

## AN ABSTRACT OF THE DISSERTATION OF

Jessica A. Dahlgren for the degree of Doctor of Philosophy in Human Development and Family Studies presented on October 2, 2020.

Title: Maternal Primary Caregiver Criminal Justice Involvement: The Importance of Understanding Child Outcomes

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A parent's criminal justice involvement (CJI) can have a lasting impact on their children. Additionally, if these children are involved in Child Protective Services (CPS) they have often faced a form of abuse or neglect and they may be increasingly vulnerable to additional risks. Although a literature base exists that describes patterns of behavior for children when parents are incarcerated, few studies have examined child outcomes when a maternal primary caregiver (MPCG) was arrested. If this arrest occurred early on during sensitive periods for a child's development, the effects of a MPCG arrest could be particularly impactful. Prior research has demonstrated that children with parents who experience CJI exhibit worse behaviors, worse academic outcomes, and weaker peer-relationships. Yet, how important factors like behavior problems and peer relationships associate with the relation between MPCG arrests and children's academic achievement is widely unknown. The two studies in this dissertation explore factors that may be contributing or detracting from the relation between MPCG arrest status and children's academic achievement among two groups of children: children that experienced a MPCG arrest when they were

between zero and five years old and children that did not experience a MPCG arrest. Although all children were CPS involved, the additional risk factor of having a MPCG arrested during an important developmental time was hypothesized to be increasingly influential for these children.

Study 1 explored how MPCG arrest status was related to children's internalizing and externalizing behavior problem scores and literacy and math when children were between six and a half and 10 years old (wave one), and examined if child gender moderated these associations. The second research question investigated if behavior problems mediated the association between MPCG arrest status and children's academic achievement, and if child gender moderated these associations. Results demonstrated that children in the MPCG arrest group scored better academically and behaviorally when children were between six and a half and 10 years old (wave one) and worse academically compared to children without a MPCG who was arrested when children were between eight and 11.5 years old (wave two). Behavior problems did not mediate this relation, nor did child gender moderate the mediation. However, child gender did significantly moderate several relations between MPCG arrest status and children's internalizing and externalizing behavior scores and between internalizing behavior scores and children's math skills. Specifically, females in the MPCG arrest group had higher behavior problem scores (worse behavior) for both internalizing and externalizing behavior problems at wave one compared to male children in the MPCG arrest group. Female children that then had higher internalizing behavior scores performed better on math at wave two.

Study 2 investigated if MPCG arrest status was related to children's academic achievement when children were between nine and a half and 13 years old (wave three) and examined if child-rated peer relationship dissatisfaction and child gender moderated these associations. Results revealed that children in the MPCG arrest group scored better in both academic subjects when children were between nine and a half and 13 years old (wave three) but that these associations were not ultimately moderated by peer relationship dissatisfaction. Child gender did significantly moderate the relation between MPCG arrest status and children's math performance when children were between nine and a half and 13 years old (wave three). Together, the results from these studies expand our understanding of how MPCG arrests during early childhood are related to children's behavioral, social, and academic outcomes over time. Implications for targeted intervention efforts to aid children that experience parent CJI and recommendations to propel research efforts in this area are discussed.

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Maternal Primary Caregiver Criminal Justice Involvement: The Importance of  
Understanding Child Outcomes

by  
Jessica A. Dahlgren

A DISSERTATION

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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Jessica A. Dahlgren, Author

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## DEDICATION

I dedicate this dissertation to every child that has every experienced parent criminal justice involvement. Your resilience is what keeps me going.

Maternal Primary Caregiver Criminal Justice Involvement: The Importance of Understanding  
Child Outcomes

## Maternal Primary Caregiver Criminal Justice Involvement: The Importance of Understanding Child Outcomes

Recent estimates indicate that Child Protective Services (CPS) investigates around 3,534,000 reports of child maltreatment in the United States per year to provide services to children and families to promote child well being (USDHHS, 2018). One risk factor that is being increasingly recognized as affecting CPS involved families is parent criminal justice involvement (CJI; Brame et al., 2011; Johnson & Waldfogel, 2002; Mumola, 2000). As of 2015, an estimated five million children in the United States had a parent involved in the criminal justice system at some point in their lifetime (Murphey & Cooper, 2015). Specifically, rates of maternal CJI are increasing, thus impacting more primary caregivers of children than in prior years (Glaze & Maruschak, 2008). These instances of primary caregiver CJI could be particularly traumatic for a child based on the circumstances surrounding a CJI event and the prior relationship established by the parent and child (Dallaire, 2007; Dannerbeck, 2005; Farrington, et al., 2001; Phillips & Erkanli, 2008; Winslow, 2001).

Not all types of CJI impact children the same. Where parent incarceration is associated with long-term parental absences, parental arrests are acute incidences that may cause early childhood trauma and stress (Phillips et al., 2006). Children with maternal primary caregivers (MPCG) that experience an arrest can have a variety of different outcomes, such as academic difficulty, behavioral problems (both internalizing and externalizing), difficulty with peer relationships, or no change in prior behavior, based on the child's context and demographic background (Cho, 2009; Haskins, 2016). Unfortunately, many of the risks faced by these children include the disruption of stage salient developmental tasks, which build upon each other over time (Dallaire & Wilson, 2010). When development is disrupted when these children are young, future developmental tasks may not be reached or may be reached much slower

compared to peers without parents who experience CJI, causing these already vulnerable children to be additionally vulnerable to an accumulation of risks. The previous relationships established in studies regarding maternal CJI and children's outcomes of behavior problems (Phillips et al., 2006; Poehlmann, 2005), peer relationships (Braman, 2004; Condry, 2007), and academic achievement (Haskins, 2014; Turney & Haskins, 2014; Foster & Hagan, 2007; Hagan & Foster, 2012; Nichols & Loper, 2012) raise the possibility that children's behavior and peer relationships could be associated with their ability to succeed academically.

This dissertation includes two studies utilizing the National Survey of Child and Adolescent Well-Being II study data (NSCAW II). This dataset, which is both nationally representative and longitudinal, oversamples Child Protective Services (CPS) cases in order to assess various risks children face and outcomes associated with this heightened level of risk. Both studies isolate a group of children that experienced a MPCG arrest event when they were between the ages of zero and five years old (before NSCAW II data collection occurred), a developmentally salient time period for both behavior and social skills, and a comparison group of children that were the same age at baseline data collection.

The first study investigated how children's internalizing and externalizing behavior problems, as rated by primary caregivers, and academic achievement at baseline (when children are between six and a half and 10 years old) were related to MPCG arrest status and if these types of behavior problems when children were between six and a half and 10 years old mediated the relationship between MPCG arrests and academic achievement when children were between eight and 11.5 years old (wave two). Additionally, child gender was investigated as a moderator for both research questions in this study. The second study examined how MPCG arrest status was related to academic achievement in slightly older children (nine and a half to 13 years old;

wave three) and if child-rated peer relationship dissatisfaction when children were between eight and 11.5 years old (wave two) and child gender moderated the relations between MPCG arrest status and academic achievement when children were between nine and a half and 13 years old (wave three; see Figure 1).

### **Theoretical Perspective**

To unpack the complexity that surrounds the topic of maternal CJI, this dissertation will be grounded in the Family Stress Proximal Process model (FSPP; Arditti, 2016). The FSPP framework pulls from two theories, the Family Stress Theory (McCubbin & Patterson, 1983), and the Bioecological Model (Bronfenbrenner, 1986), that discuss contextual influences on family dynamics and the proximal processes that are at play between the child with a mother who has experienced CJI and their environment (Arditti, 2015; Bronfenbrenner, 1999). Specifically, this dissertation will draw on the ideas of *contextual contributions*, *ambiguous loss*, *youth resiliency*, and *time* from this model to help frame Studies 1 and 2.

Maternal CJI is an issue that impacts the entire family unit. The way families function before and after a mother becomes CJI impacts the child's outcomes, which can either produce negative or positive family cycles (Arditti, 2012). Although this family level problem is relevant to this dissertation, the individual studies will focus on family factors (e.g., MPCG arrests) impacting child outcomes (e.g., behavior problems, peer relationships, and academic achievement). Children can experience a large upheaval when a MPCG is arrested because these caregivers are often major influences in a child's life (e.g. in the child's microsystem, which is the most proximal level to the individual). To expand on the Bioecological Model, the FSPP model discusses *contextual contributions* as the experience of maternal CJI functioning as both a result of and a contributor to social inequality, which is often demonstrated through accumulated



risk (Arditti, 2016). This risk is often cyclical and intergenerational in nature, as children may grow up with similar risks as parents experienced. In both Study 1 and Study 2, the contextual contribution of MPCG arrests will be examined as a risk factor for children, which could be associated with how these children adjust and develop.

These contextual contributions are related to the tenet of *ambiguous loss* where a child may be unsure of where a caregiver has gone, why they have left, or how the child should feel about the parent's actions or absence (Boss, 2002). This ambiguous loss is often associated with child maladjustment and psychological difficulty, which are related to both internalizing and externalizing behavior problems inside and outside of the home (Arditti, 2003). When these behavior problems occur in school they impact another important facet of the microsystem for these children, the classroom. The stress and maladjustment faced from this ambiguous loss can then influence how children learn, socialize, and interact with peers and teachers (Poehlmann, 2010).

Relevant to Study 2 *youth resiliency*, as defined by this model, encompasses protective factors through social support and coping processes that moderate the relationship between children's exposure to risk and successful adjustment (Arditti, 2016). This component fits well with Study 2 because social support will be assessed through a child self-report measure of peer relationship dissatisfaction present in the NSCAW II dataset. Social support is assumed to be present if the child indicates better perception of peer relationships, which may or may not encourage higher academic outcomes for the child. Prior evidence supports both the role of supportive peer relationships in helping children become more well-adjusted (Parker et al., 2006) and the ability for peers to be influences on children's outcomes, for better or for worse (Brendgen et al., 2000; Brendgen et al., 2001).

Last, *timing* is relevant to both of the studies in this dissertation because of developmental timing, and the longitudinal nature of the studies. In Study 1 and 2, children will only be included if they are between zero and five years old when their MPCG was arrested. This developmental period was chosen because of the window of development that occurs for these children during this time, specifically for behavioral and social development (Hay et al., 2004; Loeber, 1990). Additionally, most children experiencing parent CJI before the age of 10 (Glaze & Maruschak, 2008; Mumola, 2000; Murphey & Cooper, 2015), thus suggesting that a large proportion of children experiencing MPCG arrest will experience it during this early childhood time frame. Last, age will be controlled in all analyses because it is likely that there will be variation present in the study variables based on children's ages, regardless of the limited age ranges utilized for the studies.

### **Children Involved in the CPS System**

For children to be screened into the CPS system, there has to be reasonable suspicion that maltreatment is occurring (USDHHS, 2018), thus triggering a potential CPS investigation. These children are, therefore, inherently vulnerable given that the reported case of child maltreatment was open for CPS to investigate. This maltreatment typically falls under the broad categories of abuse or, more commonly, neglect; both of which can have physical, emotional, cognitive, and psychological repercussions for children (English, 1998; Herrenkohl, 2005; Jonson-Reid, Kohl, & Drake, 2012). Regardless of maltreatment substantiation, these children are more likely to experience parental drug and alcohol abuse, being parented by a teen parent, living in poverty, and general family instability (Berger et al., 2009; Stith et al., 2009; White et al., 2015). These risk factors are similar to risks associated with parental CJI (Murray & Farrington, 2005; Phillips & Dettlaff, 2009; Phillips et al., 2006), however, not all children that experience one event (i.e.,

either CPS involvement or parental CJI) will experience the other. Experiences with CPS and CJI can have a cumulative effect if both occur, placing already at-risk children in an even more vulnerable situation (see de Haan et al., 2019). The arrest of a MPCG can have a unique impact on already at-risk children by exposing them to the trauma of ambiguous separation from their caregiver during an important developmental time.

### **Children with CJI Parents**

The number of women who experienced CJI doubled between 1991 and 2007 (Glaze & Maruschak, 2008). Mothers who experience CJI are more likely to be a primary caregiver to children than fathers who experience CJI, therefore, having a strong potential impact on family structure (Child Welfare League of America, 2005). Approximately 5% of children age six and younger experienced parent CJI with a majority of parental CJI experiences occurring before a child is 10 years of age (Murphey & Cooper, 2015). Children with parents who experience CJI are recognized as increasingly vulnerable, often experiencing risks such as poverty, academic difficulty, internalizing and externalizing behavior problems, and family instability (Arditti, 2012; Wakefield & Uggren, 2010).

A child's age when a MPCG experiences a CJI event is particularly important for the child's developmental trajectory. If the CJI experience occurs when the child is six years of age or younger a child's secure attachment to that caregiver can be jeopardized (Glaze & Maruschak, 2008; Poehlmann et al., 2010). This attachment relationship may be disrupted when children experience the trauma of a MPCG arrest, especially if the child witnesses the arrest (Wakefield & Montagnet, 2019). Having a parent taken away, interacting with armed law enforcement officers, and experiencing rapid changes in caregivers can fill a child with feelings of uncertainty, fear, and instability (Boss, 2002; Miller, 2006; Phillips & Zhao, 2010). These

feelings combined with the lack of legal procedures specified for children during a parental arrest can cause additional trauma that has the power to disrupt the parent-child relationship and also the child's developmental trajectory (Dallaire & Wilson, 2010; Wakefield & Montagnet, 2019). A secure parent-child attachment is foundational for the development of skills such as regulating behavior and the formulation of social relationships (Calkins & Hill, 2007). Without this secure attachment, these children may be vulnerable to continual risks (Hagen & Myers, 2003).

The types of parent CJI are not equivalent experiences. Prior research indicates that maternal arrests, not just incarcerations, are a risk factor for children (Dannerbeck, 2005; Farrington et al., 2001; Winslow, 2001) and that the trauma and stress associated with arrests are related to children's outcomes (Wakefield & Montagnet, 2019). Children with a mother who experienced CJI are more likely to be exposed to domestic violence, exposed to parental substance abuse, exposed to parental mental health problems, to be personally maltreated by a family member, and to experience living in poverty (Murray & Farrington, 2005; Phillips et al., 2006). Thus, for this dissertation, MPCG arrests will serve as a proxy for the trauma associated with the event of the arrest and the instability children may feel from watching their parent be removed from the home, regardless of if a child witnessed the arrest directly or the length of the removal from the home. Understanding how maternal CJI is related to socio-emotional development (i.e., behavior and social relationships) can help explain the developmental cascades that take place for children once a mother becomes CJI.

### **Vulnerable Children and Behavior Problems**

Behavior skill development begins at birth and faces rapid growth until children are around the age of five years old, therefore, making this time an important developmental window

for these skills (Kochanska et al., 2001). Behavioral skills are cumulative over time and are heavily influenced by context, for better or for worse, which lays the foundation for behavioral skill stability that often occurs for children in middle childhood between the ages of five and 10 years old (Blair, 2002; Shonkoff & Phillips, 2000). The disruption of behavioral skills development because of the stress and trauma endured from parent CJI has the potential to influence additional outcomes in later developmental periods, such as academic success (Duncan et al., 2007; Turney, 2017; Turney & Haskins, 2014).

Behavior problems in children can be displayed through internalizing or externalizing behaviors, both of which can be related to additional child outcomes. Internalizing behaviors, defined as anxiety, depression, and withdrawal are more inward expressions of early stress and trauma (Achenbach & Ruffle, 2000). Children that experience this set of behaviors are often more reserved and may not connect as well to peers or adults. These intrusive inward behaviors can also impact academic performance and children's ability to engage with a task (Herman et al., 2008). Conversely, externalizing behaviors are defined as acting out behaviors of impulsivity, aggression, or delinquency. These behaviors can be equally if not additionally more disruptive of children's academic outcomes because they literally disrupt a child's actions or relationships (Campbell et al., 2006). In very young children, these externalizing problem behaviors in the classroom often include: shouting out answers, not remembering or following instructions, and engaging in socially unacceptable behaviors with peers, which can all negatively impact academic learning especially after children enter formal schooling (Duncan et al., 2007; Eisenberg et al., 2000).

It is important to note that increased behavior problems are a potential consequence for both CPS involved children and children with parents who experience CJI, but are not a

guaranteed outcome. This variation stems from the heterogeneous experiences that these families encounter while CJI or CPS involved. Although a majority of the literature does indicate that children with parents that experience CJI exhibit both internalizing and externalizing behavior problems (e.g., Dwyer Emory, 2018; La Vigne et al., 2008), the conclusions regarding these behavior problems have become more nuanced. For example, the gender of the child can make a difference in how they respond behaviorally (Foster & Hagan, 2013; Parke & Clarke-Stewart, 2002). The presence of demographic risk faced by a family, such as parent CJI (Miller & Bank, 2013), and protective factors such as social support (Hagen & Myers, 2003; Ziv et al., 2010) can also impact how children respond behaviorally to parent CJI. Continuing to explore why children may or may not respond to parent CJI events behaviorally and what contextual components may contribute to those responses are important for understanding the variety of experiences these children face.

Specific to this dissertation, when a child experiences the arrest of a MPCG during a critical time for behavioral development (i.e., zero to five years old; Kochanska et al., 2001), a child may be more likely to experience disruptions in this development, which can lead to more internalizing and externalizing behavior problems. These behavior problems may permeate the microsystem for these children and occur in all of the micro contexts these children operate in, such as at home and at school (Arditti, 2016). Thus, children that exhibit behavior development disruption at a young age may be vulnerable to academic difficulty throughout their time in school (Turney, 2017).

### **Vulnerable Children and Relationships with Peers**

Primary caregiver CJI and children's antisocial behavior have a longstanding relationship (see Crowe, 1974). These effects have the potential to be long lasting and predict outcomes in

social behavior patterns until the age of 40 (Murray & Farrington, 2008). These antisocial behaviors are also related to delinquency in the literature, indicating that these social behavior patterns can have additional negative impacts besides peer relationship creation and maintenance (Murray & Farrington, 2005).

When children have strong and positive peer relationships, later adjustment problems, such as academic difficulty, juvenile CJI, and deviance are less likely to occur (Coie et al., 1990). Variation in behavior and the desire to interact with peers emerges in the first few years of a child's life and is often developed based on interactions with family members and caregivers (Hay et al., 2004). For a multitude of reasons depending on the family, children with parents who experience CJI may have more difficulty with peer relationships (for a review see Murray et al., 2012). For example, some children may shy away from friendships for fear of being judged based on the stigma associated with caregiver CJI (Arditti, 2005; Parke & Clarke-Stewart, 2002; Sack & Seidler, 1978), while other children may rely on close friends to support them during adverse experiences (Criss et al., 2002). The children that turn towards peers for emotional support may experience protective effects from these relationships that help buffer against adverse events, such as having a caregiver that is CJI (Benzies & Mychasiuk, 2009). This is especially true if a child with a caregiver that is CJI is able to confide in a peer who also has or had a caregiver that is CJI (Nesmith & Ruhland, 2008).

If positive peer relationships buffer adverse effects of caregiver CJI (e.g., Benzies & Mychasiuk, 2009; Nesmith & Ruhland, 2008), these peer relationships may enable children with mothers who are CJI to be more resilient to adversity. This resiliency could be demonstrated through stability or improvement in academic performance, but it is important to recognize that the opposite of this might also be true depending on the friend group. For example, if a child

relies on peer relationships with a group of children who do not like completing homework or going to school, the child could have strong peer relationships but lower academic achievement based on the negative influence of these peers (Mrug et al., 2014). On the contrary, a child whose peer group has a positive academic influence on the focal child could have a chance at exhibiting higher academic achievement (Padilla-Walker & Bean, 2009). There is evidence that children with mothers who are CJI tend to be more vulnerable to deviant peer influence (Hanlon et al., 2005); however, the full effects of maternal CJI are heterogeneous and dependent on the social context (Wildeman & Turney, 2014). Further understanding how social support can buffer the effects of parent CJI could illustrate how a potential protective factor (i.e., child self-rated peer relationships) is related to better outcomes for children (i.e., academic achievement).

### **Vulnerable Children and Academic Achievement**

Similar to both behavior and peer relationship outcomes, at-risk children can experience variation in academic achievement. In the United States, academic skills are highly valued for future educational and employment opportunities, thus making academic achievement a desired outcome to measure when studying at-risk populations (Finn et al., 2005; Negru-Subtrica & Ioana Pop, 2016). The literature regarding children with caregivers that are CJI is no exception with many studies associating caregivers' CJI status with academic outcomes for children. Specifically, these children face an increased chance of being placed in special education programs (Haskins, 2014), being held back a grade (i.e., grade retention; Turney and Haskins, 2014), having lower GPAs during adolescence with an overall lower rate of high school and college completion (Foster & Hagan, 2007; Hagan & Foster, 2012), and having a higher number of extended school absences (Nichols & Loper, 2012). Other studies however, have found no difference in academic achievement between children with parents that experienced CJI, children



involved with CPS, and their less at-risk peers (Cho, 2009; Jaffee & Gallop, 2007; Murray et al., 2012). Overall, these different findings demonstrate that children's experiences are heterogeneous and that more research needs to be done to understand the complex relationships present between children with parents who are CJI and academic achievement.

Context is important when considering what may place children with parents who are CJI at lower or higher risk for experiencing low academic achievement. For instance, being displaced from a familiar school environment can be an issue for children when parents face CJI, which is highly likely when a MPCG becomes CJI (Dallaire, 2007). A primary caregiver's CJI could lead to multiple placement disruptions for children if the parent is fluctuating between the home and prison or jail (Greens & Scholes, 2004). The protective relationships that familiar environments (e.g., a specific school, positive peer support, positive teacher support) provide for children experiencing family instability may be particularly important for encouraging success in academic outcomes (Dallaire et al., 2010; Green & Scholes, 2004). Additional protective factors, such as attention and resources from a CPS caseworker or teacher could be beneficial to children's outcomes, allowing for children to focus more on academic skill acquisition (Coohey et al., 2011). Children with parents who are CJI could also be habituated to demographic risk factors (i.e., criminal activities and legal proceedings), which could make a MPCG arrest event less impactful than if the arrest was unexpected (Miller & Bank, 2013; Turney, 2017).

Variation in internalizing and externalizing behavior problems and children's peer relationship dissatisfaction could be related to academic achievement in several ways. First, children that exhibit a type of problem behavior may not have the necessary tools to fully engage in the formal school environment because strong behavioral skills are necessary for academic success, especially for children facing demographic risk (Bradley & Corwyn, 2002; Farah et al.,

2006; Sektnan et al., 2010). Externalizing behavior problems, specifically, could also be protective for children in the CPS system, because they may receive more attention from caseworks or teachers, thus allowing them access to more resources (Coohey et al., 2011). Whereas, children's peer relationships could either contribute to or harm children's academic achievement based on the pro-social or deviant nature of the relationship (Benzies & Mychasiuk, 2009; Nesmith & Ruhland, 2008). With this variation present in the relationship between a caregiver's CJI status and children's academic outcomes, it is important to understand what *factors* may be linked to these effects in order to intervene.

### **Differences Based on Child Gender**

Child gender is often associated with differences in outcomes for individual children. Relevant to this dissertation, child gender is related to variation in the reaction to parent CJI, the development of behaviors, and academic outcomes (Haskins, 2015; Pomerantz et al., 2002; Wildeman, 2010). Although research does not dispute that child gender differences exist to the reaction of parent CJI, there are mixed findings regarding which gender reacts more negatively to the experience. For instance, Foster and Hagan (2013) proposed a same gender-loss theory where children that were the same gender as their parent who was CJI had worse outcomes compared to opposite parent-child gender dyads. Because female children may be more prone to internalizing behavior problems and male children more prone to externalizing behavior problems (Cummings et al., 2000; Kinner et al., 2007), studies that focus on a certain gender of parents who are CJI often find the relationship between that parent's gender and the type of behavior problems a child may experience (Geller et al., 2009; Korupp et al., 2002; Wildeman, 2010). Conversely, a study by Cooper and colleagues (2011) found that male children might be more impacted by the CJI of a parent regardless of the gender of the parent. Males are also

considered to be more at risk of exhibiting deviant behaviors compared to their female counterparts, which could amplify negative effects (Parke & Clarke-Stewart, 2002). Child gender may additionally play a role in how a child performs academically in either literacy or math. For example, previous research indicates mixed findings regarding if female children outperform male children in every academic subject or on just subjects related to literacy (Pomerantz et al., 2002). The variation in behavior patterns may also play a role in academic performance, with male children being more likely to exhibit those externalizing behaviors, which tend to be more deviant or destructive. These externalizing behaviors, often exhibited more frequently by male children, could then lead to worse academic outcomes. Female children being more likely to experience internalizing behaviors could also be related to worse academic achievement, however, internalizing behaviors such as high anxiety could also contribute to more fixation and time spent on academic work indicating that more research needs to be done in order to further understand these associations in the context of children experiencing MPCG arrests. Since child gender is relevant for most of the major variables in this dissertation it was important to investigate how it may moderate the associations being explored in both studies.

