Title: A Theoretical Update and Empirical Analysis of the Multiple Family Group Intervention

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Abstract

The Multiple Family Group Intervention (MFGI) is a family therapy intervention within a larger treatment program (the Accountability Based Sex Offense Prevention (ABSOP) Program) for the treatment of illegal sexual behavior (ISB) in adolescents. The primary purpose of the MFGI is to improve patterns of interaction for adolescents adjudicated for ISB and their caregivers, supporting the larger treatment program (e.g., disclosure of ISB, safety planning, and trauma treatment) and decreasing recidivism. In her 2002 article, Dr. Margaret Keiley described the theoretical foundation for the Multiple Family Group Intervention (MFGI), outlining the literature on attachment and emotion theory up to that point in time and the intervention protocol. Although there is still a notable lack of inclusion of family therapy within the justice system, the past twenty years has seen a significant amount of growth in our understanding of emotion and the interplay between the relationships between caregivers and children, emotion, and behavior. Paper 1 of this dissertation provides an updated review of the literature supporting the intervention's theoretical foundation, connects this research to the structure and content of the intervention, and describes the intervention protocol as currently provided within a treatment program for adolescents adjudicated for sexual offending in the state of Alabama. Paper 2 is the first investigation of the MFGI in the context of the larger ABSOP treatment program and a preliminary investigation of the mechanisms of change within the MFGI. It is our hope that this project will support the future presence and growth of the MFGI.

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I. General Introduction

The Historical Focus on Individual Treatment

In the early 2000's, when the MFGI was being developed, juvenile offending was at the highest point that it had been in two decades. Violent crime, young juvenile arrests (ages 10 to 14), and adolescent homicide were increasing, and the juvenile arrest rate was predicted to double by the year 2010 (Tarolla et al., 2002). Although the aim of this practice was to decrease or deter such behaviors, detention as a response to juvenile delinquent behavior was - and has continued to be found - ineffective at best and counterproductive at worst, with results of some studies indicating incarceration not to be related to decreased recidivism rates and others indicating incarceration to be related to increased likelihood of recidivism, antisocial behavior, and criminal activity (Lambie & Randell, 2013; Loughran et al., 2009). The treatment programs that did exist for juvenile offenders when the MFGI was developed were costly and ineffective (Hennggeler et al., 1996; Keiley, 2002). While it was understood that juvenile offending is the result of individual, familial, social, and historical factors that varied widely from case to case, traditional treatment was narrow in focus (i.e., focused on individual level factors such as developing social skills or decreasing substance use behaviors) often failing to address the context surrounding the delinquent behavior (Tarolla et al., 2002).

In a parallel pattern to treatment for general delinquent behavior, treatment for adolescent illegal sexual behavior (AISB) has historically been individually focused. As described by Zankman and Bonomo (2004), treatment programs for AISB begin by providing psychoeducation (i.e., education about psychological processes, mental health disorders, and strategies to manage these) and introducing a cognitive-behavioral approach (i.e., an understanding of behavior as the result of thoughts and feelings that can be altered to produce a

different behavioral response). With this knowledge and understanding of behavior as a foundation, most treatment models then focus on developing an adolescent's understanding of the cognitions supporting their sexual abuse cycle and their risk factors for re-offense (e.g., being left alone with children, family stress, social isolation). Adolescents work with their therapist to challenge thinking errors (e.g., minimization of their offense, shifting of blame to others) and develop a personalized safety plan to decrease risk for recidivism after release.

Family Therapy in the Treatment of AISB

While an individual focused treatment protocol does equip an adolescent with an understanding of the psychopathology and patterns of thinking and behavior that support sexual offending, neglecting to include an adolescent's caregivers in their treatment may limit the success of this individual work after release. In fact, there is evidence that family involvement in the treatment of AISB can enhance the effectiveness of treatment programs and decrease the likelihood of relapse by addressing contextual factors that may support this behavior (Thomas & Viar, 2005; Rich, 2011). First, family therapy allows for a more complete awareness of the relational context and the factors outside of the adolescent (e.g., monitoring, family structure, substance use) surrounding sexual offending behavior. This awareness allows interventionists to address those factors and improve relationships between family members in preparation for release. Not only can family therapy address historical risk factors and potentially move family relationships from being a source of stress toward being a source of support, but it can also serve to buffer against the negative effects of being separated from family for the duration of incarceration, perhaps even improving relationships between adolescents and caregivers. Finally, family therapy can serve as reinforcement for progress made within a treatment program by

providing parents with awareness, skills, and relationships to use once their adolescent is released (Zankman & Bonomo, 2004).

Despite these considerations and some evidence of the effectiveness of family therapy in the treatment of AISB (Dopp et al., 2017; Johnides et al., 2017), there continues to be a lack of family therapy with incarcerated populations in general (Negash, Chung, & Oh, 2022; Tadros et al., 2022). Furthermore, the few family therapy interventions that have demonstrated effectiveness with community-based populations have not been as successful in the treatment of more chronic and serious behaviors such as AISB (Keiley, 2002). Rather than indicating systemic intervention as ineffective, these findings may represent a case in which there is a need for intervention to consider the systemic context of behavior even further (Zankman & Bonomo, 2004). That is, intervention might be more successful if developed with the understanding that the families of juvenile offenders are very different from those without a history of justice system involvement (Tarolla et al., 2022). The families of juvenile offenders often struggle to engage with treatment at all and then are more likely to drop out of treatment than families outside of detention. They are characterized by high levels of stress and psychopathology, low levels of social support and resources, and often have histories that require exploration of the historical context surrounding their emotions and attachment behavior (Keiley, 2002; Tarolla et al., 2002).

Multiple Family Groups

Multi-family groups are an integration of group therapy and family therapy, developed to address several of these considerations (Quinn & Van Dyke, 2004; Keiley, 2002; Chacko et al., 2015). Rather than describing content to be included in the group, a multiple family group simply describes a structure of therapy in which several families participate in group therapy

together over a period of time. Because many participants are able to receive treatment within the same therapy session, these interventions require fewer resources from participating families or institutions as compared to individual family therapy (Cunningham, Bremner, & Boyle, 1995). For example, rather than completing 10, 2-hour long family therapy sessions, a multiple family group allows a clinician to provide 10 families therapy in a singular session. These interventions also serve to decrease feelings of judgement that many families have felt throughout the judicial process, and increase engagement as they facilitate community and engagement within populations dealing with presenting problems that might be socially isolating (Acri et al., 2019; Gopalan, Fuss, & Wisdom, 2015). For example, families of adolescents adjudicated for sex offenses may be more easily able to engage in therapy with the awareness that they are not alone in their experience and the safety of having others with a shared history. They also may be more committed to the process of treatment if they are able to develop supportive relationships with those other families.

In a study aimed at understanding participant experience of multiple family groups, Acri and colleagues (2019) did find evidence that multiple family groups accomplished the goals and addressed the potential limitations of other family therapies discussed above. The multiple family group in their study provided therapy to 32 families, either participating in a full 16-session program or a shortened 8-session program targeting children with diagnoses of disruptive behavior problems. At the conclusion of their groups, participants reported that they not only felt that they received valuable information and perspective as a part of their participation, but they also identified their shared experience with other participants, feeling as though they were not alone, and that they were understood as strengths of their experience. These participants also

reported that they felt more open to therapy and group therapy because of their participation in the multiple family group.

Based on these findings and history, the following is a two-paper dissertation project intended to position the Multiple Family Group Intervention (MFGI), that has been in practice since 2002, for the future. The first paper is a review of relevant theory and research that has developed since the development of the MFGI. The second paper is the first empirical investigation of the MFGI in the context of the larger Accountability Based Sex Offense Prevention (ABSOP) Program. The aim of this project was to develop an updated foundation for future research on the MGFI and begin investigation into the benefit of including family therapy into the treatment that the larger ABSOP Program provides.

II. A Twenty-Year Update to Keiley's Multiple Family Group Intervention

The MFGI as a Treatment for Adolescent Illegal Sexual Behavior

The Multiple Family Group Intervention

Dr. Margaret Keiley's Multiple Family Group Intervention (MFGI) currently serves as an integral component of the Accountability Based Sex Offense Prevention (ABSOP) Program. The ABSOP Program is designed to provide treatment for adolescents adjudicated for sexual offenses in the state of Alabama. It is unique in that it is markedly multi-disciplinary, including individual treatment for adolescent illegal sexual behavior (ASIB), the MFGI described in this paper, Trauma Focused Cognitive Behavioral Therapy for the treatment of trauma symptoms, and ancillary programs such as Applied Behavior Analysis, and job preparedness. These treatment programs all take place in a detention facility that provides continued education and training for adolescents while they complete their treatment program. Dorm staff care for and supervise the adolescents when they are not at school or engaged in therapy or other activities (e.g., recreation, leadership groups, or special events). Although there is a standardized treatment protocol within the ABSOP Program, individual treatment is tailored to the needs of each adolescent as determined by a comprehensive and independent pre-treatment assessment protocol and coordination of care with their respective county court and the Alabama Department of Human Resources, as necessary.

The MFGI is an 8-week, six step intervention (outlined in the later portion of this paper) that occurs at the Department of Youth Services campus where the adolescents are in detention. Group members participate in an hour and a half long therapy session twice a month. Each group meeting begins with a psychoeducation component in which the therapists review the six steps of the intervention in general and discuss the rationale for one step in detail per week. Group

members are asked each meeting to reflect on their experiences between sessions or relevant difficulties that they encountered between themselves before detention to process using the steps. Therapists facilitate an experiential activity (e.g., practicing diaphragmatic breathing to counteract dysregulation in response to loud noises), a role play of a difficult interaction brought up by a participant (e.g., discussing a broken rule with their child), or an enactment (i.e., having group members share their experience of other group members immediately following a significant moment in session) within each session. Participants are asked to focus on being aware of one step between sessions and to bring their successes or difficulties with applying the steps to the next group.

The MFGI is intended to improve patterns of family interactions to aid in treatment processes (i.e., disclosure of their sexual offending behavior to their therapist and/or caregivers) as well as reintegration into families and coping with difficult interactions with others after release. In Margaret Keiley's 2002 paper, she describes the goal of the MFGI to be a "re-instatement and re-fashioning of the attachment relationship between adolescents and their family members supported by improved emotion regulation strategies." As participants improve their ability to regulate emotion and as they can rebuild or improve their relationships with each other, the MFGI seeks to help participants engage with each other openly and honestly, with patterns of interaction that feel safer, and facilitate deeper relationships between family members.

The aim of this paper is to provide an update of Keiley's 2002 paper in which she described the structure of the MFGI and the theory beneath the intervention. Although subsequent investigations have indicated participation in the MFGI to increase attachment to caregivers, decrease externalizing behaviors, and improve affect regulation (Keiley, 2007; Keiley

et al., 2015), the research and theory beneath the intervention has not been revisited since 2002. In order to provide a foundation for future investigations of the MFGI and to support the development of an evidence-based manual of the intervention, the following paper will discuss important developments in our understanding of attachment, emotion, and family intervention in the treatment of AISB over the past twenty years.

