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UNCOVERING THE MENTAL WORLD OF CHILDREN: ATTACHMENT QUALITY,  
MENTALIZATION, AND CHILDREN'S DRAWINGS

HOLLY ROSEN, M.S.

A DOCTORAL DISSERTATION SUBMITTED  
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### Abstract

Although we have long been aware of the widespread benefits of drawing for children (Goodenough, 1926), there is much to learn from a clinical perspective about children's attachment patterns and mentalization capacities in analyzing their drawings. The present study utilized archival data to uncover trends associated with children's drawing characteristics, attachment qualities, and mentalization capacities. This study further explored the extent to which mentalization mediates the relationship between attachment quality and Formal Elements (FE) scores as well as the relationship between attachment quality and Content scores of children's drawings. Two samples of 5–12-year-old children and their caregivers were recruited: one child sample from a public elementary school in White Plains, NY ( $n = 54$ ), and the other child sample recruited consecutively following admission to a child psychiatric inpatient unit in White Plains, NY ( $n = 45$ ). Each of the 99 children, including both the inpatient and nonpatient samples, completed three drawings: a drawing of family, primary caregiver, and self, totaling 297 drawings. These drawings were coded using the Formal Elements and Content rating scales (Tuman, 1998, 1999a). Attachment quality and mentalization data for these samples were obtained from previous studies, using the Attachment Story-Completion Task (ASCT) and Children's Apperception Test (CAT). Attachment quality was found to have a significant positive relationship with the Content scores of family drawings within the inpatient sample. Attachment quality was also found to have a significant positive relationship with mentalization in both the nonpatient and inpatient samples. Mentalization was found to have a significant positive relationship with the Content and FE scores of children's drawings. This relationship held true for Content scores of caregiver drawings and FE scores of family drawings within the nonpatient sample, and for both the Content and FE scores of family drawings within the inpatient sample. In general, drawings appear to hold promise as tools to access both psychiatrically compromised and nonpatient children's internal working models and mental states. Gender differences and clinical implications are discussed.

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**Table of Contents**

Attachment .....	6
Mentalization in the Context of Attachment.....	8
Drawings: Uncovering the Mental World of Children.....	15
The Present Study.....	30
Method.....	31
Participants.....	31
Measures.....	32
Procedure.....	40
Data Analysis.....	42
Results.....	44
Discussion.....	47
Limitations.....	65
Conclusions.....	66
References.....	72

### List of Tables

Table 1: Lowenfeld's Stages of Artistic Development.....	95
Table 2a: Inpatient Participants' Demographic Characteristics: Descriptive Statistics.....	96
Table 2b: Nonpatient Participants' Demographic Characteristics: Descriptive Statistics.....	97
Table 3: The Attachment Story-Completion Task: Story Stems and Descriptions.....	98
Table 4: Scale of Content.....	98
Table 5: Scale of Formal Elements.....	99
Table 6: Correlations of Hypothesis 1 in Inpatient and Nonpatient Samples.....	99
Table 7: Correlations of Hypothesis 2 in Inpatient and Nonpatient Samples.....	100
Table 8: Correlations of Hypothesis 3 in Inpatient and Nonpatient Samples.....	100
Table 9a: Mental State Talk as a Mediator Between Children's Attachment Quality and Content Scores of Family Drawings in Inpatient Sample.....	101
Table 9b: Mental State Talk Emotion Words as a Mediator Between Children's Attachment Quality and Content Scores of Family Drawings in Inpatient Sample.....	101
Table 10: Gender Differences by Sample (post-hoc analysis) .....	102

## **Uncovering the Mental World of Children: Attachment Quality, Mentalization, and Children's Drawings**

### **Attachment**

Attachment theory provides a powerful model for understanding how early relational experiences become internalized and lay the groundwork for adaptive or maladaptive developmental avenues (Bowlby, 1973; Siegel, 2012). First explored by Bowlby (1969, 1973, 1980), attachment theory has served as a guiding framework for researchers and is based on the theory that the nature of our relationships with our early caregivers can predetermine the patterns of our adult relationships (Levine & Heller, 2010). Bowlby defined attachment behavior as products of a system that maintains proximity between the child and his or her caregivers, serving the ultimate function of protection from danger. Further, the goal that regulates the attachment system is originally a physical state, the maintenance of a desired degree of proximity to the caregiver. This physical state is later replaced by the more psychological goal of a feeling of closeness to the caregiver (Fonagy & Target, 2003, pp. 230-233).

Further, the child is reliant on the primary caregiver for care, support, and protection, and the caregiver's repeated ability to meet or not meet the child's needs will largely determine his or her "internal working models" (IWMs), or the child's mental representations of self, other, him or herself in relation to the other, and the quality of his or her other relationships (Pace et al., 2020; Solomon & George, 2008). The accumulation of a child's previous interactions with the caregiver influences the child to develop a set of expectations regarding interactions between him or herself and the attachment figure. Moreover, IWMs are understood to regulate children's behavior with the attachment figure in order to organize their behavior in all significant relationships, including the relationship with their own child in the future (Fonagy et al., 1994).

The attachment classifications were discovered from Ainsworth's Strange Situation procedure and documentation of the patterns of separation and reunion from the primary caregiver in the 1960s and 1970s (Bretherton, 1992). The emerging patterns consisted of the group of infants who cried, wanted contact, and demonstrated ambivalence to mother upon her return (ambivalent infants), the group who appeared to avoid and snub mother upon her return (avoidant infants), and the majority of infants who sought proximity, interaction, and contact with their mother upon her return (secure infants; Ainsworth et al., 1974). The disorganized classification was later added to the attachment classifications by Main and Solomon (1986, 1990). It was posited that a disorganized attachment pattern develops if the infant comes to experience the attachment figure as a stimulus eliciting harm. Moreover, the alarmed infant is biologically driven to both pursue the caregiver and take flight from the feared caregiver and is thereby unable to experience the caregiver as a safe haven because of this conflict (Main & Hesse, 1990). Infant behaviors classified as disorganized include "overt displays of fear of the caregiver; contradictory behaviors or affects occurring simultaneously or sequentially; stereotypic, asymmetric, misdirected, or jerky movements; or freezing and apparent dissociation" (Duschinsky, 2015, p. 35).

Securely attached children generally hold positive views of themselves and others (Bartholomew, 1990; Collins, 1996; Mikulincer, 1998), demonstrate a positive mental model of self, and have higher self-esteem than children who are insecurely attached (Bylsma et al., 1997; Collins & Read, 1990; Feeney & Noller, 1990; Griffin & Bartholomew, 1994; Mikulincer, 1995). Secure adults are three or four times more likely to have children who are securely attached to them (van IJzendoorn, 1995). Secure attachment strengthens the development of the self and increases inner security, feelings of self-worth, self-reliance, and the development of



autonomy (Fonagy et al., 2002). Attachment also has a considerable influence on a child's mentalizing capacities, which includes a vast array of processes such as affect regulation, theory of mind, and self-organization (Fonagy et al., 2002).

### **Mentalization in the Context of Attachment**

Mentalizing is a form of imaginative activity that involves perceiving and interpreting human behavior in terms of intentions and mental states (Anna Freud National Centre for Children and Families, 2020). These mental states can include feelings, wishes, desires, thoughts, and beliefs. Fonagy (1991) described this ability as a theory of mind, which a person employs to understand and predict the behavior of oneself and others (see also Goodman, 2010). Consequently, mentalization involves two levels: 1) introspection, seeing into oneself and into what one is thinking, and 2) understanding how others are thinking and feeling. In addition, mentalization covers both emotional intelligence and psychological mindedness, in that emotional intelligence relates to feelings, and psychological mindedness relates to cognitions (Anna Freud National Centre for Children and Families, 2020).

Mentalization can exist in two forms: explicit mentalization, which relies on declarative memory, is cognitively based, and is located in the medial prefrontal cortex, and implicit mentalization, which relies on procedural memory, is affectively based, and is located in the orbital frontal cortex (Goodman, 2010, p. 213). Importantly, mental state talk (MST), or the capacity to speak about desires, beliefs, and feelings, is key to an individual's ability to comprehend and interpret others' behaviors (Chu, 2016; Jenkins et al., 2003). Reflective function (RF) refers to the fundamental psychological processes that enable one to mentalize, or the capacity to give reasonable interpretations of one's own and others' behaviors in terms of

underlying mental states (Fonagy et al., 2002, p. 24; Goodman, 2010). Mentalization is often operationalized as RF for research purposes (Fonagy et al., 2002).

Mentalization is largely rooted in feeling understood early on by parents or attachment figures (Anna Freud National Centre for Children and Families, 2020). Further, the connection has long been recognized between the early child-caregiver relationship and mentalization (Fonagy et al., 2002), specifically, the emergence of the infant's true self (Winnicott, 1962), development of a child's symbolic thought (Bretherton et al., 1979), and growth of a child's metacognitive capacities (Moss et al., 1995). Attachment patterns represent the outward manifestation of internal working models, which then influence one's ability to mentalize (Franks & Whitaker, 2007). Still, many researchers have tended to disregard the centrality of a child's emotional relationship with his or her parents in fostering the capacity to understand interactions in psychological terms and have instead focused on alternative notions to explain the development of mentalization (Fonagy et al., 2002) such as the theory that this ability originates from Chomsky's postulation of an innate mechanism in the brain (Baron-Cohen, 1995).

Fonagy et al., (1997a) assessed the relationship of attachment security to mother at 12 months, to father at 18 months, and performance on three tests of theory of mind at 5.5 years old. Participants were children assessed in the Strange Situation at 12 and 18 months. Eighty-two percent of those who were classified as secure at 12 months passed the belief-desire reasoning task and accurately identified what a character would feel based on the character's belief, whereas only 54% of those characterized as insecure passed this task (Fonagy et al., 2002, p. 45). Fonagy et al. (2002) asserted that it is possible that attachment security inclines children to benefit from social processes that might be involved in the development of mentalization. Fonagy proposed that the social processes that expedite the mentalizing quality of self-

organization are the same processes as those that facilitate attachment security. Further, the nature of family interactions, quality of parental control, presence of older siblings, parental dialogue about emotions, and depth of parental discussion around affect are all significantly related to one's mentalizing capacities in early life (Fonagy et al., 2002).

Fonagy et al. (2002) explained that the area of affect regulation within mentalization originates from the child's experiences of his or her mental states' being reflected upon and from the experiences of face-to-face affect-laden interactions with the caregiver from the time of an infant's birth through the first five months. Fonagy et al. (2002, p. 152) further conveyed that although infants experience innate primary emotions, the dispositional content of emotional states is not available to the infant at birth and is learned first by observing the affect-expressive demonstrations of others and associating them with situations and outcomes that go along with the emotion expressions.

Relatedly, the social-biofeedback model delineates how the interactional process between the infant and his or her caregiver molds emotional self-awareness and the capacity to regulate emotions. During "marked affect mirroring," the caregiver appropriately mirrors the infant's emotions in a way that marks that they belong to the infant, not to the caregiver (Gergely & Watson, 1996; Herrmann et al., 2018). This process not only helps the infant regulate his or her emotions, but it also allows him or her to begin to develop a secondary representation in the mind, which is necessary for the beginning of affect-centered mentalization. Affect-centered mentalization refers to the capacity to identify, reflect upon, express, and regulate one's emotions, and also to distinguish between one's own and another individual's emotions. This ability has been associated with successful interpersonal interactions and health outcomes (Gergely & Watson, 1996; Herrmann et al., 2018). Infant researchers have also substantiated that

facial and vocal mirroring of affective behavior might be an important feature of parental affect-regulatory interactions during the infant's first year (Beebe & Lachmann, 1988; Fonagy et al., 2002; Stern, 1985). During this mutually influential process, the caregiver and infant anticipate the responses of each other, thus promoting the infant's self-regulation and sensitivity. Although the infant does not yet have the advanced mentalization capacity to represent the thoughts or feelings of the caregiver to modify behavior, the infant's interactions with the caregiver are presymbolic in that the infant references future states, which can be used to predict behavior (Fonagy et al., 2002).

Gergely and Csibra's (1997) work also indicates that by the second half of the first year, the infant's perceptions of social contingencies are "teleological" as they make reference to future states to explain and interpret behavior. Infants begin to expect "rational action" from human and nonhuman objects (Fonagy et al., 2002). Further, the repetitive display of an external reflection of the infant's affect-expressive presentations acts as a crucial function that leads to the "gradual sensitization of the correct set of internal stimuli that correspond to the distinctive emotion category that the baby is in" (Fonagy et al., 2002, p. 161). As a result of this process, the infant will eventually come to develop an awareness of the internal cues that are associated with specific emotion states and will eventually become able to identify and represent his or her emotion states (Fonagy et al., 2002, p. 161).

Fonagy et al. (2002) theorized that the outcome of this process and the extent to which teleological models become fully mentalizing largely depend on a parent's sensitive capacity to accurately pick up on, mirror, and reflect on the child's mental states. In a secure parent-child attachment relationship, the child's emotion states are reflected upon by the parent and responded to in a way that both mirrors and comforts the child's distress, fostering intimacy and

sameness but also subtle incompatibility with the child's affect, suggesting a method of coping and fostering autonomy and separateness (Fonagy et al., 2002). As a result, mentalization on behalf of the parent introduces to the child contents of the parent's mind that is both the same and different from the content of the child's mind (Fonagy et al., 1998). This display of sensitive caregiving is intentional and goal-oriented and requires recognizing one's own agency as well as that of the other (Fonagy et al., 2002; Wellman, 1993). It involves perceiving the child as an "intentional human being," a point that attachment theorists consider integral to secure attachment (Ainsworth et al., 1978; Fonagy et al., 2002, p. 54). Further, this type of caregiving has multiple positive outcomes for the child's mentalization. A caregiver's representation of the child as an intentional being is internalized in the child to form the self, to perceive him or herself as desiring and believing, and to "find himself in the other" (Fonagy et al., 2002, p. 348). In addition, as a result of the consistent presentation of secure caregiving, a child can organize not only him or herself during distress but also his or her emotional experiences are given continual meaning, setting the stage for later verbal identification of emotions and desires as well as beliefs about the consequences of the child's emotional states (Fonagy et al., 2002).

