Multi-Family Group Intervention: Affect Regulation to Improve Attachment for Adolescents Adjudicated of a Sex Offense and their Maternal Caregivers

by

Takoma R. Lindsay

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Approved by

Ben Hinnant, Chair, Associate Professor of Human Development and Family Studies
Wendy Troop-Gordon, Professor of Human Development and Family Studies
Lauren Ruhlmann, Assistant Professor of Marriage and Family Therapy

Abstract

Research suggests that insecure attachment and deficits in affect regulation are common characteristics in youth who have been adjudicated for a sexual offense. Family therapies are not a focus in adolescent treatment, but may be important for improving outcomes in both attachment and affect regulation. The current study uses data from adolescents who have been adjudicated of a sex offense and their maternal caregivers in a multi-family group intervention. The intervention aims to enhance attachment relationships by improving adolescent and caregiver ability to regulate affect. Using change scores from pre- to post-intervention, in our sample of adolescents (N = 115) and maternal caregivers (N = 80) we found evidence to support our hypothesis that changes affect regulation predict changes in attachment. Specifically, we identified how improvements in emotion awareness/expression and using less emotion-oriented regulation strategies predicted overall attachment and other aspects of attachment relationships such as trust, communication, alienation, and dependability. We call for future research to build on this evidence and the importance of family therapy in treating adolescents who have been adjudicated of sex offenses.

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List of Abbreviations

AASOs	Adolescents Adjudicated of a Sex Offense
AANOs	Adolescents Adjudicated on a Non-Sex Offense
GAs	General Adolescent Population
MFGI	Multiple Family Group Intervention
ABFT	Attachment-Based Family Therapy
EFT	Emotion-Focused Therapy
ABSOPP	Accountability Based Sex Offender Prevention Program
ERC	Emotion Regulation Checklist
ERC-ER	Emotion Regulation Checklist – Emotion Regulation Subscale
CISS	Coping Inventory of Stressful Situations
CISS-T	Coping Inventory of Stressful Situations – Task-Oriented Subscale
CISS-E	Coping Inventory of Stressful Situations – Emotion-Oriented Subscale
IPPA	Inventory of Parent and Peer Attachment - Combined
IPPA-T	Inventory of Parent and Peer Attachment – Trust Subscale
IPPA-C	Inventory of Parent and Peer Attachment – Communication Subscale
IPPA-A	Inventory of Parent and Peer Attachment – Alienation Subscale
AS	Attachment Scale
AS-D	Attachment Scale – Dependability Subscale

Multi-Family Group Intervention: Affect Regulation to Improve Attachment for Adolescents Adjudicated of a Sex Offense and their Maternal Caregivers

Sexual offense rates increased by 158% in the U.S. from 2014 to 2018 (Morgan & Oudekerk, 2019), amplifying costs to our society and the families involved. The direct costs of sex offenses alone are estimated to be $20 billion annually (Belzer, 2015), yet these calculations are likely to be underestimated. Sex offenses are vastly underreported with only an estimated 5-25% of rapes being disclosed to authorities (Truman et al., 2012). One nationally representative sample estimated that a staggering 18 million women and 3 million men have been raped (Tjaden & Thoennes, 2006), and about one-third of sex offenses (35.6%) are committed by adolescents (Finkelhor et al., 2009). While the financial burden to society is substantial, it seems insignificant when considering the lasting emotional costs to those who are sexually abused, the wrongdoer, and the families of both. Unfortunately, adolescents who have been adjudicated of a sex offense (AASOs) are relatively understudied, diminishing our ability to improve the situation.

Characteristics

Researchers have begun trying to differentiate adolescents who have committed sexual offenses from those who have not, or a general adolescent population (GAs;), and adolescents who have been adjudicated of non-sex offenses (AANOs). A history of experienced sexual abuse is much more frequent among AASOs when compared to AANOs and GAs (Malvaso et al., 2019; Seto & Lalumière, 2010). While those who have been sexually abused themselves are five times more likely to commit sexual offenses (DeLisi et al., 2014; Seto & Lalumière, 2010), most do not (Papalia et al., 2018). This is because other factors, including co-occuring stressors (Daversa and Knight, 2007) and caregiver characteristics (Malvaso et al., 2019) impact whether

or not a victim of sexual abuse might later commit a sexual offense. More recent studies show that AASOs who have inappropriate sexual encounters with children are the most likely to have experienced sexual abuse (Kemper and Kistner, 2010; Leroux et al., 2016; Stevens et al., 2013).

Additionally, AASOs are more likely to experience symptoms of certain diagnosable disorders than AANOs and GAs. Rates of mood disorders such as depression, anxiety, suicidality, and other internalizing behaviors are higher among this group (Galli et al., 1999; Kafka & Hennen, 2002; Malvaso et al., 2019; Seto & Lalumière, 2010). Neurodevelopmental disorders (e.g. learning disability, autism spectrum disorder) are also more prevalent among AASOs (Seto & Lalumière, 2010), especially those whose offenses happen non-violently or with children (Wijk et al., 2007). Furthermore, apathy, impulsivity, narcissism, and lack of empathy (Fanniff & Kimonis, 2014; Lindsey et al., 2001; Morrell & Burton, 2014; Netland & Miner, 2012) seem to be more common among AASOs (Galli et al., 1999; Kafka & Hennen, 2002), although compared to AANOs they overall show lower antisocial attitudes related to women (Seto & Lalumière, 2010).

Struggling with social skills is also common among AASOs which contributes to low self-esteem, isolation, and feeling inadequate among their family and friends (Miner et al., 2010; Miner and Munns, 2005; Seto & Lalumière, 2010; Symboluk et al., 2001; Valliant & Bergeron, 1997; Ward et al., 1995), although this difference was not identified among AASOs whose offenses happened with individuals older than them (Mavaso et al., 2019). It seems that AASOs need to improve their ability to read affective cues and communication skills (Becker & Kaplan, 1988; Knight & Prentky, 1993; Marshall et al., 1993; Marshall, Serran, & Cortoni, 2000; Seto & Lalumière, 2010; Worling, 2001), especially with girls and women (Sell et al., 1995; Seto & Lalumière, 2010). Resultingly, rejection and being bullied are commonly experienced by AASOs

(Hendriks & Bijleveld, 2004; Hunter et al., 2003; Joyal et al., 2016; Kemper & Kistner, 2010; Malvaso, 2019 Miner et al., 2016). When compared to AANOs however, AASOs also have fewer antisocial peers and problems with substance use (Seto & Lalumière, 2010).

Typologies

Most studies identify AASOs as a heterogeneous population, and researchers have recently attempted to differentiate between types of AASOs. Leroux et al. (2016) created three subgroups of AASOs whos offenses happened with children (below the age of 12 and at least 5 years younger than the adolescent), peers/adults (similar age or older), or mixed (both groups). They found that while the peer/adult group is similar to AANOs, the child group was less likely to have any disruptive behavior disorder, criminal charges, or to have caused any physical injury during the offense. The mixed group was only 7.2% of the sample but showed characteristics of both groups. Similar to the peer/adult group, the mixed group engaged in more delinquent behaviors and atypical sexual interests but were similar to the child group in that they also had experienced high rates of sexual abuse.