### **Children's Heterogeneity of Experience**

It is important to acknowledge that at-risk children can experience a variety of outcomes despite the risk factors they face (Masten, 2001). Children that are involved in the CPS system or that have a parent who is CJI can potentially benefit from either situation or display resiliency in the face of these adversities. In regard to both CPS and parent CJI experiences, each incident may impact children differently (English, 1998; Phillips & Dettlaff, 2009). A child may have increased positive outcomes if the removal of the parent from the home was beneficial to them or if the arrest itself made the parent change criminal behaviors (Billings, 2018). Although a

majority of research on children's outcomes when parents are CJI include children facing negative outcomes, other studies find that children can do just as well behaviorally (Murray et al., 2012) and academically (Cho, 2009) compared to their peers without parents who are CJI. Thus, children's experiences with both the CPS system and with parents who are CJI can be vastly different and these differences can be pivotal for children's outcomes.

### **Overview of Studies**

Research on children with mothers who are CJI and children that interface with CPS is expanding and while the research base has vastly improved from what it was in the early 2000's, there are still many aspects that need to be explored. For example, in a chapter by Poehlmann-Tynan and Arditti (2018) a need for additional studies that measure mediators and moderators for these relationships is noted. These types of studies can help researchers understand the associations behind relations demonstrated in previous relevant literature. There is also a need to assess this population using strength-based variables of interest; such as peer relationships that may offer much needed social support (Casey et al., 2015; Haskins & Turney, 2018; Miller & Bank, 2013). Further, understanding these research goals could help provide different avenues for intervention efforts that link current intervention work occurring in classrooms with work being done by children of parent CJI groups.

The two studies in this dissertation utilize the National Study of Child and Adolescent Wellbeing II (NSCAW II) study. Utilizing these data allows for a deeper understanding of the cross-section of children involved in the CPS system that also have experienced the arrest of a MPCG during early childhood. By using measures in the NSCAW II dataset of primary caregiver-rated internalizing and externalizing behavior problems, child self-rated peer relationship dissatisfaction, and academic achievement, associations between relations seen in

previous literature could be explored. Using the same dataset for both Study 1 and Study 2 in this dissertation allowed for a close connection between the study's results and conclusions.

**Overview of Study 1.** The first study investigated a sample of children involved with CPS and explores MPCG arrest status (i.e., if a MPCG was arrested or not) when children were between zero and five years old and children's caregiver-rated internalizing and externalizing behavior problems and academic achievement between six and a half to 10 years old (wave one). These children were compared with a sample of children of the same age involved with CPS but with no history of MPCG arrests either before or during data collection. A mediation approach was then used to examine if children's caregiver-rated internalizing and externalizing behavior problems mediated the relation between MPCG arrest status and subsequent academic achievement. Both research questions also examined if these results were moderated by child gender. The current study contributes to the literature by focusing on a specific type of parental CJI, MPCG arrests, and by exploring these nuanced relationships.

Based on previous research, it was expected that when a MPCG is arrested during this early childhood period (i.e., zero to five years old), these children may experience more internalizing and externalizing behavior problems and lower academic achievement when they are between six and a half and 10 years old (wave one) compared to children that have not experienced a the arrest of a MPCG between the age of zero and five years old (Dwyer Emory, 2018; La Vigne et al., 2008). For the second research question, it was expected that internalizing and externalizing behavior problems between six and a half and 10 years old (wave one) would mediate the relation between MPCG arrest status when a child is between zero and five years old and academic achievement when children are between eight and 11.5 years old (wave two). For both questions, it was expected that child gender would significantly moderate the associations

being examined. Specifically, male children experiencing an early MPCG arrest would have higher externalizing behaviors than female children, which would also impact their academic achievement at wave two. Female children in the MPCG arrest group were expected to have the highest internalizing behavior scores of any group, which would also be associated with lower academic achievement at wave two.

**Overview of Study 2.** The second study investigated the same sample of CPS involved children with one group having experienced the arrest of a MPCG when the child was between zero and five years old and the comparison group having never experienced the arrest of a MPCG before or during data collection. Children in the comparison group were also the same age as the MPCG arrest group (six and a half to 10 years old; wave one). This study first examined if MPCG arrest status was related to children's academic achievement in slightly older children (i.e., nine and a half to 13 years old; wave three). Then, child-rated peer relationship dissatisfaction when children were between eight and 11.5 years old (wave two) and child gender were investigated as potential moderators for the relation of MPCG arrest status and academic achievement when children were between nine and a half to 13 years old (wave three).

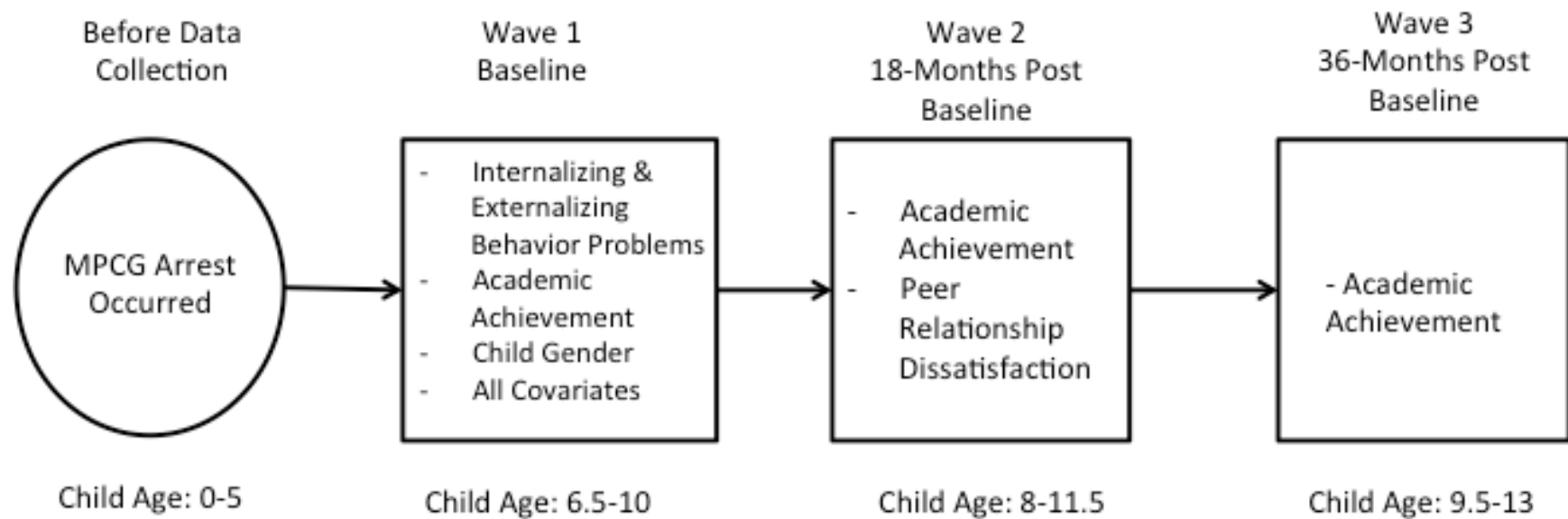
It was expected that children with a MPCG arrested between zero and five years old would have lower academic achievement when children were between nine and a half and 13 years old (wave three) compared to children that did not experience the arrest of a MPCG during this developmental period. It was also expected that children's self-rated peer relationship dissatisfaction scores and child gender would moderate the relation between MPCG arrest status and children's subsequent academic achievement. Specifically, children who experienced the arrest of a MPCG with stronger self-rated peer relationships were expected to have higher academic achievement compared to the comparison group. In regard to the child gender

moderator, it was expected that female children in the MPCG arrest group would have higher academic achievement scores compared to male children in the MPCG arrest group, but that both genders in the MPCG arrest group would have lower academic achievement scores at wave three compared to the comparison group children.

Overall, the results from the two studies in this dissertation provide insight on associations that could be occurring for children involved in the CPS system that also experienced an early life arrest of a MPCG. Specifically, findings highlight the relations between MPCG arrest status, and children's outcomes of internalizing and externalizing behavior problems, peer relationship dissatisfaction, child gender, and academic achievement. By examining children's internalizing and externalizing behavior problems as a mediator and child gender as a moderator in Study 1, and children's peer relationship dissatisfaction and child gender as moderators in Study 2, additional associations related to children's outcomes may be elucidated, therefore, increasing the understanding about how the arrest of a MPCG and the involvement of children in the CPS system contribute to child outcomes. In addition, the longitudinal use of the same academic achievement skills as the outcome for both studies may reveal trends about academic performance for these children over time, which could contribute to intervention efforts.

**Figure 1**

*Overview of NSCAW II Data used in Studies 1 and 2*





The Consequences of Maternal Primary Caregiver Arrests: Exploring Children's Internalizing and Externalizing Behavior Problems and Subsequent Academic Achievement in Early Childhood

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### **Abstract**

The current study examined how maternal primary caregiver (MPCG) arrest status in early childhood was related to children's caregiver-rated internalizing and externalizing behavior problems and academic achievement over time in a sample of families that had involvement in the Child Protective Services (CPS) system. Data from the National Study of Adolescent and Child Well-Being II (NSCAW II) study waves one and two were used (child age ranged from six and a half and 10 years old at wave one and eight to 11.5 years old at wave two). Results suggested that children with CPS involvement and who experienced the arrest of a MPCG when the child was between zero and five years old (before baseline data collection) had significantly lower MPCG-rated scores of both internalizing and externalizing behavior problems and higher literacy and math achievement compared to their peers that did not experience the arrest of a MPCG when children were between six and a half and 10 years old (wave one). No indirect effects were found suggesting that neither internalizing nor externalizing behavior problems measured at wave one (children ages six and a half and 10 years old) mediated the relationship between MPCG arrest status and academic achievement (children were between eight and 11.5 years old; wave two). Additionally, children in the MPCG arrest group performed worse academically when they were between eight and 11.5 years old at wave two. Child gender significantly moderated the association between MPCG arrest status and children's internalizing and externalizing behavior problems at wave one, with female children in the MPCG arrest group having higher scores in both types of behavior problems compared to males in the MPCG arrest group. These findings suggest that there is variability in children's experiences with MPCG arrests and indicate a need for deeper understanding of these children's outcomes.

### The Consequences of Maternal Primary Caregiver Arrests: Exploring Children's Internalizing and Externalizing Behavior Problems and Subsequent Academic Achievement in Early Childhood

On average, Child Protective Services (CPS) investigates around 3,534,000 reports of child maltreatment per year to provide services to children and families to promote child well-being (USDHHS, 2018). Children who undergo CPS investigations typically face a multitude of risk factors before entering the CPS system (see Oregon DHS, 2018). One risk factor that affects many families in the United States is parent criminal justice involvement (CJI; Brame et al., 2011; Johnson & Waldfogel, 2002; Mumola, 2000). Any type of interfacing with the criminal justice system can be considered CJI (Wakefield & Montagnet, 2019), but some common types include arrests, incarcerations, probation, and parole. As of 2015, an estimated five million children in the United States had a parent that was involved in the criminal justice system at some point in their lifetime (Murphey & Cooper, 2015). If the parent who is CJI is a mother who is the primary caregiver of a child, the instance of CJI could be particularly traumatic for a child based on the amount of time that parent spent with the child before a CJI event (Dallaire, 2007; Dannerbeck, 2005; Farrington, et al., 2001; Phillips & Erkanli, 2008; Winslow, 2001). Specifically, children with mothers who are CJI may exhibit more frequent caregiver-rated behavior problems (either internalizing or externalizing) and lower academic achievement compared to their peers whose mothers have not been CJI (Phillips et al., 2006; Poehlmann, 2005). The current study examines how the additional risk of having a maternal primary caregiver (MPCG) arrested during early childhood when the child is already involved in the CPS system may be associated with children's internalizing and externalizing behavior problems and subsequent academic achievement.

In this study, MPCG arrests are examined as instances of parent CJ. Although maternal arrests are not necessarily associated with the duration of time removed from the home, arrests are still considered to be associated with trauma and stress for children (Phillips et al., 2006). Further, the trauma and stress stemming from an arrest experience may be related to children exhibiting more frequent behavior problems, which could spill into other parts of a child's life, such as school. Exhibiting either internalizing or externalizing behavior problems in the classroom could then influence a child's academic performance (Duncan et al., 2007; McClelland et al., 2007; McClelland et al., 2014). Compared to peers who have also experienced CPS involvement, children with MPCG's who experienced an arrest face an additional risk factor that could relate to how they develop in a formal school setting. The current study compares the caregiver-rated internalizing and externalizing behavior problems and academic achievement over time of two groups of children involved with CPS: children who experienced a MPCG arrest when they were between zero and five years old and children who did not experience a MPCG arrest.

### **Children Involved with CPS**

For children to be screened into the CPS system, there has to be reasonable suspicion that maltreatment is occurring (USDHHS, 2018), thus triggering a potential CPS investigation. This maltreatment typically falls under the broad categories of abuse or, more commonly, neglect; both of which can have physical, emotional, cognitive, and psychological repercussions for children (English, 1998; Herrenkohl, 2005; Jonson-Reid et al., 2012). Although these categories of maltreatment are broad, varying intensities of these types of abuse and neglect can impact children in different ways and also be related to the removal of a child from a caregiver (USDHHS, 2018).

Although child maltreatment can occur in any family composition regardless of background characteristics, there are higher rates of maltreatment for families that experience parental drug and alcohol abuse, teen parenting, poverty, and general family instability (Berger et al., 2009). These risk factors are similar to risks associated with parental CJI (Murray & Farrington, 2005; Phillips & Dettlaff, 2009; Phillips et al., 2006), however, not all children that experience one event (i.e., either CPS involvement or parental CJI) will experience the other. Experiences with CPS and parent CJI can have a cumulative effect if both occur, placing already at-risk children in an even more vulnerable situation. The arrest of a MPCG can have a unique impact on already at-risk children by exposing them to the trauma of separation from their caregiver, assuming that child is not removed from the home, during an important developmental time.

### **Children with Parents that Experience CJI**

Mothers are more commonly the primary caregivers of children (Child Welfare League of America, 2005), therefore, spending more time with the child on average compared to other caregivers. Children rely on primary caregivers to meet their needs and form positive parent-child attachments if the relationship is warm and nurturing (Bowlby, 1982; Masten, 2014). When the primary caregiver is removed from the home for even a short period of time, children may experience feelings of distress (Boss, 2002). Specifically, when children experience the arrest of a parent, they are likely to experience feelings of stress based on the situation around which the arrest occurs (Arditti, 2016). For example, a child interacting with an armed police officer that is removing their caregiver can cause the child to feel panicked about their safety and security, confused about why their parent is being taken away, and concerned about if their parent will return (Dallaire & Wilson, 2010; Poehlmann-Tynan et al., 2017; Roberts et al., 2014).

A large number of CPS involved families are single-parent households and therefore children who experience the arrest of a parent may be unsure of where they will stay while their parent is CJI, even if it is only for a short time. These feelings of insecurity can lead to issues in parent-child attachment and children may be confused and unsure if they should continue to trust the primary caregiver. For the purposes of this study, MPCG arrests represent a proxy for children's experience of trauma and parent-child separation.

In addition to CJI status, maternal demographic characteristics could influence children's behavioral and academic outcomes. Prior research demonstrates an association between maternal education and maternal age with children's outcomes (Duncan et al., 2012; Eamon, 2005; Reardon, 2011). Moreover, it is well known that Black women, Latinx women, and other women of color are disproportionately involved in the justice system compared to their white counterparts (Bruns & Lee, 2019). These racial inequalities can then also be intergenerational to the children of these mothers who are CJI based on this continual disparities associated with parental CJI status (Carson, 2018). Because these differences are documented, it is important to control for these factors in order to attempt to isolate the association of MPCG arrest status with children's behavioral and academic outcomes. Further, it was important to include control variables related to the CPS experience, including out of home placement status and level of harm to take into account additional complexity and variation in experience these children may be facing (English et al., 2005; Trout et al., 2008).

### **Vulnerability and Behavior Problems**

A majority of the literature centered on parents who are CJI and children's behavior problems indicates that children are prone to worse behavior problems when a parent becomes CJI (e.g., Dwyer Emory, 2018; La Vigne et al., 2008). Although more literature that focuses on

parent CJI is looking at internalizing and externalizing behaviors separately for children, the findings are inconsistent. Some studies indicate that children with parents who are CJI are prone to both types of behavior problems (Parke & Clarke-Stewart, 2002), whereas other findings discuss that these children may more likely to exhibit externalizing behaviors instead of internalizing (Dwyer Emory, 2018; Kinner et al., 2007). The type of behavior problem exhibited may also look different by gender, with female children tending to demonstrate internalizing behaviors and male children tending to demonstrate externalizing behaviors (Cummings et al., 2000; Kinner et al., 2007). Additionally, some children with parents who are CJI do not exhibit any changes in behavior, for better or for worse (Wildeman & Turney, 2014). The variation present in the current research underscores the importance of continuing research regarding children's behavior problems when parents are CJI and further examining the effects of child gender on behavioral outcomes.

### ***Internalizing Behavior Problems***

For the purposes of this study, internalizing behavior problems are defined as anxiety, depression, or withdrawal exhibited by children as rated by parents (Achenbach, 1991). Although considered to be a set of behavior problems, internalizing symptoms are often conflated with mental health related outcomes, which often segments the current literature (e.g., Miller, 2014; Miller & Bank, 2013). Moreover, there is also mixed evidence on the relationship that may occur between children's internalizing behaviors and academic achievement. Children with depression or that actively withdraw might experience apathy that contributes to a lack of effort placed in classroom activities, whereas a child with anxiety may be particularly worried about school failure and obsess over academic tasks (Herman et al., 2008). These differences could be contributing to the mixed nature of the findings in the literature and also indicate the

importance of continuing to examine this nuanced set of behaviors. Understanding how MPCG arrest status relates to children's internalizing behavior problems in a particularly vulnerable sample of children also exposed to the CPS system could elucidate how MPCG CJI is related to children's internalizing symptoms.

### ***Externalizing Behavior Problems***

Externalizing behavior problems are often a set of behaviors that are more visible to bystanders in a child's life. These behaviors are defined as acts of aggression, impulsivity, and delinquency as rated by the parent (Achenbach, 1991). These behavioral symptoms can then impact classroom learning and positive relationships with peers or adults through children's antisocial behaviors and lack of regulation (Masten et al., 2005). Further, externalizing symptoms can create cyclical disparities for children, where externalizing behaviors lead to academic failure, which can then contribute to worsening behavior problems (Masten et al., 2005). Previous research demonstrates that the family factors associated with parental CJI, such as economic hardship, caregiver stress, and family instability may all contribute to children exhibiting externalizing behavior problems, therefore indicating that children that experienced parent CJI may be increasingly vulnerable to exhibiting these behaviors (Kinner et al., 2007).

### ***Behavior Problems and Child Gender***

Both the gender of the child experiencing the behavior problem and the gender of the parent experiencing CJI can influence how a child reacts to the CJI itself (Haskins, 2015; Murray & Farrington, 2008; Wildeman & Turney, 2014). Foster and Hagan (2013) proposed a same gender-loss theory where maternal CJI was related to higher internalizing behavior problems and paternal CJI was related to more externalizing behavior problems. This theory can also be referred to as the same-gender loss theory because the parent that is CJI and child gender dyad



can be especially impactful for that child. Although parent CJI can double the odds of a child experiencing either internalizing or externalizing behavior problems (Murray et al., 2007), these issues can also vary by child gender. For instance, a female child that experiences a MPCG's CJI can fare worse behaviorally compared to a male child because this female child has experienced a traumatic event with their same gender parent. The opposite of this is also true, where male children are more likely to experience negative outcomes if their same gender parent is CJI (Geller et al., 2009; Korupp et al., 2002; Wildeman, 2010). Although both types of behavior problems can be problematic for either child gender, there may be particular consequences for externalizing behaviors or acting out among male children because it may be more related to intergenerational CJI (Roettger & Swisher, 2011). Because there are gender differences present for children in both reactions to parent CJI and the exhibition of behavior problems, it is important to include child gender into statistical models. Utilizing child gender as a moderator of the association between MPCG arrest status and children's behavior problems, both internalizing and externalizing, can reveal how each gender may react differently to the arrest of a MPCG during early childhood.

### **Children's Behavioral Problems and Academic Achievement**

Similarly to behavioral outcomes, children that are both involved in the CPS system and have a parent who is CJI can have a variety of outcomes. A portion of the literature posits that these children are at higher risk for lower academic achievement compared to their less vulnerable peers (e.g., Haskins, 2014; Shonk & Cicchetti, 2001). Specifically, children with parents who are CJI face an increased chance of being placed in special education programs (Haskins, 2014), being held back a grade (i.e., grade retention; Turney and Haskins, 2014), having lower GPAs during adolescence and a lower rate of high school and college completion

(Foster & Hagan, 2007; Hagan & Foster, 2012), and having numerous extended school absences (Nichols & Loper, 2012). However, recent research contains inconsistent findings regarding children's academic performance by subject (Geller et al., 2009; Haskins, 2016; Turney, 2017; Turney & Wildeman, 2015). Further, it is important to note that academic resiliency is documented for children involved with CPS (Jaffee & Gallop, 2007) and children that experience parent CJI (Cho, 2009; Murray et al., 2012). This resiliency may be based on children experiencing protective factors that help shelter them from the experiences of stress and trauma or from the habituation to demographic risk factors (Miller & Bank, 2013; Turney, 2017). Child age could also be a contributing factor to academic differences because older children tend to perform better on academic assessments compared to younger children (Crosser, 2015). Even when an age group is isolated during statistical analyses, further controlling for child age can help isolate findings between main study variables.

Despite interest in academic achievement among children with parents who are CJI and children involved in the CPS system, there has been little investigation into factors associated with relations between children both involved in the CPS system that also experience an early childhood arrest of a MPCG and these children's academic outcomes. Further understanding these associations can reveal a potential factor related to children's academic achievement and indicate salient skills for intervention.

### **Behavior Problems as a Potential Mediator**

The complexity of child CPS involvement, parent CJI experiences, and children's outcomes have culminated in a call to research the associations behind relations explored in previous research (Turney & Haskins, 2019) and to do so in statistically rigorous ways (Poehlmann-Tynan & Eddy, 2019). Further, a continual call in the literature includes

understanding how parental arrests impact children, regardless of if the child was present during the arrest (Siegel & Luther, 2019; Wakefield & Montagnet, 2019). Looking at internalizing and externalizing behavior problems as potential mediators between the relation of MPCG arrest status and children's academic achievement could yield results to help further the understanding of the interplay between behavioral skills and academic achievement for these vulnerable children.

Prior research linking behavioral skill development with academic success (McClelland et al., 2007; Turney & McLanahan, 2015) combined with the arrests of a MPCG linked to children's behavioral difficulty (Wildeman & Turney, 2014) suggests that children's behavioral development may explain the relation between parent CJI and academic achievement in children. Additionally, these prior findings lay the groundwork for conducting mediation analysis.

### **Current Study**

The current study investigated a sample of children involved with CPS and explores MPCG arrest status (i.e., if a MPCG was arrested or not) when children were between zero and five years old and children's internalizing and externalizing behavior problems and academic achievement between six and a half to 10 years old. These children are compared with a sample of children of the same age involved with CPS but with no history of experiencing a MPCG arrest before or during data collection. A mediation approach was then used to examine children's internalizing and externalizing behavior problems as potential mediators between MPCG arrest status and subsequent academic achievement. Child gender was utilized as a moderator for both research questions. The current study contributes to the literature by focusing on a specific type of parental CJI, MPCG arrests.

**Research Questions.** Two primary research questions and two sub-aims were examined:

1a. Is having a MPCG arrested when children are between zero and five years old associated with more child internalizing and externalizing behavior problems and children's academic achievement when children are between six and a half and 10 years old (at baseline, wave one) compared to children that have not experienced a MPCG arrest in a CPS sample?