In contrast, caregivers who are consistently lacking attachment security themselves and incorrectly mirror or respond to an infant's affective signals in turn compromise the infant's development of affect-centered mentalization (Bigelow & Rochat, 2006). They also influence the establishment of a weak sense of self in the infant, which involves distorted mental representations of his or her feelings. For example, an infant who is experiencing anxiety will need to see anxiety mirrored by the caregiver to help the infant organize his or her feelings and experience. However, if the caregiver senses anxiety in the infant and mirrors an exaggeration of the anxiety in the form of terror, the infant will likely feel overaroused and learn to exaggerate

his or her own anxious reactions, possibly later reacting to even miniscule anxiety cues with a sense of terror. He or she might also lack the reflective psychological self that helps one to think about feeling anxious and affectively regulate oneself rather than simply acting out (Anna Freud National Centre for Children and Families, 2020; Fonagy et al., 2002). Likewise, if the caregiver's mirroring is too remote from the infant's experience (e.g., caregiver does not mirror state of anxiety at all) or is "contaminated" with the caregiver's "own preoccupation," the infant's emotional arousal will not be restabilized, and his or her self-development and ability to organize an emotional experience might be compromised as well (Fonagy et al., 2002). Not surprisingly, secure children find it easier to navigate emotional issues in an open and free way compared to their insecure counterparts (Bretherton, Ridgeway, et al., 1990).

Similarly, attachment relationships that involve abuse have increased potential to compromise a child's affect-centered mentalization (Demers et al., 2010). If attachment figures have been frightening, the child might not develop the capacity to safely explore others' minds (Fonagy et al., 2002; Herrmann et al., 2018). In these situations, the child is lacking a secure base when in perceived danger (Hesse & Main, 1999), which results in impairment in the ability to form secondary representations within his or her mind and to understand that troubling emotions can be managed (Fonagy et al., 2002, p. 352). Moreover, a child's abuser has likely failed to recognize the child as an intentional human being, leading the child to lack incentive to understand the perspective of others. This lack of incentive and "nonmentalizing stance" can also govern other interpersonal relationships, in turn influencing the development of chronic developmental psychopathology (Fonagy et al., 2002, p. 64). The child's lack of understanding of mental states during maltreatment also heightens distress and activates the attachment system,

propelling him or her closer to the abuser because of unmet emotional needs. This predicament inevitably increases the likelihood of further abuse (Fonagy et al., 2002, p. 352).

Self-organization of maltreated children is also impaired. In contrast to the secure child, who had a sensitive caregiver and is therefore able to comfortably explore the caregiver's mind and have an image of him or herself that is motivated by beliefs, feelings, and intentions, children who possess disorganized attachment patterns do not have the capacity to scan for a representation of their mental states. Rather, these children hypervigilantly search for cues to predict caregivers' behavior and mental states, specifically ones that threaten to undermine their own selves (Fonagy et al., 2002). They grow to have an ongoing difficulty representing mental states in themselves and others and endure inaccurate schematic ideas of thoughts and feelings, making them increasingly vulnerable in close relationships (Fonagy et al., 2002, p. 346).

Mentalization deficits, or difficulty recognizing one's own and others' mental states (Fonagy et al., 2002), have been found in a myriad of mental health disorders (Goodman, 2010; Herrmann et al., 2018). In addition, a difficulty with mentalizing can occur as a result of a person's being overwhelmed by his or her feelings, therefore not being able to strike a balance between thinking and feeling. If he or she is feeling afraid rather than secure, there will be a preoccupation with self-protection rather than engaging in mentalizing (Verfaillie, 2016).

Bretherton (1985, 1990) asserted that while insecurely attached infants direct their attention toward monitoring the physical and emotional availability of their parents, securely attached infants devote more attention toward exploration and therefore to experiences "likely to advance the developing structures of the mind" (Fonagy et al., 1997b, p. 33). Kaplan's (1987) pilot studies with 6-year-olds revealed that securely attached children uttered more "spontaneous metacognitive remarks" than insecurely attached children, influencing the coding feature of

metacognitive mental processes as indicators of a secure internal working model in the adult attachment coding system (Fonagy et al., 1997b; Main et al., 1985).

RF is also a protective mechanism that can actually offset the typical effects of adversity and deprivation in a caregiver's past experiences, including insecure attachment (Fonagy et al., 2002). Fonagy et al.'s (1994) cross-sectional study displayed the marked influence of a caregiver's RF on the infant and the development of the infant's attachment patterns. In this study, a parent's state of mind with respect to attachment was assessed using the Adult Attachment Interview (AAI), a qualitative tool designed to evoke an adult's account of his or her state of mind with respect to his or her childhood attachment experiences (Fonagy et al., 1994; George et al., 1985). The attachment patterns of mothers and fathers assessed using the AAI were studied in the last trimester of the mothers' pregnancy as well as at 12 and 18-month follow-ups after the birth of the child, and the Strange Situation procedure was used to understand the infants' attachment patterns at 12 and 18 months. It was determined that for the vast majority of caregivers who came from nondeprived backgrounds but had high RF, the infants were securely attached. If they did not come from deprived backgrounds but had low RF, children were mostly insecurely attached. For the caregivers who came from deprived backgrounds and had low RF, almost all the infants were classified as insecurely attached. Interestingly, for the caregivers who came from deprived backgrounds but had high RF, every infant was classified as securely attached (Fonagy et al., 1994).

### **Drawings: Uncovering the Mental World of Children**

Since the beginning of time, young children have engaged in scribbling to communicate feelings and intentions to the world around them (Longobardi et al., 2015). Further, drawing has been a fundamental way in which individuals and children ages 5 to 11 express their feelings



(Shukla et al., 2012). Given children's natural limitations with putting thoughts and feelings into words, mentalization could be difficult to assess using traditional quantitative or qualitative methods. Some children also have additional language barriers or a compromised ability to express themselves, possibly as a result of unmet emotional needs in the early caregiver-infant relationship. Projective techniques that include drawings have indeed been found to be useful, nonintrusive "nonverbal language" tools for understanding the conscious and unconscious or repressed attitudes, wishes, and concerns of children (Attili et al., 2011; Fury et al., 1997; Koppitz, 1968). These tools are used in general and clinical settings (Porteous, 1996). During drawing, meaning-making becomes possible through the process of symbolization, which is particularly helpful for children who have internalizing or externalizing problems (Shore, 2013). Goodenough (1926) proposed that drawing is a language and form of cognitive expression in that as a child develops, he or she can distinguish more parts of the object (Kwan, 1989).

Children appear to go through their own natural progression of artistry from infancy to late adolescence (Lowenfeld, 1947). Moreover, regardless of culture, gender, or background, the literature consistently indicates that children undergo identical artistic development stages (Alter-Muri & Vazzano, 2014; Goodman et al., 2022; Lowenfeld, 1947; Lowenfeld & Brittain, 1987). These stages are consistent with Piaget's stages of child cognitive development. A child's artwork is demonstrative of his or her physical, cognitive, social, and psychological maturation (Deaver, 2009; Lowenfeld, 1947; Lowenfeld & Brittain, 1987).

Lowenfeld's (1947) six stages of artistic development include The Scribbling Stage, The Pre-Schematic Stage, The Schematic Stage, The Gang Age, The Pseudo-Naturalistic Stage, and Adolescent Art. Each stage includes criteria within three fundamental categories: Drawing Characteristics, Space Representation, and Human Figure Representation. Each category

includes words or phrases that act as indicators to delineate Lowenfeld's analytical description of the expected drawing outcome, attitudes, and capabilities for that specific stage and age range (Goodman et al., 2022; Lowenfeld, 1947). Lowenfeld's theory has been primarily criticized for its lack of consideration of cultural differences and a limited stage system that assumes sequential expectation at each level rather than offering a more wide-ranging plan of drawing periods (Alter-Muri, 2002; Burton, 2009; Goodman et al., 2022).

Human figure drawings (HFD) methods such as the Draw-a-Person test (DAP) have been particularly beneficial to understanding children's emotional functioning and intellectual development (Naglieri & Pfeiffer, 1992; Singh & Rossouw, 2015). The HFD is presumed to be an inherent, unlearned skill (Campbell et al., 2008; Lange-Küttner et al., 2014; Naglieri, 1988). HFD tests have shown to be practical in cross-cultural settings, as they are simple to administer, require no verbal expression, and are influenced by cultural factors (Petrogiannis, 1989). In their drawings of a human figure, children appear to utilize three kinds of expressive graphic cues to depict basic emotions: facial, body/posture, and contextual cues. Young children first utilize facial changes to convey emotion from ages 4 to 8 (Cox, 2005) and then begin to incorporate alterations in the human figure's body/posture from ages 8 and up (Brechet et al., 2009). Young children convey the rudimentary emotions of happiness and sadness (Golomb, 1992), and children 8 years and up convey more complex emotions such as fear and surprise (Bonoti & Misalidi, 2015; Brechet et al., 2009).

The DAP test is a nonthreatening, open-ended task that traditionally asks the child to draw a picture of a person, or in a varied instruction, a woman, a man, and a self. This procedure is based on the notion that children will project their self-image and feelings onto the drawings (Shukla et al., 2012). After the child draws the human figure, he or she is often asked questions

by psychologists such as what the human figure is doing and whom he or she likes most and least. The latter questions allow for the emergence of information about a child's attachment-related issues (Amod et al., 2013). In addition to the most prevalently used original scoring system by Goodenough and Harris (G-H; Harris, 1963), Naglieri (1988) devised a well-normed DAP Quantitative Scoring System (QSS) that allows clinicians and researchers to understand if a child's artwork is developmentally appropriate or if the child is suffering from emotional or behavioral problems (Hagood, 2003). Although the DAP test using the G-H scoring system (Harris, 1963) was shown to be a reliable instrument, the DAP QSS (Naglieri, 1988) demonstrated more consistent internal consistency and higher inter- and intrarater reliability (Dunn, 1967; Kwan, 1989; Ter Laak et al., 2005). There is limited evidence of construct validity for HFDs (Amod et al., 2013; Ter Laak et al., 2005). Additionally, Koppitz (1968) established a standardized coding system, including 30 emotional indicators to identify distress in children's drawings. The introduction of indicators served as a turning point for interpreting HFDs in that they allowed for practitioners to be alerted to a child's potential instability or disturbance (Amod et al., 2013).

The Kinetic Family Drawing (KFD) is another HFD technique that has been useful in understanding a child's self-concept, interpersonal relationships, and family dynamics (Burns & Kaufman, 1972; Veltman & Browne, 2003). The KFD is an untimed task that requires the child to draw a picture of their family, including themselves, doing something. The inquiry phase involves asking the child to describe each family member and what each family member is doing (Burns & Kaufman, 1972; Singh & Rossouw, 2015). Practitioners can obtain insight regarding conflict, difficulties, changes in family dynamics over time, and adjustment or attachment issues (Amod et al., 2013). The KFD scales can be scored with a high degree of interrater reliability,

with variable test-retest reliability (Amod et al., 2013). However, due to a lack of information pertaining to the validity of this scoring system, researchers have opted to use other scoring systems to serve as interpretive methods (Tharinger & Stark, 1990).

Attachment researchers have been particularly intrigued by the notion of the act of drawing causing the activation of children's IWMs of themselves, their caregivers, and their attachment relationships (Fury et al., 1997; Gernhardt et al., 2016). Kaplan and Main (1986) first utilized the family drawing to encapsulate children's attachment representations. Kaplan and Main developed a coding manual, involving four categories of attachment (secure, avoidant, ambivalent or anxious-resistant, and disorganized/disoriented), and a Checklist of Drawing Signs, including 24 specific features or "markers" of drawings to reflect the four categories of attachment representations. The presence or absence of these signs was thought to be associated with the children's attachment representations. In their study, they found that children whose drawings received a secure classification contained figures that were realistic – grounded, complete, and individuated, or unique from one another and with a "natural proximity among family members" (Goldner & Scharf, 2011, p. 264). Children whose drawings received an avoidant classification contained figures that were distant from each other, smiling and nonindividuated, and lacking body parts (primarily arms), and sometimes floating. Children whose drawings received an ambivalent classification appeared vulnerable, were either very big or very small, and were either overlapping or separated by barriers. Children whose drawings received a disorganized/disoriented classification often included threatening or fantasy-like themes, and odd, sinister-like marks or false starts, where the figure is crossed out and redrawn (Kaplan & Main, 1986; Leon et al., 2007). Studies have provided increased support for Kaplan

and Main's (1986) classification system (Fury et al., 1997; Goldner & Scharf, 2011; Madigan et al., 2003; Pianta et al., 1999).