Butler and Seto (2002) separated AASOs as sex-only (only committed sexual offenses) and sex-plus offenders (committed sexual and other types of offenses). They found that the sex-plus group had similar characteristics as AANOs whereas the sex-only group had fewer conduct problems, lower risk for future delinquency, and more prosocial attitudes (Butler & Seto, 2002; Pullman et al., 2014). Pullman et al. (2014) additionally identified that the sex-only group had more atypical sexual interests and difficulties with romantic relationships.

Cale et al. (2016) grouped AASOs on the variety of offenses committed and victims' ages. Their sample yielded four groups: 1) "Rare offenders" (53.0%) who committed the sex offense and one or less non-sex offenses (most had no other offenses); 2) "late-bloomers"

(25.3%) who had a moderate frequency of offenses but mainly in late adolescence; 3) "low-rate chronics" (10.1%) who had moderate to high rates of offenses throughout adolescence and most showed a moderate peak in mid-adolescence; and 4) "high-rate chronics" (11.5%) who had the highest rates throughout adolescence with a high peak in late-mid adolescence. The rare offenders group seems to coincide with Butler and Seto's (2002) sex-only group and both studies found that children are the most common victims of these adolescent groups' sex offenses (Butler & Seto, 2002; Cale et al., 2016). Cale et al. (2016) expand on their work by highlighting the different trajectories of the sex-plus group. Both chronic groups had a history of escalating offenses leading up to the sex offense, indicating more antisocial motivations. The late-bloomer groups' sex and non-sex offenses started simultaneously and they had the highest likelihood among all groups to continue offending into early adulthood. This group is hypothesized to be the most likely to have another sexual charge as an adult.

Recidivism

Whether or not AASOs get involved in another sexual offense has important implications for their development and our judicial system. Encouragingly, only about 10-15% of AASOs recidivate sexually but around 50% re-offend non-sexually (Hanson & Morton-Bourgo, 2005; Fanniff et al., 2017; McCann & Lussier, 2008; Reitzel & Carbonell, 2006; Stevens et al., 2013). These individuals may be members of the sex-plus group who continue antisocial behavior, but more research is needed to differentiate the characteristics of AASOs who are at a high risk for non-sexual recidivism. Of those who do end up committing another sex offense some of the commonly identified characteristics are divergent sexual interests, attachment deficits, and an antisocial orientation (Hanson et al., 2007; Knight & Thornton, 2007; McCann & Lussier, 2008; Olver et al., 2007; Thornton, 2002).

While AASOs are not a homogeneous group, both insecure attachment and ineffective affect regulation strategies are common among AASOs which is where our multi-family group (MFGI) aims to intervene to create change.

Theories

Attachment theory and research suggest that insecure attachment and the development of affective regulation strategies are a major mechanism in why adolescents engage in problem behavior, including sex offenses (Daversa & Knight, 2007; Harrelson et al., 2017; Keiley, 2007; Malvaso et al., 2019; Marsa et al., 2004; Marshall & Marshall, 2010; Miner et al., 2016). Affect regulation responses are developed through repeated attachment experiences with caregivers (Keiley et al., 2015). Attachment, or the emotional bond between a child and caregiver, is a biological function promoting safety and protection of self (Bowlby, 1969, 1973) and is activated when there is a perceived sense of danger (Colling & Read, 1990). If children cannot soothe themselves, they respond with behaviors that increase proximity to caregivers (e.g., crying, smiling, reaching) (Ainsworth et al., 1978; Bowlby, 1969, 1973). When caregivers tend to be available, responsive, warm, and sensitive the child most likely develops a secure attachment (Keiley, 2007). When securely attached, people are better able to regulate affect themselves and when unsuccessful seek comfort and support from others (Keiley, 2007). Being equipped with resources including safe caregivers and effective affect regulation strategies allows people to respond well to conflict and other stressors. However, when caregivers are not typically available, responsive, warm, and sensitive there is an increased risk of developing an insecure attachment.

Insecure attachments include anxious, avoidant, and disorganized styles and result in different affect regulation strategies. The various affect regulation strategies developed through

each insecure attachment style are predictable and purposed toward feeling safe and secure. Anxious-pursue attachment originates from inconsistent caregiver responses which often leads to increased anxiety in the child who under-regulates affect and even intensifies their affective experience and expression (Kobak & Sceery, 1988; Magai, 1999; Marshall & Marshall, 2010; Seedall & Wampler, 2013). Responding to affective arousal through pursue or fight behaviors often results in more externalizing and aggressive behavior including delinquent and sexual behaviors (Baker et al., 2006; Cassidy, 2008; Keiley et al., 2015; Kim & Cicchetti, 2010). Avoidant-withdrawal attachment develops when caregivers reject or are unavailable when children are upset leading the child to over-regulate affect and not communicate in times of need (Allen et al., 1997). A pattern of regulating affect through withdrawal or flight behaviors is related to anxiety, depression, substance use, and sex offending (Kim & Cicchetti, 2010; Zaremba & Keiley, 2011). Disorganized attachment may occur when children are afraid of their caregivers and therefore they do not develop a map for how to regulate affect (Lyons-Ruth, 1996). Fight, flight, and even immobilization responses are all seen when dysregulated (Baker et al., 2006; Burk & Burkhart, 2003; Cassidy & Mohr, 2001; Keiley et al., 2015).

Internalizing and externalizing behaviors often are due to the high levels of vulnerability and difficulty regulating affect that insecurely attached children experience without a safe caregiver (Marshall & Marshall, 2000). Differentiating insecurely attached adolescents who commit a sex offense versus GAs or AANOs, AASOs are exposed to sex earlier (Beauregard et al., 2004; Marshall & Marshall, 2000; Seto et al., 2001) and more frequently than other adolescents (Beauregard et al., 2004; Seto et al., 2001). Given their early exposure to sex as children it makes sense that AASOs would learn to use sexual behaviors to regulate affect (Burk & Burkhart, 2003; Marshall & Marshall, 2000) and have more atypical sexual interests

(Robinson et al., 1997; Seto et al., 2000; Seto & Lalumière, 2010) such as arousal to stimuli involving children (Robinson et al.,1997; Seto et al., 2000). An increased propensity towards sexual methods of regulating affect may partially explain why some insecurely attached adolescents engage in inappropriate sexual behaviors.

While attachment experiences are integral in the development of affect regulation strategies, affect regulation must first be improved before families can begin to reconnect emotionally and improve attachment bonds (Keiley, 2002; Keiley et al., 2015), a facet and assumption of regulation theory (Schore & Schore, 2008). Attachment styles and patterns of responding to affect arousal often persist throughout the life course (Ainsworth et al., 1991; Bowlby, 1969). This means that parental responses to their children are influenced by their own attachment and habitual ways of responding when dysregulated. Especially when insecurely attached, family members often develop harmful patterns of interacting when experiencing affective arousal (Keiley et al., 2015). This arousal activates a sympathetic—or fight, flight, freeze—response that inhibits executive functioning including prosocial behaviors (Porges, 2003) which are necessary for attachment bonding experiences. Regulating affect to a safe parasympathetic state is necessary to have attachment bonding or healing experiences (Keiley et al., 2015; Porges, 2003), thus automatic, sympathetically mediated patterns of interaction act as barriers to secure attachment.