It was hypothesized that when a MPCG is arrested during the early childhood period (i.e., zero to five years old), children may experience more problem behaviors, both internalizing and externalizing, and lower academic achievement when they are between six and a half and 10 years old (at baseline) compared to children that have not experienced a MPCG arrest between the age of zero and five years old.

1b. Are these associations moderated by child gender?

Child gender was expected to moderate the relations between MPCG arrest status and children's behavior problems and academic achievement at wave one when children were between six and a half and 10 years old. Specifically, female children in the MPCG arrest group were expected to exhibit more internalizing behavior problems and male children in the MPCG arrest group were expected to exhibit more externalizing behavior problems. Although children in the MPCG arrest group were hypothesized to have lower academic achievement compared to the comparison group, female children within the MPCG arrest group were expected to perform better academically than their male counterparts.

2a. Do internalizing and externalizing behavior problems when children are six and a half to 10 years old (i.e., at baseline, wave one) mediate the relation between MPCG arrest status when children are between zero and five years old and academic achievement

when children are between eight and 11.5 years old (18-months post baseline, wave two) in a CPS sample?

It was hypothesized that internalizing and externalizing behavioral problems between six and a half and 10 years old (at baseline) would mediate the relationship between MPCG arrest status when children are between zero and five years old and academic achievement when children are between eight and 11.5 years old (wave two). Specifically, MPCG arrests during early childhood (i.e., zero to five years of age) are expected to relate to more caregiver-rated internalizing and externalizing behavior problems because of the feelings of ambiguous loss and cumulative stress previously mentioned (e.g., Boss, 2002), which are then expected to relate to lower academic achievement between eight and 11.5 years of age compared to children that have not experienced the arrest of a MPCG during this developmental period.

2b. Are these associations moderated by child gender?

Because child gender is functioning as a moderator of both the A path (MPCG arrest status to behavior problems) and the B path (behavior problems to academic achievement) there are two parts to this hypothesis.

First, similar to research question 1b, it is expected that female children will exhibit more internalizing behavior problems and male children will exhibit more externalizing behavior problems when both genders are in the MPCG arrest group compared to the children in the comparison group. Although this pattern will most likely be present in both groups given the vulnerability present in the overall sample, children with MPCGs that experiences a previous arrest are expected to have worse behavior

problems of either type compared to the comparison group because of MPCG arrest status representing an additional risk.

Second, it is expected that female children with higher internalizing behavior problems will perform better in academic achievement compared to females with lower internalizing behavior problems or externalizing behavior problems. Male children's behavior problem and academic achievement outcomes are expected to act in a similar pattern. This is expected because higher internalizing behavior problems have previously been related to more anxiety around performance, which may positively impact effort placed in academic endeavors (Herman et al., 2008). Although this child gender moderator (i.e., the interaction term between behavior problems and child gender moderating the relation between behavior problems and academic achievement – moderator on the B path of the mediation model) is not directly related to the MPCG arrest status variable, it is important to note that children of both genders in the MPCG arrest group are expected to be the children with higher behavior problems compared to the comparison group. Specifically, with females in the MPCG arrest group are expected to have higher internalizing behavior problems and male children in the MPCG arrest group are expected to have higher externalizing behavior problems.

## **Method**

### **Participants**

Participants were two groups of children who participated in two waves of a large study on CPS involvement (Dowd et al., 2006). One group included children who's MPCG were arrested when each child was between zero and five years old (before baseline data collection; referred to as the MPCG arrest group). This means that youth that experienced a MPCG arrest

were not zero to five when data were collected, instead, this was the age they were when the MPCG arrest occurred. The second group includes a comparison group, who were the same ages as the MPCG arrest group but had not experienced the arrest of a MPCG before or during data collection. Seventy-three children were in the MPCG arrest group and 282 children were in the comparison group. The two groups were about half female (MPCG arrest group = 53%, comparison group = 44%), with an average age of 8 years old ( $SD = 1$  year). Both groups included racial and ethnic diversity, however, a large proportion of both groups were white (MPCG arrest group = 47%, comparison group = 61%). Additional descriptive statistics can be found in Table 1.

## **Procedures**

Data were from waves one and two of the National Study of Child and Adolescent Well-Being II (NSCAW II) dataset when children were between six and a half and 11.5 years old (Dowd et al., 2006). The children in this study were sampled from CPS investigations closed during a 15-month period beginning in February 2008. Baseline data collection (wave one) was collected between April 2008 and December 2009 with an 18-month follow up occurring (wave two) between October 2009 and January 2011. The third wave of data (not utilized in this study) was fielded by age cohort with data collection from infants occurring in June 2011 and from non-infants in August 2011. Data collection for the entire project was completed by December 2012. The assessed participants were from 81 counties in 30 states across the US, with 76% of the counties being from the original NSCAW study.

To collect data from children, caregivers, teachers, and caseworkers, fieldworkers were assigned certain families to contact to provide information regarding study purpose and procedures. Informed consent was provided from the relevant institution for all data collection

procedures and materials. Data were collected from caregivers during in-person interviews, which included both traditional structured interviews and a portion where the caregiver responded to questions on a laptop. The caregiver status was determined to be “permanent” based on if the parent was living with the child and if they were the primary caregiver for the majority of the child’s life (see Dowd et al., 2006). Additional caregivers could also be considered the primary caregiver is specified in the parent interview, however, if they were not the permanent caregiver they were not given the module of questions to be answered on the laptop. With regard to data collected from children, parental consent was attained in addition to assent from any child older than seven years old. Based on the age and understanding of the child, a structured interview was given or a substitution of observations and description of physical characteristics was completed. Children were then given direct assessments, with breaks provided to reduce testing fatigue.

Caseworkers assigned to families for CPS purposes were also interviewed in person. Questions asked during this interview focused on understanding the level of risks faced by the child or the parent if the child was already removed from the home. Teachers provided information on children through a paper and pencil survey that was mailed to them or through a web version of the questionnaire. Finally, local CPS agencies were given a survey to establish norms for training and services provided by the local CPS branch. This last piece of information gave researchers an idea of why services may or may not have been assigned to certain families. More information regarding the complex sampling design utilized in the NSCAW II can be found in Dowd and colleagues (2006).

For the current study, MPCG arrest status, parent-rated child behavior problems, and the first measure of academic achievement, along with all relevant covariates were used from wave



one of data collection, when children were between six and a half to 10 years old. Academic achievement was the only variable used in the current study that was collected at both wave one and wave two when children were between eight and 11.5 years old.

## **Measures**

### ***CPS Information***

CPS information was collected via CPS caseworker instrument completed at wave one when children were between six and a half to 10 years old. All of this information was asked via project developed questions for the NSCAW II (Dowd et al., 2006). Variables such as out of home placement status, if child welfare investigates the maltreatment report, and if there was a follow-up criminal investigation after the child welfare investigation were all yes/no questions answered by the CPS caseworker. To determine how the CPS case was handled, caseworkers had to select if a case was investigated, assessed, or assessed with intent to investigate. The outcome of the investigation was determined a similar format, with CPS workers reporting if a case was substantiated, indicated, or neither. Level of harm done to the child during the maltreatment event was rated as none, mild, moderate, or severe. Finally, the type of maltreatment the child experienced was selected from a common list of prevalent abuse and neglect categories, which included items such as, physical neglect, physical abuse, sexual abuse, etc.

### ***MPCG Arrest Status***

Information about maternal involvement with the law was collected from primary caregivers via an online questionnaire. The first question asked if the caregiver was ever arrested, and if so the number of arrests and the month and year each arrest took place. If a caregiver indicated they were arrested at least once, questions about resulting conviction, parole or probation status, or incarceration were asked. If caregivers did not indicate ever being

arrested, they moved directly to the next section of the questionnaire. Identifying caregivers who skipped the second arrest section was used to identify the comparison group. For those who experienced an arrest, their date of arrest was used to determine if it had occurred when their child was between zero and five years old. Caregivers who had children who were older than five when their arrest occurred were not included in the sample in order to focus only on the impacts of arrests on early childhood development.

### ***Caregiver-Rated Child Behavior Problems***

The two overarching problem scales of the Child Behavior Checklist (CBCL) were used to measure both internalizing and externalizing behavior problems in this study. The CBCL includes 113 items rated by the MPCG on a three-point Likert type scale (0 = not true, 1 = somewhat/sometimes true, 2 = very often or often true), which takes approximately 10 minutes to complete. The internalizing behavior problems subscale assessed domains of anxiety, depression, and withdrawal, whereas the externalizing behavior problems subscale assessed domains of aggression, impulsivity, and delinquency. Higher scores on both subscales indicate increased pathology. The measure as a whole contains a test-retest reliability of 0.85 (Achenbach & Rescorla, 2001). The CBCL was collected at all waves of the NSCAW II study but utilized at wave one when children were between six and a half and 10 years old for the current study (i.e., at baseline; Robbers et al., 2011). Scores on this measure can also be compared to normal and clinical range behaviors (Achenbach & Ruffle, 2000).

### ***Academic Achievement***

Two Woodcock-Johnson III subtests of achievement were used to measure academic skills. The Letter-Word Identification task assessed literacy skills and the Applied Problems task assessed math skills and the. These measures were collected for any children older than five at

all waves of data collection. This study utilize the academic achievement scores at wave one when children were between six and a half and 10 years old and from wave two when children were between eight and 11.5 years old.

**Literacy Skills.** The Woodcock-Johnson III: Letter-Word Identification subtest assesses literacy from preschool up to college-level skills. Preschool- and kindergarten-age children begin the task at item one and continue until they respond with six incorrect answers. Correct answers are scored as one point; incorrect answers are scored as zero points (Woodcock et al., 2001). During the assessment, a task administrator holds the assessment booklet so that one side is visible to the participant and one side, with answers, is visible only to the administrator. The administrator reads each problem aloud, pointing to letters and words as appropriate. The items become increasingly difficult as participants move through the task. Items begin with questions such as “This is the letter P [points]. Can you find another P on this page?” Item 10 marks a switch from identifying letters to identify words. Words become increasingly difficult as participants move through the task. The Letter-Word Identification subtest is a standardized, widely-used assessment. It has a test-retest reliability of 0.96 among children two to seven when retested within one year (McGrew & Woodcock, 2001).

**Mathematical Skills.** The Woodcock-Johnson III: Applied Problems subtest assesses math achievement from preschool up to college-level skills. Preschool- and kindergarten-age children begin the task at item one and continue until they respond with six incorrect answers in a row. Correct answers are scored as one point; incorrect answers are scored as zero points (Woodcock et al., 2001). During the assessment, a task administrator holds the assessment booklet so that one side is visible to the participant and one side, with answers, is visible only to the administrator. The administrator reads each problem aloud, pointing to images as

appropriate. The items become increasingly difficult as participants move through the task. Items begin with pictures and questions such as “how many circles are there in this picture?” Item 28 marks a switch from picture problems to word problems. Item 30 marks a change to problems necessitating a paper and pencil to solve. The Applied Problems subtest is a standardized, widely-used assessment. It has a test-retest reliability of 0.90 among children ages two to seven when retested within one year (McGrew & Woodcock, 2001).

For both Woodcock-Johnson III subtests, W-scores are used for all analyses. W-scores are made up by summing the number of correct answers on a specific subtest and utilizing a preprogrammed software to standardize scores. The advantages to this form of standardization include centering the scale at  $W = 500$  to alleviate negative participant ability and item difficulty values. This W-scale includes an equivalent metric, thus allowing two points on the W-scale to have the same interpretation at any ability level measures by the Woodcock-Johnson III tests (McGrew et al., 2014). For both of the subtests used in this study, higher W-scores indicate higher math and literacy abilities, respectively.

### ***Child Gender***

Child gender was collected via parent report interviews during baseline data collection.

### ***Covariates***

MPCG education level, age, race/ethnicity, child age, and race/ethnicity in addition to children's out of the home placement status, and level of harm reported by CPS were controlled for during all analyses. All control variables were collected via parent report interviews during baseline data collection when children were between six and a half and 10 years old. For differences between the MPCG arrest group and comparison group see Table 1.

### **Analytic Strategy**

For the current study, all analyses were run in Stata 14.0 utilizing the weighted NSCAW II Restricted dataset. The SVYSET command was used to communicate sampling characteristics of the survey design through using the population weights. Clustering utilizing the strata and Primary Sampling Unit (PSU) variables were also specified in order to gain robust standard errors via a Taylor Series Linearization. All of these specifications were preset before descriptive analyses were completed in order to utilize the sample weights; tabulations of the sample without the weights are also represented in the descriptive analyses to communicate difference in size between the MPCG arrest group and the comparison group. For analyses regarding the specified research questions, all models were run using the SUBPOP command to indicate the MPCG arrest group and comparison group at the correct child ages. The Structural Equation Modeling (SEM) framework was then employed in order to specify full information maximum likelihood (FIML) to handle missing data. Additionally, all output was standardized to indicate effect sizes for each model.

Descriptive results were run on several sets of variables to understand this vulnerable sample. First, variables that were salient to both the CPS and the arrest of a MPCG experience (e.g., child removal from parent, type of child maltreatment) were compared between the MPCG arrest group and the comparison group. Second, CJI characteristics of MPCGs that experienced an arrest when their child was between zero and five years old were described in hopes of further understanding the CJI experience of those caregivers. Next, given the lengthy list of covariates that could be included in these models theoretically, chi-squared tests and t-test were run as appropriate, to see if there were any significant differences between groups. Last, major study

variables were also compared descriptively across groups in order to further help explain the regression and mediation results from the research question models.

Within the sample of CPS involved families, the first research question asked if MPCG arrest status was related to children's internalizing and externalizing behavior problems and academic achievement scores. The second part of this question asked if these associations were moderated by child gender. Regression analyses in the SEM framework were used to answer the first research question. One regression model using the same independent variable of MPCG arrest status when children were between zero and five years old was run. This regression model included the sum scores of MPCG-rated children behavior problems (i.e., both internalizing and externalizing scores) and two measures of academic achievement (i.e., literacy skills and math skills) as the dependent variables. An interaction term between MPCG arrest status and child gender was created and included in the model to examine how these associations differed by gender. Covariates for these models included child age, child race, child ethnicity, MPCG age, MPCG race, MPCG ethnicity, MPCG education level, the level of harm assessed through the CPS report, and out of home placement status. Covariates were included in the final models if they were statistically different between the two study groups, or impacted model results when added into the model one variable at a time. The same set of covariates was used for all models.

The second research question asked if children's internalizing and externalizing behavior problems mediated the relation between MPCG arrest status when children were between zero and five years old and subsequent academic achievement (see Figure 2). This question was answered using a mediation model also in the SEM framework, where MPCG-rated child internalizing and externalizing problems were utilized as individual mediators of the relation between MPCG arrests for children between zero and five years old and subsequent academic

achievement at wave two (18-months post baseline; when children were between eight and 11.5 years old). Two models were run that included both academic outcomes (i.e., literacy skills and math skills) with each subscale of behavior problems (i.e., internalizing and externalizing scores) examined as potential mediators for both academic subject outcomes. For each of these models, two interaction terms were created in order to test child gender as a moderator for the paths in the mediation model (i.e., moderated mediation). The two interaction terms, MPCG arrest status by child gender and internalizing and externalizing behavior problems (based on each model) by child gender were included in the models and results were examined with both direct effects and conditional indirect effects (see Figure 2). Covariates for this model included child age, child race, child ethnicity, MPCG age, MPCG race, MPCG ethnicity, MPCG education level, the level of harm assessed through the CPS report, and out of home placement status. Prior scores of literacy and math (from baseline, wave one when children were between six and a half and 10 years old) were also controlled for in each of these models.

## **Results**

### **Descriptive Results**

#### ***CPS Descriptive Statistics***

Descriptive statistics were particularly valuable in this study given the vulnerability of this population and lack of research done on children with arrested MPCGs using the NSCAW II dataset (see Table 1). The majority of children in this study had not been removed from their MPCG ( $n = 311$ ). These 311 children lived with their MPCG during their involvement with CPS, indicating that the subset of these children that experienced an arrest of a MPCG ( $n = 62$ ) could be directly impacted by the trauma of the arrest and the instability it could create. There were no statistically significant differences between the MPCG arrest group and the comparison

group on out of home placement status, CPS investigation status, criminal charges related to CPS investigation, how the case was handled by child welfare, substantiated maltreatment of children. There was a significant difference in level of harm to a child reported during a maltreatment incidence when the variable was recoded as binary (i.e., one variable for each level of the prior variable). These results indicated that children in the MPCG arrest group had more CPS reports at baseline that indicated more mild harm was done to the child compared to the comparison group without a MPCG arrest ( $\chi^2(1) = 259.64, p = .0420$ ). Thus, the children in both groups appear to have had fairly similar variation in CPS experiences aside from children in the MPCG arrest group experiencing more mild harm. For information on additional CPS variable differences between groups see Table 2.

### ***MPCG Arrest Status***

A large percentage of MPCGs were only arrested once (47%), however, there were three MPCG that were arrested at least 10 times (the maximum amount recorded in the NSCAW II data, 3%). Of the MPCGs that were arrested once, a majority were convicted for the crime they committed, however almost none reported spending time in jail or prison (see Table 3). Although most of the women in this sample reported being arrested three or fewer times before their child was five years old, there was a pattern of high conviction rates for crimes committed. Regardless of these high conviction rates for arrests, few mothers indicated that they spent any time in jail or prison. These patterns were present throughout all 10-arrest recordings.

### ***Covariate Differences Across Groups***

Several descriptive differences emerged between the MPCG arrest group and the comparison group, which could impact overall model results (see Table 1). Child gender was significantly different between the two groups ( $\chi^2(1) = 488.20, p = .03$ ) with the comparison



group having more male children (56%) compared to the MPCG arrest group (47%). The comparison group also had a significantly larger number of children whose race was American Indian or Alaskan Native compared to the MPCG arrest group ( $\chi^2(1) = 241.46, p = .01$ ) and children that identified as Hispanic compared to the arrest group ( $\chi^2(1) = 406.29, p = .006$ ).

Binary variables of caregiver age showed significant differences across groups. Although in both groups a majority of caregivers were younger than 35 years old (MPCG arrest group = 88%, comparison group = 70%), children in the MPCG arrest group were significantly more likely to have a parent younger than 35 years old ( $\chi^2(1) = 507.12, p = .0005$ ). In the comparison group 30% of caregivers were older than 35 whereas in the MPCG arrest group just 12% were over the age of 35 ( $\chi^2(1) = 256.53, p = .0001$ ). Children in the comparison group were also significantly more likely to have a caregiver that reported as Asian, Hawaiian, or Pacific Islander ( $\chi^2(1) = 164.86, p = .0005$ ) and as Hispanic ( $\chi^2(1) = 406.29, p = .0063$ ). Finally, the binary variable for caregiver education indicated that caregivers in the comparison group had more instances of having at least a college degree ( $\chi^2(1) = 26.94, p = .0075$ ) compared to the MPCG arrest group.

### ***Major Study Variables***

Children in the arrested MPCG group scored an average of one point lower on internalizing behavior problems and an average of six points lower on externalizing behavior problems compared to the comparison group. The difference present in externalizing behavior problems was significantly different between the MPCG arrest group and the comparison group ( $t = -4.29, p = .013$ ), thus indicating that children in the MPCG arrest group had significantly lower externalizing behavior problem scores compared to children in the comparison group. Children in the MPCG arrested group also scored higher on literacy and math skills across data

waves one (when children were between six and a half and 10 years old) and two (when children were between eight and 11.5 years old) compared to their peers in the comparison group without an arrested MPCG, however, these scores were not statistically different between groups (see Table 4).

### **Regression Results**

Research question one asked if MPCG-rated child behavior problem scores and academic achievement at baseline when children were six and a half to 10 years old were related to MPCG arrest status when children were between zero and five years old. Internalizing subscale scores on the CBCL indicated that children in the MPCG arrest group had lower internalizing behavior scores (i.e., better behavior) compared to the comparison group ( $B = -0.75, p = .002$ ).

Externalizing subscale scores of the CBCL indicated a similar finding, with children in the MPCG arrest group having lower externalizing behavior scores (i.e., better behavior) compared to the comparison group ( $B = -0.93, p = .001$ ). In terms of academic achievement, results showed that MPCG arrest status was related to both literacy and math skills. Having a MPCG arrested when a child was between zero and five years old was related to higher literacy scores when children were between six and a half and 10 years old ( $B = 0.79, p < .0001$ ) and higher math achievement when children were between six and a half and 10 years old ( $B = 0.72, p = .001$ ). Therefore, children that experienced MPCG arrests during early childhood performed better on behavior, literacy, and math skills compared to children that did not experience and early MPCG arrest. For full regression results including covariates see Table 5.

Two of these wave one outcomes were significantly moderated by child gender. MPCG arrest status relating to children's internalizing behavior problems was significantly moderated by child gender ( $B = 1.20, p = .001$ ). Further, the association between MPCG arrest status and

children's externalizing behavior problems showed a similar result ( $B = 1.19, p = .001$ ). When both of these interactions were plotted, female children in the MPCG arrest group demonstrated higher scores in both types of behavior problems compared to the males in the MPCG arrest group (see Figure 1). However, males in the comparison group demonstrated worse behavior (i.e., higher scores) for both types of behavior problems than the female MPCG arrest group scores. Simple slopes for both types of behavior problem interactions were statistically significant ( $ps < .0001$ ). Neither relation between MPCG arrest status and children's literacy or math skills at baseline were significantly moderated by child gender.

### **Mediation Results**

The second research question asked if MPCG-rated child internalizing and externalizing behavior problems measured at baseline when children were between six and a half and 10 years old (wave one) mediated the relationship between MPCG arrest status and children's academic achievement at wave two when children were between eight and 11.5 years old. Subsequently, it was asked if child gender at baseline moderated these associations. No indirect effects were indicated for internalizing or externalizing behavior problem scores for either outcome of literacy skills or math skills. This indicates that for these data, MPCG arrest status and children's academic achievement was not mediated by MPCG-rated internalizing or externalizing behavior problems based on the subtotal CBCL behavior scores used.

Several direct paths continued to significantly predict both types of behavior problems at wave one and academic achievement scores at wave two. The direct path between MPCG arrest status and children's behavior problem scores indicated that children in the MPCG arrest group had significantly lower parent ratings on internalizing behavior problems ( $B = -0.52, p = .048$ ) and externalizing behavior problems ( $B = -0.70, p = .007$ ) compared to children in the

comparison group. Children with MPCGs that experienced an arrest demonstrated lower literacy at wave two when children were between eight and 11.5 years old (internalizing C' direct path:  $B = -0.67, p = .002$ ; externalizing C' direct path:  $B = -0.60, p = .002$ ). In regard to math performance, children with MPCGs that experienced an arrest had lower math achievement at wave two when children were between eight and 11.5 years old (internalizing C' direct path:  $B = -0.74, p < .0001$ ; externalizing C' direct path:  $B = -0.63, p < .0001$ ). Full results can be referenced in Table 6 for internalizing behavior problems and Table 7 for externalizing behavior problems.

In regard to the moderator of child gender, no conditional indirect effects by gender were found (see Table 8). One direct path of internalizing behavior problems related to math outcomes was significantly moderated by child gender ( $B = 0.83, p = .044$ ). When further probed, this interaction demonstrated that when female children had high internalizing behavior problems they performed better on math compared to females with low internalizing behavior scores or males that exhibited either level of internalizing behavior scores. Although the simple slopes for this model were not statistically significant. Male children demonstrated relatively the same level of math skills regardless of if they exhibited high or low levels of internalizing behavior scores (see Figure 3).

## Discussion

It is widely understood that children involved with CPS are a vulnerable population (USDHHS, 2017). Such children often experience poverty, parent mental health issues, neglect, and maltreatment, making them at-risk for consequences such as behavior problems and lower academic achievement (Coohey et al., 2011; Front & Maguire-Jack, 2013; Schatz et al., 2008). Similarly at-risk, and often occurring among the same population, are children who have parents

involved with the criminal justice system. Parent CJI can be an extreme stressor and source of trauma for children, especially in early childhood. In particular, when mothers who are the primary caregivers for their children are arrested, youth can experience poverty, lower academic achievement, behavior problems, and family instability, thus highlighting this population as increasingly vulnerable (Arditti, 2012; Dallaire, 2007; Wakefield & Uggen, 2010). Research has previously focused on children involved with CPS and on children with parents who are CJI, but rarely looked at the overlap between the two in an early childhood framework. The current study examined this overlap of risk with a focus on MPCGs who were arrested when their children were in early childhood. This study provides new information about additional risk factors and associations to children's later caregiver-rated internalizing and externalizing behavior problems and academic achievement, and how these associations vary by gender, which can enhance the understanding of supports such vulnerable populations may need.