Fury et al. (1997) empirically tested Kaplan and Main's (1986) Checklist of Drawing Signs and determined that there was a medium to high association between Kaplan and Main's (1986) classification of drawings of 8-year-old children and their attachment classifications based on the Strange Situation procedure (Gernhardt et al., 2016). Fury and her colleagues (1997) also found that aggregates of the markers in Kaplan and Main's (1986) classification system were better predictors of attachment category than individual markers. Fury et al. (1997) further developed global rating scales to predict attachment classifications, utilizing children's drawings. Moreover, Fury et al. (1997) contributed a second technique to evaluate children's drawings. The eight Family Drawing Global Rating Scales (FDGRS) are used to code the emotional tone and quality of the mother-child relationship in children's family drawings. Results from Fury et al.'s (1997) study indicated that children with drawings that were rated higher on the negative dimensions of the FDFRS and lower on the positive dimensions were more likely to have an insecure attachment history. Madigan and colleagues (2003) found that FDGRS-coded family drawings that were judged higher in the categories of vulnerability, role-reversal, and emotional distance were associated with an insecure attachment category, whereas family drawings rated higher in family pride and lower in global pathology were associated with a secure attachment category (Leon et al., 2007). In addition, Carlson and her colleagues (2004) confirmed in their longitudinal qualitative study that children's attachment classifications, as assessed by their family drawings at 8 years old and coded employing Fury et al.'s (1997) rating scales, were positively associated with their attachment categories assessed in early adolescence (Pace et al., 2020).

Goldner and Scharf (2011) employed both Kaplan and Main's (1986) and Fury et al.'s (1997) coding systems in order to understand Israeli children's attachment security as well as their personality and adjustment, as manifested in their family drawings. The results suggested that securely attached children's drawings were marked by positive indicators of personality and demonstrated superior psychosocial functioning. Ambivalent and disorganized children's drawings demonstrated adjustment difficulties, and avoidant children's drawings highlighted invulnerability and happiness (Goldner & Scharf, 2011). Procaccia and colleagues (2014) evaluated children's drawings using both Kaplan and Main's (1986) classification system and Fury et al.'s (1997) global rating scales and discovered that children's drawings are in fact a strong measure used to access children's attachment representations. Consistent with the literature, they found that there were significant differences in the family drawings of securely attached versus insecurely attached children in terms of specific form and content-related indicators and with regard to the overall drawing. For example, securely attached children's drawings featured figures that were clearly individuated and denoted a stable and positive sense of self, whereas the drawings of children with ambivalent attachment patterns suggested poor individuation of figures and illuminated a lack of emotion or negative emotion (Procaccio et al., 2014).

Children's family drawings with respect to attachment have also been investigated in non-Western cultures. Behrens and Kaplan (2011) examined Japanese children's drawings; Gernhardt and colleagues (2016) assessed children's family drawings in both Cameroon and Germany; and Jin and colleagues (2018) focused on Korean children's drawings. These studies demonstrated unique cultural and gender differences among the samples and further validated

family drawings as a useful and culturally generalizable method for understanding children's attachment representations (Pace et al., 2020).

It is crucial for researchers to utilize family drawings to tap into children's attachment representations, not only because of children's natural inclination toward art but also because of the existence of family drawings as an additional "narrative construction" within the processing of autobiographical memory. In this sense, family drawings can function as a mechanism that assesses both past experiences with attachment figures and existing internal working models involving current close relationships (De Coro et al., 2008; Pace et al., 2015). In addition, drawing the family appears to activate children's internal working models (IWMs) of themselves, their caregivers, and their attachment relationships, which is demonstrated through a wide range of drawing elements (Fury et al., 1997; Gernhardt et al., 2016).

The literature on children's drawings has been expanded by the investigation of gender as well as specific properties that shape children's drawings: form and content. Western research investigating gender differences in children's drawings has consistently supported the notion that boys and girls significantly differ in terms of maturity. Girls undergo earlier physical maturity (Harris, 1963) and cerebral cortical development from early adolescence to mid-adolescence (Colom & Lynn, 2004). Compared to boys, girls experience quicker acquisition of language, leading to stronger recall of visual elements (Brechet, 2013; Cox, 1993; Goodman et al., 2022; Willsdon, 1977). Chaplin and Aldao (2013) theorized that boys' lower language and inhibitory control capacities help explain their challenges with emotional dysregulation. In addition, females are more psychosocially mature than males (Bomar & Sabatelli, 1996) and demonstrate greater empathy and sympathy via facial expressions and empathic behaviors (Chaplin & Aldao, 2013; Zahn-Waxler, 2000; Zahn-Waxler et al., 1991). Adolescent girls also display higher levels

of perspective-taking and are about two years ahead of adolescent boys in social-cognitive and intellectual functioning (Silberman & Snarey, 1993; Van der Graaff et al., 2014).

Currently, researchers favor the influence of environmental factors over genetically inherited sex characteristics to understand variations in children's drawings (Adams & Simmons, 2019; Cox, 1993; Feinburg, 1977; Freedman, 1997; Goodman et al., 2022; Tuman 1999b). Further, investigators have found that gender differences in children's drawings are consequences of sociocultural expectations and gendered preferences for content (Flannery & Watson, 1995; Goodman et al., 2022; Majewski, 1978) and that different preferences govern the use of formal elements to emerge as a gender style in both form and content (Goodman et al., 2022; Tuman, 1999a).

Tuman's (1998, 1999a) study sought an understanding of the interrelationship among gender, children's preferences for specific drawing content, and children's preferences for specific drawing form. Children were read a narrative based on themes of gender-preferred imagery and then asked to illustrate what they liked in the story and to write a brief title for their artwork. The children's drawing responses were assessed and coded for evidence of 20 domains of Content with a checklist scoring instrument. Responses were assessed and coded for evidence of 22 formal characteristics of art in order to determine if there were differences in the formal elements that boys and girls utilized. Tuman found that the majority of boys and girls selected gender-congruent Content for their drawings, in that girls selected "feminine" items such as care, concern, and domestic life, while boys employed fantasy, action, and "masculine" Content such as power, aggression, and sports. Tuman (1998, 1999a) also found that boys' and girls' use of form within their drawings varied and that Content and FE are in fact related.



Tuman's (1998, 1999a) study results were consistent with previous research on gender as represented in children's drawings, as it is well known that boys integrate action on the picture plane and exemplify a preference for machines, vehicles, and weapons over human figures (Feinburg, 1977; Goodman et al., 2022; McNiff, 1982; Wilson & Wilson 1977). In contrast, girls include more figures than boys, and girls' drawings contain more male figures, as compared to boys' drawings of female figures (Mortensen, 1991). Girls also prefer to depict realistic social environments over incidents of action (Flannery & Watson, 1995). Tuman's study also played a crucial role in exemplifying the efficacy of considering drawing form and content in understanding the ways in which children artistically express themselves and the relevance of gender in these creative processes. Tuman pointed out the detrimental impact of not allowing children to make their own artistic choices about how to employ form and content. Drawing is a tool that fosters children's meaning-making and expression of thoughts and feelings. By encouraging specific content that reinforces gender norms, a child's "expressive capabilities" (how he or she communicates thoughts or feelings or constructs meaning) are compromised (Tuman, 1998, 1999a).

Researchers have speculated that the mental worlds of children, whether it be thoughts, wishes, or fears, become manifest through their drawings (Bat Or et al., 2019). Further, field-tested interventions that incorporate various theoretical orientations indicate that expressive tools, particularly incorporated during the therapeutic process, have the potential to unfold or strengthen mentalization (Degges-White & Davis, 2011). The use of visual imagery in art therapy in addition to verbal processing can strengthen mentalization "due to the production of tangible artifacts to represent internal states" (Moore & Marder, 2019, p. 30). Moreover, the therapeutic benefits of art therapy, namely, the crucial role that art therapy plays in

mentalization, is supported by the current body of literature. Springham and colleagues (2012) employed a combined qualitative and quantitative methodology to conduct a pilot study that involved participants who met the criteria for borderline personality disorder (BPD) and were enrolled in a six-week mentalization-based therapy (MBT) service program that included art therapy. The researchers found that the consistent vacillation between art making and art sharing as explicit mentalization appeared to have increased implicit mentalization over time. Interestingly, the ongoing movement between self-reflection and art making, and between interpersonal reflection and art sharing, appeared to have been associated with emotion regulation, also supporting mentalization in art therapy (Springham et al., 2012).

Springham and Camic (2017) assessed art therapy practice in three MBT programs, which included patients who were diagnosed with BPD in the UK's National Health Service (NHS). The study found that art therapists frequently directed patients' focus to their awareness of their artwork, while using mind-directed statements to stimulate patients' thoughts about how the art therapist experiences the artwork. This approach is consistent with the goals of MBT, which involve facilitating joint attention (Bateman, 2007) and upholding an outwardly active stance whenever possible (Bateman & Fonagy, 2016). Importantly, the art therapists' demonstration of engaged attention toward patients' artwork impacted patients to join therapists' respective attention focal points and appeared to be instrumental to teleological functioning. The authors pointed out that this finding is consistent with Karterud and Urnes' (2004) explanation of art therapy as a "teleologically sensitive practice" (Springham & Camic, 2017, p. 150) as well as previous research substantiating art therapy as a process that fosters interpersonal cooperation and a "stronger self-sense in that relationship" (Springham & Camic, 2017, p. 150).

Mentalization-based art psychotherapy (MBAP) combines art psychotherapy with MBT, aiming to assist individuals with identifying and modulating their emotions as well as increasing their ability to reflect on themselves and their interactions with others (Chilvers et al., 2021). In MBAP, a patient engages in art-making next to an individual who is consistently inquisitive and attuned as to what is happening in the image and in the person's relationships (Havsteen-Franklin, 2016). In the process, art therapists exemplify a variety of competencies such as perspective-taking and reframing, working with implicit and explicit mentalizing processes, being emotionally validating, challenging rigid perspectives, and working collaboratively (Havsteen-Franklin, 2019). The literature has demonstrated that MBAP can enhance mentalizing, specifically for adults with general psychopathology, addiction problems and personality disorders (Chilvers et al., 2021; Moore & Marder, 2019).

Art therapy has been additionally helpful in addressing posttraumatic stress disorder (PTSD) and other mental health problems (Chandraiah et al., 2012; Gantt & Tinnin, 2009). Community-based art therapy is an intervention that seeks to establish "a sense of safety" to "help community members heal from trauma and create a sense of engagement among community members" (Shipley et al., 2021, pp. 143-144). In their mixed methods study, Shipley and colleagues (2021) assessed the experiences of active-duty service members who participated in community-based expressive art activities that involved honoring losses related to 9/11. The researchers found that the community-based expressive art event was a beneficial and positive experience for the participants. The study also substantiated the existing research that suggested that art therapy enables clients to express their emotions nonverbally and then separate themselves from those experiences so that they can begin to process their internal experience (Morgan & Johnson, 1995; Ramirez, 2016; Shipley et al., 2021). Following this intervention,

participants had a greater awareness of their attitudes about 9/11 as well as the losses they endured. The “safe, accepting, and empathetic environment with support from the group” allowed the participants to process their thoughts and emotions in a healthy way (Shipley et al., 2021, pp. 149-150). Further, the community-based expressive arts activities allowed participants to express their inner worlds and repressed memories through their artwork to access and release repressed emotions (Shipley et al., 2021, p. 150).

Children have obtained invaluable benefits from art therapy as well. Shore (2013) highlighted the mentalizing processes that have been observed in children. Further, through the art-making process, children are able to recall past trauma and establish coherent narratives to “ultimately make sense of confusing emotions” (Moore & Marder, 2019, p. 30). Primary school-based art therapy has been associated with positive effects for children with difficulties in classroom behavior (Rosal, 1993), oppositional-defiant disorder, separation anxiety (Khadar et al., 2013a, 2013b), and locus of control and self-concept (McDonald et al., 2019; Rosal, 1993). The school-based art therapy service in McDonald and colleagues’ (2019) mixed-methods study involved art therapists asking children questions related to their artmaking to help them shift toward “an increase in representing and naming feelings and a decrease in acting them out, in order to facilitate mentalizing” (McDonald et al., 2019, pp. 6-7). In addition to teachers’ noticing improvements in children’s behavior and reductions in disruption and hyperactivity, the majority of the children reported that they benefit from making and thinking about art as well as expressing, sharing, thinking, and learning about thoughts and feelings. The safe, tranquil, consistent, and positive nature of the therapy room was reportedly helpful to the children as well (McDonald et al., 2019, pp. 23-24).

Art-based programs and interventions have also been associated with considerable gains in empathy among middle school and high school populations (Castillo et al., 2013; Ishaq, 2006; Morizio et al., 2021). In addition, having received instruction in arts-enrichment activities, preschool children demonstrated enhanced emotion regulation (Brown & Sax, 2013). Further, the act of not only making art but also sharing it with others can help develop children's self-concept (Trusty & Oliva, 1994) and improve self-esteem and social skills among children who come from low-income backgrounds (Mason & Chuang, 2001). Grant and Berry (2011) suggested that utilizing creativity to scaffold empathy-building enables children to become more thoughtful about others and practice perspective-taking. Art-based empathy programs are hands-on and low-cost, making them a practical method for empathy-building in young children (Morizio et al., 2021). Implementing art-based activities in empathy training appears to have tremendous value, especially for low-income children from urban, multicultural environments (Morizio et al., 2021).

Although no empirical studies speak directly to the relationship between mentalization and children's drawings, the notion that mentalization can be captured through children's drawings is further supported by Lowenfeld's (1947) theory. Each of Lowenfeld's six stages (see Table 1) maintains a different position regarding mental and emotional development and offers specific concepts that speak to the capacity to mentalize such as perspective-taking. Lowenfeld (1957) argues that mental and emotional growth and creative expression are interrelated and interdependent on one another. He discusses that visual perception begins during the scribbling stage, when the child discovers that he or she can control and repeat motions (Lowenfeld, 1957, p. 102). In this way, the child appears to recognize him or herself as an intentional being who is becoming aware of his or her own agency, as Fonagy might conceptualize (Fonagy et al., 2002).