Research on affect regulation is focused on identifying which types of strategies are related to positive outcomes and which are related to mental disorders such as anxiety and depression. Six commonly identified affect regulation strategies are acceptance, problem solving, reappraisal, avoidance, rumination, and suppression – the first three being considered protective and the latter three contributing to the development of psychopathology (Aldao et al., 2010;

Aldao & Nolen-Hoekseman, 2010; Augustine & Hemenover, 2009; Parkinson & Totterdell, 1999). Each identified affect regulation strategy can be carried out through either behavioral or cognitive means, although behavioral strategies often have a larger impact on affective experience (Augustine & Hemenover, 2009; Parkinson & Totterdell, 1999). For example, rumination can occur through thoughts about what someone did wrong (cognitive) or complaining to a friend (behavioral). These strategies may actually heighten affective experience and have been connected to depression in both adults (Burwell & Shirk, 2007; Grabe, Hyde, & Lindberg, 2007) and adolescents (Nolen-Hoeksema et al., 2007) along with increases in anxiety (Aldao et al., 2010; Calmes & Roberts, 2007; Nolen-Hoeksema, 2000; Sarin et al., 2005). Conversely, acceptance, problem solving, and reappraisal strategies lead to more positive outcomes (Aldao & Nolen-Hoekseman, 2010) and are a focus in therapies such as cognitive-behavioral therapy (CBT) and acceptance-commitment therapy (ACT).

Interventions

Treatment for AASOs can include a variety of modalities (individual, familial, group) and techniques (cognitive-behavioral, behaviorism, psychodynamic). Surveying correctional facilities for AASOs, Sapp and Vaughn (1990) found 338 different techniques used for treatment. This staggering number raises ethical questions about which treatments are the most effective and should be implemented nation-wide. Contributing to the problem, multiple treatments likely are needed to meet all the needs of AASOs (Efta-Breitbach & Freeman, 2004). However, institutions often lack the necessary resources to provide such programs (Henggeler et al., 1992). Clearly, understanding which treatments are effective and efficient (cover multiple treatment needs and use of resources) is important to ethically treat this population.

Identifying the treatment needs of AASOs is the first step to answering this question. In 1988, the National Adolescent Perpetrator Network released a list of 19 issues to be addressed in treatment 1988; as summarized by Efta-Breitbach and Freeman (2004), key points of treatment involve relapse prevention, cognitive distortions, building empathy, impulse control, skills training (relationship and dating skills, communication skills, empathy skills, conflict resolution, compliment training, assertiveness skills, and personal care skills; Kahn & Lafond, 1988), anger management, and sex education.

It is also suggested that treatment involve family members to address foundational systemic problems and improve post-treatment care (DiGiorgio-Miller, 1994; Efta-Breitbach & Freeman, 2004). As previously discussed, most AASOs experience systemic issues within their families such as having experienced abuse and being insecurely attached. Unfortunately, incarceration disconnects adolescents from their families (Malvaso et al., 2019; Osborne et al., 2008), leaving the most important treatment needs unmet. While many treatment programs include some form of family intervention (Burton & Smith-Darden, 2001; McGrath et al., 2009; Walker & McCormick, 2004), less than 17% of community and residential programs list multisystemic family therapy (MST) as a top three choice for treatment (McGrath et al., 2009; Walker & McCormick, 2004) despite it being one of the most empirically supported treatments for AASOs (McGrath et al., 2009). Instead, 79.3% use cognitive-behavioral/relapse prevention models in treatment, and other approaches are not often used (Burton & Smith-Darden, 2001; Walker & McCormick, 2004). In treating AASOs, MST, as compared to cognitive behavioral groups and individual therapy, has been shown to significantly lower rearrest rates for both sexual (8% vs 46%) and non-sexual offenses (29% vs 58%) (Borduin et al., 2009; Borduin et al., 1990). Letourneau et al. (2009) added that over time MST yields significantly greater reductions

in problem sexual behavior (77% vs minimal decline), delinquent behavior (60% vs 18%), and externalizing symptoms (73% vs 20%) than weekly cognitive behavioral groups and individual therapy. The MFGI seeks to fill these gaps by providing a cost-effective method for systemic treatment that includes many of the identified treatment needs for AASOs.

Multiple Family Group Intervention

Most commonly in the literature multiple family group interventions have been used and found to be effective in families of schizophrenic patients (McFarlane et al., 1995), eating disorders (Scholz & Asen, 2001), addictions (Liu et al., 2015; Zubrick et al., 2005), and disruptive behaviors (Gopalan et al., 2015; McKay et al., 1999; Ruffolo et al., 2005). While the literature on MFGIs is sparce, there is some evidence suggesting better results than other treatment modalities in outcomes and among low-income and minority families (McKay et al., 1999) and with changes lasting more long term (Gopalan et al., 2015), all while providing an estimated cost-benefit ratio of up to 1:32 compared to single family therapy interventions (McFarlane et al., 1995). Our MFGI was created and implemented in hopes of effectively treating AASOs and their families through a cost-effective mechanism.

The MFGI is an eight-session intervention to treat AASOs using an attachment and affect regulation perspective. In bi-monthly 90-minute sessions, group facilitators use psychoeducation, discussion, and role-plays to target affect regulation skills (steps 1 – 3) and attachment bonding experiences (steps 4 – 6). The six steps are as follows: 1) awareness of experienced affect including physiological cues, 2) inhibiting automatic responses (fight, flight, freeze) and regulating affective arousal, 3) identify the underlying feelings that led to affective arousal (e.g. guilt, shame, fear), 4) building empathy and respect through perspective taking, 5) risking sharing vulnerable feelings, and 6) reconnecting by listening to the other's vulnerable feelings.

Each session includes psychoeducation to teach participants the step for that session, discussion to help families understand the principle and how it applies to their specific situations, and enactments to create a new experience and alter interactional patterns. Throughout this process AASOs and their family members begin creating new relational patterns for handling emotional arousal and stress (affect regulation) that allows them to engage in perspective taking and connecting conversation that repairs and builds relationships rather than pushing them away (attachment). For a more thorough explanation of the MFGI and its development see Keiley (2002).

There are multiple gaps that this intervention fills. First, it provides effective treatment that is affordable and easy to implement in various programs (Keiley, 2015). Second, the MFGI has a simple structure for facilitators to follow. Third, it meets most of the listed treatment needs of AASOs and their families as identified by the National Adolescent Perpetrator Network (1988). The affect regulation section helps participants with relapse prevention, impulse control, personal care skills, and anger management. The attachment section covers cognitive distortions, building empathy, relationship skills, communication skills, conflict resolution, and assertiveness skills. Importantly, other family members are also improving in these areas allowing the entire system to heal and change together. There are added benefits to this intervention such as building support relationships with families in the same situation (Keiley, 2007), keeping families connected with their adolescent, helping families accept and cope with the adolescents' offense, preparing families and adolescents for when the adolescent returns home, and more.

