CHILDHOOD EXPOSURE TO INTIMATE PARTNER VIOLENCE: EXAMINING PARENT-CHILD EMOTION DIALOGUES AND PRESCHOOLERS' SELF-REGULATION DEVELOPMENT

AN ABSTRACT
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BY

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Abstract

Intimate partner violence (IPV) is uniquely traumatizing to young children because of their proximity and dependence on caregivers. Less is known about the impact of IPV on children’s self-regulation, the capacity to manage thoughts, behavior, and emotions. Reminiscing about past experiences, a form of emotion socialization, is one relatively unexplored parenting process that might shape self-regulation development. This study investigates the relationship between IPV and children’s self-regulation skills, testing competing theories that maternal emotion socialization will act as either a mediator and/or moderator in the association between exposure to IPV and children’s self-regulation. Participants (n=117) were drawn from a larger study about stress and coping in low-income families oversampled for violence exposure. Mothers self-reported on IPV and participated in an emotional reminiscing task, which was videotaped and later coded using three coding schemes capturing 1) maternal sensitive guidance, 2) maternal elaborations, and 3) emotional match between parent and child. Results indicated that maternal sensitive guidance and emotional match, but not maternal elaborations, were significantly related to children’s self-regulation skills. There was no evidence that any of the three reminiscing constructs mediated the association between IPV and self-regulation. Both sensitive guidance and maternal elaborations moderated the association between physical IPV and self-regulation; this pattern did not hold for psychological IPV. Taken together, the results provide some evidence that reminiscing may promote positive self-regulation development in contexts of high IPV. Clinicians working with families experiencing IPV may consider building parents’ skills in reminiscing and emotion-focused communication to support children’s regulatory development.
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<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>v</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>METHODS</td>
<td>23</td>
</tr>
<tr>
<td>RESULTS</td>
<td>32</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>53</td>
</tr>
<tr>
<td>LIST OF REFERENCES</td>
<td>70</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1: Descriptive Statistics and Correlations (Spearman’s rho) for Study Variables and Covariates ........................................................................................................34

Table 2: Bootstrapped Coefficients for Regression Analysis of Maternal Elaborations Predicting Child Self-Regulation ..........................................................................................37

Table 3: Bootstrapped Coefficients for Regression Analysis of Sensitive Guidance Predicting Child Self-Regulation ..................................................................................................38

Table 4: Bootstrapped Coefficients for Regression Analysis of Emotional Match Predicting Child Self-Regulation ..................................................................................................40

Table 5: Direct and Indirect Effects for Mediation Analyses .........................................................................................................................................................41

Table 6: Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Maternal Elaborations ........................................................................................................45

Table 7: Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Maternal Elaborations ..............................................................................................................47

Table 8: Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Sensitive Guidance ..................................................................................................................48

Table 9: Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Sensitive Guidance ......................................................................................................................50

Table 10: Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Emotional Match ..................................................................................................................51

Table 11: Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Emotional Match ......................................................................................................................52
LIST OF FIGURES

Figure 1: Proposed Pathway for Effects of Emotion Reminiscing on Child Self-Regulation ................................................................. 19

Figure 2: Proposed Mediation Pathway Linking IPV, Emotion Reminiscing, and Child Child-Regulation ................................................................. 21

Figure 3: Proposed Moderation Model in which Emotion Reminiscing Buffers the Effects of IPV on Child Self-Regulation ................................................................. 22

Figure 4: Graphed Interaction between Physical IPV and Maternal Elaborations ........ 47

Figure 5: Graphed Interaction between Physical IPV and Maternal Sensitive Guidance. ................................................................................................................................. 50
Introduction

Scope of the Problem

Intimate partner violence (IPV) is a public health problem affecting millions of people in the United States each year. The Centers for Disease Control and Prevention (CDC) defines IPV as physical violence, sexual violence, stalking, or psychological harm by a current or former partner or spouse (Breiding et al., 2015). People of all genders can be perpetrators or victims of IPV, but women are more likely to be victimized. Data from the 2015 National Intimate Partner and Sexual Violence Survey (NISVS) revealed that 1 in 4 women and 1 in 10 men have experienced IPV in their lifetime and have reported some form of IPV-related impact (Smith et al., 2018). While only a small portion of incidents results in serious injury or death, IPV occurs at higher rates among women of Color, people with disabilities, LGBTQ individuals, and pregnant women (Ramaswamy et al., 2019).

Young children are disproportionately exposed to IPV because of their dependence on and close proximity to caregivers. In a population-based analysis using police data, children under the age of 6 years old were at the greatest risk of direct IPV exposure (Fantuzzo & Fusco, 2007). Despite attempts to shield children from conflict, they are often present during violent incidents. Children are assumed to be IPV exposed if violence is occurring in the home because efforts to “hide” it are often unsuccessful. The vast majority of children exposed to physical IPV (90%) are direct eyewitnesses; only 10% have more indirect forms of exposure (i.e., heard, saw, or told about injuries) according to the 2008 National Survey of Children’s Exposure to Violence (Hamby et al., 2011).
**IPV and Child Outcomes**

Researchers have consistently found that children growing up in violent households experience a wide range of negative outcomes. For example, IPV is associated with behavior problems (Graham-Bermann & Perkins, 2010), emotional dysregulation (Harding et al., 2013), disturbed sleep (Insana et al., 2014), and risk-taking behaviors (Bair-Merritt et al., 2006). Much of the literature has examined IPV in relation to child internalizing (e.g., depression, anxiety) and externalizing (e.g., aggression, delinquency) problems, allowing researchers to draw conclusions across study samples (Kernic et al., 2003). In a meta-analysis published by Evans et al. (2008), the relationship between IPV and internalizing and externalizing symptoms in children was moderate (Cohen’s $d=0.5$). In a more recent meta-analysis published by Vu et al. (2016), the authors found that the timing of IPV exposure also produced divergent outcomes. Younger children exposed to IPV were more likely to experience externalizing problems, and older children were more likely to experience internalizing problems (Vu et al., 2016). Despite the range and consistency in findings, much of this research has examined IPV in school-aged children and adolescents; less is known about the effects of IPV occurring prior to school entry.

Young children are underrepresented in the research literature despite also being disproportionately exposed to IPV (Fantuzzo & Fusco, 2007) and having fewer protective peer or academic outlets (Howell, 2011). Preschool-aged children exposed to IPV exhibit lower self-esteem, more behavior problems, and more PTSD symptoms when compared to non-exposed children (Howell & Graham-Bermann, 2011). Early childhood is a sensitive period in which caregiving experiences shape the development of foundational
cognitive and social-emotional competencies. Violence exposure occurring during early childhood, when neuronal connections are rapidly proliferating and then being “pruned” in response to environmental experiences, may be particularly harmful to long-term outcomes (Shonkoff et al., 2000). Self-regulation is particularly sensitive to violence exposure occurring in the preschool years because of the developmental sequence of normative brain development (McCoy, 2013).

**Defining Self-Regulation in Context**

Self-regulation refers to the processes that allow children to manage their thoughts, behavior, and emotions. Over the lifespan, self-regulation develops in a nonlinear pattern, with early exponential growth occurring during the preschool period (Montroy et al., 2016) and multiple sensitive periods (Thompson & Steinbeis, 2020). Self-regulation includes the volitional “top-down” executive control of thought and behavior, as well as the automatic “bottom-up” regulation of emotion and stress reactivity (Ursache et al., 2012). The top-down system is referred to as effortful control or executive function and is associated with brain regions like the prefrontal cortex and anterior cingulate cortex (Eisenberg et al., 2004). The terms self-regulation and executive function are often used interchangeably in the research literature, but they represent distinct concepts. Self-regulation spans the emotional, behavioral, and cognitive domains, while executive function is a purely cognitive process.

Childhood self-regulation is linked with a number of short- and long-term outcomes. Early self-regulatory abilities contribute to school readiness by helping children sustain attention in learning activities and adjust to new expectations (Blair & Raver, 2015). When children enter school for the first time, early self-regulation is linked
with literacy, math, vocabulary, and adaptive classroom behaviors (McClelland et al., 2007; Rimm-Kaufman et al., 2009). Early self-regulation is also linked with long-term outcomes in adolescence and adulthood. Moffitt et al. (2011) found that childhood self-control predicted physical health, substance abuse, financial security, and criminal activity in a large-scale longitudinal study following children over a 30-year period.

Early caregiving experiences shape the development of self-regulation. Warm and responsive caregiving provided within a safe, predictable environment facilitates the development of adaptive self-regulation (Bernier et al., 2010; Carlson, 2003). Specific parenting behaviors that facilitate the development of adaptive self-regulation include parental scaffolding, cognitive stimulation at home, sensitivity, and effective disciplinary practices (Fay-Stammbach et al., 2014). Over and above specific parenting practices, global attachment security may play a particularly important role in the development of children’s executive function in toddlerhood (Bernier et al., 2012) and prior to school entry (Bernier et al., 2015). Self-regulation may also be transmitted intergenerationally from parents to children through multiple interacting mechanisms (Bridgett et al., 2015). Maternal education level, which influences parenting behaviors and is a proxy for family socioeconomic status, is consistently related to child-self-regulation and often used as a covariate (Montroy et al., 2016).

Furthermore, early language input may also influence the development of self-regulation (Carlson, 2003). Through conversations with adults, children gain the vocabulary to verbally mediate their behavior. When adults review rules with children (“first we nap, then we have snack”) or narrate their own problem-solving strategies (“I can resolve this problem by…”), children learn to self-regulate their behavior using self-
talk. Preschool-aged children are beginning to use language for their own self-regulation but may not be consciously aware of their own inner speech until ages 6-7 (Flavell et al., 1997). The teaching of self-talk is an important part of Tools of the Mind (Bodrova & Leong, 2012, 2005), one of the only evidence-based interventions shown to improve preschool self-regulation in a randomized trial (Barnett et al., 2008). Mind-mindedness, a specific type of verbal interaction where parents comment on children’s mental states, is positively related to self-regulation (Gagné et al., 2018) and cognitive school readiness (Bernier et al., 2017).

**Emotion Socialization**

Emotion socialization may represent one relatively unexplored area in the research literature examining the early origins of self-regulation. In a seminal article, Eisenberg et al. (1998) described emotion socialization as the verbal and nonverbal practices that parents use to help children understand and regulate their emotions. Children learn about emotions from the ways that parents 1) react to their emotional expressions, 2) discuss emotions, and 3) express their own emotions. According to this model, when families encourage children to talk about emotions, children have better emotional understanding. When children increase their emotional understanding, they have better social and emotional competence (Eisenberg et al., 1998).

How parents respond to their children’s emotions is a component of sensitive parenting, but it also represents a distinct construct. During infancy, parents help children maintain an optimal level of arousal by changing their behavior and affective displays in response to the infant’s cues (Tronick, 1989). These face-to-face interactions are a form of early emotion socialization; infants develop expectations that their parent will soothe
their distress as parents respond to their affective cues. As children grow, emotion
socialization involves more complex and varied strategies (Eisenberg et al., 1999).
Emotion socialization behaviors may be more malleable when compared with global
measures of parental sensitivity (Fay-Stammbach et al., 2017). This makes emotion
socialization an appropriate target for skill-based parenting interventions and a promising
area of translational clinical research.

Parents have different goals and beliefs concerning the expression of emotion,
particularly around the expression of negative emotion. When responding to negative
emotions, parents may offer supportive responses that encourage the expression of
emotion, or non-supportive responses that minimize or punish the expression of emotion;
these responses are thought to either reduce or increase the child’s arousal (Eisenberg et
al., 1998). Child characteristics (e.g., child age, sex, temperament), parental
characteristics (e.g., values, childrearing philosophy), and characteristics of the
culture/subculture collectively influence emotion socialization behaviors (Eisenberg et
al., 1998). While culture is acknowledged as an important part of emotion socialization,
much of the existing research literature has focused on White, middle-class families.
Raval & Walker (2019) propose an updated conceptual framework that builds on the
Eisenberg et al. (1998) model described above and underscores the cultural dimensions of
emotion socializations. This model highlights how culturally embedded factors, like
caregiver socialization goals, preferences for communication, and beliefs about emotion
directly affect how parents engage in emotion socialization behaviors with their children.

**Reminiscing as a Form of Emotion Socialization**
Daily conversations about emotions, a subcategory of emotion socialization in the Eisenberg et al. (1998) model, are critical for helping children 1) to regulate negative emotions and 2) to organize and understand their past experiences. Drawing from Vygotsky’s (1980) sociocultural theory of cognitive development, children rely on adults to guide them to create a more coherent account of past events (Oppenheim & Koren-Karie, 2009). Children therefore develop more coherent and elaborated speech about their inner world through conversations with adults. Parents also promote feelings of security during these discussions by helping children to verbally organize and regulate intense emotional experiences (Koren-Karie & Aviezer, 2017). As children co-construct a narrative about their past experiences, they also gain the skills to understand and evaluate their experiences in the present (Sales & Fivush, 2005). Finally, children also practice managing their attention and emotions and waiting their turn as they are talking with parents about past events (Salmon et al., 2016). This gives children the skills to gradually become more independent in regulating their own thoughts, feelings, and behavior.