Lowenfeld also posits that during the scribbling stage, when children are emotionally maladjusted, children's "stereotyped, rigid repetitions express the lowest type of emotional release" (Lowenfeld, 1957, p. 50). Children at this stage may engage in "copy-work," in which self-identification does not take place; they are unwilling or unable to express their own emotional world (Lowenfeld, 1957). This emotional immaturity is comparable to unsymbolized emotional processes or affect dysregulation that is identified in children with low mentalization (Bateman & Fonagy, 2004, 2012). Lowenfeld distinguishes the emotional inflexibility that is associated with stereotyped repetition from the flexibility associated with practicing repeated form concept during the schematic stage. Although this flexibility typically begins to be expressed in the pre-schematic stage (Lowenfeld, 1957, p. 125), Lowenfeld describes that the child at the more advanced schematic stage of creative expression includes him or herself and his or her feelings in drawings or transfers these feelings to someone else (Lowenfeld, 1957, pp. 51-53). It is implicit that this type of child likely shows a greater awareness of his or her own or others' feelings.

In addition, perspective-taking embedded in mentalization can also be understood by reviewing Lowenfeld's (1957) theory of children's art and social growth. The child in the gang stage experiences a feeling of social consciousness and responsibility as well as "a close self-identification with the needs of others" rather than just him or herself (Lowenfeld, 1957, pp. 56-57). Lowenfeld discusses that the child identifies oneself with the group in his or her work and can convey the feeling of the group. For example, in one child's picture, after a tree fell because of a hurricane, a group of children watched the workers cut the trunk, and the awakening of the group's visual awareness was expressed (Lowenfeld, 1957, p. 207). When a child is socially handicapped, or his or her desires for social participation are suppressed, the child naturally does

not have the same capacity to identify oneself with others in his or her own work (Lowenfeld, 1957, pp. 56-57). During Lowenfeld's pseudo-naturalistic stage, the child typically demonstrates a departure from using generalizations or schemata in his or her creative expression and instead displays a recognition of individual differences. Lowenfeld (1957) cited an example in which a child drew a beggar and included meaningful details like the beggar's apparently being blind, wearing an old hat, having a beard, and extending an outstretched arm. The child at this stage is characterized not only by the ability to identify him or herself with his or her experiences but also by the needs of others in his or her environment. The child's close identification with and connection to the perspective of the blind beggar was illustrated by exaggerated details such as the beggar's outstretched arm. The child at this stage typically is an experimenter and allows for the flexible representation of figures and the projection of his or her emotions through art. Social awareness is expressed in a variety of ways such as others passing the beggar, who was sitting under a bridge (Lowenfeld, 1957, pp. 247-250).

### **The Present Study**

There is currently a dearth of research that directly examines mentalization and children's drawings. Moreover, despite what we know about children's preferences for specific content and form, especially with regard to gender, there has been a lack of consideration of children's content and FE preferences as a means to understand their mentalization processes. Reviewing the literature, there is a total absence of studies that address the connections among attachment quality, mentalization, and gender as represented in children's drawings. The present study aimed to address this gap in the literature by investigating the relationship between the Formal Elements (FE) and Content scores of school-aged children's drawings and their attachment and mentalization ratings. More specifically, this study considered the extent to which mentalization

mediated the relationship between attachment quality and FE scores as well as the relationship between attachment quality and Content scores of children's drawings. Four hypotheses were constructed consistent with the Baron and Kenny (1986) mediational model, and an additional hypothesis was also formulated.

- 1) Children's attachment quality would be correlated with the Content and FE scores of the children's drawings.
- 2) Children's attachment quality would be correlated with children's mentalization ratings.
- 3) Children's mentalization ratings would be correlated with the Content and FE scores of the children's drawings.
- 4) Children's mentalization ratings would mediate the relationship between children's attachment quality and the Content and FE scores of their drawings.
- 5) Boys and girls would significantly differ on a variety of measures.

## **Method**

### **Participants**

The present study assessed two samples of 5–12-year-old children and their caregivers. The first sample included inpatient child participants ( $n = 45$ ), who were recruited consecutively, following admission to a child psychiatric inpatient unit in White Plains, NY. These children typically resided in low-income urban neighborhoods and tended to exhibit unsafe behaviors toward themselves and others. The second sample included nonhospitalized child participants ( $n = 54$ ), who were recruited from a public elementary school in White Plains, NY. The nonhospitalized children were typically from middle and upper-middle income households and of diverse ethnic backgrounds. Children whose primary language was not English, children who had a standard score below 75 on an assessment of receptive vocabulary, and children adopted



after six months of age were excluded from the study (Chu, 2016; Goodman et al., 2013). Table 2a and Table 2b depict both the inpatient and nonpatient demographics of the caregivers and children who participated in the study as well as the means and standard deviations of the variables used in the data analysis.

## Measures

**Demographic Questionnaire.** Caregivers of all child participants completed a demographic questionnaire prior to engagement with the other assessment instruments.

**Attachment Story-Completion Task (ASCT).** The Attachment Story-Completion Task (ASCT; Bretherton et al., 1989; Bretherton, Prentiss, et al., 1990; Bretherton, Ridgeway, et al., 1990) is a 30-min, semistructured interview used to assess the child's internal working model of the attachment relationship to the primary caregiver. The ASCT consists of five story stems designed "to access the internal working models of attachment . . . through a story-completion task, acted out with small family figures" (Bretherton, Ridgeway, et al., 1990, p. 284). In this assessment procedure, a family of dolls is used to tell the beginning of a series of five stories specifically designed to activate the child's attachment system and to elicit responses from the child regarding the child's interactions with the primary caregiver in five attachment-activating situations: confrontation (spilled-juice story), pain (hurt-knee story), fear (monster-in-the-bedroom story), separation (departure story), and reunion (reunion story). The child is expected to complete the stories begun by the interviewer and is permitted to stop the procedure at any time (see Table 3; Goodman et al., 2013).

The child and interviewer were video-recorded together in which the child was first introduced to the dolls and then asked to select a doll family, name the dolls, and pretend to make up stories about them. Consistent with Solomon and her colleagues (1995), the child was

first asked to select a doll that would represent him or her in the stories. The child was then asked to select anyone to comprise the family: African American and European American mother, father, brother, and sister dolls were available to choose from. The child was encouraged to express her or himself through both words and dramatic actions to complete each story.

The interview began with a practice story stem (birthday story) to warm up the child to the task (Goodman et al., 2013). The interviewer started each story and then prompted the child to finish it by saying, "Show me what happens now." Nondirective prompts such as "What happens next?" or "Where are they going?" were used to facilitate the storytelling. In addition, a standard inquiry accompanied each story in the form of "What do they do about [the story's central feature]?" to determine how the child resolved the story. For example, in the hurt-knee story, the interviewer asked, "What do they do about the hurt knee?" Standard inquiries were always made at the end of every story to clarify the child's story resolutions or lack of resolutions (Goodman et al., 2013).

In their validation study, Solomon et al. (1995) relabeled the four attachment categories *confident* (B), *casual* (A), *busy* (C), and *frightened* (D). Interrater reliability for the four-category system was established, Cohen's  $\kappa = .62$ ,  $t(40) = 7.08$ ,  $p < .001$ . Correspondence between the ASCT and a concurrently administered, modified Strange Situation procedure (Main & Cassidy, 1988) was high, Cohen's  $\kappa = .74$ ,  $t(40) = 8.23$ ,  $p < .001$ . In fact, all eight children classified as controlling (disorganized) on this procedure were also classified as frightened (disorganized) on the ASCT. The Attachment Doll Play Assessment-Revised (ADPA-R; George & Solomon, 1996, 1998, 2000) is an ASCT coding system that emphasizes the child's structure of discourse and the defensive processes used in regulating anxiety and other affects rather than simply the quality of story content like other representational coding systems. Thus, to ensure accurate coding, verbal

and behavioral contents of the interviews were transcribed in two parallel columns. Only the final four stories were coded. Each story was coded separately and assigned a primary, and in some cases, a secondary or tertiary attachment classification. The child was ultimately assigned an overall attachment classification (A-B-C-D) analogous to the infant and adult classification systems (Cassidy & Shaver, 2008). The ADPA-R was also selected because it has been validated on older school-age children (Solomon et al., 1995), comparable to the children in the present study (Goodman et al., 2013).

A prominent ADPA-R expert in the field coded all transcriptions, and her classifications were used in the analyses. Interrater reliability on 20% of the sample was established with a second recognized ADPA-R expert. Both coders were blind to sample characteristics (except age and gender) as well as the hypotheses of the study. These raters achieved 95% agreement on the four-category attachment classification system, Cohen's  $\kappa = .73$ ,  $p < .001$ , and 100% agreement on the two-category, D/non-D (A, B, C) system, Cohen's  $\kappa = 1.00$ ,  $p < .001$  (Goodman et al., 2013).

**Children's Apperception Test (CAT).** The CAT is a projective measure (Bellak & Bellak, 1949) designed to evaluate personality traits and attitudes in children between the ages of 3 and 12. An abridged version takes approximately 20 minutes to administer. The CAT uses pictures of animals depicted in typical human social situations. Six cards were chosen to administer to each child participant. These cards were specifically selected because they illustrate attachment-relevant situations and assess children's representations of attachment figures. For example, the first card illustrates three baby chicks sharing a meal together at a table with a parental figure standing nearby. The second card illustrates two adult bears and a child bear tugging a rope on either side. The third card presented was a tiger chasing after a monkey in

the jungle. The fourth card illustrated a rabbit sitting on a child's bed viewed through an open doorway. The fifth card illustrated an adult bear and a baby bear sitting on its lap. The sixth card illustrated a hurt kangaroo in a cast holding crutches. Each card was individually presented, and the child was instructed to narrate a story with a clear beginning, middle, and ending about the characters depicted. Nondirective prompts such as "What happens at the end?" or "What are the characters thinking and feeling?" were used to facilitate the storytelling process. There are no standardized norms of interpretation available for this assessment. Bellak and Bellak (1949) suggested a series of 10 variables to consider when interpreting the results: the main theme; the main hero; attitudes toward parental figures; family constellations; the introduction of figures, objects, or external circumstances (e.g., friend, enemy, punisher); the omission of figures or objects; the presence of and nature of anxiety; significant conflicts; attitudes toward punishment; and the final outcome (Chu, 2016; Woltmann, 1950).

**Coding System for Mental State Talk in Narratives (CS-MST).** The CS-MST (Bekar et al., 2014) was developed to measure MST in children. Children are asked to narrate a story based on the children's storybook, *Frog, Where Are You?* The story contains only illustrations. Children's narratives are transcribed and then coded for MST language. The CS-MST yields seven subscale scores that reflect the quality of the child's MST language: (1) Emotion Words, (2) Cognitive State Words, (3) Perception Words, (4) Physiological Words, (5) Action-Based Mental State Words, (6) Referrals to Self Mental States, and (7) Referrals to Listener's Mental States (Chu, 2016).

Emotion Words (Code 1) refers to the number of words used by the child that refer to the emotional states of the story characters or in reference to the events in the story. Within Emotion Words (Code 1), three separate codes can be counted: the number of unique positive emotion

words used by each child (Code 1a [+] Emotion Count), the number of unique *positive* emotion words used by each child (Code 1aa [-] Emotion Count), and the number of emotion words used by each child within a sequence of cause-and-effect relationships (Code 1b [Causal Emotion Words – C1 Causal]). Emotion Words (Code 1) assesses the degree and quality of the child's emotional vocabulary (e.g., "He is *mad* at the dog!"; Chu, 2016).

Cognitive Words (Code 2) refers to knowledge, thoughts, beliefs, desires, and preferences that would refer to explanations for cognitive states of the characters. Within the Cognitive Words (Code 2), two separate codes are counted: the number of unique cognitive state words used by each child (C2-Unique) and the number of cognitive state words used by the child within the sequence of cause-and-effect relationships (C2-Causal). Cognitive Words (Code 2) measures the degree and quality of the child's ability to reference cognitive states (e.g., "He *thought* it was a mouse"; Chu, 2016).

Perception Words (Code 3) refers to the number of perception words that the child uses in the story in reference to the characters (e.g., see, look, watch, smell). Within Perception Words (Code 3), two separate codes are counted: the number of unique perception words used by the child (C3-Unique) and the number of perception words used by the child within a sequence of cause-and-effect relationships (C3-Causal). Perception Words (Code 3) assesses the child's ability to refer to perceptions (e.g., "The boy *looked* in the jar, and the dog *smelled* in the jar"; Chu, 2016).

Physiological Words (Code 4) refers to the number of physiological words that the child uses in a story that imply mental states (e.g., sleepy, tired, sick, hurt, thirsty, hungry). The child can either be speaking about or speaking for the characters (e.g., "And then he *went to sleep*, and the frog came out"). Within this code, two separate codes are counted: the number of unique

physiological words used by the child (C4-Unique) and the number of physiological words used by the child within a sequence of cause-and-effect relationships (C4-Causal; e.g., “The frog was *awake early because* he was so big”; Chu, 2016).

Action-Based Mental State Words (Code 5) measures the number of action words used by the child that imply mental states without openly stating them (e.g., “The dog is *trying* to sniff the frog”). Within Code 5, two separate codes are counted: the number of unique action mental state words used by the child (C5-Unique) and the number of action-based mental state words used by the child within a sequence of cause-and-effect relationships (C5-Causal; e.g., “*Because they were stuck*, they were calling their moms”; Chu, 2016).

Referrals to Self Mental States (Code 6) refers to the number of times the child talks about his or her own mental states. This code assesses the child's reference to the content of his or her mind, evaluations, and appraisals (e.g., “I *think* we *see* the moon at night”). Within this code, one other code is additionally counted: the number of referrals to self mental states used by the child within a sequence of cause-and-effect relationships (C6-Causal; e.g., “I *think* they will fall off *because* it is fast”; Chu, 2016).