Attachment-Based Family Therapies

Deficits in affect regulation make this a critical element in AASO treatment (National Adolescent Perpetrator Network, 1988; Efta-Breitbach & Freeman, 2004). While addressing how

to identify and regulate affect, the MFGI also incorporates an attachment-based perspective. Attachment-based family therapy (ABFT) and emotion-focused therapy (EFT) are both similar to our MFGI but have received more empirical support, although many studies have not included control groups which should be taken into consideration when interpreting findings. ABFT and the MFGI both seek to build a secure attachment relationship through exploring their attachment relationship, enacting corrective attachment experiences, and making connection the goal of interactions. Similarly, EFT focuses on developing a more secure attachment relationship along with de-escalating negative interaction cycles through first improving affect regulation and then creating corrective attachment experiences (Greenberg, 2010; Stavrianopoulos et al., 2014). The development of the MFGI was influenced by both ABFT and EFT and adjusted to meet the needs of AASOs and their families (Keiley, 2002).

Attachment-based therapies have been shown to contribute to deceases in various presenting problems including suicidal ideation (Diamond et al., 2010, 2019; Scott et al., 2016; Hunt et al., 2017;; Winley et al., 2016; Zisk et al., 2019), externalizing and internalizing behaviors (Moretti et al., 2014), depression (Diamond et al., 2002; 2012; Goldman et al., 2006; Greenberg & Watson, 1998; Watson et al., 2003; Winley et al., 2016; Zisk et al., 2019), anxiety (Diamond et al., 2010, 2012, 2013, 2016), and eating disorders (Glisenti et al., 2018; Wnuk et al., 2015). Attachment focused therapies have also been shown to have effects on important relational outcomes such as parent-child relationships (Watson et al., 2003; Zisk et al., 2019), communication (Zisk et al., 2019), and avoidance in relationships with mothers (Diamond et al., 2012, 2013).

Considering diverse adolescent populations, attachment-based therapies have been effective in treating individuals who have experienced sexual abuse (Diamond et al., 2010;

MacIntosh & Johnson, 2008; Paivio et al., 2010; Winley et al., 2016) which is common among AASOs (DeLisi et al., 2014; Kemper and Kistner, 2010; Leroux et al., 2016; Malvaso et al., 2019; Seto & Lalumière, 2010; Stevens et al., 2013). Effectiveness has also been shown in underserved populations (Zisk et al., 2019) such as LGBTQ+ youth (Diamond et al., 2012, 2013; Levy et al., 2016) and many of the samples by Diamond et al. are majority black individuals. These findings improve our confidence that attachment-focused therapies are effective treatments for AASOs and their families.

Summary

Our study identifies how changes in affect regulation are related to changes in attachment among AASOs and maternal caregivers who participated in the MFGI. Given the deficits of affect regulation and attachment in AASOs, and the empirical evidence of the effectiveness of attachment-based family therapies with diverse samples and needs of AASOs, we hypothesize that changes in affect regulation from pre- to post-intervention will be positively correlated with changes in attachment for both AASOs and maternal caregivers.

Methods

Participants

The study sample is drawn from adolescents who had been adjudicated of a sex offense and their maternal caregivers who participated in the MFGI. The youth in this sample were incarcerated in a department of youth services correctional facility in Alabama. Adolescents are separated by offenses, and our intervention focuses only on adolescents who are part of the Accountability Based Sex Offender Prevention Program (ABSOPP; Burkhart, Peaton, & Sumrall, 2009). The participants in ABSOPP are housed in five dormitory style facilities that divide the boys according to age. Each adolescent has his own room but shares other living

conditions with peers of the same dorm and is always accompanied by staff members. Weekdays are highly structured including school attendance, free time, and therapeutic activities. Mandatory interventions for the boys include therapy twice a week and classes surrounding sex laws and education. The MFGI is a non-mandated part of the ABSOPP program, but participation is encouraged by therapists and staff members since it is the only intervention offered that includes both the adolescents and their families. While all parents are invited to attend with their child, parental participation is not required for adolescents to receive the treatment. All participants in this study volunteered to attend the MFGI and take part in the accompanying research study.

The sample consists of male AASOs in Alabama (N = 308) and their maternal caregivers (N = 169). Attrition rates were high from pre- to post- intervention (Adolescents = 63%; Maternal Caregivers = 53%). Sample participation in the MFGI is from the years 2004 to 2019. Adolescent ages ranged from 12 to 19 (M = 15.82; SD = 1.54) and maternal caregiver' ages ranged from 29 to 64 (M = 40.18; SD = 7.11). The majority of adolescents identified as Caucasian (59.8%; African American = 28.7%; Hispanic = 4.9%; Other = 3.9%; Native American = 2.6%). Academically, youth ranged from grades 6 to having graduated high school or received their GED (6^{th} = 1.7%; 7^{th} = 4.4%; 8^{th} = 15.6%; 9^{th} = 27.5%; 10^{th} = 21.4%; 11^{th} = 14.2%; 12^{th} = 7.8%; HS/GED = 7.5%) and maternal caregiver education from less than 8^{th} grade to a graduate degree (less than 8^{th} = 6.5%%; less than 12^{th} = 16.1%; HS/GED = 28.6%; Trade school = 6%; some college = 28.6%; college graduation = 13.1%; graduate degree = 1.2%). Before adjudication, most adolescents lived with their mothers (39.9%; mother and father = 27.1%; another relative = 15.7%; father = 12.4%; other = 4.9%) with the average household

income being $28,840 (*SD* = $25,335; 33.1% of maternal caregivers chose not to respond). See Table 1 for a full list of demographics.

Following are the demographic statistics of adolescents (N = 115) and maternal caregivers (N = 80) who provided data for both time periods and were included in the analyses. Adolescent ages again ranged from 12 to 19 (*M* = 15.74; *SD* = 1.62) and maternal caregiver's ages ranged from 30 to 64 (*M* = 43.03; *SD* = 9.21). The majority of adolescent respondents were Caucasian (64.3%; African American = 26.5%; Hispanic = 8.2%; Other = 0%; Native American = 1%), ranged from grades 7 to having graduated high school or received their GED (7^{th} = 3.3%; 8^{th} = 27.5%; 9^{th} = 22%; 10^{th} = 23.1%; 11^{th} = 8.8%; 12^{th} = 9.9%; HS/GED = 5.5%), and maternal caregiver education was from less than 8^{th} grade to a college graduation (less than 8^{th} = 4%%; less than 12^{th} = 21.3%; HS/GED = 34.7%; Trade school = 5.3%; some college = 22.7%; college graduation = 12%). Before adjudication, most adolescents lived with their mothers (38.8%; mother and father = 25.5%; another relative = 14.3%; father = 16.3%; other = 4.1%) with the average household income being $28,480 (*SD* = $27,070; 25.3% of maternal caregivers chose not to respond).

Procedure

Recruitment for participation in the MFGI is through referral by therapists in the ABSOPP. The incentives for familial participation apart from the treatment include the opportunity to visit their child during the intervention and financial reimbursement for travel. Because of their adjudicated status, adolescent participants are not allowed to receive monetary compensation for participation in research on the MFGI but do share the incentive of more frequent visits with family. Snacks and beverages are also offered at each session as an additional incentive.

At the beginning of the first session, researchers outline the research study and complete informed consent and assent with participants. If adolescents and family members agree to participate, they submit their informed consent, and questionnaires are then administered to be returned at the beginning of the second meeting. The same questionnaires are administered after the final session of group therapy and are returned at the final meeting where adolescents receive certificates for completing the intervention and reflect on their progress. Follow-up questionnaires are also administered six-months after the intervention, but this study only utilizes pre- and post-intervention data.