Theoretical Foundation for the MFGI

Attachment, polyvagal, and emotion theories are the foundation for the process, structure, and components of the MFGI. This section includes an overview of each theory and is followed by a more thorough description of each step of the MFGI and the research supporting that component of the intervention.

Attachment Theory

According to attachment theory, patterns of interaction between caregivers and children within the first few years of life create a foundation for behavior, emotion, and relationships later in life (Bowlby, 1982; Bretherton, 1992). While children are born helpless to meet their own needs for food, comfort, and safety, they are born with the instinct to connect to primary caregivers and communicate their needs to them. Using expressions such as crying, infants communicate their needs. As caregivers respond to these expressions of need, infants modify their expressions of need to maintain proximity to them over time. For example, an infant with a caregiver who responds to their expressions only after escalation might experience their need as more distressing as compared to an infant with a caregiver who responds to their expressions quickly. The first infant's expressions may appear more intense over time as they learn how to illicit care from their caregiver. These patterns of interactions that an infant learns maintain proximity to their caregiver eventually inform what is termed an internal working model. These

internal working models are expectations of self and others (e.g., I can expect others to care for my needs) and assist in predicting responses from and preserving relationships with others. These internal working models are carried forward out of infancy into childhood onward, eventually shaping the nature of close relationships with family members, friends, and romantic partners (Bowlby, 1969; Bretherton, 1992).

Attachment theory identifies four types of attachment (i.e., secure, anxious, avoidant, and disorganized; detailed further below), each arising from different patterns interactions between children and their caregivers. Caregiver characteristics, typical patterns of behavior in response to expressions of needs, and the resulting internal working models resulting are described below for each attachment type.

Individuals who had caregivers who were sensitive and responsive to their needs for safety, support, or co-regulation, develop a strong sense of connectedness, self-worth, and autonomy. These children learned that their expressions of need would generally be met quickly and appropriately, learning that expressing a need brought their caregiver closer to them and brought about a sense of relief. They learn that others are caring and that they are important and can find safety or have their needs met. These individuals are described as having a *secure attachment style* and their later behavior in close relationships is characterized by flexibility to move toward or away from others for support, safety, or exploration (Shaver & Hazan, 1987).

Individuals who had caregivers that were inconsistently sensitive and responsive to their needs develop a hypersensitivity to distance in relationships, a lack of understanding of self-worth, feelings of helplessness, and a fear of exploration on their own (Shaver & Hazan, 1987). Their caregivers may have expressed disapproval or been unreliable in their responses to expressions of need, at times responding appropriately, at times only after significant escalation

of the expression of need, and at other times not at all. These individuals are described as having an *anxious attachment style* and their later behavior is characterized by a heightened sense of fear, pursual of others in response to stressful situations, and difficulty tolerating distance or exploring on their own (Wei et al. 2005).

Individuals who had caregivers that were absent or rejecting of their needs develop a lack of connectedness to others, a low sense of self-worth, and do not develop an understanding of themselves as able to rely on others to meet their needs (Shaver & Hazan, 1987). Their caregivers may have been unable to read their cues signaling a need for comfort or care, or they may have been unable to respond to those cues even if they did receive them. Caregivers suffering from severe depression might represent one condition that would result in this pattern. For these children, the experience of need and expression of those needs does not result in those needs being met. These individuals often develop what is described as an *avoidant attachment style*, later displaying fear of reliance on and putting trust in others and struggling to allow others to be relationally close. Their behavior is characterized by minimization of their need for support, withdrawal in response to stressful situations, and difficulty tolerating emotional awareness or vulnerability in relationships (Mikulincer, Shaver, & Pereg, 2003; Mikulincer & Shaver, 2019).

Finally, individuals who had caregivers who were inconsistent in their patterns or abusive develop a complete lack of any organized way of understanding themselves, others, and what to expect in close relationships (Shaver & Hazan, 1987). They may have had caregivers who were able to be sensitive and responsive at times, but who were abusive and even dangerous at other times. Caregivers suffering from substance dependence may represent one condition that would result in this pattern. Just as there is a lack of predictability of their caregivers, these individuals

may appear more anxiously attached in one situation and avoidantly attached in another, without consistency in their patterns of interaction in close relationships. These individuals are described as having a *disorganized attachment style* and their later behavior is characterized as erratic, bizarre, and often disproportionate to the situation preceding their response.

Attachment and Emotion

Not only are children's internal working models and later behaviors shaped by these experiences, but as a child seeks support during distress, expresses and shares their experiences, and/or uses their caregiver to co-regulate when necessary, their capacity to regulate emotion is established (Mikulincer et al, 2003; Shaver & Mikulincer, 2002). In infancy, the sensitivity and responsiveness of a caregiver to distress cues may often simply serve to address their need and reduce distress. As children get older, this sensitivity and responsiveness also allows for modeling of and instruction about appropriate emotion regulation strategies (Cooke et al., 2019; Brumariu, 2015). For example, a caregiver may take a deep breath during a stressful interaction, they may work with a child to identify their emotion, or they may give a child a hug in response to their distress.

In contrast, low sensitivity and responsiveness from caregivers result in an environment in which the child's experience of distress may escalate or persist, and their caregivers may model ineffective emotion regulation strategies (e.g., avoidance of emotion, withdrawal of relationship in response to expression of emotion). These children may learn that their distress is only addressed when it escalates (i.e., anxious attachment), or they may learn that their expressions of distress have no result or push their caregiver away (i.e., avoidant attachment). These infants experience higher levels and more sustained distress, and as they get older they

often adopt maladaptive or socially inappropriate strategies of regulating their emotion (e.g., callousness or emotional outbursts; Cooke et al, 2019; Goodall, 2015).

While these maladaptive or socially inappropriate strategies attempt to maintain proximity and secure needs within the early caregiver-child relationship, the inconsistency or lack of response often results in escalation of attachment behavior and more difficulty engaging with or regulating emotion over time (Grady & Shields, 2018; Mikulincer & Shaver, 2019). As described by Mikulincer and colleagues (2003), these experiences leave children with a social deficit as they lack experiences of themselves as worthy or experiences of others as capable of caring for them. Their difficulty regulating emotion combined with a lack of social connection with others often leads to outcomes such as depression (Malik, Wells, & Wittkowski, 2015; Verhees et al., 2021), anxiety (Bender et al., 2015), and aggression toward others (Brodie et al., 2019).

Polyvagal Theory

According to Polyvagal theory, emotion regulation, which develops as a result of experiences of safety and fear beginning in caregiver-infant pattens of interaction, is intimately tied to function of the autonomic nervous system (ANS) (Porges, 2001, 2022). The ANS is divided into the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). Designed to ensure survival, the SNS is always available to enact fight, flight, or freeze responses to information signaling a lack of safety or threat to basic needs. The PNS, comprised mainly of the vagal nerve, serves to dampen the activity of the SNS when there is no perceived threat. The vagal nerve allows constant bi-directional communication between the brain and other internal organs (i.e., heart, lungs, stomach). When an individual is safe and has basic needs cared for, the vagal nerve allows communication of such to the brain, and allows resources to be

allocated toward other activities (e.g., social interactions). When a threat is perceived, the SNS takes over and all resources are allocated toward either a fight or flee response. When the threat continues, an even more basic freeze response is enacted.

The functioning of this system is shaped by experiences (e.g., attachment experiences), and repeated activation of the SNS is related to heightened threat awareness, more frequent activation, and greater difficulty engaging the PNS over time (Porges, 2009). In the context of attachment experiences, a lack of sensitive and responsive caregivers within the first year of life results in difficulty engaging the PNS and reinforces activation of the SNS (Porges & Furman, 2011). While these negative experiences shape physiological processes within the body, Polyvagal theory also suggests that it is these processes that shape social behavior, creating a feedback loop that either reinforces emotional awareness and social interactions as a source of safety or threat (Porges, 2009).

Emotion Regulation

Emotion regulation is defined as not only the ability to modify emotional responses, but also includes the ability to monitor and evaluate one's own emotions as well (Eadeh et al., 2021; Gross, 2013; Hu et al., 2014). The stages of emotion regulation are outlined by Gross (2013) as identification of emotion, selection of strategy, and implementation. At each stage of processing, individuals can engage with either adaptive or maladaptive strategies (Eadeh et al., 2021). For example, at the first stage an individual can pause to consider what their emotional experience is in response to an experience or interaction (adaptive) or not (maladaptive). At the next stage, they can consider what strategy might ameliorate their emotional experience (adaptive) or allow their emotions to drive their behavioral response (maladaptive). At the final stage, they can choose to engage with the strategy identified (adaptive) or not (maladaptive).

The two emotion regulation strategies most often discussed include cognitive reappraisal (i.e., the ability to consider an alternative appraisal of a situation or experience) and expressive suppression (i.e., the ability to modulate emotion and behavioral responses; Hu et al., 2014). There has been a history of controversy about which strategies of emotion regulation are most effective. In early research on emotion regulation, there was support for the idea that cognitive strategies were more effective than bodily strategies (e.g., emotional suppression) of emotion regulation (Gross, 1998). Later, Matsumoto and colleagues (2008) found evidence that perhaps cognitive appraisal occurs first and drives the ability to engage in emotional suppression. Likely representing a more accurate picture of emotion regulation, Hu and colleagues (2014) presented the idea that perhaps it is not as important for us to understand which strategy is "better," but rather how they interact with each other and how these interactions might vary across individuals.

The use of these strategies does seem to be related to attachment style with anxious and avoidant attachment being related to different and predictable patterns of emotion and emotion regulation. While anxious attachment has been found to be related to dysregulation of emotion, avoidant attachment has been found to be related to suppression of emotion (Clear et al., 2020; Mikulincer & Shaver, 2019). Based on these findings, some individuals may need strategies to modulate their experience of emotions, and others may need strategies to engage with their emotional experience. While there is evidence that attachment style is stable across the lifespan (Fivush & Waters, 2015), research indicates that these patterns can be challenged and changed if individuals are able to experience secure patterns of interaction (Crowell et al., 2002; Keiley et al., 2015; Klohnen et al., 2005). These attachment-based interventions have been found to promote secure attachments (Grady & Sheilds, 2018), and these more secure attachments may

result in a greater capacity to regulate emotion, and a decreased likelihood of engaging in violent or aggressive behavior (Bratton et al., 2010).

The Multiple Family Group Intervention Outlined

The MFGI is comprised of a sequence of steps with the aim of improving attachment relationships and the ability to regulate emotion, and subsequently decreasing emotional and behavioral symptoms of participants. More specifically, the MFGI begins with psychoeducation about emotion regulation and the connection between high levels of emotional arousal and unhelpful patterns of interactions between family members, then proceeding to challenge participants' cognitive beliefs that exacerbate or support maladaptive emotion regulation strategies. It is the goal of the MFGI for these changes to improve attachment relationships between participants and to decrease psychological and behavioral problems over time.