Referrals to Listener's Mental States (Code 7) refers to the number of times the child talks about the interviewer's mental states. This code measures the child's ability to recognize the interviewer's mind as a separate entity (e.g., “Do you *see* that? Do you *think* that he found it?”). Within this code, one other code is additionally counted: the number of referrals to the interviewer's mental states used by the child within a sequence of cause-and-effect relationships (C7-Causal; e.g., “Do you *know* it is a squirrel *because* someone told you?”; Chu, 2016).

The CS-MST was utilized in an empirical study by Bekar et al. (2014) to assess preschool children's and mothers' mental state understanding in relation to children's socioemotional

functioning and parental stress by using a narrative task from Mayer's (1969) wordless picture book, *Frog, Where are You?* This study demonstrated the use of the CS-MST with a sufficient sample size ( $N = 91$ ). Findings indicated that children's age was positively correlated with the frequency and diversity of mental state language in their narratives ( $r = .37, p < .01$ ;  $r = .45, p < .001$ , respectively; Chu, 2016). The use of CS-MST requires training, typically over one day, and establishment of interrater reliability (Bekar et al., 2018).

Developmental researchers concur that young children have rich internal worlds and act based on their IWMs; however, researchers have struggled to assess young children's internal worlds, particularly in children between the ages of 3 and 10 (Bettman & Lundahl, 2007). For instance, it is challenging to measure young children's RF, as there are no available standardized and normed measures that specifically assess RF in children as young as 5 years old. The original RF measure developed by Fonagy and his colleagues (1998) was designed for application to the Adult Attachment Interview (AAI; George et al., 1985). Young children's communication skills, both oral and written, are not adequately developed to respond to the verbal attachment interviews and written attachment measures used with adolescents and adults such as the AAI. Further, children, particularly between the ages of 3 and 10, are limited in their ability to reflect on their own mental states due to their cognitive immaturity. Younger children typically have less developed lexical vocabulary overall and lack the ability to engage in sophisticated self-reflection, which could make it difficult to specifically assess for RF in children (Bettman & Lundahl, 2007; Chu, 2016; Emde, 2003; Vrouva et al., 2012).

In order to overcome this obstacle, developmental researchers have been using narratives elicited through picture images, story stems, dolls, and puppets to assess young children's internal worlds (Bettman & Lundahl, 2007). Story-telling assessments such as the CAT could

provide an avenue to draw conclusions about the internal worlds of children who are too old to participate in solely behavioral observational measures (e.g., the Strange Situation) and too young to participate in verbal instruments that require a considerable amount of self-reflection and a substantial level of cognitive maturity (e.g., the AAI). For this reason, assessing children's MST in narrated stories can serve as one potential method to evaluate their ability to mentalize (Bekar, 2014; Chu, 2016).

The CS-MST was previously applied to the present study's sample in Chu's (2016) study to code the children's CAT stories using the CS-MST. Children's frequency of MST was measured through the application of the CS-MST to the six CAT responses. After having attended a coding training with the CS-MST developer, Chu's coding team underwent supervised reliability training. The team then independently coded all CAT responses, using the CS-MST. All stories were coded twice, once by Chu and once by a coder. Weekly coding teams were held to improve reliability. The mean ICC for MST interrater reliability was .97. Once all the CAT transcripts were coded for MST, Chu entered the data into the SPSS database to calculate the frequency of mental state words the child participants used (Chu, 2016).

**Tuman Coding System.** Tuman (1998, 1999a) originally designed two rating scales, the Scale of Content and the Scale of Formal Elements (FE), to identify the content and formal elements characteristics of drawings of children. This coding system was later redeveloped for Goodman et al. (2022) to act as a more culturally relevant and inclusive tool for their Ugandan children's sample. These two scales were influenced by The Formal Elements Art Therapy Scale: A Measurement System for Global Variables in Art (Gantt & Anderson, 2009). The rating tools now consider both Lowenfeld's artistic development trajectory as well as cultural



differences in children's art. The tools also allow space for both qualitative and quantitative exploration (Goodman et al., 2022).

The Scale of Content (see Table 4) was developed to capture the socially informed interests and behaviors that shape the artistic production of children. Aspects of children's everyday life experiences are listed and rated with Western and non-Western themes to reveal potential cultural differences in preferences and the rendering progression and development of the human figure. The Scale of Content is designed as a checklist that codes 75 different components of drawing content (Goodman et al., 2022).

Without compromising the content or theme of a drawing, the second rating instrument, The Scale of FE (see Table 5), identifies the underlying structural organization and formal qualities of a two-dimensional drawing. Rating Scales 1 through 8 are based on elements of art and design traditionally employed to describe the language of art in Western art criticism. Additionally, The Scale of FE relies on charting a schematic progression of artistic development consistent with Lowenfeld's (1947) stages of development. A close observational rating of each drawing using the Scale of FE is conducted. The checklist codes 32 different characteristics of design and projected applications of Lowenfeld's (1947) stages of development (Goodman et al., 2022). The 2022 adaptation of Tuman's (1998, 1999a) coding system was administered for this study.

## **Procedure**

This study represents a secondary analysis, using archival data from a previous study (Goodman et al., 2013). In the previous study, the hospitalized child participants were recruited upon admission to the child psychiatric inpatient unit. For the nonhospitalized child participants, the school principal sent a letter to all families with children attending the school. The letter

stated that researchers were conducting a study of children's behaviors, and families were needed to participate. Upon first contact, all caregivers and children were scheduled to come to the research lab for their assessments. Each child's primary caregiver completed a demographic questionnaire. Children were interviewed in a separate area from their primary caregivers. Each child was informed that he or she would be completing a story-completion task. Children completed the Attachment Story-Completion Task (ASCT) and were assisted by Dr. Goodman or graduate students trained by him and video-recorded during the process. All video-recordings were transcribed verbatim ( $N = 99$  transcripts). The children were debriefed following the ASCT and provided space to ask questions and receive support (Goodman et al., 2013). Each child was also administered six cards of the Children's Apperception Test (CAT), and the children's responses to the CAT were video-recorded and transcribed verbatim ( $N = 99$  transcripts). Multiple appointments were scheduled to prevent undue pressure or stress on the child. All caregivers and children consented in writing to their participation in this IRB-approved study after the study procedures were carefully explained (Goodman et al., 2013; Goodman et al., 2012).

In the present study, Tuman's (1998, 1999a) coding system was applied to the children's drawings for FE and Content. In this study, each of the 99 children, including both the inpatient and the nonpatient samples, completed three drawings: a drawing of the family, of the primary caregiver, and of the self, equating to 297 drawings in total. Eight students, including the principal investigator, served as coders, formally trained by the coding system developer, Dr. Tuman. Prior to the training, the team of eight coders were required to review Lowenfeld's stages of artistic development to obtain a sense of a "normal" artistic baseline. The training consisted of a two-and-a-half-hour seminar via Zoom that provided detailed instruction on the

Content and FE rating scales as well as a brief review of Lowenfeld's stages of artistic development. Following the training, the coders practiced coding a random selection of 12 drawings, which were not part of the study. Dr. Tuman also coded the drawings, and her ratings served as the "gold standard," by which the coders' ratings were compared and interrater reliability was calculated. The mean intraclass correlation (ICC) reliabilities for the Scales of FE and Content were .67, and .89, respectively.

After this successful practice coding, the principal investigator coded all 297 drawings, and the five coders who achieved the highest interrater reliabilities on the practice drawings coded approximately 60 drawings each. All 297 drawings were coded in a random order to avoid coder bias. Each drawing was rated by the coders independently, according to Tuman's (1998, 1999a) coding system and coded for FE and Content. All drawings were coded twice, once by the principal investigator and once by a coder. Five of the six coders were blind to the study's hypotheses. Reliability between the coders was calculated. Weekly coding team meetings were required to enhance reliability and prevent the likelihood of interrater drift. The mean ICC reliabilities for the Scales of FE and Content were .95 and .97, respectively. After all drawings were coded for FE and Content, the principal investigator entered the data into the SPSS database. The ASCT, CS-MST, and demographic data were already entered into the SPSS database.

### **Data Analysis**

This researcher conducted statistical analyses, using SPSS 28.0 for Mac. The attachment variable was rated continuously with a value assigned to each of the four attachment categories: secure (B) = 4, anxious-avoidant (A) = 3, anxious-resistant (C) = 2, disorganized (D) = 1 (Goodman et al., 1998). Pearson correlations were carried out to evaluate the relationships

among the variables. Baron and Kenny (1986) stipulated that four criteria must be met for a mediational model to be supported. Firstly, the independent variable (IV; in this study, attachment quality) must be correlated with the dependent variable (DV; in this study, the Content and FE scores of children's drawings were separate DVs). Second, the IV must be correlated with the mediator variable (MV; in this study, total MST and MST Emotion Words, were separate MVs). Third, the MV must be significantly related to the DV. Lastly, to demonstrate that the MV mediates or explains the relationship between the IV and DV, it is required that, after the MV is entered into the equation, the IV is no longer significant in predicting the DV, and the MV becomes very significant in predicting the DV.

A mediational model could not be tested for this set of variables in the nonpatient sample, as it was determined that there were no significant correlations found between children's attachment quality and their Content and FE scores. According to the mediational criteria, it is not possible for total MST or MST Emotion Words, to mediate the relationship between children's attachment quality and the Content or FE scores of their drawings, due to the nonsignificant relationship of these variables of interest (Baron & Kenny, 1986).

Notably, there were only two occasions where the independent, mediator, and dependent variables were all significantly correlated with one another, allowing for the testing of two specific mediational models. These two models included total MST as a mediator between attachment quality and the Content scores of family drawings in the inpatient sample, and MST Emotion Words as a mediator between attachment quality and the Content scores of family drawings in the inpatient sample. Correlations were calculated between all the demographic variables and the dependent variables, and child's age was significantly positively correlated

with the inpatient children's Content scores on family drawings. As a result, age was entered into these two mediational models as well as a control variable.

Additionally, two independent samples *t*-tests were carried out to test for significant differences in FE and Content total scores between males and females. Data analyses were conducted twice, once on the inpatient sample and once on the nonpatient sample. One MST total score was an outlier and was deleted from the dataset. In addition, one child was excluded from the study, as it was determined that the child's CAT assessment data were never collected.

## **Results**

### **Hypothesis 1: Children's Attachment Quality and Content and Formal Elements Scores**

Within the inpatient sample, there was a significant positive correlation between children's attachment quality and the Content scores of their family drawings ( $r = 0.31, p < 0.05$ ; see Table 6).

### **Hypothesis 2: Children's Attachment Quality and Mentalization Ratings**

Within the inpatient sample, there was a significant positive correlation found between children's attachment quality and total MST ( $r = 0.38, p < 0.05$ ; see Table 7). There was also a significant positive correlation found between children's attachment quality and MST Emotion Words ( $r = 0.34, p < 0.05$ ).

Within the nonpatient sample, there was a significant positive correlation found between children's attachment quality and total MST ( $r = 0.40, p < 0.01$ ; see Table 7).

### **Hypothesis 3: Children's Mentalization Ratings and Content and Formal Elements Scores**

Within the inpatient sample, there was a significant positive correlation found between children's total MST and the Content scores of their family drawings ( $r = 0.32, p < 0.05$ ; see Table 8). There was also a significant positive correlation found between MST Emotion Words

and the Content scores of children's family drawings ( $r = 0.33, p < 0.05$ ). Similarly, there was a significant positive correlation between total MST and the FE scores of children's family drawings ( $r = 0.31, p < 0.05$ ) and a significant positive correlation between MST Emotion Words and the FE scores of children's family drawings ( $r = 0.42, p < 0.01$ ).

Within the nonpatient sample, there was a significant positive correlation found between total MST and the Content scores of children's caregiver drawings ( $r = 0.29, p < 0.05$ ; see Table 8). Similarly, there was a significant positive correlation found between MST Emotion Words and the Content scores of children's caregiver drawings ( $r = 0.30, p < 0.05$ ). There was a significant positive correlation between MST Emotion Words and the FE scores of children's family drawings ( $r = .30, p < 0.05$ ).

#### **Hypothesis 4: Mentalization Ratings as a Mediator between Children's Attachment Quality and Their Content and Formal Elements Scores**

In the nonpatient sample, there were no significant correlations found between children's attachment quality and their Content and FE scores. Thus, the hypothesized mediational model could not be tested. In the inpatient sample, however, there were noteworthy significant correlations in the context of children's Content scores on family drawings. Thus, two mediational models were able to be tested for this specific set of variables within the inpatient sample: once with MST as a mediator, and once with MST Emotion Words as a mediator. Children's age was significantly correlated with Content scores of family drawings for the inpatient sample, so age was initially entered into each mediational model before adding the attachment quality and Content scores for family drawings.

The predictor variables that were significantly correlated with both the mediator variables and the dependent variables were included in the models. These significant correlations include

children's attachment quality and Content scores of family drawings, attachment quality and total MST, attachment quality and MST Emotion Words, total MST and Content scores of family drawings, MST Emotion Words and Content scores of family drawings, total MST and FE scores of family drawings, and MST Emotion Words and FE scores of family drawings.

#### **Total Mental State Talk as a Mediator between Attachment Quality and Children's Content Scores in Family Drawings**

Having conducted hierarchical regression analyses using total MST as the mediator and controlling for child's age (see Table 9a), it was determined that adding total MST to this equation does not change the significance of the total equation. When separately adding total MST, it was determined that attachment quality predicts Content scores on family drawings for the inpatient sample and becomes nonsignificant, but the added total MST variable does not become very significant in predicting the dependent variable. As a result, this mediational model was not supported.

#### **Mental State Talk Emotion Words, as a Mediator between Attachment Quality and Children's Content Scores in Family Drawings**

Having conducted hierarchical regression analyses using MST Emotion Words, as the mediator and controlling for child's age (see Table 9b), it was determined that adding MST Emotion Words to this equation does not change the significance of the total equation. When separately adding MST Emotion Words, it was determined that attachment quality predicts Content scores on family drawings for the inpatient sample and becomes nonsignificant, but the added MST Emotion Words variable does not become very significant in predicting the dependent variable. As a result, this mediational model was not supported.