IRB approval was obtained and is maintained through Auburn University.

Measures

Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997): a 24-item questionnaire that measures the ability to regulate affect in children and adolescents. Responses refer to adolescent affect regulation and were completed by both adolescents and maternal caregivers. The measure uses a four-point Likert scale ranging from 1 “never” to 4 “almost always” and has two subscales, emotion regulation (ERC-ER) and emotional lability/negativity. This study only includes the emotion regulation subscale (8-items) which measures affective self-awareness and expression. The lability/negativity subscale (15-items) was removed because it evaluates affective experience such as mood instability rather than regulation of the experienced affect. One item from the ERC-ER subscale was also removed (#23) due to poor face reliability within the scale which was confirmed by a moderate increase in the scale reliability once deleted (+.06). Composite scores for the ERC-ER were created using a mean score where higher averages indicate a greater ability to regulate affect. Reliability statistics indicate sufficient internal

reliability for both pre- and post-intervention (T1: $\alpha = 69$; T2: $\alpha = 72$). This scale has also been previously validated on juvenile offenders (Zaremba & Keiley, 2011; Weems & Pina, 2010).

Coping Inventory of Stressful Situations (CISS; Endler & Parker, 1994): a self-report questionnaire assessing the type of affect regulation strategies used by individuals when stressed. All participants completed the measure which consists of three subscales including task-oriented (CISS-T), emotion-oriented (CISS-E), and avoidance-oriented regulation strategies. Task-oriented strategies are problem solving techniques that are used to alter or remove stressors. Emotion-oriented strategies involve rumination on the experienced affect which has been linked to a variety of mental disorders. The CISS-T and CISS-E each include both behavioral and cognitive strategies. Additionally, we use the word emotion rather than affect when referring to the ERC-ER and CISS-E, however, these are considered aspects of affect regulation which we have referred to throughout our report. The avoidance-oriented subscale includes items that do not apply to our adjudicated sample (ex: "go out for a snack or meal," "go to a party") and therefore was not included in our analysis. Sample items for affect regulation strategies include, "blame myself for having gotten into this situation" (CISS-E), and "make an extra effort to get things done" (CISS-T). Each subscale contains 16 items using a 1-5 Likert scale where 1 = "Not at all" and 5 = "Very Much." Averages were created for each subscale meaning that the higher the score, the more an individual uses that type of technique to regulate affect. Higher scores on the emotion-oriented subscale indicates higher rumination and expression of "negative" affect whereas higher scores on the task-oriented subscale denote more attempts to resolve the problem. The CISS had high internal reliability among our sample at both time 1 and time 2 (CISS-T: $\alpha_1 = .92$, $\alpha_2 = .92$; CISS-E: $\alpha_1 = .87$; $\alpha_2 = .90$).

Inventory of Parent & Peer Attachment (IPPA; Armsden & Greenberg, 1987): a two-part questionnaire measuring children's attachment to both parents and friends. For this study, only the 28-item parent section was used and was administered only to adolescents. Trust (IPPA-T; degree to which the child trusts that their parents respect and understand their needs), communication (IPPA-C; the quality and amount of communication with parents), and alienation (IPPA-A; level that parents induce feelings of detachment, estrangement, and anger) are the three subscales used to collectively capture parental attachment (IPPA). The averaged composite score was rated on a five-point Likert scale where 1 = "Almost always or always true" and 5 = "Almost never or never true" with higher scores indicating a more quality relationship. Cronbach's alpha for each subscale are as follows: IPPA: $\alpha_1 = .75$, $\alpha_2 = .69$; IPPA-T: $\alpha_1 = .92$, $\alpha_2 = .90$; IPPA-C: $\alpha_1 = .88$, $\alpha_2 = .85$; IPPA-A: $\alpha_1 = .86$, $\alpha_2 = .87$.

Attachment Scale (AS; Collins & Read, 1990): an 18-item self-report questionnaire used to measure attachment feelings and behaviors. Adolescents and their maternal caregivers both answered these questions regarding their own attachment styles The three subscales here measure comfortability with closeness and intimacy (close), beliefs that they can depend on others (AS-D), and how anxious they feel about being abandoned or unloved (anxiety). However, due to poor reliability within our sample we were only able to use the dependability subscale (T1: $\alpha = .72$; T2: $\alpha = .76$) and did not include the closeness ($\alpha = .56$) or anxiety ($\alpha = .61$) subscales in our analyses. We decided to still include the AS-D in our results since the AS was the only attachment measure completed by caregivers. The scale uses a five-point Likert scale where 1 = "Not at all like me" and 5 = "Very much like me" with higher scores indicating a more secure attachment. An example question from the AS-D is, "I know that others will be there when I need them."

We created difference scores for our each of the above measures. To do this we subtracted time 1 scores from time 2 scores such that T2 - T1 = change score with positive values indicating an increase pre- to post-intervention.

Results

Plan of Analysis

Preliminary analyses consisted of evaluation of descriptive statistics and bivariate correlations. Additionally, paired sample t-tests (pre- and post-MFGI) were conducted to determine if there were any significant mean level changes in emotional awareness/expression (ERC-ER), task-oriented regulation strategies (CISS-T), emotion-oriented regulation strategies (CISS-E), attachment dependability (AS-D), overall parental attachment (IPPA), parental trust (IPPA-T), parental communication (IPPA-C), and parental alienation (IPPA-A).

Using change (Δ) scores in multiple linear regression, our main analyses address the following research question:

1) Does change in affect regulation from pre- to post-intervention predict change in attachment in AASOs and maternal caregivers?

We hypothesize that change in affect regulation from pre- to post-intervention will be positively related to change in attachment for both AASOs and maternal caregivers. Results are presented first for adolescents' self-reported attachment as measured by five scales: composite attachment (IPPA), trust subscale (IPPA-T), communication subscale (IPPA-C), alienation subscale (IPPA-A; Armsden & Greenberg, 1987), and the attachment dependability subscale (AS-D; Collins & Read, 1990). The emotion regulation subscale of the ERC (ERC-ER; Shields & Cicchetti, 1997) and the emotion-oriented (CISS-E) and task-oriented regulation subscales of the CISS (CISS-T; Endler & Parker, 1994) were used as predictors of adolescent attachment in

separate regression models, resulting in 15 total multiple regression analyses for adolescents. To account for developmental differences, we controlled for age in these adolescent regression models.

For the maternal caregiver analyses, self-reported change in the AS-D subscale was the only dependent variable and change in the CISS-E and CISS-T were used as predictors, resulting in an additional 2 linear regression analyses for maternal caregivers.

Preliminary Analyses

Descriptive statistics are presented in Table 1; all variables were determined to be univariate normal. Bivariate correlations for the study variables are presented in Table 2. We identified 20 positive correlations among adolescent responses. Emotional awareness/regulation (ERC-ER) was negatively correlated with emotion-oriented regulation (CISS-E) and positively related to parental overall attachment (IPPA), trust (IPPA-T), communication (IPPA-C), and alienation (IPPA-A). Emotion-oriented regulation (CISS-E) was positively correlated with task-oriented regulation (CISS-T) and negatively associated with parental overall attachment (IPPA), communication (IPPA-C), alienation (IPPA-A), and attachment dependability (AS-D). Lastly, all IPPA scales (IPPA, IPPA-T, IPPA-C, and IPPA-A) were highly correlated with each other and the attachment dependability scale (AS-D). Among maternal caregiver's responses only one relationship, emotion-oriented regulation (CISS-E) and attachment dependability (AS-D), had a significant negative correlation.