In preschool children specifically, reminiscing may promote the development of core social emotional competencies, including social skills, prosocial behavior, theory of mind, emotion knowledge, and greater specificity in autobiographical memory (Buhler-Wassmann et al., 2019; Jobson et al., 2018; Laible et al., 2013; Leyva et al., 2014; Valentino et al., 2014). Only a handful of studies have examined reminiscing in relation to children’s behavioral self-regulation (Bird et al., 2006; Buhler-Wassmann et al., 2019; Leyva & Nolivos, 2015; Speidel et al., 2019) and physiological markers of “bottom-up” self-regulation (Buhler-Wassmann et al., 2019; Valentino et al., 2020). Across these studies, researchers have observed that reminiscing can support the development of
adaptive self-regulation skills in young children. However, the directionality of the effect may also be unclear, as children who have better self-regulation may have better sustained attention during a reminiscing exercise.

No research to date has specifically examined reminiscing in a Black majority sample, who are disproportionately exposed to racial trauma and economic marginalization. However, some samples in the extant literature are “predominantly low-income and ethnic minority” (Nuttall et al., 2019) or have a sizeable Black population (Lawson et al., 2020). These studies show similar patterns linking reminiscing and child outcomes to those observed in White families, though the impact of race or culture has not been explicitly examined or even acknowledged. Black families have been underrepresented in the broader emotion socialization literature, and when they are included, the role of culture in Black families is rarely explicitly acknowledged or theorized (Labella, 2018). At the same time, oral narration and storytelling defines many cultures in the African diaspora. Joint storytelling, in which multiple speakers are involved in telling a story, is a distinctive part of the African oral tradition. These practices have implications for the development of children’s narrative production, internal state language, self-concept, and social cognition (Current & Gardner-Neblett, 2014).

**Approaches to Measuring Reminiscing**

The quality of parent-child reminiscing dialogues can be operationalized in a few different ways. (Koren-Karie et al. (2000) developed the Autobiographical Emotional Event Dialogue (AEED) coding protocol to systematically examine how mothers can serve as a “secure base” for children to freely explore their inner world while reminiscing
CHILDHOOD EXPOSURE TO IPV

about past experiences (Koren-Karie & Aviezer, 2017; Oppenheim & Koren-Karie, 2009). In this task, mothers reminisce with their children about memories in which the child felt a range of positive and negative emotions. In most studies using the AEED, the feelings are happy, mad, sad, and scared (following Fivush, 1991). The inclusion of both positive and negative events is important since parents provide differing levels of guidance for both types of events (Sales et al., 2003). When mothers provide sensitive guidance during this task, they co-construct a narrative that is well-organized and contains specific description of past events. In contrast, when mothers fail to provide sensitive guidance, the narratives are overwhelming, overly emotionally charged, incoherent, or devoid of detail (Oppenheim & Koren-Karie, 2009). Using the AEED coding scheme, dialogues can be analyzed by 1) the quality of maternal sensitive guidance using a series of continuous scales and 2) classification of the dialogue as either emotionally matched or unmatched (Koren-Karie et al., 2000). Although maternal sensitive guidance and emotional match have been associated with a range of maternal factors, including maternal trauma history, mental health, and parenting behavior, only a handful of studies have examined the quality of sensitive guidance in relation to child outcomes, and none have examined the emotional match.

Valentino et al. (2014, 2018, 2019) have also developed an accompanying measure that captures the quantity of maternal elaborations during reminiscing tasks. Each verbal utterance is coded and counted, and mothers receive a final sum score that reflects the quantity of elaborative reminiscing across tasks. Elaborative utterances such as wh-questions (open-ended elaborative questions), yes/no questions (closed-ended elaborative questions), elaborative statements, and confirmations during the reminisc ing
task contribute to the summary score. The connection to child outcomes is more mixed in relation to quantitative elaborations. Valentino et al. (2014) failed to find that maternal elaborations were associated with children’s autobiographical memory. This sample consisted of low-income mothers and their young children who predominately (60%) identified as Black. In contrast, Lawson et al. (2020) observed that the opposite was true in a sample of diverse (42% Black 26% White, 32% Hispanic) preschoolers experiencing maltreatment. When comparing abusive, neglecting, emotionally maltreating, and demographically similar non-maltreating families, the authors found that evidence of a mediation pathway linking neglect, maternal elaborative quantity, and reduced autobiographical memory in preschoolers. The key takeaway across these two studies is that the quantity of maternal elaborations may have important implications of children’s outcomes, specifically children’s memory. But it is still unclear under what conditions and for whom this is true. No studies to date have examined self-regulation in relation to the quantity of maternal elaborations, despite the theoretical associations between maternal modeling of emotion talk and self-regulation outcomes.

**Reminiscing as a Mediating Trauma Process**

Trauma exposure and poor maternal mental health may disrupt how mothers interact with their children in emotional dialogues. Core features of trauma exposure include 1) avoidance and 2) cognitive distortions of self and the world. These features may influence how mothers and children talk about emotionally charged memories. For example, mothers with unresolved childhood sexual trauma (Koren-Karie et al., 2008) and mothers with depression and eating disorders (Cimino et al., 2020) may provide children with less sensitive guidance and have more difficulty engaging in emotionally
matched dialogues with their children in the AEED. Mothers who have experienced increased levels of stress and violence may also be less likely to participate in emotion coaching, a related construct to reminiscing (Ellis et al., 2013). More generally, the ways in which mothers view themselves, their family history, and their relationships with their children, are related to reminiscing quality (Laible, et al., 2013b). In sum, maternal mental health and past experiences of trauma shape how mothers talk with their children about past emotional experiences.

The relational PTSD theoretical framework provides insight into why this may be true. Namely, mothers with unresolved trauma histories may avoid conversations with their children that activate their own negative emotions. When mothers are unable to tolerate their own distress or the distress of their children, they are less emotionally involved and may engage in fewer enriched conversations about negative emotions (Scheeringa & Zeanah, 2001; van Ee et al., 2016). Children, therefore, may have fewer opportunities to discuss and to resolve their own negative experiences. This framing is consistent with the spillover hypothesis in the IPV literature, which theorizes that conflict between intimate partners transfers into negative or hostile interactions with children (Erel & Burman, 1995). A large-scale systematic review demonstrated that IPV victimization was consistently associated with adverse effects on parenting, ranging from increases in child maltreatment to subtle changes to parental warmth, sensitivity, or engagement (Chiesa et al., 2018).

Since IPV and maltreatment frequently co-occur, the child maltreatment literature has provided additional support for examining these processes in a mediation framework. In a diverse sample of mothers and young children (39% Black, 25% White, 36%
Hispanic) oversampled for maltreatment, Speidel et al. (2019) tested whether maternal sensitive guidance mediated the association between early maltreatment and child self-regulation using cross-sectional data and a combination of parent report and direct child assessment. Participants included maltreating and demographically matched, non-maltreating mothers and their preschool-aged children. Using the AEED, the authors found that maltreating mothers engaged in less sensitive guidance when reminiscing compared to non-maltreating mothers, which was in turn associated with worse child regulatory outcomes. The authors concluded that certain aspects of child self-regulation may be particularly sensitive to maternal input during conversations about emotions in early childhood. Maltreating mothers, many of whom are concurrently experiencing IPV (Taylor et al., 2009; Zolotor et al., 2007), appear to experience more difficulty in engaging in emotionally supportive reminiscing.

Only one study to date has examined possible spillover effects specific to IPV in the context of emotional reminiscing. This study did not, however, ultimately examine child outcomes. Visser et al. (2016) found that IPV-exposed mothers showed less sensitive guidance and co-created more emotionally unmatched dialogues, most of which were classified as “flat,” when compared with a non-exposed control group. Families were recruited from outpatient children’s trauma centers and using convenience sampling in three different regions of the Netherlands. The dyads completed the AEED along with a set of questionnaires measuring family violence, maternal posttraumatic symptoms, and maternal ACEs. The authors ultimately concluded that IPV can (but does not always) impair emotion dialogues.
However, a major flaw of the Visser et al. (2016) study was the baseline demographic differences between the IPV-exposed and non-exposed groups. For example, mothers in the IPV-exposed group were significantly more likely to be single parents, live in poverty, and have lower educational attainment and were less likely to identify as Dutch. The authors chose not to control for these differences in their analysis to “prevent undue influence” and because of the small sample size (Visser et al., 2016). Furthermore, when controlling for maternal ACEs and posttraumatic symptoms, IPV exposure was no longer a significant predictor of AEED composite scores. Taken together, these results suggest that IPV exposure alone may not directly spillover into parent-child interactions. Instead, other factors (e.g., poverty, maternal childhood trauma) may partially explain the group differences between IPV-exposed and nonexposed dyads observed in the Visser et al. (2016). These results underscore the importance of accounting for baseline demographic differences when examining the spillover of IPV on emotional reminiscing interactions.

**Reminiscing as a Moderating Trauma Process**

An alternative hypothesis is that discussions about emotions may function as a buffer against the adverse effects of violence exposure on children. Again, approaching this issue from a relational PTSD framework, the primary caregiving relationship serves an important function in managing threat and stress in young children (Scheeringa & Zeanah, 2001). Caregiving behaviors may have a moderating effect by either intensifying or reducing the effect of violence on children. Parenting characterized by warmth, responsiveness, and appropriate discipline can be a source of resilience for children who have witnessed IPV (Graham-Bermann et al., 2009). Positive parent-child interactions
may strengthen the security of attachment relationships, which also facilitate the
development of adaptive emotion regulation and prosocial skills in the context of IPV
(Howell et al., 2010). In some cases, mothers may even attempt to overcompensate for
family violence by being more attentive and responsive with their children, which has a
buffering effect on child outcomes (Levendosky et al., 2003).

While much of the research has examined parenting in relation to child
adjustment (e.g., internalizing and externalizing behaviors), parenting may also moderate
the effects of IPV on children’s cognitive development and other regulatory outcomes.
Jouriles et al. (2008) found that positive parenting buffered the effects of IPV on explicit
memory functioning, suggesting that parents can be a protective factor and source of
strength in the cognitive domain as well. Participants in this study included diverse low-
income mothers (44% Black, 33% Hispanic, 12% White, 11% other) and their 4- or 5-
year-old children who were recruited in the community. Mothers self-reported on their
experiences of IPV and parenting practices, and children completed a series of
assessments measuring their memory/executive functioning. While their measure of
positive parenting did not include an interaction task or focus specifically on emotion-
focused conversations, it did include questions like “How often do you talk to ___ just
listen, or have good conversations with him/her?” When mothers engaged in more
positive parenting practices, the negative relation between IPV and preschoolers’ explicit
memory performance virtually disappeared. These results add to a growing body of
literature showing that positive parent-child interaction can protect children from
negative outcomes associated with IPV.
Emotion-focused conversations may be especially protective for children exposed to IPV. IPV is inherently a fear-inducing and dysregulating experience for young children. Namely, IPV can prevent children from seeking refuge in their attachment figure who would otherwise serve as a “safe haven” whom they seek out in times of threat (Levendosky et al., 2012). When children witness their attachment figure being victimized, their internal sense of safety is disrupted. This experience is uniquely traumatizing and emotionally activating for young children. In a seminal study of early PTSD by Scheeringa & Zeanah (1995), preschool-aged children were most likely to develop PTSD when the trauma involved a threat to the caregiver. This particular form of trauma also resulted in more hyperarousal symptoms, more fears and aggression symptoms, and fewer numbing symptoms when compared with traumas not involving threats to caregivers (e.g., animal attacks, car/plane crashes, individually experienced traumas).

It is therefore not surprising that IPV-exposed children fare better when their parents support them in talking about feelings. Katz & Windecker-Nelson (2006) found that emotion coaching moderated, but failed to mediate, the relationship between IPV and child behavior problems. When mothers provided high levels of emotion coaching, there was no relationship between IPV and children’s behavior problems, suggesting that emotion coaching helped to ameliorate the adverse effects of IPV by helping children to process negative emotions. It is important to note that the sample was predominately white (86%), middle class, and only included families with married, cohabitating couples; the data was drawn from large-scale longitudinal study on children’s conduct problems and family functioning (N = 130), and the results presented in this study were cross-
sectional. The timing of emotion socialization may also matter. In another paper, Katz et al. (2016) found that supportive emotion socialization was protective only after the IPV exposure. These results are consistent with research indicating that reminiscing about past (rather than present) emotional events results in more self-reflective and detailed conversation (Salmon et al., 2016). Emotion coaching shares key features with the AEED reminiscing task (e.g., labeling and discussing the origins of emotions), and both may serve a protective function through a similar mechanism (Johnson et al., 2017).

Fay-Stammbach et al. (2017) also found that emotion socialization behaviors moderated the relation between maltreatment and child executive function. The directionality of the interaction suggested that nonsupportive behaviors (e.g., punitive reactions to negative child emotion) accentuated the risk for poor executive function associated with maltreatment. Supportive behaviors (e.g., expressive encouragement) acted as a protective factor against the negative effects of maltreatment on executive function. It is important to note that this paper used a self-report measure called the Coping with Children’s Negative Emotions Scale (CCNES; Fabes et al., 1990) to measure emotion socialization behaviors. Neither the CCNES nor the meta-emotion interview used in the Katz & Windecker-Nelson (2006) paper explicitly examined reminiscing, and both rely on maternal report either in the form of a questionnaire or interview rather than coded observations like in the AEED.