#### **Hypothesis 5: Gender Differences**

There were a few notable differences found between boys and girls in both the inpatient and nonpatient sample. For the inpatient sample, there was a significant difference found by gender on FE scores for family drawings ( $t[43] = -2.25; p < 0.05$ ; see Table 10) such that girls' FE scores on family drawings ( $M = 34, SD = 4.23, n = 7$ ) were significantly higher than boys' FE scores ( $M = 30.33, SD = 3.93, n = 38$ ).

Similarly, for the nonpatient sample, there was a significant difference found by gender on FE scores for family drawings ( $t[52] = -2.06; p < 0.05$ ; see Table 10) such that girls' FE scores on family drawings ( $M = 33.6, SD = 3.56, n = 15$ ) were significantly higher than boys' FE scores ( $M = 31.08, SD = 4.18, n = 39$ ). Additionally, there was a significant difference by gender on FE scores for self drawings ( $t[52] = -2.15; p < 0.05$ ) such that girls' FE scores on self drawings ( $M = 31.07, SD = 2.50, n = 15$ ) were significantly higher than boys' FE scores ( $M = 28.95, SD = 3.48, n = 39$ ).

### Discussion

The goal of this study was to understand the associations between attachment quality and mentalization capacities in two samples of inpatient and nonpatient children aged 5 to 12, through analyzing their drawings of self, family, and caregiver. The study further sought to explore the relationship between the FE and Content scores of school-aged children's drawings and their attachment and MST ratings. The present study investigated five hypotheses that explored the bivariate correlations between each set of the variables of interest in addition to evaluating whether mentalization capacity, or MST, mediated the relationship between attachment quality and the Content and FE scores of children's drawings.

The present study partially supported the first hypothesis that children's attachment quality would be positively correlated with the Content and FE scores of the children's drawings.

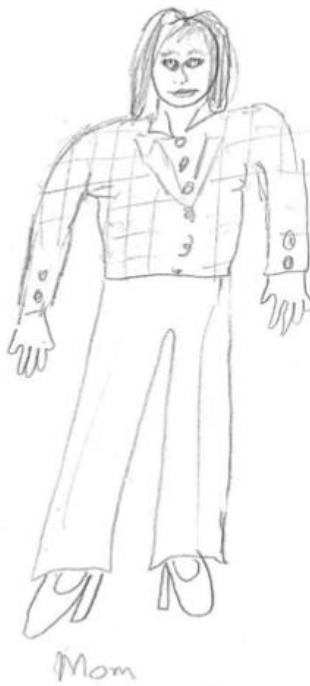


In the inpatient sample, children's attachment quality emerged as a significant positive predictor, specifically for the Content scores of family drawings. This finding can be explained in part by the idea that children who have greater emotional attunement to others also have a greater capacity to pick up on and more accurately represent their family in greater detail, leading to higher Content scores (Fonagy et al., 2002). However, interestingly, no significant relationships were found between attachment quality and Content and FE scores in the nonpatient sample. It is possible that this difference can be attributed to the fact that the inpatient children have a higher level of emotional arousal due to their psychiatric diagnosis and hospitalization status, which could have increased their motivation and ability to accurately represent their family in their drawings, resulting in higher Content scores than their nonpatient counterparts. Additionally, the lengthy separation between the caregivers and inpatient children during the inpatient children's hospitalization could have impacted these children to miss their caregivers and thereby incorporate more detail into family drawings, in an effort to experience a sense of proximity to their caregivers.

The study supported the second hypothesis that children's attachment quality would be correlated with children's mentalization ratings, and this finding emerged for both inpatient and nonpatient children. The robust connection between attachment quality and mentalization, shown in this study, has been repeatedly confirmed in the literature (Fonagy et al., 2002; Franks & Whitaker, 2007; Moss et al., 1995). As noted, Fonagy and colleagues (2002) were instrumental in this discussion, asserting that a caregiver's consistent ability to identify, mirror and reflect upon a child's mental states enables the child to feel soothed and emotionally regulated when he or she is not yet able to do so independently. Through the caregiver's containment and accurate mirroring of mental states, the child can begin to "cope" with his or her distress through the

caregiver's reflections (Fonagy et al., 2002; Gergely & Watson, 1996; Herrmann et al., 2018). Without a sensitive caregiver who engages in marked affect mirroring or with a rejecting or abusive caregiver who reflects inaccurate mental states, the child would likely develop distorted mental representations of relationships and struggle to organize him or herself when activated, or to understand that regulation of emotions is possible (Fonagy et al., 1998, 2002; Herrmann et al., 2018).

The study also partially supported the third hypothesis that children's mentalization ratings would be correlated with the Content and FE scores of their drawings. This relationship held true in the context of the Content scores of children's caregiver drawings and FE scores of family drawings within the nonpatient sample. It also held true for both the Content and FE scores of children's family drawings within the inpatient sample. In the nonpatient sample, some children with higher MST ratings integrated greater detail in their caregiver drawings, adding embellished features on face, clothing, or background features (see Figure 1). The younger child who illustrated the drawing in Figure 2 with lower MST ratings drew a less ornate representation of her caregiver, resulting in the lowest Content score for caregiver drawings in the nonpatient sample. Further, regardless of artistic ability, the child with the higher mentalizing capacity appears to have taken more time depicting the caregiver and attempting to make her as realistic as possible.



**Figure 1.** Example of a caregiver drawing by 9-year-old nonpatient anxious-resistant child with an MST total rating of 79 and a caregiver Content score of 15.50 (#41888C).



**Figure 2.** Example of a caregiver drawing by 6-year-old nonpatient anxious-resistant child with an MST total rating of 17 and caregiver Content score of 7, representing the lowest Content score for caregiver drawings in nonpatient sample (#90390C).

Additionally, inpatient children with greater mentalization capacity often created family drawings with more lines, details, color, and labels for family members, and appeared to be generally more advanced in artistic development compared to children with lower mentalization capacity (see Figures 3, 4, and 5). Figure 3 illustrates the family drawing of a 12-year-old inpatient anxious-resistant child with an MST Emotion Words rating of 15 and an MST total rating of 73. This child also received a family drawing Content score of 24 and the highest FE score on family drawings in the inpatient sample (39.50). Figure 4 illustrates the family drawing of a 6-year-old inpatient anxious-resistant child with the highest MST Emotion Words rating in the inpatient sample and a family drawing Content score of 21.50 and FE score of 31. Figure 5

illustrates the family drawing of an anxious-avoidant child of the same age with the lowest MST Emotion Words and total ratings in the inpatient sample and the lowest family drawing Content (15) and FE (26.50) scores out of the three inpatient children.

The children who drew Figures 3 and 4 appear to have intentionally differentiated the identities of the family members by including unique details on members' faces and clothing as well as integrating several colors, leading to higher Content and FE scores. This child (see Figure 4) also intentionally "crossed out" a figure, resulting in an increase in ratings. In contrast, the child (see Figure 5) with lower MST ratings drew the family members with homogenous features and illustrated tadpoles to represent each member, indicative of the pre-schematic stage of artistic development (Lowenfeld & Brittain, 1987).



**Figure 3.** Example of a family drawing by 12-year-old inpatient anxious-resistant child with an MST Emotion Words rating of 15, an MST total rating of 73, Content score of 24, and FE score of 39.50, representing the highest FE score for family drawings in inpatient sample (#131205F).



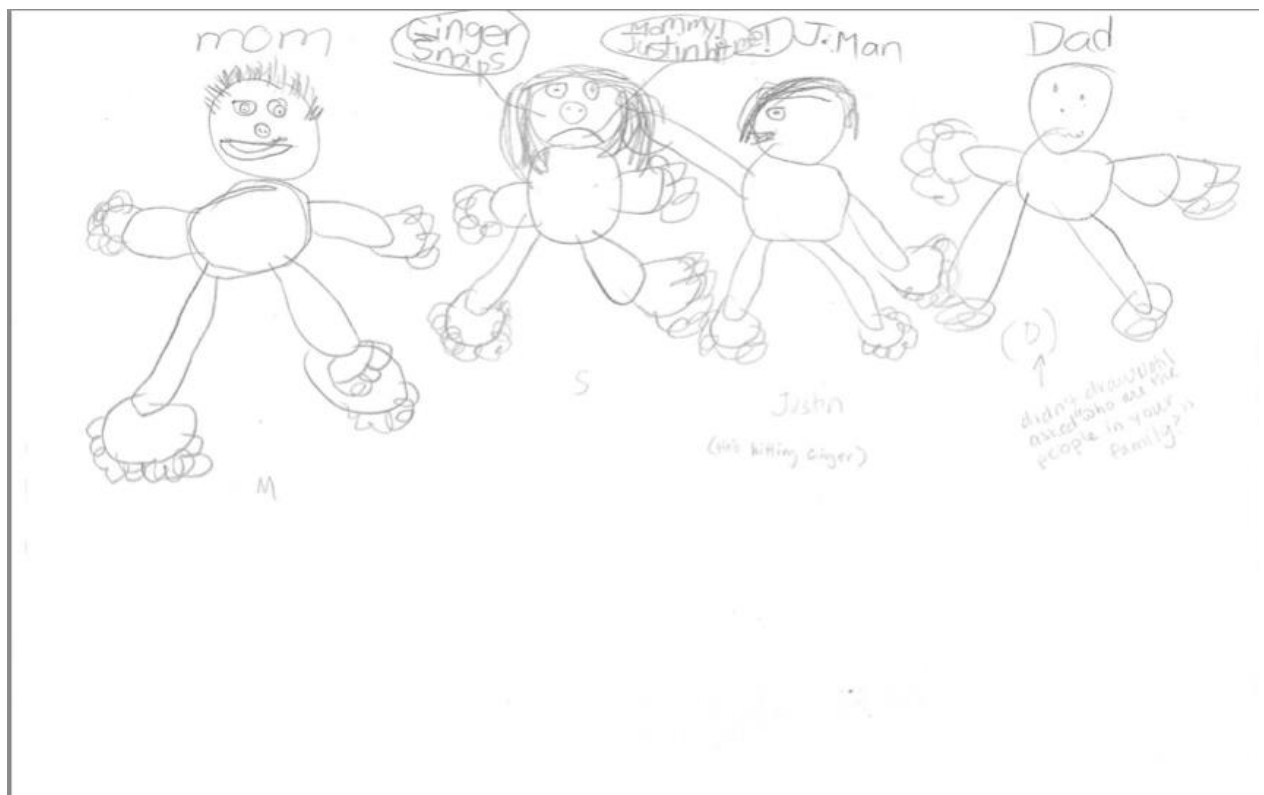
**Figure 4.** Example of a family drawing by 6-year-old inpatient anxious-resistant child with an MST Emotion Words rating of 29, an MST total rating of 47, Content score of

21.50, and FE score of 31. This child also represented the highest MST Emotion Words rating in inpatient sample (#135274F).



**Figure 5.** Example of a family drawing by 6-year-old inpatient anxious-avoidant child with an MST Emotion Words rating of 0, an MST total rating of 13, Content score of 15, and FE score of 26.50. This child also represented the lowest MST Emotion Words, and MST total ratings in inpatient sample (#133869F).

With respect to the inpatient sample, a wide variety of Content and FE was included in the family drawings. Family scenes were often graphic and sophisticated, including conflicts between members and speech bubbles, as well as relatives and members other than members of the nuclear family. Occasionally, members were “crossed out” or “erased,” resulting in higher Content and FE scores (see Figures 6 and 7). The children who created the drawings in Figures 6 and 7 achieved similar Content and FE scores on their family drawings and had comparable MST ratings. The Scale of Content also allows for the coding of themes such as aggression/conflict, which appeared to be present in the inpatient family drawings, yielding higher Content scores. Future research would benefit from more carefully assessing children's depictions of aggression using a valid and reliable aggression coding system for children's drawings.





**Figure 6.** Example of a family drawing by 10-year-old inpatient anxious-resistant child with aggression theme and MST total rating of 50, Content score of 21, and FE score of 28 (#133119F).



**Figure 7.** Example of a family drawing by 8-year-old inpatient anxious-resistant child and “erased” figure with MST total rating of 49, Content score of 23, and FE score of 29.50 (#131634F).

On one hand, despite limitations that insecurely attached children might face in MST, it makes sense that those with greater mentalization capacity included more material in their family drawings. A child's ability to reflect, on paper, a complex representation of family through the use of content and FE indicators would intuitively translate to a child's underlying understanding of relationships. Further, some children delineated thoughts, feelings, wishes, and intentions of family members, represented through facial expressions, words, symptomatic lines, engagement in symbolic activities, or the use of colors to accurately represent or differentiate family members from one another (see Figure 8). In Figure 9, the inpatient disorganized child is 5 years older than the child who illustrated the drawing in Figure 8; however, he has a much lower MST rating. In his family drawing, he created basic uniform stick figures with a lack of differentiation among family members, resulting in lower Content and FE scores.



**Figure 8.** Example of a family drawing by 7-year-old inpatient anxious-avoidant child with an MST total rating of 57, Content score of 23, and FE score of 36 (#131263F).

It is also likely the case that content and FE material in family drawings for both the inpatient and nonpatient samples allows for variability, irrespective of attachment quality. How children represent their families on paper allows for significant variability in part due to the number of human figures (or pets) they choose to include in their drawings. Further, drawing a family involves more room for sophistication as compared to drawing oneself or one's caregiver and might take more time. With the caregiver and self drawings, there are ceiling effects, in that one can get only so much credit on the Content and FE scales for these figures. However, with

family drawings, a child can draw two or 10 persons, which could represent multiple attachment figures, and can manipulate the individuals in terms of where they are located and how they are represented in the drawing. In general, drawing a family requires more sophisticated mentalization in order to develop a more complex constellation of figures that the child is representing.