Mean Level Changes Pre- to Post-Intervention

A series of 12 paired sample *t*-tests were computed to determine if there was mean level change among both the adolescents and maternal caregivers in affect regulation and attachment (Table 3 and 4). Adolescent results showed no significant group changes in affect regulation

from pre-intervention (ERC-ER: M_1 = 2.88, SD_1 = 0.58, CISS-T: M_1 = 3.35, SD_1 = 0.87, CISS-E: M_1 = 3, SD_1 =0.82) to post-intervention (ERC-ER: M_2 = 2.97, SD_2 = 0.61, t (114) = -1.51, p = .14; CISS-T: M_2 = 3.5, SD_2 = 0.93, t (88) = -1.55, p = .13; CISS-E: M_2 = 2.9;, SD_2 = 0.8, t (88) = 1.17, p = .24). Results for maternal caregivers indicated a significant decrease in use of emotion-oriented regulation strategies from time 1 (CISS-E: M_1 = 3.07, SD_1 = 0.78) to time 2 (CISS-E: M_2 = 2.83, SD_2 = 0.84, t (80) = 2.96, p < .01) but there was no significant change from time 1 (CISS-T: M_1 = 3.87, SD_1 = 0.74; ERC-ER: M_1 = 3.08, SD_1 = 0.51) to time 2 (CISS-T: M_2 = 3.93, SD_2 = 0.72; ERC-ER: M_2 = 3.15, SD_2 = 0.51) in use of task-oriented strategies (CISS-T: t (80) = -0.99, p = .32).

Regarding attachment, from time 1 (Adolescents: M_1 = 3.07, SD_1 = 0.87; Maternal Caregivers: M_1 = 2.91, SD_1 = 0.86) to time 2 (Adolescents: M_2 = 3.34, SD_2 = 0.83; Maternal Caregivers: M_2 = 3.13, SD_2 = 0.84) both adolescents (t (109) = -3.55, p < .001) and mothers (t (79) = -2.78, p < .01) had significant overall improvements in their ability to depend on others (AS-D). Results measuring changes in parental attachment indicate that the adolescent group experienced significant improvements from time 1 (IPPA-C: M_1 = 2.45, SD_1 = 0.9) to time 2 (IPPA-C: M_2 = 2.6, SD_2 = 0.84) in their communication with their parents (IPPA-C: t (114) = 2.13, p = .03) but not in their overall attachment (IPPA: M_1 = 2.59, SD_1 = 84, M_2 = 2.69 SD_2 = 8, t (114) = -1.51, p = .13), trust (IPPA-T: M_1 = 2.88, SD_1 = 0.92, M_2 = 3, SD_2 = 0.84, t(114) = -1.78, p = .07), or feelings of alienation (IPPA-A: M_1 = 2.42, SD_1 = 0.94, M_2 = 2.41, SD_2 = 0.99, t (114) = 0.08, p = .94).

Primary Analyses

Changes in Adolescent Attachment

Results for all adolescent regression models predicting change in attachment measures pre- to post-intervention are summarized in Tables 5, 6, 7, 8, and 9. In each model the adolescent's age was also used as a covariate.

Composite Attachment Scale. Change in emotional awareness/expression (ERC-ER) predicted change in the composite attachment to parents as reported by adolescents (ERC-ER: β = .47, p < .001; Age: β = .04, p = .63) and the full model accounted for 23% of the variance (R^2 = .23, F (2, 111) = 16.25, p < .001). Change in adolescents' task-oriented regulation strategies (CISS-T: β = .14, p = .19; Age: β = .1, p = .38) did not predict the composite of adolescent attachment (R^2 = .03, F (2, 85) = 1.36, p = .26) but change in emotion-oriented coping was negatively related to change in the composite of attachment (CISS-E: β = -.28, p < .01; Age: β = .06, p = .59). This model accounted for 9% of the variance in change in the composite of attachment (R^2 = .09, F (2, 85) = 4.07, p = .02).

Trust Subscale of Parental Attachment. Parental trust (IPPA-T) was significantly related to emotional awareness/expression (ERC-ER) and age as the overall model was significant (R^2 = .12, F (2, 111) = 7.70, p = .001) predicting 12% of the variance in parental trust. In this model, change in emotional awareness/expression was a significant predictor (β = .34, p < .001) but age was not (β = .07, p = .47). Models two (CISS-T and age: R^2 = .04, F (2, 85) = 1.78, p = .18) with task-oriented regulation (β = .15, p = .17) and age (β = .12, p = .25) was not significant. Similarly, model three (CISS-E and age: R^2 = .04, F (2, 85) = 1.66, p = .20) with emotion-oriented regulation (β = -.14, p = .2) and age (β = .11, p = .31) was insignificant overall.

Communication Subscale of Parental Attachment. Parental communication (IPPA-C) was significantly predicted by emotional awareness/expression (ERC-ER) and age as combined they accounted for 16% of the variance in changes in parental communication (R^2 = .16, F (2,

111) = 10.33, $p < .001$). In this model, change in emotional awareness/expression was a significant predictor ($\beta = .40$, $p < .001$) but age was not ($\beta = .40$, $p = .94$). Model two was not significant overall (CISS-T: $\beta = .17$, $p = .13$; Age: $\beta = .04$, $p = .7$; Overall: $R^2 = .03$, F (2, 85) = 1.33, $p = .27$) but model 3 was as emotion-oriented regulation (CISS-E) and age predicted 7% of the variance in parental communication ($R^2 = .07$, F (2, 85) = 3.09, $p = .05$). Emotion-oriented regulation strategies was a significant predictor in this model ($\beta = -.26$, $p = .02$) and age was not ($\beta = .01$, $p = .94$).

Alienation Subscale of Parental Attachment. Alienation by parents (IPPA-A) was highly related to emotional awareness/expression (ERC-ER) and age which combined predicted 23% of the variance in change in feeling alienated by parents ($R^2 = .23$, F (2, 111) = 16.11, $p < .001$). In this model, change in emotional awareness and expression was a significant predictor ($\beta = .47$, $p < .001$) but age was not ($\beta = .03$, $p = .72$). Model two was not significant overall (CISS-T: $\beta = .05$, $p = .67$; Age: ($\beta = .08$, $p = .48$; Overall: $R^2 = .01$, F (2, 85) = .27, $p = .69$) but model 3 with emotion-oriented regulation and age predicted 11% in IPPA-A ($R^2 = .11$, F (2, 85) = 5.12, $p < .01$). Emotion-oriented regulation strategies was a significant predictor in this model ($\beta = -.32$, $p < .01$) but age was not ($\beta = .02$, $p = .82$).