This study found that there was a significant relation between MPCG arrest status in early childhood and children's behavior problem scores (both internalizing and externalizing scores) when children were six and a half to 10 years old. The direction of the association was the opposite of what was hypothesized, however. Moreover, children who experienced the arrest of MPCG in early childhood had fewer behavior problems of either type than children who did not experience a MPCG arrest as rated by parents. Children that experienced a MPCG arrest in early childhood also demonstrated significantly higher literacy and math skills when they were between six and a half and 10 years old at wave one.

Although there were significant direct effects present in the mediation models, neither internalizing nor externalizing behavior problems mediated the relation between MPCG arrest status and children's subsequent academic achievement. The direct effects of the mediation

model did demonstrate that children in the MPCG arrest group did worse in both math and literacy at wave two when children were between eight and 11.5 years old compared to the comparison group. This could indicate that children that had MPCGs that were arrested during early childhood had a latent effect on academic skills for these children that were not displayed until they were between the ages of eight and 11.5 years old.

When considering the results for both research questions, gender could be a possible explanation. The additional analysis that included child gender as a moderator in both research questions revealed that female children demonstrated worse behavioral outcomes (both internalizing and externalizing) when they had a MPCG that experienced an arrest compared to males in the MPCG arrest group, thus supporting the same gender-loss hypothesis previously mentioned (Foster & Hagan, 2013). However, male children in the comparison group still did worse behaviorally compared to all the other groupings of child gender (females in the comparison group and either gender in the MPCG arrest group). These results indicate that male children in the CPS system may have more issues with both acting-in (internalizing) and acting-out (externalizing) behaviors, whereas when a mother experiences CJI early in a child's life that child being female is related to the higher risk of either type of behavior problem compared to if the child is male. These patterns along with there being a higher percentage of males in the comparison group could be related to why the overall model results appear to favor children in the MPCG arrest group in terms of behavioral outcomes.

Likewise, child gender also significantly moderated a direct path in the mediation model between internalizing behavior problems and math achievement explored in research question two, although these results were not robust to further probing. This initial effect for math skills at wave two, demonstrated a unique pattern of events once the interaction was plotted. Male

children in both the comparison group and the MPCG arrest group had almost the same math scores at wave two when children were eight to 11.5 years old, in contrast, female children that experienced high internalizing behavior problems did better on math skills compared to all other groups of children (males in the high internalizing behavior group and either gender in either the low internalizing behavior group). This could be attributed to higher internalizing behavior problems being related to concern and overcompensation in academic achievement (Herman et al., 2008). This overcompensation could then lead to female children surpassing their male counterparts in these skills because of increased efforts placed forth in the classroom.

Another possible explanation for the longitudinal academic achievement results includes that children involved in the CPS system, as well as children with CJI parents, could be facing additional risks over time. For instance, Wakefield and Montagnet (2019) states that a recorded arrest is often not a person's first interaction with law enforcement and may not be their last. Parents that are arrested early on in their child's life may continue to have involvement with the justice system throughout that child's life, which may continually put that child at-risk for worsening outcomes. Furthermore, previous research also found that maltreated children often did better academically when they had an externalizing behavior problem, especially for math achievement because the "acting out" behaviors associated with externalizing problems may gain these children more attention from teachers or CPS caseworkers (Coohey et al., 2011). These unconventional findings combined with the results of this study indicate that these relationships may be more complex than originally hypothesized (see Yoon, 2018). Both groups utilized for this study were comprised of vulnerable children, if the current study used a comparison group that was not as high-risk, starker effects of MPCG arrest status may have been found.

Further, these results could be attributed to the large variation children may experience while involved with CPS. For instance, removal of the home could be positive for some families and extremely negative for others (Bell et al., 2015; Trout et al., 2008). Also, the removal of the parent from the home could be either beneficial or extremely detrimental to a family (Billings, 2002). Although children may still suffer psychological or physical effects of maltreatment long after the danger of further maltreatment has dissipated, that child can still react in different ways based on that child's ability to be resilient and the protective factors they had access too.

A final consideration is that children in the current study may be too young to fully demonstrate the effects of trauma and instability brought on by a MPCG arrest (see Gjelsvik et al., 2014). Borrowing from the increasingly popular ACEs studies, many victims of early childhood stress and trauma see impacts in their health later in life in the form of heart disease, cancer, liver disease, and obesity (Felitti et al., 1998). Children in the current study could show adverse effects from a MPCG arrest in adulthood and also see their stress increase as they continue to rack up ACEs before their 18<sup>th</sup> birthdays. More lifelong research studies are needed to truly understand how an event that occurs early in a child's development could impact their health in later life.

### **Limitations and Future Directions**

This study had several limitations that could have influenced the pattern of results. First, many studies using the NSCAW and NSCAW II datasets have parsed apart the age groupings differently. This study examined MPCG arrests, which occurred when children were ages zero to five based on theory, which defines this as a salient developmental period during which a developmental disruption could have particularly detrimental effects. Although theoretically important for this study, trimming down the data to this age-range left a small sample for the



MPCG arrest group. This limited statistical power, making results difficult to generalize outside of this specific subpopulation of these data.

Another limitation was that there was not enough information for the sample to compare frequency of MPCG arrests, resulting convictions from arrests, or time spent in jail/prison because of the arrests, meaning that full information on the CJI experience could not be explored in the statistical models. This leaves a gap in our understanding of what the full CJI experience may be like for these families and how those experiences could impact family life and development. A pattern also emerged from this set of descriptive data; of the MPCGs that were arrested once, a majority of these women were convicted for the crime they committed, however, almost none of them reported spending time in jail or prison. Although most of the women in this sample reported being arrested three or less times before their child was five years old, this pattern of high conviction rates and low records of time spent in jail or prison is present throughout all 10 arrest recordings. This could indicate that either stigma surrounding prison stays discouraged participants from reporting time in jail or prison, or additional consequences, such as alternative sentencing programs, were mandated for crimes that were committed that were not present on the NSCAW II survey.

There were also limitations present regarding the measures chosen for the study. Specifically, maternal arrest records were collected via parent self-report and problem behaviors were measured via caregiver report. Having a mother record her own arrest occurrences can lead to potential underreporting because of the stigma associated with CJI. The NSCAW II study does attempt to mitigate this by having these questions asked via an online questionnaire instead of by the interviewer face-to-face in hopes that mothers would feel more comfortable sharing incidence rates of CJI. Unfortunately, this is a common issue in the nationally representative

datasets that include measures of maternal CJI because it has previously been a challenge for research to obtain CJI records from a state or federal department of corrections in order to confirm CJI status. Having both types of behavior problems reported via caregiver ratings can also introduce potential bias into these studies because it is not a direct assessment of child behavior. The primary caregiver may be more prone to rate children lower on behavioral skills if suffering from risk factors, such as depression (Dallaire & Zeman, 2013). Based on CJI instances, the caregiver could have also spent periods of time away from the child, which could also result in inaccurate reporting (Johnson & Easterling, 2012).

Finally, data on other caregiver involvement or potential protective factors for these children were not explored. Future studies should explore protective factors for children involved with CPS and with MPCG arrests from a strengths-based perspective. For example, research has shown that the presence of a nurturing and positive caregiver, or other supportive adult, could buffer negative effects for these children and allow them to succeed despite the adversity they face (Benzies & Mychasiuk, 2009). Understanding what protective factors are most salient to a majority of children facing familial CJI could be beneficial for creating intervention efforts that targets these children specifically.

Additional future research should include an in-depth look at service offerings and utilization by at-risk families in the NSCAW II. Given the difference in academic achievement findings from wave one to wave two (i.e., where children in the MPCG arrest group are performing better academically at wave one and worse academically at wave two) more information is needed to understand why children in the MPCG arrest group fared worse when they were between eight and 11.5 years old academically. Last, looking at gender differences for

behavior problem variables over time (waves two and three) could further elucidate how child gender may be related to parent CJI over time.

### **Conclusion**

Previous literature demonstrates the vulnerability of children involved in the CPS system. Additionally, if a parent is CJI children could be increasingly at-risk for maladaptive outcomes. The risk is heightened when the CJI parent is also the primary caregiver of the child, thus potentially disrupting stability and trust in the parent-child relationship. The results from the present study indicated that children from CPS-involved families that experienced a MPCG arrest during early childhood had fewer behavior problems, higher literacy achievement, and higher math achievement compared to children that did not experience a MPCG arrest at wave one when children were between six and a half and 10 years old. Further, gender was found to moderate relations where female children had higher behavior problem ratings when they experienced a MPCG arrest compared to their male counterparts. Females with high internalizing behavior scores also outperformed males in math skills. These results point to the variability in both child maltreatment leading to CPS involvement and children's experiences with MPCG arrests and indicate a need for deeper understanding of these children's outcomes. Although the results were not as hypothesized, posing these research questions still revealed a novel finding about the complex relations between MPCG arrest, internalizing and externalizing behavior problems, academic achievement, and child gender for children involved in the CPS system.

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# CAREGIVER ARREST AND CHILD OUTCOMES

**Table 1**

*Study Demographic Statistics and Hypothesis Test Results Between Groups*

Categorical Variables <i>N</i> =355		MPCG Arrest <i>n</i> =73	Comparison (Non-MPCG Arrest) <i>n</i> =282	Differences Between Groups	
		<i>n</i> (%)	<i>n</i> (%)	$\chi^2$	<i>p</i>
Child Gender	Male	34(47)	158(56)	488.20	.0255*
	Female	39(53)	124(44)		
Child Race	Don't Know	0(0)	6(2)	--	
	American Indian/Alaskan Native	8(11)	26(9)	241.46	.0132*
	Asian/Hawaiian/Pacific Islander	6(8)	9(3)	88.25	0.1376
	Black	25(34)	70(25)	245.06	0.2987
	White	34(47)	171(61)	45.72	0.5482
Child Ethnicity	Hispanic	13(18)	88(31)	237.64	.0279*
	Non-Hispanic	60(82)	194(69)		
Caregiver Age	<35 Years	64(88)	198(70)	507.12	.0005**
	35-44 Years	9(12)	64(23)	256.53	.0001**
	45-54 Years	0(0)	18(6)	278.03	.0634
	>54 Years	0(0)	2(<1)	--	--
Caregiver Race	American Indian/Alaskan Native	6(8)	15(5)	63.97	0.0811
	Asian/ Hawaiian/Pacific Islander	3(3)	7(2)	164.84	.0005*
	Black	21(29)	68(24)	59.24	0.3311
	White	50(68)	182(64)	55.07	0.2634
	Don't Know	0(0)	18(6)	--	--
	Refused	0(0)	3(1)	--	--
Caregiver Ethnicity	Hispanic	10(14)	83(29)	406.29	.0063*
	Non-Hispanic	63(86)	199(71)		
Caregiver Education	HS Diploma or Less	56(77)	206(74)	11.10	0.7753
	Vocational/Tech Degree	7(10)	35(13)	3.85	0.7869
	Some College	6(8)	23(8)	2.42	0.8565
	At Least a College Degree	4(5)	14(5)	26.94	.0075*

*Table 1 Continued*

Continuous Variables	MPCG Arrest	Comparison (Non-MPCG Arrest)	Differences Between Groups	
	<i>M(SE)</i>	<i>M(SE)</i>	<i>t</i>	<i>p</i>
Child Age (in Months)	96.23(1.18)	96.56(2.76)	-0.10	0.924
Average Family Income (Dollars)	15038.91(3002.37)	17999.61(2714.97)	-0.96	0.3927

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ , *df* for  $\chi^2$  statistic (1)

**Table 2***CPS Descriptive Statistics by MPCG Arrest Status Using Weighted Data (N=355)*

Variable	$\chi^2$	<i>p</i>
No Harm Done to Child	261.36	.0723
Mild Harm Done to Child	259.64	.0420*
Moderate Harm Done to Child	5.26	0.6673
Severe Harm Done to Child	<.01	0.9934
Child in Out of Home Placement	27.99	0.1403
Child Welfare investigated report (Y/N)	1.55	0.7843
Was There a Criminal Investigation Completed on the Parent?	73.22	0.4495
Substantiated Maltreatment Found by CPS	5.37	0.6176

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ , *df* for  $\chi^2$  statistic (1)

**Table 3**  
*MPCG Arrest Descriptive Statistics Regarding CJI Experience (n = 73)*

Variable	n (%)			
Frequency of MPCG Arrest				
	1	40 (47%)		
	2	23 (27%)		
	3	12 (14%)		
	4	5 (6%)		
	5	1 (1%)		
	6	0		
	7	1 (1%)		
	8	1 (1%)		
	9	0		
	10	3 (3%)		
Arrest Incidence	Number of arrests that resulted in conviction	Number of arrests that resulted in probation	Number of arrests that resulted in time in prison	Length of prison stay if applicable?
1 <sup>st</sup> Arrest	35 (59%)	18 (31%)	3 (5%)	< 1 month = 1 (1%) 7 months- 1 year = 1 (1%) > 1 year = 1 (1%)
2 <sup>nd</sup> Arrest	14 (61%)	5 (21%)	2 (9%)	1 to 3 months = 2 (9%)
3 <sup>rd</sup> Arrest	5 (50%)	3 (30%)	1 (10%)	More than 1 year = 1 (10%)
4 <sup>th</sup> Arrest	5 (50%)	3 (30%)	1 (10%)	7 months-1 year = 1 (10%)
5 <sup>th</sup> Arrest	3 (43%)	2 (29%)	1 (14%)	More than 1 year = 1 (14%)
6 <sup>th</sup> Arrest	2 (33%)	2 (33%)	1 (17%)	1-3 months = 1 (17%)
7 <sup>th</sup> Arrest	1 (100%)	0	0	0
8 <sup>th</sup> Arrest	1 (100%)	0	0	0
9 <sup>th</sup> Arrest	2 (50%)	2 (50%)	0	0
10 <sup>th</sup> Arrest	1 (50%)	1 (50%)	0	0

*Note.* Percentages are calculated based on the number of MPCGs that reported information at each arrest.

**Table 4**

*Descriptive Statistics for Major Study Variables by MPCG Arrest Status Using Weighted Data*  
(*N* = 355)

Variable	MPCG Arrested ( <i>n</i> = 73)			Comparison Group (Non MPCG-Arrested; <i>n</i> = 282)		
	Mean	SE	95% CI	Mean	SE	95% CI
Internalizing CBCL Score	54.60	2.05	48.91-60.30	55.68	1.35	51.94-59.41
Externalizing CBCL Score	55.51	1.50	51.35-59.67	61.64	0.70	59.62-63.60*
WJLW Wave 1	450.48	7.98	428.34-472.63	428.96	8.49	405.38-452.54
WJAP Wave 1	465.14	1.98	459.64-470.50	450.78	5.94	434.28-467.28
WJLW Wave 2	480.26	4.40	468.05-492.47	467.36	5.00	453.48-481.23
WJAP Wave 2	484.53	0.75	482.45-486.62	478.88	6.04	462.12-495.63

*Note.* Only the Externalizing CBCL Score was significantly different between groups ( $t = -4.29, p = .013$ ).



**Table 5**

*Regression Results Where MPCG Arrest Status Predicts Behavior Problems, Literacy, and Math Skills at Baseline when Children are Between Six and a Half and 10 Years Old (N=355)*

Variable	Internalizing CBCL Scores	Externalizing CBCL Scores	Literacy Skills	Math Skills
	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>	<i>B(SE)</i>
MPCG Arrest Status	-0.75 (0.11)**	-0.93 (0.10)**	0.79 (.07)**	0.72 (.08)**
Child Gender	-0.74 (.02)***	-0.69 (.08)**	.06 (.03)	-.06 (.05)
MPCG Arrest Status X Child Gender	1.20 (0.14)**	1.19 (0.10)**	-.09 (.08)	.04 (0.11)
Child Age (months)	0.10 (.05)	.01 (.10)	0.34 (.08)*	0.33 (.08)*
Caregiver Under 35 Years old	-0.37 (.09)*	-0.51 (.05)*	0.35 (0.13)	0.23 (.07)*
Caregiver between 35-44 Years old	-0.41 (.09)*	-0.53 (.05)***	0.34 (0.13)	0.15 (0.10)
Child Asian	0.13 (.02)*	0.15 (.03)*	-.06 (.08)	.05 (.09)
Child Black	.07 (.08)	0.22 (0.11)	0.13 (0.10)	0.10 (0.10)
Child White	0.21 (0.10)	0.21 (.08)	0.22 (0.11)	0.30 (0.21)
Child Hispanic	-.02 (.09)	0.10 (.05)	-.04 (.05)	-.07 (.02)
MPCG American Indian	.09 (.04)	-.04 (.05)	0.19 (.06)*	0.18 (0.12)
MPCG Asian	-0.22 (.07)*	-0.23 (0.16)*	0.39 (.09)*	0.27 (.03)**
MPCG Black	-0.34 (.07)*	-0.26 (0.16)	0.20 (.06)*	0.26 (.09)*
MPCG White	-0.47 (.09)*	.04 (.04)*	0.27 (.10)	0.24 (.06)*
MPCG Hispanic	.02 (.08)	.04 (.04)	0.14 (.05)*	.09 (.06)
No Harm reported from CPS	.03 (.08)	-.06 (.07)	-0.14 (.09)	-.09 (.09)
Mild Harm reported from CPS	0.21 (.04)*	-.03 (.12)	-.09 (.07)	-0.15 (.90)
Caregiver HS degree or Less	0.20 (0.17)	0.20 (0.15)	-0.32 (0.18)	-0.26 (0.16)
Caregiver Some College	0.38 (0.14)	0.34 (0.15)	-.09 (0.11)	-0.20 (0.10)

*Table 5 Continued*

Caregiver College Degree +	0.35 (0.90)*	0.33 (0.10)*	-0.30 (0.12)	-0.20 (0.10)
Out of Home Placement	.04 (.01)*	.06 (.01)*	-.06 (.01)*	-.06 (.01)*

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*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$

**Table 6**

*Mediation Model Results Where Caregiver Rated Internalizing Behavior Problem Scores were Examined as a Mediator Between MPCG Arrest Status, Literacy Achievement, and Math Achievement at Wave Two (N=355)*

Step 1		Step 2: Outcome 1		Step 2: Outcome 2	
Internalizing Problems Score		Literacy Skills Wave 2		Math Skills Wave 2	
<i>B(SE)</i>		<i>B(SE)</i>		<i>B(SE)</i>	
		Internalizing Problems CBCL Score	-.008 (.07)	Internalizing Problems CBCL Score	-.02 (.09)
MPCG Arrest Status	-0.52 (0.19)*	MPCG Arrest Status	-0.67 (.09)*	MPCG Arrest Status	-0.74 (.04)***
Child Gender	-0.78 (.03)***	Child Gender	-0.39 (0.29)	Child Gender	-0.94 (0.35)
MPCG Arrest Status X Child Gender	1.33 (0.17)**	Int Probs X Child Gender	0.47 (0.30)	Int Probs X Child Gender	0.83 (0.29)*
WJLW Wave 1	.03 (0.34)	WJLW Wave 1	0.89 (.08)***	WJLW Wave 1	0.39 (0.11)*
WJAP Wave 1	-0.25 (.08)*	WJAP Wave 1	0.12 (0.15)	WJAP Wave 1	0.38 (0.12)*
Child Age (months)	0.15 (.05)*	Child Age (months)	-0.29 (.06)*	Child Age (months)	-.06 (.03)
Caregiver Under 35 Years old	-0.34 (.08)*	Caregiver Under 35 Years old	0.11 (0.16)	Caregiver Under 35 Years old	0.11 (0.14)
Caregiver between 35-44 Years old	-0.48 (.08)*	Caregiver between 35 -44 Years old	-.04 (0.18)	Caregiver between 35-44 Years old	.03 (.06)
Child Asian	0.14 (.04)*	Child Asian	-0.18 (.07)	Child Asian	-.07 (.06)
Child Black	0.19 (0.10)	Child Black	-0.16 (0.10)	Child Black	-0.15 (0.10)
Child White	0.34 (0.16)	Child White	-0.22 (0.19)	Child White	-0.30 (0.12)
Child Hispanic	-.05 (.08)	Child Hispanic	.07 (.04)	Child Hispanic	.01 (.03)
MPCG American Indian	0.12 (.06)	MPCG American Indian	-0.13 (0.10)	MPCG American Indian	-0.12 (.09)
MPCG Asian	-.09 (.09)	MPCG Asian	.03 (0.10)	MPCG Asian	.06 (.04)
MPCG Black	-0.28 (.07)*	MPCG Black	.0002 (0.15)	MPCG Black	.08 (.08)
MPCG White	-0.38 (.07)*	MPCG White	.001 (.09)	MPCG White	.05 (.08)
MPCG Hispanic	-.03 (.09)	MPCG Hispanic	-0.14 (.03)*	MPCG Hispanic	-.02 (.05)

*Table 6 Continued*

No Harm reported from CPS	-.08 (.07)	No Harm reported from CPS	.003 (.04)	No Harm reported from CPS	-.05 (.06)
Mild Harm reported from CPS	.05 (.06)	Mild Harm reported from CPS	0.11 (.02)*	Mild Harm reported from CPS	.02 (.04)
Caregiver HS degree or Less	0.18 (0.14)	Caregiver HS degree or Less	.004 (0.11)	Caregiver HS degree or Less	-.03 (0.18)
Caregiver Some College	0.40 (0.12)*	Caregiver Some College	-.08 (0.10)	Caregiver Some College	-.07 (0.12)
Caregiver College Degree +	0.27 (0.10)	Caregiver College Degree +	0.11 (.04)	Caregiver College Degree +	.09 (.07)
Out of Home Placement	.005 (.02)	Out of Home Placement	.05 (.01)*	Out of Home Placement	.06 (.007)**

*Note. No indirect effects found. \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ .*

**Table 7**

*Mediation Model Results Where Caregiver Rated Externalizing Behavior Problem Scores were Examined as a Mediator Between MPCG Arrest Status, Literacy Achievement, and Math Achievement at Wave Two (N=355)*

Step 1		Step 2: Outcome 1		Step 2: Outcome 2	
Externalizing Problems Score		Literacy Skills Wave 2		Math Skills Wave 2	
<i>B(SE)</i>		<i>B(SE)</i>		<i>B(SE)</i>	
		Externalizing Problems CBCL Score	.02 (.04)	Externalizing Problems CBCL Score	.02 (.06)
MPCG Arrest Status	-0.70 (0.14)*	MPCG Arrest Status	-0.60 (.09)*	MPCG Arrest Status	-0.63 (.04)***
Child Gender	-0.70 (.06)***	Child Gender	0.29 (0.14)	Child Gender	-0.42 (0.31)
MPCG Arrest Status X Child Gender	1.33 (0.08)**	Ext Probs X Child Gender	-0.25 (0.17)	Ext Probs X Child Gender	0.29 (0.24)
WJLW Wave 1	-.04 (.09)	WJLW Wave 1	0.87 (0.10)**	WJLW Wave 1	0.34 (0.11)*
WJAP Wave 1	-0.21 (.06)*	WJAP Wave 1	0.10 (0.15)	WJAP Wave 1	0.35 (0.11)*
Child Age (months)	0.08 (.08)	Child Age (months)	-0.23 (.08)*	Child Age (months)	.02 (.02)
Caregiver Under 35 Years old	-0.38 (.07)*	Caregiver Under 35 Years old	0.10 (0.19)	Caregiver Under 35 Years old	0.10 (0.16)
Caregiver between 35-44 Years old	-0.40 (.02)***	Caregiver between 35 -44 Years old	-0.10 (0.19)	Caregiver between 35-44 Years old	-.01 (.06)
Child Asian	0.17 (.03)*	Child Asian	-0.12 (.08)	Child Asian	-.02 (.06)
Child Black	0.31 (0.11)*	Child Black	-0.07 (.07)	Child Black	-.08 (.08)
Child White	0.31 (0.16)	Child White	-0.18 (0.18)	Child White	-0.22 (0.10)
Child Hispanic	0.14 (.04)*	Child Hispanic	.008 (.04)	Child Hispanic	-.05 (.04)
MPCG American Indian	0.12 (.09)	MPCG American Indian	-0.16 (.09)	MPCG American Indian	-0.13 (.09)
MPCG Asian	-.09 (.08)	MPCG Asian	.01 (0.10)	MPCG Asian	.04 (.03)
MPCG Black	-0.14 (0.20)	MPCG Black	-.05 (0.17)	MPCG Black	.02 (0.12)
MPCG White	-.08 (.06)	MPCG White	-.05 (.09)	MPCG White	-.02 (.09)
MPCG Hispanic	0.13 (.07)	MPCG Hispanic	-0.20 (.02)***	MPCG Hispanic	-.07 (.04)