The fourth, mediational hypothesis was not tested due to the nonsignificant relationships between attachment quality and the Content and FE scores of children's drawings. Given that this relationship in the mediational model was found to be nonsignificant, this study does not support the hypothesized mediation.

Aside from mentalization, it appears that other factors such as psychiatric difficulties and attachment patterns also greatly impact the way in which children represent their families on paper. Although children vary in the way in which they hold others in mind and make sense of their own and others' emotions, they might be limited in the way they can translate these representations onto paper because of psychiatric diagnosis and attachment organization. In general, childhood maltreatment and adversity can disable cognitive development (Cicchetti et al., 2000; Crandell & Hobson, 1999; Fonagy et al., 2002, p. 8; Stacks et al., 2011).

Moreover, many of the inpatient children were assessed as having lower attachment quality in addition to being psychiatrically compromised. As discussed, individuals with insecure attachment patterns, especially disorganized attachment, tend to have profound difficulty mentalizing and self-regulating. They have typically experienced the primary caregiver as unpredictable and invalidating rather than a "secure base" with whom they can scan for their caregiver's mental states (Fonagy et al., 2002, p. 7). Consequently, disorganized children such as the child who created the drawing in Figure 9 would likely also have a difficult time constructing

a family drawing. Disorganized children's representation of their families might appear empty, perplexing, or bizarre because that is the actual mental representation of the family in their mind.

In addition, although BPD is not typically diagnosed until late adolescence, children might have endured trauma that later predisposes them to developing a BPD diagnosis. As a result of their trauma, individuals with BPD have "been found to exhibit high levels of alexithymia (i.e., impairments in mentalizing with regard to the self) and have difficulty in describing their emotions in social situations" (Fonagy et al., 2002, p. 8; New et al., 2012). Furthermore, individuals with BPD "are typically characterized by an excessive use of attachment hyperactivating strategies, often in the context of disorganized attachment" (Fonagy et al., 2002, p. 4). This proximity-seeking that is stimulated by the activation of the child's attachment system "is anticipated to lead to further adverse emotional experience," including heightened fear and distress (Fonagy et al., 2002, p. 5). Further, children with lower attachment quality in this study, who were already struggling with self-regulation, might naturally become overwhelmed by a task that prompts them both to think about and to represent their families in the presence of others. At this time, their IWMs were likely hyperactivated, and they were likely experiencing severe psychiatric symptoms, leading to the omission of specific content related to representing their families (Fury et al., 1997; Gernhardt et al., 2016).

Gender was another variable of interest in the present study. In line with the fifth hypothesis, boys and girls were found to significantly differ on a variety of measures, both in the inpatient and nonpatient samples. In both samples, girls' FE scores were significantly higher than boys' FE scores on family drawings. Also, nonpatient girls' FE scores were significantly higher than boys' FE scores on self drawings. Girls might have acquired more credit on FE in their level of precision on representing the family, as they are, in general, more advanced in development

than boys. These findings are consistent with data demonstrating that girls are ahead of boys in terms of recall of visual elements, psychosocial maturity, perspective-taking, and overall social-cognitive and intellectual functioning (Bomar & Sabatelli, 1996; Brechet, 2013; Cox, 1993; Goodman et al., 2022; Silberman & Snarey, 1993; Van der Graaff et al., 2014; Willsdon, 1977).

It is also possible that girls in both groups were more concerned about family than boys, leading them to utilize multiple colors, types of lines, shape qualities, and levels of detail to accurately represent members (see Figures 10 and 11). The girl's drawing illustrated in Figure 10 with an MST total rating of 50 and MST Emotion Words rating of 26 is also clearly more advanced in artistic development than the boy's drawing represented in Figure 11, who is one year older and utilizes stick figures. The boy takes up only a small portion of the allocated space, while the girl maximizes the use of the entire picture plane, indicating greater spatial awareness. In addition, the girl encompasses facial expressions and size differences in family members, indicating an awareness of differences in emotionality and physical appearance and an ability to represent this mental landscape on paper. In contrast, the boy implements few details and individual differences.

Further, the boy has a lower MST total rating and an MST Emotions Rating (7) that is approximately one-third of the magnitude of the girl's MST Emotions Rating (26). Moreover, the boy received the lowest FE score for family drawings in the inpatient sample. Similarly, the 12-year-old inpatient girl who created the family drawing earlier in Figure 3 also received the highest MST total ratings in the inpatient sample (73) and the highest FE score for family drawings in the inpatient sample (39.50). The girls who illustrated the drawings represented in Figures 3 and 10 both appear adept at perspective-taking, labeling each individual family

member by name and implementing differences in posture and depth and dimension of the figures to make them appear more realistic on the picture plane.



**Figure 10.** Example of a family drawing by 9-year-old inpatient anxious-avoidant girl with an MST total rating of 50 and an MST Emotion Words rating of 26, Content score of 21, and FE score of 38 (#134767F).





**Figure 11.** Example of a family drawing by 10-year-old inpatient disorganized boy with an MST total rating of 38, an MST Emotions Words rating of 7, Content score of 16.50, and FE score of 24, representing the lowest FE score for family drawings in inpatient sample (#132294F).

It might also be the case that nonpatient girls were more preoccupied with their identities to spend more time and integrate more detail as compared to the boys (Blum et al., 2022). Some nonpatient girls utilized several colors to represent different features of themselves or enhanced details of objects within the environment, yielding higher FE scores. In addition, girls likely internalized preferred ways of representing themselves early on, consistent with sociocultural

expectations and pressure put on females regarding appearance, impacting the way in which they illustrate themselves in drawings (Flannery & Watson, 1995; Goodman et al., 2022; Majewski, 1978; Tuman, 1999a).

Additionally, as Tuman (1998, 1999a) demonstrated in her study, boys and girls are likely to select gender-congruent content in drawings. Consequently, it is not surprising why girls' detailed inclusion of "feminine" content such as jewelry or items associated with domestic life would yield higher FE scores than boys. Although boys showed a preference for gender-congruent material as well in their drawings, perhaps girls' concern for domestic life in family drawings led to higher scores in this domain (Tuman, 1998, 1999a). It is unclear why there was a nonsignificant relationship between girls and boys in terms of content within their drawings.

### **Limitations**

These data originated from the 1990s, at a time in which traditional gender norms were generally more reinforced than modern day (Cislaghi & Heise, 2020). It might be worthwhile for researchers to evaluate the extent to which gender norms vary on FE and content in a more current study. In addition, both samples included a disproportionate number of female to male children. Although the sample was diverse in terms of ethnic background and socioeconomic status, the children from both the nonpatient and inpatient samples were based in White Plains, NY. Greater generalizability of findings would require a sample that is more variable in terms of geographic location.

Researchers also did not include or collect information on fathers or ancillary caregivers, who are likely to have significant impacts on the child. Further, as Goodman and colleagues (2013, p. 29) referenced, boys rely specifically on the father's presence to "help them modulate their aggressive impulses" and are thereby more prone to disruptions in impulse control than are

girls (Herzog, 1988, 2001). Children, especially boys, being accompanied to the lab for this study with their fathers rather than only mothers could lead them to engage in the tasks and express themselves in a different, more controlled manner. This protocol change might impact the expression of children's aggressive impulses, leading to differences in their drawings, especially Content ratings that code for aggression. Moreover, evaluating the quality of children's relationship with their fathers could provide key insight into factors that contribute to children's difficulties with mentalization, attachment problems, or other psychological difficulties in both inpatient and nonpatient groups (Goodman et al., 2013).

Lastly, despite Tuman's FE and Content scales originating from existing research and being applied to other diverse and non-Western societies, these scales have yet to be empirically validated, thus allowing the present study and future researchers interested in replicating this work to draw only preliminary conclusions (Goodman et al., 2022).

## **Conclusions**

It is clear from the literature that mentalization, first established within a secure attachment relationship, is critical for children to be able to interpret their own and others' behavior as resulting from mental states (Fonagy et al., 2017). Mentalization deficits are associated with mental health disorders and affect dysregulation (Goodman, 2010) as well as childlike behavior and the acting out of nonmentalizing modes, namely, psychic equivalence, teleological, and pretend modes (Fonagy et al., 2017, pp. 177-180). Because of the paramount importance of mentalization and scarcity of research within the context of mentalization and children's drawings, the present study aimed to explore this subject matter.

Critically analyzing children's drawings is vital to understanding the rich layers underlying children's mental worlds and perceptions of their attachment relationships. No

previous studies have examined mentalization and children's drawings together or explored the relationships among attachment, mentalization, and gender as represented in children's drawings. This study utilized Tuman's (1998, 1999a, 1999b) Scale of Formal Elements and Scale of Content and both inpatient and nonpatient children's drawings to bridge this gap in the research.

This study serves as introductory research, which demonstrates the utility of transforming art and drawings into psychological evaluations to better recognize children's mentalization capacities. Outside of mentalization, drawings, especially family drawings, appear to function as a convenient way to identify the thoughts, feelings, drives, desires, and fantasies of children who are both psychiatrically compromised and nonhospitalized. In utilizing drawings, practitioners can address a child's apparent difficulties with mentalizing at formative ages, potential problems in maturation, or illustrated traumas that might involve a child's attachment figures (Moore & Marder, 2019, p. 30; Morgan & Johnson, 1995; Ramirez, 2016; Rosal, 1993; Shipley et al., 2021).

Additionally, because drawing is not verbally mediated, incorporating features of art therapy such as children's drawings into more conventional treatments can be especially useful for deaf children, or in populations in which there is limited access to assessment or evaluation tools such as Uganda. Researchers have already underscored the need for providers to deliver interventions such as art-based empathy instruction during childhood in order to optimize effectiveness, specifically for children from low-income backgrounds who run the risk of encountering disciplinary problems (January et al., 2011; Morizio et al., 2021). Notably, the children involved in the present study came from a range of demographic and diagnostic backgrounds. The present study's findings provided evidence that a child's demonstration of

content and FE in their drawings can reveal information about their ability to mentalize and represent themselves, their caregivers, and their families.

Lastly, “talk therapy” can also be challenging, especially for children with low mentalization capacity who struggle to identify and communicate their feelings (Lusebrink, 2004). Thus, drawing is an avenue that activates emotions, accesses memories, and allows practitioners to identify and address mentalization deficits (Lusebrink, 2004). Further, drawing is a mode of intervention in which providers can easily access children's capacities to make the connection between mental states and behavior. The present study substantiated this finding, specifically indicating the importance of caregiver drawings for nonpatient children and family drawings for inpatient children, in evaluating their mentalization capacities.

Not only has art therapy been found to be an effective tool for addressing psychological problems (Chandraiah et al. 2012; Gantt & Tinnin, 2009), but it has also been viewed as essential in developing a higher mentalization capacity (Springham et al., 2012). Although studies have validated that MBAP can enhance mentalizing in adults (Chilvers et al., 2021; Moore & Marder, 2019), the treatment has yet to be studied in children. The present study aimed to provide preliminary findings with respect to children's drawings and mentalization.

This study found a significant relationship between mentalization ratings and the Content and FE scores of children's drawings, especially caregiver drawings for nonpatient children and family drawings for both nonpatient and inpatient children. Nonpatient children who created elaborate and realistic caregiver drawings also tended to receive higher MST ratings than nonpatient children who assembled basic drawings with little differentiation among human figures. In addition, inpatient children with higher mentalization capacities received higher Content and FE scores on family drawings compared to inpatient children with lower

mentalization capacities. Further, these children also intentionally and creatively differentiated the figures, often including facial expressions depicting human emotion. Additionally, girls had higher FE scores on family and self drawings than boys, and the girls with higher FE scores also tended to receive higher MST ratings.

Although the hypothesized mediational model could not be tested for the nonpatient or inpatient samples, this study provides valuable insight into the value of drawings for transforming the larger therapeutic context. It appears that drawings, especially caregiver and family drawings, reveal an understanding about the mentalization ability of both nonpatient and inpatient children with various attachment organizations. This study found that features of mentalization such as perspective-taking, affect regulation, empathy, understanding of thoughts and emotions, and the ability to differentiate between one's own and others' emotions can all be represented by drawing.

Asking a child to draw his or her caregiver, self, or family can lead to astounding insights into the child's mentalization landscape, potentially leading clinicians to an understanding about the child's MST-related deficits or strengths. For example, we now know that an inpatient child who includes an abundance of details and content in his or her family drawings is also likely to have a developed mentalization capacity. This realization about the child's potential strengths and protective factors can inform treatment planning and a therapist's decision to adopt an interpretive therapeutic approach or a more humanistic approach (Halfon et al., 2020). Moreover, clinicians might recommend a mentalization-based approach with children who have low Content and FE scores in their drawings, as we know from this research that these children likely have mentalization deficits or underdeveloped mentalization capacities. Further, children who have higher Content and FE scores on their drawings who have inferred mentalization strengths

might be treated for an alternative diagnosis such as adjustment disorder, which is likely related to current psychosocial stressors they may be experiencing. Alternatively, children who are brought to treatment who have Content and FE drawings scores might have caregivers imposing their own psychopathology onto their children for the caregivers' benefit, as in the case of Munchausen syndrome by proxy (MSBP; Sousa Filho et al., 2017).

Likewise, the family drawing of an inpatient child who struggles with affect dysregulation can provide affirming information in addition to new emotional information such as the omission of family members. Subtle cues such as this one can offer insight into the potential origins of difficulties with mentalization such as the presence of insecure attachment due to having an inconsistent caregiver, which can further inform treatment planning. Moreover, by identifying these issues early on using drawings, practitioners can identify and prevent concerning mental health problems before they escalate into substance abuse, gun violence, and other dangerous and illicit activities.