Likewise, emotional reminiscing may also function as a protective factor in the presence of IPV exposure. In her dissertation analysis, Poyau (2019) found that narrative coherence buffered the effects of IPV on child internalizing problems using a videotaped observational task like the AEED. The buffering effects of narrative coherence were
significant only when IPV exposure occurred early in the child’s life (i.e., between birth and 3-years) versus later in the child’s life (i.e., between 3- to 11-years), possibly because young children rely so heavily on adult scaffolding to construct narratives and make meaning of stressful events. This is an emerging and promising area of research that closely aligns with the scope of the current study. Since narrative skills may serve a regulatory function and may help children process stressful experiences, the ability to construct coherent narratives using causal/explanatory language may buffer the impact of IPV exposure on children’s outcomes. The study was conducted with 162 mother-child pairs (126 IPV-exposed, 60 non-exposed) drawn from the Early Head Start Research and Evaluation Project (EHSREP). The sample was relatively diverse (48% White, 25% Black, 18% Hispanic, 4% other, 3% multiracial) and recruited from 17 different sites nationwide. While the sample size for this analysis was small in comparison to the larger EHSREP sample (N= 3,001), the varied geographic and racial representation strengthen the generalizability of Poyau’s (2019) findings to the present study.

**Rationale for the Proposed Study**

In summary, IPV represents a major public health issue that threatens the health and well-being of young children. IPV exposure occurring during early childhood may be particularly harmful to the development of self-regulatory abilities. Self-regulation abilities develop rapidly during the preschool period and are linked with later social and emotional competence in adulthood (Moffitt et al., 2011; Montroy et al., 2016). Emotion socialization is a relatively unexplored, but promising construct in the research literature linking IPV and child self-regulation. Even less is known about emotional reminiscing, a specific form of emotion socialization involving discussions about past emotional events.
This study seeks to inform clinical practice for with IPV-exposed families to gain a better understanding of modifiable parenting processes that impact children’s self-regulatory development.

Specifically, this study tests two competing theories of relational PTSD (Scheeringa & Zeanah, 2001), one involving mediation (i.e., spillover effects) and the other moderation (i.e., buffering or protective effects). In a mediation model, IPV may alter how mother engage in reminiscing conversations, leading them to disengage from the conversation or provide less sensitive guidance (Visser et al., 2016). This hypothesis is grounded in past work that broadly examines spillover of interparental conflict into parent-child interactions (Erel & Burman, 1995). At the same time, there is also evidence that emotional reminiscing could be a protective factor for children who have experienced IPV (Poyau, 2019). In a moderation model, reminiscing may give children exposed to family violence the space to make meaning of their experiences and develop better self-regulatory skills. This hypothesis draws from evidence that mothers may attempt to overcompensate for family violence by being more attentive and responsive with their children, which has a buffering effect on child outcomes (Levendosky et al., 2003).

In sum, parent-child interactions are simultaneously a source of risk and resilience for children who have experienced IPV (Howell, 2011). This study is uniquely framed around relational trauma processes that are consistent with both mediation and moderation, testing both proposed theoretical models. Using observational parent-child interaction data from the AEED, the study uses snapshots of how mothers talk with their young children about past emotional experiences. The unique composition of the study
sample also provides an opportunity to explore these processes in a majority Black study sample and to address disparities in racial representation in emotion socialization research.

**Research Questions and Hypotheses**

The broader goal of this study is to examine how emotion socialization behaviors impact the development of children’s self-regulation. This study will utilize different dimensions of emotional reminiscing (sensitive guidance, emotional match, and maternal elaborations) to capture how mothers talk with their children about emotions and how that relates to their self-regulation. A secondary goal of this study is to examine how emotion socialization behaviors may either mediate and/or moderate the association between IPV and child self-regulation. More specifically, this study will determine whether IPV may have spillover effects on emotional reminiscing (mediation). The study will also investigate whether emotional reminiscing can act as buffer when IPV is present (moderation). As such, the proposed study will test the following hypotheses:

**Research Question #1:**

*Is maternal emotion reminiscing associated with children’s self-regulation?*

![Proposed Pathway for Effects of Emotion Reminiscing on Child Self-Regulation](image)
RQ1a: Does the quantity of maternal elaborations during the AEED impact the development of children’s self-regulation?

- I hypothesize that mothers who produce more elaborations (i.e., Wh-questions, yes/no questions, and elaborative statements) will have children with better self-regulation skills.

RQ1b: Is the quality of maternal sensitive guidance during the AEED associated with children’s self-regulation?

- I hypothesize that mothers who provide higher levels of sensitive guidance will have children with better self-regulation skills.

RQ1c: Does the emotional match between child and parent during the AEED impact the development of children’s self-regulation?

- I hypothesize that dyads who are emotionally matched during the AEED (i.e., classification of EM) will have children with better self-regulation skills when compared with dyads who are emotionally unmatched (i.e., classification of Ex, Fl, In).
Research Question #2:

Does maternal emotion reminiscing mediate the relationship between IPV and emotion regulation?

Figure 2.

Proposed Mediation Pathway Linking IPV, Emotion Reminiscing, and Child Child-Regulation

RQ2a: Does the quantity of maternal elaborations during the AEED mediate the relationship between IPV and emotion regulation?

- I hypothesize that mothers who are experiencing IPV will produce fewer elaborations, which will be associated with lower child self-regulation skills.

RQ2b: Does the quality of maternal sensitive guidance during the AEED the mediate the relationship between IPV and emotion regulation?

- I hypothesize that mothers who are experiencing IPV will engage in less sensitive guidance when compared with mothers who are not experiencing IPV, which will be associated with lower child self-regulation skills.
Research Question #3:

*Does maternal emotion reminiscing moderate the relationship between IPV and self-regulation?*

Figure 3.

*Proposed Moderation Model in which Emotion Reminiscing Buffers the Effects of IPV on Child Self-Regulation*

RQ3a: Does the *quantity* of maternal elaborations during the AEED *moderate* the relationship between IPV and self-regulation?

- I hypothesize that higher maternal elaborations will function as a protective factor that buffers the negative effects of IPV on child self-regulation.

RQ3b: Does the *quality* of maternal sensitive guidance during the AEED the *moderate* the relationship between IPV and self-regulation?
• I hypothesize that higher levels of sensitive guidance will function as a protective factor that buffers the negative effects of IPV on child self-regulation.

RQ3c: Does the emotional match between child and parent during the AEED moderate the relationship between IPV and self-regulation?

• I hypothesize that dyads who are emotionally matched during the AEED (i.e., classification of EM) will have children with better self-regulation skills even when IPV is present; dyads who are emotionally unmatched (i.e., classification of Ex, Fl, In) will have children with lower self-regulation skills when IPV is present.

Methods

Participants

Mothers with preschool-aged children (3-5 years old) were recruited from Head Start programs, pediatric clinics, and through referrals from other participants. Participants were oversampled for violence exposure and had incomes at or below 185% of the federal poverty level (~$32,000 for a two-person household). The full study sample included 174 mother-child dyads. This particular analysis only examined data from the oldest child, excluding 16 dyads representing mothers with multiple children. Of those remaining 158 mother-child dyads, 144 mothers reported being in romantic partnership over the past year and completed the Conflict Tactics Scale-2 (CTS-2; Straus et al., 1996) during Visit 1. In this subsample, half (51%) of included mothers reported being
victimized in at least one act of physical aggression, and almost all (95%) reported being exposed to at least one act of psychological aggression.

Twenty-two dyads did not complete Visit 2 and only participated in Visit 1; these dyads were excluded because they did not participate in the AEED emotion dialogue task. One mother did not provide information about her education level, one did not respond to the depression questionnaire, and three did not complete the Woodcock Johnson Verbal Comprehension (McGrew & Woodcock, 2006) subtest; these five mothers were excluded in analyses where these variables were covariates, including primary analyses testing hypotheses. Therefore, the final analytic sample includes 117 mother-child dyads who 1) are the oldest children when mothers had multiple eligible children, 2) provided CTS-2 self-report data, 3) participated in the AEED emotion dialogue task during Visit 2, and 4) provided data for all covariates. All children who met these criteria also completed the Preschool Self-Regulation Assessment (PSRA; Smith-Donald et al., 2007); there was no missing child assessment data.

In the final sample, children had a mean age of 4.3 years old (SD=0.77), and the sample was evenly split between genders (48% female, 52% male). The vast majority of mothers self-identified as Black (87%), and a small percentage identified as White (8%), Asian (2%), or other (3%). Across the sample, 8% of mothers self-identified as Latina. Mothers ranged in age from 20 to 46-years-old, with a mean age of 30-years-old. Most mothers had either received their high school diploma/GED (28%) or had completed 1-3 years of college (36%). Approximately one-third of mothers were either working full time (29%), working part-time (35%), or were unemployed (36%). All participants were proficient in English in order to complete the interviews.
Procedures

Participants were recruited from WIC and Head Start programs in a large Southeastern city to participate in a larger study about stress, trauma, and coping. In the screening phase, mothers completed short surveys that collected demographic information and parent and child exposure to potentially traumatic events (PTEs) using the Life Events Checklist (Gray et al., 2004). Participants were oversampled for violence exposure based on their responses in the screener survey, such that all mothers who reported their own or their child’s witnessing or experiencing interpersonal PTEs on the screener were invited, along with a subsample of mothers who did not report interpersonal PTEs. Participants were excluded if 1) they were not the child’s biological mother, 2) child age fell outside of the age criteria (3-5 years old), 3) parents were unable to complete the interview in English, or 4) the child had a parent-reported diagnosis of a global developmental delay or autism spectrum disorder. Participants received a $5 Walmart gift card regardless of their participation in the larger study.

After screening, participants completed two data collection visits at their home or in the lab (based on caregiver preference). These visits lasted for approximately two hours and were conducted by graduate students in school psychology. Participants received $50 gift cards after completing each visit. Data for this report are derived from both visits. During the first visit, mothers completed questionnaires regarding children’s behavior and temperament, as well as their own emotion regulation, mental health, social support, racial socialization, and exposure to violence and stressful life events (including IPV). Children also completed a series of lab tasks designed to measure their self-regulation during this first visit. All dyads who completed the first visit were invited to
complete a second visit within one month. In the second visit, dyads participated in emotion-focused conversations about happy, sad, angry, and scared memories which were videotaped and later transcribed. Parent and child resting heart rate and galvanic skin response data, not included in this report, were collected at baseline and during the emotion-focused conversations. All procedures were approved by a university IRB.

**Measures**

**Sociodemographic Information and Other Covariates.** Parents reported on their own and their children’s race, ethnicity, age, and education. Parents also filled out standardized questionnaires including the Center for Epidemiologic Studies Depression Scale—Revised (CESD-R; Van Dam & Earleywine, 2011) to capture maternal mental health. Mothers completed the Verbal Comprehension subtest of the Woodcock Johnson Test of Cognitive Abilities (WJ III COG; McGrew & Woodcock, 2006), a standardized assessment of lexical knowledge and language development. Children completed the Peabody Picture Vocabulary Test (PPVT-4; Dunn & Dunn., 2007), a measure of receptive language skills.

**Intimate Partner Violence.** Parents reported on their conflict tactics with other adults in the home and with their children using the revised Conflict Tactics Scale (CTS-2; Straus et al., 1996). The CTS-2 is a reliable and valid instrument used to measure IPV across different populations and cultures, including with Black and Hispanic Americans (Chapman & Gillespie, 2019). The CTS-2 has five subscales: 1) Negotiation, 2) Psychological Aggression, 3) Physical Assault, 4) Sexual Coercion, and 5) Injury. The measure requests respondents to approximate the number of times an event occurred in the last twelve months. The options are never, once, twice, 3–5 times, 6–10 times, 11–20
times or more than 20 times. Mothers were also given the opportunity to indicate if an event did not occur in the past year but had occurred since the child was born. The CTS-2 is scored by summing the midpoints of the response categories (e.g., for the 6–10 category this would be 8) in a given scale to obtain an Annual Frequency score (Straus, 2004). Self- and partner-perpetrated IPV are scored separately (Jones et al., 2017).

Mothers in this particular study completed two of the five CTS-2 subscales (Psychological Aggression and Physical Assault). The Psychological Aggression subscale asks about the frequency of aggressive verbal and non-verbal tactics that cause psychological distress to a partner. The acts vary in intensity from minor (e.g., I stomped out of the room or house or yard during a disagreement) to severe (e.g., I called ________ fat or ugly). The Physical Assault subscale asks about physical aggression and intimidation tactics ranging in intensity like slapping, pushing, kicking, burning or scalding, choking, and using a knife or gun. Both scales differentiate between self-perpetrated IPV (e.g., I slapped ________) and partner-perpetrated IPV (_____ did this to me). This paper will examine the Psychological Aggression and Physical Assault scales separately, as is traditionally done in the research literature (Jones et al., 2017), and will only examine IPV victimization (i.e., partner-perpetrated IPV). Both variables were analyzed as continuous variables despite considerable skew, which is common in community samples (Straus, 2004).

Self-Regulation. The Preschool Self-Regulation Assessment (PSRA; Daneri et al., 2018) was used to measure children’s self-regulation using a series of 10 brief, structured tasks and an accompanying report of children’s emotions, attention, and behavior throughout the assessor-child interaction. This particular study will use data
from the assessor report, which has been validated for use in socioeconomically and racially/ethnically diverse populations (Daneri et al., 2018). The 28-item assessor report was adapted from the Leiter-R social-emotional rating scale (examiner version; Roid & Miller, 1997) and the Disruptive Behavior-Diagnostic Observation Schedule coding system (DB-DOS; Wakschlag et al., 2005). Items were coded using a Likert scale ranging from 0 to 3 in response to behavioral descriptors (e.g., *pays attention during instructions and demonstrations*).