Bringing together attachment, emotion, and polyvagal theories, the MFGI suggests that participants' responses during difficult interactions (e.g., arguments about decision making, discussing offending behavior, or providing emotional support around difficult topics) are likely reactive rather than proactive. Specifically, automatic attachment responses such as avoidance of conflict (e.g., disconnection, emotional distance, placating) or pursual (e.g., yelling, lecturing, physical altercation) are enacted as a result of repeated emotional dysregulation, lack of awareness of signals from the body (Kever et al., 2015) and activation of the sympathetic nervous system (SNS; Porges, 2011).

Keiley (2002) discussed emotion regulation as a social process that is constructed by experiences in attachment relationships, with emotions being either undercontrolled or overcontrolled to reduce aversive conditions (e.g., distance from caregivers) and increase favorable conditions (e.g., responsiveness from caregivers). Tthe MFGI supposes that

dysfunctional patterns in relationships (e.g., the parent-adolescent relationship) such as volatile arguments or avoidance of difficult conversations are the result of these patterns of undercontrolling or overcontrolling emotion. Undercontrolling emotion results in experiences such as rash statements or physical altercation. Overcontrolling emotion results in experiences such as not sharing difficulties or avoiding difficult conversations with each other. As these patterns continue, relationship quality erodes, and distance is created in relationships. Therefore, the MFGI seeks to ultimately improve relationships between participants by improving emotion regulation and helping participants to understand relational patterns in themselves and their loved ones.

Although Keiley (2002) did provide an explanation of the theoretical foundation of the MFGI in general, her description of the steps included within the intervention was not directly connected with supporting theories or research findings given the intervention was still in a developmental stage. The following is an outline of the MFGI, including an overview of the steps of the MFGI, that connects each step within the intervention to relevant theories and findings from research. This description of the intervention is followed by proposed future directions and considerations based on the evidence that has accumulated over the last twenty years.

Historically, participants in the MFGI have been referred to be recruited to participate in the intervention at the request of the therapist working with an adolescent on an individual basis. Caregivers are initially contacted by the adolescent's individual therapist who has often been working with them through the individual treatment protocol for some time before referral. Group facilitators contact the caregivers after such a referral and explain the purpose and

structure of the MFGI to them over the phone. The intervention has historically been held on weekend days that include time for visitation to maximize caregiver time coming to campus.

To improve group cohesion and maximize the depth of engagement, group facilitators spend time at the beginning and end of each group session connecting with participants and serving as liaisons between them and treatment staff that may only be available during the week. During the first session of the intervention, facilitators engage participants with ice breaker activities that allow them to get to know each other and group facilitators, as well. While the purpose of the MFGI and the order of the steps are reviewed in each session of the intervention, each session focuses on one step of the intervention in detail and participants are encouraged to focus on one step in the weeks between sessions, as well. The steps of the intervention naturally follow a sequence that reserves more vulnerable discussions (e.g., risking connection) for sessions toward the end of the intervention protocol.

Step 1. Awareness of Emotion

The goal of the first step in the MFGI is to increase participants' awareness of physiological cues of emotion. Emotion is understood to be a complex construct that involves experience, behavior, as well as physiological responses (Koole, Van Dillen, & Sheppes, 2011). While emotions are helpful in their ability to aim sensory processing, guide decision making about next courses of action, and support socially appropriate responses, they can also bias perception, thoughts, and behavior when they are inappropriate in intensity, duration, frequency, or type (Gross & Jazaieri, 2014). As described by Greenberg (2012), it has only been recently understood that emotions are a fundamentally adaptive resource and evidence has grown that attempts to control, minimize, or avoid emotion have negative effects on physical health and social/familial relationships (Brandao et al., 2023; Waldinger & Schultz, 2010). Rather than

treating emotion as something to be circumvented, the adaptive benefits of emotion are now known to be acquired through processing and creation of narrative meanings from doing so (Angus & Greenberg, 2011).

Adaptive processing (Greenberg, 2010) and regulation (Gross, 2013) of emotion both require that an individual is first aware of their emotional experience. Greenberg's emotion theory suggests that individuals are able to identify their basic needs (i.e., physical, instrumental, or social) only when they are able to be aware of the emotions that serve as signals of those needs being unmet or even threatened. Gross's emotion regulation theory suggests that being able to identify a strategy by which emotions are managed requires awareness of emotion and the need for such a strategy, as early as possible. Research continues to support both of these theories, as a lack of awareness of emotional responses has been identified as an early failure of emotion regulation (Tamir et al., 2007) and the moment-to-moment awareness of physiological experience of emotion has been related to the ability to regulate emotion and behavior, as well (Damasio & Carvalho, 2013; Füstös et al., 2013; Greenberg, 2012).

While all participants are generally able to modulate emotions more effectively the earlier in the emotion regulation process that they intervene (Gross, 2013), their experience of doing so varies according to attachment style (Campbell & Marhsall, 2011; Fosha, 2005; Mikulincer & Shaver, 2019). Those with an anxious attachment style, can "feel but not deal" with the emotions that result from difficult interactions. These participants tend to exaggerate the threat presented by even relatively benign situations, engaging in hypervigilant attention to their emotional experience, ruminating on both real and imagined threats, and at times behaving in a way that appears to confuse "cohesion with intrusiveness" (Brandao et al., 2023; Holmberg et al., 2011; Mikulincer & Shaver, 2019). The goal for these participants in the first step of the intervention is

to increase self-awareness and regulation of emotion, or down regulating. On the contrary, participants with an avoidant attachment style, can "deal but not feel" the emotions that result from difficult interactions. These participants often avoid awareness of their emotional experiences by denying or suppressing thoughts related to emotion, suppressing emotion related behaviors and conversation, and masking non-verbal expressions of emotion (Garrison et al., 2014; Mikulincer & Shaver; 2019). The goal for these participants is for group facilitators to support their engagement with emotion and even encourage expression of emotion to others in the group, or upregulation (Flores, 2017; Tasca et al., 2011).

Not only does this first step seek to help participants become more attuned to physiological cues of emotion, but it also aims to introduce or increase participants' awareness of their ability to modulate their emotions. Previous research indicates that a belief in one's ability to modulate emotions is positively related to their ability to regulate their emotions effectively (Tamir et al., 2007). From the very first session in the MFGI, participants are provided psychoeducation regarding emotion regulation, strategies that they might find useful in modulating emotion, and they are also introduced to the idea that their habitual patterns of responding to emotion are related to attachment style and experiences in early relationships. Participants are encouraged to reflect on their experiences in the past and to receive feedback from others in the group (i.e., students living in the dorms together, caregiver-adolescent dyads, or co-parent dyads) about how they typically respond to emotion or difficult situations to identify which attachment style they tend to display. Rather than labeling these habitual patterns as "bad" or "good," group facilitators encourage reflection on the presence and purpose of these behaviors early in and throughout the intervention.

Experiential activities such as role plays and enactments are used to illicit emotion and provide multiple opportunities for participants to be guided toward increased awareness of the ways that they interact with emotion (Pascual-Leone & Yeryomenko, 2017). Participants are encouraged to bring situations back to group in which they found themselves able to modulate their emotion and in which they struggled to do so. For example, caregivers might discuss a frustrating experience of coming through security before group or adolescents might discuss their experience of disclosing illegal sexual behavior to a caregiver who has held onto the belief that they were wrongfully adjudicated for that offense. Group facilitators work with participants other than those who present the situations and assign a caregiver to play the adolescent and an adolescent to play the caregiver. As participants role play these situations they are asked to reflect on their physiological experiences (e.g., heart rate, sweating, muscle tension). Participants observing the role play are also asked to reflect on their physiological experience and to note shifts in the presentation of others participating in group as well.

Step Two. Tolerance of Emotion

The next step in the MFGI is tolerance of difficult emotional experiences (e.g., fear, anger, and helplessness) rather than engaging in patterns of interaction that increase conflict or distance in their relationships (e.g., emotional outbursts or withdrawal from interaction). The goal of this step is for participants to begin to practice interrupting their typical pattern of interaction with others. It should be noted that the goal of this step is not to walk away from conflict or uncomfortable conversations, but to remain present to those experiences without shifting into avoidance or pursual to manage emotional dysregulation.

This second step in the MFGI involves the selection stage of emotion regulation and seeks to increase adaptive emotion regulation strategies and to decrease maladaptive strategies.

Gross's (2015) process model of emotion regulation identifies five families of strategies of emotion regulation and positions them within four sequential stages of emotion generation. The families of strategies include situation selection, situation modification, attentional deployment, cognitive change, and response modulation. The strategies employed can be adaptive (e.g., cognitive reappraisal as a type of cognitive change) or maladaptive (e.g., suppression as a type of response modulation). While historically, research and theory has suggested the timing of implementation of emotion regulation strategies is of paramount importance, more recent theory suggests that the intensity of emotion should also be considered in selecting an effective strategy for managing emotion (Sheppes & Gross, 2011).

Currently, the MFGI seeks to provide participants practice modulating their physiological experience of emotion via techniques such as diaphragmatic breathing or progressive muscle relaxation in this second step of the intervention. While McRae and Gross (2020) indicate that there has not been much research on awareness or monitoring of emotion to date, they recognize that the success of adaptive techniques such as reappraisal is dependent on the intensity of emotion experienced, with more intense emotional experience resulting in less effective use of this strategy. These authors suggest that decreased effectiveness may be the result of impairment of the prefrontal cortex during situations that illicit intense emotion. Therefore, this step focuses on targeting physiological markers of emotion dysregulation such as increased heart rate and changes in breathing patterns. The goal of such practices is to decrease activation of the physiological cascade that is related to insecure attachment patterns, as described by polyvagal theory.

Of note, these therapeutic processes require an optimal level of emotional arousal to provide corrective experiences (Flores, 2010; Tasca et al., 2011). Without some level of

activation of emotion, participants do not have the ability to practice awareness of engaging with emotion in an adaptive manner (Greenberg, 2012). In group therapy, the group functions as a proxy for a caregiver, functioning as a source of threat and security as the group facilitator assists in establishing relationships that allow exploration of more healthy patterns of interaction (Black, 2019). While experiences managing emotion effectively have been established to be important in improving patterns of interaction and behavior, therapist support in both emotion regulation and cognitive processing of experience has been established to produce more therapeutic change than either practice on its own (Pascual-Leone & Greenberg, 2007; Auszra et al., 2013).

To achieve the goals of this step of the intervention, participants again work with examples of difficult situations brought to group by participants, this session focusing on modulation of their emotional experience. At the beginning of session, participants are introduced to several methods of modulating emotion (e.g., diaphragmatic breathing, sitting down, progressive muscle relaxation), and then participants are encouraged to practice these during the role play of difficult interactions and reflect on their experience of doing so. Group facilitators may also lead the group in engaging with one of these emotion regulation strategies as group begins for the day to provide another opportunity to practice these skills and reflect on their experience of doing so.

Step 3. Awareness of More Vulnerable Experience.