*Table 7 Continued*

No Harm reported from CPS	-0.12 (.03)*	No Harm reported from CPS	-.02 (.05)	No Harm reported from CPS	-.08 (.07)
Mild Harm reported from CPS	-.09 (0.12)	Mild Harm reported from CPS	0.12 (.03)*	Mild Harm reported from CPS	.02 (.04)
Caregiver HS degree or Less	0.13 (0.15)	Caregiver HS degree or Less	.03 (.09)	Caregiver HS degree or Less	.002 (0.15)
Caregiver Some College	0.25 (0.13)	Caregiver Some College	-.02 (.08)	Caregiver Some College	.001 (0.10)
Caregiver College Degree +	0.17 (.08)	Caregiver College Degree +	0.14 (.04)*	Caregiver College Degree +	0.14 (.06)
Out of Home Placement	.03 (.03)	Out of Home Placement	.05 (.02)*	Out of Home Placement	.05 (.009)*

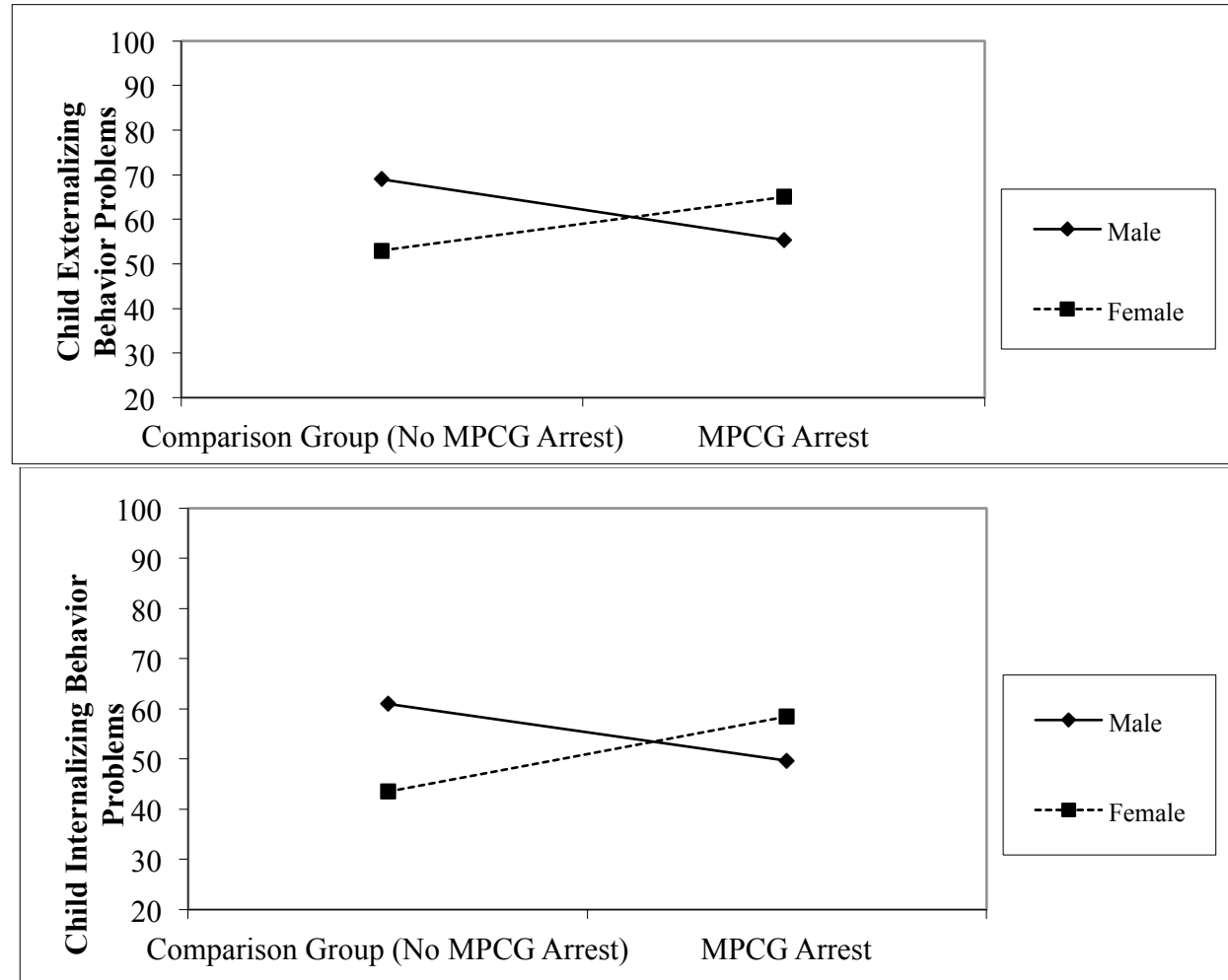
*Note. No indirect effects found. \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ .*

**Table 8.***Conditional Indirect Effects by Gender for both outcomes of Literacy and Math*

<b>Internalizing Behavior Problems Model for Literacy Outcome</b>				
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>95% C.I.</i>
No MPCG Arrest	0.22	2.02	0.913	-3.75, 4.18
MPCG Arrest Females	-0.51	4.58	0.911	-9.49, 8.47
MPCG Arrest Males	0.20	1.83	0.912	-3.40, 8.80
<b>Internalizing Behavior Problems Model for Math Outcome</b>				
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>95% C.I.</i>
No MPCG Arrest	0.43	1.97	0.872	-3.42, 4.29
MPCG Arrest Females	-1.00	4.25	0.814	-9.33, 7.34
MPCG Arrest Males	0.38	1.75	0.827	-3.04, 3.80
<b>Externalizing Behavior Problems Model for Literacy Outcome</b>				
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>95% C.I.</i>
No MPCG Arrest	-0.92	1.47	0.532	-3.80, 1.96
MPCG Arrest Females	1.16	1.71	0.500	-2.20, 4.52
MPCG Arrest Males	-0.95	1.52	0.534	-3.93, 2.04
<b>Externalizing Behavior Problems Model for Math Outcome</b>				
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>95% C.I.</i>
No MPCG Arrest	-0.38	1.60	0.814	-3.51, 2.76
MPCG Arrest Females	0.47	2.07	0.820	-3.59, 4.53
MPCG Arrest Males	-0.37	1.56	0.815	-3.42, 2.70

**Figure 1**

*Plotted Interaction of Child Gender Moderating the Relation between MPCG Arrest Status and Child Internalizing & Externalizing Behavior Problems at Wave One*



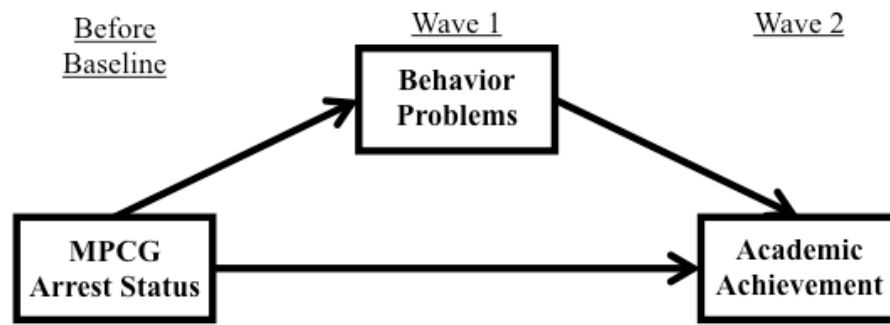
*Note.* The simple slopes for males and females were statistically significant ( $p < .0001$ ).



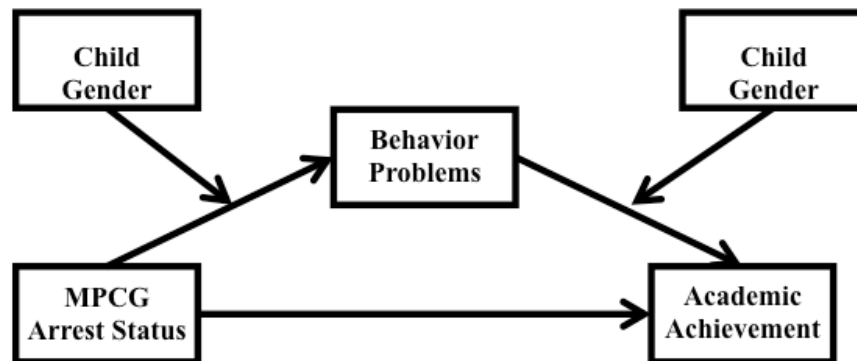
**Figure 2**

*Visual Model for Research Question 2a Where Behavior Problems are Examined as a Mediator Between MPCG Arrest Status and Children's Academic Achievement at Wave Three and 2b Where Child Gender is Utilized as a Moderator for this Mediation (i.e., Moderated Mediation)*

RQ 2a. Mediation Model

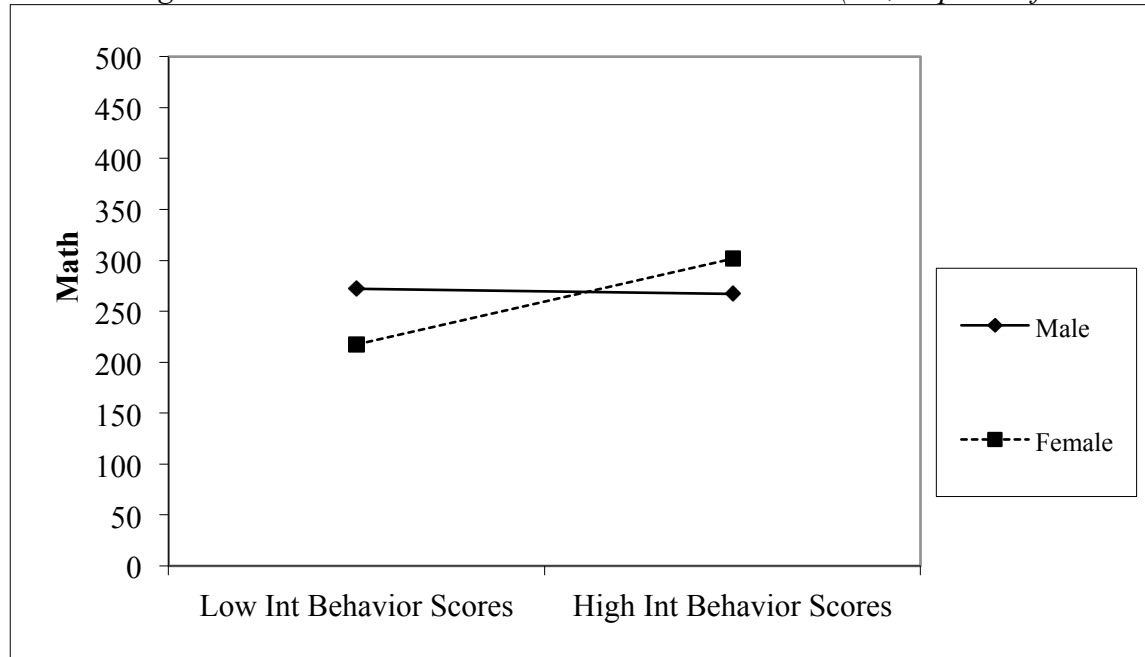


RQ 2b. Moderated Mediation Model



**Figure 3**

*Plotted Interaction of the Moderator, Internalizing Behavior Problems by Child Gender, Moderating the Direct Path Between Internalizing Behavior Problems and Math Scores at Wave Two (i.e., step two of the mediation model)*



*Note.* The simple slopes for males and females were not statistically significant ( $p > .05$ ).

Children with Arrested Maternal Primary Caregivers: The Importance of Peer Relationships and Academic Achievement

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### **Abstract**

The present study explored how maternal primary caregiver (MPCG) arrest status in early childhood was related to children's peer relationship dissatisfaction, child gender, and academic achievement over time in a sample of families that all had involvement in the Child Protective Services (CPS) system. Data from the National Study of Adolescent and Child Well-Being II (NSCAW II) study waves one through three were used, which included children ages six and a half to 13 years old. Results suggested that the children that experienced the arrest of a MPCG when the child was between zero and five years old had significantly higher academic achievement in both literacy and math when children were between nine and a half and 13 years old. Child-rated peer relationship dissatisfaction initially moderated the relation between MPCG arrest status and subsequent literacy and math achievement; however, once further probed the simple slopes for the interactions were not statistically significant. Additionally, children of both genders in the MPCG arrest group outperformed children in the comparison group in math achievement, with female children in the MPCG arrest group performing slightly better than their male counterparts when children were between nine and a half and 13 years old (wave three). These findings stress the importance of taking into account the variability in both CPS and parent CJI experiences that children may have encountered and that additional research needs to be completed to further understand these relations.

### Peer Relationships as a Protective Factor for Children with Arrested Maternal Primary Caregivers

In the United States, Child Protective Services (CPS) aims to provide intervention and services to families where forms of child abuse and neglect may be present (USDHHS, 2018). Before children are involved with CPS they often face a multitude of risk factors such as living in poverty, parent mental health issues, neglect, and maltreatment, making them at-risk for maladaptive outcomes (Coohey et al., 2011; Front & Maguire-Jack, 2013). Children that have these same risk factors are also more likely to experience a parent experiencing criminal justice involvement (CJI) during the child's lifetime (Murphey & Cooper, 2015). The extent of a CJI experience is varied and can include arrests, incarcerations, probation, or parole, all of which can have broader impacts on the family (Western & Pettit, 2010). Specifically, if the parent who is CJI is a mother who is also the primary caregiver of a child, the instance of CJI could be particularly impactful on that child's development based on the amount of time that parent spent with the child before a CJI event (Dallaire, 2007; Dannerbeck, 2005; Farrington, et al., 2001; Phillips & Erkanli, 2008; Winslow, 2001). Children with mothers who are CJI may experience more difficulty creating and sustaining peer relationships and may have lower academic achievement without the influence of additional protective factors (Haskins, 2016; Turney, 2017). The current study examines how the additional risk of having a maternal primary caregiver (MPCG) arrested during early childhood when the child is already CPS involved may be associated with children's self-rated peer relationship dissatisfaction when children were between eight and 11.5 years old (wave two) and subsequent academic achievement when children were between nine and a half and 13 years old (wave three).

In this study, the focal CJI experience includes MPCGs arrested when children were between zero and five years old, an important period for social development (Hay et al., 2004).

Unlikely incarceration stints, arrests are not always associated with long periods of removal from the home and may instead represent a more traumatic instance or event that also evokes ambiguous feelings regarding the parent-child relationship (Boss, 2002; Miller, 2006; Phillips et al., 2006). These ambiguous feelings of stress and individual responses to the traumatic event of a MPCG arrest may impact the attachment relationship between the MPCG and their child (Makariev & Shaver, 2010; Murray & Murray, 2010). This disrupted attachment may then translate to issues making and maintaining peer relationships that could help buffer the effects of stress (Booth-LaForce & Kerns, 2009). Further, the impacts of these peer relationships in addition to a MPCG arrest could then be related to a child's academic performance (Caprara et al., 2000; Rabiner et al., 2016). Compared to peers who have also experienced CPS involvement, children with MPCGs that experienced an arrest face an additional risk factor that could impact how they develop both socially and in a formal school setting. The current study compares child-rated peer relationship dissatisfaction, a moderator of child gender, and academic achievement over time for two groups of children involved with CPS: children who experienced a MPCG arrest when they were between zero and five years old and children who did not experience a MPCG arrest.

### **Children Involved in the CPS System**

In the Federal Fiscal Year of 2018, CPS agencies in the U.S. received 4.3 million referrals for services based on alleged child abuse or neglect (USDHHS, 2018). Although not all of these reports were substantiated, the number of referrals signifies the magnitude of various types of child abuse and neglect and the level at which CPS must operate to obtain services for families in need. Children are at a higher risk of experiencing types of maltreatment if they experience parental drug and alcohol abuse, teen parenting, poverty, and general family

instability (Berger et al., 2009). These children then may face varying intensities of physical, emotional, cognitive, and psychological repercussions because of the maltreatment endured (English, 1998; Herrenkohl, 2005; Jonson-Reid et al., 2012), all of which could contribute to a child's removal from the home environment. These risks and repercussions are similar to risk factors and consequences for children when a parent is CJI (Murray & Farrington, 2005; Phillips et al., 2006), however, not all children react to either maltreatment or parent CJI experiences the same way. It is possible that children who experience maltreatment and parent CJI may be cumulatively at-risk for maladaptive outcomes, therefore, leaving vulnerable children in an increasingly vulnerable situation. The arrest of a MPCG can have a unique impact on children already in the CPS system that were not previously removed from the home by exposing them to the trauma of separation from their caregiver during the important developmental time of early childhood.

### **Children with CJI Parents**

A secure parent-child attachment can lay the foundation for various skills in children (e.g., social development; Calkins & Hill, 2007). More commonly, mothers are the primary caregivers to children (Child Welfare League of America, 2005), which suggests that they spend the most time with their children compared to other caregivers. If a primary caregiver is removed from the home, even for a short period of time, children may face feelings of ambiguity, distrust, and stress towards the caregiver (Boss, 2002; Miller, 2006). These feelings can stem from not understanding why their parent has left, where they have gone, when they will return, or who will care for the child in the caregiver's absence (Arditti, 2016). Additionally, if a child witnesses the arrest of a primary caregiver the child could view that event as particularly traumatic based on interactions with law enforcement officers and any force that is used during

the event (Dallaire & Wilson, 2010; Phillips & Zhao, 2010; Poehlmann-Tynan et al., 2017). This potentially disrupted attachment can be especially problematic for vulnerable children that may already be at risk for lower academic achievement or have a more difficult time making and maintaining strong peer relationships. For the current study, MPCG arrests are representing a proxy for the experience of trauma and parent-child separation that these children are enduring.

In addition to CJI status, maternal demographic characteristics could influence children's ability to create and maintain peer relationships and to perform academically. Prior research demonstrates an association between maternal education and maternal age with children's outcomes (Duncan et al., 2012; Eamon, 2005; Reardon, 2011). Moreover, it is well known that Black women, Latinx women, and other women of color are disproportionately involved in the justice system compared to their white counterparts (Bruns & Lee, 2019). These racial inequalities can then also be intergenerational to the children of these mothers who are CJI based on this continual disparities associated with parental CJI status (Carson, 2018). Because these differences are documented, it is advantageous to control for these factors in order to attempt to isolate the association of MPCG arrest status with children's behavioral and academic outcomes. Finally, CPS related variables such as out of home placement status were important to include as covariates because of the complexity that occurs when children live in different types of out of home care or experienced a different magnitude of abuse or neglect (English et al., 2005; Trout et al., 2008).

### **Vulnerable Children and Peer Relationships**

Relationships with peers can be important influences on children experiencing stress or adversity (Rubin, 2002; Rutter, 1999). These peer relationships may buffer stressful experiences and provide loci of hope through social support for children, which may help them be resilient



(Criss et al., 2002; Luthar et al., 2000; Schwartz et al., 2000). Family adversity is related to children's quality of social relationships (Criss et al., 2002). A specific risk, primary caregiver CJI, has a long-standing relationship with children's antisocial behavior (see Crowe, 1974). Prior research has often cited the traumatic experience of having a primary caregiver arrested can leave children with feelings of confusion and abandonment that can disrupt parent-child attachment and social development (Boss, 2002; Dallaire & Wilson, 2010). These effects have the potential to be long lasting and predict outcomes in social behavior patterns until the age of 40 (Murray & Farrington, 2008). These antisocial behaviors are also related to delinquency in the literature, indicating that these social behavior patterns can have additional negative impacts besides peer relationship creation and maintenance (Murray & Farrington, 2005).

There are several consequences of parental CJI that can make peer relationships difficult to create and sustain. For example, CJI experiences are rife with stigma, which can influence both how peers view a child with a parent that experienced CJI and how the child with a parent that experienced CJI thinks they are being perceived (Braman, 2004; Condry, 2007). This stigma is linked with peer rejection (Nesmith & Ruhland, 2008), which can force some children into not disclosing their parent's CJI status making it harder for them to find positive social support (Arditti, 2005). Since these children are likely already facing stress in the home environment, feeling rejected by peers may be particularly salient to behavior in other domains, such as academic achievement (Gallardo et al., 2016; Ladd et al., 1997).

Conversely, some children may rely on close friends to support them during adverse experiences (Criss et al., 2002). According to research by Benzies and Mychasiuk (2009), children that turn towards peers for emotional support and security may experience protective effects from these relationships that helps buffer against adverse experiences, such as having a

caregiver that experienced CJI. This is especially true if a child with a caregiver that experienced CJI is able to confide in a peer who also has or had a caregiver that experienced CJI (Nesmith & Ruhland, 2008). These children may be better able to cope with additional adverse experiences, which could be especially important given that children with mothers who are CJI are increasingly vulnerable (Arditti, 2012; Wakefield & Uggen, 2010).

### **Children's Peer Relationships and Academic Achievement**

Children's ability to succeed in school can be predictive of additional positive outcomes (Finn et al., 2005; Negru-Subtrica & Ioana Pop, 2016), and is continually measured as a marker of resiliency for children that experience a variety of adversities (Fantuzzo et al., 2012; Masten, 2001; Obradovic et al., 2009). Unfortunately, children with parents that experienced CJI face an increased chance of being placed in special education programs (Haskins, 2014), being held back a grade (i.e., grade retention; Turney and Haskins, 2014), having lower GPAs during adolescence with an overall lower rate of high school and college completion (Foster & Hagan, 2007; Hagan & Foster, 2012), and having a higher number of extended school absences (Nichols & Loper, 2012). There is also the possibility that these children may be removed from home and school environments, which has the potential to remove protective or stable influences in a child's life and cause feelings of instability (Dallaire, 2007; Greens & Scholes, 2004). The protective relationships that familiar environments (e.g., a specific school) provide for children experiencing family instability may be particularly important for encouraging success in academic outcomes (Dallaire et al., 2010; Green & Scholes, 2004). Given that these children are vulnerable to lower academic achievement, which can be cumulative over time (Duncan et al., 2007), it is important to understand protective factors that can provide stability for these children and enable them to be resilient in the face of parent CJI. Peer relationships that are positive and

stable for children may provide a buffer needed to help children with parents who are CJI through the influence of social support (Criss et al., 2002).

Peer relationships are associated with student resiliency and student health with pro-social relationships being uniquely predictive of student success (Stewart & Sun, 2004). If positive peer relationships buffer adverse effects of caregiver CJI (e.g., Benzies & Mychasiuk, 2009; Nesmith & Ruhland, 2008), these peer relationships may enable children with mothers who are CJI to be more resilient to adversity. This resilient behavior could be demonstrated through stability or improvement in academic performance, but it is important to recognize that the opposite of this might also be true dependent on the friend group. For example, if a child relies on peer relationships with a group of children who do not like doing homework or going to school, the child could have strong peer relationships but lower academic achievement based on the negative influence of these peers (Mrug et al., 2014). On the contrary, a child whose peer group has a positive academic influence on the focal child could have a chance at exhibiting higher academic achievement (Padilla-Walker & Bean, 2009). There is evidence that children with mothers who are CJI tend to be more vulnerable to deviant peer influence (Hanlon et al., 2005); however, the full effects of maternal CJI are heterogeneous and extremely dependent on overall social context (Wildeman & Turney, 2014). Further understanding how social support can buffer the effects of parent CJI could illustrate how a potential protective factor (i.e., child self-rated peer relationship dissatisfaction) is related to better outcomes for children (i.e., academic achievement).

### ***Child Gender, Parent CJI, and Academic Achievement***

Child gender can be a contributing factor to how a child reacts during the stress of a MPCG arrest. Previous research is inconsistent about which gender would be more impacted by

the CJI of a mother with some studies citing the same gender hypothesis where a female child would have more adverse outcomes compared to a male child (Foster & Hagan, 2007).