Smith-Donald et al. (2007) used factor analysis to define two scales using PSRA Examiner Report data: (a) Attention/Impulse Control and (b) Positive Emotion scale. When the PSRA examiner report data for the current study was analyzed using the same methods cited in the Smith-Donald et al. (2007) paper, both scales were internally consistent (Attention/Impulse Control, $\alpha = 0.96$; Positive Emotion, $\alpha = 0.86$). In the present study, the PSRA was videotaped and later coded by two independent research assistants who were trained to reliability by the Principal Investigator. Approximately 30% of the larger sample ($n=51$) was double-coded with item-level ICCs ranging from .63-.86. This paper will use the Attention/Impulse Control scale ($\alpha = 0.96$) because it has more clinical relevance and ecological validity. Observational measures of self-regulation like the PSRA examiner report provide information that is distinct from the information obtained through structured tasks; observer ratings may be more aligned with children's behavior in the classroom because they function as a “molar” or global measure of self-regulation (Daneri et al., 2018).

**Mother-Child Emotion Reminiscing.** The Autobiographical Emotional Event Dialogue (AEED; Koren-Karie et al., 2000) procedure examines how mothers provide
sensitive guidance to their children during an emotional reminiscing task. Mothers were instructed to talk with their children about memories in which the child felt a range of positive and negative emotions. In this particular study, mothers were given index cards with simple line drawings of facial expressions and were asked to talk about a time that the child felt happy, mad, sad, and scared (following Fivush, 1991), in that same order. Conversations were recorded and then transcribed by undergraduate research assistants. The entire reminiscing task ranged between 9-23 minutes and was videotaped. Examples of the events discussed included attending a birthday party (happy), getting vaccinations (sad), sibling conflict (mad), and monsters in the dark (scared). The transcripts were coded using the AEED coding scheme and an accompanying scheme developed by Valentino et al. (2014) that captures the quantity of maternal elaborations.

**AEED Coding Scheme.** The AEED coding scheme consists of seven parallel maternal and child scales as well as two scales that provide a global measure of narrative coherence and adequacy (Koren-Karie et al., 2000). While past research has used the AEED in samples that contain Black families, it has not been *validated* for use with Black families. The instrument has been in use since 2000 and construct validity has been demonstrated with its association with dyadic attachment classifications (Oppenheim et al., 2007), maternal trauma history (Koren-Karie et al., 2004), and maternal depression and eating disorders (Cimino et al., 2020). The developers have not yet published a formal validity study. Following training with the developer of the AEED, two graduate level coders were trained to reliability by the measure developer with a set of reliability transcripts. Subsequently, 20% of transcripts were double-coded by both coders and checked for reliability.
Scores from the AEED were combined to create a composite sensitive guidance score for each mother by averaging the following six subscales: 1) shift of focus, 2) acceptance and tolerance, 3) closure of negative feelings, 4) structuring, 5) adequacy, and 6) coherence. Maternal involvement and reciprocity, a subscale typically included in the sensitive guidance score, was excluded due to low inter-rater reliability (ICC=0.45). Scores can range from 1 to 9 on each subscale, with higher scores reflecting more optimal dialogues and engagement in the task (Koren-Karie et al., 2013). Intraclass correlations (ICCs) for the final six subscales included in the sensitive guidance composite ranged between 0.63 and 0.76. Internal consistency was excellent (α = .87) and there was a moderate degree of intercorrelations among the six composite subscales (rs = .35–.89, ps < .05).

The sensitive guidance composite score is intended to capture the global quality of maternal sensitive guidance during the AEED and has been reported in multiple studies using the measure (Speidel et al., 2019, 2020; Valentino et al., 2014). High composite scores generally indicate that mothers focus on the child’s (rather than their own) emotional experience, accept the child’s contributions, and provide developmentally appropriate scaffolding to ensure that the task was completed. Low composite scores indicate that mothers have difficulty staying on task, are rejecting of child’s contributions, and are either over- or under-involved in ways that impede the flow of the conversation.

In accordance with the AEED coding protocol, Mother-child dyads were also categorized into one of the four categories based on their scores: 1) emotionally matched (EM), 2) emotionally unmatched: exaggerating (Ex) 3) emotionally unmatched: flat (Fl)
or 4) emotionally unmatched: inconsistent (In). These categories reflect the degree to which mothers and children are synchronous and able to work as a team. When dyads are emotionally matched (EM), both partners are involved in creating coherent stories that match the requested emotion. Mothers contain negative and scary content in developmentally appropriate ways and are accepting of the child’s contributions. Dyads that are emotionally unmatched (Ex, Fl, or In) often have unclear interpersonal boundaries, generate stories with extreme themes (e.g., violent death, abandonment) without adequate closure, or show a lack of interest in the task and have difficulty producing rich, detailed stories. This construct was analyzed as a dichotomous variable (emotionally matched versus unmatched) and inter-rater reliability was adequate (Cohen’s kappa=0.67). Approximately 26% of dyads were categorized as emotionally matched and 74% as emotionally unmatched. In other samples with high trauma exposure, the breakdown is similar (e.g., 37% matched, 63% unmatched in a sample oversampled for IPV, Visser et al., 2016).

Maternal Elaborations. The dialogues were also coded for the quantity of maternal elaborations in accordance with a coding scheme developed by Valentino et al. (2014). Four undergraduate and masters-level coders were trained to use Valentino’s (2019) H2H2 Mother Child Reminiscing Manual, with the first author consulting with the measure author during the training phase. Maternal utterances were coded for the presence or absence of wh-questions (open-ended elaborative questions), yes/no questions (closed-ended elaborative questions), elaborative statements, and confirmations. Repetitions of statements or questions were not included in the total counts. Similar to the AEED, 20% of transcripts were checked for reliability. Reliability
was established for the number of wh- questions, yes or no questions, and elaborations (ICCs = 0.87—0.98), but was not for confirmations (ICC =0.35). In previous work, (e.g., Valentino et al., 2015), the four elaborative quantity reminiscing variables (Wh-questions, Y/N questions, elaborative statements, and confirmations) are square-root transformed to normalize their distributions and then averaged or summed together to create a maternal elaborative reminiscing composite. Due to inadequate inter-rater reliability on the confirmations code, this variable was excluded from the reminiscing composite. Therefore, the final maternal elaborations composite variable combines the number of 1) wh- questions, 2) yes or no questions, and 3) elaborations, which were first square-root transformed and then summed together; internal consistency was adequate (α = 0.65). There was a moderate degree of intercorrelations among the three reminiscing variables (rs = .21–.48, ps < .05).

Results

Preliminary Analyses

Data was first examined for missingness and normality assumptions. Maternal sensitive guidance and elaborations were normally distributed. Kolmogorov-Smirnov tests of normality were significant at p < .05 for all other key variables. Both IPV variables (psychological and physical) were positively skewed and highly leptokurtic. Children’s self-regulation scores were negatively skewed. Despite these limitations, all analyses were conducted using bootstrapping, which do not assume normality (Barber & Thompson, 2000). Preliminary multicollinearity analyses indicated that the assumption remained true for all variables of interest.

Bivariate Correlations
Spearman’s rho ($\rho$), rather than Pearson’s $r$ was used to test bivariate correlations due to non-normality in the data. Consistent with prior research, child age, child receptive language skills as measured on the Peabody Picture Vocabulary Test (PPVT-4; Dunn & Dunn, 2007), and maternal verbal comprehension as measured on the Woodcock Johnson Test of Cognitive Abilities (WJ III COG; McGrew & Woodcock, 2006) were included as covariates. Additional covariates explored included child sex, maternal depression, and maternal education level. Child age ($\rho = .33$) and PPVT scores ($\rho = .25$) were significantly associated with child self-regulation. Child sex was not associated with child self-regulation but was still included as a covariate a priori. None of the maternal covariates (education level, depression, verbal comprehension) were associated with child self-regulation but were selected as covariates a priori. Bivariate correlations for all key study variables and covariates are presented below in Table 1.
### Table 1

**Descriptive Statistics and Correlations (Spearman’s rho) for Study Variables and Covariates**

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M or %</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychological aggression</td>
<td>144</td>
<td>29.87</td>
<td>36.22</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Physical assault</td>
<td>144</td>
<td>5.63</td>
<td>17.99</td>
<td>.62**</td>
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<td></td>
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<tr>
<td>3. Sensitive Guidance</td>
<td>133</td>
<td>4.38</td>
<td>1.10</td>
<td>-0.11</td>
<td>-0.16</td>
<td>--</td>
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<tr>
<td>4. Emotional Match (0 unmatched, 1=matched)</td>
<td>133</td>
<td>74% unmatched, 26% matched</td>
<td>-0.07</td>
<td>-0.17</td>
<td>.71**</td>
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<td></td>
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<tr>
<td>5. Maternal Elaborations</td>
<td>133</td>
<td>16.60</td>
<td>3.75</td>
<td>-0.15</td>
<td>-0.17</td>
<td>.19*</td>
<td>.19*</td>
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<tr>
<td>6. Child self-regulation</td>
<td>157</td>
<td>35.12</td>
<td>12.71</td>
<td>0.01</td>
<td>-0.03</td>
<td>.21*</td>
<td>0.16</td>
<td>0.05</td>
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<tr>
<td>7. Child PPVT standard score</td>
<td>157</td>
<td>96.95</td>
<td>15.72</td>
<td>0.1</td>
<td>-0.07</td>
<td>.19*</td>
<td>.19*</td>
<td>0</td>
<td>.25**</td>
<td>--</td>
<td></td>
<td></td>
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<tr>
<td>8. Child age (months)</td>
<td>158</td>
<td>51.56</td>
<td>9.19</td>
<td>-0.1</td>
<td>-0.06</td>
<td>0.17</td>
<td>0.1</td>
<td>-0.13</td>
<td>.33**</td>
<td>0.08</td>
<td>--</td>
<td></td>
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<tr>
<td>9. Child sex (0=male, 1=female)</td>
<td>158</td>
<td>49% male, 51% female</td>
<td>-0.1</td>
<td>-0.12</td>
<td>-0.14</td>
<td>-0.07</td>
<td>-0.03</td>
<td>0.14</td>
<td>-0.01</td>
<td>-0.05</td>
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<td></td>
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<tr>
<td>10. Maternal education level</td>
<td>156</td>
<td>3.40</td>
<td>1.57</td>
<td>-0.02</td>
<td>-0.06</td>
<td>0.11</td>
<td>0.11</td>
<td>0.16</td>
<td>0.02</td>
<td>.22**</td>
<td>-0.08</td>
<td>0.06</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Maternal depression</td>
<td>153</td>
<td>10.55</td>
<td>11.99</td>
<td>.26**</td>
<td>.22**</td>
<td>-0.08</td>
<td>-0.12</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.01</td>
<td>-0.08</td>
<td>0.09</td>
<td>0.12</td>
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<td></td>
</tr>
<tr>
<td>12. Maternal verbal comprehension</td>
<td>137</td>
<td>87.72</td>
<td>7.65</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.06</td>
<td>-0.05</td>
<td>.21*</td>
<td>-0.04</td>
<td>.28**</td>
<td>-0.17</td>
<td>-0.02</td>
<td>.49**</td>
<td>.23**</td>
<td>--</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).**

Valid N (listwise)=117
**Research Question 1**

To test the hypothesis that reminiscing will predict child self-regulation scores, a series of one-way analyses were conducted using hierarchical linear regression with bootstrapping to adjust for non-normality. It was hypothesized that each reminiscing dimension would contribute uniquely to child self-regulation scores. Covariates included in all models included 1) child PPVT scores, age, and sex, and 2) maternal education level, depression, and verbal comprehension. Covariates were entered into Block 1 and the predictor of interest (maternal elaborations, sensitive guidance, or emotional match) was entered separately into Block 2.

The initial model (Model 1) examined the control variables as predictors of child self-regulation. The overall model was significant, $F(6,120) = 3.64$, $p=0.002$, $R^2=0.15$, and predicted 15% of the variance in child self-regulation scores. Within Model 1, child age was independently associated with child self-regulation scores (95%CI [0.19, 0.61], $p<0.001$), such that older children had higher self-regulation scores when controlling the other variables in the model. Child PPVT scores were significantly associated with child self-regulation (95%CI [0.02, 0.25], $p=0.04$). Children with higher receptive language scores on the PPVT had higher self-regulation scores when controlling for the other variables in the model. Child sex was marginally associated with child self-regulation (95%CI [0.15, 8.58], $p=0.06$), suggesting that females have slightly higher self-regulation scores than males. The results of three hierarchical regression analyses by predictor of interest are presented below.
Maternal Elaborations

The overall model (Model 2) including both the covariates and maternal elaborations variable was significant, $F(7, 119) = 3.43, p=0.002$, $R^2=0.17$, and predicted 17% of the variance in self-regulation scores. Similar to Model 1, child age (95%CI [0.21, 0.63], $p<0.001$), child PPVT scores (95%CI [0.02, 0.26], $p=0.03$), and child sex (95%CI [0.36, 8.69], $p=0.04$) remained significantly associated with child self-regulation. However, Model 2 did not predict significantly more variance in self-regulation compared to Model 1 ($F$-change (1,119) = 1.97, $p=0.16$). In Model 2, when controlling for the aforementioned covariates, the relation between maternal elaborations and child self-regulation was not statistically significant (95%CI [-0.21, 1.00], $p=0.19$).