Once participants habitual pattern of response has been interrupted, participants are asked to consider the more vulnerable experience beneath this response. For example, a participant's habitual response may be to pursue their child with questions or threats when faced with disobedience. In this step, they are asked to consider what the fear may be underlying that response. Examples include, that if their child's behavior continues that they will be viewed as a

"bad parent," or that their child's behavior will continue to worsen and result in higher levels of sanction (e.g., detention), with some parents even fearing that their child's behavior will place them in danger. This third step is focused on expanding participants' awareness of both their habitual ways of responding to emotion dysregulation and the fears/assumptions beneath those patterns of interaction. The emotions associated with the more vulnerable experiences described above are termed, primary emotions. Those that are associated with habitual patterns of interaction (e.g., yelling, threatening, or withdrawal of connection) are termed, secondary emotions (Greenberg, 2010). It is in this step that participant's habitual pattern of interaction is reframed as a protective response often meant to manage closeness/distance in significant relationships.

This third step represents a cognitive re-appraisal of the patterns of interaction between caregivers and adolescents and seeks to address the attachment injuries that may lie beneath maladaptive emotion regulation strategies (e.g., hyperactive or deactivating affect). The MFGI introduces participants to the idea that their previous habitual patterns of interaction are related to protective instincts purposed to protect them and ensure that their needs were met. As suggested by Slonim (2014), the MFGI uses interactions within the group to highlight activation of the SNS and reframe responses as the result of emotional dysregulation. Since the development of the MFGI, research has established that maladaptive patterns of attachment are related to psychological symptoms and behaviors through maladaptive emotion regulation strategies (Tasca et al., 2009). In their discussion of these findings, Tasca and colleagues (2009) discuss that affect regulation strategies likely developed as a result of the patterns of interaction with caregivers early in life. These strategies, while adaptive to maintain their relationships with

caregivers, become problematic as they are applied outside of the family and become more rigid over time.

The third step in the MFGI also follows from emotion theory's suggestion that it is necessary to identify primary emotions and the core experience beneath behaviors (i.e., withdrawal or anxious pursuit; Greenberg, 2012). Based on attachment and emotion theories, the MFGI suggests that both adolescents and caregivers have a more vulnerable experience beneath their unhelpful patterns of interaction. When therapists are able to focus on these primary vulnerable emotions and unmet attachment needs (i.e., sadness, fear, abandonment), participants are able to process emotion more effectively as compared to when therapists focus on their rejecting anger or even when they encourage discussion of more vulnerable emotion specifically (Tsvieli et al., 2020). As suggested by these findings, discussions within this third step of the intervention focus on the more basic and vulnerable need that is signaled by secondary emotions and attachment behavior.

Group facilitators shift processing in this direction at every point possible from this session forward, whether using examples brought to group from between sessions or interactions that occur in the process of group itself. Using our example from above, rather than simply reflecting on their physiological experience when faced with a challenging security officer coming to group, caregivers are asked to reflect on the more vulnerable experience beneath their emotional dysregulation (i.e., a fear of judgement by others or the reminder that they are out of control of where their children are placed). Rather than reflect on their physiological experience when moving forward with disclosing the truth beneath their AISB to a caregiver who has believed that they were wrongfully adjudicated, adolescents are asked to reflect on the more vulnerable experience of fearing rejection if they tell the truth or being left alone because of their

actions. While this session does take care to help both caregivers and adolescents identify their more vulnerable experiences, participants are asked to focus on themselves and not each other during this session. They are asked to take time between sessions to now notice when they are emotionally dysregulated, practice toleration rather than engagement in previously unhelpful patterns (e.g., avoidance or anxious pursuit), and reflect on their more vulnerable experiences.

Step 4. Empathy

After they are able to reflect on their own more vulnerable experience, group members are also encouraged to reflect on the patterns that they notice in each other, both in and outside of sessions. Participants are asked to reflect on past interactions that led to conflict or distance between themselves, and then to consider the more vulnerable experience beneath the others' protective response. In short, participants practice empathy in this step of the intervention. Building upon the example from the previous step, the caregiver would be encouraged to consider the experience of their adolescent as they moved forward with questions or threats. While an adolescent may appear aloof as they withdraw from such interactions, it may be that they fear the interaction escalating if they were to share the reasons for their disobedience. The goal of this step is to challenge and expand participants' understanding of the experiences of others, and in doing so to decrease the need for them to engage in the protective manner that they may have used in the past.

The goal of this fourth step is related to emotion regulation, attachment, and polyvagal theories. The shift in perceiving the behavior of others as evidence of a more vulnerable experience or fear, is another example of cognitive reappraisal in the sequence of emotion regulation. It is also a relational reframe of previously emotionally charged interactions as attachment processes between them (Henschel et al., 2020). The positioning of this step behind

regulation of emotion and reflection on one's own more vulnerable experience follows from evidence that the ability to reflect on one's own experience is a pre-requisite for empathic responding (Krol & Bartz, 2021; Kural & Kovacs, 2022). The experience of being supported and attended to by others and the resulting feelings of safety have been established to be related to increased awareness of and responsiveness to the needs of others. It has also been related to increased confidence in one's ability to assist others with their emotional distress (Cassidy et al., 2018).

In this step, group facilitators assist participants with challenging their potentially negative internal working models of engaging with difficult interactions at all, and of the motivations beneath the attachment behavior of another person. Having reflected on their own patterns of interaction and the more vulnerable experience that others may or may not be able to see displayed, participants are encouraged to develop a curiosity about what might be going on for others within difficult interactions. As participants share their own more vulnerable experiences and through role plays of situations, participants can develop and practice empathy.

Step 5. Connection

In the final step, participants are asked to risk sharing their more vulnerable experiences with each other. The goal of this step is to interrupt previously habitual patterns of interaction and allow participants to experience previously difficult interactions in a different way. As they are able to engage without the protection of avoidance or anxious pursual, adolescents and their caregivers are more able to develop or maintain connection to each other in previously divisive interactions. While engaging with difficult conversations may have been viewed as a means of preserving their relationship in the past, this step shifts conflict with loved ones outside of session or even between group members, into an opportunity for a corrective experience as

participants reflect on the more vulnerable experiences that may lie beneath behavior (Flores & Porges, 2017).

This step aims to solidify the change in patterns of interaction achieved in each previous step of the MFGI. The corrective experience of connecting with each other at a deeper and more vulnerable level provides participants experiences that counter previously painful interactions, creating new pathways physiologically, emotionally, and interpersonally (Slonim, 2015; Tsvieli et al., 2022). In this step, the connection that is established by more adaptive patterns of interaction provides information to the ANS that these interactions may not be as threatening as they have been perceived to be in the past, reinforces the use of adaptive emotion regulation strategies, and positions others as potential sources of support and safety. Cognitively, this step aims to provide experiences that support narratives that contradict previously negative views of interacting with each other more vulnerably and of themselves as incapable of modulating their emotions or providing support and safety to others (Greenberg, 2012).

In fact, there is evidence that being able to express needs (e.g., a wish for connection with others, personal agency, or survival) supports emotional processing and tolerance of difficult experiences (Pascual-Leone & Greenberg, 2007). Flores and Porges (2017) identify group, in group therapies, as an ideal exercise in practicing biobehavioral adjustments to maladaptive patterns that may have developed in childhood. As the group functions as a secure base for participants, it allows for actual experience of the topics presented, as opposed to simply learning or seeing the suggested patterns of interaction modeled. Research indicates the importance of experience, above and beyond cognitive understanding or even observation of adaptive patterns of interaction (Kural & Kovacs, 2022; Tsvieli et al., 2022). Therefore, the practice of this final step within multiple sessions of the MFGI is one of the main goals of the intervention.

Conclusion

In conclusion, the MFGI is an intervention aimed at improving relationships. On an individual level, the MFGI aims to improve participants' relationships by improving understanding of their habitual patterns of interaction, the attachment and physiological experiences beneath such patterns, their ability to tolerate difficult emotions, and to empathize with the experience of others. On a relational level, the MFGI aims to provide participants with more positive experiences of tolerating emotion and connecting vulnerably with others. The MFGI uses a multiple family group structure to maximize cost effectiveness and to provide participants with a sense of community and support.

This project aimed to not only revisit the theoretical foundation described by Margaret Keiley (2002), but to review the supporting literature from the past twenty years and to more clearly connect each step in the intervention to relevant research and theory. The MFGI is an intervention that weaves together emotion theory, polyvagal theory, and attachment theory. In fact, our literature review provides strong support for the structure and content of the MFGI, which is exciting considering that this intervention was developed over twenty years ago.

Research indicates that achieving change in attachment style is difficult. However, a clear theoretical understanding of the underpinnings of these patterns of interaction may point to several potentially more malleable points of intervention (Brandao et al., 2023). In fact, each of the steps involved in the MFGI builds off and is supported by the previous step. For example, while awareness of one's physiological experience is a predicate to the ability to regulate emotion and engage in strategies such as cognitive reappraisal, a sense of safety supports the ability to be aware of physiological experience of emotion. While having accepted the idea that one's experience of emotion is malleable and that there may be a more vulnerable experience

beneath the social behavior that is visible in an interaction makes regulating the automatic physiological responses to that behavior a bit easier, practicing regulation of emotion in contexts that challenge that ability is required in order to gather evidence that it is safe to do so (Flores & Porges, 2017; Slonim, 2015). Finally, while a secure attachment is related to a greater ability to engage in cognitive reappraisal, increased confidence about one's status as worthy of love and support from others, and openness to awareness of emotion, it is these experiences that also facilitate a secure attachment style (Bowlby, 1973; Mikulincer et al., 2003). Group therapy, as in the MFGI, provides ample opportunities for participants to practice and gain experience engaging with each of these steps more adaptively with the goal of a cumulative improvement in individual, social, and familial functioning over time.

While each of the steps involved in this intervention is strongly supported by both theory and research, there continues to be a need for explicit study of therapeutic interventions that support the goals of each step (Mikulincer & Shaver, 2019). This paper outlines the current interventions that are used to address each step's goal. Future research should investigate the efficacy of these and other interventions that follow from the research and theory discussed. Not only will this make implementation of the MFGI more consistent across groups, but it will allow for implementation of the MFGI in other contexts or facilities.

Chapter III. Examination of a Multiple Family Group Intervention: Change in Psychological Symptoms and Intervention/Program Specific Targets Across Treatment

Introduction

The Multiple Family Group Intervention (MFGI) is a family therapy intervention situated within a larger treatment program for adolescents adjudicated for illegal sexual behavior (the Accountability Based Sex Offense Prevention (ABSOP) Program). Both programs have now served multiple decades as treatment protocols that were groundbreaking in their existence within a juvenile detention facility in the early 2000's. They continue to serve as an exemplar of a partnership between multiple disciplines (e.g., Psychology and Marriage and Family Therapy) and of treatment programs committed to evidence based practice. While previous studies have described the theoretical foundation for and structure of the MFGI (Keiley, 2002), demonstrated effectiveness of the MFGI at decreasing internalizing and externalizing symptoms and increasing attachment to caregivers and functional emotion regulation strategies (Keiley, 2007), and identified the decreased use of maladaptive emotion regulation strategies as a mediator of change in symptoms and patterns of attachment as a result of participation (Keiley et al., 2015), there has been no study of the MFGI within the larger treatment program, to date. The following study, while simple in methodology, represents the first investigation of the MFGI in the context of the larger ABSOP Program and serves to inform future directions of the research lab associated with the MFGI and the partnership between the ABSOP Program and the MFGI lab.