Conversely, a study by Cooper et al. (2011) found that male children might be more impacted by a parent CJI regardless of the gender of the parent. Males are also considered to be more at risk of exhibiting deviant behaviors compared to their female counterparts, which could amplify negative effects (Parke & Clarke-Stewart, 2002). Child gender may additionally play a role in how a child performs academically in either literacy or math. For example, previous research indicates mixed findings regarding if female children outperform male children in every academic subject or on just subjects related to literacy (Pomerantz et al., 2002). These differences present in both how children react to instances of parent CJI and how these children perform academically make recognizing nuances by gender an important part of understanding present associations.

### **Heterogeneity Among Vulnerable Children**

Children both involved in the CPS system and that have a parent who experienced CJI can have a variety of experiences. Based on family structure, risks, and protective factors children that have similar experiences with either CPS or parent CJI can display resilience to adversity or suffer maladaptive outcomes (Masten, 2001). It is important to recognize when examining such vulnerable children that trends in the literature do not dictate outcomes for all children in such samples. For example, literature on CPS involved children have mixed findings regarding outcomes of academic achievement (Bell & Romano, 2015; Grogan-Kaylor et al., 2008). Some studies have found that children are worse off because of the risks they face, whereas other studies have found that children's academic achievement doesn't differ from their non-CPS involved peers (Jaffee & Gallop, 2007). Similarly, children with parents who are CJI

demonstrate a mix of findings as well, such as varying success in academic skills based on the subject and measurement used (e.g., Turney & Haskins, 2019; Turney & Wildeman, 2015). This variation indicates that there is still a lot to learn when considering these relationships for vulnerable children and that the assumption of heterogeneity of experience needs to be considered when conducting this work.

### **Current Study**

The present study examined a sample of children involved with CPS and explores MPCG arrest status (i.e., if a MPCG was arrested or not) when children were between zero and five years old and its relation to academic achievement when children were between nine and a half and 13 years old (wave three). These children are compared with a sample of children of the same age at baseline involved with CPS but with no history of MPCG arrests before or during data collection. Next a potential buffer against the effects of stress that stem from MPCG arrests on children's academic achievement, child-rated peer relationship dissatisfaction at wave two when children were between eight and 11.5 years old, was investigated using a moderation approach. An additional moderator of child gender was also included to understand how these results may vary based on gender. The current study contributes to the literature by focusing on a specific type of parental CJI, MPCG arrests, and by exploring a potential protective factor or stress buffer for children with MPCGs that experienced an arrest.

**Research Questions.** Two primary research questions were answered:

1. Does having a MPCG arrested when children are between zero and five years old relate to lower academic achievement when children are between 9.5 and 13 years old (36-months post baseline) compared to children that have not experienced a MPCG arrest in a CPS sample?

It was hypothesized that children that experienced the arrest of a MPCG during early childhood would have lower academic achievement compared to their same-aged peers in the comparison group (Haskins, 2014; Turney and Haskins, 2014). Even though the sample used for this study was vulnerable, the added risk of experiencing a MPCG arrest was thought to relate to lower academic achievement for children above and beyond the associated risk of being CPS involved.

2. How do child-rated relationships with peers 18-months after baseline (when a child is between eight and 11.5 years old) and child gender moderate the relationship between MPCG arrest status when children are between zero and five years old and academic achievement 36-months after baseline (when a child is between nine and a half and 13 years old; wave three) compared to children that have not experienced a MPCG arrest in a CPS sample?

It was hypothesized that peer relationship dissatisfaction would significantly moderate the relation between MPCG arrest status and children's academic achievement at wave three when children were between nine and a half and 13 years old. Specifically, children that indicated lower self-rated peer relationship dissatisfaction (i.e., stronger peer relationships) would have higher academic achievement scores in the face of a MPCG arrest. It was also expected that children with higher self-rated peer relationship dissatisfaction (i.e., worse peer relationships) would have lower academic achievement scores in the face of a MPCG arrest. Therefore, children that experienced self-perceived better peer relationships would experience a buffer against the stress related to experiencing the additional risk of an arrest of a MPCG and would be more able to succeed academically (Benzies & Mychasiuk, 2009; Nesmith & Ruhland, 2008). Child

gender was also expected to significantly moderate the relation between MPCG arrest status and children's academic achievement at wave three. Specifically, it was expected that female children within both the MPCG arrest group and the comparison group would score better in academic achievement at wave three with the comparison group performing best academically overall.

## **Method**

### **Participants**

Participants were two groups of children who participated in three waves of a large study on CPS involvement (Dowd et al., 2006). One group included children whose MPCG were arrested when each child was between zero and five years old (referred to as the MPCG arrest group). This means that youth that experienced a MPCG arrest were not zero to five when data were collected, instead, this was the age they were when the MPCG arrest occurred. The second group includes a comparison group, who were the same ages as the MPCG arrest group (i.e., six and a half to 10 years old at baseline) but had not experienced a MPCG arrest before or during data collection. Seventy-three children were in the MPCG arrest group and 282 children were in the comparison group. The two groups were about half female (MPCG arrest group = 53%, comparison group = 44%), with an average age of eight years old at baseline ( $SD = 1$  year). Both groups included racial and ethnic diversity, however, the largest faction of both groups was white (MPCG arrest group = 47%, comparison group = 61%). Additional descriptive statistics can be found in Table 1.

### **Procedures**

Data were from waves one through three of the National Study of Child and Adolescent Well-Being II (NSCAW II) dataset and children were between six and a half and 13 years old

(Dowd et al., 2006). The children in this study were sampled from Child Protective Services (CPS) investigations closed during a 15-month period beginning in February 2008. Baseline data collection (wave one) was collected between April 2008 and December 2009 with an 18-month follow up occurring (wave two) between October 2009 and January 2011. The third wave of data was fielded by age cohort with data collection from infants occurring in June 2011 and from non-infants in August 2011. Data collection for the entire project was completed by December 2012. The assessed participants were from 81 counties in 30 states across the US, with 76% of the counties being from the original NSCAW study.

To collect data from children, caregivers, teachers, and caseworkers, fieldworkers were assigned certain families to contact to provide information regarding study purpose and procedures. Informed consent was provided from the relevant institution for all data collection procedures and materials. Data were collected from caregivers during in-person interviews, which included both traditional structured interviews and a portion where the caregiver responded to questions on a laptop. The caregiver status was determined to be “permanent” based on if the parent was living with the child and if they were the primary caregiver for the majority of the child’s life (see Dowd et al., 2006). Additional caregivers could also be considered the primary caregiver if specified in the parent interview, however, if they were not the permanent caregiver they were not given the module of questions to answer on the laptop. With regard to data collected from children, parental consent was attained in addition to assent from any child older than seven years old. Based on the age and understanding of the child, a structured interview was given or a substitution of observations and description of physical characteristics was completed. Children were then given various direct assessments, with breaks provided to reduce testing fatigue.



Caseworkers assigned to families for CPS purposes were also interviewed in person. Questions asked during this interview focused on understanding the level of risks faced by the child or the parent if the child was already removed from the home. Teachers provided information on children through a paper and pencil survey that was mailed to them or through a web version of the questionnaire. Finally, local CPS agencies were given a survey to establish norms for training and services provided by the local CPS branch. This last piece of information gave researchers an idea of why services may or may not have been assigned to certain families. More information regarding the complex sampling design utilized in the NSCAW II can be found in Dowd and colleagues (2006).

For the current study, MPCG arrest status along with all relevant covariates were used from wave one of data collection, when children were between six and a half to 10 years old. Child-rated peer relationship satisfaction was collected at wave two when children were between eight and 11.5 years old. Academic achievement was the only variable utilized at wave three when children were between nine and a half and 13 years old.

## **Measures**

### ***CPS Information***

CPS information was collected via CPS caseworker instrument completed at wave one when children were between six and a half to 10 years old. All of this information was asked via project developed questions for the NSCAW II (Dowd et al., 2006). Variables such as out of home placement status, if child welfare investigates the maltreatment report, and if there was a follow-up criminal investigation after the child welfare investigation were all yes/no questions answered by the CPS caseworker. To determine how the CPS case was handled, caseworkers had to select if a case was investigated, assessed, or assessed with intent to investigate. The outcome

of the investigation was determined a similar format, with CPS workers reporting if a case was substantiated, indicated, or neither. Level of harm done to the child during the maltreatment event was rated as none, mild, moderate, or severe. Finally, the type of maltreatment the child experienced was selected from a common list of prevalent abuse and neglect categories, which included items such as, physical neglect, physical abuse, sexual abuse, etc.

### ***MPCG Arrest Status***

Information about maternal involvement with the law was collected from primary caregivers via an online questionnaire. The first question asked if the caregiver was ever arrested, and if so the number of arrests and the month and year each arrest took place. If a caregiver indicated they were arrested at least once, questions about resulting conviction, parole or probation status, or incarceration were asked. If caregivers did not indicate ever being arrested, they moved directly to the next section of the questionnaire. Identifying caregivers who skipped the second arrest section was used to identify the comparison group. For those who experienced an arrest, their date of arrest was used to determine if it occurred when their child was between zero and five years old. Caregivers who had children who were older than five when their arrest occurred were not included in the sample in order to focus only on the impacts of arrests on early childhood development.

### ***Child-Rated Peer Relationship Dissatisfaction***

Social relationships with peers 18-months after baseline (when children were between eight and 11.5 years old, wave two) were measured through child self-report on the Loneliness and Social Dissatisfaction Questionnaire for Youth and Young Children (Asher & Wheeler, 1985). The version of the questionnaire for children eight years and older includes 16 items that assess the social domains such as feelings of loneliness, feelings of social inadequacy versus

adequacy, and subjective estimation of peer status. An interviewer reads various statements, such as “It’s easy for me to make new friends at school” and the child is asked to rate how true each statement is for them. These questions are rated on a five-point Likert type scale (1 = Never True, 5 = Always True). Lower overall scores on this task indicated lower self-rated loneliness whereas higher scores indicated more self-rated loneliness. This particular measure demonstrates high internal consistency (Cronbach’s  $\alpha = 0.90$ ). All children in this study were eight years of age or older during wave two of data collection, therefore, all were eligible to receive this assessment.

### ***Academic Achievement***

Two Woodcock-Johnson III subtests of achievement were used to measure academic skills. The Applied Problems task assessed math skills and the Letter-Word Identification task assessed literacy skills. These measures were collected for any children older than five years old at all waves of data collection but were utilized for this study at wave three when children were between nine and a half and 13 years old.

**Mathematical Skills.** The Woodcock-Johnson III: Applied Problems subtest assesses math achievement from preschool up to college-level skills. Preschool- and kindergarten-age children begin the task at item one and continue until they respond with six incorrect answers in a row. Correct answers are scored as one point; incorrect answers are scored as zero points (Woodcock et al., 2001). During the assessment, a task administrator holds the assessment booklet so that one side is visible to the participant and one side, with answers, is visible only to the administrator. The administrator reads each problem aloud, pointing to images as appropriate. The items become increasingly difficult as participants move through the task. Items begin with pictures and questions such as “how many circles are there in this picture?” Item 28

marks a switch from picture problems to word problems. Item 30 marks a change to problems necessitating a paper and pencil to solve. The Applied Problems subtest is a standardized, widely-used assessment. It has a test-retest reliability of 0.90 among children ages two to seven when retested within one year (McGrew & Woodcock, 2001).

**Literacy Skills.** The Woodcock-Johnson III: Letter-Word Identification subtest assesses literacy from preschool up to college-level skills. Preschool- and kindergarten-age children begin the task at item one and continue until they respond with six incorrect answers. Correct answers are scored as one point; incorrect answers are scored as zero points (Woodcock et al., 2001). During the assessment, a task administrator holds the assessment booklet so that one side is visible to the participant and one side, with answers, is visible only to the administrator. The administrator reads each problem aloud, pointing to letters and words as appropriate. The items become increasingly difficult as participants move through the task. Items begin with questions such as “This is the letter P [points]. Can you find another P on this page?” Item 10 marks a switch from identifying letters to identify words. Words become increasingly difficult as participants move through the task. The Letter-Word Identification subtest is a standardized, widely-used assessment. It has a test-retest reliability of 0.96 among children two to seven when retested within one year (McGrew & Woodcock, 2001).

For all Woodcock-Johnson subtests, W-scores are used for all analyses. W-scores are made up by summing the number of correct answers on a specific subtest and utilizing a preprogrammed software to standardize scores according to age. The advantages to this form of standardization include centering the scale at  $W = 500$  to alleviate negative participant ability and item difficulty values. This W-scale includes an equivalent metric, thus allowing two points on the W-scale to have the same interpretation at any ability level measures by the Woodcock-

Johnson III tests (McGrew et al., 2014). For both of the subtests used in this study, higher W-scores indicate higher math and literacy abilities respectively.

### ***Child Gender***

Child gender was collected via parent report interviews during baseline data collection (i.e., wave one; children were between six and a half and 10 years old).

### ***Covariates***

MPCG education level, age, race/ethnicity, in addition to family income level, child age, gender, and race/ethnicity were all assessed as potential control variables for these research questions. All potential control variables were collected via parent report interviews during baseline data collection (i.e., wave one; children were between six and a half and 10 years old). Only variables that were significantly different between the MPCG arrest group and comparison group or impacted model results when added hierarchically were included in the final models for analyses.

### **Analytic Strategy**

For the current study, all analyses were run in Stata 14.0 utilizing the weighted NSCAW II Restricted dataset. The SVYSET command was used to communicate sampling characteristics of the survey design through using the population weights. Clustering utilizing the strata and Primary Sampling Unit (PSU) variables were also specified in order to gain robust standard errors via a Taylor Series Linearization. All of these specifications were preset before descriptive analyses were completed in order to utilize the sample weights; tabulations of the sample without the weights are also represented in the descriptive analyses to communicate difference in size between MPCG arrest group and comparison group size. For analyses regarding the specified research questions, all models were run using the SUBPOP command to indicate the MPCG

arrest group at the correct child ages. The Structural Equation Modeling (SEM) framework was then employed in order to specify full information maximum likelihood (FIML) to handle missing data. Finally, standardized betas were requested in order to interpret effect sizes.

Descriptive results were run on several sets of variables to understand this vulnerable sample. First, variables that were salient to both the CPS and MPCG arrest experience (e.g., child removal from parent, type of child maltreatment) were compared between the MPCG arrest group and the comparison group. Second, CJI characteristics of MPCGs that experienced an arrest when their child was between zero and five years old were described in hopes of further understanding the CJI experience of those caregivers. Next, given the lengthy list of covariates that could be included in these models theoretically, chi-squared and t-tests were run as appropriate, to see if there were any significant differences between groups. Last, major study variables were also compared descriptively across groups in order to further help explain the results from the main statistical models.

The first research question asked if MPCG arrest status was related to children's academic achievement scores when children were between nine and a half and 13 years old (i.e., wave three). A regression model in the SEM framework was run to analyze the two academic achievement subjects (i.e., literacy and math skills) as outcome variables. Covariates for these models included child gender, child age, child race, child ethnicity, MPCG age, MPCG race, MPCG ethnicity, MPCG education level, the level of harm assessed through the CPS report, and out of home placement status. Covariates were included in the final models if they were statistically different between the two study groups, or impacted model results when added into the model one variable at a time. The same set of covariates was used for all models.

The second research question asked if the relation between MPCG arrest status and children's academic achievement was moderated by child-rated peer relationship dissatisfaction and by child gender. This question was answered utilizing a regression model with two interaction terms in the SEM framework. One model was run, which included both academic achievement variables as outcome variables (i.e., literacy and math skills) both were measured at wave three when children were between nine and a half and 13 years old. The interaction terms for the model included MPCG arrest status measured when children were between zero and five years old and child-rated peer relationship scores measured when children were between eight and 11.5 years old (i.e., wave two) and MPCG arrest status by child gender measured at wave one. Covariates for these models included child gender, child age, child race, child ethnicity, MPCG age, MPCG race, MPCG ethnicity, MPCG education level, the level of harm assessed through the CPS report, and out of home placement status. Covariates were included in the final models if they were statistically different between the two study groups, or impacted model results when added into the model one variable at a time. All model output was also standardized in order to interpret effect sizes.

## **Results**

### **Descriptive Results**

#### ***CPS Descriptive Statistics***

Descriptive statistics were particularly valuable in this study given the vulnerability of this population and lack of research performed on children with MPCG that experienced arrests using the NSCAW II dataset (see Table 1). The majority of children in this study had not been removed from their MPCG ( $n = 311$ ). These 311 children lived with their MPCG during their involvement with CPS, indicating that the subset of these children that experienced an arrest of a

MPCG ( $n = 62$ ) could be directly impacted by the trauma of the arrest and the instability it could create. There were no statistically significant differences between the MPCG arrest group and the comparison group on out of home placement status, CPS investigation status, criminal charges related to CPS investigation, how the case was handled by child welfare, substantiated maltreatment of children. There was a significant difference in level of harm to a child reported during a maltreatment incidence when the variable was recoded as binary (i.e., one variable for each level of the prior variable). These results indicated that children in the MPCG arrest group had more CPS reports at baseline that indicated more mild harm was done to the child compared to the comparison group without a MPCG arrest ( $\chi^2(1) = 259.64, p = .0420$ ). Thus, the children in both groups appear to have had fairly similar variation in CPS experiences aside from children in the MPCG arrest group experiencing more mild harm. For information on additional CPS variable differences between groups see Table 2.

### ***MPCG Arrest Status***

A large percentage of MPCGs were only arrested once (47%), however, there were three MPCG that were arrested at least 10 times (the maximum amount recorded in the NSCAW II data, 3%). Of the MPCGs that were arrested once, a majority were convicted for the crime they committed, however almost none reported spending time in jail or prison (see Table 3). Although most of the women in this sample reported being arrested three or fewer times before their child was five years old, there was a pattern of high conviction rates for crimes committed. Regardless of these high conviction rates for arrests, few mothers indicated that they spent any time in jail or prison. These patterns were present throughout all 10-arrest recordings.



***Covariate Differences Across Groups***

Several descriptive differences emerged between the MPCG arrest group and the comparison group, which could impact overall model results (see Table 1). Child gender was significantly different between the two groups ( $\chi^2(1) = 488.20, p = .03$ ) with the comparison group having more male children (56%) compared to the MPCG arrest group (47%). The comparison group also had a significantly larger number of children whose race was American Indian or Alaskan Native compared to the MPCG arrest group ( $\chi^2(1) = 241.46, p = .01$ ) and children that identified as Hispanic compared to the arrest group ( $\chi^2(1) = 406.29, p = .006$ ).

Binary variables of caregiver age showed significant differences across groups. Although in both groups a majority of caregivers were younger than 35 years old (MPCG arrest group = 88%, comparison group = 70%), children in the MPCG arrest group were significantly more likely to have a parent younger than 35 years old ( $\chi^2(1) = 507.12, p = .0005$ ). In the comparison group 30% of caregivers were older than 35 whereas in the MPCG arrest group just 12% were over the age of 35 ( $\chi^2(1) = 256.53, p = .0001$ ). Children in the comparison group were also significantly more likely to have a caregiver that reported as Asian, Hawaiian, or Pacific Islander ( $\chi^2(1) = 164.86, p = .0005$ ) and as Hispanic ( $\chi^2(1) = 406.29, p = .0063$ ). Finally, the binary variable for caregiver education indicated that caregivers in the comparison group had more instances of having at least a college degree ( $\chi^2(1) = 26.94, p = .0075$ ) compared to the MPCG arrest group.

***Major Study Variables***

Children in the arrested MPCG group scored an average of one point lower on the child-rate peer relationship dissatisfaction questionnaire (indicating better self-rated peer relationships); however, this difference was not statistically significant from the result of the

comparison group. There were also no statistically significant differences present between the MPCG arrest group and the comparison group for literacy at wave three. Children in the MPCG arrest group did score an average of 12.30 ( $SD = 3.11$ ) points higher on math at wave three compared to children in the comparison group ( $p = .02$ ; see Table 4) when children were between nine and a half and 13 years old.

### **Regression Results**

Research question one asked if MPCG arrest status when children were between zero and five years old (before baseline data collection) was related to children's subsequent academic achievement (i.e., literacy and math skills) when children were between nine and a half and 13 years old (wave three) in a group of already CPS involved children (for full results, see Table 5). Children that experienced a MPCG arrest when they were between zero and five years old demonstrated significantly higher scores in literacy at wave three compared to the comparison group that did not experience a MPCG arrest ( $B = 0.61, p < .0001$ ). The children in the MPCG arrest group also had significantly higher math scores at wave three ( $B = 0.67, p < .0001$ ) compared to children in the comparison group.

### **Moderation Results**

Research question two asked if child-rated peer relationship dissatisfaction at wave two when children were between eight and 11.5 years old and if child gender moderated the relation between MPCG arrest status when children were between zero and five years old and academic achievement at wave three when children were between nine and a half and 13 years old. Again, one model was run to assess the variables of academic achievement (i.e., literacy and math skills; for full results see Table 6). Results from this model indicated that children with MPCGs that were arrested when the child was between zero and five years old had significantly higher

literacy achievement compared to the children in the comparison group ( $B = 2.12, p < .0001$ ). Children that reported higher peer relationship dissatisfaction scores also demonstrated significantly higher literacy scores ( $B = 0.68, p = .019$ ). Children's self-rated peer relationship dissatisfaction scores significantly moderated the relationship between MPCG arrest status and literacy achievement at wave three ( $B = -2.45, p = .007$ ). When this interaction was plotted at one standard deviation above and below the mean of the moderator, the results indicated a simple effect of the interaction of MPCG arrest status and peer relationship dissatisfaction scores on literacy (see Figure 1). However, the simple slopes for this interaction were ultimately not statistically significant (see Table 7).

Similarly to the results for literacy achievement, children in the MPCG arrested group demonstrated higher math scores at wave three (nine and a half to 13 years old) compared to the comparison group ( $B = 1.75, p = .003$ ). Child self-rated peer relationship dissatisfaction scores significantly moderated the relation between MPCG arrest status and children's math achievement at wave three ( $B = -1.89, p = .019$ ). When this interaction was plotted at one standard deviation above and below the mean of the moderator, the results indicated a simple effect of the interaction of MPCG arrest status and peer relationship dissatisfaction scores on math (see Figure 2 ). Similarly to the model for literacy, the simple slopes tested here were not statistically significant (see Table 7).

In terms of the interaction that included child gender, the relation between MPCG arrest status and children's math achievement at wave three was significantly moderated by child gender ( $B = 0.21, p = .013$ ). When this interaction was plotted, results indicated that children in the comparison group had significantly lower math achievement scores at wave three compared to the MPCG arrest group. Female children in the MPCG arrest group also did slightly better

compared to males in the MPCG arrest group in math at wave three (see Figure 3). The simple slopes for both gender groups were not statistically significant ( $ps > .05$ ).

### **Discussion**

Children that experience involvement with the CPS system and parent CJI are vulnerable and often experience additional risks compared to children that do not have those same experiences (USDHHS, 2017; Western & Pettit, 2010). Many of these risks for both populations of children include experiencing poverty, parent mental health issues, neglect, and maltreatment (Berger et al., 2009; Murray & Farrington, 2005; Phillips et al., 2006), therefore placing these children at risk for strained peer relationships and lower academic achievement (Herrenkohl, 2005; Jonson-Reid et al., 2012; Murray et al., 2012). Having a parent arrested, especially during early childhood, could disrupt stage salient development for these children, which could continually impact their performance in formal settings such as the classroom. In particular, when mothers who are the primary caregivers of their children are arrested youth can experience poverty, lower academic achievement, and family instability, thus highlighting this population as increasingly vulnerable (Arditti, 2012; Dallaire, 2007; Wakefield & Uggen, 2010). Additionally, child gender could play a role in how children react to the early arrest of a MPCG, which could impact their later academic performance. Research is focusing more on potential protective factors for this specific population, but much of the focus is on adult role models or mentors of these children. This study provides new information about two potential moderators, peer relationships which may help buffer stressful experiences for these children and allow them to be resilient in the face of adversity, and child gender.