Coefficients are summarized below in Table 2.
Table 2

Bootstrapped Coefficients for Regression Analysis of Maternal Elaborations Predicting Child Self-Regulation

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>Bias</th>
<th>SE</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.39</td>
<td>1.27</td>
<td>15.84</td>
<td>0.89</td>
<td>-30.35</td>
<td>29.70</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.00</td>
<td>0.06</td>
<td>0.04*</td>
<td>0.02</td>
<td>0.25</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.41</td>
<td>-0.01</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.19</td>
<td>0.61</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.18</td>
<td>-0.04</td>
<td>2.06</td>
<td>0.06†</td>
<td>0.15</td>
<td>8.58</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>0.07</td>
<td>0.02</td>
<td>0.79</td>
<td>0.92</td>
<td>-1.52</td>
<td>1.62</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.10</td>
<td>0.42</td>
<td>-0.27</td>
<td>0.13</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.03</td>
<td>-0.02</td>
<td>0.16</td>
<td>0.84</td>
<td>-0.31</td>
<td>0.31</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-7.94</td>
<td>1.41</td>
<td>16.55</td>
<td>0.65</td>
<td>-37.67</td>
<td>25.21</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.00</td>
<td>0.06</td>
<td>0.03*</td>
<td>0.02</td>
<td>0.26</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.43</td>
<td>-0.01</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.21</td>
<td>0.63</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.35</td>
<td>-0.02</td>
<td>2.07</td>
<td>0.04*</td>
<td>0.36</td>
<td>8.69</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>0.00</td>
<td>0.02</td>
<td>0.79</td>
<td>0.99</td>
<td>-1.54</td>
<td>1.49</td>
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<tr>
<td>Maternal depression</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.10</td>
<td>0.42</td>
<td>-0.27</td>
<td>0.13</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.97</td>
<td>-0.35</td>
<td>0.28</td>
</tr>
<tr>
<td>Maternal elaborations</td>
<td>0.39</td>
<td>-0.01</td>
<td>0.30</td>
<td>0.19</td>
<td>-0.21</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: n = 127, results are based on 10000 bootstrap samples, †p<.10, * p < .05 **p < .01.

Maternal Sensitive Guidance

The overall model (Model 2) including both the covariates and maternal sensitive guidance variable was significant, F (7, 119) = 4.36, p<.001, R²=0.20, and predicted 20% of the variance in self-regulation scores. Similar to Model 1, child age (95%CI [0.17, 0.61], p<0.001) and child sex (95%CI [0.46, 8.92], p=0.04) remained significantly associated with child self-regulation. Model 2 predicted significantly more variance in
self-regulation compared to Model 1 (F-change (1,119) = 7.47, \(p=.007\)) In Model 2, when controlling for the aforementioned control variables, the relation between maternal sensitive guidance and child self-regulation was statistically significant (95\%CI [0.63, 4.41], \(p=0.01\)). Increases in sensitive guidance were associated with increases in self-regulation scores when controlling for the other variables in the model. For every one-point increase in sensitive guidance, there was a 2.6-point increase predicted in child self-regulation scores. Coefficients are summarized below in Table 3.

**Table 3**

*Bootstrapped Coefficients for Regression Analysis of Sensitive Guidance Predicting Child Self-Regulation*

<table>
<thead>
<tr>
<th></th>
<th>(\beta)</th>
<th>Bias</th>
<th>SE</th>
<th>(p)</th>
<th>Lower CI</th>
<th>Upper CI</th>
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</thead>
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<td><strong>Model 1</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-2.39</td>
<td>-0.67</td>
<td>15.82</td>
<td>0.89</td>
<td>-34.91</td>
<td>29.20</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.01</td>
<td>0.06</td>
<td>0.05*</td>
<td>0.01</td>
<td>0.26</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.41</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.19</td>
<td>0.64</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.18</td>
<td>-0.07</td>
<td>2.18</td>
<td>0.06†</td>
<td>-0.16</td>
<td>8.35</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>0.07</td>
<td>0.00</td>
<td>0.83</td>
<td>0.93</td>
<td>-1.50</td>
<td>1.67</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.10</td>
<td>0.42</td>
<td>-0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.03</td>
<td>0.00</td>
<td>0.16</td>
<td>0.84</td>
<td>-0.30</td>
<td>0.36</td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-9.42</td>
<td>-0.42</td>
<td>15.68</td>
<td>0.57</td>
<td>-41.34</td>
<td>19.89</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.10</td>
<td>0.00</td>
<td>0.06</td>
<td>0.11</td>
<td>-0.02</td>
<td>0.23</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.38</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.17</td>
<td>0.61</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.84</td>
<td>-0.04</td>
<td>2.18</td>
<td>0.03*</td>
<td>0.46</td>
<td>8.92</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.17</td>
<td>0.03</td>
<td>0.81</td>
<td>0.85</td>
<td>-1.68</td>
<td>1.39</td>
</tr>
<tr>
<td>Maternal depression</td>
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<td>0.01</td>
<td>0.10</td>
<td>0.62</td>
<td>-0.23</td>
<td>0.15</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.03</td>
<td>0.00</td>
<td>0.17</td>
<td>0.87</td>
<td>-0.30</td>
<td>0.35</td>
</tr>
<tr>
<td>Sensitive guidance</td>
<td>2.61</td>
<td>-0.05</td>
<td>0.99</td>
<td>0.01**</td>
<td>0.63</td>
<td>4.41</td>
</tr>
</tbody>
</table>
Note: n = 127, results are based on 10000 bootstrap samples, †p<.10, * p < .05 **p < .01.

**Emotional Match**

The overall model (Model 2) including both the covariates and emotional match variable was significant, $F (7, 119) = 3.59, p=.002, R^2=0.17$, and predicted 17% of the variance in self-regulation scores. Similar to Model 1, child age (95%CI [0.19, 0.62], $p<0.001$) and child sex (95%CI [-0.06, 8.47], $p=0.04$) remained significantly or marginally associated with child self-regulation. Model 2 predicted marginally more variance in self-regulation compared to Model 1 ($F$-change $(1,119) = 2.92, p=.09$). In Model 2, when controlling for the aforementioned control variables, the relation between emotional match and child self-regulation was statistically significant (95%CI [0.14, 8.45], $p=0.05$). Membership in the emotionally matched group was associated with a 4.23-point increase in self-regulation scores when compared with the unmatched group. Coefficients are summarized below in Table 4.
Table 4

*Bootstrapped Coefficients for Regression Analysis of Emotional Match Predicting Child Self-Regulation*

<table>
<thead>
<tr>
<th>Model 1</th>
<th>β</th>
<th>Bias</th>
<th>SE</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>-2.39</td>
<td>0.69</td>
<td>16.29</td>
<td>0.90</td>
<td>-34.86</td>
</tr>
<tr>
<td></td>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.00</td>
<td>0.06</td>
<td>0.05*</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Child age (months)</td>
<td>0.41</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Child sex (0=male, 1=female)</td>
<td>4.18</td>
<td>-0.11</td>
<td>2.20</td>
<td>0.06†</td>
<td>-0.61</td>
</tr>
<tr>
<td></td>
<td>Maternal education level</td>
<td>0.07</td>
<td>0.01</td>
<td>0.79</td>
<td>0.93</td>
<td>-1.45</td>
</tr>
<tr>
<td></td>
<td>Maternal depression</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.10</td>
<td>0.43</td>
<td>-0.27</td>
</tr>
<tr>
<td></td>
<td>Maternal verbal comprehension</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.82</td>
<td>-0.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2</th>
<th>β</th>
<th>Bias</th>
<th>SE</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>-3.28</td>
<td>0.63</td>
<td>15.94</td>
<td>0.84</td>
<td>-35.16</td>
</tr>
<tr>
<td></td>
<td>Child PPVT standard score</td>
<td>0.11</td>
<td>0.00</td>
<td>0.06</td>
<td>0.09†</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>Child age (months)</td>
<td>0.40</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00**</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>Child sex (0=male, 1=female)</td>
<td>4.50</td>
<td>-0.11</td>
<td>2.19</td>
<td>0.04*</td>
<td>-0.06</td>
</tr>
<tr>
<td></td>
<td>Maternal education level</td>
<td>-0.13</td>
<td>0.01</td>
<td>0.79</td>
<td>0.87</td>
<td>-1.70</td>
</tr>
<tr>
<td></td>
<td>Maternal depression</td>
<td>-0.06</td>
<td>0.01</td>
<td>0.10</td>
<td>0.55</td>
<td>-0.25</td>
</tr>
<tr>
<td></td>
<td>Maternal verbal comprehension</td>
<td>0.06</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.68</td>
<td>-0.27</td>
</tr>
<tr>
<td></td>
<td>Emotional match (0 unmatched, 1=matched)</td>
<td>4.23</td>
<td>-0.03</td>
<td>2.12</td>
<td>0.05*</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Note: n = 127, results are based on 10000 bootstrap samples, †p <.10, * p < .05 **p < .01.

**Research Question 2**

To test the hypothesis that reminiscing mediates or has an indirect effect on the association between IPV and self-regulation, Hayes’ PROCESS macro (2013) was used.

The PROCESS macro uses a bootstrapping method of resampling with replacement to adjust for non-normality in the data. IPV (psychological or physical) was entered as the
predictor, reminiscing as the mediator (maternal elaborations or sensitive guidance) and child self-regulation as the outcome. Emotional match was not examined as a mediator because the PROCESS macro does not allow for categorical mediators. This process was repeated with each combination of predictor and mediator variables, totaling four separate mediation models. Covariates included in all models included 1) child PPVT scores, age, and sex, and 2) maternal education level, depression, and verbal comprehension. Interpretation of the results followed a three-step approach modified from Baron & Kenny (1986). Step 1 involves testing the relation between the predictor and mediator. Step 2 involves testing the predictor and mediator in the same regression model in relation to the outcome variable. Step 3 examines the confidence intervals for the direct and indirect effect of the predictor on the outcome. Key results from all four models are summarized below in Table 5.

**Table 5**

*Direct and Indirect Effects for Mediation Analyses*

<table>
<thead>
<tr>
<th></th>
<th>Psychological IPV</th>
<th>Physical IPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct effect including</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Elaborations</td>
<td>0.028 ± 0.030</td>
<td>-0.031 ± 0.088</td>
</tr>
<tr>
<td>Sensitive Guidance</td>
<td>0.028 ± 0.029</td>
<td>-0.030 ± 0.087</td>
</tr>
<tr>
<td><strong>Indirect effect through</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Elaborations</td>
<td>-0.010 ± 0.008</td>
<td>-0.029 ± 0.003</td>
</tr>
<tr>
<td>Sensitive Guidance</td>
<td>-0.010 ± 0.010</td>
<td>-0.032 ± 0.003</td>
</tr>
</tbody>
</table>

Note: n = 117, ‡p<.10, * p < .05 **p < .01.
**Mediation Model 1: Psychological IPV → Maternal Elaborations**

In Step 1, psychological IPV was a significant predictor of maternal elaborations ($\beta = -.02, 95\% CI [-.04, 0.00], p=0.05$) while controlling for the other variables in the model. Mothers who reported experiencing more psychological IPV produced fewer elaborations in the emotion dialogue. This finding aligns with the original hypothesis predicting that IPV would result in mothers providing less-optimal emotional dialogues.

When both the predictor (psychological IPV) and the mediator (maternal elaborations) were tested in relation to child self-regulation in Step 2, neither were statistically significant. Maternal elaborations, however, were marginally related to child self-regulation ($\beta = .51, 95\% CI [-0.07, 1.09], p=0.08$). Mothers who produced more elaborations tended to have children with better self-regulation skills, but this effect was not statistically significant. Using bootstrapping in Step 3, neither the direct nor the indirect effect of psychological IPV on self-regulation was statistically significant because both confidence intervals included zero. Results are not consistent with partial or full mediation but do indicate some noteworthy relations between key study variables. Namely, psychological IPV was associated with producing less elaborations, and less elaborations were marginally associated with lower self-regulation. However, when testing for direct and indirect effects using bootstrapping, there was no evidence of a possible mediation pathway linking all three variables.

**Mediation Model 2: Physical IPV → Maternal Elaborations**

In Step 1, physical IPV was not significantly associated with maternal elaborations while controlling for the other variables in the model. When both the predictor (physical IPV) and the mediator (maternal elaborations) were tested in relation
to child self-regulation in Step 2, neither were statistically significant. Maternal elaborations, however, again were marginally related to child self-regulation ($\beta = .50$, 95%CI [-0.07, 0.07], $p=.08$). Using bootstrapping in Step 3, neither the direct nor the indirect effect of physical IPV on self-regulation was statistically significant because both confidence intervals included zero. Results are not consistent with partial or full mediation.

**Mediation Model 3: Psychological IPV \(\rightarrow\) Maternal Sensitive Guidance**

In Step 1, psychological IPV was not significantly associated with sensitive guidance while controlling for the other variables in the model. When both the predictor (psychological IPV) and the mediator (sensitive guidance) were tested in relation to child self-regulation in Step 2, sensitive guidance was significantly associated with child self-regulation ($\beta = 2.45$, 95%CI [0.47, 4.43], $p=0.02$) but psychological IPV was not. Using bootstrapping in Step 3, neither the direct nor the indirect effect of psychological IPV on self-regulation was statistically significant because both confidence intervals included zero. Results are not consistent with partial or full mediation. However, the results do provide further evidence for what was observed in RQ1. Even when accounting for the effect of psychological IPV, sensitive guidance is related to child self-regulation.

**Mediation Model 4: Physical IPV \(\rightarrow\) Maternal Sensitive Guidance**

In Step 1, the physical IPV was not significantly associated with sensitive guidance while controlling for the other variables in the model. When both the predictor (physical IPV) and the mediator (sensitive guidance) were tested in relation to child self-regulation in Step 2, sensitive guidance was again significantly associated with child self-regulation ($\beta = 2.34$, 95%CI [0.38, 4.30], $p=0.02$) but physical IPV was not. Using
bootstrapping in Step 3, neither the direct nor the indirect effect of physical IPV on self-regulation was statistically significant because both confidence intervals included zero. Results are not consistent with partial or full mediation. Similar to above, even when accounting for the effect of physical IPV, sensitive guidance is related to child self-regulation.