Attachment Theory

According to attachment theory, infants have inborn behavioral systems intended to maintain proximity to their caregivers, keep them safe, and their basic needs met. Attachment behaviors have distinctive qualities and follow a sequence that results in a unique affectional

relationship between caregiver and child. Attachment behaviors are aimed at evoking a response (e.g., care, attention, assistance, etc.) from the caregiver. As caregiver and child engage in these patterns of interaction, this unique relationship is formed (Ainsworth, 1978). These predictable patterns of interaction have important implications not only in infancy and childhood, but throughout the life course (Ainsworth & Bowlby, 1991).

Those who had sensitive and responsive caregivers develop a secure attachment style. Their caregivers not only provide support and care in response to bids for such, but they balance caregiving and support by encouraging autonomy (Bretherton, 1992). These patterns of interaction result in feelings of both security and autonomy in children, who are able to move flexibly between exploring their environments and signaling for support (Ainsworth, 1979). However, children whose caregivers inconsistently respond to or reject their signals of distress develop an understanding of others as unreliable, themselves as undeserving, and may perceive relationships as dangerous (Bretherton, 1999; Fivush, 2006).

There is research indicating that these experiences and the resulting attachment style predict psychological, behavioral, and social functioning across childhood and adolescence (Brumariu, 2015). While secure attachment has been related to positive social development and the ability to interact with emotion and conflict adaptively (Laczkovics et al., 2020), insecure attachment has been related to the development of externalizing behavior (Guttmann-Steinmetz & Crowell, 2006) and internalizing symptoms such as depression (Esbjørn et al., 2012). In their 2015 study, Lewis-Morrarty and colleagues found that the interaction between an insecure attachment and low levels of behavioral inhibition increased risk for anxiety symptoms as well. The mechanisms by which early parent child interactions result in difficulties across the lifespan are still being investigated, with patterns of interpersonal interaction often being the focus of

investigations (e.g., perceptions of self and others in social interactions; Kobak & Bosmans, 2019; Laczovics et al., 2020).

These investigations follow naturally from the premise that early experiences carry forward via the development of internal working models for children themselves (i.e., how much they can affect others around them) and for their attachment figures (i.e., how their caregivers will respond to their bids for food, safety, or comfort; Bowlby, 1982). Internal working models have been described as maps, informing both the child's behavior in communicating their needs and their expectations about the reactions that others will have to them. While they are shaped by early interactions between child and caregiver, as these patterns become more habitual, they become less conscious and more rigid. Eventually, new experiences are filtered through expectations with information that contradicts the internal working model being filtered out. The rigidity of these internal working models allows for protection within early attachment relationships, maintaining connection to caregivers- even those who may not be consistently attuned or responsive to their child's needs. While this function is adaptive within the context of the relationship in which the internal working model was developed, individuals with insecure attachments may have difficulty in future relationships as they apply insecure response patterns to potentially safe relationships (Bretherton, 1985; Bretherton & Munholland, 2008; Laible et al., 2000).

An Integrated Theoretical Model

As was predicted - and encouraged - by Bretherton in his 1992 review of the origins of attachment theory, our understanding of attachment has been refined and expanded by theoretical and methodological developments over time. As an example, Leerkes and colleagues (2015) found evidence in support of a theoretical model that nests social information processing theory

(SIP) and affective processes within attachment theory. According to SIP theory, social responses (e.g., disclosure or obscurement of emotional experiences between parent and child) are not simply the result of the information exchanged within a social interaction. Rather, SIP posits that social information is filtered through individual factors such as knowledge, personal history, and abilities. Then, by awareness, perception, and social/personal goals (e.g., a hostile attribution bias) within that interaction (Crick & Dodge, 1994). Leerkes and colleagues (2015) suggest that the emotion elicited by a social interaction, the ability to regulate that emotion, and social processes such as empathy are also involved in understanding why an individual responds to social information in a particular way (Lemerise & Arsenio, 2000).

Using quality of interactions between mothers and their children as an example of social behavior, Leerkes and colleagues (2015) found evidence that behavior is dependent on the level of emotion elicited by a social interaction and an individual's ability to regulate emotion in general. Mothers in this study who reported greater physiological dysregulation and who struggled to regulate their emotion were more self- rather than infant-focused when in distressing situations. They were more likely to interpret their infants cues negatively and were subsequently less sensitive to the distress of their infant. Based on these findings, the ways that a social situation is interpreted and an individual's ability to consider the experience of the other person in an interaction are important in understanding their social behavior.

Hostile Attribution Bias

One of the filters of social experiences discussed by SIP theory is hostile attribution bias (HAB). Individuals with a HAB tend to interpret the motives and intentions of others as hostile, even in ambiguous situations (Crick & Dodge, 1996), and this tendency has been related to negative behavioral and social consequences in childhood and adolescence (Orobio de Castro et

al., 2002). Well before Leerkes and colleagues's 2015 integrated theory was introduced, Dodge (2006) suggested that the foundation for HAB was laid within the first year of a child's life by intrapersonal factors (e.g., a physiological system primed for dysregulation), interpersonal factors (e.g., a poor parent child relationship), and the interaction of the two. That is, a tendency to interpret social interactions negatively is not simply the result of individual level factors but is related to both relational and individual factors. For example, Wong and colleagues (2019) found evidence that child characteristics, such as anger proneness, interact with relational processes, such as sensitivity between mother and child, to predict hostile attribution bias. Not only was maternal sensitivity (a relational factor) unique in its direct negative relationship with hostile attribution bias, but child characteristics such as being prone to anger, were only predictive of a hostile attributional bias when considered in the context of that relational factor as well. Only in the context of low maternal sensitivity was being prone to anger predictive of hostile attribution bias. These findings indicate that relational factors are important in understanding hostile attribution bias, even when individual level factors, such as anger proneness, are present.

Callous Unemotional Traits

One individual characteristic frequently related to HAB is a pattern of callous unemotional (CU) traits (Hartmann et al., 2020). CU traits include a lack of guilt, lack of empathy, and callous use of others (Barry et al., 2000; Frick, 2009). Initially identified as a factor in the presentation of adult psychopathy, this pattern of emotion/behavior has been established to be related to conduct problems, aggression, and delinquency in adolescence as well (Frick et al., 2003; Frick & White, 2008). CU traits are understood to be relatively stable and although environmental factors such as deviant peer relationships may reinforce or exacerbate them, genetic factors account for a significant amount of the variance in CU traits (Henry et al., 2018).

While deficits in emotional processing have been established to be related to CU traits in children and adolescents (Sharp et al., 2015), negative interpersonal experiences from difficulties identifying emotions in others then continue a negative sequala for children with CU traits (Zych et al., 2019). More specifically, individuals who struggle to attend to social cues may have difficulty discerning between ambiguous and hostile situations. Their struggle to attend to emotional cues of others increases the likelihood that they will interpret situations as hostile, respond aggressively, and receive negative responses from others (Orobio de Castro et al., 2003). Over time and experience, these patterns of interactions reinforce a negative view of others that may present as a HAB (Kokkinos & Voulgaridou, 2018).

Perhaps as a result of such experiences, parent and child report of callous unemotional traits have been found to be stable from childhood to adolescence, and there is some evidence that these traits carry into adulthood as well (Blonigen et al., 2006; Frick et al., 2003; Obradovic´ et al., 2007). Although individual factors such as genetic predisposition and neurological functioning have been identified as risk factors for the development of CU traits, parenting factors (e.g., maltreatment, low parental warmth, insensitive parenting, or attachment insecurity) have also emerged as important to consider in understanding the etiology of CU traits (Waller et al., 2013).

In addition to investigation of the relational risk factors for CU traits, recent research also indicates that they can be responsive to treatment (White et al., 2013; Waller et al., 2013; Wilkinson, Waller, & Viding, 2016), and there is some evidence that CU traits can change across adolescence (Frick et al., 2003; Lynam et al., 2007). Parenting practices not only predict the stability of CU traits, but there is evidence that interventions that aim to improve parenting (e.g., parental warmth and responsiveness) may decrease CU traits as well (Frick et al., 2014;

Wilkinson et al., 2016). Family therapy and interventions targeting parenting practices may be especially promising, as improvements in adolescent behavior might subsequently improve parental responses to their child and result in continued decrease of CU traits (Wilkinson et al., 2016).

The Multi-Family Group Intervention

Following a course of intervention based on attachment and affect regulation theories, the MFGI is a bi-weekly 8-session therapy intervention that seeks to improve patterns of interactions in relationships (Bowlby 1982; Porges, 2001; Keiley, 2007). For example, caregivers and children may have found themselves stuck in a pattern in which caregivers pursue their adolescent for information and the adolescent stonewalls, or the caregiver is afraid to bring up conversations that may be difficult due to the adolescent's previously volatile response. Although change in the history or the experiences between adolescents and their caregivers is not possible, the MFGI seeks to create change in participants' awareness of patterns of social interaction and their understanding/perception of others within those interactions. The MFGI then aims to alter previously unconscious patterns of interaction between adolescents and their caregivers via in session role plays and enactments.

More specifically, the MFGI first seeks to improve participants' ability to tolerate difficult emotions (e.g., anger, sadness, guilt) that might accompany difficult social interactions. The MFGI begins by providing psychoeducation regarding the physiological nature of emotion, discussing the interaction between brain function and emotion, and exploring each participant's physiological experience of emotional dysregulation. Participants then work with therapists to consider strategies to modulate physiology based on their individual experiences. For example, a participant who experiences a tensing of muscles in response to anger is encouraged to try

progressive muscle relaxation as a strategy to regulate in times of high emotional arousal. Alternately, a participant who experiences a racing heart rate in response to anger is encouraged to try diaphragmatic breathing. This first aim of the MFGI seeks to improve tolerance of difficult emotion (e.g., anger and guilt), as a foundation for them to then explore their vulnerable experiences beneath those emotions.

In order to expand individual participants' ability to reflect on their own behavior in difficult social interactions, participants are asked to consider whether they have a more anxious (i.e., one in which they pursue conflictual interactions motivated by fear of what might happen if they do not engage) or avoidant (i.e., one in which they avoid conflictual interactions motivated by fear of what might happen if they were to be honest about their desires or experience) attachment style. Although participants are asked to self-reflect on these patterns, they also receive feedback from therapists, family members, and other participants to identify which pattern dominates their social interactions. Once they have identified their habitual pattern of interaction, these patterns are reframed as providing a false sense of security in difficult social interactions. That is, although the anxious individual might quiet the fear of impending consequences by pursuing their loved one in conflict, their movements may be perceived as threatening by others and are often met with a negative response. Alternately, although the avoidant individual might be able to "keep the peace" by obscuring their anger or concern, their avoidance prevents connection and may be perceived as flippant by others.