Results from this study found that children who experience a MPCG arrest when they were between zero and five years old had significantly higher academic achievement in both

literacy and math when they were between nine and a half and 13 years old (wave three) compared to their peers that did not experience a MPCG arrest. These results were in contrast to the original a priori hypothesis. A majority of prior studies indicate that children with CJI parents and in the CPS population are prone to lower academic achievement than their peers (e.g., Haskins, 2014; Turney & Haskins, 2014; Foster & Hagan, 2007; Hagan & Foster, 2012; Nichols & Loper, 2012), however, there are studies that contradict these findings. For example, just because a child experiences parent CJI or is involved in CPS, does not necessarily mean they will experience lower academic achievement (Cho, 2009; Murray, Farrington, & Sekol, 2012; Turney & Haskins, 2019).

Children that experienced a MPCG arrest had an average of one point higher self-rated peer relationship dissatisfaction compared to children in the comparison group at wave two (children between eight and 11.5 years old). Although this difference between groups was significant, the small difference demonstrates that children in the MPCG arrested group were, on average, only slightly more dissatisfied with their peer relationships. Aligning with the studies original hypothesis, peer relationship dissatisfaction did moderate the relationship between MPCG arrest status and children's literacy and math skills at wave three, however, the simple slopes for these interactions were not statistically significant. More research is needed to further understand why the initial moderation effect was statistically significant, indicating a potential buffer for these children, but the simple slopes when further probed were not statistically significant.

Results also indicated that gender significantly moderated the relation between MPCG arrest status and children's math achievement at wave three (children were between nine and a half and 13 years old). Regardless of gender, children in the comparison group scored worse in

achievement at wave three and female and male children in the MPCG arrest group had similar performance in math. Having a parent be CJI involved could have provided parents with the access to more services, which could then have benefited their children or services for the children themselves that allowed them to perform better academically than the comparison group (Booker Loper et al., 2019; Hoffmann et al., 2010). Additional research could benefit from understanding patterns of service offerings and utilizations by families in relation to academic achievement in the NSCAW II data.

Children in the MPCG arrested group may also be more habituated to a high crime environment. This suggests that they would be less surprised and their life could be less disrupted if the caregiver was arrested because the circumstance could be normative. Previous research demonstrates that children who were more accustomed to a high-crime environment were less impacted by parental CJI, but children that did not expect an arrest to occur were often greatly impacted (Turney, 2017; Turney & Wildeman, 2015). This sample of children were also all considered to be vulnerable given their CPS and parent CJI status. This could account for some of the null results found (i.e., non-significant simple slopes of the interactions) because all the children in this sample were at-risk for maladaptive outcomes there may be a lack of variation present. If this study had a comparison group that was not as vulnerable, different results between the groups may have emerged.

In regard to peer relationship dissatisfaction, children in this sample (both the comparison group and the MPCG arrest group) had an average score that indicated these children considered themselves to be “accepted” per the psychometric information for the task (Asher, Hymel, & Renshaw, 1984). Although children in the MPCG arrest group had slightly higher dissatisfaction with their peers, that is not surprising given prior research indicating that it is more difficult for

these children to create and maintain lasting peer relationships (Braman, 2004; Condry, 2007). This relationship is typically attributed to the intense stigma U.S. society has placed on CJI experiences. The fact that these children were only slightly higher on peer relationship dissatisfaction could indicate that they were able to find other children to confide in or relate to regarding past experiences (Nesmith & Ruhland, 2008).

### **Limitations and Future Directions**

Several limitations were present for this study that could have influenced the results and interpretation. First, the sample size was small because of how the subpopulation of data was analyzed to answer the research questions, which may limit generalizability beyond this sample. This small sample size for the MPCG arrest group specifically, could have influenced the results because such a small sample of children experiencing parent CJI could not be representative of all children experiencing parent CJI.

Next, some of the measures used in this study included challenges that limited interpretation. The peer relationship dissatisfaction score was self-rated by children when they were between eight and 11.5 years old (wave two), these children may have rated themselves more or less socially dissatisfied than a peer would have rated their friendships or a teacher would have rated the children's pro-social abilities. The measure used for peer relationship dissatisfaction also did not provide any indication of if the peer relationships being rated were deviate or pro-social in nature. It would stand to reason that children with more pro-social relationships may do better on academic achievement skills, whereas, children with more deviant relationships may exhibit strong peer satisfaction but not have the same aptitude for those academic skills. It will be important for future research to use measures that can assess additional details about the types of peer relationships these children are involved in.

MPCG arrest status was also collected via self-report, which may have lead to an underreporting of CJI experiences overall because of the stigma associated with CJI. The NSCAW II study attempts to mitigate this by having these questions asked via an online questionnaire instead of by the interviewer face-to-face in hopes that mothers would feel more comfortable sharing incidence rates of CJI. Unfortunately, this is a common issue in the nationally representative datasets that include measures of maternal CJI because it has previously been a challenge for research to obtain CJI records from a state or federal department of corrections in order to confirm CJI status. There was also not enough information on additional CJI experience information (i.e., incarcerations, probations, etc.) to include these variables into the full statistical models. The patterns of arrests and post-arrest CJI involvement were explored descriptively, however, based on the lack of post-arrest CJI activities reported it is likely that salient information is missing that could have aided in the interpretation of how the MPCG arrests impacted their children. The NSCAW II data also does not include any positive consequences that could have come out of the CJI experience such as mandatory parenting courses or treatment court programs that could have benefitted children's developmental experience in the home environment.

Future research with more specificity on the CJI experience and peer relationship behavior is necessary in order to further elucidate these potential relationships. A call for additional CJI data that is either provided or validated by state and federal correction databases is prevalent in the literature (e.g., de Haan et al., 2019). Additional data on potential protective factors for children, as well as standardized outcome variables across childhood and adolescences would be helpful in furthering this research and understanding what may be occurring for these children. Finally, service data should be examined for previous waves of the



NSCAW II to understand the difference in academic performance between the MPCG arrest group and the comparison group at wave three.

### **Conclusion**

Previous research has demonstrated the vulnerability of children in the CPS system and the potential maladaptive outcomes that stem from that vulnerability. If a child involved in the CPS system also has a parent that experienced CJI, that child could face additional risks. Specifically, if the parent that experienced CJI is a MPCG, children could face disruptions in salient development milestones. Results indicated that children from CPS involved families that also experienced the arrest of a MPCG during early childhood had higher academic achievement in both literacy and math when children were in early adolescence. Further, child-rated peer relationship dissatisfaction significantly moderated the relationship between MPCG arrest status and children's academic achievement for literacy and math, however, when probed the simple slopes were not statistically significant. Female children in the MPCG arrest group also performed better in math compared to males in the MPCG arrest group whereas children in the comparison group performed similarly regardless of gender. These results point to the need for further research on protective factors for at-risk children with CJI parents and the need for additional understanding for how the MPCG arrest experiences impact children. These results revealed a novel finding regarding the relationship between children with MPCGs that experienced an arrest, children's peer relationships, child gender, and academic achievement.

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# PEER RELATIONS AND CAREGIVER ARRESTS

**Table 1**

*Study Demographic Statistics and Hypothesis Test Results Between Groups*

Categorical Variables <i>N</i> = 355		MPCG Arrest <i>n</i> =73	Comparison (Non-MPCG Arrest) <i>n</i> =282	Differences Between Groups	
		<i>n</i> (%)	<i>n</i> (%)	$\chi^2$	<i>p</i>
Child Gender	Male	34(47)	158(56)	488.20	.0255*
	Female	39(53)	124(44)		
Child Race	Don't Know	0(0)	6(2)	--	
	American Indian/Alaskan Native	8(11)	26(9)	241.46	.0132*
	Asian/Hawaiian/Pacific Islander	6(8)	9(3)	88.25	0.1376
	Black	25(34)	70(25)	245.06	0.2987
	White	34(47)	171(61)	45.72	0.5482
Child Ethnicity	Hispanic	13(18)	88(31)	237.64	.0279*
	Non-Hispanic	60(82)	194(69)		
Caregiver Age	<35 Years	64(88)	198(70)	507.12	.0005**
	35-44 Years	9(12)	64(23)	256.53	.0001**
	45-54 Years	0(0)	18(6)	278.03	.0634
	>54 Years	0(0)	2(<1)	--	--
Caregiver Race	American Indian/Alaskan Native	6(8)	15(5)	63.97	0.0811
	Asian/ Hawaiian/Pacific Islander	3(3)	7(2)	164.84	.0005*
	Black	21(29)	68(24)	59.24	0.3311
	White	50(68)	182(64)	55.07	0.2634
	Don't Know	0(0)	18(6)	--	--
	Refused	0(0)	3(1)	--	--
Caregiver Ethnicity	Hispanic	10(14)	83(29)	406.29	.0063*
	Non-Hispanic	63(86)	199(71)		
Caregiver Education	HS Diploma or Less	56(77)	206(74)	11.10	0.7753
	Vocational/Tech Degree	7(10)	35(13)	3.85	0.7869
	Some College	6(8)	23(8)	2.42	0.8565
	At Least a College Degree	4(5)	14(5)	26.94	.0075*

*Table 1 Continued*

Continuous Variables	MPCG Arrest	Comparison (Non-MPCG Arrest)	Differences Between Groups	
	<i>M(SE)</i>	<i>M(SE)</i>	<i>t</i>	<i>p</i>
Child Age (in Months)	96.23(1.18)	96.56(2.76)	-0.10	0.924
Average Family Income (Dollars)	15038.91(3002.37)	17999.61(2714.97)	-0.96	0.3927

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ , *df* for  $\chi^2$  statistic (1)

**Table 2***CPS Descriptive Statistics by MPCG Arrest Status Using Weighted Data (N=355)*

Variable	$\chi^2$	<i>p</i>
No Harm Done to Child	261.36	.0723
Mild Harm Done to Child	259.64	.0420*
Moderate Harm Done to Child	5.26	0.6673
Severe Harm Done to Child	<.01	0.9934
Child in Out of Home Placement	27.99	0.1403
Child Welfare investigated report (Y/N)	1.55	0.7843
Was There a Criminal Investigation Completed on the Parent?	73.22	0.4495
Substantiated Maltreatment Found by CPS	5.37	0.6176

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$ , *df* for  $\chi^2$  statistic (1)

**Table 3**  
*MPCG Arrest Descriptive Statistics Regarding CJI Experience (n=73)*

Variable	n (%)			
Frequency of MPCG Arrest				
	1	40 (47%)		
	2	23 (27%)		
	3	12 (14%)		
	4	5 (6%)		
	5	1 (1%)		
	6	0		
	7	1 (1%)		
	8	1 (1%)		
	9	0		
	10	3 (3%)		
Arrest Incidence	Number of arrests that resulted in conviction	Number of arrests that resulted in probation	Number of arrests that resulted in time in prison	Length of prison stay if applicable?
1 <sup>st</sup> Arrest	35 (59%)	18 (31%)	3 (5%)	< 1 month = 1 (1%) 7 months- 1 year = 1 (1%) > 1 year = 1 (1%)
2 <sup>nd</sup> Arrest	14 (61%)	5 (21%)	2 (9%)	1 to 3 months = 2 (9%)
3 <sup>rd</sup> Arrest	5 (50%)	3 (30%)	1 (10%)	More than 1 year = 1 (10%)
4 <sup>th</sup> Arrest	5 (50%)	3 (30%)	1 (10%)	7 months-1 year = 1 (10%)
5 <sup>th</sup> Arrest	3 (43%)	2 (29%)	1 (14%)	More than 1 year = 1 (14%)
6 <sup>th</sup> Arrest	2 (33%)	2 (33%)	1 (17%)	1-3 months = 1 (17%)
7 <sup>th</sup> Arrest	1 (100%)	0	0	0
8 <sup>th</sup> Arrest	1 (100%)	0	0	0
9 <sup>th</sup> Arrest	2 (50%)	2 (50%)	0	0
10 <sup>th</sup> Arrest	1 (50%)	1 (50%)	0	0

*Note.* Percentages are calculated based on the number of MPCGs that reported information at each arrest.

**Table 4**

*Descriptive Statistics for Major Study Variables by MPCG Arrest Status Using Weighted Data*  
(*N* = 355)

Variable	MPCG Arrested ( <i>n</i> = 73)			Comparison Group (Non MPCG-Arrested; <i>n</i> = 282)		
	<u>Mean</u>	<u>SE</u>	<u>95% CI</u>	<u>Mean</u>	<u>SE</u>	<u>95% CI</u>
Peer Relationships	29.66	0.42	28.50-30.81	30.53	1.65	25.94-35.12
WJLW Wave 3	504.21	1.34	500.49-507.93	493.84	11.93	460.73-526.96
WJAP Wave 3	504.26	2.77	496.56-511.96	491.97	4.55	479.33-504.61

*Note.* Only wave three math scores were statistically different between groups ( $t = 12.03$ ,  $p = .02$ ).

**Table 5***Regression Results Where MPCG Arrest Status Predicts Literacy and Math Skills at Wave Three (N=355)*

Variable	Literacy Skills	Math Skills
	<i>B(SE)</i>	<i>B(SE)</i>
MPCG Arrest Status	0.60 (.05)***	0.67 (.05)***
Child Gender	-.05 (.05)	-.017 (.06)
Child Age (months)	-.08 (0.13)	.09 (0.11)
Caregiver Under 35 Years old	.07 (0.19)	.05 (0.17)
Caregiver between 35-44 Years old	-.02 (0.18)	-.02 (0.11)
Child Asian	-.02 (0.11)	.02 (0.11)
Child Black	.03 (0.11)	-.01 (0.22)
Child White	0.27 (0.11)*	0.30 (0.25)
Child Hispanic	.01 (.08)	-.07 (.05)
MPCG American Indian	0.10 (.07)	0.10 (0.12)
MPCG Asian	0.23 (0.10)	0.26 (.03)*
MPCG Black	0.13 (0.11)	0.20 (.05)*
MPCG White	0.17 (.07)	0.23 (.06)*
MPCG Hispanic	.06 (.06)	.05 (0.10)
No Harm reported from CPS	.04 (0.12)	-.011 (0.11)
Mild Harm reported from CPS	.09 (0.17)	-.03 (0.11)
Caregiver HS degree or Less	-0.11 (0.22)	-0.19 (0.18)
Caregiver Some College	-.07 (.08)	-.07 (.06)
Caregiver College Degree +	-0.12 (0.14)	-0.10 (.08)
Out of Home Placement	-.06 (.02)*	-.04 (.02)

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$

**Table 6**

*Moderation Results Where Children's Self-Rated Peer Relationship Dissatisfaction was Examined as a Moderator Between MPCG Arrest Status and Children's Academic Achievement (N=355)*

Variable	Literacy Skills	Math Skills
	<i>B(SE)</i>	<i>B(SE)</i>
MPCG Arrest Status X Peer Relationship Dissatisfaction	-2.45 (0.48)*	-1.89 (0.49)*
Peer Relationship Dissatisfaction	0.68 (0.18)*	0.40 (0.15)*
MPCG Arrest Status	2.12 (0.20)***	1.75 (0.26)*
Child Gender	0.16 (.04)*	-.06 (.05)
MPCG Arrest Status X Child Gender	0.20 (0.10)	0.21 (.05)*
Child Age (months)	-0.35 (.06)*	-0.11 (.05)
Caregiver Under 35 Years old	0.90 (0.40)	0.60 (0.30)
Caregiver between 35-44 Years old	0.40 (0.27)	0.24 (0.17)
Child Asian	-0.14 (.05)*	-.07 (.08)
Child Black	.04 (0.10)	-.03 (0.18)
Child White	0.40 (0.23)	0.36 (0.16)
Child Hispanic	-.06 (.07)	-.08 (.05)
MPCG American Indian	-.01 (.04)	.01 (0.10)
MPCG Asian	-.06 (.03)	-.01 (.07)
MPCG Black	-0.18 (.03)*	-.05 (.06)
MPCG White	-0.32 (0.17)	-0.17 (0.16)
MPCG Hispanic	-.04 (.06)	.01 (.03)
No Harm reported from CPS	-.06 (.09)	-0.17 (.06)*
Mild Harm reported from CPS	.04 (0.26)	-.05 (0.14)
Caregiver HS degree or Less	-0.32 (0.17)	-0.34 (0.15)
Caregiver Some College	-.08 (0.11)	-.08 (0.14)
Caregiver College Degree +	.06 (.04)	.06 (.05)
Out of Home Placement	.04 (.01)*	.05 (.02)*

*Note.* \*  $p < .05$ , \*\*  $p < .001$ , \*\*\*  $p < .0001$

**Table 7***SEM Model and Simple Slopes Model of MPCG Arrest Status, Child-Rated Peer Relationship Dissatisfaction, Literacy, and Math*

SEM Model for Literacy					Simple Slopes Models for Literacy		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>		<i>t</i>	<i>p</i>
Intercept	493.36	29.66	16.63	< .0001	Low PRD	0.073	0.942
MPCG Arrest Status	140.00	15.26	9.17	.001	High PRD	-.056	0.955
PRD	2.03	0.63	3.23	.032			
MPCG Arrest Status X PRD	-4.56	0.67	-6.83	.002			

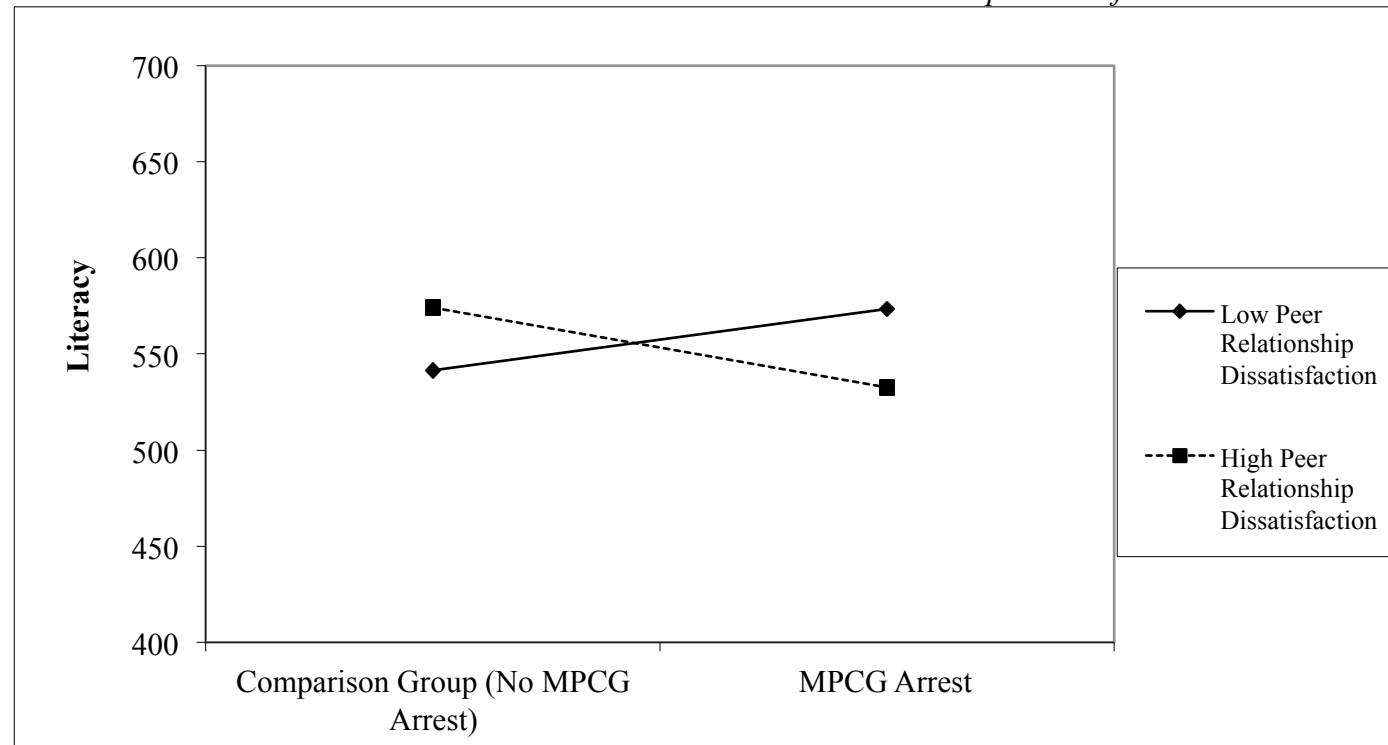
SEM Model for Math					Simple Slopes Models for Math		
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>		<i>t</i>	<i>p</i>
Intercept	482.15	12.93	37.30	< .0001	Low PRD	0.054	0.957
MPCG Arrest Status	79.30	10.45	7.95	.002	High PRD	-.022	0.982
PRD	0.81	0.41	2.77	.05			
MPCG Arrest Status X PRD	-2.39	0.41	-5.89	.004			

*Note.* PRD = Peer Relationship Dissatisfaction



**Figure 1**

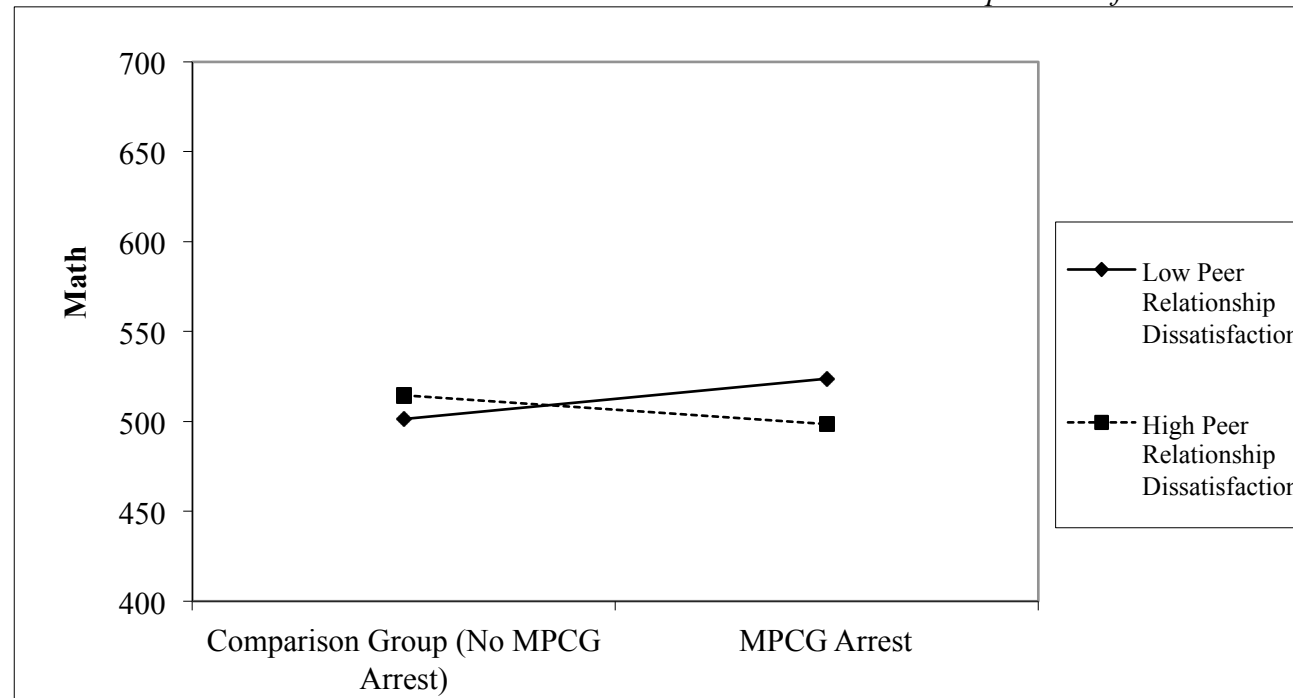
*Interaction Between MPCG Arrest Status and Child-Rated Peer Relationship Dissatisfaction Related to Literacy*



*Note.* Simple slopes were not statistically significant ( $p > .05$ ).