**Research Question 3**

To test the hypothesis that reminiscing moderates the relationship between IPV and self-regulation, bootstrapped linear regression analysis in Hayes’ PROCESS macro again was used. IPV (psychological or physical) was entered as the predictor, reminiscing as the moderator (maternal elaborations, sensitive guidance, or emotional matching), and child self-regulation as the outcome. This process was repeated with each combination of predictor and moderator variables, totaling six separate moderation models.

**Moderation Model 1: Psychological IPV x Maternal Elaborations**

Neither the main effect of psychological IPV nor the main effect of maternal elaborations was statistically significant. The interaction term was also not significant. Out of the covariates, child age (95%CI [0.22, 0.71], $p<0.001$) and child sex (95%CI [-0.01, 8.64], $p=0.05$) were significant predictors of child self-regulation; child PPVT scores were marginally significant. Results did not suggest that moderation was occurring between psychological IPV and maternal elaborations in predicting child self-regulation. Coefficients are summarized below in Table 6.
Table 6

Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Maternal Elaborations

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-6.40</td>
<td>17.38</td>
<td>-0.37</td>
<td>0.71</td>
<td>-40.86</td>
<td>28.06</td>
</tr>
<tr>
<td>Psychological IPV</td>
<td>-0.17</td>
<td>0.13</td>
<td>-1.28</td>
<td>0.20</td>
<td>-0.44</td>
<td>0.09</td>
</tr>
<tr>
<td>Maternal Elaborations</td>
<td>0.09</td>
<td>0.40</td>
<td>0.24</td>
<td>0.81</td>
<td>-0.69</td>
<td>0.88</td>
</tr>
<tr>
<td>Psych IPV x Elab</td>
<td>0.01</td>
<td>0.01</td>
<td>1.53</td>
<td>0.13</td>
<td>0.00</td>
<td>0.03</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.14</td>
<td>0.07</td>
<td>1.92</td>
<td>0.06</td>
<td>0.00</td>
<td>0.28</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.47</td>
<td>0.12</td>
<td>3.76</td>
<td>0.00</td>
<td>0.22</td>
<td>0.71</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.31</td>
<td>2.18</td>
<td>1.98</td>
<td>0.05</td>
<td>-0.01</td>
<td>8.64</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.44</td>
<td>0.78</td>
<td>-0.57</td>
<td>0.57</td>
<td>-1.97</td>
<td>1.10</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.15</td>
<td>0.10</td>
<td>-1.46</td>
<td>0.15</td>
<td>-0.35</td>
<td>0.05</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.04</td>
<td>0.18</td>
<td>0.20</td>
<td>0.84</td>
<td>-0.32</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Note: n = 117, †p<.10, * p < .05 **p < .01.

Moderation Model 2: Physical IPV x Maternal Elaborations

There was a significant main effect of physical IPV on self-regulation scores, such that children with higher exposures to physical IPV had lower self-regulation scores (β = -0.96; 95%CI [-1.85, -0.08], p=0.03). The main effect of maternal elaborations on self-regulation scores was not significant. The main effect of physical IPV on self-regulation must be understood in light of a significant interaction effect between physical IPV and maternal elaborations (95%CI [0.01, 0.12], p=0.02). A closer examination of conditional effects indicates that the slope of the line for the high IPV group was significant (95%CI [0.10, .60], p=0.007). At high levels of physical IPV, children demonstrated higher self-regulation when mothers produced more elaborations. When
IPV was low, the association between elaborations and self-regulation was not significant.

Analysis of the Johnson-Newman significance regions indicated that the value at which the relation between maternal elaborations and self-regulation becomes significant is at a physical IPV score of 3.07. To provide context, the range in physical IPV scores was 0-112, with 81% of families having scores less than 3. This indicates that if some physical IPV is present (e.g., three incidents in the past year), maternal elaborations are associated with self-regulation scores. But when no IPV or very little IPV occurs (e.g., two or fewer incidents in the past year), there is no association between IPV and self-regulation. These results suggest that maternal elaborations may have a compensatory effect when physical IPV is present, even at relatively low frequencies. Coefficients are summarized below in Table 7. The interaction is graphed in Figure 4.
Table 7

Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Maternal Elaborations

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-7.89</td>
<td>16.46</td>
<td>-0.48</td>
<td>0.63</td>
<td>-40.53</td>
<td>24.74</td>
</tr>
<tr>
<td>Physical IPV</td>
<td>-0.96</td>
<td>0.45</td>
<td>-2.15</td>
<td>0.03*</td>
<td>-1.85</td>
<td>-0.08</td>
</tr>
<tr>
<td>Maternal Elaborations</td>
<td>0.23</td>
<td>0.30</td>
<td>0.75</td>
<td>0.46</td>
<td>-0.38</td>
<td>0.83</td>
</tr>
<tr>
<td>Phys IPV x Elab</td>
<td>0.06</td>
<td>0.03</td>
<td>2.36</td>
<td>0.02*</td>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.16</td>
<td>0.07</td>
<td>2.25</td>
<td>0.03*</td>
<td>0.02</td>
<td>0.30</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.48</td>
<td>0.12</td>
<td>3.93</td>
<td>0.00**</td>
<td>0.24</td>
<td>0.72</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.40</td>
<td>2.14</td>
<td>2.05</td>
<td>0.04*</td>
<td>0.15</td>
<td>8.64</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.21</td>
<td>0.75</td>
<td>-0.28</td>
<td>0.78</td>
<td>-1.70</td>
<td>1.28</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.10</td>
<td>0.10</td>
<td>-0.98</td>
<td>0.33</td>
<td>-0.30</td>
<td>0.10</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>-0.01</td>
<td>0.18</td>
<td>-0.06</td>
<td>0.95</td>
<td>-0.36</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Note: n = 117, †p<.10, * p < .05 **p < .01.

Figure 4

Graphed Interaction between Physical IPV and Maternal Elaborations

Note: lines are graphed at the 16th, 50th, and 84th percentiles
Moderation Model 3: Psychological IPV x Maternal Sensitive Guidance

Neither the main effect of psychological IPV nor the main effect of maternal sensitive guidance was statistically significant. The interaction term was also not significant. Out of the covariates, child age (95%CI [0.18, 0.66], \( p<0.001 \)) was a significant predictors of child self-regulation; child PPVT scores and child sex were marginally significant. Results did not suggest that moderation was occurring between psychological IPV and maternal sensitive guidance in predicting child self-regulation. Coefficients are summarized below in Table 8.

Table 8

Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Sensitive Guidance

<table>
<thead>
<tr>
<th></th>
<th>( \beta )</th>
<th>SE</th>
<th>( t )</th>
<th>( p )</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-5.00</td>
<td>16.67</td>
<td>-0.30</td>
<td>0.76</td>
<td>-38.05</td>
<td>28.05</td>
</tr>
<tr>
<td>Psychological IPV</td>
<td>-0.15</td>
<td>0.11</td>
<td>-1.32</td>
<td>0.19</td>
<td>-0.38</td>
<td>0.08</td>
</tr>
<tr>
<td>Sensitive guidance</td>
<td>1.00</td>
<td>1.33</td>
<td>0.75</td>
<td>0.45</td>
<td>-1.64</td>
<td>3.65</td>
</tr>
<tr>
<td>Psych IPV x Sens guidance</td>
<td>0.04</td>
<td>0.03</td>
<td>1.62</td>
<td>0.11</td>
<td>-0.01</td>
<td>0.10</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.12</td>
<td>0.07</td>
<td>1.69</td>
<td>0.09†</td>
<td>-0.02</td>
<td>0.26</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.42</td>
<td>0.12</td>
<td>3.46</td>
<td>0.00**</td>
<td>0.18</td>
<td>0.66</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.22</td>
<td>2.18</td>
<td>1.93</td>
<td>0.06†</td>
<td>-0.11</td>
<td>8.55</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.24</td>
<td>0.77</td>
<td>-0.31</td>
<td>0.76</td>
<td>-1.77</td>
<td>1.29</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.11</td>
<td>0.10</td>
<td>-1.05</td>
<td>0.29</td>
<td>-0.31</td>
<td>0.09</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.02</td>
<td>0.18</td>
<td>0.10</td>
<td>0.92</td>
<td>-0.33</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Note: \( n=117, \dagger p<.10, \ast p<.05 \ast\ast p<.01.\)
Moderation Model 4: Physical IPV x Maternal Sensitive Guidance

Physical IPV was marginally related to self-regulation scores. The main effect of maternal sensitive guidance on self-regulation scores was not significant. Similar to patterns with maternal elaborations, there was a significant interaction between physical IPV and maternal sensitive guidance (95%CI [0.01, 0.25], \( p=0.04 \)). A closer examination of conditional effects indicates that the slope of the line for the high IPV group was significant (95%CI [0.03, 0.38], \( p=0.02 \)). At high levels of physical IPV, children demonstrated higher self-regulation when mothers engaged in higher levels of sensitive guidance. Similar to what was observed for maternal elaborations, maternal sensitive guidance may have compensatory effect when physical IPV occurs more frequently.

When IPV is low, the association between sensitive guidance and self-regulation was not significant; but when IPV is high, there is a significant positive relation between sensitive guidance and self-regulation.

Analysis of the Johnson-Newman significance regions indicates that the value at which the relation between sensitive guidance and self-regulation becomes significant is at a physical IPV score of 5.2. Similar to above, this indicates that if some physical IPV is present (e.g., five incidents in the past year), maternal sensitive guidance is associated with self-regulation scores. But when no IPV or very little IPV occurs (e.g., four or fewer incidents in the past year), there is no association between maternal sensitive guidance and self-regulation. Again, these results suggest that sensitive guidance may have a compensatory effect when physical IPV is present, even at relatively low frequencies. Coefficients are summarized below in Table 9. The interaction is graphed in Figure 5.
**Table 9**

*Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Sensitive Guidance*

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-10.87</td>
<td>15.98</td>
<td>-0.68</td>
<td>0.50</td>
<td>-42.54</td>
<td>20.81</td>
</tr>
<tr>
<td>Physical IPV</td>
<td>-0.51</td>
<td>0.29</td>
<td>-1.78</td>
<td>0.08†</td>
<td>-1.08</td>
<td>0.06</td>
</tr>
<tr>
<td>Sensitive Guidance</td>
<td>1.57</td>
<td>1.04</td>
<td>1.51</td>
<td>0.13</td>
<td>-0.49</td>
<td>3.63</td>
</tr>
<tr>
<td>Phys IPV x Sens Guidance</td>
<td>0.13</td>
<td>0.06</td>
<td>2.07</td>
<td>0.04*</td>
<td>0.01</td>
<td>0.25</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.07</td>
<td>1.86</td>
<td>0.07†</td>
<td>-0.01</td>
<td>0.27</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.45</td>
<td>0.12</td>
<td>3.65</td>
<td>0.00**</td>
<td>0.21</td>
<td>0.69</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.77</td>
<td>2.14</td>
<td>2.23</td>
<td>0.03*</td>
<td>0.53</td>
<td>9.01</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.10</td>
<td>0.77</td>
<td>-0.13</td>
<td>0.89</td>
<td>-1.63</td>
<td>1.42</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.09</td>
<td>0.10</td>
<td>-0.92</td>
<td>0.36</td>
<td>-0.29</td>
<td>0.11</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.03</td>
<td>0.17</td>
<td>0.15</td>
<td>0.88</td>
<td>-0.32</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Note: n = 117, †p < .10, * p < .05 **p < .01.

**Figure 5**

*Graphed Interaction between Physical IPV and Maternal Sensitive Guidance*

![Graphed Interaction between Physical IPV and Maternal Sensitive Guidance](image)

Note: lines are graphed at the 16th, 50th, and 84th percentiles.
**Moderation Model 5: Psychological IPV x Emotional Match**

Neither the main effect of psychological IPV nor the main effect of emotional match was statistically significant. The interaction term was also not significant. Out of the covariates, child age (95% CI [0.20, 0.69], $p<0.001$) was a significant predictors of child self-regulation; child PPVT scores and child sex were marginally significant. Results did not suggest that moderation was occurring between psychological IPV and emotional match in predicting child self-regulation. Coefficients are summarized below in Table 10.