Once participants have developed a deeper understanding of their own patterns of interaction within difficult social interactions and the more vulnerable experience beneath those patterns, the MFGI aims to expand their understanding of the patterns of interaction of their family members. For example, if a caregiver can recognize that there is a more vulnerable

experience (e.g., fear of losing their child) beneath what is perceived by their adolescent as anger, the MFGI challenges them to consider the more vulnerable experience beneath what they have perceived as their adolescent's flippant responses in the past. If an adolescent can recognize that there is a more vulnerable experience (e.g., fear of rejection or loss of relationship) beneath what is perceived as their parents as being secretive and "shut-off," the MFGI challenges them to consider the more vulnerable experience beneath what they have perceived as their parents' anger at them in the past.

While participants' views of the behavior of others in social interactions may be challenged as they observe other participants sharing their experiences, the MFGI explicitly concentrates on developing empathy in a later phase of the group. The ability to empathize in the context of difficult social interactions is explained as requiring emotion regulation, self-reflection, and active interruption of unconscious and self-protective patterns. In each session, participants practice interrupting these patterns through role plays of situations they identify as previously difficult and enactments in response to events in session. Within these role plays and enactments, participants are challenged to enter difficult social interactions more transparently and with empathy, and participants reflect on their experience of each other when they are able to interact in this way.

As mentioned, the MFGI is a family therapy program nested within a larger treatment program (ABSOP Program). The MFGI is intended to augment individual treatment by improving relational functioning. On an individual level, the MFGI aims to improve adolescents' ability to interact with difficult emotions such as guilt, to risk being honest about their past behavior, and to connect with others empathetically. On a relational level, the MFGI aims to improve adolescents' patterns of interaction with their caregivers. Although the MFGI focuses

on improving relationship patterns between adolescents and their caregivers, as adolescents experience improvements in their family relationships it is expected that they would experience improvements in their other relationships (e.g., peer relationships) as well. More specifically, as they can consider alternate views of the social behavior of their caregivers and experience their caregivers more positively as a result, it is expected that they might begin to consider alternate views of the social behavior of others as well.

The Present Study

While the MFGI ultimately seeks to improve relationships between caregivers and children, this improvement is hypothesized to occur as participants interact with their own emotions more fully and effectively and understand the behavior of others differently. Not only is there evidence that the ways that we understand relational interactions (e.g., HAB) are informed by interactions between caregivers and children (Fivush, 2006), but there is also evidence that involvement of family is instrumental in improving problematic behavior of incarcerated adolescents (Wilkinson et al., 2016). In fact, interventions focused on improving caregiver child interactions have been shown to improve patterns of interactions between parents and children, internalizing and externalizing symptoms, and even CU traits that have previously been found to be stable across life (Keiley et al., 2015; White et al., 2013).

Based on these findings, this study tested within-person change in psychological symptoms (i.e., depression and anxiety), intervention specific targets (i.e., HAB, CU traits, impulsivity, and family discord), and a larger program target (i.e, delinquent predisposition) across participation in the ABSOP program (i.e., pre-post intervention) using latent change score analysis (See Figure 1; Klopack & Wickrama, 2020). I hypothesized that each of these, apart

from delinquent predisposition, would decrease within-persons from pre- to post-intervention regardless of group (i.e., MFGI + ABSOP vs. ABSOP only).

This study also investigated between-person differences in within-person change in these variables based on participation in the MFGI (i.e., MFGI + ABSOP program vs. ABSOP program-only). I hypothesized that adolescents receiving both the ABSOP program treatment and the MFGI would report greater decreases in psychological symptoms, intervention specific targets, as well as the larger program target delinquent predisposition as compared to adolescents only receiving ABSOP program treatment.

Test of Mediation

The MFGI is structured to first challenge negative views of interactional patterns between participants and subsequently improve participant ability to empathize with and risk being open with others. This structure is informed by attachment theory that suggests internal working models, or ideas about the safety of interpersonal interactions, directly shape the dysregulation that results from difficult interactions and patterns of openness with others in the future (Bretherton & Munholland, 2008). Based on this theory and findings that interventions that improve caregiver-child interactions can effect change in CU traits, I hypothesized that that adolescents receiving both the ABSOP program treatment and the MFGI will have larger declines in HAB, and that change in HAB will mediate the effect of treatment group (MFGI + ABSOP program vs. ABSOP program-only) on change in CU traits.

Methods

Participants

Participants (*N*=758) in this study were male adolescents adjudicated for illegal sexual behavior in detention at an Alabama Department of Youth Services facility. In the state of

Alabama, adolescents adjudicated for sexual offenses are required to complete treatment to address their illegal sexual behavior (ISB) and these adolescents are completing the ABSOP Program. Within this program, adolescents are selected to participate in the MFGI at the request of their individual therapist and the agreement of their caregivers. Some adolescents are nominated by their therapist to complete the MFGI even if their caregivers are unable to participate in the group if their therapist believes that participation in this systemic intervention will provide them specific benefit. Because of the non-random nature of MFGI participation (i.e., participants were not randomly assigned to MFGI or no MFGI), the research design for this study is a non-equivalent control group between-groups design with pre- and post-tests. Of the ABSOP Program population included in this study, 284 (37.3%) adolescents participated in the MFGI. Participants ranged in age from 11 to 20 years of age (M=15.9; SD=1.53) with 426 (56.2%) identifying as European American, 293 (38.7%) African American, 14 (1.8%) Latino, 14 (1.8%) biracial, and 6 (0.6%) as another race.

Data Collection

Data used in this study were collected from 2004 to 2017 in order to provide a sample of students across the time that the MFGI has been implemented within the ABSOP Program, at large. Data across all measures in this study were collected at pre and post treatment of the larger ABSOP Program. Pre-treatment data were collected after adolescents are transferred to and before they begin treatment at the Mt. Meigs campus of the Department of Youth Services. Post-treatment data were collected once an adolescent is determined by his individual therapist and a treatment team to have completed the ABSOP Program components that address the AISB that they were adjudicated for. Data were collected by master's level assessment clinicians overseen

by licensed psychologists. Data collection involved court and school records, in person interviews, and self-reports.

Measures

Hostile Attribution Bias

Hostile attribution bias was measured using a self-report instrument (Crick, 1995). Adolescents were presented with ten hypothetical vignettes and were asked a series of questions afterwards to assess their intent attributions about the situations. For example, adolescents are presented with situations where their books are knocked off their desk by a peer walking by, or their new cell phone is broken when they return after leaving it with a peer.

For the first three questions, scores ranged from 0 to 4, with lower scores indicating that the thought did not and with higher scores indicating that the thought did occur to them. The first question indicates the extent to which an adolescent attributes a proactive motivation. The second question indicates the extent to which an adolescent attributes a reactive motivation. The third question indicates the extent to which an adolescent attributes a benign motivation. Scores from their answers to each of the first three questions across the ten vignettes are summed to yield total scores ranging from 0 to 40. Higher scores indicated that an adolescent identified more strongly with the motivation described by that question. The fourth question indicates overall hostile attribution bias with scores ranging from 0 to 10, with higher scores indicating a stronger overall hostile attribution bias. The final question investigates how upset they believe they would be, with total scores ranging from 0-20 and higher scores indicating that they believe they would be made more upset by the incident.

As has been the practice in previous investigations (Crick, Grotpeter, & Bigbee, 2002), responses from the first two questions (i.e., proactive and reactive hostile biases) will be summed

to yield a score of hostile attribution for this study. Higher scores indicate a stronger hostile attribution bias. Reliability was high (.90).

Callous Unemotional Traits

The Affective Factor of the Hare Psychopathy Checklist- Youth Version (PCL: YV; Forth et al., 2003) was used to measure adolescent CU traits. The affective factor is one of the factors within the four-factor model of psychopathy proposed by Hare and Neumann (2005). This factor is comprised of four items including lack of remorse, shallow affect, lack of empathy, and failure to accept responsibility for their actions. Ratings were assigned by assessment interns after a semi-structured interview and review of case file information including school, police, and child protective services records. Items were rated as an indication of overall functioning as reported by adolescents and compared to these external indicators. Items are scored on a 3-point scale, with scores ranging from 0 to 2. A score of 2 indicates that the item applies to the youth; matches reasonably well in most essential respects; that his behavior is generally consistent with the flavor and intent of the item. A score of 1 indicates that the item applies to a certain extent, but not to the degree required for a score of 2. In other words, it may be a match in some respects, but with too many exceptions or doubts to warrant a score of 2; the assessor may be uncertain about whether the item applies; or there may be conflicts between interview and file information that cannot be resolved in favor of a score of 2 or 0. A score of 0 indicates that the item does not apply to the adolescent; that he does not exhibit the trait or behavior in question, or he exhibits characteristics that are the opposite of, or inconsistent with, the intent of the item. Reliability of this factor was acceptable (.73).

Individual Symptoms and Family Discord

The Millon Adolescent Clinical Inventory (MACI; Millon, 1993) is an 160-item self-report measure designed specifically for use with adolescent clinical populations. Within the ABSOP Program, the MACI is administered by a master's level assessment clinician as adolescent participants answer the questions on their own with paper and pen at pre and post treatment. The MACI assesses patterns of personality, clinical syndromes, and expressed concerns of adolescents. The presence and severity of personality patterns, expressed concerns, and clinical syndromes is indicated by a base rate score that is derived based on a raw score distribution. Higher scores indicate a higher severity with base rates ranging from 0 to 115. Previous studies have established the reliability of scales across the MACI to range from .71 to .93 (Oxnam & Vess, 2008). Of the 27 scale scores resulting from the assessment, this study investigated change in family discord, impulsive propensity, delinquent predisposition, depressive affect, and anxious feelings across treatment.

MFGI Participation

Participation in the MFGI was dichotomized, with a score of zero indicating that an adolescent did not and a score of 1 indicating that they did participate in the MFGI during their treatment in the ABSOP program.

Results

Plan of Analysis

Currently, the ABSOP Program data set only includes pre- and post- treatment data. Preliminary analyses, including assessment of descriptive statistics and correlations between outcome variables, were completed using SPSS (IBM SPSS Statistics; Version 27). Group equivalence was established using t-tests to assess differences in groups (i.e., ABSOP Only and

ABSOP + MFGI) across key demographic and historical variables available in the dataset (i.e., age, race, abuse history). Subsequent analyses were completed using Mplus 8.0 (Muthén & Muthén, 1998 - 2017). To investigate our first hypothesis regarding within-person change in psychological symptoms (i.e., depression and anxiety), intervention specific targets (i.e., HAB, CU traits, impulsivity, and family discord), and a larger program target (i.e, delinquent predisposition) across treatment, we assessed seven unconditional latent difference score models (McArdle, 2009). The unconditional latent difference score model was selected because it parses within- and between-person variability (i.e., how an individual differs from their own average score across repeated measures and how individuals differ from the sample average) to take into account the nesting of repeated measures (pre-post scores) within individuals. This model allows us to estimate pre-intervention means and variances, mean level change in variables pre- to post-intervention, and between-person differences in within-person change pre- to post-intervention. The conditional latent difference score model then allows us to predict this between-person differences in pre- to post-intervention change by group participation and to use the latent change scores to predict change in other variables (McArdle, 2009). Therefore, after we calculated latent difference scores for each of the outcome variables, we used a conditional latent change score model to test whether change across these measures was different for students who completed the MFGI and those only in the ABSOP Program. In these, both pre- and change scores were regressed on group, controlling for age of participants. Finally, we used an indirect effect latent change score model to answer our final research question, whether change in HAB mediated change in CU traits based on group participation.