**Figure 2**

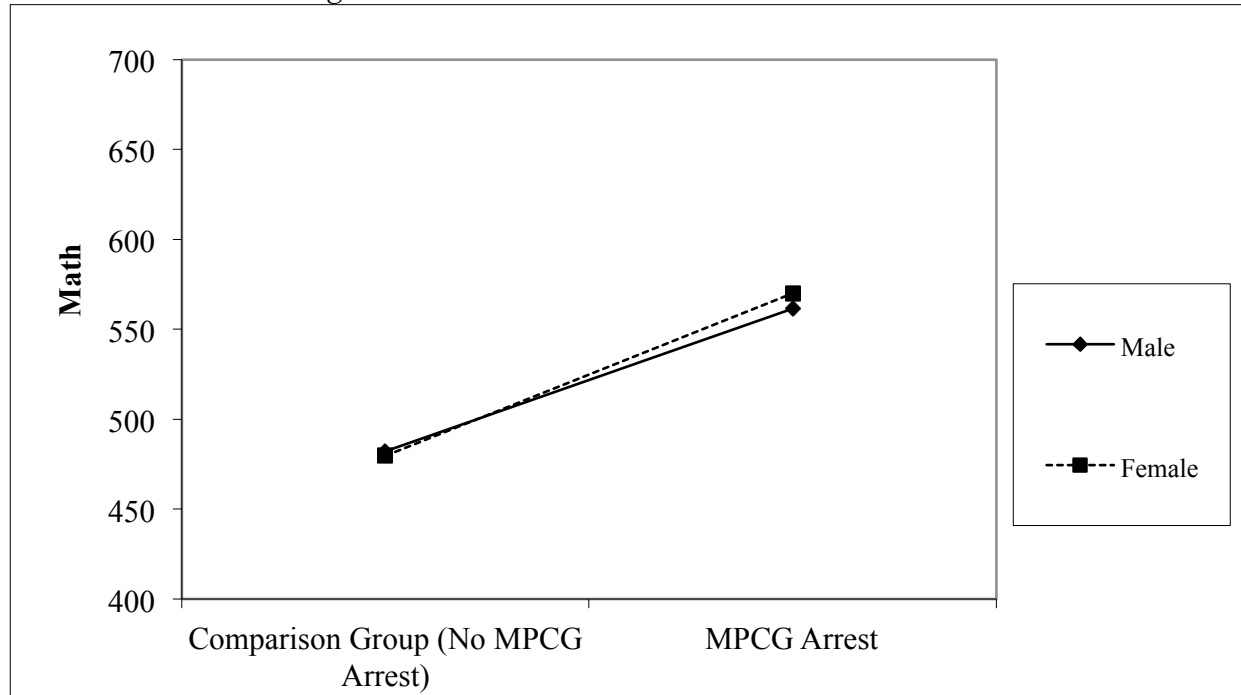
*Interaction Between MPCG Arrest Status and Child-Rated Peer Relationship Dissatisfaction Related to Math*



*Note.* Simple slopes were not statistically significant ( $p > .05$ ).

**Figure 3**

*Child Gender Moderating the Relation Between MPCG Arrest Status and Math Scores*



*Note.* Simple slopes were not statistically significant ( $p > .05$ ).

## CONCLUSION

It is becoming increasingly recognized that children in the CPS system are at risk of experiencing parent CJI, which could be related to the CPS involvement in the first place (Arditti, 2016). At the same time, studies are focusing on the importance of heterogeneity of experience within both the CPS and children with parents who are CJI populations (e.g., Wildeman & Turney, 2014). This heterogeneity combined with the increasing knowledge base on children with parents who are CJI has left the field with mixed results about what these children's outcomes may look like. Studies are finding that there are many nuances to examining the lived experience of these children and that data and methodological advances need to be made in order to increase our understanding (Poehlmann-Tynan & Eddy, 2019). One such outcome that is consistently assessed as a marker of resilience, children's academic achievement (Masten, 2001), has shown mixed results based on what measures were used in studies and how the analyses were completed (e.g., Geller et al., 2009; Haskins, 2014; Haskins, 2016; Turney, 2017). Additionally, parent CJI is defined differently with many studies focusing on incarceration, typically in federal or state prisons (Apel & Powell, 2019). Although understanding these incarceration experiences has built up the literature base in this research area, parent arrests are not explored with the same depth. These arrests are often acute sources of trauma for children and families (Dallaire & Wilson, 2010; Poehlmann-Tynan et al., 2017), especially if the primary caregiver of children is being arrested (Dallaire, 2007). This experience can result in mistrust in the parent-child relationship, family instability, fear and confusion on the part of the child, and other potential CJI experiences such as parole, probation, or incarceration (Wakefield & Montagnet, 2019). Further, it is estimated that one third of the children in the CPS system nationwide have a parent that is CJI yet many datasets do not address this overlap in

experience (de Haan et al., 2019). These gaps demonstrate the need to understand the different types of CJI experiences and to investigate associations behind relations found in prior studies.

A majority of the literature demonstrates that children with parents who are CJI are more prone to lower academic achievement than their peers without parents who are CJI (Murray et al., 2012). Although there are studies that have found the opposite (e.g., Cho, 2009) and studies that have mixed findings about academic outcomes by subject (Geller et al., 2009; Haskins, 2014; Haskins, 2016; Turney, 2017), it has remained a salient relationship to investigate for these children. Parent CJI status, also impacts two additional child outcomes of behavior problems (both internalizing and externalizing) and peer relationships. However, these variables have not been examined as mediators and moderators of the complex relationship children with parents who are CJI have with academic achievement. Prior research has found that children with parents who are CJI are prone to more behavior problems of both types (Parke & Clarke-Stewart, 2002; Poehlmann, 2005) and issues with creating and maintaining positive peer relationships (Murray & Farrington, 2005). Having more behavior problems could be problematic for learning in a formal classroom setting (Turney & McLanahan, 2015), whereas, being able to have lasting positive peer relationships could bolster children's ability to achieve in the classroom (Rabiner et al., 2016). It is important to recognize that both behavior and social skills develop rapidly in early childhood and rely on the foundation formed in parent-child attachment (Calkins & Hill, 2007; Hay et al., 2004), therefore, the timing of parent CJI events could be particularly relevant to children's individual development.

Similarly, child gender continues to play a role in the present literature regarding children with parents who are CJI. Mixed results are found for children of different genders for how they react to parent CJI, with some hypotheses stating that same child gender-parent gender dyads

would be most impacted by that parent's CJI (Foster & Hagan, 2013), whereas other hypotheses state that males may be more prone to negative impacts regardless of the gender of the parent that becomes CJI (Geller et al., 2012; Haskins, 2014; Hetherington et al., 1998; Wildeman, 2010). This is of particular concern because male children tend to be at higher-risk of participating in delinquency compared to female children (Murray & Farrington, 2005). More research is needed to fully understand the variety of potential outcomes children of either gender could experience when a parent becomes CJI.

This dissertation utilized longitudinal data from the NSCAW II dataset, to create two groups of CPS involved children, one which included children who had experienced a MPCG arrest when they were between the ages of zero and five years old and a comparison group that did not experience a MPCG arrest before or during data collection. Study 1 employed regression analysis to examine how MPCG arrest status was related to children's internalizing and externalizing behavior problems and academic achievement in literacy and math skills when children were between six and a half and 10 years old (wave one). Study 1 also examined if internalizing and externalizing behavior problems at wave one independently mediated the relation between MPCG arrest status and children's academic achievement at wave two when children were between eight and 11.5 years old. Further, Study 1 explored if either of the research questions were moderated by child gender.

Study 2 continued this work by investigating if MPCG arrest status was related to children's academic achievement scores in literacy and math during wave three when children were between nine and a half and 13 years old. Additionally, Study 2 explored if child-rated peer relationship dissatisfaction and child gender were moderators for the relation between MPCG arrest status and children's academic achievement at wave three. Together, findings from these

studies inform knowledge about how children performed in the face of adversity, specifically MPCG arrest, in terms of both types of behavior problems, peer relationship dissatisfaction, and academic achievement. Findings from both studies will inform future work on examining the population at the intersection of MPCG arrests and CPS involvement and children's outcomes in these contexts.

### **Overview of Study Findings**

Results from the first study, *The Consequences of Maternal Primary Caregiver Arrests: Exploring Children's Internalizing and Externalizing Behavior Problems and Subsequent Academic Achievement in Early Childhood*, found that there was a significant association between MPCG arrest status in early childhood and children's behavior problem scores (both internalizing and externalizing scores). The direction of these relationships was the opposite of what was hypothesized with children who experienced an MPCG arrest in early childhood having fewer of both types of behavior problems than children whose MPCG had not been arrested. Children that experienced a MPCG arrest in early childhood also demonstrated significantly higher literacy and math skills when they were between six and a half and 10 years old (wave one). Child gender significantly moderated the relation between MPCG arrest status and both types of behavior problems, with female children that experienced a MPCG arrest exhibiting higher behavior problem scores compared to their male counterparts. Subsequent Study 1 analyses found that internalizing and externalizing behavior problems did not mediate the relation between MPCG arrest status and children's later academic achievement. Further, child gender did not significantly moderate this mediation via conditional indirect effects. Significant direct effects indicated that children who experienced a MPCG arrest during early childhood had lower academic achievement at wave two (eight to 11.5 years old) compared to

their peers. This finding indicates a need for more research to understand the fluctuation in academic achievement over time between waves one and two for the MPCG arrest group compared to the comparison group.

Results from the second study, *Children with Arrested Maternal Primary Caregivers: The Importance of Peer Relationships and Academic Achievement*, found that children that experienced a MPCG arrest when they were between zero and five years old had significantly higher academic achievement in both literacy and math when they were between nine and a half and 13 years old (wave three) compared to their peers that did not experience a MPCG arrest. Although in-line with the results from the first manuscript in this dissertation, this result was the opposite of the original a priori hypothesis.

Moreover, children that experienced a MPCG arrest had an average of one point higher self-rated peer relationship dissatisfaction compared to children in the comparison group at wave two (eight to 11.5 years old). Although this difference between groups was significant, the small difference demonstrates that children in the MPCG arrest group were only slightly more dissatisfied with their peer relationships. Aligning with the studies original hypothesis, peer relationship dissatisfaction moderated the relationship between MPCG arrest status and children's literacy and math skills at wave three (nine and a half to 13 years old), however, the simple slopes were not statistically significant for either interaction when further probed. These results indicate that more research is needed to confirm this initial finding and further understand if positive peer relationships could be a buffer for children against adverse experiences.

Together, findings from the studies in this dissertation point to children having mixed results in regard to academic achievement findings over time and having associations with behavior problems and peer relationships that were not initially anticipated. Results regarding



mediating and moderating variables revealed the complexity that can occur within these relationships for vulnerable children.

### **Commonalities Between Studies**

#### ***The Usage of the NSCAW II Dataset and Study Subpopulations***

Both studies in this dissertation utilized the NSCAW II dataset and the same subpopulation as the sample for all analyses. In order to be able to utilize this complex dataset to answer the questions for both studies in this dissertation, a subpopulation had to be determined. The subpopulation, which included children whose mother's were the primary caregivers and also experienced an arrest when the children were between zero and five years old made up the MPCG arrest group. The comparison group for both studies was then created by only including children the same age as the children in the MPCG arrest group at wave one (age range was between six and a half and 10 years old), that did not experience a MPCG arrest before or during data collection. The usage of the same subpopulation for both studies allowed for results across studies to be compared and further implications to be considered based on how the differing variables between the two studies impacted academic achievement.

The value of using the same dataset included that both studies had similar descriptive characteristics, allowing for a deeper knowledge of who these vulnerable children were. The descriptive analyses for both of the studies included an investigation of potential covariates, differences in CPS variables, and patterns in the MPCG arrest experience. Each descriptive inquiry provided insightful information for interpreting the results from both studies and grasping the heterogeneity that occurs in the CPS system.

Several descriptive differences between the MPCG arrest group and the comparison group could have driven the results. First, there were more male children in the comparison

group and male children tended to have higher internalizing and externalizing behavior problem scores indicating worse behavior. Even though female children in the MPCG arrest group had higher scores of both types of behavior problems compared to males in the MPCG arrest group, the males in the comparison group demonstrated the worst behavior scores overall. This could support the same gender hypothesis, which states that children will be increasingly impacted by parent CJI if the parent is the same gender as the child (Foster & Hagan, 2013). However, the MPCG arrest group demonstrating lower behavior problem scores overall compared to the comparison group could be because of the significantly more males, and participants in general, in the comparison group.

The children in both study groups showed similar variation in their CPS experience in regard to criminal charges related to the CPS investigation, how the case was handled by child welfare, and substantiated maltreatment of children. A majority of children also still remained in the home with their MPCG at the time of baseline data collection ( $n = 311$ , 88%), indicating that this majority did not experience abuse or neglect that warranted the removal from parental care. The statistically significant difference in mild harm experienced by children in the MPCG arrest group indicates a need to include further research on types of abuse and neglect that people with prior CJI tend to participate in. The lack of statistically significant differences present between the MPCG arrest and comparison groups is not uncommon for studies that utilize a sample that has all experienced maltreatment or interaction with the CPS system (e.g., White et al., 2014). This lack of difference is often attributed to the large variation that can occur for any child present in the CPS system. For instance, a child who's MPCG was arrested could have benefitted from legally mandated services, whereas a child that did not experience a legal interference could be facing continual abuse or neglect at the hand of that parent (de Haan et al., 2019).

Although this is one simplistic example, it demonstrates that an arrest experience, while inherently traumatizing for children (Phillips & Detlaff, 2009), could also benefit them (Billings, 2002).

Both studies also took a common descriptive look at patterns in the MPCG arrest experience across the 10 maximum arrests recorded in the NSCAW II. Although frequency of arrest was not utilized in the main models, understanding the CJI experiences of these MPCGs after their arrests did give an interesting perspective for the interpretation of the results from both papers. A large percentage of MPCGs were only arrested once (47%), however, there were three MPCG that were arrested at least 10 times (the maximum amount recorded in the NSCAW II data, 3%). As specified previously, a majority of the MPCG arrest group had MPCGs that were 35 years old or younger, which indicates a concentrated frequency of CJI experiences for some families. However, a majority of MPCGs that were arrested reported being convicted of the crime they committed, whereas only a few MPCGs reported spending any time in prison or jail. After removing the children from the MPCG arrest group that had caregiver's record having spent time in jail or prison, results indicated an even stronger pattern of findings in the same direction as reported in both Study 1 and Study 2. Based on this additional analyses, it would seem that incarcerations were not driving the results, however, it is unclear if stigma around CJI experiences kept MPCGs from reporting time spent in jail or prison (Braman, 2004).

### ***Academic Achievement as a Common Outcome***

An additional common thread between the two studies was the use of academic achievement in both literacy and math skills as the outcome variable for all research questions. Between Studies 1 and 2, literacy and math scores were looked at during all three waves of data collection, giving a more comprehensive understanding of the academic outcomes for the MPCG

arrest and comparison groups over time. At wave one (ages six and a half to 10 years old) the children in the MPCG arrest group scored better on literacy and in wave three (ages nine and a half to 13 years old), children in the MPCG arrest group scored better on both literacy and math. The wave two findings demonstrated a different pattern of results; children in the MPCG arrest group demonstrated significantly worse scores in both literacy and math at wave two. This change in academic achievement over time could indicate that the ages of participants during wave two (i.e., eight to 11.5 years old) could be a difficult time for these children if they have a family history of maternal arrest. The relationship of both literacy and math scores across all waves of data collection also indicate that although performance by subject was significantly related to additional data points of that same subject, the unstandardized coefficients were small. This indicates that prior academic performance for these children did not necessarily predict strong gains in future performance. It also further demonstrated variability occurring for these children academically over time.

In regard to the comparison group, these children actually scored higher than children in the MPCG arrest group in both academic subjects at wave two (ages eight to 11.5 years old). Although it would seem that these children with higher behavior problems (worse behavior) at wave one should have worse academic achievement at wave two, the opposite is seen in recent studies. Previous research by Coohey and colleagues (2011), discuss that children involved in the CPS system may be protected by the presence of a behavior problem. Acting out, typically characterized as an externalizing behavior problem, often gets these children more attention from caseworkers or teachers, which ends up benefiting them in the long run. This increased attention could have helped these children outperform their peers in the MPCG arrest group in academic achievement at wave two. Also, developing internalizing behaviors may also increase children's

concern over academic skill acquisition (Herman et al., 2008), which could have benefited these skills.

In regard to Study 2, the results concerning the relationship between MPCG arrest status and children's peer relationship dissatisfaction were, in part, as expected. Children with low peer relationship dissatisfaction (i.e., better perception of peer relationships) had higher scores in both literacy and math achievement when they had a MPCG arrested. Although prior research has focused more on the protective function of positive adult relationships for at-risk children (e.g., Alvord & Johnson Grados, 2005; Durlak, 1998), strong peer relationships – or at least positive perception of strong peer relationships – might be protective in terms of academic outcomes (Criss et al., 2002; Stewart & Sun, 2004). However, these results were not confirmed with additional probing. Further, child gender moderated the relation between MPCG arrest status and children's math achievement indicating that female children in the MPCG arrest group scored higher in math than any other group.

### ***Heterogeneity of Experience: The Impact of Context***

As briefly mentioned, children involved in the CPS system can have a wide variety of experiences (White et al., 2014). Although all of the children in the sample used for this dissertation were considered to be demographically at-risk, it is likely that each child had a unique experience with both their CPS involvement and the arrest of their MPCG. The results from these studies confirm certain aspects of the FSPP model (Arditti, 2016). The tenet of contextual contributions is embodied by the various contextual factors that impacted the children in this sample and contributed to the pattern of results found. Various pieces of this context were assessed in these studies (i.e., variables related to the CPS experience and control variables used); however, many questions remain about these children's presiding context. The instances

that led to these families becoming involved in either the CPS system or the criminal justice system could be vastly different and have differential impacts on the children involved. There is also mixed evidence regarding children's outcomes in terms of both CPS and CJI demographic risk factors, indicating that more contextual research is needed to parse apart important effects.

Although a measure of youth resiliency was used in Study 2 and several aspects of the results in both studies favored children in the MPCG arrest group, it cannot be determined if youth in the MPCG arrest group were more or less resilient than children in the comparison group. The findings from both studies illuminate further questions that require future research to more fully explore. Children's abilities to be resilient in the face of adversity can look very different depending on the child and the context in which they live, which is why future research is a viable option to continue learning about how children are able to experience resiliency and adjust well regardless of the circumstances.

Last, the results from both studies reflected changes over time academically for the children in the MPCG arrest group. The utilization of multiple time points in these studies allowed for an understanding of what may be the best time to intervene for these children. Based on the results, children that face the early arrest of a MPCG (when they are between zero and five years old) could use the most help academically when they are between eight and 11.5 years old. Without the aspect of time in these studies, it would not be possible to understand how the patterns exhibited for these children change as they aged.

### **Practical Implications**

These present studies in this dissertation looked at a sample of children involved in the CPS system, some of which also experienced a MPCG arrest during early childhood. The most salient implication from these studies stems from the vulnerability all children in the sample

faced. The children in the MPCG arrest group had better behavior and academic skills in both studies (i.e., wave one and wave three) compared to their peers that were also CPS involved but did not experience a MPCG arrest. These findings indicate that research needs to focus more on this intersection of CPS involvement and MPCG arrests in order to further understand why the children that did not experience a MPCG arrest did worse on these skills. Additionally, these results point to the need to look at this population in regard to other forms of parental CJI as well as other indicators of children's wellbeing.

In order to address this need for further research, additional data sources are necessary. First, there needs to be datasets that work with correctional facilities and databases in order to confirm parent CJI status and information about that parent's CJI experience (e.g., time spent in jail/prison, interactions with law enforcement, and child involvement during arrest). In order to have a more holistic picture of these children's experiences, various agencies will need to collaborate in order to have complete information (e.g., CPS, corrections). By understanding more of what these children's prior experiences were, we as researchers can analyze these experiences both descriptively and as control variables to further isolate the effects of a parent CJI experience. In regard to child outcomes data, more information on potential protective factors and areas of strength for children should be collected. One such variable of particular interest would include a direct assessment of child self-regulation. Since early self-regulation is predictive of academic success, better social relationships, emotional control, as well as graduation from college (McClelland et al., 2013; McClelland et al., 2007), having data on additional protective mechanisms could have vast implications in this context of risk.

There is also space to discuss professional development trainings for employees at CPS or DHS programs that work with children with parents who experience CJI. These children may

endure a specific type of trauma, and with there being such a large cross over between CPS involved children and children with parents who are CJI, it would be worthwhile for CPS to have specific knowledge and protocols for these children. These protocols could include aspects of trauma informed care, and potential cross-training from a law enforcement officer so that CPS has additional understanding of how the law enforcement officials handle children during arrests and parent visitations in various states. Although it would seem like a common practice that law enforcement and CPS would have knowledge about each others processes, recent research has demonstrated that cross-training between these agencies can be increasingly beneficial for the understanding of each agency's response to events (Dahlgren et al., in preparation).

### **Limitations and Future Directions**

Although the two studies in this dissertation provide insight on the variability within the CPS and parent CJI experiences, as well as, indicate that children with CJI parents can have heterogeneous outcomes, a number of limitations must be recognized. First, the sample size was small for both studies because of how the subpopulation of data was analyzed to answer the a priori research questions, which may limit generalizability beyond this sample.

Next, some of the measures used in this study included challenges that limited interpretation, such as the measures of behavior problems and peer relationship dissatisfaction. Having internalizing and externalizing behavior problems reported via caregiver ratings could introduce potential bias into these studies because it is not a direct assessment of child behavior. The primary caregiver may be more prone to rate children lower on behavioral skills if suffering from risk factors, such as depression (Dallaire & Zeman, 2013). Based on CJI instances, the caregiver could have also spent periods of time away from the child, which could also result in inaccurate reporting (Johnson & Easterling, 2012). The peer relationship dissatisfaction score



was self-rated by children when they were between eight and 11.5 years old, these children may have rated themselves more or less socially dissatisfied than a peer would have rated their friendship or a teacher would have rated the children's pro-social abilities. The measure used for peer relationship dissatisfaction also did not provide any indication of if the peer relationships being rated were deviate or pro-social in nature. It would stand to reason that children with more pro-social relationships may do better on academic achievement skills, whereas, children with more deviant relationships may exhibit strong peer satisfaction but not have the same aptitude for those academic skills.

MPCG arrest was also collected via self-report, which may have lead to an underreporting of CJI experiences overall because of the stigma associated with CJI. The NSCAW II study does attempt to mitigate this by having these questions asked via an online questionnaire instead of by the interviewer face-to-face in hopes that mothers would feel more comfortable sharing incidence rates of CJI. Unfortunately, this is a common issue in the nationally representative datasets that include measures of maternal CJI because it has previously been a challenge for research to obtain CJI records from a state or federal department of corrections in order to confirm CJI status. There was also not enough information on additional CJI experience information (i.e., incarcerations, probations, etc.) to include these variables into the full statistical models. The patterns of arrests and post-arrest CJI were explored descriptively, however, based on the lack of post-arrest CJI activities reported it is likely that salient information is missing that could have aided in the interpretation of how the MPCG arrests impacted their children. The NSCAW II data also does not include any positive consequences that could have come out of the CJI experience such as mandatory parenting courses or treatment

court programs that could have benefitted children's developmental experience in the home environment.

There are many directions for this field that need to be explored in further research. First and foremost, collecting data that is longitudinal, accurate in representing the CJI experience, and strengths-based in the recognition of child outcomes is necessary in order to further elucidate these relationships. Future studies should also explore additional protective factors for children involved with CPS and with MPCG arrests from a strengths-based perspective. For example, research has shown that the presence of a nurturing and positive caregiver, or other supportive adult, could buffer negative effects for these children and allow them to succeed despite the adversity they face (Benzies & Mychasiuk, 2009). Understanding what protective factors are most salient to a majority of children facing familial CJI could be beneficial for creating intervention efforts that targets these children specifically. Replacing deficit based measures, such as behavior problems, with strength-based assessments of aspects of self-regulation could also provide a more accurate depiction of how these children are resilient in the face of adversity.

## **Conclusion**

The two studies in this dissertation elucidate the complexity present between variables of interest for children that are both CPS involved and experienced a MPCG arrest. Children that were expected to face the most risk, the MPCG arrest group, experienced several positive outcomes in both studies. Although additional research is needed to clarify these relationships, the findings from the two studies indicate that children exposed to MPCG arrests during early childhood can have heterogeneous and complex outcomes in areas of internalizing and externalizing behavior problems, peer relationship dissatisfaction, and academic achievement. Examining child gender also aided in the understanding of how these results were additionally

nuanced. Findings regarding academic achievement over time also indicate that children that experienced a MPCG arrest may benefit from academic intervention between the ages of eight and 11.5 years old. Future work should attempt to replicate these connections in other datasets to verify the associations found and to collect additional data that help clarify the heterogeneity of experience when children are involved with CPS and when they a parent that experiences CJI.

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