**Table 10**

*Bootstrapped Coefficients for Moderation Analysis of Psychological IPV x Emotional Match*

<table>
<thead>
<tr>
<th></th>
<th>$\beta$</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-7.59</td>
<td>16.40</td>
<td>-0.46</td>
<td>0.64</td>
<td>-40.11</td>
<td>24.93</td>
</tr>
<tr>
<td>Psychological IPV</td>
<td>0.02</td>
<td>0.03</td>
<td>0.69</td>
<td>0.49</td>
<td>-0.04</td>
<td>0.09</td>
</tr>
<tr>
<td>Emotional match (0 unmatched, 1=matched)</td>
<td>3.98</td>
<td>3.33</td>
<td>1.20</td>
<td>0.23</td>
<td>-2.61</td>
<td>10.57</td>
</tr>
<tr>
<td>Psych IPV x Emotional Match</td>
<td>0.01</td>
<td>0.08</td>
<td>0.14</td>
<td>0.89</td>
<td>-0.15</td>
<td>0.17</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.10</td>
<td>0.07</td>
<td>1.39</td>
<td>0.17</td>
<td>-0.04</td>
<td>0.25</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.44</td>
<td>0.12</td>
<td>3.56</td>
<td>0.00**</td>
<td>0.20</td>
<td>0.69</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.45</td>
<td>2.22</td>
<td>2.01</td>
<td>0.05*/</td>
<td>0.05</td>
<td>8.85</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.43</td>
<td>0.79</td>
<td>-0.55</td>
<td>0.58</td>
<td>-2.00</td>
<td>1.13</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.14</td>
<td>0.10</td>
<td>-1.32</td>
<td>0.19</td>
<td>-0.34</td>
<td>0.07</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.11</td>
<td>0.18</td>
<td>0.60</td>
<td>0.55</td>
<td>-0.25</td>
<td>0.46</td>
</tr>
</tbody>
</table>

Note: $n = 117$, †$p<.10$, * $p < .05$ **$p < .01$. 
**Moderation Model 6: Physical IPV x Emotional Match**

Neither the main effect of physical IPV nor the main effect of emotional match was statistically significant. The interaction term was also not significant. Out of the covariates, child age (95%CI [0.20, 0.69], \( p < 0.001 \)) and child sex (95%CI [0.21, 8.91], \( p = 0.04 \)) were significant predictors of child self-regulation; child PPVT scores were marginally significant. Results did not suggest that moderation was occurring between physical IPV and emotional match in predicting child self-regulation. Coefficients are summarized below in Table 11.

**Table 11**

*Bootstrapped Coefficients for Moderation Analysis of Physical IPV x Emotional Match*

<table>
<thead>
<tr>
<th></th>
<th>( \beta )</th>
<th>SE</th>
<th>( t )</th>
<th>( p )</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-8.92</td>
<td>16.52</td>
<td>-0.54</td>
<td>0.59</td>
<td>-41.68</td>
<td>23.83</td>
</tr>
<tr>
<td>Physical IPV</td>
<td>0.03</td>
<td>0.07</td>
<td>0.46</td>
<td>0.65</td>
<td>-0.11</td>
<td>0.18</td>
</tr>
<tr>
<td>Emotional match (0 unmatched, 1=matched)</td>
<td>3.46</td>
<td>2.59</td>
<td>1.33</td>
<td>0.19</td>
<td>-1.68</td>
<td>8.60</td>
</tr>
<tr>
<td>Phys IPV x Emotional match</td>
<td>0.13</td>
<td>0.13</td>
<td>1.02</td>
<td>0.31</td>
<td>-0.12</td>
<td>0.39</td>
</tr>
<tr>
<td>Child PPVT standard score</td>
<td>0.13</td>
<td>0.07</td>
<td>1.72</td>
<td>0.09†</td>
<td>-0.02</td>
<td>0.27</td>
</tr>
<tr>
<td>Child age (months)</td>
<td>0.45</td>
<td>0.13</td>
<td>3.56</td>
<td>0.00**</td>
<td>0.20</td>
<td>0.69</td>
</tr>
<tr>
<td>Child sex (0=male, 1=female)</td>
<td>4.56</td>
<td>2.20</td>
<td>2.08</td>
<td>0.04*</td>
<td>0.21</td>
<td>8.91</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>-0.35</td>
<td>0.78</td>
<td>-0.44</td>
<td>0.66</td>
<td>-1.89</td>
<td>1.20</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>-0.12</td>
<td>0.10</td>
<td>-1.21</td>
<td>0.23</td>
<td>-0.32</td>
<td>0.08</td>
</tr>
<tr>
<td>Maternal verbal comprehension</td>
<td>0.10</td>
<td>0.18</td>
<td>0.54</td>
<td>0.59</td>
<td>-0.26</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Note: \( n = 117, \, \dagger p < .10, \, * p < .05, \, ** p < .01. \)
Discussion

The overall purpose of this study was to investigate how a specific form of emotion socialization, reminiscing about past experiences, might be related to child self-regulation in contexts of family conflict. There are two competing theories that have emerged in previous research in this area. There is evidence to suggest that IPV may have a downstream effect on parenting, causing parents to respond more harshly and less sensitively when they themselves are experiencing IPV (Wakschlag et al., 2005). In this “spillover” framework, parenting functions as a source of additional risk and vulnerability in contexts of interparental conflict (Erel & Burman, 1995). At the same time, there is also evidence that parenting can be a protective factor when IPV is present (Benavides, 2015; Greeson et al., 2014; Manning et al., 2014; Tajima et al., 2011). In contexts of trauma and adversity, when parents respond in ways that are warm and emotionally supportive, children generally have better outcomes (Gewirtz et al., 2008; Yule et al., 2019). Overall, the findings of this study add to a growing body of research that reminiscing conversations shape young children’s developing self-regulation skills (Speidel et al., 2019, 2020). Preschool self-regulation is linked with later academic achievement (Mcclelland et al., 2007; Rimm-Kaufman et al., 2009), peer relationships (Eisenberg et al., 2010; Montroy et al., 2014), and adult physical health and well-being (Moffitt et al., 2011), underscoring the importance of identifying specific parenting processes that either support or hinder its development in contexts of family conflict.

Reminiscing as a Predictor of Self-Regulation

Before examining these processes in the context of IPV, the first objective of the study was to explore the main effects of reminiscing on self-regulation. RQ1 examined
how three different ways of operationalizing emotion reminiscing (maternal sensitive guidance, emotional match, elaborations) might be related to children’s self-regulation skills. The results indicated that the quality of maternal reminiscing, assessed as maternal sensitive guidance and emotional match on the AEED (Koren-Karie et al., 2000), was significantly related to children’s self-regulation. The quantity of maternal elaborations, operationalized with a different coding scheme developed by Valentino (2019), was not related to self-regulation. Taken together, these results partially support the hypothesis that higher reminiscing scores would be related to higher self-regulation scores, but only for the quality-oriented reminiscing variables that were generated from the AEED coding scheme.

These results are generally consistent with previous research in this area, though there are very few studies that employ the same measures and examine similar constructs. Of the three emotion reminiscing variables, maternal sensitive guidance has the most evidence supporting its association with child regulatory outcomes. For example, Speidel et al. (2019, 2020) has found that maternal sensitive guidance is related to preschoolers’ self-regulation in a sample of maltreating mothers and demographically matched, non-maltreating mothers. This was true for multiple domains within the umbrella of self-regulation (i.e., emotion regulation and inhibitory control) and over time when examined longitudinally across a six-month period. While these two studies used the AEED sensitive guidance composite variable, neither examined emotional match in any of their analyses. As described in the introduction, no studies to date have examined emotional match in relation to child outcomes like self-regulation.
The AEED coding scheme might overlap with more global measures of parental sensitivity, and this is an area where there is considerably more prior research. Sensitivity generally refers to the degree to which parents can accurately perceive and respond appropriately to their children’s signals (e.g., crying, shifts in facial expression or attention). Bernier et al. (2010) published one of the most widely cited papers about the early precursors of young children’s self-regulation/executive functioning, finding that maternal sensitivity assessed in infancy was related to children’s executive functioning one year later. This result has been replicated in multiple studies and review papers published in the past decade examining the origins of children’s self-regulation in parenting practices (Bridgett et al., 2015; Kiss et al., 2014; Rhoades et al., 2011). It is possible that maternal sensitive guidance might be a proxy for global parental sensitivity in contexts outside of the emotional reminiscing task. As mothers are navigating the emotional dialogue task with their child, they are also tasked with reading and responding to children’s verbal and nonverbal signals as they co-create stories together.

The AEED may also intersect with measures of attachment security, especially when considering the conceptual overlap between matched/unmatched and secure/insecure attachment classifications. In attachment theory, caregiver-infant interactions occurring within the first two years create internal working models, a set of expectations or “templates” for future intimate relationships (Bowlby, 1982). Children use their caregivers as a safe haven in times of threat and a secure base in times of exploration. Borrowing language from attachment theory, the AEED was created in part to test whether mothers can mother as act as a “secure base from which children can freely explore the world of emotions” (Koren-Karie et al., 2008). Furthermore,
Oppenheim et al. (2007) has found that attachment classifications during infancy are predictive of AEED classifications when children are 4.5 and 7.5 years old. Like sensitivity, attachment-related processes are one hypothesized mechanism in which caregiving practices affect children’s developing self-regulation (Baumeister & Vohs, 2004). Global attachment quality has been associated with children’s regulatory outcomes in a wide range of samples and contexts (Birmingham et al., 2017; Kochanska et al., 2009; Pallini et al., 2018).

Contrary to what was hypothesized, the quantity of maternal elaborations was not related to children’s self-regulation scores. Of the few studies that have used the Valentino (2019) frequency measure, they have examined the specificity of children’s autobiographical memory rather than self-regulation. This makes it difficult to fully contextualize the null results here. Leyva et al. (2020) however, used a similar frequency-based coding system of elaborative utterances and examined whether total elaborations were related to several emotional competencies. Like in the Valentino measure, Leyva et al. (2020) coded for the frequency of parents’ elaborations, repetitions, and evaluations. Parents’ elaboration was related to multiple measures of child memory and emotional vocabulary but not to emotional regulation. They concluded that scale-based approaches (like the AEED) that provide a more “macro” perspective of parental elaboration may be better predictors of children’s regulatory outcomes when compared with frequency-based approaches (like the Valentino measure). This was in alignment with the results reported in the present study.

In light of this evidence, we might conclude that what matters for children’s self-regulation is not just what mothers say during reminiscing conversations but how they
say it. If mothers ask questions and contribute detailed information to the narrative, this may be related to children’s self-regulation in select contexts of high IPV (which will be described later). But what might matter more for children’s self-regulation is the overall quality of the interaction and the level of personalized, attuned support that mothers provide when discussing emotions. Since Eisenberg et al. (1998) published their landmark study on the socialization of children’s emotion and self-regulation, the field has moved towards an understanding that the “the whole is greater than the sum of its parts” when studying parental emotion socialization behaviors (Spinrad et al., 2020). It is important to isolate discrete specific emotion-focused parenting practices that support children’s development, while also recognizing how discussions about emotions are just one context in which children develop self-regulation skills. And while discussions of the labels and causes of emotions are important, so is positive emotional tone and validating children’s emotions (Spinrad et al., 2020). The AEED may better capture these process-level differences in nonverbal and supportive communication that shape children’s self-regulation development.

**Indirect Effect of Reminiscing**

In addition to examining the main effects of maternal emotion reminiscing, this study also examined context-specific effects of reminiscing on child self-regulation in households experiencing IPV. The present study examines competing hypotheses that parenting processes may either mediate or moderate the association between exposure to stressors and child outcomes. First, drawing from literature suggesting that maternal trauma exposure and/or poor mental health may “spill over” into reminiscing conversations, we set out to examine whether IPV exposure indirectly affected child self-
regulation through reminiscing. Similar to the main effects analyses, reminiscing was operationalized using two different coding schemes, one of which looked at the *quality* of maternal sensitive guidance and the other at the *quantity* of maternal elaborations. While there was no evidence of indirect effects in any of the four regression models, some noteworthy associations emerged.

First, psychological IPV was a significant predictor of maternal elaborations. Mothers who reported experiencing more psychological IPV produced fewer elaborations in emotion dialogues with their preschool-aged children. This finding aligns with the original hypothesis that the stress of experiencing IPV may cause mothers to disengage from the reminiscing task, producing less elaboration. Again, while no studies have explicitly explored this question, we can draw from literature that looks at other dimensions of maternal mental health in relation to frequency-based coding schemes. McDonnell et al. (2016) found that mother’s own attachment orientation moderated the relation between the quantity of maternal elaborations and children’s autobiographical memory. Mothers with an avoidant attachment style had more difficulty engaging in elaborative talk with their children, possibly because they themselves had difficulty managing their own emotions. Kuehn et al. (2020) found that maltreating mothers, and specifically those that are neglectful, engage in less elaborative reminiscing than non-maltreating mothers. The authors concluded that global disengagement might be the reason why neglectful mothers provide lower levels of elaboration. While neither of these studies deal with IPV, they provide support for the hypothesized mechanism (i.e., disengagement) and establish the link between maternal health and frequency of elaborations in reminiscing conversations. Mothers who are experiencing higher levels of
stress, whether due to IPV, childhood attachment disruptions, or neglectful parenting, may have difficulty participating in the emotion dialogue task.

Interestingly there was no evidence of the same “spillover” effect in any of the models testing physical IPV. In the present study, the presence or absence of physical IPV had no impact on the ways that mothers interacted with their children in the reminiscing task. In contrast to what Visser et al. (2016) found, there was also no evidence of spillover effects of psychological IPV on the other two indices of reminiscing measured using the AEED (sensitive guidance and emotional match). Again, it is difficult to confidently say whether or not this finding is in alignment with prior research because there is such little work in this area. It is possible that reminiscing may be different than other parenting processes (e.g., sensitivity) where there is more evidence of spillover effects stemming from maternal experiences of IPV (Chiesa et al., 2018).

More generally, the strength of evidence for the spillover hypothesis is mixed (Grumi et al., 2017). Researchers have criticized the spillover framework for reinforcing a deficit orientation towards mothers that have experienced IPV (Lapierre, 2008), especially given that many mothers exposed to IPV demonstrate adaptive parenting behavior (Greeson et al., 2014). Scholars writing from the feminist tradition have highlighted how the narrow focus on women and their “deficient” parenting in contexts of IPV has diverted attention from the real issue: men’s violent behavior and its impact on families (Lapierre, 2008). There is no question that IPV takes an emotional toll on women in ways that make parenting difficult (Fogarty et al., 2021), but this might not translate into observable changes in parenting behavior during the reminiscing task.