Preliminary Analyses

Descriptive statistics and bivariate correlations were investigated for each variable included in this study (see Table 1). Data across all variables were determined to be normally distributed and acceptable for further investigation. Notably, scores on anxiety at both pre and post treatment were moderately correlated with scores of impulsivity at those timepoints. Scores of HAB at pre-treatment were not significantly correlated with any other variable included in our study and were only weakly correlated with scores of HAB at post-treatment.

Table 1. Descriptive Statistics and Correlations Between Study Variables.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1 Fam Discord	59.29	20.50	--														
2. T1 Del Predis	60.08	19.20	.47***	--													
3. T1 Impulsivity	52.58	25.06	.67***	.57***	--												
4. T1 Anxiety	68.09	22.58	-.53***	-.76***	-.63***	--											
5. T1 Depression	61.46	27.02	.10**	-.43***	.15***	.25***	--										
6. T1 HAB	3.79	2.57	.11	.07	.17*	-.14~	.07	--									
7. T2 Fam Discord	60.60	19.29	.47***	.31***	.41***	-.37***	.07	-.07	--								
8. T2 Del Predis	65.22	16.41	.31***	.53***	.38***	-.49***	-.18***	.03	.42***	--							
9. T2 Imulsivity	51.44	22.83	.37***	.35***	.55***	-.42***	.11**	.12	.63***	.47***	--						
10. T2 Anxiety	65.54	18.49	-.31***	-.46***	-.37***	.51***	.13***	.01	-.33***	-.64***	-.51**	--					
11. T2 Depression	48.09	26.20	.08	-.23***	.16***	.11**	.50***	.03	.17***	-.33***	.24***	.22***	--				
12. T2 HAB	3.63	2.49	.08	-.05	.12	.02	.18*	.37***	.16	.04	.21*	.00	.25**	--			
13. T1 CU Trait	3.33	2.12	.13***	.14***	.14***	-.16***	.03	.11	.14***	.19***	.17***	-.15***	.03	.34***	--		
14. T2 CU Trait	1.28	1.52	.03	.10~	.03	-.10	-.06	.05	.13*	.10*	.11*	-.06	.00	.17	.43***	--	
15. Age	15.9	1.63	-.04	-.07	-.18***	.12**	.01	-.21*	-.10*	-.13**	-.16***	-.06	-.05	-.05	-.09*	-.11*	--

Note. *N*= 730, 730, 730, 730, 730, 184, 625, 625, 625, 623, 624, 128, 734, 379 (from 1 to 14), respectively. T1 and T2 = Time 1, Time 2. * $p<.05$ ** $p<.01$ ***$p<.001$.

Regarding group equivalence on demographic variables that may be related to outcomes, these two groups were determined to differ from each other significantly regarding age at pre-treatment with the MFGI group being younger (*M*= 15.51) than the ABSOP Program only group (*M*= 16.07). Regarding pre-treatment scores, MFGI participants reported significantly lower levels of delinquent predisposition and higher levels of depression, as compared to those in the ABSOP Program only group (See Table 2). Based on these findings, we proceeded with investigation of our hypotheses controlling for age of participants and acknowledging that the groups differed on some variables before treatment.

Table 2. Independent Samples T-Test of Mean Scores at Pre-Treatment Across Groups.

	ABSOPP Only			MFGI				
	N	*M*	*SD*	*N*	*M*	*SD*	*t*	*df*
Fam Discord	460	58.72	20.43	275	60.44	20.64	-1.10	733
Del Predis	460	61.27	18.70	275	58.17	19.94	2.12*	733
Impulsivity	460	51.80	24.77	275	53.97	25.50	-1.13	733
Anxiety	460	67.21	22.44	275	69.49	22.74	-1.32	733
Depression	460	59.26	26.35	275	64.79	27.78	-2.70**	733
HAB	97	26.56	19.36	87	29.92	18.72	-1.20	182
CU traits	459	3.27	2.09	279	3.43	2.15	-.1.00	736

* $p<.05$ ** $p<.01$ ***$p<.001$.

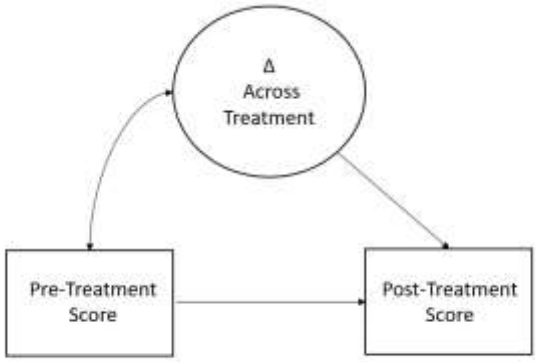

Figure 1. Conceptual Model for Unconditional Latent Change Scores

Research Question 1: Investigating change in psychological symptoms, intervention specific targets, and delinquent predisposition across treatment.

Results indicate partial support for our first hypothesis (see Figure 1 for a conceptual model and Table 3 for unconditional latent change score results). Depression, anxiety, and CU traits all decreased significantly across treatment. Adolescents reporting higher levels of depression, anxiety, and CU traits at pre-treatment reported greater decreases in these symptoms post-treatment. Also as predicted, delinquent predisposition increased across treatment. Participants reporting higher levels of delinquent predisposition at pre-treatment reported greater increases in delinquent predisposition across treatment.

Contrary to our hypothesis, there was no significant change in family discord, impulsivity, or HAB across treatment. Despite this, change scores on all variables did significantly vary between participants, indicating that group (i.e., MFGI vs ABSOP only) might account for some of the between-participant variability in change pre- to post-intervention. In the final step of testing our first hypothesis, conditional latent difference score models indicated no significant differences in change in family discord (β= -.25, *p*=.88), CU traits (β= -.20, *p*=.27), HAB (β= -.42, *p*=.90), anxiety (β= -2.35, *p*=.17), or depression (β= -.69, *p*=.76) across treatment according to MFGI participation. Change in delinquent predisposition (β= 2.49, *p*<.08) and change in impulsivity (β= 3.58, *p*<.06) approached, but did not reach statistical significance based on MFGI participation.

Table 3. Unconditional Latent Change Score Model Results.

Variable	μ_{T1}	σ_{T1}	μ_{Δ}	σ_{Δ}	r
Fam Discord	59.34***	419.48***	1.11	417.72***	-.55***
CU Traits	3.33***	4.47***	-2.04***	4.03***	-.73***
HAB	3.81***	6.51***	-.24	8.17***	-.58***
Del. Predis.	60.12***	624.31***	4.91***	304.57***	-.60***
Impulsivity	52.68***	508.31***	-1.43	514.87***	-.63***
Anxiety	68.07***	508.31***	-2.41**	421.69***	-.63***
Depression	61.38***	728.15***	-13.08***	703.94***	-.52***

* *p*<.05 ** *p*<.01 ***p<.001.

Research Question 2: Investigation of Change in CU traits as a Mediator of the Relationship between Change in HAB and Group Participation.

Our final model used an indirect effect latent change score model to test our second hypothesis that change in CU traits would mediate the change in HAB based on participation in the MFGI (see Figure 2). Results indicated no significant differences according to participation in the MFGI in either change in CU traits or HAB, and therefore, no indirect link between MFGI participation and change in HAB. Additionally, change in CU traits was negatively related to

change in HAB across treatment, controlling for the effect of group on change in HAB. That is, adolescents who decreased in CU traits across treatment increased in HAB across treatment.

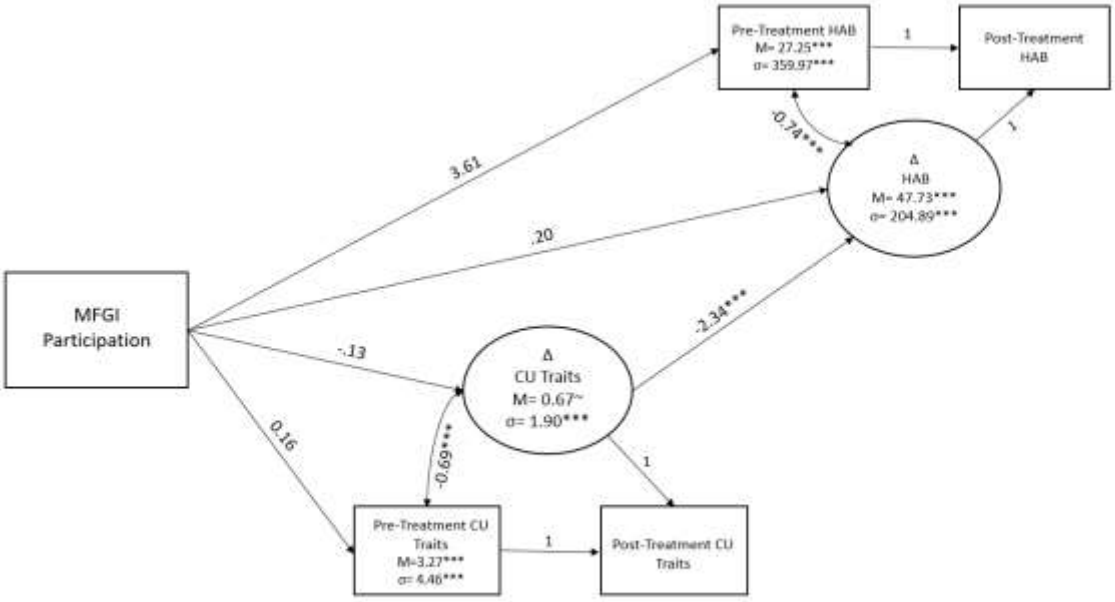

Figure 2. Indirect Effects Model: Change in CU Traits as a Mediator of the Relationship Between Change in HAB and MFGI Participation.

Discussion

The ABSOP Program is a treatment that serves adolescents adjudicated for illegal sexual behavior. Although this program targets these behaviors specifically, the program seeks to also improve adolescent functioning across multiple areas that might underly risk for illegal sexual behavior (Burkhart et al.; 2009). The MFGI serves as an intervention targeted at improving patterns of interactions between adolescents and their caregivers within this larger treatment program, and this study served as the first investigation of this intervention within the larger ABSOP Program. Although support for our hypotheses were limited and results did not indicate significant differences in outcomes according to participation in the MFGI, this study represents an important first step in connecting the clinical and research goals of these programs.