In addition, we know from this study that girls are more likely to integrate more detail into their self and family drawings compared to boys and that both boys and girls tend to incorporate content consistent with existing social norms. Providers can utilize Tuman's (1998, 1999a) scales to understand the nuances of children's poor self-image, concerns about family, or early gender dysphoria, which can advise clinicians on how to design and monitor therapeutic treatments.

It is imperative that researchers apply the current researcher's method to other cultural and geographic populations and with a more equitable distribution of males and females to extend the present study's findings. Researchers need to further assess children's family drawings in inpatient settings, including in non-Western cultures, and explore shared or unique

characteristics to draw clinical conclusions. Additionally, standardized procedures and clinical interviews administered over time could provide a more precise assessment of children's attachment qualities, mentalization capacities, and mental representations, as demonstrated through drawing (Goodman et al., 2013). Nonetheless, these outcomes seen in children's drawings in the present study substantiate research that validates drawings as a rich expression of children's internal worlds, especially for unconscious or repressed content and one that few other methods can match (Attili et al., 2011; Fury et al., 1997; Koppitz, 1968). With the right dedication of art therapists and practitioners, children can clearly and creatively outline their needs, perhaps for the first time.



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**Table 1***Lowenfeld's Stages of Artistic Development*

<b>Stage</b>	<b>Characteristics</b>
<b>Scribbling (2 to 4 years)</b>	Disordered: no motor control. Longitudinal: motor coordination. Circular: variation of control. Naming: change of thinking from kinesthetic to imaginative.
<b>Pre- schematic (4 to 7 years)</b>	Discovery of relationship between representation and thing represented.
<b>Schematic (seven to nine years)</b>	Discovery of concept through repetition becomes schema.
<b>Dawning Realism</b>	Greater awareness of the self. Removal from schema. Removal from geometric lines. Lack of cooperation. Stage of transition.
<b>Pre- adolescent Crisis (9 to 11 years), Gang Age</b>	
<b>Pseudo- realistic</b>	Developed intelligence, yet unawareness. Realistic approach (unconscious). Tendency toward visual-or nonvisual-mindedness. Love for dramatization.
<b>Stage of Reasoning (11 to 13 years)</b>	
<b>The Stage of Decision</b>	Critical awareness toward environment. Three groups: (1) Visual type (50%): Intermediaries: eyes. Creative concern: environment, appearance. (2) Haptic type (25%): Intermediary: body. Creative concern: self-expression, emotional approach of subject experiences. (3) In-betweens (25%): Reactions are not definite in either direction.
<b>Crisis of Adolescence (13 to 17 years)</b>	Creative concern: abstract.

(Lowenfeld, 1957, pp. 505-507)



**Table 2a***Inpatient Participants' Demographic Characteristics: Descriptive Statistics*

	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>
<b>Children</b>				
<b>Sex</b>				
Male	38	84.4	-	-
Female	7	15.6	-	-
<b>Age</b>	-	-	8.62	1.92
<b>Ethnicity</b>				
European American	23	51.1	-	-
African American	12	26.7	-	-
Latin American	10	22.2	-	-
Asian American	0	0	-	-
<b>Attachment Quality</b>				
Secure	2	4.5	-	-
Anxious-Resistant	21	47.7	-	-
Anxious-Avoidant	8	18.2	-	-
Disorganized	13	29.5	-	-
<b>MST</b>	-	-	38.62	15.93
<b>MST Emotion Words</b>	-	-	14.16	6.63
<b>Grand Total C Caregiver</b>	-	-	13.84	2.38
<b>Grand Total FE Caregiver</b>	-	-	28.08	4.26
<b>Grand Total C Family</b>	-	-	19.52	3.65
<b>Grand Total FE Family</b>	-	-	30.90	4.15
<b>Grand Total C Self</b>	-	-	13.70	2.26
<b>Grand Total FE Self</b>	-	-	28.36	4.06
<b>Caregivers</b>				
<b>Age</b>	-	-	36.87	10.06
<b>Education</b>	-	-	14.09	3.79
<b>Income</b>	-	-	5.86	6.05
<b>Married or Separated</b>	19	42.2	-	-
<b>Not Married</b>	26	57.8	-	-

*Note.* *n* = 45. C = Content. FE = Formal Elements. MST = Mental State Talk.

**Table 2b***Nonpatient Participants' Demographic Characteristics: Descriptive Statistics*

	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>
<b>Children</b>				
<b>Sex</b>				
Male	39	72.2	-	-
Female	15	27.8	-	-
<b>Age</b>	-	-	7.37	1.43
<b>Ethnicity</b>				
European American	29	53.7	-	-
African American	6	11.1	-	-
Latin American	14	25.9	-	-
Asian American	5	9.3	-	-
<b>Attachment Quality</b>				
Secure	8	14.8	-	-
Anxious-Resistant	33	61.1	-	-
Anxious-Avoidant	6	11.1	-	-
Disorganized	7	13	-	-
<b>MST</b>	-	-	40.87	18.07
<b>MST Emotion Words</b>	-	-	12.24	6.91
<b>Grand Total C Caregiver</b>	-	-	14.41	2.19
<b>Grand Total FE Caregiver</b>	-	-	30.17	3.87
<b>Grand Total C Family</b>	-	-	20.54	2.97
<b>Grand Total FE Family</b>	-	-	31.78	4.15
<b>Grand Total C Self</b>	-	-	14.24	2.21
<b>Grand Total FE Self</b>	-	-	29.54	3.35
<b>Caregivers</b>				
<b>Age</b>	-	-	39.33	7.42
<b>Education</b>	-	-	15.15	3.91
<b>Income</b>	-	-	14.20	7.78
<b>Married or Separated</b>	48	88.9	-	-
<b>Not Married</b>	6	11.1	-	-

*Note.* *n* = 54. C = Content. FE = Formal Elements. MST = Mental State Talk.

**Table 3***The Attachment Story-Completion Task: Story Stems and Descriptions*

<b>Story Stem</b>	<b>Story Description</b>
<b>Birthday (practice)</b>	Mother announces to family a birthday party
<b>Spilled juice</b>	Child spills juice at dinner; mother points it out to child
<b>Hurt knee</b>	Family is walking in park; child climbs rock and hurts knee
<b>Monster in the bedroom</b>	Mother sends child to bed; child goes to bed and is scared by a monster
<b>Departure</b>	Mother leaves on an overnight trip; child stays with an adult
<b>Reunion</b>	Mother returns from trip

(Goodman et al., 2013)

**Table 4***Scale of Content*

<b>Scale 1</b>	<b>Framework</b>
	Number of Objects or Figures
	Completeness
	Size
<b>Scale 2</b>	<b>Person</b>
	Number of Figures
	Direction of Figure(s)
	Interest in Physical Appearance/Details
	Tadpole
	Gender
<b>Scale 3</b>	<b>Action and Movement</b>
<b>Scale 4</b>	<b>Daily Experience</b>
<b>Scale 5</b>	<b>Domestic Life</b>
<b>Scale 6</b>	<b>Theme</b>
<b>Scale 7</b>	<b>Nature/Environment/Weather</b>
<b>Scale 8</b>	<b>Animal(s)</b>
<b>Scale 9</b>	<b>Mechanical Objects/Technology</b>
<b>Scale 10</b>	<b>Letters</b>
	<b>Numbers</b>
	<b>Words</b>
	<b>Sentences</b>

(Goodman et al., 2022)

**Table 5***Scale of Formal Elements*

<b>Scale 1</b>	<b>Number of colors</b>
<b>Scale 2</b>	<b>Implied Energy</b>
<b>Scale 3</b>	<b>Space</b>
<b>Scale 4</b>	<b>Composition</b>
<b>Scale 5</b>	<b>Line Quality</b>
<b>Scale 6</b>	<b>Overall Shape Quality</b>
<b>Scale 7</b>	<b>Integration</b>
<b>Scale 8</b>	<b>Details of Objects</b>
<b>Scale 9</b>	<b>Repetition of Schematic Elements</b>
<b>Scale 10</b>	<b>Developmental Level</b>

(Goodman et al., 2022)

**Table 6***Correlations of Hypothesis 1 in Inpatient and Nonpatient Samples*

	<i>Attachment Quality</i>	
	<i>Inpatient</i>	<i>Nonpatient</i>
<b>Grand Total C</b>	-0.12	0.06
<b>Caregiver</b>		
<b>Grand Total FE</b>	-0.05	-0.04
<b>Caregiver</b>		
<b>Grand Total C</b>	0.31*	0.14
<b>Family</b>		
<b>Grand Total FE</b>	0.11	0.13
<b>Family</b>		
<b>Grand Total C Self</b>	0.01	0.004
<b>Grand Total FE Self</b>	-0.14	-0.06

*Note.* C = Content. FE = Formal Elements.\* $p < .05$ . \*\* $p < .01$ .

**Table 7***Correlations of Hypothesis 2 in Inpatient and Nonpatient Samples*

	<i>Attachment Quality</i>	
	<i>Inpatient</i>	<i>Nonpatient</i>
<b>MST</b>	0.38*	0.40**
<b>MST Emotion Words</b>	0.34*	0.12

Note. MST = Mental State Talk.

\* $p < 0.05$ . \*\* $p < 0.01$ .

**Table 8***Correlations of Hypothesis 3 in Inpatient and Nonpatient Samples*

	<i>MST Total</i>		<i>MST Emotion Words</i>	
	<i>Inpatient</i>	<i>Nonpatient</i>	<i>Inpatient</i>	<i>Nonpatient</i>
<b>Grand Total C Caregiver</b>	0.15	0.29*	0.20	0.30*
<b>Grand Total FE Caregiver</b>	0.20	0.19	0.16	0.22
<b>Grand Total C Family</b>	0.32*	0.20	0.33*	0.10
<b>Grand Total FE Family</b>	0.31*	0.27	0.42**	0.30*
<b>Grand Total C Self</b>	0.14	0.27	0.16	0.14
<b>Grand Total FE Self</b>	0.13	0.002	0.02	0.12

Note. C = Content. FE = Formal Elements. MST = Mental State Talk.

\* $p < .05$ . \*\* $p < .01$ .

**Table 9a**

*Mental State Talk as a Mediator Between Children's Attachment Quality and Content Scores of Family Drawings in Inpatient Sample*

Model	Unstandardized Coefficients		Standardized Coefficients		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>
<b>1 (Constant)</b>	21.40	2.56	—	8.31	<.001
<b>Child Age</b>	-.22	.29	-.11	-.74	.47
<b>2 (Constant)</b>	16.45	3.58	—	4.60	<.001
<b>Child Age</b>	.03	.31	.02	.11	.91
<b>Attachment Quality</b>	1.42	.73	.32	1.93	.06
<b>3 (Constant)</b>	15.30	3.61	—	4.24	<.001
<b>Child Age</b>	.01	.31	.01	.04	.98
<b>Attachment Quality</b>	.99	.78	.22	1.28	.21
<b>MST Total</b>	.06	.04	.24	1.51	.14

*Note.* Dependent variable: Grand Total Content Family. MST = Mental State Talk.

**Table 9b**

*Mental State Talk Emotion Words as a Mediator Between Children's Attachment Quality and Content Scores of Family Drawings in Inpatient Sample*

Model	Unstandardized Coefficients		Standardized Coefficients		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>
<b>1 (Constant)</b>	21.40	2.56	—	8.31	<.001
<b>Child Age</b>	-.22	.29	-.11	-.74	.47
<b>2 (Constant)</b>	16.45	3.58	—	4.56	<.001
<b>Child Age</b>	.03	.31	.02	.11	.91
<b>Attachment Quality</b>	1.42	.73	.32	1.93	.06
<b>3 (Constant)</b>	15.35	3.57	—	4.30	<.001
<b>Child Age</b>	.01	.31	.01	.05	.96
<b>Attachment Quality</b>	1.01	.76	.23	1.33	.19
<b>MST Emotion Words</b>	.14	.09	.26	1.65	.11

*Note.* Dependent variable: Grand Total Content Family. MST = Mental State Talk.

**Table 10***Gender Differences by Sample (post-hoc analysis)*

Variables	<i>Inpatient</i>				<i>Nonpatient</i>			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Significance</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Significance</i>
<b>Boys FE Family</b>	38	30.33	3.93		39	31.08	4.18	
<b>Girls FE Family</b>	7	34	4.23		15	33.6	3.56	
<b>Grand Total FE Family</b>				girls > boys*				girls > boys*
					39	28.95	3.48	
<b>Boys FE Self</b>	38	27.97	3.92		15	31.07	2.50	
<b>Girls FE Self</b>	7	30.43	4.52					
<b>Grand Total FE Self</b>				girls > boys*				girls > boys*
<b>Boys FE Caregiver</b>	38	27.88	4.56		39	29.65	4.07	
<b>Girls FE Caregiver</b>	7	29.14	1.82		15	31.50	3.02	
<b>Grand Total FE Caregiver</b>				—				—
<b>Boys C Family</b>	38	19.38	3.75		39	20.26	3.02	
<b>Girls C Family</b>	7	20.29	3.20		15	21.27	2.81	
<b>Grand Total C Family</b>				—				—
<b>Boys C Self</b>	38	13.65	2.23		39	14.37	2.34	
<b>Girls C Self</b>	7	14	2.60		15	13.90	1.87	
<b>Grand Total C Family</b>				—				—
<b>Boys C Caregiver</b>	38	13.76	2.44		39	14.24	2.26	
<b>Girls C Caregiver</b>	7	14.29	2.14		15	14.83	2.01	
<b>Grand Total C Caregiver</b>				—				—

*Note.* C = Content. FE = Formal Elements. *M* = mean. *SD* = standard deviation.

\* $p < .05$ .