Moderation
Finally, we tested a competing theory that reminiscing may moderate the association between IPV and self-regulation. The rationale for this question was supported by decades of research suggesting that parent-child interactions are protective in the face of stressful circumstances (Lieberman & Horn, 2011), as well as evidence that mothers experiencing IPV may overcompensate in their interactions with children (Letourneau et al., 2013; Levendosky et al., 2003). We predicted that IPV-exposed children whose mothers facilitated rich emotion-focused dialogues would demonstrate better outcomes when compared with IPV-exposed children whose mothers struggled to provide the same level of structuring and guidance. By far the most important finding was that physical IPV interacted with both continuous reminiscing measures (sensitive guidance and elaborations) to predict self-regulation. At high levels of physical IPV, which regions of significance analyses indicated were at physical IPV scores between 3.07 and 5.20, children demonstrated higher self-regulation when mothers engaged in higher levels of sensitive guidance or produced more elaborations. The same pattern did not hold for psychological IPV, suggesting there is something unique happening with physical IPV.

We can conclude that maternal reminiscing behaviors may have a compensatory effect when physical IPV is present, even at relatively low frequencies. This result is consistent with some evidence in tension with the spillover hypothesis that suggests that mothers who have experienced IPV may interact with their children more responsively in an attempt to offset the negative effects of violence in the home (Levendosky et al., 2003). Letourneau et al. (2013) came to similar conclusions in their paper about the impact of IPV on mother–child relational and developmental outcomes. Although they
observed some spillover effects, a more common pattern involved mothers compensating for exposure to IPV in their interactions during a dyadic task. Mothers experiencing IPV interacted *more* sensitively and engaged in *more* activities that supported children’s cognitive growth when compared with norm samples. The results of the current study suggest that these compensatory efforts do have a measurable impact on at least one critical developmental domain in children (i.e., self-regulation).

Overall, the results of the present study align most closely with the findings of the Katz & Windecker-Nelson (2006) paper which also found that emotion coaching moderated, but failed to mediate, the relationship between IPV and child behavior problems. However, Katz & Windecker-Nelson observed that there was *no* relationship between IPV and children’s behavior problems when mothers provided high levels of emotion coaching. They concluded that emotion coaching helped to buffer the adverse effects of IPV by helping children to process negative emotions. Our findings suggested that there *was* a relationship between IPV and children’s behavior problems when mothers provided high levels of sensitive guidance and elaborative reminiscing. Unexpectedly, as IPV increased, children’s self-regulation also increased, but only when mothers provided high levels of sensitive guidance and elaborative reminiscing. We interpret these findings as indicating that reminiscing is especially protective for children in contexts of high physical IPV.

There is also evidence that violence in the home may produce context-specific changes to behavior in ways that can be functionally adaptive and that aid in threat detection (Briggs-Gowan et al., 2015; Miller, 2015; Miller-Graff & Scheid, 2021). We can look towards this research literature to explain why children experiencing high levels
of physical IPV and higher quality reminiscing had the best regulatory outcomes of any group. In contexts of high family conflict, children whose caregivers help them make sense of their emotions through sensitive guidance may become especially adept at managing their thoughts, feelings, and emotions and avoiding threatening stimuli. To maintain order and “keep the peace,” IPV-exposed children whose mothers help them make sense of their emotional experiences may learn to self-regulate as a matter of survival and protection. The consequences of misbehaving may be so dire that children are forced to learn suppression strategies that overlap with adaptive self-regulation skills (e.g., complying with directions, withholding impulses).

Interestingly, the moderating influence of reminiscing was only significant in the context of physical but not psychological IPV. In the adult literature, the trajectory of women’s mental health recovery may depend on the type and chronicity of IPV exposure (Blasco-Ros et al., 2010; Thompson et al., 2006). Despite the value in differentiating by type of IPV exposure (i.e., physical vs. psychological vs. sexual), much of the research literature examining the impact of IPV on children does not differentiate by type (Kelly & Johnson, 2008). In work looking at the impact of IPV on child adjustment problems, the correlations between IPV and child outcomes might be stronger when accounting for the type of IPV exposure (Vu et al., 2016). Physical IPV may be particularly harmful to children because it is observable and disruptive to children’s sense of safety. Chronic exposure to physical aggression, violence, and rage instills fear and destabilizes children’s sense of emotional security (Davies & Martin, 2014). Since multiple forms of IPV tend to also co-occur, person-oriented statistical approaches like latent profile analysis (LPA) or latent cluster analysis (LCA) show promise because they allow for
CHILDHOOD EXPOSURE TO IPV

clustering by IPV type and/or perpetrator (Levendorsky et al., 2007). Future work in this area may consider using person-oriented approaches to differentiate by type while also accounting for the cumulative influence of multiple exposure types.

Clinical Implications

For children who have witnessed physical IPV, emotion dialogues may play a critical role in their adjustment. Narratives of emotionally laden events help children to make meaning of their experiences and develop more cohesive representations of them (Cohen, 1998; Neuner et al., 2004; Salloum et al., 2009). When children witness family violence, the ways that they appraise and make meaning of the conflict influence their emotional reactions and behavior (Howell, 2011); feelings of threat and self-blame following interparental conflict may lead to child adjustment problems (Grych et al., 2000). Without therapeutic intervention, narrative fragmentation and disorganized thoughts about the trauma(s) also put children at increased risk of PTSD (Miragoli et al., 2017) and acute stress disorder (ASD) (Salmond et al., 2011). While preschool-aged children can participate in detailed conversations about the past, caregivers are responsible for providing structure to children’s stories, contributing content, and helping children to make meaning of their experiences (Fivush, 2007). This highlights the importance of involving parents in children’s care following exposure to IPV or other stressful events.

Because reminiscing is an important trauma process that aids in memory consolidation and emotional regulation, trauma-informed interventions typically have a narrative component (Dyregrov & Yule, 2006). For this reason, the creation of a trauma narrative is an important component of evidence-based interventions, like Trauma-
Focused Cognitive Behavioral Therapy (TF-CBT). While young children have limited narrative capabilities, therapies like TF-CBT can be used with children as young as three-years old (Scheeringa et al., 2011). The trauma narrative component of TF-CBT may be particularly effective for addressing trauma-related fear and general anxiety in children (Deblinger et al., 2011). The results of the present study lend further support to the value of narrative-based strategies for children who have witnessed violence in the home.

Aside from TF-CBT, there are several existing evidence-based programs that specifically target parental emotion socialization in order improve child adjustment. These programs are more generalized and not tailored specifically to the needs of trauma-exposed families. When mothers are trained to use an elaborative style of interacting with their children (e.g. by asking Wh- questions and providing detailed descriptions), preschool-aged children have better theory of mind (Taumoepeau & Reese, 2013) and emotion knowledge skills (Bergen et al., 2009). A review paper published by England-Mason & Gonzalez (2020) reviews 3 main intervention frameworks: Tuning in to Kids (TIK), Parent-Child Interaction Therapy-Emotion Development (PCIT-ED), and Emotion Enhanced Triple P (EETP). The majority of studies included in the review demonstrated favorable effects on parental emotion socialization behaviors, though very few studies included in the review directly measured child outcomes.

Reminiscing and Emotion Training (RET) has also proven to be a promising intervention that specifically aims to increase the frequency of elaborative reminiscing conversational elements (i.e., open-ended questions, elaborations). When parents participated in RET, mothers engaged in more elaboration and sensitive guidance (Valentino et al., 2019) and children’s diurnal cortisol regulation improved in response to
the changes to parental emotion socialization behaviors (Valentino et al., 2021). RET was implemented with families who had a history of involvement with Department of Child Services (DCS) for substantiated maltreatment; the families were low-income (annual family income was generally below $12,000) and one-third of participating mothers identified as African American. The success of this intervention in this population demonstrates that emotion socialization is an appropriate target for clinical intervention in low-income families of Color.

Limitations

There are several limitations to this study due to the design and selection of measurements. The first is that the study was cross-sectional, making it impossible to draw any causal conclusions. The results presented here reflect associations between key study variables and not causal relationships, even if the directionality was hypothesized. This was particularly relevant to RQ2 which dealt with mediation. The second main limitation was lower-than-ideal interrater coder reliability. For both composite variables (maternal sensitive guidance and elaborations), one subscale was excluded so that reliability was acceptable (ICCs of all included subscales >0.6). This meant that maternal involvement and reciprocity (ICC=0.45) and confirmations (ICC=0.35) were never analyzed due to poor reliability. The threshold of 0.6 was inspired by a widely cited set of guidelines published by Cicchetti (1994) for interpreting kappa and ICC inter-rater reliability. Based on these guidelines, reliability less than 0.4 is considered poor, between 0.40 and 0.59 is fair, between 0.60 and 0.74 is good, and between 0.75 and 1.00 is excellent. Interrater reliability was considered “good” for all included subscales for maternal sensitive guidance and emotional match, and “excellent” for elaborations.
Furthermore, the AEED has not been validated in a sample of majority Black families. The underrepresentation of Black families in emotion socialization research is a larger issue in the field. The measure itself has not undergone any psychometric evaluation, though construct validity has been established and other study teams have reported high levels (ICC>0.8) inter-rater reliability. The larger study also collected physiological data while mothers and children participated in the emotion dialogue. While not the focus of the present study, this meant that study participants had a set of electrodes placed on their bodies prior to the dialogue. This was a common source of distress and distraction in the task for participating children. Because of the physiological data collection, dyads were also told that they had to speak for at least two minutes about each emotion; this was not a stated requirement in other studies using the AEED (Koren-Karie et al., 2008; Speidel et al., 2019, 2020; Valentino et al., 2014, 2019). Lastly, the measure used to quantify experiences of IPV, the Conflict Tactics Scale-2 (CTS-2; Straus et al., 1996) is self-report measure. The study team only collected CTS-2 data from mothers and did not collect the same information from fathers/partners.

**Strengths**

There were also strengths in the measurement strategy. Namely, this study is novel in its use of an observational self-regulation measure, the PSRA assessor report. Compared with direct assessments and adult reports, observational measures of self-regulation are hypothesized to be more ecologically valid (McCoy, 2019). Observational measures are less common, and because they are a new addition to the field, the full psychometric properties are often unknown. The PSRA examiner report is an exception since there is an existing psychometric paper showing favorable scalar invariance and
criterion validity (Daneri et al., 2018) and evidence that it is responsive to intervention (Raver et al., 2011). More generally, observational tools are considered more “objective” than parent reports because raters typically do not have a prior relationship with the child (McCoy, 2019). They do, however, only capture behavior observed during a particular time frame and during a very discrete task. Nevertheless, the tasks that children engage in during the PSRA are directly transferrable to everyday situations (e.g., following directions, waiting your turn, cleaning up toys, resisting temptation to eat a treat). McCoy (2019) suggests that researchers prioritize adult reports or observational tools over more traditional direct assessment approaches when maximizing ecological validity.

This study also employed a novel measurement strategy by using multiple coding schemes for the emotion dialogues in a unique and underrepresented sample. Modeled after Valentino et al. (2014), this study looked at both the quality and quantity of maternal reminiscing behaviors. This provided an opportunity to 1) compare the utility of both measurement strategies and 2) test how they might be differentially related to children’s self-regulation development. This is the first study to look at both measures simultaneously in relation to children’s self-regulation. The benefit of this approach is that it is multidimensional and that it captures the actual language that mothers use when talking with their children about emotions (e.g., WH- or YN questions) as well as the affective quality and manner in which moms interact with their child (e.g., with acceptance versus with criticism). The results of this study suggest that both indicators (quality of sensitive guidance and quantity of maternal elaborations) are related to children’s self-regulation in contexts of physical IPV, warranting further research in this area.
Lastly, the majority (87%) of mothers in the present study self-identified as Black, all were low-income (100% of the FPL), and recruitment procedures oversampled families for violence exposure. Compared with other studies that draw from residential domestic violence shelters, this sample is also considered a “community sample,” which are traditionally underrepresented in the IPV literature (El-Sheikh et al., 2008). Black families are also underrepresented in the emotion socialization literature, and this study attempts to fill some of those representation gaps and shed light on these processes in a majority Black sample. There is evidence that emotion socialization behaviors in Black families may look differently than those observed in White families (Dunbar et al., 2017).

In a review paper about emotion socialization in Black families, Labella, (2018) reports that Black families simultaneously celebrate the expression and restriction of emotion. While Black families may use socialization strategies that teach emotional and behavioral control, traditional Afro-cultural traditions also prioritize family connectedness, oral communication, and emotional expression. Black families may use emotional discourse to facilitate emotional self-control, but also because Black families value the importance of emotional expression and interdependence among group members (Garrett-Peters et al., 2008; 2011). Our findings suggest that emotion communication and socialization in Black families is an area that deserves continued attention and warrants further research.

**Conclusion: Mediation versus Moderation**

Overall, the results of this study lend more support to the moderation hypothesis, suggesting that parenting can overcorrect for the effect of IPV on children’s self-regulation. In contexts of high physical IPV, sensitive guidance and elaborations were each independently related to children’s self-regulation scores. Somewhat surprisingly,
children with high IPV exposure had *better* outcomes when compared with children with low IPV exposure *if* their mothers provided more sensitive guidance and/or elaborative communication. This result aligns with research suggesting that parenting can be a source of resilience in contexts of interparental conflict (Manning et al., 2014), so much so that children with high IPV exposure outperform children with low IPV exposure if provided with the necessary supports. Future research in this area should continue to investigate the buffering effects of elaboration and sensitive guidance on children’s self-regulation.
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Childhood Exposure to IPV

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Biography

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