Doctorate
   - ○ Professional degree (e.g. MD, DDS, DVM)

6. **What is your marital status?**

   - ○ Single (never married)
   - ○ Married, or in a domestic partnership
   - ○ Divorced
   - ○ Separated
   - ○ Widowed
   - ○ Living with significant other

7. **How many times have you received intensive treatment for your eating disorder** (i.e. partial hospitalization, residential, or inpatient), *including this current admission*?

   _____

8. **At what age did you begin struggling with your eating disorder? _____**

Appendix B

ETC Assessment Tool

Date:_____ Patient (Code): _____ Art Material chosen: _____

Medium properties	Resistive 1	2	3	4	Fluid 5
Interaction with medium	Resistive 1	2	3	4	Fluid 5
Paper or sculpture size	Tiny	Small	Medium	Large	Extra Large
Amount of medium used	Constricted	Average	Expansive		
Respect of time limits	Worry	Appropriate	No regard		
Response to limits of creative process	Stops prematurely	Appropriate	Persists inappropriately		
Response to directions and instructions	Worry	Appropriate	No regard		
Commitment and frustration tolerance	Gives up easily	Persists appropriately	Fully engaged using different component functions for creative process	Stays too long with task	
Risk taking	Sticks to familiar	Tries new with encouragement	Experiments freely		
Level of energy	Bored	Apathetic	Interested	Engaged	Excited
ETC level	Cx – C – Cr – Sy – Syx Px – P – Cr – A – Ax Kx – K – Cr – S – Sx				
Any significant verbalizations by the client					

Free notes:

Appendix C

Client Questionnaire

Initials: _____ Date: _____ Art Material Chosen: _____

How familiar are you with the art material you chose today (please circle)?

Unknown Familiar

1 2 3 4 5

For each item below, please select the answer that best characterizes your experience engaging with the art material(s) today.

This material helped me with…

1: Not at all 2: A Little Bit 3: Moderately 4: Quite a Bit 5: Extremely					
Releasing tension	1	2	3	4	5
Muscle relaxation	1	2	3	4	5
Self-soothing through rhythm and movement	1	2	3	4	5
Discovering, valuing, or expressing inner sensation	1	2	3	4	5
Self-soothing through sensation (tactile, visual, olfactory)	1	2	3	4	5
Matching internal and external sensation	1	2	3	4	5
Understanding relations between parts of a problem	1	2	3	4	5
Changing my point of view	1	2	3	4	5
Taking another person's perspective	1	2	3	4	5
Organizing my emotions	1	2	3	4	5
Containing emotions	1	2	3	4	5
Identifying/Understanding one's own emotions (fear reduction)	1	2	3	4	5
Understanding other people's emotions (fear reduction)	1	2	3	4	5
Appropriate and creative expression of emotions	1	2	3	4	5
Soothing of emotions without negative acting out	1	2	3	4	5
Increasing planning and problem-solving abilities	1	2	3	4	5
Support greater decision-making skills	1	2	3	4	5
Promote cause and effect thinking	1	2	3	4	5
Finding personal meaning by expressing symbols	1	2	3	4	5
Acceptance of previously detested, disowned or shadow parts of the self	1	2	3	4	5
Deepen personal meaning through understanding universal themes	1	2	3	4	5
Feeling of satisfaction, pride, and meaning are gained	1	2	3	4	5
Connection with spiritual self	1	2	3	4	5
Connection with creative self	1	2	3	4	5
"Aha" moments of self-realization or "ahh" moments of self-expression	1	2	3	4	5

Appendix D

Institutional Review Board Approval Letter

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE
OFFICE OF RESEARCH AND PROJECTS

Office of Research & Projects
Campus Box 1046,
e-mail:
researchcompliance@siue.edu

SIUE Institutional
Review Board
Assurance No: FWA 00001703
IRB# 1928

March 30, 2023

Tsai-Yu Chen
Department of Art and Design
Southern Illinois University Edwardsville
Campus Box 1774
Edwardsville, IL 62026

Dear Tsai-Yu,

Your protocol to conduct research involving human subjects entitled, "The relationship between eating disorders, attachment styles and the uses of art materials," Protocol #1928 has been approved by the Southern Illinois University Edwardsville (SIUE) Institutional Review Board (IRB) under the expedited review category 46.110 (5) and (7) on March 30th, 2023 with the following stipulations and/or comments as they apply:

> That you use the IRB approved consent/assent/audio visual release form(s) included in your protocol filed with the IRB, as they apply. Documents related to the research including consent forms must be kept on file at this institution for 3 years following completion of the project. It is recommended that they be kept in a locked cabinet in your departmental office.

Please NOTE: You MUST include a statement on all recruitment advertising, including email notifications, that you have received IRB approval from the SIUE IRB and include the IRB protocol number and project title. This includes all recruitment emails and other electronic methods, flyers, etc.

No further action is required unless you change your methods or duration dates, or alter your interactions with participants. In these cases, you must go to https://siue.kuali.co/protocols to amend your protocol and to determine whether further protections are warranted. You are also responsible for reporting any unanticipated events involving risk to participants or others. See http://www.siue.edu/compliance/human-subjects/related-resources.shtml for more information and to view our Federal Wide Assurance (FWA) Document.

Thank you for cooperating with the Institutional Review Board. If you have any questions about your research with human subjects, please contact Ambre Boggs, IRB Administrator, Graduate School's Office of Research and Projects. Complete contact information appears at the top of this memo.

Sincerely,

Amelia Perez
Amelia Perez
Chair, Institutional Review Board
Associate Professor/Chair, School of Nursing
Family Health and Community Health Nursing

Alicia Alexander
Alicia Alexander
Co-Chair, Institutional Review Board
Professor, Applied Communication Studies