Attachment Dependability Subscale. Changes in adolescent ability to depend on others (AS-D) were as follows. The first model using emotional awareness/expression (ERC-ER) and age as the predictors was significant overall ($R^2 = .08$, F (2, 106) = 4.28, $p = .02$) accounting for 8% of the variance. In this model, change in emotional awareness/expression was not a significant predictor ($\beta = .15$, $p = .11$) and age was ($\beta = .21$, $p = .02$). Model two using task-oriented regulation (CISS-T) and age showed a significant overall relationship ($R^2 = .07$, F (2, 84) = 3.12, $p = .05$) but neither variable was significant at the individual level (CISS-T: $\beta = .17$,

p = .12; Age: β = .19, p = .08). Model three also was significant with emotion-oriented regulation (CISS-E) and age had a significant overall relationship (R^2 = .09, F (2, 84) = 4.20, p = .02) where emotion-oriented regulation strategies was a significant predictor of dependability (β = -.23, p = .04) and age was not (β = .16, p = .13).

Changes in Maternal Caregivers Attachment

Attachment Dependability Subscale. Shown in Table 10, two linear regression models were tested to identify whether changes in emotion- and task-oriented regulation scales of the CISS predicted changes in attachment as measured by the AS-D subscale among maternal caregivers. Task-oriented coping was not significantly related to changes in the dependability AS subscale (R^2 = .01, F (1, 77) = .41, p = .52, β = .07, p = .52) but emotion-oriented regulation was negatively associated with changes in dependability (β = -.30, p < .01). This model accounted for 9% of the variance in maternal caregivers' change in the AS dependability subscale pre- to post-intervention (R^2 = .09, F (1, 77) = 7.59, p < .01).

Discussion

Our study aimed to evaluate associations between change in affect regulation and change in attachment among AASOs and maternal caregivers who participated in a multi-family group intervention. Poor affect regulation and insecure attachment with caregivers and within family relationships are common traits among AASOs (Daversa & Knight, 2007; Harrelson et al., 2017; Keiley, 2007; Malvaso et al., 2019; Marsa et al., 2004; Marshall & Marshall, 2010; Miner et al., 2016). Improving affect regulation allows for more attachment bonding interactions between family members towards a more secure relationship where adolescents can co-regulate with parents (Keiley et al., 2015). We hypothesized that increases in affect regulation would predict increases in attachment over the course of the intervention. Using multiple indices of both affect

regulation and attachment, our hypothesis was partially supported. For adolescents, we found that increases in emotional awareness/expression and decreases in emotion-oriented regulation strategies were measures of affect regulation that predicted secure attachment relationships including overall attachment, communication, and alienation, and dependability. This suggests that when stressors arise it is best for the attachment relationship if AASOs and caregivers are aware of and positively express their emotions along with refraining from emotion-oriented regulation strategies. These findings add further evidence to the connection between the need to regulate affect and attachment in the context of change during a MFGI.

A strength of the study is that it dealt with adolescents adjudicated for sex offenses, an understudied population, and the individual differences in associations between affect regulation and attachment over the course of an intervention. The MFGI seeks to alter problematic dynamics and patterns among family members to allow them to better endure and connect through life stressors. Treating the entire family system is especially important with incarcerated populations who have been disconnected from their families and must reconnect and reestablish relationships once they return home. Our theories and the structure of the MFGI are based on the supposition that improving one's ability to regulate affect must first happen to then allow for better attachment bonding experiences.

Although there was limited evidence for mean level change in adolescent and maternal caregiver affect regulation and attachment over the course of the intervention, the individual level associations between change in affect regulation and change in attachment are encouraging. These findings suggest that the intervention had differential effects for participants where some benefited from participation and others benefitted less. Interventions typically do not have consistent effects due to individual differences (Könen & Karbach, 2021), and this points to the

need to search for key moderators of treatment effectiveness. Potential moderators may be the different typologies of AASOs who are categorized by age of victim (Leroux et al., 2016), sex-only or sex-plus offenses (Butler & Seto, 2002), and trajectory of offenses (Cale et al., 2016). Again, more research is needed to identify any subgroups and whether or not the differences among our sample reflect the typologies identified when reviewing the literature on AASOs. Distinguishing these groups would be important to focus the intervention on those who benefit from its structure and make adjustments to meet the divergent needs of others.

Attachment-Based Therapy

Our results offer support for using attachment-based family therapies among AASOs along with the already identified populations from this report's literature review. Additionally, we found evidence for the importance of focusing on affect regulation to build connection and improve attachment (or possibly vice versa). For both adolescents and maternal caregivers, decreases in emotion-oriented regulation strategies were related to increases in attachment. It may be that emotion-focused regulation strategies are maladaptive because they lead to high levels of emotional expression and internalized negative beliefs which inhibit one's ability to be emotionally available, responsive, warm, and sensitive. In this way, emotion-oriented regulation strategies may act as a "block" by not allowing parents to attune to and respond to their child's attachment needs (Robinson et al., 2015). Attachment theory suggests that adult co-regulation of affect is important for youth (Hughes & Baylin, 2012; Siegal, 2012), and thus the family system emphasis on including maternal caregivers and their own affect regulation is important. In other words, as caregivers are taught to regulate their own affect they will become more able to help their child regulate and create attachment bonding experiences during both stressful and non-stressful situations.

Multi-Family Group Interventions

Finding significant relationships between change in affect regulation and change in attachment outcomes is encouraging and contributes to the literature identifying multi-family group treatments as efficacious among AASOs and their maternal caregivers. Effects of MFGIs may also continue beyond treatment to help maintain improvements in self-regulation and family relationships when adolescents return home. Unfortunately, inclusion of family therapies has not been a focus of AASO treatment, probably because of the limited resources and complex logistics of correctional facilities. Both affect regulation and attachment are identified as main treatment needs for AASOs which further contextualizes the importance of the MFGI's outcomes. Not only are most of AASO treatment needs addressed in this intervention, but we also address caregiver deficits in the same areas which systemically facilitates adolescents' growth as well. While most facilities housing AASOs focus on cognitive-behavioral therapies and sex education, we argue that systemic treatment that includes the family system is a necessary compliment to these other treatments to provide comprehensive care, and that MFGIs are an effective and efficient method to address these gaps.

Limitations

Multi-family group treatment of AASOs and their maternal caregivers is an understudied area and as one of the first studies to date there are important limitations that must be taken into account when interpreting our results. A significant limitation is that adolescent participants were simultaneously participating in biweekly individual therapy. Without access to control group data (i.e., similar AASO's who did not participate in the MFGI but did receive mandatory individual therapy) we are unable to confidently attribute the changes we identified solely to the MFGI. A second limitation is that due to the analytic approach (regression at the between-

individual level), we are unable to determine causal or directional relationships between change in affect regulation and attachment. Given that the MFGI begins with an emphasis on improving affect regulation and then moves to attachment in later sessions, it might be that most changes in affect regulation necessarily preceded those in attachment but we are unable to make that determination. Session-by-session data collection on key variables could address this limitation in future work. A third limitation is that we did not track individual or family participation; a dosage effect could be a significant moderator of these results. Fourth, the MFGI suffered from high attrition in the return of post-intervention data. Procedural changes and improved non-monetary incentives for participation could be used to address this issue in the context of serving adjudicated youth. Finally, measurement limitations should be considered. Ideally, we would have had more reliable measures that were widely validated for the outcomes of the MFGI. More robust measures would have greatly improved our ability to address our research question and the validity of our results. Despite these limitations, our study functions as an exploratory view into the use of affect regulation and attachment focused MFGIs to effectively treat AASOs and their families in an efficient manner.