Although there were no significant differences according to participation in the MFGI, our findings indicated partial support for our first hypothesis, that there would be significant within-person change in psychological symptoms (i.e., depression and anxiety), intervention specific targets (i.e., HAB, CU traits, impulsivity, and family discord), and a larger program target (i.e, delinquent predisposition) across treatment. Our findings that depression, anxiety, and CU traits all decreased significantly across treatment provides support for the efficacy of the ABSOP Program at addressing these symptoms and traits that have been related to illegal sexual behavior (Lawing et al., 2010). Encouragingly, adolescents reporting higher pre-treatment levels of these symptoms and patterns of interaction with emotion reported greater decreases across treatment. These findings indicate that the ABSOP Program at large is successfully targeting these symptoms and improving adolescents' ability to interact with emotion.

While not as encouraging, our findings indicate support for our hypothesis that delinquent predisposition would increase across treatment, as has been found in previous research on adolescents in detention (Lambie & Randell, 2013; Loughran et al., 2009). Despite the ABSOP Program's focus on provision of treatment and assistance in creating a therapeutic milieu in the context of an adolescent detention facility, our findings indicate that adolescents in the program are likely to increase in their predisposition to engage in delinquent behavior across treatment. Outside of a lack of comprehensive treatment, previous research has suggested that this may be the result of exposure to a high concentration of delinquent peers during detention. Perhaps our finding that, even with a focus on provision of clinical intervention, delinquent predisposition for delinquent behavior increases across time in detention is evidence of the strength of these exposures. These findings are especially important to consider in that delinquent predisposition was measured before release, and therefore is likely not the result of

the context that adolescents return to after release or difficulties reintegrating into academic, vocational, or social arenas.

These findings may have important implications for the clinical work and future research within the ABSOP Program. While participants report decreased psychological symptoms across treatment, especially those reporting higher levels of symptoms at pre-treatment, their increased delinquent predisposition across treatment is a concern. Although there has been no investigation of predictors of this increase in delinquent predisposition within the ABSOP Program, the treatment program encourages students to become involved with programs such as educational/college coursework that have been identified as protective factors against future delinquent behavior (Barnert et al., 2021). The ABSOP Program has also recently incorporated substance abuse treatment into the treatment protocol, with substance abuse being one of the strongest risk factors for continued delinquent behavior (Simões & Matos, 2008).

Contrary to our hypothesis, the results of our study found no change in family discord, impulsivity, or HAB across treatment. Our findings regarding family discord may point to the minimal involvement of families in treatment in the ABSOP Program, even with the inclusion of the MFGI for some adolescents. Familial involvement, although encouraged, is not required by the ABSOP Program. Certainly, a lack of change in family discord may be the result of a lack of focus on changing family dynamics in the program at large. It also may be important to consider that these data are the result of adolescent report. Adolescents may obscure difficulties in their relationships to protect how clinicians view their families, especially at pre-treatment. Adolescents adjudicated for sexual offenses often have minimal placement options and may also feel pressure to present their families in a positive light to preserve their placements at post-treatment.

The lack of change in impulsivity across treatment is surprising considering the ABSOP Program's individual and group interventions targeting these behaviors. It may be that adolescence is a time in which impulsive behavior is expected to increase. In fact, a 2014 longitudinal study of trajectories of impulsivity across adolescence indicated that impulsive behavior increases and peaks from ages 13 to 17 years old (Collado et al. , 2014). Our results also indicate no significant change in HAB across treatment. In a similar pattern, these results may be due to the experiences of adjudication for a sexual offense and placement in a detention facility. Adolescent experiences before and during placement in the ABSOP Program may result in adolescents having more negative interactions with others (e.g., family, law enforcement, court officials, or facility staff) that may support a hostile view despite ABSOP Program intervention.

Our lack of findings regarding differences in these patterns between adolescents that participated in the MFGI and those that only completed the ABSOP Program are contrary to our hypothesis. These findings may be the result of the small dosage of MFGI in comparison to the ASBOP Program, in general. Although the MFGI represents an effort to involve caregivers in treatment, these interventions are only eight sessions long, in the context of an intervention program that lasts about a full calendar year. In fact, while these findings are surprising considering the strong evidence for the value of family therapy for serious juvenile offenders, a meta-analysis of family-based treatment for such adolescents found that family-based treatments lasted an average of 25.9 weeks (Dopp et al, 2017). It may be that while the MFGI is an effective intervention at decreasing internalizing and externalizing symptoms (Keiley et al., 2015), that a difference in effect across treatment in general would require involvement of families across the intervention. Future clinical efforts should work toward increased family involvement in the

treatment program and provision of support to families throughout the time that their adolescent is in the program.

Finally, our findings that change in CU traits are negatively related to change in HAB are interesting. These findings may be evidence that those who become more sensitive or aware of their emotional experience and the weight of their illegal sexual behavior across treatment are more likely to assess the ambiguous behavior of others as hostile. Conversely, those that are hardened to their emotional experience and the weight of their illegal sexual behavior, are less likely to do so. In fact, in Keiley's 2015 study, adolescents demonstrating improved symptoms after completion of the MFGI reported greater anxiety over the course of participation. These findings were interpreted to evidence an increased concern with preservation of relationships. It may be that our findings are evidence that sensitivity to emotion and the responsibility for their illegal sexual behavior may result in adolescents being more sensitive to the social behavior of others.

Limitations of our study include the possibility of significant changes in treatment protocols and procedures across 13 years of programming represented in our dataset. Although this allowed for a large sample size, there were likely changes that we are unaware of across this length of time. Our results are also limited by a lack of assessment of symptoms and functioning after release from the ABSOP Program. Kirchmann and colleagues (2012) found improvements in attachment relationships one year from completion of a treatment program. Perhaps the benefit of participation in the MFGI is more pronounced once adolescents and caregivers are utilizing the steps they practiced in the intervention outside of the detention facility. Finally, our results regarding the MFGI are likely limited by the fact that the measures used in this study were selected based on the individual treatment protocol. Measures that approximated to targets of the

MFGI (e.g., HAB as an approximate measure of cognitive reappraisal) were chosen from the available measures, however there were very few measures that mapped onto the steps or aims of the MFGI directly.

Future research might include measures of attachment and emotion regulation strategies in the larger data set to improve our ability to study the MFGI in the context of the ABSOP Program. In fact, future research efforts might adopt the multidisciplinary approach to research and assessment that has characterized the treatment program for decades. Our findings also suggest the importance of challenging previously held ideals for change across treatment. Specifically, our finding that adolescents who increased in CU traits across treatment decreased in HAB across treatment, may point to the protective nature of a lack of engagement with emotion and empathy. It may be that a lack of engagement with emotion and empathy allows adolescents to check out of negative views of the behavior of others. Conversely, awareness of emotion and the experience of others may be related to increased awareness of the judgements of others, especially within this population adjudicated for such a negatively viewed offense.

In short, this study utilized the currently available data to complete the first investigation of the MFGI in the context of the ABSOP Program, in general. With evidence of the effectiveness of the MFGI at targeting attachment, emotion regulation, and behavioral and emotional symptoms (Keiley, 2007; Keiley et al., 2015) and a growing body of literature indicating the value of incorporating family therapy in the treatment of AISB (Dopp et al., 2017; Schmidt, 2014), continued investigation of the functioning of the MFGI within the ABSOP Program is a valuable future endeavor. We suggest that the findings of this study are likely the result of a small dosage effect and also that the data collection protocol of the larger treatment program was designed for assessment of targets of the larger treatment program and does not

include many systemic measures (e.g., attachment) that would be important in understanding the benefit of the MFGI. It is our hope that this paper would serve as a call for stronger connections between the clinical and research teams associated with the MFGI and the ABSOP Program at large and that such connections would maximize the effectiveness of a multidisciplinary approach to treatment for adolescents within the ABSOP Program.

Chapter III. General Discussion

Our review of research that has been produced since the 2002 development of the MFGI provides strong support for the structure of the intervention and the importance of continued family therapy interventions for juveniles in the justice system. Specifically, there have been substantial developments in our understanding of the physiology of emotion (e.g., Polyvagal theory) and the relationship between emotion regulation strategies and ability and attachment. These developments have allowed for a more specific understanding of the ways that attachment experiences in infancy and early childhood carry forward across development in childhood, adolescence, adulthood- even generationally.

From this point, clinical research has begun to identify specific ways that treatment programs and therapists can intervene to improve functioning for those struggling at individual (e.g., depression, anxiety, impulsivity) or social (e.g., family discord or delinquent behavior) levels (Flores & Porges, 2017; McRae & Gross, 2020; Tsvieli et al., 2020). There is evidence that family therapy adds value to treatment of adolescent illegal sexual behavior (Thomas & Viar, 2005; Rich, 2011) allowing programs to gather a clear picture of the context surrounding delinquent behavior, improving potentially problematic dynamics between family members, and possibly buffering the negative effect of detention (Zankman & Bonomo, 2004).

Although our empirical analysis of the MFGI in the context of the ABSOP Program at large failed to find evidence of differential outcomes for those that participate in the MFGI as compared to those who complete the ABSOP Program only, we suggest several future directions for the intervention and also research into the benefit of participation. We used measures that have been historically included in the assessment of individual outcomes for this investigation. Although the MFGI has been a part of the ABSOP Program for some time, research efforts

between these programs have remained separate. As has been the practice with treatment in the ABSOP Program for some time, we suggest a multi-disciplinary approach to development of assessment measures for use within the program in the future. We also suggest that investigations consider outcomes over time, as the benefits of participation in the intervention may not be as apparent at post-treatment assessment as over a longer period of time post-release.

Inclusion of measures to assess individual and relational targets of the MFGI in the larger data set may also assist in understanding the benefit of participation in the context of the larger treatment program. Although we failed to find evidence for our hypothesized model of change, we expect that these results are due to the attempt to approximate from measures chosen for assessment of individual level change. Keiley's 2015 longitudinal investigation of the MFGI did find significant improvement in participant internalizing and externalizing behavior across participation in the MFGI and at a one-year follow up. Furthermore, these improvements were predicted by decreases in use of maladaptive emotion regulation strategies. Although we used measures that included assessments of constructs close to those specifically targeted by the MFGI (i.e., HAB as a proxy for cognitive reappraisal as an emotion regulation strategy and CU traits as a proxy for awareness of emotion), these measures were included in the ABSOP Program's assessment protocol to measure change in other program targets (e.g., CU traits as a factor in psychopathy) rather than as measures of specific targets of the MFGI.

At their development, the ABSOP Program and the MFGI both represented innovative treatment programs for a population that was incredibly at risk and underserved. These programs have operated as exemplars of both the value of a multi-disciplinary approach to treatment and of the importance of the connection between research and practice for over two decades. We assert that this dissertation project provides evidence of the need for continued research on the MFGI

and inclusion of measures specific to relational and family functioning in the larger dataset. It is our hope that this project not only provides a firm and updated theoretical foundation for the presence and structure of the MFGI in the context of the larger ABSOP Program, but that it provides clear paths for future research efforts and growth of the program, as well.

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