Conclusion

Our study sought to better understand the link between changes in affect regulation and changes in attachment among AASOs and maternal caregivers who participated in a MFGI. Both affect regulation and attachment are main primary treatment needs for AASOs yet most facilities do not prioritize family treatment. Our study identified some significant overall group improvements from pre- to post-intervention among maternal caregivers and adolescents as well as between-individual associations between change in affect regulation and change in

attachment. These results highlight the importance of improving affect regulation to facilitate corrective attachment experiences in AASOs and maternal caregivers.

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Table 1

Descriptive Statistics

	Adolescents		Maternal Caregivers	
	M/%	SD	M/%	SD
Age	15.82	1.54	40.18	7.11
Income			$28,840	$25,335
Race				
Caucasian	59.8			
African-American	28.7			
Hispanic	4.9			
Native American	2.6			
Other	3.9			
Education				
6th	1.7			
7th	4.4			
8th	15.6		6.5	
9th	27.5			
10th	21.4			
11th	14.2			
12th	7.8		16.1	
HS/GED	7.5		28.6	
Trade School			6	
Some college			28.6	
College Degree			13.1	
Graduate Degree			1.2	
Home Structure				
Mother	39.9			
Mom and Dad	27.1			
Another Relative	15.7			
Father	12.4			
Other	4.9			

Table 2

Adolescent and Maternal Caregiver Correlation Matrix

	1	2	3	4	5	6	7	8
1. Emotion Regulation	--	0.13	-0.01					0.08
2. Task-Oriented Regulation	0.15	--	0.12					0.07
3. Emotion-Oriented Regulation	-0.27*	0.27*	--					-.30**
4. Parental Attachment (Combined)	0.47***	0.15	-0.29**	--				
5. Parent Trust	0.34***	0.16	-0.16	0.86***	--			
6. Parent Communication	0.39***	0.17	-0.25*	0.87***	0.64***	--		
7. Parent Alienation	0.47***	0.05	-0.33**	0.82***	0.55***	0.56***	--	
8. Attachment Dependability	0.17	0.19	-0.25*	0.34***	0.21*	0.31**	0.35***	--

Note: *p < .05, **p < .01, ***p < .001. Below the diagonal are correlations among adolescent report measures and above the diagonal are correlations of maternal caregiver report correlations.

Table 3

Adolescent paired-samples t-test results

Measures	Adolescents				T-statistic	P
	M1	M2	SD1	SD2		
Emotion Regulation	2.88	2.97	0.58	0.61	-1.51	0.14
Task-oriented coping	3.35	3.5	0.87	0.93	-1.55	0.13
Emotion-Oriented Coping	3	2.9	0.82	0.8	1.17	0.24
Attachment dependability	3.07	3.34	0.87	0.83	-3.55	<.001***
Parental attachment (combined)	2.59	2.69	0.84	0.8	-1.51	0.13
Parent trust	2.88	3	0.92	0.84	-1.78	0.07
Parent communication	2.45	2.6	0.9	0.84	-2.13	0.03*
Parent alienation	2.42	2.41	0.94	0.99	0.08	0.94

Note: *p < .05, **p < .01, ***p < .001.

Table 4

Maternal caregivers paired sample t-test results

Measures	Maternal Caregivers				T-statistic	P
	M1	M2	SD1	SD2		
Emotion Regulation	3.08	3.15	0.51	0.51	-1.27	0.21
Task-oriented coping	3.87	3.93	0.74	0.72	-0.99	0.32
Emotion-Oriented Coping	3.07	2.83	0.78	0.84	2.96	<.01**
Attachment dependability			2.91	3.13	0.86	0.84

Note: *p < .05, **p < .01, ***p < .001.

Table 5

Multiple Regression Results for Adolescent Affect Regulation and Overall Attachment

	Overall Attachment (IPPA)				
	R2	*F*	*p*	*B*	*p*
Model 1	0.23	16.25	<.001***		
ERC-ER				0.47	<.001***
Age				0.04	0.63
Model 2	0.03	1.36	0.26		
CISS-T				0.14	0.19
Age				0.1	0.38
Model 3	0.09	4.07	0.02		
CISS-E				-0.28	<.01**
Age				0.06	0.59

Note: *p < .05, **p < .01, ***p < .001.

Table 6

Multiple Regression Results for Adolescent Affect Regulation and Parental Trust

		Parental Trust (IPPA-T)				
		R2	*F*	*p*	*B*	*p*
Model 1		0.12	7.7	.001***		
	ERC-ER				0.34	<.001***
	Age				0.07	0.47
Model 2		0.04	1.78	0.18		
	CISS-T				0.15	0.17
	Age				0.12	0.25
Model 3		0.04	1.66	0.2		
	CISS-E				-0.14	0.2
	Age				0.11	0.31

Note: *p < .05, **p < .01, ***p < .001.

Table 7

Multiple Regression Results for Adolescent Affect Regulation and Parental Communication

		Parental Communication (IPPA-C)				
		R2	*F*	*p*	*B*	*p*
Model 1		0.16	10.33	<.001***		
	ERC-ER				0.4	<.001***
	Age				0.01	0.94
Model 2		0.03	1.33	0.27		
	CISS-T				0.17	0.13
	Age				0.04	0.7
Model 3		0.07	3.09	.05*		
	CISS-E				-0.26	0.02
	Age				0.01	0.94

Note: *p < .05, **p < .01, ***p < .001.

Table 8

Multiple Regression Results for Adolescent Affect Regulation and Parental Alienation

		Parental Alienation (IPPA-A)				
		R2	*F*	*p*	*B*	*p*
Model 1		0.23	16.11	<.001***		
	ERC-ER				0.47	<.001***
	Age				0.03	0.72
Model 2		0.01	0.27	0.69		
	CISS-T				0.05	0.67
	Age				0.08	0.48
Model 3		0.11	5.12	<.01**		
	CISS-E				-0.32	<.01**
	Age				0.02	0.82

Note: *p < .05, **p < .01, ***p < .001.

Table 9

Multiple Regression Results for Adolescent Affect Regulation and Attachment Dependability

		Attachment Dependability (AS-D)				
		R2	*F*	*p*	*B*	*p*
Model 1		0.08	4.28	0.02*		
	ERC-ER				0.15	0.11
	Age				0.21	0.02*
Model 2		0.07	3.12	0.05*		
	CISS-T				0.17	0.12
	Age				0.19	0.08
Model 3		0.09	4.2	0.02*		
	CISS-E				-0.23	0.04*
	Age				0.16	0.13

Note: *p < .05, **p < .01, ***p < .001.

Table 10

Linear Regression Results for Maternal Caregiver Affect and Attachment Dependability

		Attachment Dependability (AS-D)				
		R2	*F*	*p*	*B*	*p*
Model 1		0.01	0.41	0.52		
	CISS-T				0.07	0.52
Model 2		0.09	7.59	<.01*		
	CISS-E				-0.3	<.01*

Note: *p < .05, **p < .01, ***p < .001.